FIRST QUARTER 2009 GROUNDWATER MONITORING REPORT

2836 UNION STREET
OAKLAND, CALIFORNIA

Prepared for:

ESTATE OF LARRY M. WADLER
2525 MANDELA PARKWAY
OAKLAND, CA 94607

January 2009

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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Prepared by:

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January 22, 2009

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January 22, 2009

Ms. Barbara Jakub
Alameda County Environmental Health Care Services Agency
Department of Environmental Health – Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: First Quarter 2009 Groundwater Monitoring Report: Former Modern Mail Service, 2836 Union Street, Oakland, California, Alameda County Environmental Health Department Fuel Leak Case No. RO2901

Dear Ms. Jakub:

On behalf of the property owner and "Responsible Party" (Estate of Lawrence M. Wadler), Stellar Environmental Solutions, Inc. (SES) is submitting this First Quarter 2009 Groundwater Monitoring Report for the former Modern Mail Service Facility at 2836 Union Street, Oakland, California. This report documents the Q1-2009 groundwater monitoring event related to petroleum contamination from a former underground fuel storage tank.

This is the 10th consecutive quarterly groundwater monitoring event conducted at this site. The report has been uploaded to ACEH and to the State Water Resources Control Board's GeoTracker system.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report are true and correct to the best of my knowledge. If you have any questions regarding this report, please contact us at (510) 644-3123.

Sincerely,

Henry Pietropaoli, R.G., R.E.A.
Project Manager

Elana Aabas
Property Estate Trustee

Richard S. Makdisi, R.G., R.E.A.
Principal

TABLE OF CONTENTS

TABLES AND FIGURES

1.0 INTRODUCTION

PROJECT BACKGROUND

Stellar Environmental Solutions, Inc. (SES) was contracted by Mr. Lawrence Wadler (property owner currently referred to as the Estate of Lawrence Wadler) to conduct corrective actions related to soil and groundwater contamination associated with a 10,000-gallon underground fuel storage tank (UFST) at 2836 Union Street in Oakland, California. A list of all known environmental reports is included in Section 6.0.

This report discusses the First Quarter 2009 activities conducted on January 13, 2009. Figure 1 shows the site location. Figure 2 shows the site plan with the locations of groundwater wells, borings, and the former UFST.

SITE DESCRIPTION AND HISTORY

The approximately 7,200-square foot rectangular subject property is developed with one approximately 1,500-square foot two-story building. A narrow driveway borders the building to the north, and the rear of the property is undeveloped (paved). Adjacent uses include:

- A residence (to the north);
- A paved parking area (to the east);
- A residence (to the south); and
- A sidewalk, then Union Street, then a moving company (to the west).

The property operated as an express courier facility (Modern Mail Services, Inc.) between 1951 and 2003. One 10,000-gallon gasoline UFST was installed in the late 1970s. The UFST operated under an Alameda County Environmental Health permit (permit No. STID 4065) until it was removed in 1998. The tank closure report was submitted to the Oakland Fire Department (Golden Gate Tank Removal, 1998).

An initial site characterization conducted by SES in November 2005, which included the advancement of four borings, revealed gasoline and associated aromatic hydrocarbons at elevated levels in both soil and groundwater. That investigation was summarized in a technical report (SES, 2005b).

3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096

1000 ft Scale: 1 : 43,750 Detail: 12-2 Datum: WGS84

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SITE LOCATION ON U.S.G.S. TOPOGRAPHIC MAP

2836 Union Street
Oakland, CA

By: MJC | NOVEMBER 2005

Figure 1

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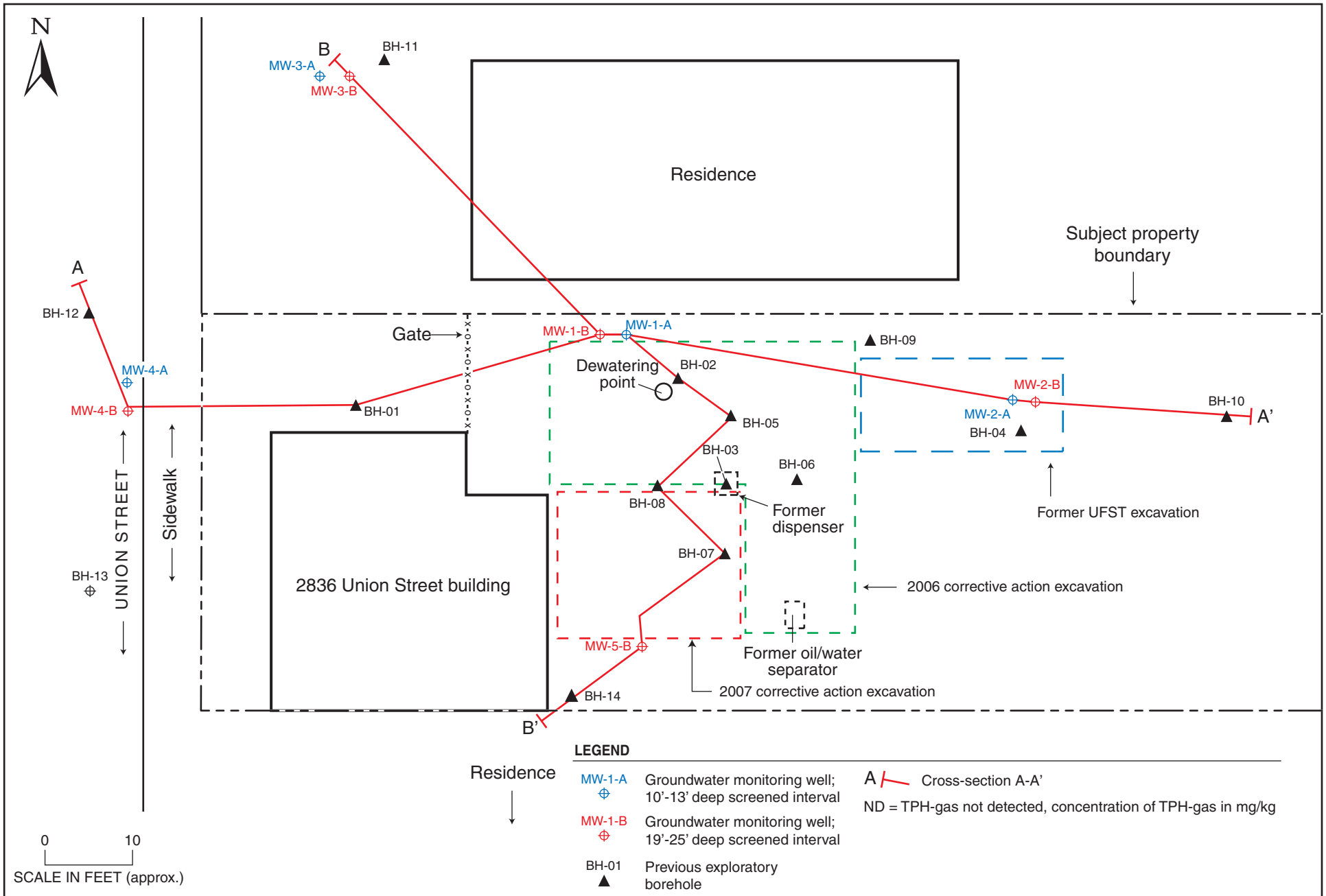
2005-65-01



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SITE PLAN SHOWING LOCATIONS OF SOIL BORINGS AND MONITORING WELLS
2836 Union Street, Oakland, CA

Figure 2

by: MJC | DECEMBER 2007

2005-65-62

Additional site investigations in April 2006 involved the advancement of nine exploratory boreholes to determine the areal and vertical extent of soil and groundwater contamination. Site data indicated the presence of petroleum hydrocarbons in soil and groundwater. Actions such as groundwater monitoring, and the removal of any remaining (accessible) contaminated soils by excavation, were recommended as an interim corrective action. The April 2006 investigation is summarized in a technical report (SES, 2006b).

A corrective action which implemented the April 2006 recommendations was conducted between September and December 2006. This involved the installation of ten monitoring wells, the advancement of one soil boring, the removal of 398 tons of contaminated soil, and the pumping of 5,100 gallons of contaminated groundwater from the backfilled excavation. Some residual contaminated soil was inaccessible for removal, and remained beneath the onsite building. Removal of this portion of the building and the previously inaccessible soil was conducted in November 2007. This corrective action was effective in removing 212 tons of contaminated soil; and included purging contaminated groundwater and applying Oxygen Reducing Compound (ORC) Advanced™ product into the open excavation. Monitoring well MW-5A was destroyed by excavation during the November 2007 activity. These investigations are summarized in SES technical reports (SES, 2006d and 2007f). The site wells have been monitored quarterly since October 2006. At the request of ACEH, a "Preferential Pathway Utility and Well Survey" was conducted during the 4th Quarter 2008, the results of which are discussed in another technical report (SES 2008e).

REGULATORY STATUS

The Alameda County Environmental Health Care Services Agency, Department of Environmental Health Services (ACEH) is the lead regulatory agency for the case, acting as a Local Oversight Program (LOP) for the Regional Water Quality Control Board – San Francisco Bay Region (Water Board). There are no ACEH or Water Board cleanup orders for the site; however, all site work has been conducted under the oversight of ACEH. ACEH assigned the site to its fuel leak case system (RO#2901), and the case officer assigned was Mr. Barney Chan. Mr. Chan transferred to another ACEH department in 2007 and the current case officer, Ms. Barbara Jakub was assigned to the case in the summer of 2008.

The case has been assigned No. T0600105641 in the Water Board's GeoTracker system. Electronic uploads of required data/reports are submitted to both agencies. The site has been granted a Letter of Commitment, and has been receiving financial reimbursement from the California Underground Storage Tank Cleanup Fund.

2.0 PHYSICAL SETTING

TOPOGRAPHY AND DRAINAGE

The mean elevation of the property is approximately 18 feet above mean sea level (amsl), and the general topographic gradient in the site vicinity is slight and to the west-southwest (toward San Francisco Bay). The site itself has no discernible slope. The nearest downgradient (to the west) permanent surface water body is the Airport Channel of San Leandro Bay (which is connected to San Francisco Bay), approximately 2 miles west of the subject property. According to the commercially available database, the site is not located within a flood zone or wetland.

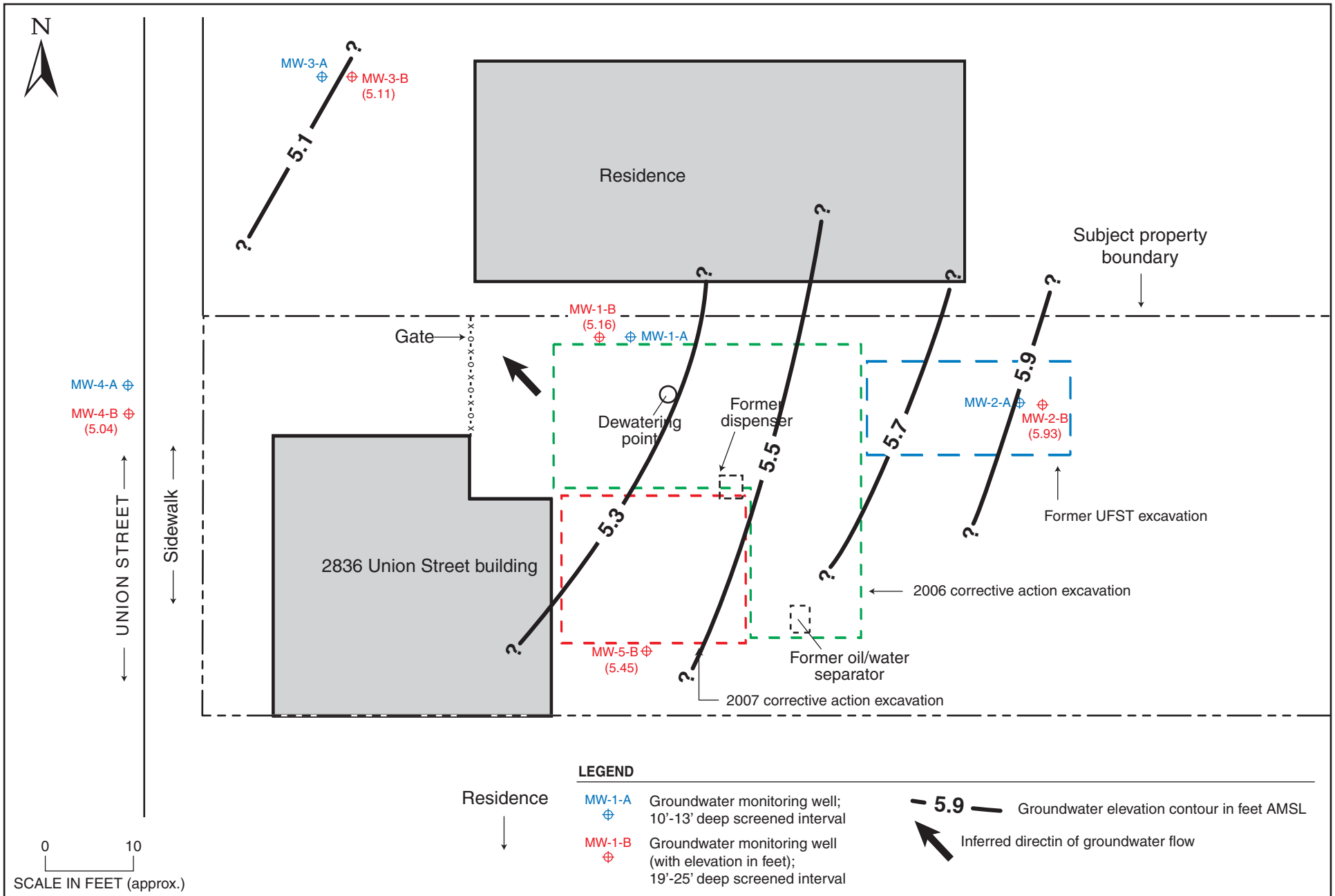
LITHOLOGY AND HYDROGEOLOGY

The predominant soil type in all site boreholes was generally firm and plastic silty clay. Several of the boreholes had no obvious sand or gravel units, although minor amounts of sand and gravel were occasionally present in the overall clay matrix. Groundwater occurred in these units with higher sandy-gravel than clay content. Local heterogeneities in shallow lithology and groundwater levels are typical of the alluvial deposits in this area.

Local groundwater flow direction is generally to the west (toward San Francisco Bay and following local topography) in this area of west Oakland. Groundwater in the immediate vicinity of the former UFST occurs at a depth of less than 10 feet, and appears to be under semi-confining conditions, rising from approximately 20 feet below ground surface to as high as 6 feet below grade such that groundwater is in contact with residual contaminated soil. The groundwater contaminant plume has not been fully delineated, but appears to have an elliptical configuration with the long axis trending east to west-northwest.

GROUNDWATER FLOW DIRECTION

Figure 3 is a groundwater elevation map based on the January 13, 2009 groundwater elevation measurements. The flow direction during the January 2009 event was found to be toward the west-northwest (toward San Francisco Bay), generally parallel to the long dimension of the groundwater contaminant plume. The subject property groundwater gradient ranged from approximately 0.01 feet/foot on the western side of the property to 0.009 feet/foot on the eastern side of the property. The groundwater gradient has varied since October 2006 between approximately 0.001 feet/foot and 0.01 feet/foot, averaging approximately 0.005 feet/foot.



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GROUNDWATER ELEVATION MAP (B-WELLS)

2836 Union Street, Oakland, CA

Figure 3

by: MJC | JANUARY 2009

2005-65-77

3.0 FIRST QUARTER 2009 GROUNDWATER MONITORING

This section presents the groundwater sampling and analytical methods for the most recent event (First Quarter 2009), conducted on January 13, 2009.

GROUNDWATER MONITORING

Groundwater monitoring well water level measurements, sampling, and field analyses were conducted by Blaine Tech Services (San Jose, California) on January 13, 2009, under the direct supervision of SES personnel. To minimize the potential for cross-contamination, wells were purged and sampled in order of anticipated increasing contamination (based on analytical results from the previous quarter).

As the first monitoring task, static water levels were measured in the nine site wells using an electric water level indicator. Monitoring well MW-5A was destroyed by excavation during the November 2007 corrective action and thus is no longer available for monitoring. The wells were then sampled with a peristaltic pump, during which the groundwater quality parameters of temperature, pH, conductivity, and turbidity were field-measured using daily-calibrated instruments. In addition, by request of ACEH, dissolved oxygen is being measured to monitor the effects of the November 2007 ORC application. Approximately 9 gallons of sampling purge water was generated and containerized onsite, and will be disposed of at later date after subsequent monitoring events and additional purge water has accumulated. The samples were placed in an ice chest with ice at approximately 4°C and transported to the analytical laboratory under chain-of-custody the same day. Laboratory analysis was conducted by Curtis and Tompkins, Ltd. (Berkeley, California), an analytical laboratory certified by the State of California Environmental Laboratory Accreditation Program (ELAP).

The locations of all site monitoring wells are shown on Figure 2. Well construction information and groundwater elevation data are summarized in Table 1. Appendix A contains the groundwater monitoring field records for the current event. Appendix B outlines SES's standard sampling protocol for groundwater. Groundwater analytical results are presented and discussed in Section 4.0. Historical groundwater elevation data and analytical results are contained in Appendix D.

Table 1
Monitoring Well Groundwater Elevation Data – January 13, 2009
2836 Union Street, Oakland, California

Well	Well Depth Below TOC	Rim Elevation	TOC Elevation	Groundwater Elevation (1/13/09)
MW-1A	12.59	12.52	12.25	5.25
MW-1B	22.52	12.48	12.05	5.16
MW-2A	12.69	13.06	12.82	5.83
MW-2B	24.59	13.16	12.96	5.93
MW-3A	13.06	11.76	11.59	5.31
MW-3B	25.06	12.10	11.95	5.11
MW-4A	12.28	11.25	11.02	5.02
MW-4B	24.32	11.25	11.04	5.04
MW-5B	25.39	12.57	12.38	5.45

Notes:

TOC = top of casing

Wells are 1-inch diameter.

All elevations are in feet above mean sea level.

4.0 REGULATORY CONSIDERATIONS, ANALYTICAL RESULTS, AND DISCUSSION OF FINDINGS

REGULATORY CONSIDERATIONS AND SCREENING LEVELS

The Water Board has established Environmental Screening Levels (ESLs) for evaluating the likelihood of environmental impact. ESLs are conservative screening-level criteria for soil and groundwater, designed to be generally protective of both drinking water resources and aquatic environments; they incorporate both environmental and human health risk considerations. ESLs are not cleanup criteria (i.e., health-based numerical values or disposal-based values). Rather, they are used as a preliminary guide in determining whether additional remediation and/or investigation may be warranted. Exceedance of ESLs suggests that additional investigation and/or remediation is warranted.

Different ESLs are published for commercial/industrial vs. residential land use, for sites where groundwater is a potential drinking water resource vs. is not a drinking water resource, and the type of receiving water body. A Water Board-published map of the East Bay shows areas where groundwater is, and is not, a potential drinking water resource.

In our professional opinion, the appropriate ESLs for the subject site are based on the following:

- Residential land use (due to the residences adjoining the property) and commercial/ industrial use (for the subject property itself). Note that, for both soil and groundwater contaminants, all ESLs for the site contaminants are the same for both residential and commercial/industrial land use.
- Groundwater <u>is</u> a potential drinking water resource. In our professional opinion, the appropriate ESLs for the subject site are *commercial/industrial land use* and *groundwater is a potential drinking water resource.* This is based on both the property zoning status (commercial/industrial) and the designation of this area of Oakland as "Zone A – Significant Drinking Water Resource (Water Board, 1999).
- The receiving body for groundwater discharge is an estuary (San Francisco Bay).

The State of California has also promulgated drinking water standards (Maximum Contaminant Levels [MCLs]) for some of the site contaminants. Drinking water standards may also be utilized by regulatory agencies to evaluate the potential risk associated with groundwater

contamination. For the site contaminants, MCLs are generally the same as the ESLs (except that there is no MCL for gasoline).

Once ESLs or drinking water standards are exceeded the need for, and/or type of additional investigative and corrective actions are generally driven by the potential risk associated with the contamination. Minimum regulatory criteria generally applied to fuel leak cases in groundwater include:

- The contaminant source has been removed, including reasonably accessible contaminated soils that pose a long-term impact to groundwater;
- The extent of residual contamination has been fully characterized to obtain sufficient lithologic and hydrogeologic understanding (generally referred to as a Site Conceptual Model);
- Groundwater wells have been installed and are monitored periodically to evaluate groundwater contaminant concentrations and hydrochemical trends;
- The stability of the contaminant plume has been evaluated to determine whether it is moving or increasing in concentration; and
- A determination has been made as to whether the residual contamination poses an unacceptable risk to sensitive receptors.

As stated above, ESLs are used as a preliminary guide in determining whether additional remediation or other action is warranted. Exceeding ESLs may warrant additional actions, such as monitoring plume stability to demonstrate no risk to sensitive receptors in the case of sites where drinking water is not threatened.

ANALYTICAL METHODS

The initial site characterization documented contamination by the following LUFT-related constituents: gasoline; benzene toluene, ethyl benzene, and xylenes (BTEX); and methyl *tertiary*-butyl ether (MTBE). In addition, several other contaminants were analyzed (as required by ACEH)—ethanol; fuel oxygenates (*tertiary*-butyl alcohol [TBA], di-isopropyl ether [DIPE], ethyl *tertiary*-butyl ether [ETBE], and *tertiary*-amyl methyl ether [TAME]); and lead scavengers (1,2-dichloroethane [EDC] and 1,2-dibromoethane [EDB]). Fuel oxygenates and lead scavengers were analyzed in monitoring wells for which there were no data, or in those that showed previous laboratory detectable concentrations for these constituents.

Groundwater samples were analyzed using the following methods for:

- Total volatile hydrocarbons (TVH) gasoline range by EPA Method 8015M;
- BTEX and MTBE by EPA Method 8260;

- TBA, DIPE, ETBE, and TAME by EPA Method 8260B (in accordance with ACEH requirement); and
- EDC and EDB by EPA Method 8260B (in accordance with ACEH requirement).

All groundwater samples were analyzed by Curtis & Tompkins, Ltd. (Berkeley, California) which maintains current ELAP certifications for all the analytical methods utilized in this investigation.

Field parameters including temperature, pH, conductivity, turbidity, and dissolved oxygen were measured using a Myron L meter, which was calibrated the same day of sample collection.

QUALITY CONTROL SAMPLE ANALYTICAL RESULTS

Laboratory quality control (QC) samples (e.g., method blanks, matrix spikes, surrogate spikes) were analyzed by the laboratory in accordance with requirements of each analytical method. All laboratory QC sample results and sample holding times were within the acceptance limits of the methods (see Appendix C).

ANALYTICAL RESULTS AND DISTRIBUTION OF CONTAMINANTS

Tables 2 and 3 summarize the groundwater monitoring analytical results for TVHg, and associated constituents. Table 3 presents the analytic results of the fuel oxygenates and lead scavengers analysis and the dissolved oxygen field measurements. The certified analytical results and chain of custody record are contained in Appendix C. Historical groundwater monitoring analytical results are contained in Appendix D.

Groundwater Analytical Results

Monitoring well MW-3A was not sampled during this event due to lack of sufficient sample volume. TVH as gasoline was detected above the ESL of 100 micrograms per liter (µg/L) in monitoring wells MW-1B, MW-2B, MW-3B, MW-4B, and MW-5B. TVH as gasoline was also detected in monitoring well MW-1A, but below the ESL. No other monitoring wells had detections of TVH as gasoline above the laboratory detection limit. MTBE was detected above its ESL of 5.0 µg/L in wells MW-1A, MW-1B, MW-2B, MW-4A, and MW-5B. MTBE was not found above the laboratory detection limit in any of the other wells sampled.

Benzene was detected in well MW-1A above the ESL of 1.0 µg/L. Benzene was not detected above the laboratory detection limit in any of the other wells sampled. Total xylenes were found above the laboratory detection limit in only well, MW-5B, but at a concentration below the ESL of 20 µg/L.

The lead scavenger 1,2-dichloroethane was detected above the ESL of 0.5 µg/L in well MW-1B and MW-2B at 4.4 µg/L and 4.3 µg/L, respectively. Tertiary-amyl methyl ether (TAME) was detected in MW-5B at 2.3 µg/L; however, there is no published ESL for this constituent. None of the other lead scavengers analyzed for were detected above the laboratory detection limits in any of the other groundwater monitoring wells.

Figure 4 shows an isoconcentration contour map of TVH as gasoline concentrations in groundwater based on the January 2009 monitoring well analytical results. The plume geometry indicates a west-by-northwest migrational pattern, which is in line with general groundwater flow direction in this area.

Contaminant concentrations have slightly decreased since the Q4-2008 sampling event in all wells but MW-5B which slightly increased. However, contaminant concentrations in all of the wells have decreased since the same quarter last year (January 2008). Monitoring well MW-3A could not be sampled due to insufficient sample volume during this event. MW-4A remained below the laboratory detection limit as it has since its installation in October 2006.

Table 2
Groundwater Sample Analytical Results – January 13, 2009

TVHg, BTEX, and MTBE,
2836 Union Street, Oakland, California

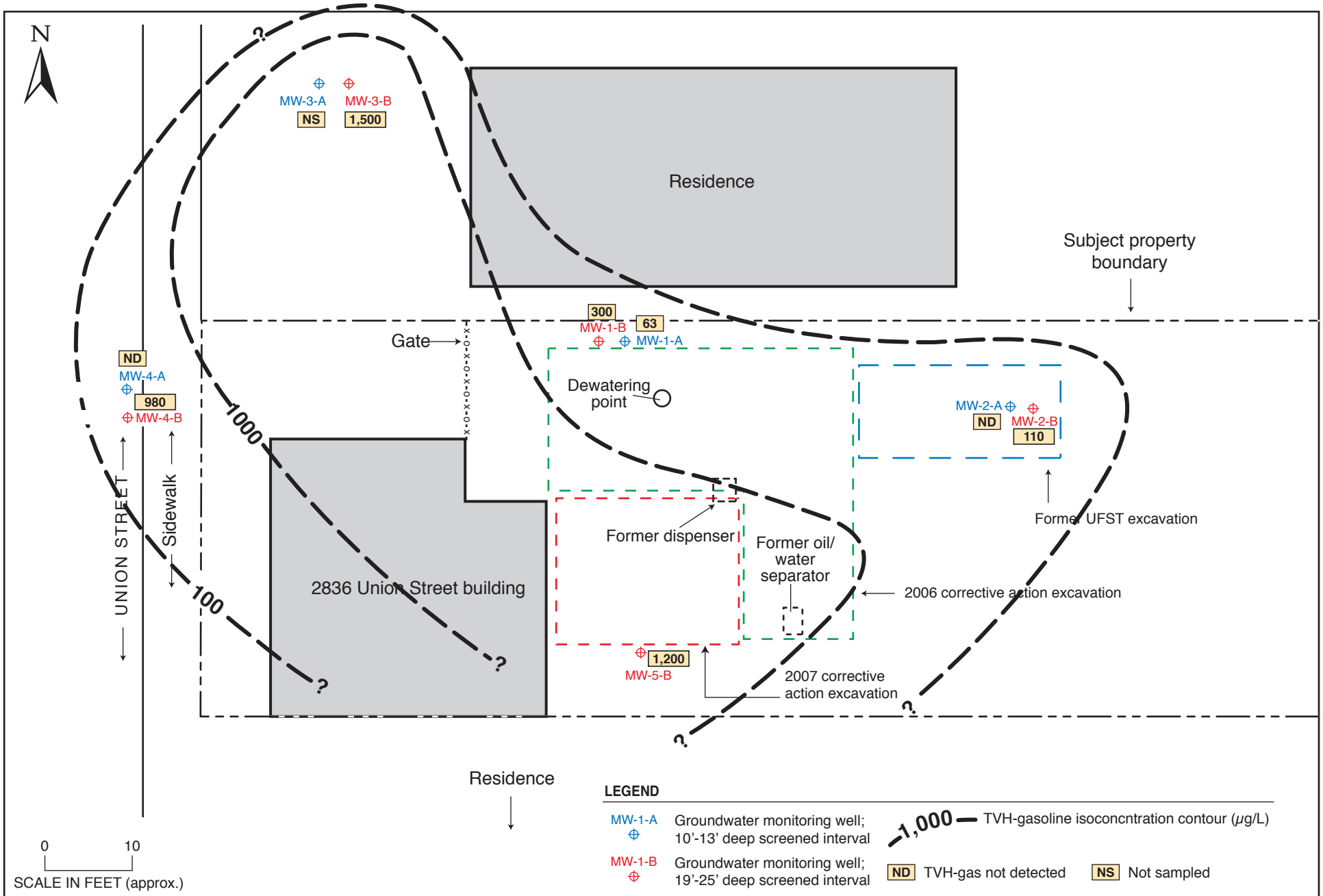
Sample	TVHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
Monitoring Wells						
MW-1A	63	**1.2**	*<0.5*	<0.5	<0.5	**77**
MW-1B	**300**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**7.5**
MW-2A	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
MW-2B	**110**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**27**
MW-3A	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-3B	**1,500**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
MW-4A	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**6.7**
MW-4B	**980**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
MW-5B	**1,200**	*<0.5*	*<0.5*	*<0.5*	4.2	**56**
Groundwater ESLs	100 / 210	1.0 / 46	40 / 130	30 / 43	20 / 100	5 / 1,800

Notes:
ESLs = Water Board Environmental Screening Levels for commercial/industrial sites where groundwater *is/is not* a potential drinking water resource (Water Board, 2008). Sample concentrations in **bold-face** type exceed the ESL criterion where groundwater is a potential resource.
MTBE = methyl tertiary-butyl ether
TVHg = total volatile hydrocarbons as gasoline
NA = not analyzed for this constituent; NS = not sampled, insufficient sample amount
All concentrations are in micrograms per liter (µg/L).

Table 3
Groundwater Sample Analytical Results – January 13, 2009
Lead Scavengers and Fuel Oxygenates,
2836 Union Street, Oakland, California

Sample I.D.	EDC	EDB	ETBE	DIPE	TAME	TBA	DO_2
Groundwater Analyses (µg/L)							
MW-1A	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
MW-1B	**4.4**	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<20*	6,160
MW-2A	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	2,120
MW-2B	**4.3**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	2,160
MW-3A	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-3B	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<100*	1,480
MW-4A	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	2,350
MW-4B	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<83*	1,620
MW-5B	*<0.5*	*<0.5*	*<0.5*	*<0.5*	2.3	*<10*	3,210
Groundwater ESLs	0.5 / 690	0.05 / 510	NLP	NLP	NLP	12/ 18,000	NLP

Notes:
ESLs = Water Board Environmental Screening Levels for residential sites where groundwater *is/is not* considered a potential drinking water resource. (Water Board, 2008).
Sample concentrations in **bold-face** type exceed the ESL criterion where groundwater is considered a potential drinking water resource.
EDB = ethylene dibromide (1,2-dibromoethane)
EDC = ethylene dichloride (1,2-dichloroethane).
ETBE = ethyl tertiary-butyl ether
DIPE = isopropyl ether
TAME = tertiary-amyl methyl ether
TBA = tertiary-butyl alcohol
DO_2 = dissolved oxygen
NA = not analyzed for this constituent
NS = not sampled
NLP = no level published



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TVH-GASOLINE PLUME — JANUARY 13, 2009
2836 Union Street, Oakland, CA

Figure 4

by: MJC | JANUARY 2009

2005-65-76

5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY AND CONCLUSIONS

- One 10,000-gallon gasoline UFST was installed in the late 1970s. The UFST operated under an Alameda County permit until its removal in 1998.
- A preliminary investigation was conducted in August 2005, additional site characterization investigations were conducted in October 2005 and April 2006, and corrective action entailing contaminated soil excavation and the installation of ten monitoring wells was conducted in September to October 2006. The remaining accessible contaminated soil was removed in November 2007 from beneath the former garage building, and the excavation area was treated with ORC® product. The November 2007 corrective action also entailed destruction by excavation of monitoring well MW-5A.
- The primary source (UFST) and secondary source (contaminated soil) have been remediated by excavation. All known accessible residual contaminated soil has been excavated from this site. Residual TVH as gasoline soil contamination (790 to 270 mg/kg) above regulatory ESLs was documented during the October 2006 corrective action along the northern property boundary, but was inaccessible for removal over the property line.
- The subject property groundwater gradient ranged from approximately 0.001 feet/foot on the western side of the property to 0.004 feet/foot on the eastern side of the property.
- TVH as gasoline was detected above the ESL of 100 micrograms per liter (µg/L) in monitoring wells MW-1B, MW-2B, MW-3B, MW-4B, and MW-5B. TVH as gasoline was also detected in monitoring well MW-1A, but below the ESL.
- MTBE was detected above its ESL of 5.0 µg/L in wells MW-1A, MW-1B, MW-2B, MW-4A, and MW-5B. MTBE was not detected above the laboratory detection limit in any of the other monitoring wells.
- Benzene was detected in well MW-1A above the ESL of 1.0 µg/L. Benzene was not detected above the laboratory detection limit in any of the other wells sampled.
- Total xylenes were found above the laboratory detection limit in only well, MW-5B, but at a concentration below the ESL of 20 µg/L.

- The lead scavenger 1,2-dichloroethane was detected above the ESL of 0.5 µg/L in well MW-1B and MW-2B at 4.4 µg/L and 4.3 µg/L, respectively . Tertiary-amyl methyl ether (TAME) was detected in MW-5B at 2.3 µg/L; however, there is no published ESL for this constituent. None of the other lead scavengers analyzed for were detected above the laboratory detection limits in any of the other groundwater monitoring wells.
- Contaminant concentrations have slightly decreased since the Q4-2008 sampling event in all wells but MW-5B, the source area well, which slightly increased. However, contaminant concentrations in all of the wells have decreased since the same quarter last year (January 2008).
- At the request of ACEH, analysis for lead scavengers and fuel oxygenates is limited to the wells with a historical detection—namely, MW-1A, MW-1B, MW-2B, MW-3A, MW-3B, MW-4B and MW-5B.
- The groundwater contaminate plume has not been fully delineated, but appears to be in elliptical configuration with its long axis trending east by west-northwest.
- At the request of ACEH, a "Preferential Pathway and Offsite Utility and Well Survey was conducted during the 4th Quarter 2008. The survey concluded that it would be unlikely that nearby wells would be impacted by the plume and there is insignificant risk of migration of site contaminated groundwater into any utility-related preferential pathway.

RECOMMENDATIONS

- We recommend following up with ACEH following its receipt of this report, to discuss the requirements to move the site toward regulatory closure. We further recommend that the ACEH-requested work be implemented, and that all future technical reports be provided to the appropriate regulatory agencies, including electronic uploads ACEH's "ftp" system and the State Water Board's GeoTracker system.
- Continued quarterly groundwater monitoring of site wells should be continued as requested by ACEH to monitor the level of breakdown accomplished by the ORC application, to evaluate the magnitude and stability of the contaminant plume over time, and to determine whether site closure criteria can be met.
- Reimbursement requests should continue to be submitted under the State of California Petroleum UST Cleanup Fund.

6.0 REFERENCES

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7.0 LIMITATIONS

This report has been prepared for the exclusive use by the Estate of Mr. Lawrence Wadler (subject property owner), the regulatory agencies, and their authorized assigns and/or representatives. No reliance on this report shall be made by anyone other than those for whom it was prepared.

The findings and conclusions presented in this report are based solely on the findings of the investigations discussed herein. This report has been prepared in accordance with generally accepted methodologies and standards of practice of the area. The personnel performing this assessment are qualified to perform such investigations and have accurately reported the information available, but cannot attest to the validity of that information. No warranty, expressed or implied, is made as to the findings, conclusions, and recommendations included in the report.

APPENDIX A

GROUNDWATER MONITORING AND SAMPLING FIELD REPORT

H or Purge Water Drum L

Client: STELLAR ENV.

Site Address: 2836 UNION ST. OAKLAND

STATUS OF DRUM(S) UPON ARRIVAL

Date	4/10/08	7/7/08	10/17/08	01/13/09		
Number of drum(s) empty:	1	1		0		
Number of drum(s) 1/4 full:	1	1	2	0 2 X 2		
Number of drum(s) 1/2 full:	1	1	1	1		
Number of drum(s) 3/4 full:						
Number of drum(s) full:	1	1	1	1		
Total drum(s) on site:	4	4	4	4		
Are the drum(s) properly labeled?	Y		N	N		
Drum ID & Contents:	purge H2O	soil, purge H2O / Tools →				
If any drum(s) are partially or totally filled, what is the first use date:	—	~~7/8~~ —	—	—		

- If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.

-If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.

-All BTS drums MUST be labeled appropriately.

STATUS OF DRUM(S) UPON DEPARTURE

Date	4/10/08		10/17/08	01/13/09		
Number of drums empty:	1	0				
Number of drum(s) 1/4 full:	1	1 2	2	1		
Number of drum(s) 1/2 full:	1	1	1	2		
Number of drum(s) 3/4 full:		0				
Number of drum(s) full:	1	1	1	1		
Total drum(s) on site:	4	4	4	4		
Are the drum(s) properly labeled?	Y	Yes	N	N		
Drum ID & Contents:	purge H2O	soil, purge H2O Tools →		Purge H2O		

LOCATION OF DRUM(S)

Describe location of drum(s): ALONG THE SOUTH FENCE BEHIND THE BUILDING

Drums w/ soil & Tools not secure

FINAL STATUS

Number of new drum(s) left on site this event	0	0	0	0		
Date of inspection:	4/10/08	7/7/08	10/17/08	01/13/09		
Drum(s) labelled properly:	Y	Y	NO	N		
Logged by BTS Field Tech:	IW	BD	PC	SO		
Office reviewed by:						

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME 2836 Union St, Oakland				PROJECT NUMBER 090113-J01			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. F°	INITIALS
myron L Ultra meter II	6222814	01/13/09 7:00	PH 4 7 10	4 7 10	yes	60° F	JD
YSI 550 DO meter	06E1424 4J	01/13/07 7:00	100	100	yes	60° F	JD
YSI 550 DO meter	06E1424 4J	01/13/07	100	103	yes	70° F	JD
		rechecked DO meter.					

WELL GAUGING DATA

Project # 090113-J01 Date 09/13/09 Client Stellar

Site 2836 Union Street Oakland

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-4A	0930	3/4					6.00	12.12		
MW-2A	0900	3/4					6.99	12.75		
MW-1B	0915	3/4					6.89	22.50		
MW-1A	0920	3/4					7.00	12.43		
MW-4B	0925	3/4					6.00	24.27		
MW-3B	0935	3/4					6.84	25.03		
MW-2B	0905	3/4					7.03	24.61		
MW-5B	0910	3/4					6.93	25.30		
MW-3A	0940	3/4					6.28	12.96		

WELLHEAD INSPECTION CHECKLIST

Date 01/13/09 Client Stellar

Site Address 2836 Union street

Job Number 090113 - SO2 Technician SO

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-4A	X							
MW-2A	X	X						
MW-1B	X							
MW-1A	X							
MW-4B	X							
MW-3B	X							
MW-2B	X							
MW-5B	X	X						
MW-3A	X							

NOTES:

W L MONITORING DATA SHE

Project #: 090113-J01	Client: Stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-1A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.43	Depth to Water (DTW): 7.00
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 8.09	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✱Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.1 (Gals.) X	3	=	0.3 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

0.02

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
Well dewater @			0.05	gallons NO	Parameter	Taken
1405	67.8	7.25	1005	64	—	
recharged only	one	was	was	filled	not enough	water for
DO readings						

Did well dewater? (Yes) No Gallons actually evacuated:

Sampling Date: 01/13/09 Sampling Time: 14.05 Depth to Water:

Sample I.D.: MW-1A Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

...L MONITORING DATA SH

(6)

Project #: 090113-J01	Client: stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-1B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 22.50	Depth to Water (DTW): 6.89
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 10.01	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New tubing

0.3 (Gals.) X	3	=	0.9 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1137	66.4	7.28	1153	110	0.3	
1139	66.7	7.26	1124	88	0.6	
1140	66.1	7.23	1107	64	0.9	

Did well dewater? Yes (No) Gallons actually evacuated: 0.9

Sampling Date: 01/13/09 Sampling Time: 1150 Depth to Water:

Sample I.D.: MW-1B Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd): (Pre-purge)	4.16 mg/L	(Post-purge):	6.16 mg/L
O.R.P. (if req'd): Pre-purge:	mV	Post-purge:	mV

...L MONITORING DATA SH...

(6)

Project #: 090113-J01	Client: stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-2A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.75	Depth to Water (DTW): 6.99
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 8.14	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✱Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.1 (Gals.) X 3 = 0.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1055	65.6	7.60	963	14	0.1	clear
1056	65.5	7.58	962	18	0.2	
1057	65.4	7.59	954	10	0.3	

Did well dewater? Yes (No) Gallons actually evacuated: 0.3

Sampling Date: 01/13/09 Sampling Time: 11:00 Depth to Water: 7.57

Sample I.D.: MW-2A Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	1.95 mg/L	Post-purge:	2.12 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

...L MONITORING DATA SH...

(6)

Project #: 090113-J01	Client: stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-2B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 24.61	Depth to Water (DTW): 7.03
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 10.55	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✗ Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: new Tubing

0.35 (Gals.) X 3 = 1.05 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1120	67.9	7.11	1366	479	0.35	Brown
1122	67.3	7.09	1162	358	0.70	Light Brown
1124	Dewatered at 0.9 gallons					
1350	67.2	7.07	1141	256	—	

Did well dewater? (Yes) No Gallons actually evacuated: 0.9

Sampling Date: 01/13/09 Sampling Time: 1350 Depth to Water:

Sample I.D.: MW-2B Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	2.03 mg/L	Post-purge:	2.16 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

...L MONITORING DATA SH...

Project #: 090113-J01	Client: stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-3A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.96	Depth to Water (DTW): 6.28
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 7.62	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✱Peristaltic; Extraction Pump; Other_____

Sampling Method: ~~Bailer~~; ~~Disposable Bailer~~; Extraction Port; Dedicated Tubing; Other: New Tubing

0.1 (Gals.) X	3	=	0.3 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1025	63.2	6.75	1357	10	0.1	clear
	Dewatered at 0.15 gallons					
could not sample NO recharge						

Did well dewater? (Yes) No Gallons actually evacuated: 0.15

Sampling Date: 01/13/09 Sampling Time: — Depth to Water:

Sample I.D.: MW-3A Laboratory: Kiff ~~CalScience~~ Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D ~~Oxygenates (5)~~ Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	2.31 mg/L	Post-purge:		mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

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(6)

Project #: 090113-J01	Client: Stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-3B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 25.03	Depth to Water (DTW): 6.84
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 10.48	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✱Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.36 (Gals.) X	3	=	1.08 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1254	63.0	7.08	949	220	0.36	
1256	63.1	7.09	931	104	0.72	clear
1258	63.2	7.07	920	64	1.08	↓

Did well dewater? Yes (No) Gallons actually evacuated: 1.08

Sampling Date: 01/13/09 Sampling Time: 1310 Depth to Water:

Sample I.D.: MW-3B Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	2.65 mg/L	Post-purge:	1.48 mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV	

...L MONITORING DATA SE...

Project #: 090113-J01	Client: Stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-4A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.12	Depth to Water (DTW): 6.0
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 7.22	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✓Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.1 (Gals.) X 3 = 0.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1035	62.7	7.12	1233	18	0.1	clear
1036	62.6	7.17	1235	41	0.2	clear
		Dewatered at 0.25 gallons				
1330	63.4	7.21	1241	19	—	clear

Did well dewater? (Yes) No — Gallons actually evacuated: 0.25

Sampling Date: 01/13/09 — Sampling Time: 1330 — Depth to Water:

Sample I.D.: MW-4A — Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time — Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	2.61 mg/L	Post-purge:	2.35 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

L MONITORING DATA SH

Project #: 090113-J01	Client: stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-4B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 24.27	Depth to Water (DTW): 6.00
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 9.65	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✱Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: _____

0.36 (Gals.) X 3 = 1.08 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1236	64.3	7.21	922	19	0.36	clear
1238	64.5	7.22	916	18	0.72	↓
1240	63.9	7.18	909	14	1.08	↓

Did well dewater? Yes (No) Gallons actually evacuated: 1.08

Sampling Date: 01/13/09 Sampling Time: 1245 Depth to Water:

Sample I.D.: MW-4B Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	(Pre-purge):	1.77 mg/L	(Post-purge):	1.62 mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV	

L MONITORING DATA SH

(6)

Project #: 090113-J01	Client: Stellar
Sampler: JO	Date: 01/13/09
Well I.D.: MW-5B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 25.30	Depth to Water (DTW): 6.93
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 10.604	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ✗ Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other:_____

0.36 (Gals.) X	3	=	1.08 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1206	66.9	7.38	1018	420	0.36	odor
1208	67.9	7.40	997	645	0.72	odor
1210	67.2	7.37	989	1000 c	1.08	Black / odor

Did well dewater? Yes (No) Gallons actually evacuated: 1.08

Sampling Date: 01/13/09 Sampling Time: 1215 Depth to Water:

Sample I.D.: MW-5B Laboratory: Kiff CalScience Other C&T

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	(Pre-purge):	3.09 mg/L	(Post-purge):	3.21 mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV	

APPENDIX B

SES GROUNDWATER STANDARD SAMPLING PROTOCOLS

APPENDIX B
SES GROUNDWATER STANDARD SAMPLING PROTOCOLS

SAMPLING AND ANALYSIS PERSONNEL

Sampling and analysis is conducted by Blaine Tech Services, a subcontractor to SES, which uses appropriately trained personnel to perform the water level measurements, sampling, and analyses of key natural attenuation indicators.

SUMMARY OF SAMPLING PROCEDURES

Activities that will occur during groundwater sampling are summarized as follows:

- Pre-arrangement with testing laboratory
- Assembly and preparation of equipment and supplies
- Groundwater sampling
  - water-level measurements
  - immiscible material measurements (with an interface probe, if applicable)
  - visual inspection of borehole water
  - well bore evacuation
  - sampling
- Sample preservation and shipment
  - sample preparation
  - onsite measurement of parameters using direct read instruments
  - sample labeling
- Completion of sample records
- Completion of chain-of-custody records
- Samples placed in chilled cooler
- Sample shipment

Detailed sampling and analysis procedures are presented in the following sections.

ARRANGEMENTS WITH ANALYTICAL LABORATORY

Prior to sampling, arrangements will be made with an analytical laboratory to conduct the sample analyses. Samples will be analyzed by Curtis and Tompkins, Ltd. (C&T), an analytical laboratory in Berkeley, California. C&T has the required Department of Toxic Substances Control (DTSC) certification to perform the analyses, and will provide a sufficient number of sample containers for the wells to be sampled and the blanks to be included. C&T will determine the proper type and size for the containers based on the analyses requested. For samples requiring chemical preservation, preservatives will be added to containers by the C&T prior to shipping containers to the facility. Shipping containers (ice chests with adequate container padding) will be sent to the facility with the sample containers.

PREPARATION FOR SAMPLING

Prior to the sampling episode, equipment to be used will be assembled and its operating condition verified, calibrated (if required), and properly cleaned (if required). In addition, all record-keeping materials will be prepared.

Equipment Calibration

Where appropriate, equipment will be calibrated according to the manufacturer's specifications prior to field use. This applies to the equipment for making onsite chemical measurements of pH, conductivity, water temperature, and photoionization detector (PID).

Equipment Cleaning

Portions of sampling and test equipment that will come into contact with the sample will be thoroughly cleaned before use. Such equipment includes water-level probe, bailers, lifting line, and other equipment or portions thereof that may be immersed. The procedure for cleaning non-dedicated equipment is as follows:

- Clean with potable water and phosphate-free detergent;
- Rinse with potable water;
- Rinse with distilled or deionized water; and
- Air dry the equipment prior to use.

Any deviations from these procedures will be documented in the permanent record of the sampling event.

Laboratory-supplied sample containers will be cleaned and sealed by the laboratory before shipping. The type of container provided and the method of container cleaning should be in the laboratory's permanent record of the sampling event.

Sampling equipment to be disposed of after use will be cleaned with potable water and phosphate-free detergent before disposal as solid waste. Rinse water will be stored in properly labeled 55-gallon drums for proper disposal, pending receipt of laboratory results of groundwater and soil sample analyses with assistance from SES.

SAMPLING PROCEDURES

Special care will be exercised to prevent contamination of the groundwater and extracted samples during the sampling activities. Contamination of a sample can occur through contact with improperly cleaned equipment. Cross-contamination of the groundwater can occur through insufficient cleaning of equipment between wells. Pre-cleaned disposable sampling equipment will be rinsed with distilled water prior to use. Sampling equipment and sample containers will be thoroughly cleaned before and after field use and between uses at different sampling locations according to the procedures discussed above. In addition to the use of properly cleaned equipment, two further precautions will be taken:

- A new pair of clean, disposable latex (or similar) gloves will be worn each time a different well is sampled.
- Sample collection activities will progress from the least affected (upgradient) area to the most affected (downgradient) area. Wells described as “background” or “upgradient” wells will be sampled first.

The following paragraphs present procedures for the several activities that comprise groundwater sample acquisition. These activities will be performed in the same order as presented below. Exceptions to this procedure will be noted in the permanent sampling record.

Preparation of Location

Prior to starting the sampling procedure, the area around the well will be cleared of foreign materials, such as brush, rocks, debris, etc. A clean (new) disposable plastic sheet will be placed around the well casing so that the sheet is flat on the ground. The sheet will be placed such that the flush-mount well projects through the center of the sheet. This preparation will prevent sampling equipment from inadvertently contacting the ground or exterior parts of the well.

Water-Level Measurement

The first sampling operation is water-level measurement. An electrical probe or a weighted tape will be used to measure the depth to groundwater below the datum to the nearest 0.01 foot. The datum, usually the top of the inner casing (inside and below the protective steel cover), will be described in the monitoring well records. A permanent mark or scribe will be marked on the inner casing.

If the wells to be sampled are closely spaced, the water levels at all of the closely-spaced wells will be measured before any of the wells are evacuated. The water-level probe or weighted tape will be cleaned with phosphate-free detergent in distilled water and with a distilled water rinse between usage at different wells.

Total Depth Measurement

Once the water level and immiscible material thickness is measured and recorded, the water-level probe or weighted tape will be slowly lowered to the bottom of the well. The depth to the bottom will be measured and recorded. The probe or tape will then be slowly withdrawn from the well. The bottom of the probe or tape will be observed after withdrawal to determine any evidence of viscous, heavy contaminants. Descriptions (and measurements, if possible) of such materials will be made from observation of the probe or tape.

Visual Inspection of Well Water

Prior to well evacuation, a small quantity of water will be removed with a bailer that is not completely immersed. The recovered sample is representative of the top of the water column in the well casing. If immiscible materials are present as measured by the interface probe at the top of the water column, this technique can allow their detection. The water will be observed for the presence of any floating films or other indications of immiscible materials. Any sample odors will be noted. Observations regarding odor or visual evidence of immiscible materials will be recorded in the sampling record.

The well water sample will be discarded unless the site-specific protocol calls for retention of this sample. The sample will be placed in a labeled container for proper disposal.

Well Bore Evacuation

Water contained within and adjacent to the well casing can potentially reflect chemical interaction with the atmosphere (by diffusion of gases down the casing) or the well construction materials (through prolonged residence adjacent to the casing).

Observations of this water will be recorded during removal and prior to it being discarded. Onsite parameter measurements of the purged water, as described in this section, will indicate when water-quality parameters have stabilized, and also will be recorded.

The volume of water contained within the well bore at the time of sampling will be calculated, and 4 times the calculated water volume will be removed from the well and discarded. A bailer will be used for well evacuation. The volume of water to be evacuated will be calculated as follows:

Number of Bailers:

$$\text{Number of bailers} = 4 \times \frac{\text{Volume of water in well (Vw)}}{\text{Volume of bailer (Vb)}}$$

Volume of Water in Well:

$$Vw = \frac{3.142 \times dw^2 \times Lw}{4}$$

where: Vw = water volume in well (ft^3)
dw = inside diameter of well (ft)
Lw = length of water column in well (ft)

Volume of Water in Full Bailer:

$$Vb = \frac{3.142 \times db2 \times Lb}{4}$$

where: Vb = water volume in bailer (ft^3)
db = inside diameter of bailer (ft)
Lb = length of bailer (ft)

Wells that can be evacuated to a dry state will be evacuated completely; samples will be taken as soon as sufficient water for sampling is present. Sample compositing—sampling over a lengthy period by accumulating small volumes of water at different times to eventually obtain a sample of sufficient volume—will not be conducted.

Water produced during well evacuation will be contained in a suitable container and temporarily stored onsite pending proper disposal.

Some chemical and physical parameters in water can change significantly within a short time of sample acquisition. The following parameters cannot be accurately measured in a laboratory located more than a few hours from the facility, and will be measured onsite with portable equipment:

- pH
- Specific conductance
- Temperature
- Turbidity units

These parameters will be measured in unfiltered, unpreserved, "fresh" water, using the same sampling technique as for laboratory analyses. The measurements will be made in a clean glass container separate from those intended for laboratory analyses. The tested sample will be discarded after use. The measured values will be recorded in the sampling record.

Natural Attenuation Field Measurements

In addition to the meter reading above, following the indicators that groundwater has been purged sufficiently to represent water within the water bearing materials, natural attenuation parameters were measured by the Blaine Tech sampling personnel. These include meter readings for:

- Oxidation reduction potential;
- Dissolved oxygen; and
- Dissolved ferrous iron.

Sample Extraction

Natural attenuation parameters are measured before the water is purged and sampled. Care will be taken during insertion of sampling equipment to prevent undue disturbance of water in the well.

The pump or bailer will be lowered into the water gently to prevent splashing, and extracted gently to prevent creation of an excessive vacuum in the well. The sample will be transferred directly into the appropriate container. While pouring water from a bailer, the water will be carefully poured down the inside of the sample bottle to prevent significant aeration of the sample. Unless other instructions are given by the analytical laboratory, the sample containers will be completely filled so that no air space remains in the container. Excess water taken during sampling will be placed in a container for proper disposal.

SAMPLE HANDLING

Sample Preservation

Water samples will be properly prepared for transportation to the laboratory by refrigeration and chemical preservation, as necessary. The laboratory providing sample containers will add any necessary chemical preservatives to the sealed containers provided prior to shipment.

Container and Labels

Glass containers and appropriate container lids will be provided by the laboratory. The containers will be filled and container lids tightly closed. Sample container lids will be sealed so as to make obvious any seal tampered with or broken. The label will be firmly attached to the container side (rather than the lid). The following information will be written with permanent marker on the label:

- Facility name;
- Sample identification;
- Sample type (groundwater, surface water, etc.);
- Sampling date;
- Sampling time; and
- Preservatives added, and sample collector's initials.

Sample Shipment

In most instances, the concentration and type of compounds present in the groundwater are considered by the U.S. Department of Transportation to be non-hazardous. Thus, the following packaging and labeling requirements for the sample materials are appropriate for shipping the sample to the testing laboratory:

- Package sample so that is does not leak, spill, or vaporize from its packaging
- Label package with:
  - sample collector's name, address, and telephone number
  - laboratory's name, address, and telephone number
  - description of sample
  - quantity of sample
  - date of shipment

To comply with packaging regulations and prevent damage to expensive groundwater samples, SES will follow packaging and shipping instructions supplied by the certified testing laboratory.

Chain-of-Custody Control

After samples are obtained, chain-of-custody procedures will be followed to establish a written record concerning sample movement between the sampling site and the testing laboratory. Each shipping container will contain a chain-of-custody form to be completed by the sampling personnel packing the samples. The chain-of-custody form for each container will be completed in triplicate. One copy of this form will be maintained at the site; the other two copies will remain at the laboratory. One of the laboratory copies will become a part of the permanent record for the sample and will be returned with the sample analyses.

The record will contain the following minimum information:

- Collector's sample number
- Signature of collector
- Date and time of collection
- Place and address of collection
- Material type
- Preservatives added
- Analyses requested
- Signatures involved in the chain of possession
- Inclusive dates of possession

The shipping container will be sealed so as to make obvious any seal tampered with or broken. The chain-of-custody documentation will be placed inside the container so that it is immediately apparent to the laboratory personnel receiving the container, but could not be damaged or lost during shipping.

SAMPLING RECORDS

To provide complete documentation of sampling, detailed records containing the following information will be maintained during sampling:

- Sample location (facility name)
- Sample identification (name and sample number)
- Sample location map or detailed sketch
- Date and time of sampling

- Sampling method
- Field observations of sample appearance and odor
- Weather conditions
- Samples identification
- Any other significant information

APPENDIX C

CERTIFIED ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

209276

Chain of Custody Record

Lab job no. 090113-J01
Date 01/13/09
Page 1 of 1

Laboratory CET
Address 2323 FIFTH ST
BERKELEY, CA

Method of Shipment LAB COURIER
Shipment No.
Airbill No.
Cooler No.
Project Manager R. MAKDISI
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature)

Project Owner LARRY WADLER
Site Address 2836 UNION ST.
OAKLAND, CA
Project Name WADLER
Project Number 2005-65

TVH/MTBE
TB 1-15-09 CASH

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TPH-G/BTEX/MTBE 8015/8260B	Analysis Required: (5) OXYS BY 8260B	Analysis Required: EDC & EDB BY 8260B	Remarks
1	MW-1A	12.40	01/13	1405	W	VOAs	Y	HCl		1	X	X	X	LIMITED SAMPLE VOLUME
2	MW-1B	22.50		1150		VOAs				6	X	X	X	only able to do TVH/MTBE for this sample.
3	MW-2A	12.75		1100		VOAs				6	X			
4	MW-2B	24.61		1350		VOAs				6	X	X	X	
5	MW-3B	25.03		1310		VOAs				6	X	X	X	
6	MW-4A	12.12		1330		VOAs				2	X			
7	MW-4B	24.27		1245		VOAs				6	X	X	X	
8	MW-5B	25.30		1215		VOAs				6	X	X	X	

Relinquished by	Date	Received by	Date	Relinquished by	Date	Received by	Date
Signature	01/13/09	Signature	01/13/09	Signature (Sample Custody)	1/14/09	Signature	1/14/09
Printed Jose Ortiz	Time 1625	Printed Jose Ortiz	Time 1625	Printed W Jones	Time 1447	Printed Rick Grams	Time 1447
Company BTS		Company BTS		Company BTS		Company CET	

Turnaround Time: STANDARD
Comments: EDF REQUIRED
GLOBAL ID: T0600105641

Relinquished by	Date	Received by	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	

2000-00-01

★ Stellar Environmental Solutions
2198 Sixth Street #201, Berkeley, CA 94710

intact cold RC

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 209276 Date Received 1/14/09 Number of coolers 1
Client Stellar Environmental Project WADLER ~~1060605644~~ P.L.

Date Opened 1/14/09 By (print) PHUONG (sign) Phuong
Date Logged in 1/15/09 P.L. By (print) ✓ (sign) ✓

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____
2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☑ ~~NO~~
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☐ Foam blocks ☑ Bags ☑ ~~None~~ P.L.
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) ____

☑ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
11. Are sample labels present, in good condition and complete? ____ (YES) NO
12. Do the sample labels agree with custody papers? ____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? ____ YES (NO)
14. Are the samples appropriately preserved? ____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? ____ YES (NO) N/A
16. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? Henry By Tracy Date: 1-15-09

COMMENTS

SAMPLE #3 1/6 VOA's HAVE BUBBLES PRESENT
" " #4 2/6 " "

For Sample MW-7A we are only able to do one analysis because 1 VOA.
Henry would like ⇒ TOH/MBTXE
no excess for this sample.

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

Laboratory Job Number 209276
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2005-65
2198 6th Street	Location : Wadler Property
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
MW-1A	209276-001
MW-1B	209276-002
MW-2A	209276-003
MW-2B	209276-004
MW-3B	209276-005
MW-4A	209276-006
MW-4B	209276-007
MW-5B	209276-008

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

Signature: _____ Date: 01/21/2009
Project Manager

Signature: _____ Date: 01/22/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**209276**
Client:	**Stellar Environmental Solutions**
Project:	**2005-65**
Location:	**Wadler Property**
Request Date:	**01/14/09**
Samples Received:	**01/14/09**

This data package contains sample and QC results for eight water samples, requested for the above referenced project on 01/14/09. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
MW-1B (lab # 209276-002), MW-3B (lab # 209276-005), and MW-4B (lab # 209276-007) were diluted due to high non-target analytes. No other analytical problems were encountered.

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65		
Matrix:	Water	Batch#:	146983
Units:	ug/L	Sampled:	01/13/09
Diln Fac:	1.000	Received:	01/14/09

Field ID:	MW-1A	Lab ID:	209276-001
Type:	SAMPLE	Analyzed:	01/15/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	63 Y	50	EPA 8015B
MTBE	77	2.0	EPA 8021B
Benzene	1.2	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	95	61-149	EPA 8015B
Bromofluorobenzene (FID)	94	65-146	EPA 8015B
Trifluorotoluene (PID)	94	52-143	EPA 8021B
Bromofluorobenzene (PID)	93	56-141	EPA 8021B

Field ID:	MW-1B	Lab ID:	209276-002
Type:	SAMPLE	Analyzed:	01/15/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	300 Y	50	EPA 8015B
MTBE	7.5	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	96	61-149	EPA 8015B
Bromofluorobenzene (FID)	90	65-146	EPA 8015B
Trifluorotoluene (PID)	96	52-143	EPA 8021B
Bromofluorobenzene (PID)	92	56-141	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65		
Matrix:	Water	Batch#:	146983
Units:	ug/L	Sampled:	01/13/09
Diln Fac:	1.000	Received:	01/14/09

Field ID: MW-2A
Type: SAMPLE
Lab ID: 209276-003
Analyzed: 01/15/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	94	61-149	EPA 8015B
Bromofluorobenzene (FID)	90	65-146	EPA 8015B
Trifluorotoluene (PID)	93	52-143	EPA 8021B
Bromofluorobenzene (PID)	91	56-141	EPA 8021B

Field ID: MW-2B
Type: SAMPLE
Lab ID: 209276-004
Analyzed: 01/15/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	110 Y	50	EPA 8015B
MTBE	27	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	105	61-149	EPA 8015B
Bromofluorobenzene (FID)	90	65-146	EPA 8015B
Trifluorotoluene (PID)	90	52-143	EPA 8021B
Bromofluorobenzene (PID)	91	56-141	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65		
Matrix:	Water	Batch#:	146983
Units:	ug/L	Sampled:	01/13/09
Diln Fac:	1.000	Received:	01/14/09

Field ID: MW-3B
Type: SAMPLE
Lab ID: 209276-005
Analyzed: 01/16/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,500 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	119	61-149	EPA 8015B
Bromofluorobenzene (FID)	91	65-146	EPA 8015B
Trifluorotoluene (PID)	104	52-143	EPA 8021B
Bromofluorobenzene (PID)	95	56-141	EPA 8021B

Field ID: MW-4A
Type: SAMPLE
Lab ID: 209276-006
Analyzed: 01/16/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	6.7	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	91	61-149	EPA 8015B
Bromofluorobenzene (FID)	88	65-146	EPA 8015B
Trifluorotoluene (PID)	89	52-143	EPA 8021B
Bromofluorobenzene (PID)	89	56-141	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65		
Matrix:	Water	Batch#:	146983
Units:	ug/L	Sampled:	01/13/09
Diln Fac:	1.000	Received:	01/14/09

Field ID: MW-4B
Type: SAMPLE
Lab ID: 209276-007
Analyzed: 01/16/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	980 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	106	61-149	EPA 8015B
Bromofluorobenzene (FID)	92	65-146	EPA 8015B
Trifluorotoluene (PID)	101	52-143	EPA 8021B
Bromofluorobenzene (PID)	94	56-141	EPA 8021B

Field ID: MW-5B
Type: SAMPLE
Lab ID: 209276-008
Analyzed: 01/16/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,200 Y	50	EPA 8015B
MTBE	56	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	4.2 C	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	140	61-149	EPA 8015B
Bromofluorobenzene (FID)	118	65-146	EPA 8015B
Trifluorotoluene (PID)	98	52-143	EPA 8021B
Bromofluorobenzene (PID)	108	56-141	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65		
Matrix:	Water	Batch#:	146983
Units:	ug/L	Sampled:	01/13/09
Diln Fac:	1.000	Received:	01/14/09

Type: BLANK
Lab ID: QC479482

Analyzed: 01/15/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	95	61-149	EPA 8015B
Bromofluorobenzene (FID)	89	65-146	EPA 8015B
Trifluorotoluene (PID)	89	52-143	EPA 8021B
Bromofluorobenzene (PID)	85	56-141	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC479483	Batch#:	146983
Matrix:	Water	Analyzed:	01/15/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.00	100	61-143
Benzene	10.00	8.883	89	80-120
Toluene	10.00	9.637	96	77-120
Ethylbenzene	10.00	10.12	101	79-123
m,p-Xylenes	10.00	10.10	101	78-123
o-Xylene	10.00	9.894	99	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	87	52-143
Bromofluorobenzene (PID)	85	56-141

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC479484	Batch#:	146983
Matrix:	Water	Analyzed:	01/15/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,036	104	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	61-149
Bromofluorobenzene (FID)	97	65-146

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	146983
MSS Lab ID:	209266-015	Sampled:	01/14/09
Matrix:	Water	Received:	01/14/09
Units:	ug/L	Analyzed:	01/15/09
Diln Fac:	1.000		

Type: MS Lab ID: QC479485

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,425	2,000	3,075	82	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	128	61-149
Bromofluorobenzene (FID)	115	65-146

Type: MSD Lab ID: QC479486

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	3,146	86	65-120	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	61-149
Bromofluorobenzene (FID)	115	65-146

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	01/13/09
Units:	ug/L	Received:	01/14/09
Batch#:	146980	Analyzed:	01/15/09

Field ID: MW-1B Lab ID: 209276-002
Type: SAMPLE Diln Fac: 2.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	20
MTBE	9.4	1.0
Isopropyl Ether (DIPE)	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	1.0
1,2-Dichloroethane	4.4	1.0
1,2-Dibromoethane	ND	1.0

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	111	80-137
Toluene-d8	110	80-120
Bromofluorobenzene	98	80-122

Field ID: MW-2B Lab ID: 209276-004
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	22	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	4.3	0.5
1,2-Dibromoethane	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-125
1,2-Dichloroethane-d4	119	80-137
Toluene-d8	110	80-120
Bromofluorobenzene	97	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	01/13/09
Units:	ug/L	Received:	01/14/09
Batch#:	146980	Analyzed:	01/15/09

Field ID: MW-3B Lab ID: 209276-005
Type: SAMPLE Diln Fac: 10.00

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dibromoethane	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-125
1,2-Dichloroethane-d4	111	80-137
Toluene-d8	109	80-120
Bromofluorobenzene	98	80-122

Field ID: MW-4B Lab ID: 209276-007
Type: SAMPLE Diln Fac: 8.333

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	83
MTBE	ND	4.2
Isopropyl Ether (DIPE)	ND	4.2
Ethyl tert-Butyl Ether (ETBE)	ND	4.2
Methyl tert-Amyl Ether (TAME)	ND	4.2
1,2-Dichloroethane	ND	4.2
1,2-Dibromoethane	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	111	80-137
Toluene-d8	109	80-120
Bromofluorobenzene	99	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	01/13/09
Units:	ug/L	Received:	01/14/09
Batch#:	146980	Analyzed:	01/15/09

Field ID: MW-5B
Type: SAMPLE
Lab ID: 209276-008
Diln Fac: 1.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	68	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	2.3	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	117	80-137
Toluene-d8	111	80-120
Bromofluorobenzene	101	80-122

Type: BLANK
Lab ID: QC479469
Diln Fac: 1.000

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-125
1,2-Dichloroethane-d4	111	80-137
Toluene-d8	112	80-120
Bromofluorobenzene	98	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline Oxygenates by GC/MS

Lab #:	209276	Location:	Wadler Property
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2005-65	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	146980
Units:	ug/L	Analyzed:	01/15/09
Diln Fac:	1.000		

Type: BS Lab ID: QC479467

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	111.3	111	59-152
MTBE	20.00	18.70	93	70-125
Isopropyl Ether (DIPE)	20.00	19.66	98	67-126
Ethyl tert-Butyl Ether (ETBE)	20.00	19.84	99	69-127
Methyl tert-Amyl Ether (TAME)	20.00	18.68	93	80-122

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-125
1,2-Dichloroethane-d4	109	80-137
Toluene-d8	109	80-120
Bromofluorobenzene	97	80-122

Type: BSD Lab ID: QC479468

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	100.0	119.7	120	59-152	7	20
MTBE	20.00	18.98	95	70-125	1	20
Isopropyl Ether (DIPE)	20.00	19.61	98	67-126	0	20
Ethyl tert-Butyl Ether (ETBE)	20.00	19.96	100	69-127	1	20
Methyl tert-Amyl Ether (TAME)	20.00	19.01	95	80-122	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	110	80-137
Toluene-d8	111	80-120
Bromofluorobenzene	94	80-122

RPD= Relative Percent Difference

APPENDIX D

HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL DATA

TABLE A
Historical Groundwater Monitoring Well Data
2836 Union Street, Oakland, California

MW-1A										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	dry	dry	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	9.80	2.45	*NA*	790	94	*< 0.5*	8.6	*< 0.5*	100
3	Apr-07	7.49	4.76	*NA*	760	63	*<0.5*	1.9	*<0.5*	150
4	Jul-07	7.16	5.09	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
5	Oct-07	7.29	4.96	*NA*	830	28	<0.7	13	<0.7	110
6	Jan-08	6.82	5.70	*NA*	720	8.1	*< 0.5*	*< 0.5*	*< 0.5*	130
7	Apr-08	6.32	5.70	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
8	Jul-08	8.25	4.00	*NA*	120	1.0	*<0.5*	*<0.5*	*<0.5*	86
9	Oct-08	9.04	3.21	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
10	Jan-09	7.00	5.25	*NA*	63	1.2	*<0.5*	*<0.5*	*<0.5*	77

MW-1B										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	7.44	4.56	*NA*	350	*<1.3*	*<1.3*	*<1.3*	*<1.3*	2.7
2	Jan-07	6.40	5.65	*NA*	350	*<1.3*	*<1.3*	*<1.3*	*<1.3*	3.6
3	Apr-07	6.42	5.63	*NA*	320	*<0.5*	*<0.5*	*<0.5*	*<0.5*	4.2
4	Jul-07	7.19	4.86	*NA*	200	*<1.3*	*<1.3*	*<1.3*	*<1.3*	3.2
5	Oct-07	7.10	4.95	*NA*	230	*<0.7*	*<0.7*	*<0.7*	*<0.7*	6.0
6	Jan-08	5.81	6.67	*NA*	400	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	6.2
7	Apr-08	6.82	5.23	*NA*	350	*<0.5*	*<0.5*	*<0.5*	*<0.5*	7.8
8	Jul-08	7.62	4.43	*NA*	300	*<0.5*	*<0.5*	*<0.5*	*<0.5*	8.4
9	Oct-08	8.21	3.84	3,600	520	*<0.5*	*<0.5*	*<0.5*	*<0.5*	5.9
10	Jan-09	6.89	5.16	6,160	300	*<0.5*	*<0.5*	*<0.5*	*<0.5*	7.5

MW-2A										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	7.93	4.87	*NA*	80	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
2	Jan-07	6.58	6.24	*NA*	490	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
3	Apr-07	6.52	6.30	*NA*	83	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
4	Jul-07	7.37	5.45	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
5	Oct-07	7.33	5.49	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
6	Jan-08	5.50	7.56	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
7	Apr-08	6.86	5.96	*NA*	160	*<0.5*	*<0.5*	*<0.5*	*<0.5*	3.0
8	Jul-08	7.70	5.12	*NA*	97	*<0.5*	*<0.5*	*<0.5*	*<0.5*	5.5
9	Oct-08	8.44	4.38	3,280	71	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
10	Jan-09	6.99	5.83	2,120	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*

MW-2B										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	7.90	5.06	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	6.59	6.37	*NA*	2,000	*<0.5*	1.1	6.7	0.8	19
3	Apr-07	6.20	6.76	*NA*	84	*<0.5*	*<0.5*	*<0.5*	*<0.5*	18
4	Jul-07	7.33	5.63	*NA*	580	*<0.5*	*<0.5*	*<0.5*	*<0.5*	6.0
5	Oct-07	7.12	5.84	*NA*	1,700	*<0.5*	*<0.5*	*<0.5*	*<0.5*	83
6	Jan-08	5.51	7.65	*NA*	780	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	32
7	Apr-08	6.56	6.40	*NA*	92	*<0.5*	*<0.5*	*<0.5*	*<0.5*	2.4
8	Jul-08	7.78	5.18	*NA*	570	*<0.5*	*<0.5*	*<0.5*	0.72	17
9	Oct-08	8.62	4.34	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
10	Jan-09	7.03	5.93	2,160	110	*<0.5*	*<0.5*	*<0.5*	*<0.5*	27

MW-3A										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	dry	dry	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	6.32	5.27	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
3	Apr-07	5.75	5.84	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	75
4	Jul-07	6.19	5.40	*NA*	NS	NS	NS	NS	NS	NS
5	Oct-07	6.50	5.09	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
6	Jan-08	5.69	6.07	*NA*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	70
7	Apr-08	6.56	6.40	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	77
8	Jul-08	6.73	4.86	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	56
9	Oct-08	8.68	2.91	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
10	Jan-09	6.28	5.31	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

MW-3B										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	7.34	4.61	*NA*	1,900	*<10*	*<10*	*<10*	*<10*	*<10*
2	Jan-07	6.41	5.54	*NA*	1,900	*<8.3*	*<8.3*	*<8.3*	*<8.3*	*<8.3*
3	Apr-07	6.39	5.56	*NA*	1,900	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
4	Jul-07	7.15	4.80	*NA*	1,200	*<2.0*	*<2.0*	*<2.0*	*<2.0*	*<2.0*
5	Oct-07	7.11	4.84	*NA*	2,100	*<7.1*	*<7.1*	*<7.1*	*<7.1*	*<7.1*
6	Jan-08	5.60	6.50	*NA*	2,100	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<2.0*
7	Apr-08	6.77	5.18	*NA*	1,800	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
8	Jul-08	7.50	4.45	*NA*	1,700	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
9	Oct-08	8.11	3.84	1,490	2,300	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
10	Jan-09	6.84	5.11	1,480	1,500	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*

MW-4A										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	9.74	1.28	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	5.64	5.38	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	72
3	Apr-07	5.34	5.68	*NA*	*<50*	*<0.5*	*0.6*	*<0.5*	0.6	77
4	Jul-07	5.71	5.31	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	64
5	Oct-07	6.09	4.93	*NA*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	73
6	Jan-08	5.53	5.72	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
7	Apr-08	5.56	5.46	*NA*	<50	<0.5	<0.5	<0.5	<0.5	61
8	Jul-08	6.30	4.34	*NA*	<50	*<0.5*	*<0.5*	*<0.5*	*<0.5*	46
9	Oct-08	10.45	0.57	1,870	<50	*<0.5*	*<0.5*	*<0.5*	*<0.5*	66
10	Jan-09	6.00	5.02	2,350	<50	*<0.5*	*<0.5*	*<0.5*	*<0.5*	6.7

MW-4B										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	6.63	4.41	*NA*	1,100	*<2.5*	*<2.5*	*<2.5*	*<2.5*	*<2.5*
2	Jan-07	5.55	5.49	*NA*	1,300	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*
3	Apr-07	5.45	5.59	*NA*	1,300	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
4	Jul-07	6.28	4.76	*NA*	1,000	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*
5	Oct-07	6.13	4.91	*NA*	1,400	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*
6	Jan-08	4.81	6.44	*NA*	1,500	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
7	Apr-08	5.90	5.14	*NA*	1,500	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
8	Jul-08	6.70	4.34	*NA*	1,200	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
9	Oct-08	7.24	3.80	1,960	1,600	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
10	Jan-09	6.00	5.04	1,620	980	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*

MW-5A										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	9.60	2.82	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	6.72	6.10	*NA*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
3	Apr-07	5.74	6.68	*NA*	1,000	6.6	*<0.5*	29	7.6	79
4	Jul-07	6.98	5.44	*NA*	NS	*NS*	*NS*	*NS*	*NS*	*NS*
5	Oct-07	8.32	4.10	*NA*	820	6.6	*<0.5*	6.6	1.8	78
Well Destoyed in November 2007										

MW-5B										
Sampling Event No.	**Date Sampled**	**Depth to Groundwater (a)**	**Groundwater Elevation (b)**	**Dissolved Oxygen**	**TVH-g**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Oct-06	9.07	3.31	*NA*	13,000	9.6	0.6	21	1.9	37
2	Jan-07	6.45	5.93	*NA*	6,600	4.0	*<0.5*	10	1.0	22
3	Apr-07	6.45	5.93	*NA*	3,300	0.7	*<0.5*	2.7	*<0.5*	*<0.5*
4	Jul-07	7.15	5.23	*NA*	2,000	1.1	*<0.5*	2.2	*<0.5*	26
5	Oct-07	7.28	5.10	*NA*	1,200	*<0.5*	*<0.5*	*<0.5*	*<0.5*	45
6	Jan-08	4.94	7.63	*NA*	1,200	*<0.5*	*<0.5*	4.1	*<0.5*	69
7	Apr-08	6.51	5.87	*NA*	240	*<0.5*	*<0.5*	<0.5	*<0.5*	65
8	Jul-08	7.64	4.74	*NA*	310	*<0.5*	*<0.5*	<0.5	*<0.5*	68
9	Oct-08	8.24	4.14	1,670	780	*<0.5*	*<0.5*	<0.5	*<0.5*	84
10	Jan-09	6.93	5.45	3,210	1,200	*<0.5*	*<0.5*	<0.5	4.2	56

Notes:

All concentrations reported in micrograms per liter.

TVH-g = Total volatile hydrocarbons – gasoline range.

NA = Not analyzed for this constituent. NS = Not sampled

(a) Feet below top of casing

(b) Relative to mean sea level

TABLE B

Historical Groundwater Monitoring Well Groundwater Analytical Results

Lead Scavengers and Fuel Oxygenates (µg/L)

2836 Union Street, Oakland, California

MW-1A								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*NA*
3	Apr-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
4	Jul-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
5	Oct-07	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*NA*
6	Jan-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7	Apr-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8	Jul-08	*<0.5*	*<0.5*	*<0.5*	*<0.5*	1	*<10*	*NA*
9	Oct-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
10	Jan-09	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

MW-1B								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	3.1	*<1.3*	*<1.3*	*<1.3*	*<1.3*	*<25*	*NA*
2	Jan-07	3.3	*<1.3*	*<1.3*	*<1.3*	*<1.3*	*<25*	*NA*
3	Apr-07	4.8	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
4	Jul-07	3.4	*<1.3*	*<1.3*	*<1.3*	*<1.3*	*<25*	*NA*
5	Oct-07	3.3	*<1.3*	*<1.3*	*<1.3*	*<1.3*	*<25*	*NA*
6	Jan-08	4.7	*<1.3*	*<1.3*	*<1.3*	*<1.3*	*<25*	*NA*
7	Apr-08	4.7	*<1.3*	*<1.3*	*<1.3*	*<1.3*	*<25*	*NA*
8	Jul-08	5.4	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
9	Oct-08	3	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<20*	3,600
10	Jan-09	4.4	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<20*	6,160

MW-2A								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NS*
2	Jan-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
3	Apr-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
4	Jul-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
5	Oct-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
6	Jan-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7	Apr-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8	Jul-08	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NS*
9	Oct-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	3,280
10	Jan-09	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	2,120

MW-2B								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	4.1	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
3	Apr-07	6.9	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
4	Jul-07	1.4	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
5	Oct-07	4.1	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
6	Jan-08	3.9	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
7	Apr-08	3.9	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*

8	Jul-08	1.3	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
9	Oct-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
10	Jan-09	4.3	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	2,160

MW-3A								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
3	Apr-07	0.9	*<0.5*	*<0.5*	*<0.5*	*<0.5*	14	*NA*
4	Jul-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
5	Oct-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
6	Jan-08	0.8	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
7	Apr-08	0.8	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
8	Jul-08	0.8	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
9	Oct-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
10	Jan-09	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

MW-3B								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*<10*	*<10*	*<10*	*<10*	*<10*	*<200*	*NA*
2	Jan-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
3	Apr-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
4	Jul-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
5	Oct-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
6	Jan-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7	Apr-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8	Jul-08	*<6.3*	*<6.3*	*<6.3*	*<6.3*	*<6.3*	*<130*	*NA*
9	Oct-08	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<100*	1,490
10	Jan-09	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<100*	1,480

MW-4A								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*NA*
3	Apr-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
4	Jul-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
5	Oct-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
6	Jan-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NA*
7	Apr-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NA*
8	Jul-08	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
9	Oct-08	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<83*	1,960
10	Jan-09	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	2,350

MW-4B								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*<2.5*	*<0.5*	*<1*	*<1*	*<2.5*	*<50*	*NA*
2	Jan-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
3	Apr-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
4	Jul-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
5	Oct-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
6	Jan-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7	Apr-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8	Jul-08	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<83*	*NA*
9	Oct-08	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<83*	1,960
10	Jan-09	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<83*	1,620

MW-5A								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
3	Apr-07	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*4.3*	*<10*	*NA*
4	Jul-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
5	Oct-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Well Destoyed in November 2007								

MW-5B								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*1.5*	*<10*	*NA*
2	Jan-07	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
3	Apr-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
4	Jul-07	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
5	Oct-07	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
6	Jan-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7	Apr-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8	Jul-08	*<0.5*	*<0.5*	*<0.5*	*<0.5*	3.3	*<10*	*NA*
9	Oct-08	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	1,670
10	Jan-09	*<0.5*	*<0.5*	*<0.5*	*<0.5*	2.3	*<10*	3,210

Notes:

NA = Not analyzed for this constituent. NS = Not sampled

EDB = Ethylene dibromide (1,2-dibromoethane). EDC = Ethylene dichloride (1,2-dichloroethane).

DIPE = isopropyl ether. ETBE = Ethyl-tertbutyl ether. TAME = Tert-amylmethylether

TBA = Tertiary butyl alcohol

DO = Dissolved Oxygen