

PORT OF OAKLAND

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By dehloptoxic at 1:26 pm, Jan 31, 2007

January 31, 2007

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

RE: RO#0000010 and RO#0000185_Second Semi-Annual 2006 Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, Harbor Facilities Complex, 2277 and 2225 Seventh Street, Oakland, CA_2007-01-31

Dear Mr. Chan:

Please find enclosed the report entitled *Second Semi-Annual 2006 Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, Harbor Facilities Complex, 2277 and 2225 Seventh Street, Oakland, CA* ("Report") dated January 2007, 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, 2006¹ and January 19, 2007.²

The Port has retained Baseline to perform groundwater monitoring and maintenance of the remediation system. Results of the second semi-annual sampling event are contained in the enclosed report. The report also contains a work plan for the installation of replacement monitoring wells, as specified in the above referenced January 19, 2007 County letter. The next monitoring event will be performed during the June/July 2007 time frame. If you have any questions or comments regarding the results, please contact Jeff Rubin at (510) 627-1134.

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

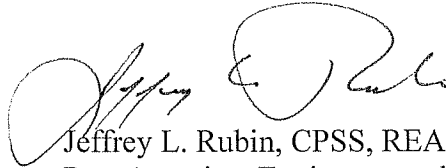
² Letter from Mr. Barney Chan (County) to Mr. Jeff Rubin (Port), regarding *Fuel Leak Cases RO0000010 and RO0000185, 2277 and 2225 7th St., Oakland, CA 94607*, dated January 19, 2007.

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,



Roberta L. Reinstein
Manager
Environmental Programs and Safety



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

Enclosure: noted

Cc (w encl.): Michele Heffes
Al Notary, P.E., L.S. (Brown and Caldwell)
Christine Noma (Wendel, Rosen, Black & Dean, LLP)
Deborah Ballati (Farella, Braun & Martel, LLP)

Cc (w/o encl.): Robert Edwards (Zurich North America)
Phil King (Meckler, Bulger & Tilson)
Jeff Jones (Port of Oakland)
James McCarty (Baseline Environmental)
Yane Nordhav (Baseline Environmental)

SECOND SEMI-ANNUAL 2006
GROUNDWATER
MONITORING AND
REMEDATION
SYSTEM OPERATION
AND MAINTENANCE
REPORT
AND
MONITORING WELL
INSTALLATION WORKPLAN

PORT OF OAKLAND
HARBOR FACILITIES COMPLEX
2277 and 2225 Seventh Street
Oakland, California

JANUARY 2007

FOR:
Port of Oakland
Oakland, California

Y5395-03

BASELINE

ENVIRONMENTAL CONSULTING

31 January 2007
Y5395-03.00638

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

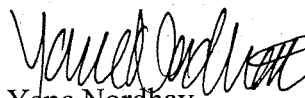
Subject: Second Semi-Annual 2006 Groundwater Monitoring and Remediation System Operation and Maintenance Report, Port Of Oakland Harbor Facilities Complex, 2277 and 2225 Seventh Street, Oakland, California

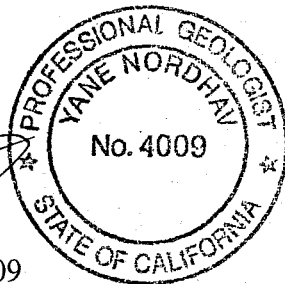
Dear Mr. Rubin:

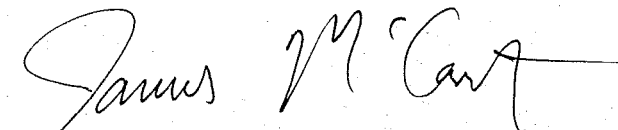
Enclosed please find the Second Semi-Annual 2006 Groundwater Monitoring and Remediation System Operation and Maintenance Report for 2277 and 2225 Seventh Street, Alameda County Local Oversight Program case numbers RO0000010 and RO0000185, respectively. This report also contains a workplan for installation of replacement groundwater monitoring wells. This report has been prepared for submittal to the County's Health Care Services, Department of Environmental Health (ACHCS) to comply with the requirement for semi-annual groundwater monitoring and reporting at these two parcels. In a letter dated 23 March 2006, the ACHCS required the submittal of the groundwater monitoring report and a workplan for replacement well installations by 2 January 2007. In an email to Yane Nordhav of BASELINE on 20 December 2006, ACHCS extended the deadline for the monitoring report to 31 January 2007. In a letter dated 19 January 2007, ACHCS extended the deadline for the workplan to 19 February 2007.

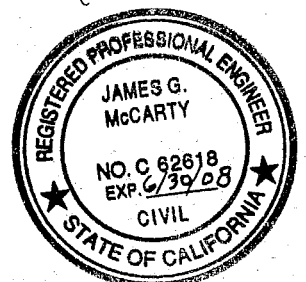
The results of this quarter's groundwater monitoring do not indicate significant changes from previous monitoring events. The remediation system has recovered approximately 113 gallons of free-phase product since the end of 2004.

Sincerely,


Yane Nordhav
Principal
Prof. Geologist No. 4009




James McCarty
Project Engineer
Prof. Engineer No. C62618



YN:JM:km
Enclosure

Y5395-03.00638-1/30/07

SECOND SEMI-ANNUAL 2006
GROUNDWATER MONITORING AND
REMEDATION SYSTEM OPERATION AND
MAINTENANCE REPORT
AND
MONITORING WELL INSTALLATION WORKPLAN

PORT OF OAKLAND
HARBOR FACILITIES CENTER
2277 and 2225 Seventh Street
Oakland, California

JANUARY 2007

FOR:
Port of Oakland
Oakland, California

Y5395-03

BASELINE Environmental Consulting
5900 Hollis Street, Suite D, Emeryville, California 94608
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**SECOND SEMI-ANNUAL 2006 GROUNDWATER
MONITORING AND REMEDIATION SYSTEM OPERATION
AND MAINTENANCE REPORT
AND
MONITORING WELL INSTALLATION WORKPLAN
PORT OF OAKLAND HARBOR FACILITIES CENTER
2277 and 2225 Seventh Street
Oakland, California**

INTRODUCTION

This report summarizes the results of the second semi-annual groundwater monitoring event for 2006 performed at the Port of Oakland's ("Port") two contiguous properties, 2277 and 2225 Seventh Street in Oakland, California ("Site") (Figure 1). 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 RO0000185. This report also summarizes the remediation system operation and maintenance ("O&M") activities and progress between August and December of 2006.

Together, the two properties of the Site encompass approximately 13 acres. The eight acres on the eastern portion of the Site were developed by the Port and contain the current Harbor Facilities Complex with an address of 651 Maritime Street (Figure 2). The remaining five acres were also recently redeveloped by the Port and now contain the new Maritime Support Center.

At 2277 Seventh Street, Uribe and Associates ("Uribe") removed four Port owned USTs in 1993. 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 xylene ("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 an ACHCS approved workplan (Uribe, 1994).

At 2225 Seventh Street, former Port tenant Ringsby Terminals (formerly Dongary Investments) and/or its tenant owned and operated nine USTs. One of the tanks in the cluster failed a tank 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 pure diesel. 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.¹

The groundwater impact from the two parcels of the Site consists of a co-mingled plume containing both dissolved and free-phase hydrocarbons in the diesel range. 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 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 facilitate 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.

FIELD ACTIVITIES

The Port has monitored groundwater quality at the Site since 1994. 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 in a letter to the Port dated 23 March 2006. The groundwater monitoring schedule was changed from quarterly to semi-annual with the first semi-annual monitoring event occurring on 28 July 2006; this report summarizes the second semi-annual monitoring event for 2006. During this monitoring event, BASELINE measured the depths to groundwater in the wells and checked for the presence of free-phase product. Groundwater elevations could not be determined because the elevations of the top of the well casings (“TOC”) were unknown at the time of the monitoring event. The well casings had been adjusted as part of the construction of the Maritime Support Center. The well casings have been trimmed and resurveyed since groundwater monitoring was performed, and groundwater elevation calculations will be resumed at the next monitoring event.

BASELINE collected groundwater samples in those wells where free-phase product was not encountered. Groundwater samples from four of the six wells in the monitoring network (two wells contained free product) were submitted to a laboratory for the following analyses:

Total petroleum hydrocarbons as gasoline (“TPHg”), EPA Method 8015B;
Total extractable petroleum hydrocarbons as diesel (“TEPHd”) and motor oil (“TEPHmo”), EPA Method 8015B with a silica gel cleanup; and
Benzene, toluene, ethylbenzene, and xylenes (“BTEX”) and methyl tert-butyl ether (“MTBE”), EPA Method 8260B.

¹ Letter from Alameda County Health Services to Dongary Investments dated 26 July 1994.

Between 7:45 AM and 9:24 AM on 29 November 2006, BASELINE measured the depth to groundwater (and product, if present) from the TOC to the nearest one-hundredth of a foot in monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, and MW-8A using dual-phase interface probes.² BASELINE decontaminated the dual-phase interface probes 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. BASELINE collected groundwater samples from MW-2, MW-4, MW-5, and MW-8A. In July 2006, during the first semi-annual groundwater monitoring event, BASELINE removed Oxygen Releasing Compound™ (“ORC”) socks from MW-4. The ORC socks were not replaced in the well at the time of sampling due to the on-going construction activities at the Maritime Support Center location. The construction activities included raising the monitoring wellheads to finish grade. Upon completion of this groundwater monitoring event, BASELINE installed new ORC socks in MW-4. The ORC increases the dissolved oxygen (“DO”) concentration in groundwater and stimulates aerobic bio-degradation of the petroleum contaminants in the groundwater.

BASELINE purged monitoring wells MW-2, MW-4, MW-5, and MW-8A prior to sampling using a peristaltic pump and new disposable polyethylene and silicon tubing. BASELINE purged the wells of at least three well casing volumes of groundwater. Purging continued until the electrical conductivity, pH, DO, oxidation and reduction potential, and temperature of the water 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 a few 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 the four wells using the peristaltic pump with the intake of tubing placed several feet off the bottom of the well. BASELINE decanted the groundwater samples directly into certified-clean containers³ from the discharge end of the tubing. BASELINE also prepared a field duplicate, consisting of a duplicate groundwater sample from monitoring well MW-4 (“MW-4Dup”). BASELINE immediately labeled the sample containers with sample location, date, and time and then stored the samples in a cooler containing ice. BASELINE submitted the groundwater samples under chain-of-custody protocol to Curtis & Tompkins, Ltd. of Berkeley, a California-certified analytical laboratory.

BASELINE generated approximately 21 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 near the Harbor Facilities Complex hazardous materials storage lockers. The Port’s environmental services contractor will arrange proper purge water disposal.

² The depths to groundwater in wells MW-1 and MW-3 were measured using a dual-phase interface probe dedicated for use on wells that contain, or are suspected to contain, free-phase product. The dual-phase interface probe used on monitoring wells MW-2, MW-4, MW-5, and MW-8A is reserved for wells that are not suspected to contain free-phase product.

³ Containers were provided by Environmental Sampling Supply, which certifies that the containers meet or exceed the required detection limits established by the U.S. EPA in *Specifications and Guidance for Contaminant-Free Sample Containers*, Publication 9240.05A, EPA/540/R-93/051, December 1992.

ANALYTICAL RESULTS

Analytical results for the groundwater samples collected in November 2006 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 300 micrograms per liter (“µg/L”) (300 µg/L were also reported in the duplicate sample). The laboratory did not report TPHg above the reporting limit in any of the groundwater samples from the other sampled monitoring wells.

BTEX and MTBE

The laboratory reported benzene at a concentration of 42 µg/L (60 µg/L in the duplicate sample) and ethylbenzene at 1.0 µg/L (<0.7 µg/L in the duplicate sample) in the groundwater sample from MW-4. The laboratory did not report any BTEX constituents above the reporting limits in any of the samples from the other monitoring wells sampled. The laboratory did not report any MTBE above the reporting limit in any of the collected groundwater samples.

TEPHd and TEPHmo

The laboratory did not identify TEPHd and TEPHmo constituents in any of the groundwater samples above laboratory reporting limits.

GROUNDWATER FLOW DIRECTION

Groundwater flow direction could not be determined because the elevations of the top of each well casing had not been resurveyed after the casings were raised to match finish grade. However, BASELINE measured depth to groundwater and depth to product, if any, from the top of each well casing. These measurements, including product thickness, are summarized on Table 2. Historical groundwater and product levels for 2277 Seventh Street are included in Appendix C, Table C-1.

QUALITY ANALYSIS AND QUALITY CONTROL

BASELINE reviewed the laboratory data for completeness and accuracy. All of the laboratory quality assurance and quality control (“QA/QC”) goals were met.

BASELINE collected a duplicate groundwater sample (MW-4Dup) from monitoring well MW-4. The laboratory reported concentrations of TPHg and benzene in both samples. The relative percent difference (“RPD”) between the original and the duplicate sample was zero and 35 percent for TPHg and benzene, respectively:

TPHg RPD	$ 300-300 /[(300+300)/2] = 0\%$
Benzene RPD	$ 42-60 /[(42+60)/2] = 35\%$

The U.S. Environmental Protection Agency considers an RPD of less than 25 percent for field duplicate water samples as appropriate (U.S. EPA, 2001). An RPD over 25 percent does not necessarily disqualify the validity of the data. The RPD of benzene exceeded 25 percent; however, the TPHg concentrations were the same for the original and the duplicate sample indicating the results were valid and repeatable.

Prior to initiating field activities BASELINE prepared a trip blank (“QCTB”) by placing laboratory prepared distilled water into appropriate bottleware. The QCTB was placed inside the chilled cooler and accompanied the samples throughout transit to the laboratory. The laboratory did not report any TPHg, BTEX, or MTBE in the QCTB, indicating that the groundwater samples were not compromised from sample preservation, transportation, storage, and analysis.

BASELINE also prepared an equipment blank (“QCEB”) using laboratory prepared distilled water and the same procedures used to collect groundwater samples. The laboratory did not report any TPHg, TEPHd, TEPHmo, BTEX, or MTBE in QCTB, indicating that the sampling procedure did not result in cross-contamination of the samples.

Based on the above QA/QC evaluation, BASELINE considers the data collected during the second semi-annual 2006 groundwater monitoring event valid and representative of Site conditions.

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 air line, product discharge line, and a vacuum line. Five of the recovery wells (RW-3, RW-4, RW-6, RW-7, and RW-8) are equipped with air-actuated skimmer pumps manufactured by Xitech Instruments, Inc. A programmable controller controls the operation of the skimmer pumps. The frequency and duration that each skimmer pump runs is set by the programmable controller (Table 3). The skimmers discharges 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. BASELINE adjusted the skimmer pumps depth, changed filters, or replaced pumps, as necessary. Adjustments were made to the frequency and duration of operation for each skimmer pump (Table 3). BASELINE also performed miscellaneous maintenance duties; the activities performed and the results of product measurements are summarized on Table 4. The remediation system has recovered approximately 113 gallons of product since operation commenced at the end of 2004.

In August 2006, BASELINE conducted a low vacuum pilot study on the product recovery system. The purpose of the pilot study was to determine whether application of low vacuum on the product recovery system would improve product recovery. All skimmer pumps were deactivated during the pilot study. The results of the pilot study were presented to ACHCS in a

technical memorandum prepared by BASELINE to the Port dated 16 November 2006. BASELINE has submitted a permit application to the Bay Area Air Quality Management District for modifying the system to include a low vacuum system.

PRODUCT THICKNESS

BASELINE measured product thickness in monitoring wells MW-1 and MW-3 during the groundwater monitoring event on 29 November 2006. Product thickness was measured in MW-1 at 0.23 foot and in MW-3 at 0.98 foot (Table 2). Product has been periodically removed from this well using a hand bailer since the last monitoring event.

WORKPLAN FOR INSTALLATION OF GROUNDWATER MONITORING WELLS

BASELINE proposes to install replacement wells; MW-9, MW-10, MW-11, and MW-12, to confirm the magnitude and extent of the dissolved-phase contamination underlying the Site. The replacement wells can be used to evaluate the quality of groundwater underlying the Site through regular groundwater monitoring. This work plan describes the activities associated with the installation of replacement wells. The wells would be installed in accordance with *California Well Standards Bulletin 74-90*, California Department of Water Resources and local enforcement agency guidelines.

The replacement wells would be installed at the approximate locations shown on Figure 4. Considerations would be made regarding the final location of the replacement wells to ensure unrestricted access to the monitoring wells and non-interference with the Site's operations and/or future development plans. The well casing would consist of threaded schedule 40 polyvinyl chloride with an inside diameter of two inches and machine slotted screen. The borings would be installed using a hollow-stem auger with nominal diameter of eight inches. Soil samples would be collected at five-foot intervals or where evidence of contamination is identified. The soil samples would be submitted to a certified laboratory and subject to the following analyses:

TPHg, EPA Method 8015B;

TEPHd and TEPHmo, EPA Method 8015B with a silica gel cleanup;

BTEX and MTBE, EPA Method 8260B; and

Title 26 metals⁴ in accordance with EPA Method 6010B/7471A.

The cuttings generated during drilling would be temporarily stored on-Site in sealed drums pending disposal to an approved off-Site facility. The well screen, casing, and locking cap would be assembled by threading the sections together without the use of glue. The well assembly would be lowered such that the top of the screened interval would be placed at the designated depth. The annular space between the borehole and the well casing would be filled with a filter pack of 2/16 sand up to approximately one foot above the top of the screened interval. Above the filter pack, a bentonite seal of about one foot would be emplaced. The remaining annular space would be tremied with a neat cement/bentonite mixture. Once the seal is in place, the locking cap would be removed and the TOC mark would be established. The

⁴ Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

TOC would be surveyed by a licensed surveyor in a separate event. The well head would be protected by a Christy box cover and a watertight well cap with padlock. A typical well construction diagram is shown on Figure 5.

The monitoring well would be developed no less than 48 hours following well installation by pumping water from the well until clear water is produced. A surge block will then be used to dislodge fine-grained sediments and bring them to suspension so they can be pumped out. The purge water generated from well development and decontamination of development tools will be stored on-Site in properly labeled 55-gallon drums. The Port's environmental services contractor would arrange proper purge water disposal.

All field work would be conducted under a Site-specific health and safety plan. Well permits would be secured from Alameda County Public Works Department for each of the proposed wells. The documentation to be prepared following installation of the wells includes well completion reports to be filed with the California Department of Water Resources and a well installation report to be submitted to the Port for submittal to ACHCS.

After installation and development, the new wells would be sampled on the next scheduled monitoring event in conjunction with the other monitoring wells located on-Site.

CONCLUSIONS AND RECOMMENDATIONS

The results from the second semi-annual 2006 monitoring event indicate that the petroleum hydrocarbon plume is stable; the concentrations of dissolved petroleum hydrocarbons and associated compounds are within the historical ranges observed at the Site. Free-phase product was confined to the wells that historically contained free product. The low levels of TPHg present appear to be confined to MW-4. TEPHd and TEPHmo were not reported in any of the groundwater samples. The next groundwater sampling will be performed on June/July 2007.

The raising of the monitoring well wellheads at the Maritime Support Center has been completed. However, the TOC elevations were not available at the time the depth to groundwater was measured. Therefore, groundwater elevations and groundwater flow direction could not be determined. The well casings have since been trimmed and the TOC elevations surveyed by a California licensed professional. BASELINE will resume groundwater elevation and gradient calculations during the next monitoring event.

The concentration of TPHg in MW-4 decreased relative to the 2006 first quarter and first semi-annual monitoring event. The use of the ORC will be continued to obtain additional data to evaluate changes in groundwater quality.

REFERENCES

Innovative Technical Solutions, Inc., 2002, Additional Site Characterization and Remedial Action Plan for 2225 and 2277 Seventh Street, Oakland, California, May.

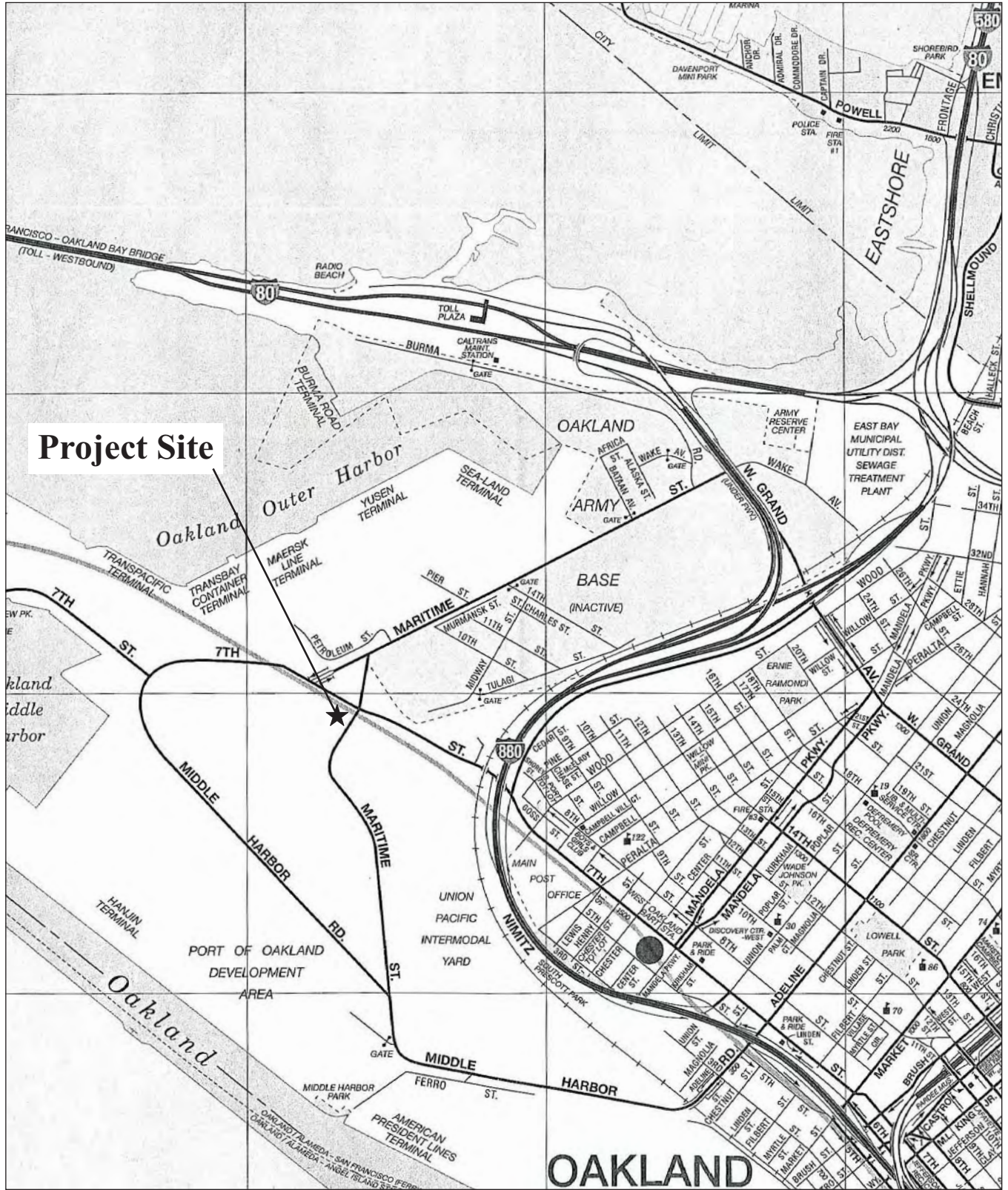
Uribe and Associates, 1994, Port of Oakland Building C-401, 2277 7th Street, Oakland, Report of Underground Storage Tank Removals, Appendix G – Workplan for Additional Site Characterization Activities, 23 February and letter from Alameda County Health Services to Port of Oakland, dated 18 April 1995.

U.S. Environmental Protection Agency, 2001, *Training Course For CLP, Organic Data Validation*.

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

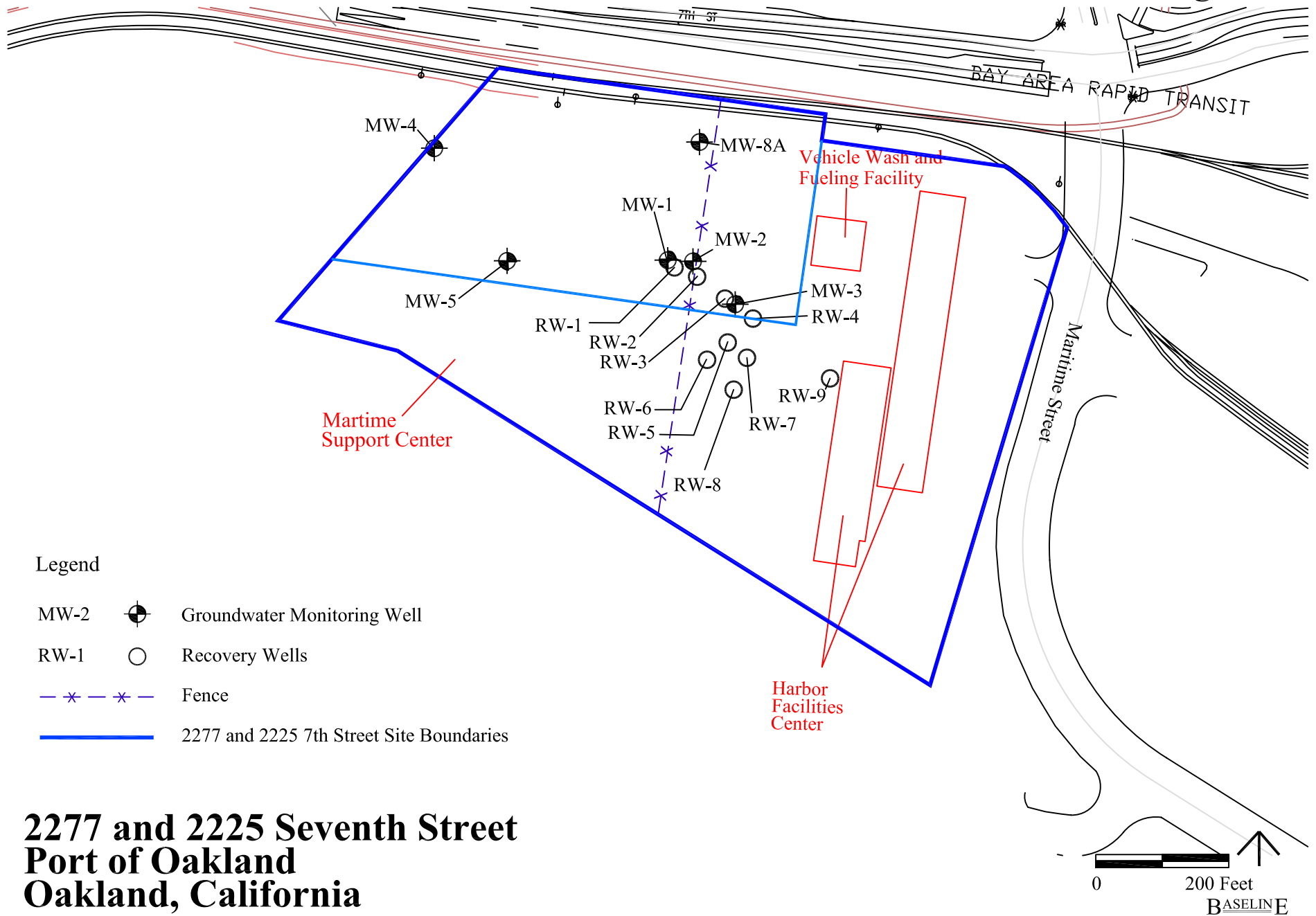


2277 and 2225 Seventh Street
Port of Oakland
Oakland, California



SITE PLAN

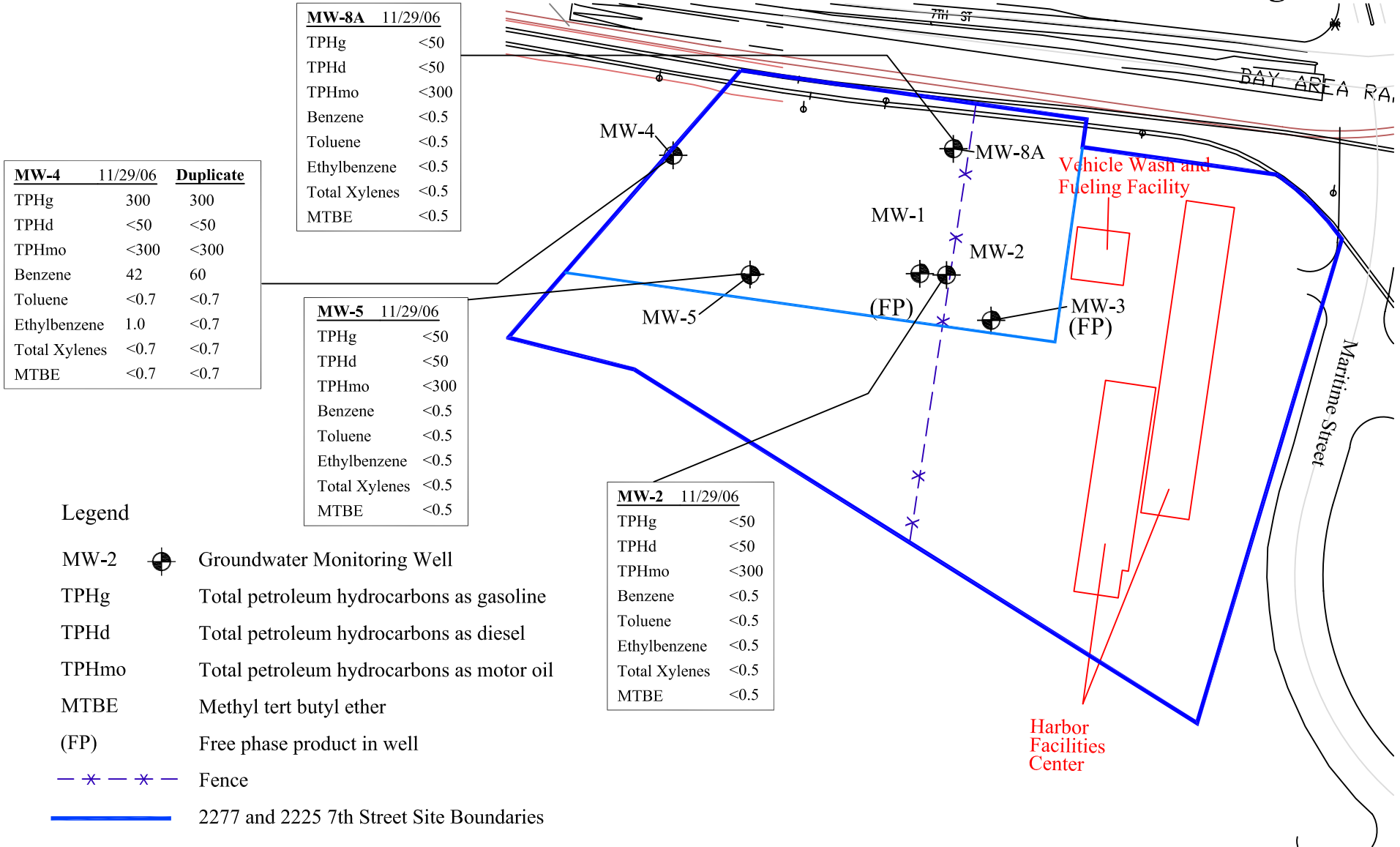
Figure 2



2277 and 2225 Seventh Street Port of Oakland Oakland, California

ANALYTICAL RESULTS NOVEMBER 2006

Figure 3



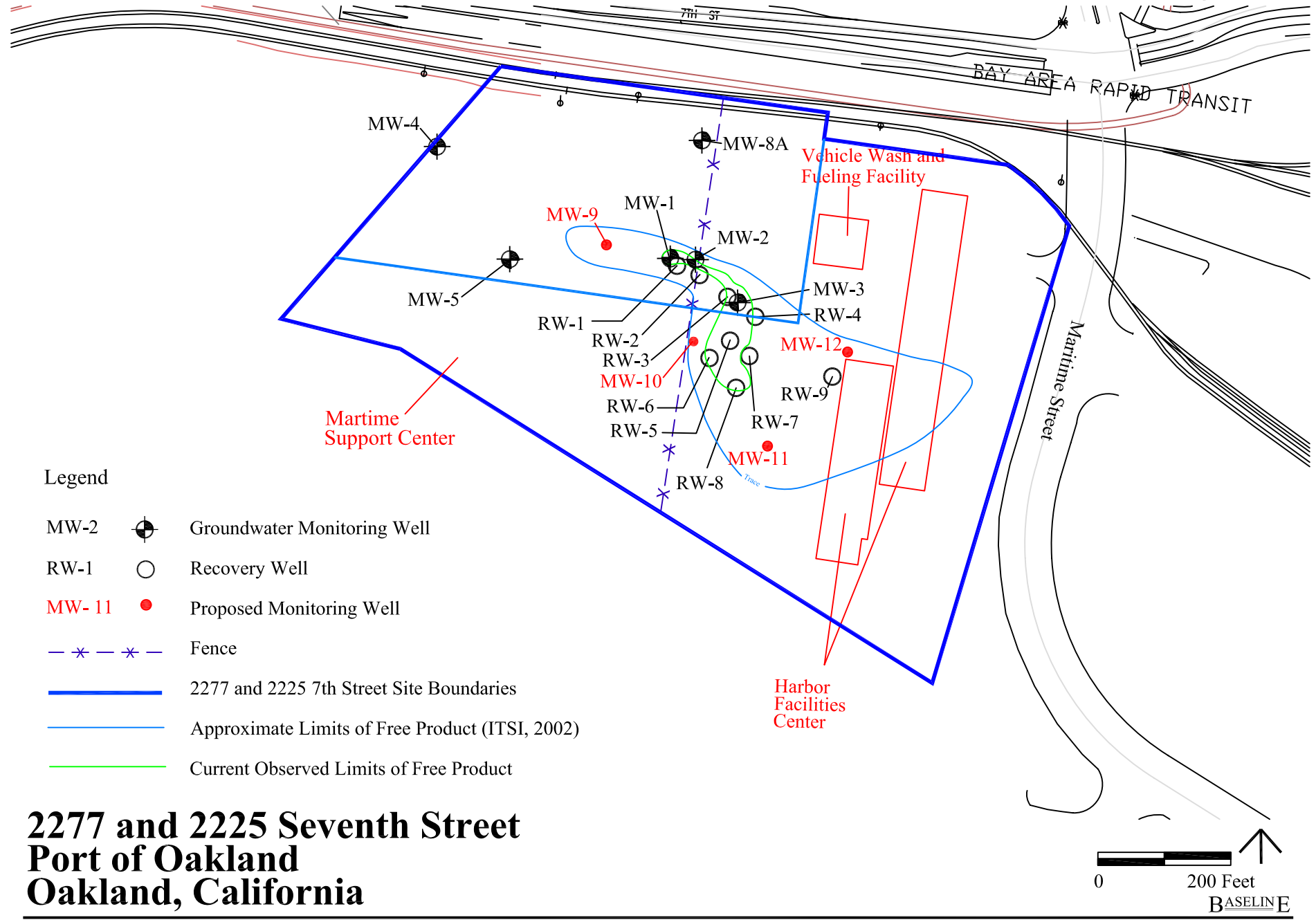
2277 and 2225 Seventh Street Port of Oakland Oakland, California

Note: Concentrations are in units of micrograms per liter.



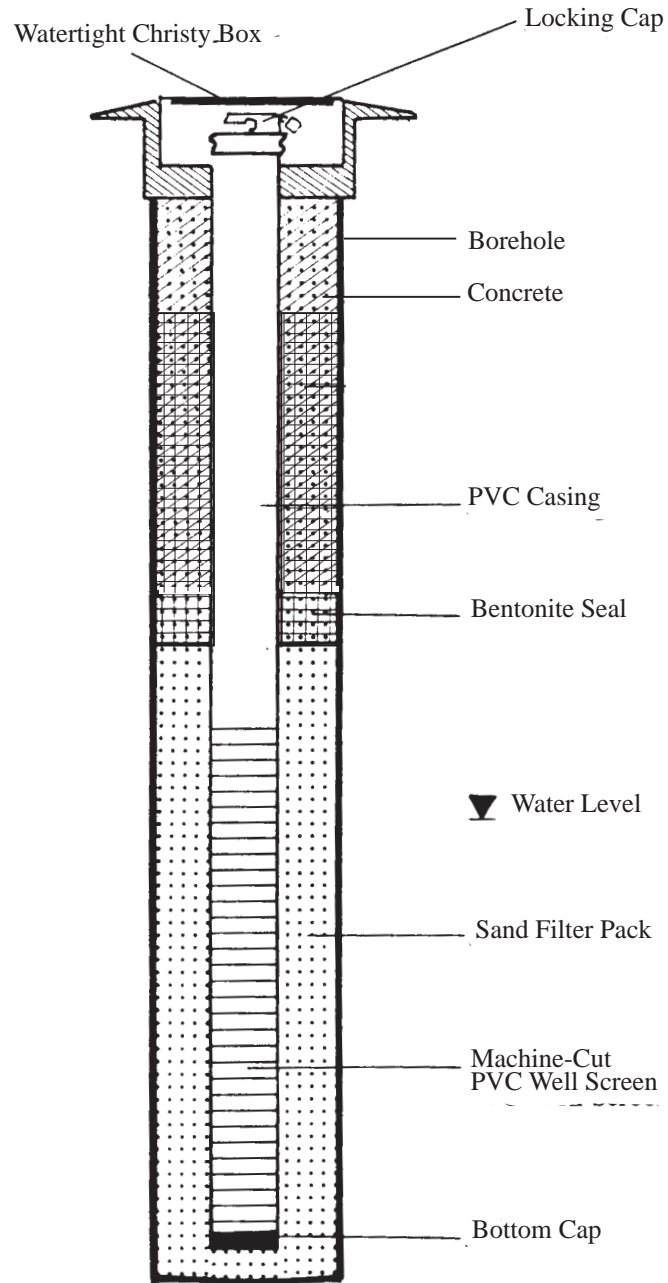
PROPOSED GROUNDWATER MONITORING WELL LOCATIONS

Figure 4



2277 and 2225 Seventh Street Port of Oakland Oakland, California

MONITORING WELL CONSTRUCTION DETAILS **Figure 5**



**2277 and 2225 Seventh Street
Port of Oakland
Oakland, California**

BASELINE

TABLES

TABLE 1: Groundwater Analytical Results - November 2006 (µg/L)
 Port of Oakland Harbor Facilities Center
 2277 and 2225 7th Street, Oakland, California

Sample ID	Date	TPHg	TEPHd	TEPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-2	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-4	11/29/06	300	<50	<300	42	<0.7	1.0	<0.7	<0.7
MW-4dup	11/29/06	300	<50	<300	60	<0.7	<0.7	<0.7	<0.7
MW-5	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-8A	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
QCEB	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
QCTB	11/29/06	<50	NA	NA	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

See Figure 2 for monitoring well locations.

µg/L = micrograms per liter.

TPHg = total petroleum hydrocarbons in gasoline range.

TEPHd = total petroleum hydrocarbons in diesel range.

TEPHmo = total 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 applicable; no analysis performed.

TABLE 2: Groundwater Elevation Data - November 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Monitoring Well	Date Measured	Top of Casing Elevation¹ (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation¹ (feet)
MW-1	11/29/2006	NA	10.58	10.81	0.23	NC
MW-2	11/29/2006	NA	NP	11.69	--	NA
MW-3	11/29/2006	NA	10.72	11.70	0.98	NA
MW-4	11/29/2006	NA	NP	11.63	--	NA
MW-5	11/29/2006	NA	NP	9.39	--	NA
MW-8A	11/29/2006	NA	NP	11.41	--	NA

Notes:

See Figure 2 for monitoring well locations.

Ground surface and well casings were raised. Top of well casings had not been surveyed at the time of the monitoring event.

NP = no product detected with the interface probe.

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

-- = no measurable product in the well.

btc = below top of the well casing.

NA = not available. The well heads had been raised prior to the November 2006 sampling event as part of construction activities; the well heads have been resurveyed and water elevation data will be developed in the subsequent monitoring in 2007.

¹ Elevation data relative to Port of Oakland datum (3.202 feet below sea level datum of 1929, NGVD 29).

TABLE 3: Free Product Recovery System Settings - September to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Recovery Well	1/1/06 to 2/3/06 ¹		2/3/06 to 6/27/06		6/27/06 to 7/31/06	
	Frequency	Duration	Frequency	Duration	Frequency	Duration
RW-1	NO	NO	NO	NO	NO	NO
RW-2	NO	NO	NO	NO	NO	NO
RW-3	Once every two weeks	1 hour 30 minutes	Once a day	5 minutes	Twice a day	2 hours
RW-4	Once every two weeks	30 minutes	Once every four days	2 minutes	NO	NO
RW-5	NO	NO	NO	NO	NO	NO
RW-6	Once every two weeks	1 hour	Once every four days	2 minutes	Once a week	1 hour
RW-7	Once every two weeks	30 minutes	Once every four days	2 minutes	Once a week	1 hour
RW-8	Once every two weeks	30 minutes	Once every four days	2 minutes	Once a week	1 hour

Notes:

See Figure 2 for recovery well locations.

Frequency = the frequency with which the skimmer pump operates.

Duration = the length of time in hours the skimmer pump operates each time it is activated.

NO = not operating, no measurable product in the recovery well.

¹ BASELINE's initial site visit was on 3 February 2006; prior to that time the system was operated by Treadwell and Rollo, Inc. These settings represent the operating condition observed at that time.

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 8/18/2006				
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Comments
RW-1	--	--	--	On-going construction. No access.
RW-2	--	9.93	--	
RW-3	--	9.89	--	Little product in line. No water. Pump currently cycling.
RW-4	8.03	8.04	0.01	
RW-5	--	--	--	No access, vehicle parked on top of lid.
RW-6	--	7.88	--	Little water in the line.
RW-7	7.40	7.50	0.10	Product/ little water in line. Turned pump on; product only pumping.
RW-8	--	8.21	--	No product.
RW-9	--	--	--	Capped too tight.
Depth of product in convault: 0.24 foot Approximate total volume recovered: 63 gallons				

Site Visit Date: 8/25/2006				
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Comments
RW-1	--	7.65	--	
RW-2	--	10.00	--	
RW-3	9.91	9.92	0.01	Product in line. Pump turned on. Little product in line. Skimmer pump is at 10 feet below top of casing.
RW-4	--	9.09	--	Product in line.
RW-5	--	--	--	Vehicle parked on vault cover.
RW-6	--	7.98	--	No product in line.
RW-7	7.48	7.55	0.07	Product in line. Turned pump on; product and little water in line.
RW-8	--	8.29	--	No product in line.
RW-9	--	9.81	--	
Depth of product in convault: 0.24 foot Approximate total volume recovered: 63 gallons				

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 9/1/2006				
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Comments
RW-1	--	7.79	--	No measurable product.
RW-2	--	10.07	--	No measurable product.
RW-3	10.08	10.09	0.01	Product in line. Pump turned on; no product in line.
RW-4	--	9.24	--	No product or water in line. Pump turned on; no product or water in line. Pump was set to inactive.
RW-5	--	--	--	Inaccessible. Port truck parked on recovery well location.
RW-6	--	8.13	--	No measurable product. No product in line. Pump turned on; water being pumped.
RW-7	7.59	7.64	0.05	Product in line. Pump turned on; product only being pumped.
RW-8	--	8.42	--	No measurable product. Water in line. Pump turned on; product and water in line. Pump was set to inactive.
RW-9	--	9.87	--	Measurable products.
Depth of product in convault: 0.24 foot				
Approximate total volume recovered: 63 gallons				

Site Visit Date: 9/8/2006				
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Comments
RW-1	--	7.84	--	
RW-2	--	10.16	--	
RW-3	10.13	10.15	0.02	Cycle on-going. Product in line. Pump turned on after cycle has stopped. Product and air being pumped.
RW-4	--	9.30	--	Product in line.
RW-5	--	7.97	--	No measurable product.
RW-6	8.27	8.31	0.04	Pump turned on. Bubbles observed in line. Change pump settings from off to Duration 15 minutes and Period of 1 day. Little water and product in line.
RW-7	7.71	7.72	0.01	Product in line. Pump turned on.
RW-8	8.52	8.64	0.12	Product and water in line. Pumped turned on; water only being pumped. Pump was jiggled and was blowing air after.
RW-9	--	9.92	--	
Depth of product in convault: 0.24 foot				
Approximate total volume recovered: 63 gallons				

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 9/15/2006				
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Comments
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.10	10.14	0.04	Product in line. Pump was not turned on.
RW-4	--	9.37	--	No product or water in line. Air in line.
RW-5	--	8.08	--	
RW-6	8.37	8.42	0.05	Product in line. Pump turned on. Product only being pumped.
RW-7	7.81	7.82	0.01	Product in line. Pump turned on. Product only being pumped.
RW-8	8.60	8.89	0.29	Product and air in line. Turned on pump. After pumping for 5 minutes, product level dropped approximately 0.01 ft.
RW-9	--	--	--	
Depth of product in convault:			NA	
Approximate total volume recovered:			NA	

Site Visit Date: 9/22/2006				
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Comments
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.22	10.23	0.01	Product and water in line. Pump turned on; product and little water being pumped. Pump was jiggled and more product was observed in the line.
RW-4	9.37	9.38	0.01	No product in line. Pump turned on; product in line.
RW-5	--	--	--	
RW-6	8.46	8.52	0.06	Product in line. Pump was turned on. Product being pumped. Water also in line.
RW-7	--	7.88	--	Product in line. Pump was turned on. Air in line.
RW-8	8.70	8.85	0.15	Product in line. Pump turned on; product only being pumped.
RW-9	--	--	--	
Depth of product in convault:			0.26 foot	
Approximate total volume recovered:			68 gallons	

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 9/29/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.38	10.39	0.01	Product in line.
RW-4	--	9.54	--	No product in line. Pump turned on for 3 minutes; air only being pumped.
RW-5	--	--	--	
RW-6	8.55	8.57	0.02	Product with little water in line. Pump was turned on for 3 minutes; air only being pumped.
RW-7	--	7.95	--	Product in line. Pump turned on for 3 minutes; air only being pumped.
RW-8	8.79	8.93	0.14	No product in line. Pump turned on for 3 minutes; air only being pumped.
RW-9	--	--	--	
Depth of product in convault: 0.26 foot				
Approximate total volume recovered: 68 gallons				

Site Visit Date: 10/3/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	Well was not inspected.
RW-2	--	--	--	Well was not inspected.
RW-3	--	--	--	Well was not inspected.
RW-4	--	--	--	Well was not inspected.
RW-5	--	--	--	Well was not inspected.
RW-6	--	--	--	Well was not inspected.
RW-7	--	--	--	Well was not inspected.
RW-8	8.78	8.92	0.14	Product line full of water. Pulled pump and replaced filter (black thick sludge covering filter). Pump assembly was pressured washed.
RW-9	--	--	--	Well was not inspected.
Depth of product in convault: NA				
Approximate total volume recovered: NA				

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 10/6/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.37	10.38	0.01	Product in line. Pump assembly was removed and washed. Pump turned on; only air being pumped.
RW-4	--	9.54	--	No product in line. Pump assembly was removed and washed. Pumped was turned on; air only being pumped.
RW-5	--	--	--	
RW-6	8.58	8.60	0.02	Product in line. Pump assembly was removed and washed. Pump turned on; product only being pumped.
RW-7	--	8.05	--	Standing water in vault. Product in line. Pump assembly was pulled out and washed. Pump turned on; product only being pumped.
RW-8	--	8.87	--	Water in line. No product. Pump assembly was pulled out and washed. Replaced float. Pump turned on; no product, only air being pumped.
RW-9	--	--	--	
Depth of product in convault: 0.32 foot				
Approximate total volume recovered: 84 gallons				

Site Visit Date: 10/13/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.35	10.36	0.01	Little water in line. Ran pump, no water pumping; just air.
RW-4	--	9.57	--	No product in line. Pump was turned on; air only being pumped.
RW-5	--	--	--	
RW-6	8.62	8.64	0.02	Product in line. Ran pump, just product and air in line.
RW-7	--	8.04	--	Product in line. Pump air only.
RW-8	8.90	8.90	--	Air in product line only. Ran pump; only air being pumped.
RW-9	--	--	--	
Depth of product in convault: 0.33 foot				
Approximate total volume recovered: 86 gallons				

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 10/20/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.65	10.66	0.01	Pump was set to inactive. Product observed in line.
RW-4	--	9.87	--	Pump was set to inactive. No product observed in line.
RW-5	--	--	--	
RW-6	8.72	8.74	0.02	Pump was set to inactive. Product was observed in line.
RW-7	--	8.17	--	Pump was set to inactive. No product observed in line.
RW-8	9.02	9.03	0.01	Pump was set to inactive. Product in line.
RW-9	--	--	--	
Depth of product in convault:			0.32 foot	
Approximate total volume recovered:			84 gallons	

Site Visit Date: 11/2/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.65	10.67	0.02	Utility box was dry. Pump was not activated.
RW-4	--	9.71	--	Water observed in utility box. Pump was not activated.
RW-5	--	--	--	
RW-6	8.75	8.84	0.09	Utility box was dry. Pump was not activated. Pump was turned on; observed product being pumped.
RW-7	--	8.20	--	Rain water was observed in utility box. Pump was not activated.
RW-8	9.04	9.06	0.02	Utility box is dry. Pump was not activated.
RW-9	--	--	--	
Depth of product in convault:			0.32 foot	
Approximate total volume recovered:			84 gallons	

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 11/15/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.47	10.50	0.03	Utility box was dry. Pump turned on; only air being pumped. Pump was activated.
RW-4	--	9.62	--	Utility box was dry. Pump turned on; only air being pumped. Pump was not activated.
RW-5	--	--	--	
RW-6	8.72	8.80	0.08	Utility box is dry. Pump turned on. Product being pumped. Pump was activated.
RW-7	--	9.12	--	Standing water inside utility box. Pump turned on; only air being pumped. Pump was not activated.
RW-8	9.04	9.07	0.03	Utility box is dry. Pump turned on. Product being pumped. Pump was activated.
RW-9	--	--	--	
Depth of product in convault: 0.36 foot				
Approximate total volume recovered: 94 gallons				

Site Visit Date: 11/29/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	8.06	--	Well head box soon to be raised to recent grade change elevation.
RW-2	--	10.27	--	Capped.
RW-3	10.78	10.86	0.08	Air and product in line.
RW-4	--	9.99	--	Air only in line.
RW-5	--	8.49	--	Capped well head.
RW-6	8.85	8.94	0.09	Air and product in line.
RW-7	--	8.26	--	Air only in product line.
RW-8	9.12	9.22	0.10	Air and product in line.
RW-9	--	10.24	--	Capped well head.
Depth of product in convault: 0.36 foot				
Approximate total volume recovered: 94 gallons				

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 12/11/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.50	10.55	0.05	Utility box was dry. Product observed in line.
RW-4	--	9.74	--	Utility box was dry. No product in line. Pump turned on; air only being pumped.
RW-5	--	--	--	
RW-6	8.76	8.90	0.14	Utility box has water. Product in line. Pump turned on; product only being pumped.
RW-7	--	8.22	--	Utility box was dry. No product in line. Pump turned on; air only being pumped.
RW-8	9.12	9.21	0.09	Utility box was dry. Product in line. Pump turned on; product only being pumped.
RW-9	--	--	--	
Depth of product in convault: 0.38 foot				
Approximate total volume recovered: 99 gallons				

Site Visit Date: 12/19/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	10.17	10.20	0.03	Product and water in line. Turned pump on; pumping mostly water. Pulled pump; changed filter and washed pump. Skimmer pump pumped water for about 3 minutes then just product.
RW-4	--	9.41	--	Pump was set to inactive.
RW-5	--	--	--	
RW-6	8.70	8.71	0.01	Product in line. Turned on pump; product only being pumped. Utility box is half full of water.
RW-7	--	8.10	--	Pump was set to inactive.
RW-8	9.01	9.10	0.09	Air in line. Turned on pump; product only being pumped.
RW-9	--	--	--	
Depth of product in convault: 0.4 foot				
Approximate total volume recovered: 105 gallons				

TABLE 4: Product Thickness Measurements and Operations and Maintenance Activities - August to December 2006
Port of Oakland Harbor Facilities Center
2277 and 2225 7th Street, Oakland, California

Site Visit Date: 12/27/2006				
Recovery Well	Depth to Product	Depth to Water	Product Thickness	Comments:
	feet	feet	feet	
RW-1	--	--	--	
RW-2	--	--	--	
RW-3	9.62	9.68	0.06	Water in line. Removed pump and replaced with spare pump. Cleaned previously installed pump. Started spare pump; product and air only being pumped.
RW-4	9.19	9.22	0.03	Air only in line.
RW-5	--	--	--	
RW-6	--	8.67	--	Product and air in line. Utility box is half full of water.
RW-7	8.06	8.07	0.01	Air only in line. Utility box contains water.
RW-8	9.01	9.02	0.01	Line contains air and some product. Water also noted inside the utility box.
RW-9	--	--	--	
Depth of product in convault:			0.43 foot	
Approximate total volume recovered:			113 gallons	

Notes:

See Figure 2 for recovery well locations.

-- = not measured.

NA = not applicable or available.

APPENDIX A
GROUNDWATER SAMPLING FORMS

GROUNDWATER SAMPLING

Well No.: **MW-1**

Project No.:	<u>Y5395-03</u>	Recorded by:	<u>RMR/WKS</u>	Date:	<u>11/29/06</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>NA*</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>NA*</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>NA*</u>		
Weather:	<u>Sunny, cold</u>	TOC elevation, NAVD88 (feet):	<u>NA*</u>		
Precip. in past 5 days (in.):	<u>0.39</u>	Groundwater elevation (feet):	<u>NA*</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>10.81</u>	Time:	<u>8:39</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>10.58</u>	Time:	<u>8:39</u>

CALCULATION OF WELL VOLUME:

$$\text{NA*} - 10.81 \text{ ft} \quad \times \pi \times 7.48 \text{ gal/ft}^3 = \quad \frac{\text{NA*}}{\text{well depth} - \text{water level}} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \quad \frac{\text{NA*}}{\text{total gallons removed}}$$

gallons in one casing volume

CALIBRATION:

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	4.00/7.00	100	254	1,000	0/20
Before Purging:	7:30	8.2	4.00/7.00	100	254	1,000	0/20
After Purging:	14:20	18.1	4.56/7.34	102.1	237	1,022	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: _____

* Ground surface and casing raised
 TOC = top of casing
 bgs = below ground surface

GROUNDWATER SAMPLING

Well No.: **MW-2**

Project No.:	<u>Y5395-03</u>	Recorded by:	<u>RMR/WKS</u>	Date:	<u>11/29/06</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>NA*</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>NA*</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>NA*</u>		
Weather:	<u>Sunny, cold</u>	TOC elevation, NAVD88 (feet):	<u>NA*</u>		
Precip. in past 5 days (in.):	<u>0.39</u>	Groundwater elevation (feet):	<u>NA*</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>11.69</u>	Time:	<u>8:48</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>8:48</u>

CALCULATION OF WELL VOLUME:

$$\text{NA*} - 11.69 \text{ ft} \times \pi \times 7.48 \text{ gal/ft}^3 = \frac{\text{NA*}}{\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3} = \frac{\text{NA*}}{\text{total gallons removed}}$$

gallons in one casing volume

CALIBRATION:

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	4.00/7.00	100	254	1,000	0/20
Before Purging:	7:30	8.2	4.00/7.00	100	254	1,000	0/20
After Purging:	14:20	18.1	4.56/7.34	102.1	237	1,022	0/18

FIELD MEASUREMENTS:

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
13:20	19.9	7.68	0.87	-43	1,491	0.75	1.5
13:27	19.4	7.70	0.73	-15	1,499	0.65	2
Decrease pump rate (pump sucking air)							
14:00	19.6	7.76	0.53	-9	1,504	0.21	3

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>14:15</u>
Duplicate/blank number:	<u>QCEB</u>	Duplicate Sample Time:	<u>10:37</u>
Sampling equipment:	<u>Pump and tubing</u>	VOA attachment:	<u>None</u>
Sample containers:	<u>3 VOAs, 2-liter amber</u>		
Sample analyses:	<u>TPHg, TPHd, TPHmo, BTEX, MTBE</u>	Laboratory:	<u>Curtis & 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>		<u>Port contractor to remove</u>

* Ground surface and casing raised
 TOC = top of casing
 bgs = below ground surface

GROUNDWATER SAMPLING

Well No.: **MW-3**

Project No.:	<u>Y5395-03</u>	Recorded by:	<u>RMR/WKS</u>	Date:	<u>11/29/06</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>NA*</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>NA*</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>NA*</u>		
Weather:	<u>Sunny, cold</u>	TOC elevation, NAVD88 (feet):	<u>NA*</u>		
Precip. in past 5 days (in.):	<u>0.39</u>	Groundwater elevation (feet):	<u>NA*</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>11.70</u>	Time:	<u>7:45</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>10.72</u>	Time:	<u>7:45</u>

CALCULATION OF WELL VOLUME:

$$\begin{array}{l}
 \text{NA*} \quad - \quad 11.70 \text{ ft} \quad \quad \quad \times \pi \times 7.48 \text{ gal/ft}^3 = \quad \quad \quad \frac{\text{NA*}}{\text{well depth} - \text{water level}} \text{ gallons in one casing volume} \\
 \text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \quad \quad \quad \text{total gallons removed}
 \end{array}$$

CALIBRATION:

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	4.00/7.00	100	254	1,000	0/20
Before Purging:	7:30	8.2	4.00/7.00	100	254	1,000	0/20
After Purging:	14:20	18.1	4.56/7.34	102.1	237	1,022	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: None

Sample containers: _____

Sample analyses: _____ Laboratory: _____

Decontamination method: _____ Rinsate disposal: _____

Comments: _____

* Ground surface and casing raised
 TOC = top of casing
 bgs = below ground surface

GROUNDWATER SAMPLING

Well No.: **MW-4**

Project No.:	<u>Y5395-03</u>	Recorded by:	<u>RMR/WKS</u>	Date:	<u>11/29/06</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>NA*</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>NA*</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>NA*</u>		
Weather:	<u>Sunny, cold</u>	TOC elevation, NAVD88 (feet):	<u>NA*</u>		
Precip. in past 5 days (in.):	<u>0.39</u>	Groundwater elevation (feet):	<u>NA*</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>11.63</u>	Time:	<u>8:58</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>8:58</u>

CALCULATION OF WELL VOLUME:

$$\begin{aligned}
 & \text{NA*} - 11.63 \text{ ft} \quad \times \pi \times 7.48 \text{ gal/ft}^3 = \quad \text{NA* gallons in one casing volume} \\
 & \text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \quad \text{total gallons removed}
 \end{aligned}$$

CALIBRATION:

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	4.00/7.00	100	254	1,000	0/20
Before Purging:	7:30	8.2	4.00/7.00	100	254	1,000	0/20
After Purging:	14:20	18.1	4.56/7.34	102.1	237	1,022	0/18

FIELD MEASUREMENTS:

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
10:08	19.9	6.75	0.61	-90	1,184	9.1	1
10:21	19.5	7.36	0.47	-129	1,196	8.2	2.5
10:42	19.8	7.40	0.20	-127	1,204	2.7	4
11:07	19.9	7.41	0.16	-121	1,203	1.2	6
11:25	19.8	7.41	0.18	-122	1,208	0.7	7

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>11:30</u>
Duplicate/blank number:	<u>MW-4Dup, QCEB</u>	Duplicate Sample Time:	<u>11:35/10:37</u>
Sampling equipment:	<u>Pump and tubing</u>	VOA attachment:	<u>None</u>
Sample containers:	<u>3 VOAs, 2-liter amber</u>		
Sample analyses:	<u>TPHg, TPHd, TPHmo, BTEX, MTBE</u>	Laboratory:	<u>Curtis & 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>		<u>Port contractor to remove</u>

* Ground surface and casing raised

TOC = top of casing

bgs = below ground surface

GROUNDWATER SAMPLING

Well No.: **MW-5**

Project No.:	<u>Y5395-03</u>	Recorded by:	<u>RMR/WKS</u>	Date:	<u>11/29/06</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>NA*</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>NA*</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>NA*</u>		
Weather:	<u>Sunny, cold</u>	TOC elevation, NAVD88 (feet):	<u>NA*</u>		
Precip. in past 5 days (in.):	<u>0.39</u>	Groundwater elevation (feet):	<u>NA*</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>9.39</u>	Time:	<u>9:06</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>9:06</u>

CALCULATION OF WELL VOLUME:

$$\text{NA*} - 9.39 \text{ ft) } \times \pi \times 7.48 \text{ gal/ft}^3 = \frac{\text{NA*}}{\text{well depth - water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3} = \frac{\text{NA*}}{\text{total gallons removed}}$$

gallons in one casing volume

CALIBRATION:

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	4.00/7.00	100	254	1,000	0/20
Before Purging:	7:30	8.2	4.00/7.00	100	254	1,000	0/20
After Purging:	14:20	18.1	4.56/7.34	102.1	237	1,022	0/18

FIELD MEASUREMENTS:

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
12:03	18.4	7.30	0.39	-57	1,938	15	1
12:23	18.2	7.42	0.31	-62	2,336	5	3
12:42	18.4	7.42	0.92	-70	2,370	1.9	5
12:58	18.4	7.43	0.16	-71	2,395	1.5	7

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>13:03</u>
Duplicate/blank number:	<u>QCEB</u>	Duplicate Sample Time:	<u>10:37</u>
Sampling equipment:	<u>Pump and tubing</u>	VOA attachment:	<u>None</u>
Sample containers:	<u>3 VOAs, 2-liter amber</u>		
Sample analyses:	<u>TPHg, TPHd, TPHmo, BTEX, MTBE</u>	Laboratory:	<u>Curtis & 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>		<u>Port contractor to remove</u>

* Ground surface and casing raised

TOC = top of casing

bgs = below ground surface

GROUNDWATER SAMPLING

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

Project No.:	<u>Y5395-03</u>	Recorded by:	<u>RMR/WKS</u>	Date:	<u>11/29/06</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>NA*</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>NA*</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>NA*</u>		
Weather:	<u>Sunny, cold</u>	TOC elevation, NAVD88 (feet):	<u>NA*</u>		
Precip. in past 5 days (in.):	<u>0.39</u>	Groundwater elevation (feet):	<u>NA*</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>11.41</u>	Time:	<u>9:24</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>9:24</u>

CALCULATION OF WELL VOLUME:

$$\text{NA*} - 11.41 \text{ ft)} \quad \times \pi \times 7.48 \text{ gal/ft}^3 = \quad \frac{\text{NA*}}{\text{well depth - water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3} = \quad \frac{\text{NA*}}{\text{total gallons removed}}$$

gallons in one casing volume

CALIBRATION:

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	4.00/7.00	100	254	1,000	0/20
Before Purging:	7:30	8.2	4.00/7.00	100	254	1,000	0/20
After Purging:	14:20	18.1	4.56/7.34	102.1	237	1,022	0/18

FIELD MEASUREMENTS:

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
12:17	18.5	7.58	1.11	-92	2,468	9.2	1
12:31	18.3	7.65	0.83	-120	2,297	3.4	2
12:40	18.4	7.64	0.85	-119	2,319	3.4	3
12:51	18.5	7.61	1.54	-121	2,315	2.4	4

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>12:56</u>
Duplicate/blank number:	<u>QCEB</u>	Duplicate Sample Time:	<u>10:37</u>
Sampling equipment:	<u>Pump and tubing</u>	VOA attachment:	<u>None</u>
Sample containers:	<u>3 VOAs, 2-liter amber</u>		
Sample analyses:	<u>TPHg, TPHd, TPHmo, BTEX, MTBE</u>	Laboratory:	<u>Curtis & Tompkins</u>
Decontamination method:	<u>Alconox and water, DI water rinse</u>	Rinsate disposal:	<u>Stored onsite,</u>
Comments:	<u>Sample was clear</u>		
	<u>Port contractor to remove</u>		

* Ground surface and casing raised

TOC = top of casing

bgs = below ground surface

APPENDIX B
LABORATORY ANALYTICAL REPORT

**Quality Control Checklist
for Review of Laboratory Report**

Job No.: Y5395-03

Site: Harbor Facilities Complex

Laboratory: Curtis and Tompkins, Ltd.

Laboratory Report No: 191121

Report Date: 13 December 2006

BASELINE Review By: RMR

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

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

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

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

Comments:



A N A L Y T I C A L R E P O R T

Prepared for:

Baseline Environmental
5900 Hollis St.
Suite D
Emeryville, CA 94608

RECEIVED


JAN 4 2007

BASELINE

Date: 13-DEC-06
Lab Job Number: 191121
Project ID: Y5395-02
Location: HFC, 2277 7th St. Oakland, CA

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

Reviewed by: 
Project Manager

Reviewed by: 
Operations Manager

This package may be reproduced only in its entirety.

CASE NARRATIVE

Laboratory number: 191121
Client: Baseline Environmental
Project: Y5395-02
Location: HFC, 2277 7th St. Oakland, CA
Request Date: 11/29/06
Samples Received: 11/29/06

This hardcopy data package contains sample and QC results for seven water samples, requested for the above referenced project on 11/29/06. The samples were received cold and intact.

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

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

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

BASELINE

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

191121

CHAIN OF CUSTODY RECORD

Turn-around Time
Lab
BASELINE Contact Person

Standard
Curtis & Tompkins
Bill Scott/James McCarty

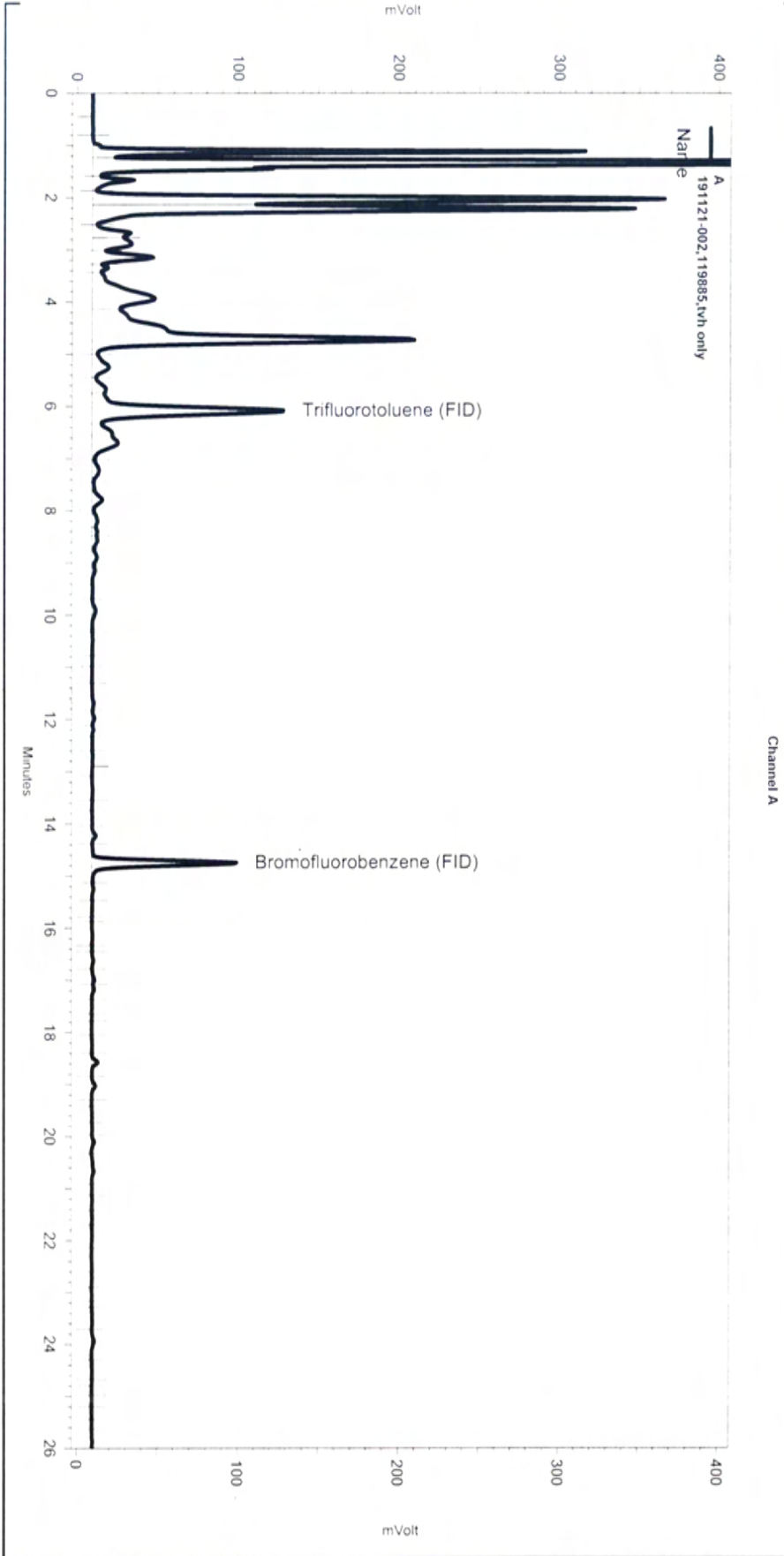
Project Number Y5395-02		Project Name and Location: Harbor Facilities Complex, 2277 Seventh St., Oakland CA										TPH as gasoline (8015B)	TEPH diesel & m.o. (8015B) w/ silica gel cleanup	BTX & MTBE 8260B						Remarks/ Composite		
Samplers: (Signature) <i>Reginald Ramirez</i>				Containers																		
Sample ID No. Station	Date:	Time:	Media	No.	SS	Encore	L-AG	40-ml VOA	L-Poly	250 ml Poly	500 ml Poly										None	HCl
MW-2	11/29	14:15	W	3			X						X					X	X			
MW-2		14:15	W	2			X					X						X				
MW-4		11:30	W	3			X						X					X	X			
MW-4		11:30	W	2			X					X						X				
MW-4dup		11:35	W	3			X						X					X	X			
MW-4dup		11:35	W	2			X					X						X				
MW-5		13:03	W	3			X						X					X	X			
MW-5		13:03	W	2			X					X						X				
MW-8A	12	10:56	W	3			X						X					X	X			
MW-8A	12	10:50	W	2			X					X						X				
QCEB		10:37	W	3			X						X					X	X			
QCEB		10:37	W	2			X					X						X				
QCTB	11/29	7:00	W	3			X						X					X	X			

Relinquished by: (Signature) <i>Reginald Ramirez</i>	Custody Seal Yes No	Date/Time 11/29/06 14:35	Received by: (Signature) <i>Paul Ramirez</i>	Custody Seal intact Yes No NA	Date/Time 11/29/06 14:35	Conditions of Samples Upon Arrival at Laboratory:
Relinquished by: (Signature)	Custody Seal Yes No	Date/Time	Received by: (Signature)	Custody Seal intact Yes No NA	Date/Time	Remarks: Please provide EDD & EDF to BASELINE
Relinquished by: (Signature)	Custody Seal Yes No	Date/Time	Received by: (Signature)	Custody Seal intact Yes No NA	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	Comments: Cold, Intact		

Bill's Chain of Custody Master Co-C-seal 5-02

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\333.seq
 Sample Name: 191121-002,119885,tvh only
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\333_010
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe318.met

Software Version 3.1.7
 Run Date: 11/29/2006 8:18:43 PM
 Analysis Date: 11/30/2006 8:20:08 AM
 Sample Amount: 5 Multiplier: 5
 Vial & pH or Core ID: a1.3



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0
Yes	Threshold	0	0	10

Manual Integration Fixes

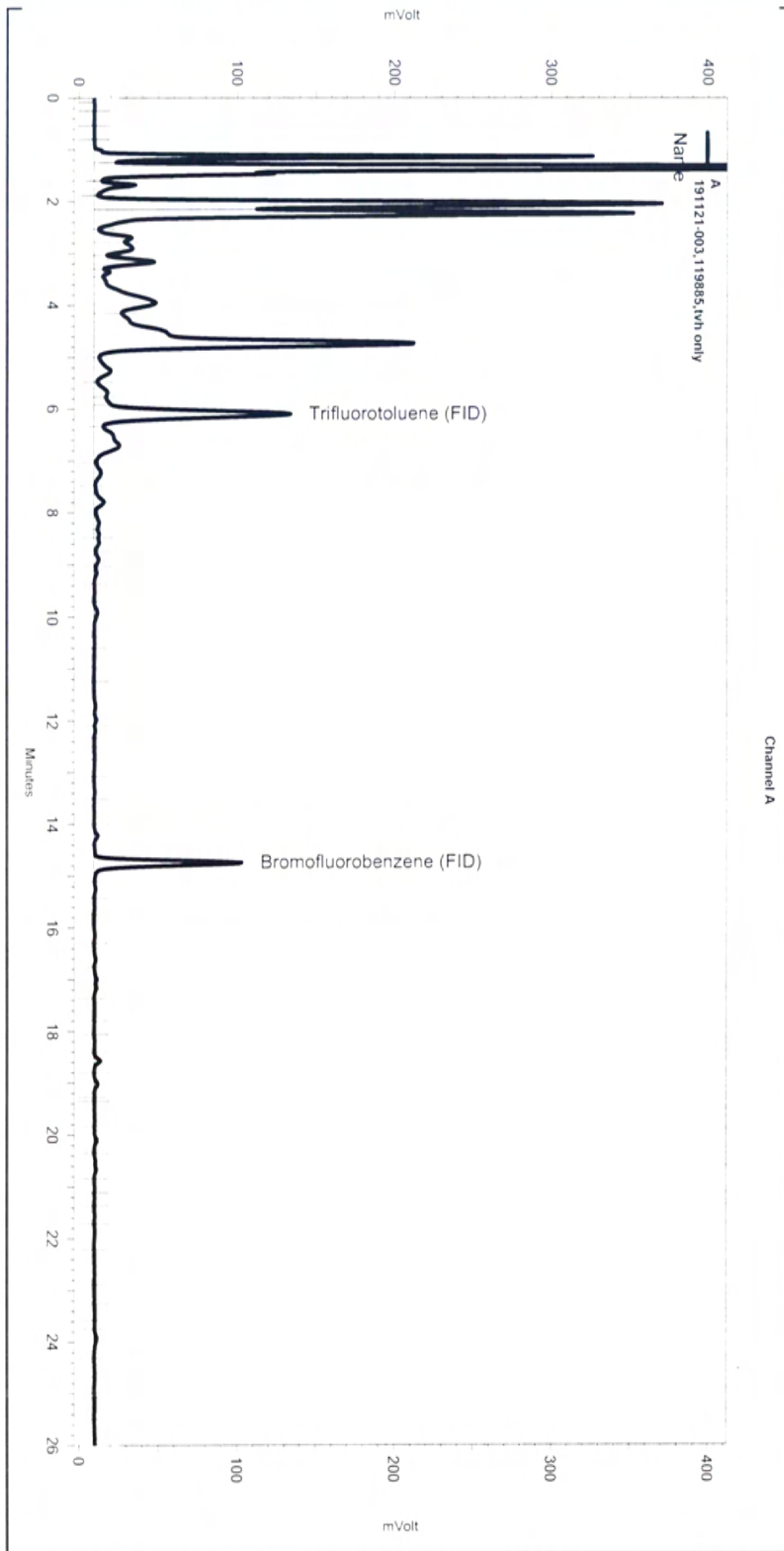
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\333_010

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	5.935	0	0

MW-4

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\333.seq
 Sample Name: 191121-003,119885,tvh only
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\333_011
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2, Analyst (lims2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbx318.met

Software Version 3.1.7
 Run Date: 11/29/2006 8:55:18 PM
 Analysis Date: 11/30/2006 8:20:13 AM
 Sample Amount: 5 Multiplier: 5
 Vial & pH or Core ID: a1.3



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0
Yes	Threshold	0	0	10

Manual Integration Fixes

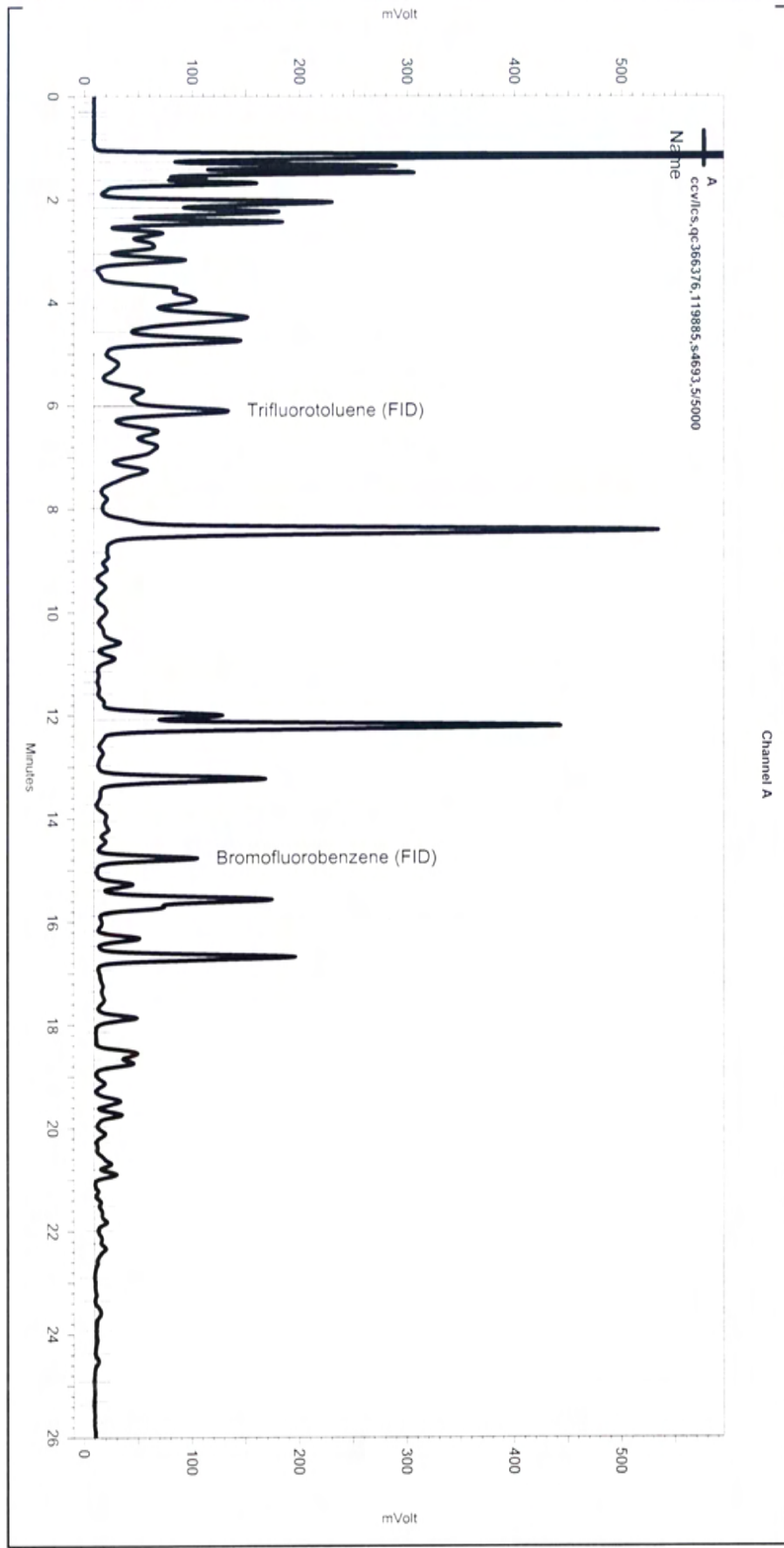
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\333_011

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseline	0	26.017	0
Yes	Split Peak	5.909	0	0

MW-4 DUP

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\333.seq
 Sample Name: ccv/lcs,qc366376,119885,s4693,5/5000
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\333_003
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst: (lms2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbx318.met

Software Version 3.1.7
 Run Date: 11/29/2006 12:58:45 PM
 Analysis Date: 11/30/2006 8:19:30 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
Yes	Threshold	0	0	10

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\333_003

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	6.003	0	0
Yes	Split Peak	6.023	0	0
Yes	Split Peak	14.93	0	0

Gasoline

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA	
Client:	Baseline Environmental	Prep:	EPA 5030B	
Project#:	Y5395-02	Analysis:	EPA 8015B	
Type:	LCS	Diln Fac:	1.000	
Lab ID:	QC366376	Batch#:	119885	
Matrix:	Water	Analyzed:	11/29/06	
Units:	ug/L			

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,843	92	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	69-137
Bromofluorobenzene (FID)	106	80-133

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	119885
MSS Lab ID:	191102-004	Sampled:	11/28/06
Matrix:	Water	Received:	11/28/06
Units:	ug/L	Analyzed:	11/29/06
Diln Fac:	1.000		

Type: MS Lab ID: QC366377

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	17.44	2,000	1,855	92	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	69-137
Bromofluorobenzene (FID)	105	80-133

Type: MSD Lab ID: QC366378

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,855	92	80-120	0	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	69-137
Bromofluorobenzene (FID)	107	80-133

Total Extractable Hydrocarbons

Lab #:	191121	Location: HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep: EPA 3520C
Project#:	Y5395-02	Analysis: EPA 8015B
Matrix:	Water	Sampled: 11/29/06
Units:	ug/L	Received: 11/29/06
Diln Fac:	1.000	Prepared: 12/01/06
Batch#:	119968	

Field ID:	MW-8A	Analyzed:	12/04/06
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	191121-005		

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

Surrogate	%REC	Limits
Hexacosane	98	65-130

Field ID:	OCEB	Analyzed:	12/04/06
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	191121-006		

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

Surrogate	%REC	Limits
Hexacosane	96	65-130

Type:	BLANK	Analyzed:	12/03/06
Lab ID:	QC366706	Cleanup Method:	EPA 3630C

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

Surrogate	%REC	Limits
Hexacosane	116	65-130

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC366707	Batch#:	119968
Matrix:	Water	Prepared:	12/01/06
Units:	ug/L	Analyzed:	12/03/06

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,113	85	61-133

Surrogate	%REC	Limits
Hexacosane	93	65-130

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	119968
MSS Lab ID:	191154-008	Sampled:	11/29/06
Matrix:	Water	Received:	11/30/06
Units:	ug/L	Prepared:	12/01/06
Diln Fac:	1.000	Analyzed:	12/03/06

Type: MS
Lab ID: QC366708

Cleanup Method: EPA 3630C

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	1,043	2,500	2,824	71	55-134

Surrogate	%REC	Limits
Hexacosane	94	65-130

Type: MSD
Lab ID: QC366725

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,926	75	55-134	4	27

Surrogate	%REC	Limits
Hexacosane	98	65-130

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	120001
Lab ID:	191121-001	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	80-130
Toluene-d8	94	80-120
Bromofluorobenzene	101	80-122

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	120001
Lab ID:	191121-002	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.429		

Analyte	Result	RL
MTBE	ND	0.7
Benzene	42	0.7
Toluene	ND	0.7
Ethylbenzene	1.0	0.7
m,p-Xylenes	ND	0.7
o-Xylene	ND	0.7

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	123	80-130
Toluene-d8	93	80-120
Bromofluorobenzene	106	80-122

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	MW-4DUP	Batch#:	120049
Lab ID:	191121-003	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/05/06
Diln Fac:	1.429		

Analyte	Result	RL
MTBE	ND	0.7
Benzene	60	0.7
Toluene	ND	0.7
Ethylbenzene	ND	0.7
m,p-Xylenes	ND	0.7
o-Xylene	ND	0.7

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	122	80-130
Toluene-d8	108	80-120
Bromofluorobenzene	106	80-122

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	120001
Lab ID:	191121-004	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	80-130
Toluene-d8	93	80-120
Bromofluorobenzene	102	80-122

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	120001
Lab ID:	191121-005	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	80-130
Toluene-d8	91	80-120
Bromofluorobenzene	104	80-122

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	QCEB	Batch#:	120001
Lab ID:	191121-006	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	80-130
Toluene-d8	100	80-120
Bromofluorobenzene	95	80-122

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Field ID:	QCTB	Batch#:	120001
Lab ID:	191121-007	Sampled:	11/29/06
Matrix:	Water	Received:	11/29/06
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-130
Toluene-d8	102	80-120
Bromofluorobenzene	91	80-122

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC366822	Batch#:	120001
Matrix:	Water	Analyzed:	12/04/06
Units:	ug/L		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	80-130
Toluene-d8	100	80-120
Bromofluorobenzene	92	80-122

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC367013	Batch#:	120049
Matrix:	Water	Analyzed:	12/05/06
Units:	ug/L		

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

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	80-130
Toluene-d8	104	80-120
Bromofluorobenzene	106	80-122

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	120001
Units:	ug/L	Analyzed:	12/04/06
Diln Fac:	1.000		

Type: BS Lab ID: QC366820

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	19.75	79	72-120
Benzene	25.00	24.76	99	80-120
Toluene	25.00	25.91	104	80-120
Ethylbenzene	25.00	23.63	95	80-120
m,p-Xylenes	50.00	46.97	94	80-121
o-Xylene	25.00	23.35	93	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	81	80-130
Toluene-d8	101	80-120
Bromofluorobenzene	92	80-122

Type: BSD Lab ID: QC366821

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	19.82	79	72-120	0	20
Benzene	25.00	24.55	98	80-120	1	20
Toluene	25.00	25.26	101	80-120	3	20
Ethylbenzene	25.00	22.94	92	80-120	3	20
m,p-Xylenes	50.00	45.80	92	80-121	3	20
o-Xylene	25.00	22.32	89	80-120	5	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	84	80-130
Toluene-d8	102	80-120
Bromofluorobenzene	91	80-122

RPD= Relative Percent Difference

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	191121	Location:	HFC, 2277 7th St. Oakland, CA
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-02	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	120049
Units:	ug/L	Analyzed:	12/05/06
Diln Fac:	1.000		

Type: BS Lab ID: QC367011

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	21.17	85	72-120
Benzene	25.00	26.15	105	80-120
Toluene	25.00	25.95	104	80-120
Ethylbenzene	25.00	27.17	109	80-120
m,p-Xylenes	50.00	52.62	105	80-121
o-Xylene	25.00	26.85	107	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	80-130
Toluene-d8	105	80-120
Bromofluorobenzene	106	80-122

Type: BSD Lab ID: QC367012

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	23.21	93	72-120	9	20
Benzene	25.00	25.75	103	80-120	2	20
Toluene	25.00	24.89	100	80-120	4	20
Ethylbenzene	25.00	26.16	105	80-120	4	20
m,p-Xylenes	50.00	52.19	104	80-121	1	20
o-Xylene	25.00	25.52	102	80-120	5	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	80-130
Toluene-d8	105	80-120
Bromofluorobenzene	104	80-122

RPD= Relative Percent Difference

APPENDIX C

HISTORICAL ANALYTICAL AND GROUNDWATER LEVEL DATA

TABLE C-1 : Groundwater Elevation Data
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-1						
	04/18/00	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
MW-2						
	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
	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

TABLE C-1 : Groundwater Elevation Data
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	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
MW-3						
	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
	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

TABLE C-1 : Groundwater Elevation Data
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	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
MW-4						
	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
	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

**TABLE C-1 : Groundwater Elevation Data
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	07/10/01	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
MW-5						
	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
	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

TABLE C-1 : Groundwater Elevation Data
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	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 ²	NA ²	NA ²
	07/28/06	13.49	NP	6.08	0.00	7.41
	11/29/06	NA	NP	9.39	0.00	NA
MW-6						
	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
	12/12/02	14.00	NP	7.71	0.0	6.29
	12/18/02	Monitoring well was destroyed				
MW-7						
	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

TABLE C-1 : Groundwater Elevation Data
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	12/12/01	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				
MW-8³						
	12/31/97	12.94	8.49	8.82	0.33	NC
	11/06/98	12.94	9.25	10.3	1.05	NC
	11/21/98	Monitoring well was destroyed				
MW-8A						
	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
	12/21/05	12.94	NP	6.90	0.0	6.04
	03/24/06	12.94	NP	6.65	0.0	6.29
	07/28/06	12.94	NP	7.34	0.0	6.65
	11/29/06	NA	NP	11.41	0.0	NA

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

¹ Elevation data relative to Port of Oakland datum.

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

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

TABLE C-2: Groundwater Analytical Results (µg/L)
Port of Oakland Harbor Facilities Center
2277 7th 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 ⁸	2.9	2.05	3.2 ⁸
MW-2	05/27/94	87	470	NA	<0.5	<0.5	<0.5	<0.5	NA
	03/29/95	<50	110	1,400	<0.4	<0.3	<0.3	<0.4	NA
	09/06/95	<50	NA	NA	<0.4	<0.3	<0.3	<0.4	NA
	01/08/96	<50	<50	1200	<0.4	<0.3	<0.3	<0.4	NA
	04/04/96	<50	160	320	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	<50	120	1400	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	230 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	<50	714	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	51	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	82	<50	<250	0.56	<0.5	<0.5	<1.0	NA
	12/31/97	<50	<47	<280	1.4	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	11/12/99	<50	120 ^{2,6}	<300	<0.5	<0.5	<0.5	<0.5	6.3 ^{8,9}
	02/11/00	<50	<50	<300	5.4	<0.5	<0.5	<0.5	<2
	05/22/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	09/06/00	<50	<50	<300	0.76 ⁸	<0.5	<0.5	<0.5	<0.5 ¹⁰
	12/19/00	200 ^{3,11}	<50	<300	39	1.8	<0.5	2.6	<0.5 ^{10,12}
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/05/01	<50	<50	<300	4.4	<0.5	<0.5	<0.5	5.0 ¹⁴
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	62 ¹⁵	<57	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	69 ²	<50	<500	1.8	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	<50	<300	0.98	<0.5	<0.5	<0.5	<2.0
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/18/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/03	<50	<50	<300	3.2	<0.5	<0.5	<0.5	<2.0
	11/26/03	<50	<50	<300	3	<0.5	<0.5	<0.5	<2.0
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	<50	96 ^{6,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/29/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	08/10/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5

TABLE C-2: Groundwater Analytical Results (µg/L)
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
	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
MW-4	09/11/95	150	<200	500	23	<0.3	<0.3	<0.4	NA
	01/08/96	790	90	400	170	1.2	0.6	0.6	NA
	04/04/96	1,100	180	300	320	1.6	1.1	1.2	NA
	07/10/96	1,200	120	300	470	1.5	0.8	0.8	NA
	12/03/96	990	220 ^{1,2}	<250	350	3.3	1.3	1.3	NA
	03/28/97	440 ²	<50	<250	190	1.2	0.64	<1.0	NA
	06/13/97	1,300	92 ⁵	<250	500	5.5	3.4	2.8	NA
	09/18/97	1,300	150	<250	550	4.9	2.1	2.00	NA
	12/31/97	73 ^{1,2,3}	<47	<280	110 ¹	1.0 ¹	<0.5	<1.0	NA
	04/13/98	150 ^{2,3}	<50	<300	520	2.9	<2.5	<5.0	NA
	11/06/98	<50	<50	<300	250	1.7	<1.0	<1.0	<4
	03/19/99	81	<50	<300	250	<1	1.2	<1.0	<4
Dup.	06/24/99	190	<50	<300	360	1.4	2.2	1.0	24
	09/28/99	750 ^{3,5}	63 ^{3,5}	<300	280	1.5	<1.0	<1.0	<4
	11/12/99	330 ³	840 ²	<300	740	<2.5	<2.5	<2.5	42 ⁹
	02/11/00	200 ²	<50	<300	58	0.73	<0.5	<0.5	4.4 ⁸
	05/22/00	240	<50	<300	500	<2.5	<2.5	<2.5	17
	09/06/00	530 ^{2,3}	<50	<300	190	0.93	0.6	0.57	<0.5 ¹⁰
	12/19/00	960 ^{3,11}	70 ⁵	<300	420	<2.5	<2.5	<2.5	<0.5 ^{10,12}
	12/19/00	1,200 ^{3,11}	<50	<300	440	<2.5	<2.5	<2.5	<0.5 ^{10,12}
	02/21/01	450 ¹³	<50	<300	120	<0.5	<0.5	<0.5	<0.5 ¹⁰
	07/10/01	<250	110 ^{2,13}	<300	620	2.6	2.9	<2.5	<0.5 ^{8,10}
	12/05/01	180	<50	<300	61	<0.5	<0.5	<0.5	3.8 ¹⁴
	03/08/02	490 ²	54 ²	<500	180	<2.5	<2.5	<2.5	<25
	06/13/02	830 ²	<50	<500	250	<5.0	<5.0	<5.0	<50
Dup.	06/13/02	820 ²	<56	<560	240	<5.0	<5.0	<5.0	<50
	09/26/02	390 ²	57	<500	150	2.1	<1.0	<1.0	<10
Dup.	09/26/02	500 ²	<50 ¹⁶	<500 ¹⁶	200	1.5	<1.0	<1.0	<10
	12/12/02	580	<50	<300	240	1.4	0.56	<0.5	<2.0
Dup.	12/12/02	2,400	<50	<300	680	5.0	2.3	1.4	<2.0
	03/17/03	130 ¹⁵	<50	<300	320 ¹⁷	<0.5	<0.5	<0.5	<0.5 ¹⁰
Dup.	03/17/03	82 ¹⁵	<50	<300	190	0.64 ¹⁷	0.56	0.53	<0.5 ¹⁰
	06/18/03	360 ^{11,15}	<50	<300	150	<0.5	<0.5	<0.5	<2.0
Dup.	06/18/03	330 ^{11,15}	<50	<300	140	<0.5	<0.5	<0.5	<2.0
	09/03/03	140 ^{11,15}	<50	<300	240	1.3	<0.5	<0.5	<2.0

TABLE C-2: Groundwater Analytical Results (µg/L)
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
Dup.	09/03/03	83 ^{11, 15}	<50	<300	130	0.58 ¹⁷	<0.5	<0.5	<2.0
	11/26/03	160 ¹⁵	68 ¹⁵	<300	320	0.91 ¹⁷	<0.5	0.53	<2.0
Dup.	11/26/03	120 ¹⁵	<50	<300	210	0.66 ¹⁷	<0.5	<0.5	<2.0
	03/05/04	90 ¹¹	<50	<300	190	1.1	0.55	0.50 ¹⁷	23 ^{14,17} , <0.5 ¹⁰
Dup.	03/05/04	84 ¹¹	<50	<300	180	0.81	<0.5	<0.5	21 ^{14,17} , <0.5 ¹⁰
	06/02/04	620 ¹³	<50	<300	210	0.55 ¹⁷	<0.5	<0.5	<2.0
Dup.	06/02/04	400 ¹³	<50	<300	130	<0.5	<0.5	<0.5	<2.0
	09/03/04	780 ^{13, 15}	<50	<300	<0.5	1.0 ¹⁷	<0.5	0.57	<2.0
Dup.	09/03/04	370 ^{13, 15}	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	840	<50	<300	290	1.3 ¹⁷	0.69	0.75	<2.0
Dup.	12/16/04	670	<50	<300	230	1.3 ¹⁷	<0.5	<0.5	<2.0
	03/29/05	440 ¹³	<50	<300	140	0.57	<0.5	<0.5	<2.0
Dup.	03/29/05	540 ¹³	<50	<300	170	0.72	<0.5	<0.5	<2.0
	08/10/05	500 ¹⁸	<50	<250	180	<2.5	<2.5	<2.5	<2.5
	09/29/05	360 ¹⁸	59 ²⁰	<250	160	<5.0	<5.0	<5.0	<5.0
Dup.	09/29/05	420 ¹⁸	<50	<250	150	<5.0	<5.0	<5.0	<5.0
	12/21/05	110	<50	<300	76	<0.5	<0.5	<0.5	<0.5
Dup.	12/21/05	160	<50	<300	76	<0.5	<0.5	<0.5	<0.5
	03/24/06	420	51	<300	120	0.8	<0.7	<0.7	<0.7
Dup.	03/24/06	440	<50	<300	130	<0.7	<0.7	<0.7	<0.7
	08/04/06	560	92 ²	<300	160	<1.3	4.3	<1.3	<1.3
Dup.	08/04/06	590	100 ²	<300	150	<1.3	4.5	<1.3	<1.3
	11/29/06	300	<50	<300	42	<0.7	1.0	<0.7	<0.7
Dup.	11/29/06	300	<50	<300	60	<0.7	<0.7	<0.7	<0.7
MW-5	09/11/95	90	<300	2,500	3.3	<0.3	<0.3	<0.4	NA
	04/04/96	<50	180	520	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	<50	120	1,500	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	200 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	12/31/97	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3.1
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	11/12/99	<50	110 ^{2,6}	<300	<0.5	<0.5	<0.5	<0.5	5.5 ⁹
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	05/22/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0

TABLE C-2: Groundwater Analytical Results (µg/L)
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
	09/06/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/19/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/05/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 ¹⁰
	06/18/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	11/26/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	4.1 ¹⁴ , <0.5 ¹⁰
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	2.2 ¹⁴ , <0.5 ¹⁰
	03/29/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	08/10/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
Dup.	08/10/05	<50 ¹⁹	<50 ¹⁹	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	09/29/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	12/21/05	<50	180 ^{15,22}	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	07/28/06	<50	180	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-6	11/06/98	120	12,000	1,200	19	0.65	1.8	<0.5	<2
	03/19/99	170	3,800	580	21	0.86	1.5	2.9	<2
	06/24/99	120	1,700 ⁷	<300 ⁷	18	<0.5	1.0	<0.5	54
	09/28/99	130 ^{3,5}	820	<300	20	0.51	2.2	<0.5	<2
	11/12/99	150	11,000 ^{2,6}	3,000 ^{3,6}	27	<0.5	2.2	<0.5	13 ⁹
	02/11/00	270 ²	2,300	<300	23	0.51	2.7	<0.5	5.8
	05/22/00	350	3,000	<300	18	0.51	<0.5	<0.5	7.7
	09/06/00	190	610	<300	26	<0.5	1.7	<0.5	<0.5 ¹⁰
	12/19/00	130 ^{3,11}	620	<300	24	<0.5	1.6	<0.5	<2
	02/21/01	120 ¹³	440	<300	21	<0.5	0.96	<0.5	<2
	07/10/01	120	560	<300	29	<0.5	0.99	<0.5	<2
	12/12/01	53	550	<300	27	<0.5	1.3	<0.5	<2.0
	03/08/02	160 ²	640 ²	<500	30	<0.5	<0.5	<0.5	5.0 ¹⁴
	06/13/02	160 ²	670 ²	<500	34	<0.5	<0.5	<0.5	<5.0
	09/26/02	230 ²	1400 ²	<500	40	0.64	0.8	<0.5	<5.0
	12/12/02	53	110	<300	43	<0.5	<0.5	<0.5	<2.0

TABLE C-2: Groundwater Analytical Results (µg/L)
Port of Oakland Harbor Facilities Center
2277 7th Street, Oakland, California

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
	12/18/02	Monitoring well was destroyed							
MW-7	09/06/95	<50	<300	800	<0.4	<0.3	<0.3	<0.4	NA
	01/08/96	<50	410	110	<0.4	<0.3	<0.3	<0.4	NA
	04/04/96	<50	530	340	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	80	840	1,700	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	280 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	65 ⁶	94 ²	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	<50	100	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	<50	240	<250	<0.5	<0.5	<0.5	<1.0	NA
	12/31/97	<50	53 ^{2,3}	<280	<0.5	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<48	<290	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	5.3
	06/24/99	73	<50	<300	<0.5	<0.5	<0.5	<0.5	12
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	14
	11/12/99	<50	600 ^{2,6}	420 ³	<0.5	<0.5	<0.5	<0.5	15 ⁹
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	51
	05/22/00	110	53 ²	<300	<0.5	<0.5	<0.5	<0.5	75
	09/06/00	50 ⁶	<50	<300	<0.5	<0.5	<0.5	<0.5	40 ¹⁰
	12/19/00	54 ¹¹	51 ⁵	<300	<0.5	<0.5	<0.5	<0.5	47 ^{10,12}
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	66 ¹⁰
Dup.	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	60 ¹⁰
	07/10/01	<50	51 ²	<300	<0.5	<0.5	<0.5	<0.5	76 ¹⁰
Dup.	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	75 ¹⁰
	12/12/01	51	<50	<300	<0.5	<0.5	<0.5	<0.5	98 ¹⁴
Dup.	12/12/01	64	52 ^{13,15}	<300	<0.5	<0.5	<0.5	<0.5	96 ¹⁴
	03/08/02	52 ²	<50	<500	<0.5	<0.5	<0.5	<0.5	24 ¹⁴
	06/13/02	87 ²	54 ²	<500	<0.5	<0.5	<0.5	<0.5	51
	09/26/02	83 ²	84 ²	<500	<0.5	<0.5	<0.5	<0.5	75 ¹⁰
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	58 ¹⁴
MW-8A	12/12/01	68	720 ^{11,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/08/02	<50	760 ²	<570	<0.5	<0.5	<0.5	<0.5	<5.0
Dup.	03/08/02	<50	350 ²	<580	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	<50	570 ²	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	<50	410 ²	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	160 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 ¹⁰
	06/18/03	<50	74 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3.0 ¹⁴ / <0.5 ¹⁰
	11/26/03	<50	94 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0

TABLE C-2: Groundwater Analytical Results (µg/L)
 Port of Oakland Harbor Facilities Center
 2277 7th Street, Oakland, California

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/02/04	<50	67 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/04	<50	86 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	<50	160 ^{6,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/29/05	<50	53	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	08/10/05	<50 ¹⁹	150 ^{15,19}	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	09/29/05	<50	66 ²¹	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	12/21/05	<50	63 ^{15,22}	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	03/24/06	<50	71	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	07/28/06	<50	70 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5

**TABLE C-2: Groundwater Analytical Results ($\mu\text{g/L}$)
Port of Oakland Harbor Facilities Center
2277 and 2225 7th 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

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

²Hydrocarbons present do not match profile of laboratory standard.

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

⁴Chromatographic pattern matches known laboratory contaminant.

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

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

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

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

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

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

¹¹Sample exhibits unknown single peak or peaks.

¹²EPA Method 8260 confirmation analyzed past holding time.

¹³Lighter hydrocarbons contributed to the quantitation.

¹⁴MTBE results from EPA Test Method 8021B.

¹⁵Sample exhibits fuel pattern that does not resemble standard.

¹⁶Sample extracted out of hold time.

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

¹⁸Unmodified or weakly modified gasoline is significant.

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

²⁰Gasoline compounds are significant.

²¹Diesel range compounds are significant; no recognizable pattern.

²²Heavier hydrocarbons contributed to the quantitation.