FOURTH QUARTER 2008 GROUNDWATER MONITORING AND ANNUAL SUMMARY REPORT

2836 UNION STREET
OAKLAND, CALIFORNIA

Prepared for:

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

November 2008

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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STELLAR ENVIRONMENTAL SOLUTIONS, INC.
2198 SIXTH STREET, SUITE 201
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November 5, 2008

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November 5, 2008

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: Fourth Quarter 2008 Groundwater Monitoring Report and Annual Summary 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 Fourth Quarter 2008 Groundwater Monitoring Report for the former Modern Mail Service Facility at 2836 Union Street, Oakland, California. This report documents the Q4-2008 groundwater monitoring event related to petroleum contamination from a former underground fuel storage tank. This report also summarizes historical findings, evaluates hydrologic and hydrochemical contaminant trends, and assesses contaminant plume stability and the potential for migration in the context of regulatory case closure. Historical 2007 excavation analytical data and figures requested by Alameda County Environmental Health (ACEH) in their August 20, 2008 letter have been included in Appendix E of this report.

This is the 9th 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

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

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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 Fourth Quarter 2008 activities conducted on October 17th and 27th, 2008. 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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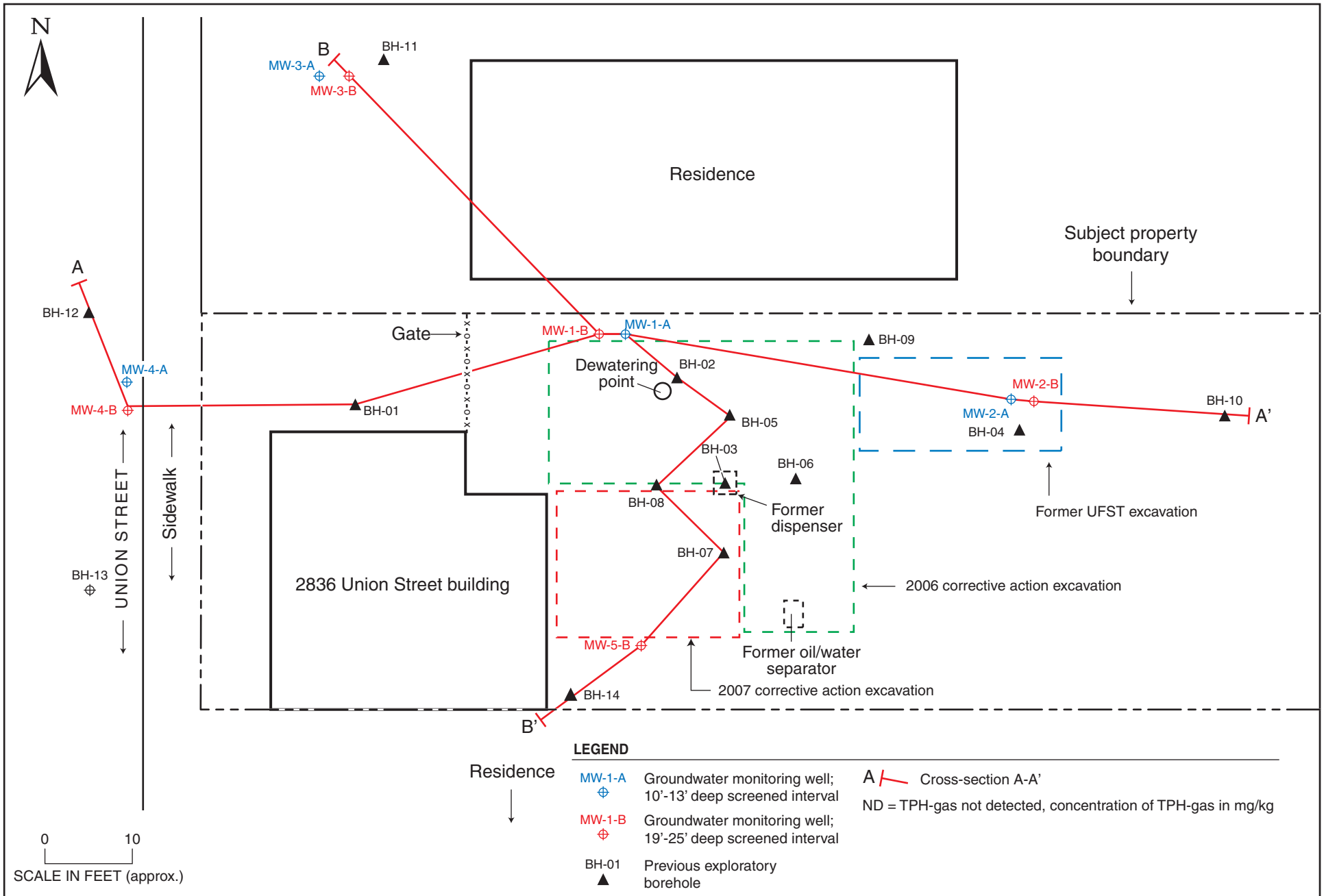
2005-65-01



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

Figure 2

by: MJC | NOVEMBER 2008

2005-65-72

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.

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. In August 2008, Ms. Jakub issued a technical directive requesting the responsible party continue quarterly groundwater monitoring and conduct a preferential pathway survey.

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.

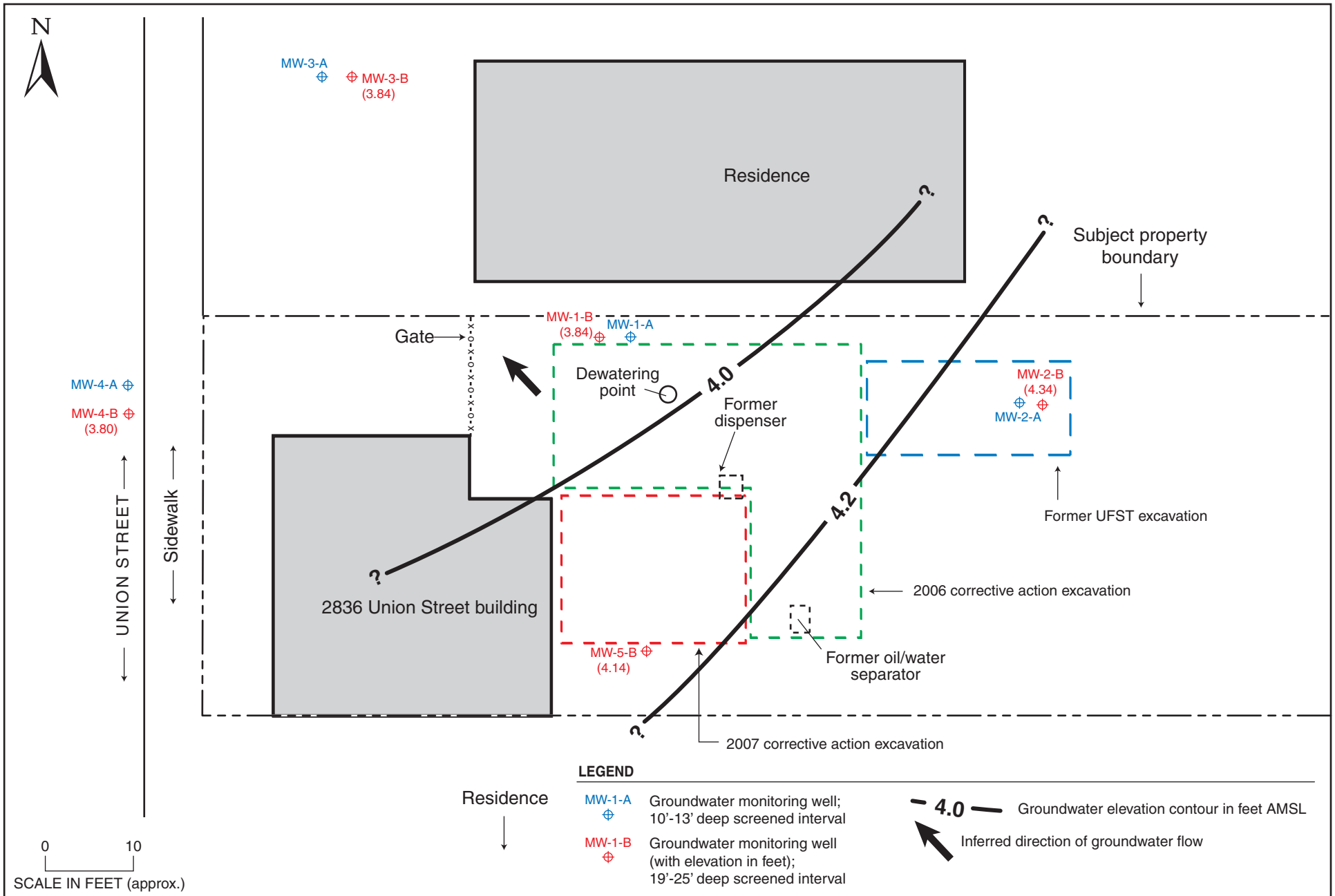
LITHOLOGY AND HYDROGEOLOGY

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 October 27, 2008 groundwater elevation measurements. The flow direction during the October 2008 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 0.001 feet/foot on the western side of the property to 0.004 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 | NOVEMBER 2008

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3.0 FOURTH QUARTER 2008 GROUNDWATER MONITORING

This section presents the groundwater sampling and analytical methods for the most recent event (Fourth Quarter 2008), conducted on October 17, 2008.

GROUNDWATER MONITORING

Groundwater monitoring well water level measurements, sampling, and field analyses were conducted by Blaine Tech Services (San Jose, California) on October 17, 2008, under the direct supervision of SES personnel. However, due to inconsistencies in the water level elevation data, the water levels were taken again on October 27, 2008. The measurements from the October 27, 2008 event are presented here. 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 2007ORC 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 – October 27, 2008
2836 Union Street, Oakland, California

Well	Well Depth Below TOC	Rim Elevation	TOC Elevation	Groundwater Elevation (10/27/08)
MW-1A	12.59	12.52	12.25	3.21
MW-1B	22.52	12.48	12.05	3.84
MW-2A	12.69	13.06	12.82	4.38
MW-2B	24.59	13.16	12.96	4.34
MW-3A	13.06	11.76	11.59	2.91
MW-3B	25.06	12.10	11.95	3.84
MW-4A	12.28	11.25	11.02	0.57
MW-4B	24.32	11.25	11.04	3.80
MW-5B	25.39	12.57	12.38	4.14

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, 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. 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 wells MW-1A, MW-2B, and MW-3A were 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-3B, MW-4B, and MW-5B. TVH as gasoline was also detected in monitoring well MW-2A, 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-1B, MW-4A, and MW-5B. MTBE was not detected above the laboratory detection limit in any of the other monitoring wells. Benzene, toluene, ethyl benzene, and total xylenes were not detected above the laboratory detection limit in any of the monitoring wells sampled during this event.

The lead scavenger 1,2-dichloroethane was detected above the ESL of 0.5 µg/L in well MW-1B at 3.0 µg/L. Tertiary-amyl methyl ether (TAME) was detected in MW-5B at 4.4 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 October 2008 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.

In general, contaminant concentrations have slightly increased since the Q3-2008 sampling event. Increases were noted in MW-1B, MW-3B, MW-4B, and MW-5B. A slight decrease was observed in MW-2A. Monitoring wells MW-1A, MW-3A, and MW-2B 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. The same wells in which increases were noted from the Q3-2008 sampling event, have also increased as compared to the same event in 2007.

Table 2
Groundwater Sample Analytical Results – October 17, 2008
TVHg, BTEX, and MTBE,
2836 Union Street, Oakland, California

Sample	TVHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
Monitoring Wells						
MW-1A	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-1B	**520**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**5.9**
MW-2A	71	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
MW-2B	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-3A	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-3B	**2,300**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
MW-4A	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**66**
MW-4B	**1,600**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
MW-5B	**780**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**84**
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

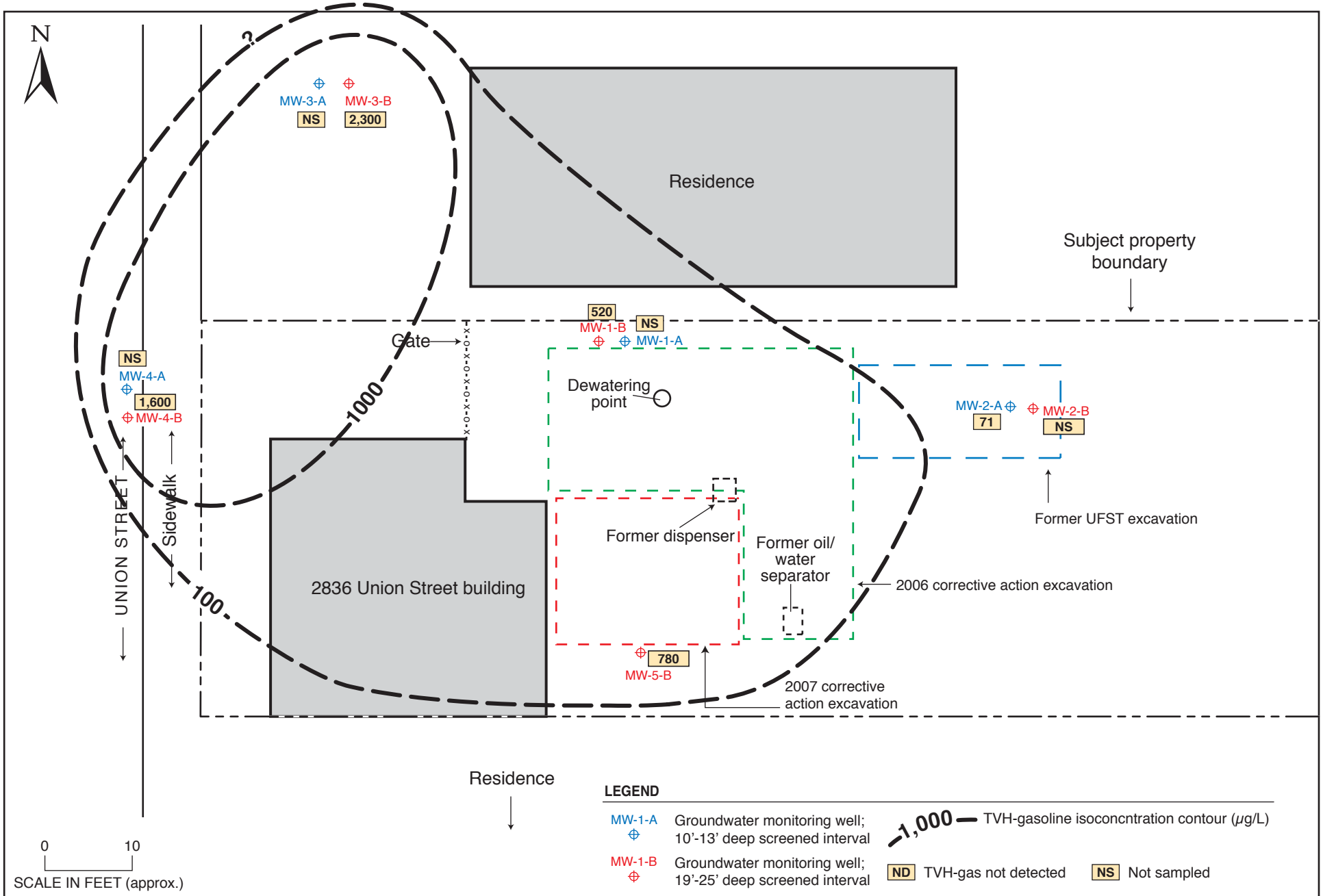
NA = not analyzed for this constituent; NS = not sampled, insufficient sample amount

All concentrations are in micrograms per liter (µg/L).

Table 3
Groundwater Sample Analytical Results – October 17, 2008
Lead Scavengers and Fuel Oxygenates,
2836 Union Street, Oakland, California

Sample I.D.	EDC	EDB	ETBE	DIPE	TAME	TBA	DO
Groundwater Analyses (µg/L)							
MW-1A	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-1B	**3.0**	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<20*	3,600
MW-2A	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	3,280
MW-2B	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-3A	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
MW-3B	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<100*	1,490
MW-4A	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
MW-4B	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<83*	1,960
MW-5B	*<0.5*	*<0.5*	*<0.5*	*<0.5*	4.4	*<10*	1,670
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, 2007).
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 = dissolved oxygen
NA = not analyzed for this constituent
NS = not sampled
NLP = no level published



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TVH-GASOLINE PLUME — OCTOBER 17, 2008
2836 Union Street, Oakland, CA

Figure 4

by: MJC | NOVEMBER 2008

2005-65-71

5.0 EVALUATION OF HYDROCHEMICAL TRENDS AND PLUME STABILITY

This section evaluates the observed hydrologic and hydrochemical trends with regard to plume stability and contaminant migration. An assessment is made of the nature of residual contaminated soil that acts as a continued source of groundwater contamination. A conceptual model (incorporating site lithology, hydrogeology, and hydrochemistry) is presented to explain the spatial extent and magnitude of the dissolved hydrocarbon plume.

CONTAMINANT SOURCE ASSESSMENT

One 10,000-gallon gasoline UFST was installed in the late 1970s. The UFST operated under Alameda County Environmental Health permit (Permit No. STID 4065) until its removal in 1998.

Site soil and groundwater has been contaminated by gasoline and associated aromatic hydrocarbons. Soil analytical results show that soil contamination began at a depth of approximately 6 to 7 feet, and did not extend deeper than approximately 11 feet.

Soil contamination above ESL criteria appears to be constrained on site in the area of MW-1A and MW-1B where it could not be removed over the property boundary.

While past corrective actions removed a substantial mass of contamination, shallow groundwater will continue to be slightly impacted by the remaining residual soil contamination by desorption from soil into groundwater.

As evidenced by soil boring sample analysis, the dissolved phase hydrocarbon contamination in the groundwater does not appear to be adsorbing onto downgradient soils.

Summary

The mass of unsaturated zone soil contamination has been removed to the extent practical and investigations indicate there is no remaining significant residual contamination present in site soils.

WATER LEVEL TRENDS

Appendix D contains historical groundwater elevations. The data support the following conclusions:

- Groundwater elevations in all wells show general correlation with rainy versus dry season. Decreases in elevation are seen from approximately April through December, followed by an increase from December through April. This is a common seasonal trend observed in the upper water-bearing zone in the Bay Area region.
- The range of water level elevations in the B-wells screened from approximately 19 to 25 feet bgs has varied by less than 2 feet, and no substantial differences in elevations (beyond the seasonal fluctuations) have been noted since October 2006.
- The A-wells, screened from approximately 10 to 13 feet bgs and exhibit very slow recharge. These well are screened across units that are not laterally continuous and have not been used in the construction of the site groundwater elevation maps or the calculation of groundwater gradient. They have been used primarily to monitor shallow contamination.
- Groundwater at the site occurs at a depth of less than 10 feet, and appears to be under at least semi-confining conditions, rising in previous investigation borings from approximately 20 feet bgs to as high as 6 feet below grade, such that groundwater is in contact with residual contaminated soil.
- Historical groundwater flow direction has been predominantly to the west-northwest with minor deviations produced by local dewatering of contaminated water.
- Subject property groundwater gradient in previous events has been relatively flat, and was observed during this event at an average of 0.002 feet/foot. Historical groundwater gradient (since October 2006) has varied between approximately 0.001 feet/foot and 0.01 feet/foot, averaging approximately 0.005 feet/foot.

HYDROCHEMICAL TRENDS

The contaminants of concern (those above regulatory ESLs) have been determined to be TVH as gasoline, benzene, MTBE and EDC.

Historical groundwater analytical results are included in Appendix D.

Gasoline

Figure 5 show hydrochemical trend data for gasoline in the site wells. Source area wells MW-1A and MW-5B, and historical source wells MW-2A and MW-2B showed an overall trend of decreased gasoline concentrations since monitoring began in October 2006. This is most likely a direct response to the removal of contaminated soil during the 1998 UFST excavation and subsequent 2006 and 2007 corrective action excavations.

However, downgradient wells MW-3B and MW-4B as well as source area well MW-1B have showed a general increase in gasoline concentrations. Downgradient wells MW-3A and MW-4A have not had gasoline concentrations above the laboratory detection limit since monitoring began. This indicates that while the source area contamination has been removed, dissolved phase contamination is present in the deeper aquifer (represented by the B wells screened from approximately 19- to 25- feet bgs).

Benzene

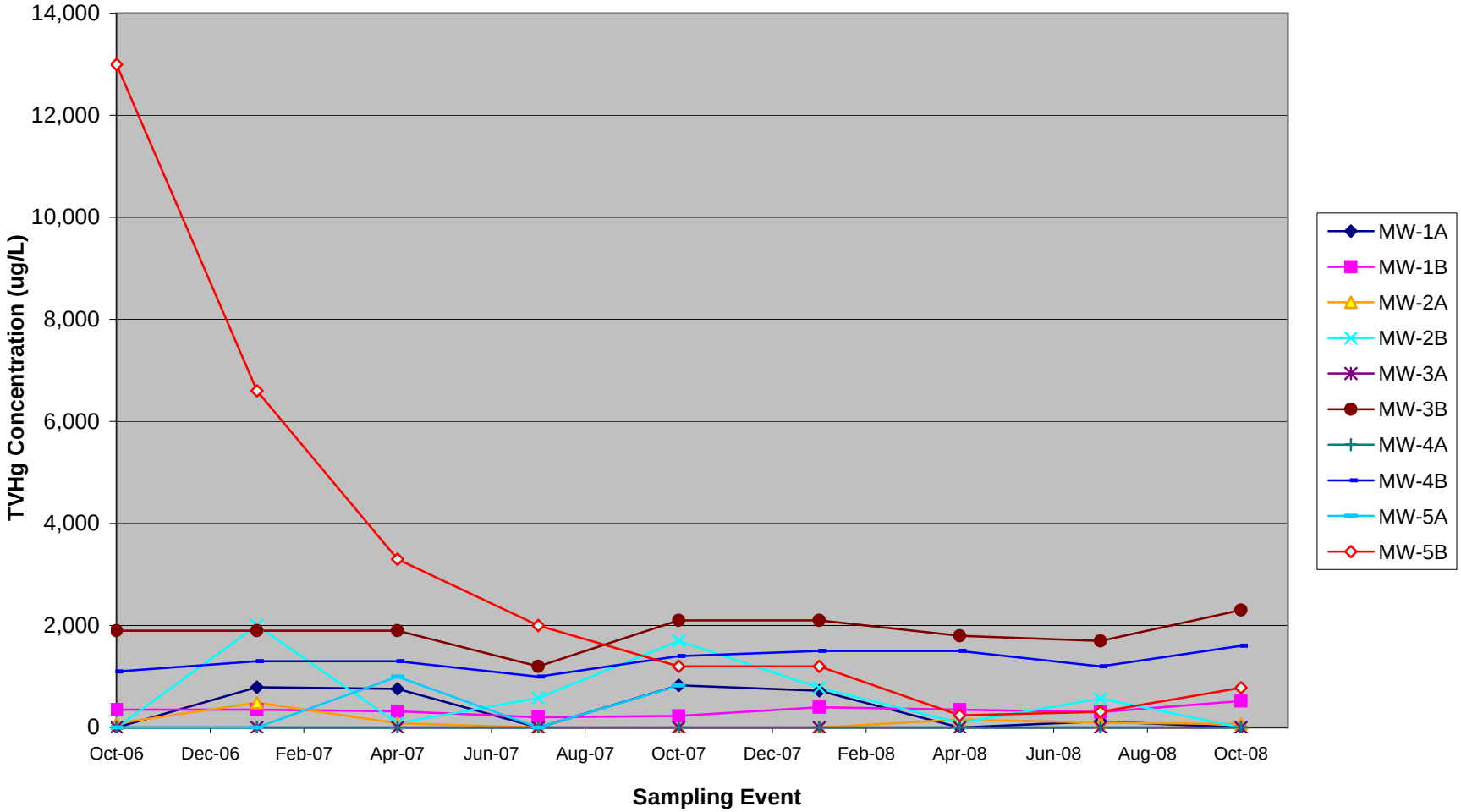
Well MW-1A (downgradient from the UST dispenser) having the highest benzene concentration, has shown a substantial decrease from 94 μg/L in January 2007 to 1.0 μg/L in July 2008 (this well could not be sampled during this event due to insufficient sample volume). Benzene was detected in well MW-5B at a concentration of 9.6 μg/L in October 2006, but has not had a concentration above the laboratory detection limit since October 2007. Benzene has not been detected above the laboratory detection limit in any of the other wells (with the exception of MW-5A which was destroyed in November 2007) since their installation in 2006.

MTBE and EDC

Concentrations of MTBE have remained relatively stable in all of the wells in which it has been detected. MTBE has been detected at relatively higher concentrations in the shallower A-wells and has been the only detected contaminant in wells, MW-3A, MW-4A downgradient from the source area, demonstrating its high soluble mobility.

EDC has been consistently detected in onsite wells MW-1B, MW-2B, and MW-3A since monitoring began.

Figure 5: Historical Groundwater Analytical Results
Total Volatile Hydrocarbons as Gasoline (TVHg)
October 2006 - October 2008



Dissolved Oxygen

Dissolved oxygen (DO) ranged from 1,490 µg/L (MW-3B) to 3,600 µg/L (MW-1B). These measurements would be expected, as wells located closer to the ORC release zone would be expected to have higher levels of DO than those farther from the release zone.

PLUME GEOMETRY AND MIGRATION INDICATIONS

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.

As discussed in detail in Section 4.0, the contaminant plume in groundwater (gasoline, benzene and MTBE concentrations above ESL criteria) has an approximate maximum extent within the 100 µg/L TVHg isoconcentration contour of approximately 130 feet long by 60 feet wide in the October 2008 monitoring event, with a generally northwest-southeast longitudinal axis.

Contaminant concentrations of TVH as gasoline and MTBE above ESL criteria extend off site to the north-northwest (under Union Street). The MTBE plume shows generally the same configuration. The downgradient limits of the plume are inferred to extend offsite approximately 20 west and 40 feet north. The plume extends offsite about 20 feet in the south direction while the eastern upgradient limit of the plume is constrained on site.

The plume geometry has not varied substantially since monitoring began in October 2006, although seasonal fluctuations in contaminant concentrations have been observed. While benzene appears to be remaining relatively stable or decreasing, increasing gasoline concentrations in downgradient wells suggest that downgradient migration of this constituent could be occurring.

Groundwater contaminant migration appears to be controlled locally by hydrogeologic conditions. Based on our experience, it is likely that the contaminant concentrations attenuate to below ESL criteria no more than 50 feet off site. However, continued quarterly groundwater monitoring in site wells is warranted to confirm that groundwater contaminant concentrations do not continue to increase and/or there is no indication of significant plume migration.

CLOSURE CRITERIA ASSESSMENT AND PROPOSED ACTIONS

The Water Board generally requires that the following criteria be met before issuing regulatory closure of contaminant cases:

The contaminant source has been removed (i.e., the source of the discharge and obviously-contaminated soil). This criterion has been met. The UFST and associated piping and

dispenser and residual soil contamination sources have been removed to the extent possible and borehole and excavation soil sampling have shown that the substantial mass of that will act as an ongoing source of groundwater contamination has been removed.

The groundwater contaminant plume is well characterized, and is stable or reducing in magnitude and extent. As discussed above, in our professional opinion, this criterion has not been entirely met, and continued groundwater monitoring will be needed to evaluate the effect of the November 2007 groundwater dewatering, contaminated soil excavation and ORC® application in order to demonstrate plume stability.

If residual contamination (soil or groundwater) exists, there is no reasonable risk to sensitive receptors (i.e., contaminant discharge to surface water or water supply wells) or to site occupants. This criterion is generally met by conducting a Risk-Based Corrective Action (RBCA) assessment that models the fate and transport of residual contamination in the context of potential impacts to sensitive receptors (e.g., water wells, residential land use). SES is currently in the process of conducting a preferential pathway survey, including located wells in the area, to satisfy this criterion.

6.0 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-3B, MW-4B, and MW-5B. TVH as gasoline was also detected in monitoring well MW-2A, but below the ESL.
- MTBE was detected above its ESL of 5.0 µg/L in wells MW-1B, MW-4A, and MW-5B. MTBE was not detected above the laboratory detection limit in any of the other monitoring wells.
- Benzene, toluene, ethyl benzene, and total xylenes were not detected above the laboratory detection limit in any of the monitoring wells sampled during this event.

- The lead scavenger 1,2-dichloroethane was detected above the ESL in well MW-1B. The fuel oxygenate tertiary-amyl methyl ether was detected in MW-5B; however, there is no published ESL for this constituent.
- Source area wells MW-1A and MW-5B, and historical source wells MW-2A and MW-2B showed an overall trend of decreased gasoline concentrations since monitoring began in October 2006. This is most likely a direct response to the removal of contaminated soil during the 1998 UFST excavation and subsequent 2006 and 2007 corrective action excavations.
- Downgradient wells MW-3B and MW-4B as well as source area well MW-1B have showed a general increase in gasoline concentrations. Downgradient wells MW-3A and MW-4A have not had gasoline concentrations above the laboratory detection limit since monitoring began. This indicates that while the source area contamination has been removed, dissolved phase hydrocarbons are present in the deeper aquifer (represented by the B wells screened from approximately 19- to 25 feet bgs).
- 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.

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 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.

7.0 REFERENCES

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8.0 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

WELL GAUGING DATA

Project # 081017-PC1 Date 10/17/08 Client STELLAR

Site 2836 Union St., Oakland

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Depth to water 10/27/08	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1A	956	3/4				9.04	8.60	12.45		
MW-1B	953	3/4				8.21	8.20	22.49		
MW-2A	949	3/4				8.44	8.40	12.75		
MW-2B	1005	3/4				8.62	9.61	24.60		
MW-3A	1011	3/4				8.68	7.48	12.95		
MW-3B	1002	3/4				8.11	8.05	25.05		
MW-4A	945	3/4				10.45	6.90	12.14		
MW-4B	959	3/4				7.24	7.19	24.29		
MW-5B	1008	3/4				8.24	8.19	25.33		
DW						8.77				

WELLHEAD INSPECTION CHECKLIST

Date 10/17/04 Client STELLAR

Site Address 2836 union st., Oakland

Job Number 081017-R1 Technician D. Cornish

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-1A	X							
MW-1B	X			X				
MW-2A	X							
MW-2B	X							
MW-3A			Box loose from grade					
MW-3B			" "	"	" "			
MW-4A	X							
MW-4B	X							
MW-5B	X	2/2 tabs stripped						

NOTES:

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME 2836 Union St, Oakland				PROJECT NUMBER 081017-PC1			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. C°	INITIALS
Myron L	6209575	10/17/08 800	4.0 pH 7.0	4.22 pH 7.01	Y	23.7	E
			100 84.0 ms	10.00 4010		22.1	

W. .L MONITORING DATA SHE. .

Project #: 051017-A1	Client: Stellar
Sampler: PC	Date: 10/27/06
Well I.D.: MW-1A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.45	Depth to Water (DTW): 8.60
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]:	

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: _____

_____(Gals.) X _____ = _____ 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
			well dewatered - No parameters or sample			

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

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

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

W ..LL MONITORING DATA SHE..T

Project #: 081017-PC1	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-1B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 22.49	Depth to Water (DTW): 8.20
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]:	

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

0.6 (Gals.) X	3	=	1.8 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
1132	18.1	7.09	1027	17	0.6	
1140	18.1	6.91	1032	7	1.2	
1148	18.0	6.94	1029	4	1.8	

Did well dewater? Yes (No) Gallons actually evacuated: 1.8

Sampling Date: 10/17/08 Sampling Time: 1155 Depth to Water:

Sample I.D.: MW-1B Laboratory: Kiff CalScience Other CET

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: 2.73 mg/L		Post-purge: 3.62	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

W. .L MONITORING DATA SHE. .

Project #: 081017-PC1	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-2A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.75	Depth to Water (DTW): 8.40
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]:	

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

1 Case Volume		Specified Volumes		Calculated Volume
0.2	(Gals.) X	3	=	0.6 Gals.

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
1104	19.9	7.22	802.4	6	0.2	
1110	18.6	7.42	790.2	12	0.4	
1115	18.8	7.38	794.6	4	0.6	

Did well dewater? Yes (No) Gallons actually evacuated: 0.6

Sampling Date: 10/17/08 Sampling Time: 1122 Depth to Water:

Sample I.D.: MW-2A Laboratory: Kiff CalScience Other CET

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:	1.86 mg/L	Post-purge:	3.28 mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV	

W L MONITORING DATA SHE

Project #: 081017-PC1	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-2B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 24.60	Depth to Water (DTW): 9.61
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]:	

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

1 Case Volume		Specified Volumes		Calculated Volume
0.6	(Gals.) X	3	=	1.8 Gals.

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
1008	19.7	7.81	203.1	210	initial	
		well dewatered @ 150ml				
1330	DTW:	24.55	Insufficient water for sample			

Did well dewater? (Yes) No — Gallons actually evacuated: 150ml

Sampling Date: 10/17/08 — Sampling Time: — Depth to Water:

Sample I.D.: MW-2B — Laboratory: Kiff CalScience Other CET

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

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

W. .L MONITORING DATA SHE. .

Project #: 081017-P1	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-3A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.95	Depth to Water (DTW): 7.48
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]:	

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

0.2 (Gals.) X	3	=	6 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
1015	20.1	7.00	1235	4	200ml	
			well dewatered @ 200ml			
1325	DTW:	12.91	Insufficient water for ~~purge~~ & sample			

Did well dewater? ~~Yes~~ No Gallons actually evacuated: 200ml

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: MW-3A Laboratory: Kiff CalScience Other CET

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

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

WELL MONITORING DATA SHEET

Project #: 081017-PC1	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-3B	Well Diameter: 2 3 4 6 8 3/4"
Total Well Depth (TD): 25.05	Depth to Water (DTW): 8.05
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]:	

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

1 Case Volume	(Gals.) X	Specified Volumes	=	Calculated Volume	Gals.
0.7		3		2.1	

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
1208	18.0	6.99	881.6	500	0.7	
1215	17.9	6.93	868.9	36	1.4	
1223	18.2	6.98	870.7	7	2.1	

Did well dewater? Yes (No) Gallons actually evacuated: 2.1

Sampling Date: 10/17/08 Sampling Time: 1230 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:	1.97 mg/L	Post-purge:	1.49	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

W L MONITORING DATA SHE

Project #: 081017-PC	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-4A	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 12.14	Depth to Water (DTW): 6.90
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]:	

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

0.2 (Gals.) X	3	=	0.6 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
1020	20.2	6.94	1118	65	525ml	
		well	dewatered @	525ml		
~~1330~~ 1320	DTW:	10.10	~~Insufficient~~ Water for	Parameters		

Did well dewater? (Yes) No Gallons actually evacuated: 525 ml

Sampling Date: 10/17/08 Sampling Time: 1320 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:	1.87 mg/L	Post-purge:	— mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV	

W L MONITORING DATA SHE

Project #: 061017-PC1	Client: STELLAR
Sampler: PC	Date: 10/17/06
Well I.D.: MW-4B	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 24.19	Depth to Water (DTW): 7.19
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]:	

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

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

0.7 (Gals.) X 3 = 2.1 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
1030	18.8	7.04	870.8	6	0.7	
1038	18.7	7.04	880.5	15	1.4	
1046	18.8	7.04	882.1	20	2.1	

Did well dewater? Yes (No) Gallons actually evacuated: 2.1

Sampling Date: 10/17/06 Sampling Time: 1052 Depth to Water:

Sample I.D.: MW-4B Laboratory: Kiff CalScience Other CET

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:	1.47 mg/L	Post-purge:	1.96 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

W ..LL MONITORING DATA SHE..T

Project #: 081017-PC1	Client: STELLAR
Sampler: PC	Date: 10/17/08
Well I.D.: MW-5B	Well Diameter: 2 3 4 6 8 3/4"
Total Well Depth (TD): 25.33	Depth to Water (DTW): 8.19
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]:	

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

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

0.7 (Gals.) X 3 = 2.1 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
1240	18.9	7.00	948.5	673	0.7	sheen
1248	19.0	7.01	944.7	296	1.4	↓
1256	19.2	7.06	937.5	275	2.1	

Did well dewater? Yes (NO) Gallons actually evacuated: 2.1

Sampling Date: 10/17/08 Sampling Time: 1304 Depth to Water:

Sample I.D.: MW-5B Laboratory: Kiff CalScience Other CET

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: 1.97 mg/L		Post-purge: 1.67 mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

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			
Number of drum(s) empty:	1	1				
Number of drum(s) 1/4 full:	1	1	2			
Number of drum(s) 1/2 full:	1	1	1			
Number of drum(s) 3/4 full:						
Number of drum(s) full:	1	1	1			
Total drum(s) on site:	4	4	4			
Are the drum(s) properly labeled?	Y		N			
Drum ID & Contents:	purge H_2O	soil, Purge H_2O / 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			
Number of drums empty:	1	0				
Number of drum(s) 1/4 full:	1	~~+~~ 2	2			
Number of drum(s) 1/2 full:	1	1	1			
Number of drum(s) 3/4 full:		0				
Number of drum(s) full:	1	1	1			
Total drum(s) on site:	4	4	4			
Are the drum(s) properly labeled?	Y	Yes	N			
Drum ID & Contents:	purge H_2O	soil, Purge H_2O Tools →				

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			
Date of inspection:	4/10/08	7/7/08	10/17/08			
Drum(s) labelled properly:	Y	Y	NO			
Logged by BTS Field Tech:	IW	BD	PC			
Office reviewed by:	N	N	N			

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

Chain of Custody Record

Lab job no. 207046
Date 10/ /08
Page 1 of 1

Laboratory C&T
Address 2323 FIFTH ST, BERKELEY, CA
Project Owner LARRY WADLER
Site Address 2836 UNION ST, OAKLAND, CA
Project Name
Project Number 2005-65

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

Analysis Required: Filtered; No. of Containers; TPH-G/BTEX/MTBE 8015/8260B; OXYS (5) by 8260B; EDC + EDB by 8260B

TO O&P Trad

#	Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TPH-G/BTEX/MTBE 8015/8260B	OXYS (5) by 8260B	EDC + EDB by 8260B	Remarks
1	MW-2A		10/16/08	~~1012~~ 1122	W	40mL VOAs w/ HCL	X	HCL			X	~~X~~		No oxy's
	~~MW-2B~~										~~X~~	~~X~~	~~X~~	
	~~MW-1A~~										~~X~~	~~X~~	~~X~~	
2	MW-1B		↓	1155	↓	↓	↓	↓			X	X	X	
	~~MW-3A~~										~~X~~	~~X~~	~~X~~	
3	MW-3B			1230							X	X	X	
4	MW-4A			1320							X			limited volume
5	MW-4B			1052							X	X	X	
6	MW-5B			1304							X	X	X	

Relinquished by	Date/Time	Received by	Date/Time	Relinquished by	Date/Time	Received by	Date/Time
Signature: [signature] (PC)	Date: 10/17	Signature: [signature] (PC)	Date:	Signature: [signature] (Sample Custodian)	Date: 10/20/08	Signature: [signature]	Date: 10/20/08
Printed: Pete Cornish	Time: 1605	Printed: Pete Cornish	Time:	Printed: Michael Nimskaler	Time: 1420	Printed: Ricky Gams	Time: 1420
Company: BTS		Company: BTS		Company: BTS		Company: C&T	

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

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

2000-00-01

intact cold RG

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 207046 Date Received 10/20/08 Number of coolers 1
Client STELLAR ENV. Project

Date Opened 10/20/08 By (print) IX-VILLANUEVA (sign)
Date Logged in 10/21/08 By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc)? ..... YES (NO)
   Shipping info

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

☐ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

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

☑ Samples Received on ice & cold without a temperature blank

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

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

COMMENTS
SAMPLE# 4 1/3 VOA W/ BUBBLE

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

Laboratory Job Number 207046
ANALYTICAL REPORT

Stellar Environmental Solutions
2198 6th Street
Berkeley, CA 94710

Project : 2005-65

Level : II

Sample ID	Lab ID
MW-2A	207046-001
MW-1B	207046-002
MW-3B	207046-003
MW-4A	207046-004
MW-4B	207046-005
MW-5B	207046-006

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: 10/30/2008
Project Manager

Signature: _____ Date: 10/30/2008
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**207046**
Client:	**Stellar Environmental Solutions**
Project:	**2005-65**
Request Date:	**10/20/08**
Samples Received:	**10/20/08**

This hardcopy data package contains sample and QC results for six water samples, requested for the above referenced project on 10/20/08. 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):
High surrogate recoveries were observed for bromofluorobenzene in MW-1B (lab # 207046-002), MW-4B (lab # 207046-005), and the method blanks for batch 144065. No other analytical problems were encountered.

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	207046	Project#:	2005-65
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08
Diln Fac:	1.000	Analyzed:	10/22/08
Batch#:	143957		

Field ID: MW-2A
Type: SAMPLE
Lab ID: 207046-001

Analyte	Result	RL	Analysis
Gasoline C7-C12	71 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)	103	61-149	EPA 8015B
Bromofluorobenzene (FID)	101	65-146	EPA 8015B
Trifluorotoluene (PID)	88	52-143	EPA 8021B
Bromofluorobenzene (PID)	89	56-141	EPA 8021B

Field ID: MW-1B
Type: SAMPLE
Lab ID: 207046-002

Analyte	Result	RL	Analysis
Gasoline C7-C12	520 Y	50	EPA 8015B
MTBE	4.9 C	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)	100	61-149	EPA 8015B
Bromofluorobenzene (FID)	98	65-146	EPA 8015B
Trifluorotoluene (PID)	100	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 #:	207046	Project#:	2005-65
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08
Diln Fac:	1.000	Analyzed:	10/22/08
Batch#:	143957		

Field ID: MW-3B Lab ID: 207046-003
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,300 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)	107	61-149	EPA 8015B
Bromofluorobenzene (FID)	103	65-146	EPA 8015B
Trifluorotoluene (PID)	107	52-143	EPA 8021B
Bromofluorobenzene (PID)	85	56-141	EPA 8021B

Field ID: MW-4A Lab ID: 207046-004
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	66	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)	104	65-146	EPA 8015B
Trifluorotoluene (PID)	82	52-143	EPA 8021B
Bromofluorobenzene (PID)	87	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 #:	207046	Project#:	2005-65
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08
Diln Fac:	1.000	Analyzed:	10/22/08
Batch#:	143957		

Field ID: MW-4B Lab ID: 207046-005
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,600 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)	109	61-149	EPA 8015B
Bromofluorobenzene (FID)	103	65-146	EPA 8015B
Trifluorotoluene (PID)	116	52-143	EPA 8021B
Bromofluorobenzene (PID)	84	56-141	EPA 8021B

Field ID: MW-5B Lab ID: 207046-006
Type: SAMPLE

Analyte	Result	RL	Analysis
Gasoline C7-C12	780 Y	50	EPA 8015B
MTBE	84	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)	121	61-149	EPA 8015B
Bromofluorobenzene (FID)	105	65-146	EPA 8015B
Trifluorotoluene (PID)	85	52-143	EPA 8021B
Bromofluorobenzene (PID)	86	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 #:	207046	Project#:	2005-65
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08
Diln Fac:	1.000	Analyzed:	10/22/08
Batch#:	143957		

Type: BLANK Lab ID: QC466538

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)	103	61-149	EPA 8015B
Bromofluorobenzene (FID)	103	65-146	EPA 8015B
Trifluorotoluene (PID)	92	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.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8021B
Project#:	2005-65		
Matrix:	Water	Batch#:	143957
Units:	ug/L	Analyzed:	10/22/08
Diln Fac:	1.000		

Type: BS Lab ID: QC466540

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.00	100	61-143
Benzene	10.00	9.982	100	80-120
Toluene	10.00	10.35	104	77-120
Ethylbenzene	10.00	11.17	112	79-123
m,p-Xylenes	10.00	11.15	111	78-123
o-Xylene	10.00	11.38	114	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	93	52-143
Bromofluorobenzene (PID)	91	56-141

Type: BSD Lab ID: QC466541

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	8.725	87	61-143	14	32
Benzene	10.00	9.239	92	80-120	8	20
Toluene	10.00	10.03	100	77-120	3	20
Ethylbenzene	10.00	10.71	107	79-123	4	20
m,p-Xylenes	10.00	10.76	108	78-123	4	21
o-Xylene	10.00	10.95	110	78-122	4	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	91	52-143
Bromofluorobenzene (PID)	91	56-141

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8015B
Project#:	2005-65		
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC466616	Batch#:	143957
Matrix:	Water	Analyzed:	10/22/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,038	104	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	112	61-149
Bromofluorobenzene (FID)	102	65-146

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8015B
Project#:	2005-65		
Field ID:	ZZZZZZZZZZ	Batch#:	143957
MSS Lab ID:	207064-003	Sampled:	10/21/08
Matrix:	Water	Received:	10/21/08
Units:	ug/L	Analyzed:	10/23/08
Diln Fac:	1.000		

Type: MS Lab ID: QC466617

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	36.85	2,000	1,901	93	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	61-149
Bromofluorobenzene (FID)	118	65-146

Type: MSD Lab ID: QC466618

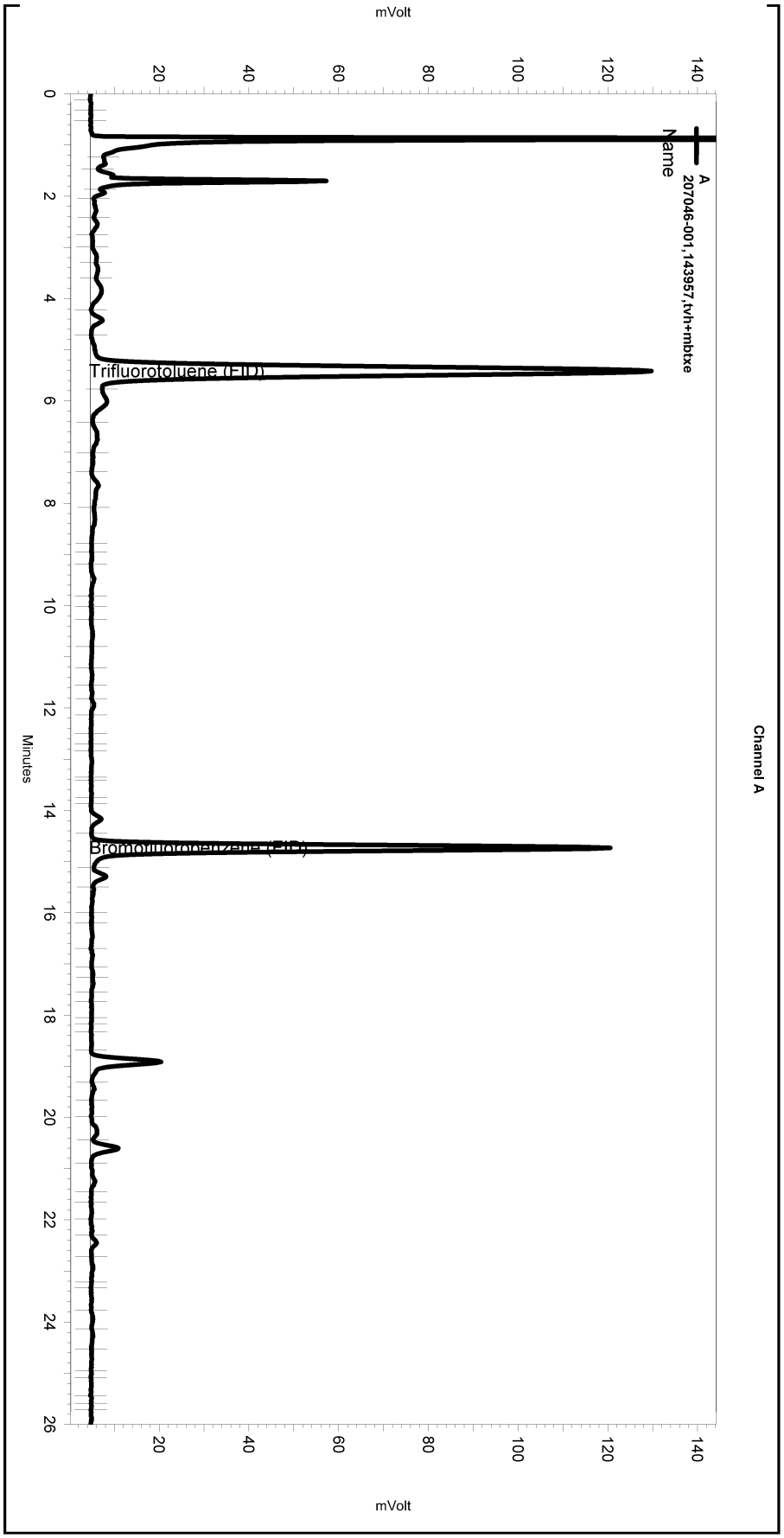
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,913	94	65-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	61-149
Bromofluorobenzene (FID)	137	65-146

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\296.seq**
Sample Name: **207046-001,143957,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\296_015**
Instrument: GC05 (Offline) Vial: N/A Operator: TVH 4. Analyst (lims2k3\tvh4)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe296.met

Software Version 3.1.7
Run Date: 10/22/2008 4:58:05 PM
Analysis Date: 10/23/2008 10:38:30 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\296_015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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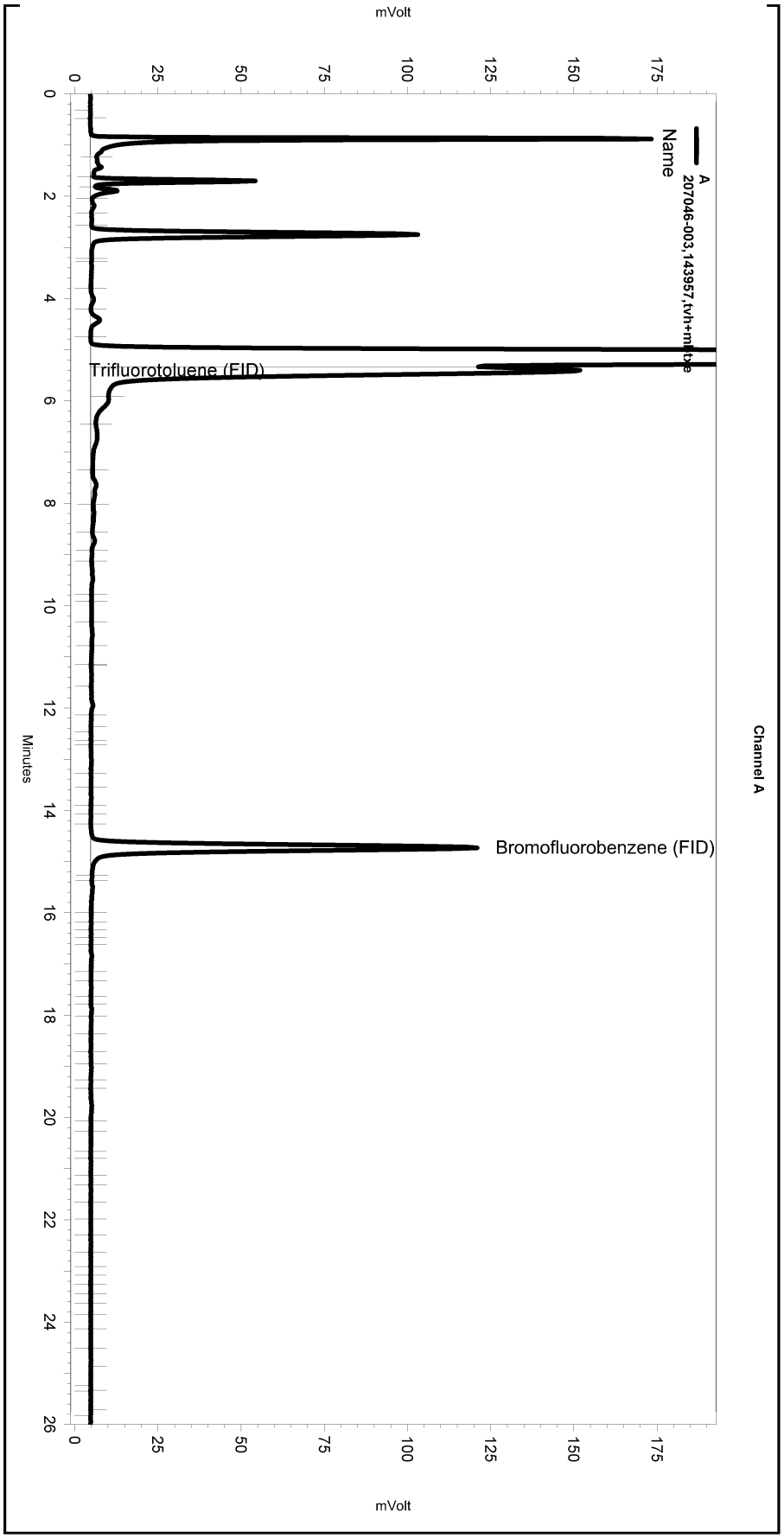
Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\296.seq**
Sample Name: **207046-003,143957,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\296_017**
Instrument: GC05 (Offline) Vial: N/A Operator: TVH 4. Analyst (lims2k3\tvh4)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe296.met

Software Version 3.1.7
Run Date: 10/22/2008 6:09:06 PM
Analysis Date: 10/23/2008 1:21:37 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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No items selected for this section

Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\296_017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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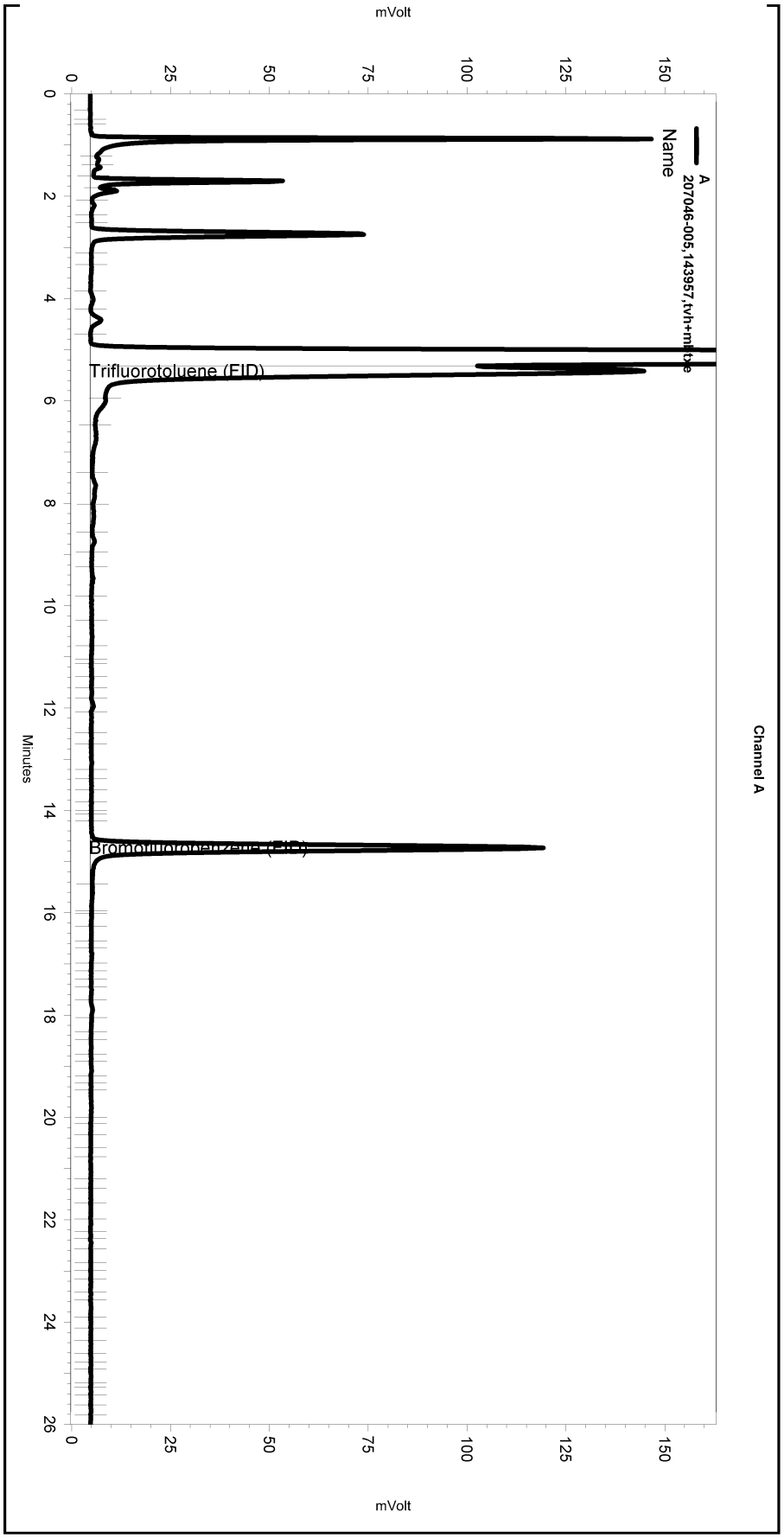
Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\296.seq**
Sample Name: **207046-005,143957,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\296_019**
Instrument: GC05 (Offline) Vial: N/A Operator: TVH 4. Analyst (lims2k3\tvh4)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe296.met

Software Version 3.1.7
Run Date: 10/22/2008 7:20:19 PM
Analysis Date: 10/23/2008 1:21:43 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\296_019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\296.seq**
Sample Name: **ccv,tvh,s10342,2.5/5000**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\296_003**
Instrument: GC05 (Offline) Vial: N/A Operator: TVH 4. Analyst (lims2k3\tvh4)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe296.met

Software Version 3.1.7
Run Date: 10/22/2008 8:21:45 AM
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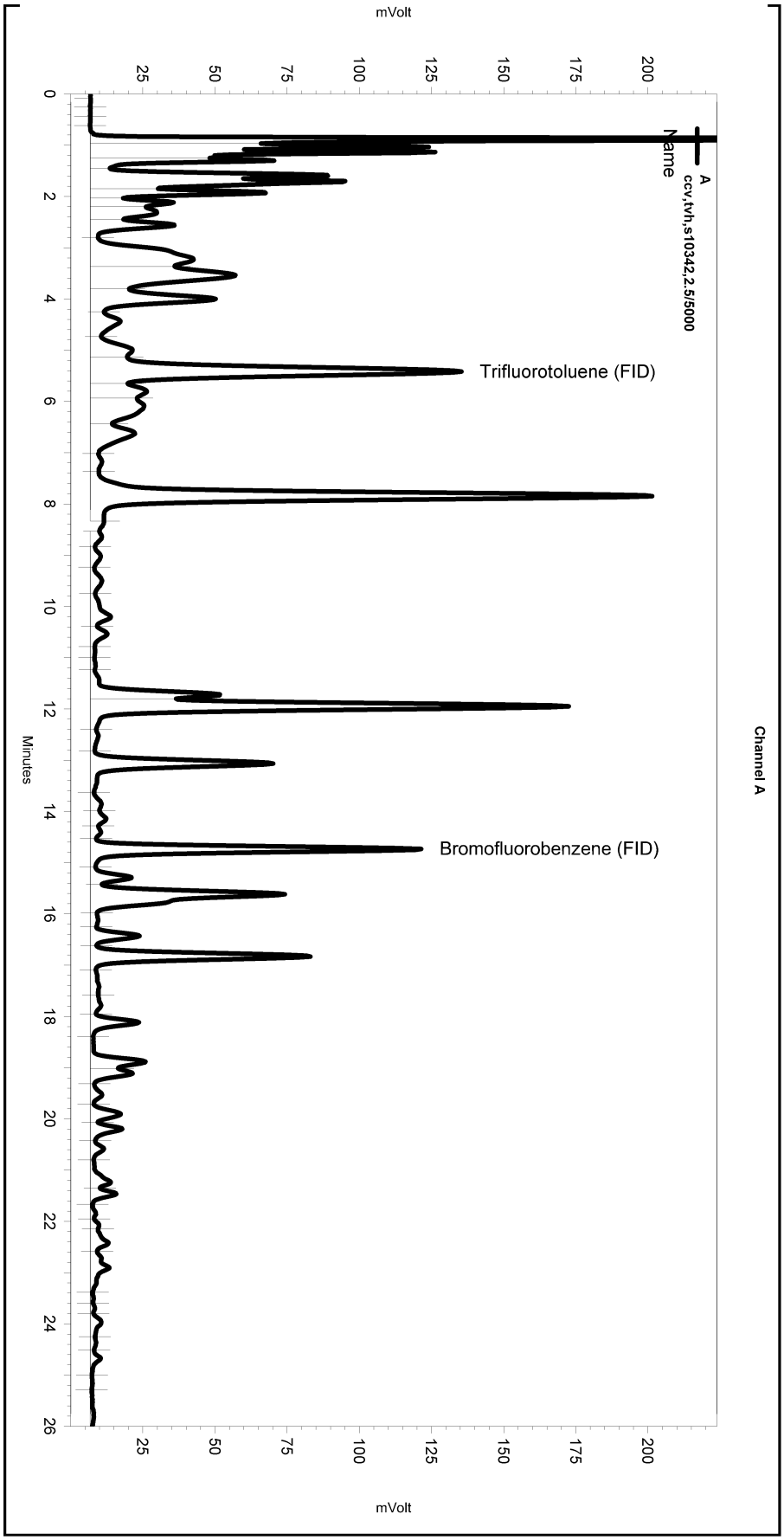
Vial & pH or Core ID: {Data Description}



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No items selected for this section

Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\296_003

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

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8260B
Project#:	2005-65		
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08

Field ID:	MW-1B	Diln Fac:	2.000
Type:	SAMPLE	Batch#:	144065
Lab ID:	207046-002	Analyzed:	10/25/08

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	20
MTBE	5.9	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	3.0	1.0
1,2-Dibromoethane	ND	1.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	104	80-137
Toluene-d8	103	80-120
Bromofluorobenzene	127 *	80-122

Field ID:	MW-3B	Diln Fac:	10.00
Type:	SAMPLE	Batch#:	144122
Lab ID:	207046-003	Analyzed:	10/28/08

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	107	80-125
1,2-Dichloroethane-d4	110	80-137
Toluene-d8	105	80-120
Bromofluorobenzene	101	80-122

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8260B
Project#:	2005-65		
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08

Field ID:	MW-4B	Diln Fac:	8.333
Type:	SAMPLE	Batch#:	144065
Lab ID:	207046-005	Analyzed:	10/25/08

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	101	80-125
1,2-Dichloroethane-d4	106	80-137
Toluene-d8	103	80-120
Bromofluorobenzene	128 *	80-122

Field ID:	MW-5B	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	144065
Lab ID:	207046-006	Analyzed:	10/24/08

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	76	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Methyl tert-Amyl Ether (TAME)	4.4	0.5
1,2-Dichloroethane	ND	0.5
1,2-Dibromoethane	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	105	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	108	80-122

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8260B
Project#:	2005-65		
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08

Type:	BLANK	Batch#:	144065
Lab ID:	QC466987	Analyzed:	10/24/08
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	99	80-125
1,2-Dichloroethane-d4	104	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	123 *	80-122

Type:	BLANK	Batch#:	144065
Lab ID:	QC466988	Analyzed:	10/25/08
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	101	80-125
1,2-Dichloroethane-d4	106	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	126 *	80-122

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline Oxygenates by GC/MS

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8260B
Project#:	2005-65		
Matrix:	Water	Sampled:	10/17/08
Units:	ug/L	Received:	10/20/08

Type:	BLANK	Batch#:	144122
Lab ID:	QC467240	Analyzed:	10/27/08
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	100	80-125
1,2-Dichloroethane-d4	99	80-137
Toluene-d8	105	80-120
Bromofluorobenzene	99	80-122

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline Oxygenates by GC/MS

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8260B
Project#:	2005-65		
Matrix:	Water	Batch#:	144065
Units:	ug/L	Analyzed:	10/24/08
Diln Fac:	1.000		

Type: BS Lab ID: QC466989

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	88.34	88	59-152
MTBE	20.00	16.88	84	70-125
Isopropyl Ether (DIPE)	20.00	19.72	99	67-126
Ethyl tert-Butyl Ether (ETBE)	20.00	20.07	100	69-127
Methyl tert-Amyl Ether (TAME)	20.00	20.04	100	80-122

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	102	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	110	80-122

Type: BSD Lab ID: QC466990

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	100.0	98.14	98	59-152	11	20
MTBE	20.00	17.82	89	70-125	5	20
Isopropyl Ether (DIPE)	20.00	20.84	104	67-126	6	20
Ethyl tert-Butyl Ether (ETBE)	20.00	21.24	106	69-127	6	20
Methyl tert-Amyl Ether (TAME)	20.00	21.63	108	80-122	8	20

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	101	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	108	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline Oxygenates by GC/MS

Lab #:	207046	Prep:	EPA 5030B
Client:	Stellar Environmental Solutions	Analysis:	EPA 8260B
Project#:	2005-65		
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC467238	Batch#:	144122
Matrix:	Water	Analyzed:	10/27/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	100.0	83.95	84	59-152
MTBE	20.00	17.91	90	70-125
Isopropyl Ether (DIPE)	20.00	18.58	93	67-126
Ethyl tert-Butyl Ether (ETBE)	20.00	22.94	115	69-127
Methyl tert-Amyl Ether (TAME)	20.00	23.30	117	80-122

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	104	80-120
Bromofluorobenzene	96	80-122

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		NS	NS	NS	NS	NS	NS
2	Jan-07	9.80	2.45		790	94	*< 0.5*	8.6	*< 0.5*	100
3	Apr-07	7.49	4.76		760	63	*<0.5*	1.9	*<0.5*	150
4	Jul-07	7.16	5.09		NS	NS	NS	NS	NS	NS
5	Oct-07	7.29	4.96		830	28	<0.7	13	<0.7	110
6	Jan-08	6.82	5.70		720	8.1	*< 0.5*	*< 0.5*	*< 0.5*	130
7	Apr-08	6.32	5.70		*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
8	Jul-08	8.25	4.00		120	1.0	*<0.5*	*<0.5*	*<0.5*	86
9	Oct-08	9.04	3.21	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

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		350	*<1.3*	*<1.3*	*<1.3*	*<1.3*	2.7
2	Jan-07	6.40	5.65		350	*<1.3*	*<1.3*	*<1.3*	*<1.3*	3.6
3	Apr-07	6.42	5.63		320	*<0.5*	*<0.5*	*<0.5*	*<0.5*	4.2
4	Jul-07	7.19	4.86		200	*<1.3*	*<1.3*	*<1.3*	*<1.3*	3.2
5	Oct-07	7.10	4.95		230	*<0.7*	*<0.7*	*<0.7*	*<0.7*	6.0
6	Jan-08	5.81	6.67		400	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	6.2
7	Apr-08	6.82	5.23		350	*<0.5*	*<0.5*	*<0.5*	*<0.5*	7.8
8	Jul-08	7.62	4.43		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

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		80	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
2	Jan-07	6.58	6.24		490	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
3	Apr-07	6.52	6.30		83	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
4	Jul-07	7.37	5.45		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
5	Oct-07	7.33	5.49		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
6	Jan-08	5.50	7.56		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
7	Apr-08	6.86	5.96		160	*<0.5*	*<0.5*	*<0.5*	*<0.5*	3.0
8	Jul-08	7.70	5.12		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*

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		*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
2	Jan-07	6.59	6.37		2,000	*<0.5*	1.1	6.7	0.8	19
3	Apr-07	6.20	6.76		84	*<0.5*	*<0.5*	*<0.5*	*<0.5*	18
4	Jul-07	7.33	5.63		580	*<0.5*	*<0.5*	*<0.5*	*<0.5*	6.0
5	Oct-07	7.12	5.84		1,700	*<0.5*	*<0.5*	*<0.5*	*<0.5*	83
6	Jan-08	5.51	7.65		780	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	32
7	Apr-08	6.56	6.40		92	*<0.5*	*<0.5*	*<0.5*	*<0.5*	2.4
8	Jul-08	7.78	5.18		570	*<0.5*	*<0.5*	*<0.5*	0.72	17
9	Oct-08	8.62	4.34	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

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		NS	NS	NS	NS	NS	NS
2	Jan-07	6.32	5.27		NS	NS	NS	NS	NS	NS
3	Apr-07	5.75	5.84		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	75
4	Jul-07	6.19	5.40		NS	NS	NS	NS	NS	NS
5	Oct-07	6.50	5.09		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
6	Jan-08	5.69	6.07		*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	70
7	Apr-08	6.56	6.40		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*77*
8	Jul-08	6.73	4.86		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	56
9	Oct-08	8.68	2.91	*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		1,900	*<10*	*<10*	*<10*	*<10*	*<10*
2	Jan-07	6.41	5.54		1,900	*<8.3*	*<8.3*	*<8.3*	*<8.3*	*<8.3*
3	Apr-07	6.39	5.56		1,900	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
4	Jul-07	7.15	4.80		1,200	*<2.0*	*<2.0*	*<2.0*	*<2.0*	*<2.0*
5	Oct-07	7.11	4.84		2,100	*<7.1*	*<7.1*	*<7.1*	*<7.1*	*<7.1*
6	Jan-08	5.60	6.50		2,100	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<2.0*
7	Apr-08	6.77	5.18		1,800	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
8	Jul-08	7.50	4.45		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*

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		NS	NS	NS	NS	NS	NS
2	Jan-07	5.64	5.38		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	72
3	Apr-07	5.34	5.68		*<50*	*<0.5*	*0.6*	*<0.5*	0.6	77
4	Jul-07	5.71	5.31		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	64
5	Oct-07	6.09	4.93		*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	73
6	Jan-08	5.53	5.72		NS	NS	NS	NS	NS	NS
7	Apr-08	5.56	5.46		<50	<0.5	<0.5	<0.5	<0.5	61
8	Jul-08	6.30	4.34		<50	*<0.5*	*<0.5*	*<0.5*	*<0.5*	46
9	Oct-08	10.45	0.57	*NS*	<50	*<0.5*	*<0.5*	*<0.5*	*<0.5*	66

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		1,100	*<2.5*	*<2.5*	*<2.5*	*<2.5*	*<2.5*
2	Jan-07	5.55	5.49		1,300	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*
3	Apr-07	5.45	5.59		1,300	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
4	Jul-07	6.28	4.76		1,000	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*
5	Oct-07	6.13	4.91		1,400	*<4.2*	*<4.2*	*<4.2*	*<4.2*	*<4.2*
6	Jan-08	4.81	6.44		1,500	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
7	Apr-08	5.90	5.14		1,500	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
8	Jul-08	6.70	4.34		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*

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		NS	NS	NS	NS	NS	NS
2	Jan-07	6.72	6.10		NS	NS	NS	NS	NS	NS
3	Apr-07	5.74	6.68		1,000	6.6	*<0.5*	29	7.6	79
4	Jul-07	6.98	5.44		NS	NS	NS	NS	NS	NS
5	Oct-07	8.32	4.10		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		13,000	9.6	0.6	21	1.9	37
2	Jan-07	6.45	5.93		6,600	4.0	*<0.5*	10	1.0	22
3	Apr-07	6.45	5.93		3,300	0.7	*<0.5*	2.7	*<0.5*	*<0.5*
4	Jul-07	7.15	5.23		2,000	1.1	*<0.5*	2.2	*<0.5*	26
5	Oct-07	7.28	5.10		1,200	*<0.5*	*<0.5*	*<0.5*	*<0.5*	45
6	Jan-08	4.94	7.63		1,200	*<0.5*	*<0.5*	4.1	*<0.5*	69
7	Apr-08	6.51	5.87		240	*<0.5*	*<0.5*	<0.5	*<0.5*	65
8	Jul-08	7.64	4.74		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

Notes:

All concentrations reported in micrograms per liter.

TVH-g = Total volatile hydrocarbons – gasoline range.

NS = Not sampled, insufficient water

(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*

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

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*	*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	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*	*NA*
9	Oct-08	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	3,280

MW-2B								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NA*
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*

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*

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	1.49

MW-4A								
Sampling Event No.	**Date Sampled**	**EDC**	**EDB**	**ETBE**	**DIPE**	**TAME**	**TBA**	**DO**
1	Oct-06	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NA*
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	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

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

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

Notes:

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

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

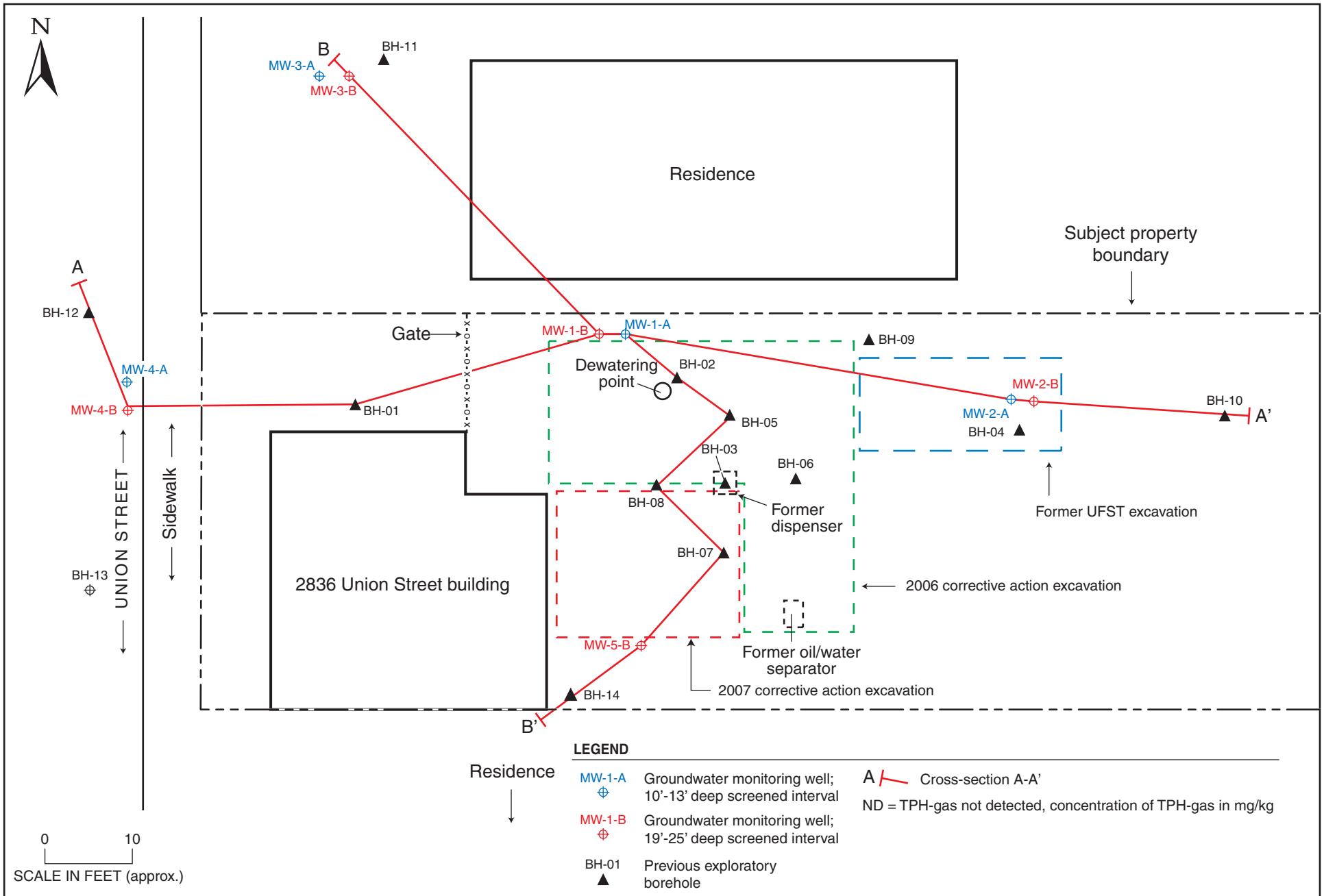
DIPE = isopropyl ether. ETBE = Ethyl-tertbutyl ether. TAME = Tert-amylmethylether

TBA = Tertiary butyl alcohol

DO = Dissolved Oxygen

APPENDIX E

HISTORICAL EXCAVATION ANALYTICAL RESULTS AND FIGURES



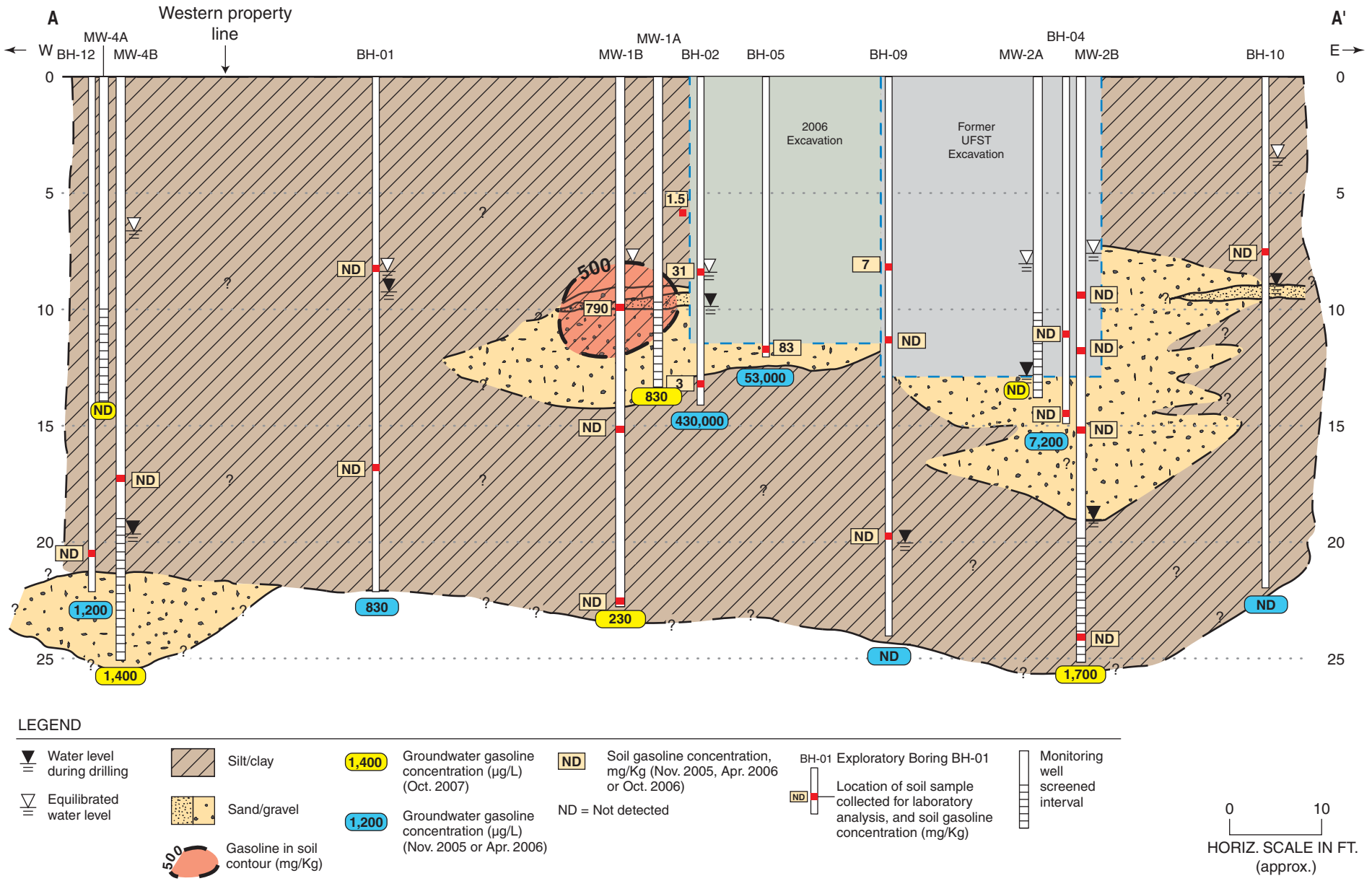
STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

Figure 2

by: MJC | NOVEMBER 2008

2005-65-72



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

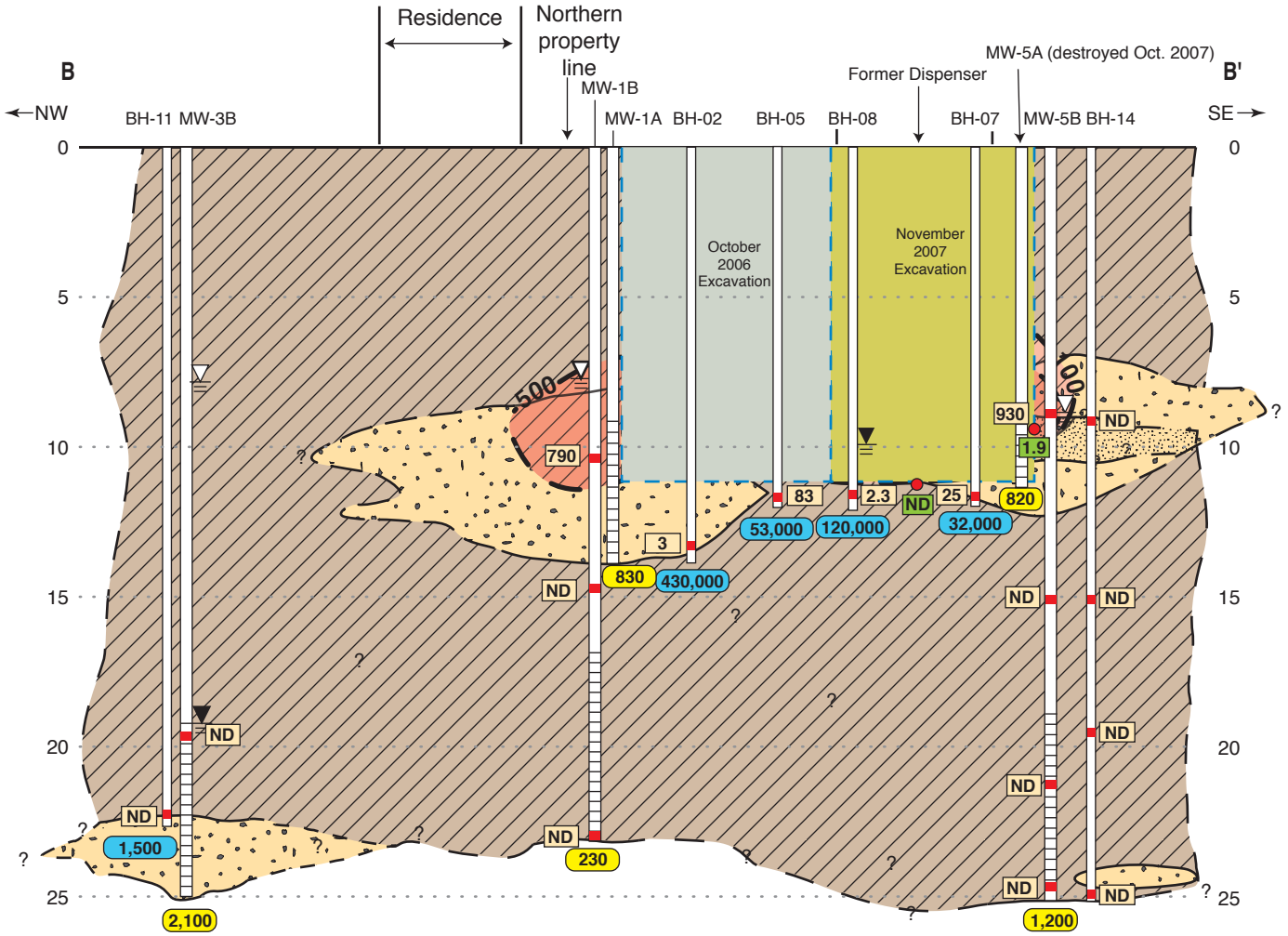
GEOLOGIC CROSS SECTION A-A'

2836 Union Street, Oakland, CA

Figure 3

by: MJC | DECEMBER 2007

2005-65-61



LEGEND

- Water level during drilling
- Equilibrated water level
- Silt/clay
- Sand/gravel
- Gasoline in soil contour (mg/Kg)
- 2,100 — Groundwater gasoline concentration (µg/L) (Oct. 2007)
- 1,500 — Groundwater gasoline concentration (µg/L) (Nov. 2005 or Apr. 2006)
- ND — Soil gasoline concentration, mg/Kg (Nov. 2005, Apr. 2006 or Oct. 2006)
- ND = Not detected
- ND — Excavation confirmation soil sample mg/Kg (Oct. 2007)
- BH-01 — Previous exploratory boring BH-01
- ND — Location of soil sample collected for laboratory analysis, and soil gasoline concentration (mg/Kg)
- Monitoring well screened interval

Note: former dispenser is projected into section (approx. 7' from south)

0 10
HORIZ. SCALE IN FT. (approx.)

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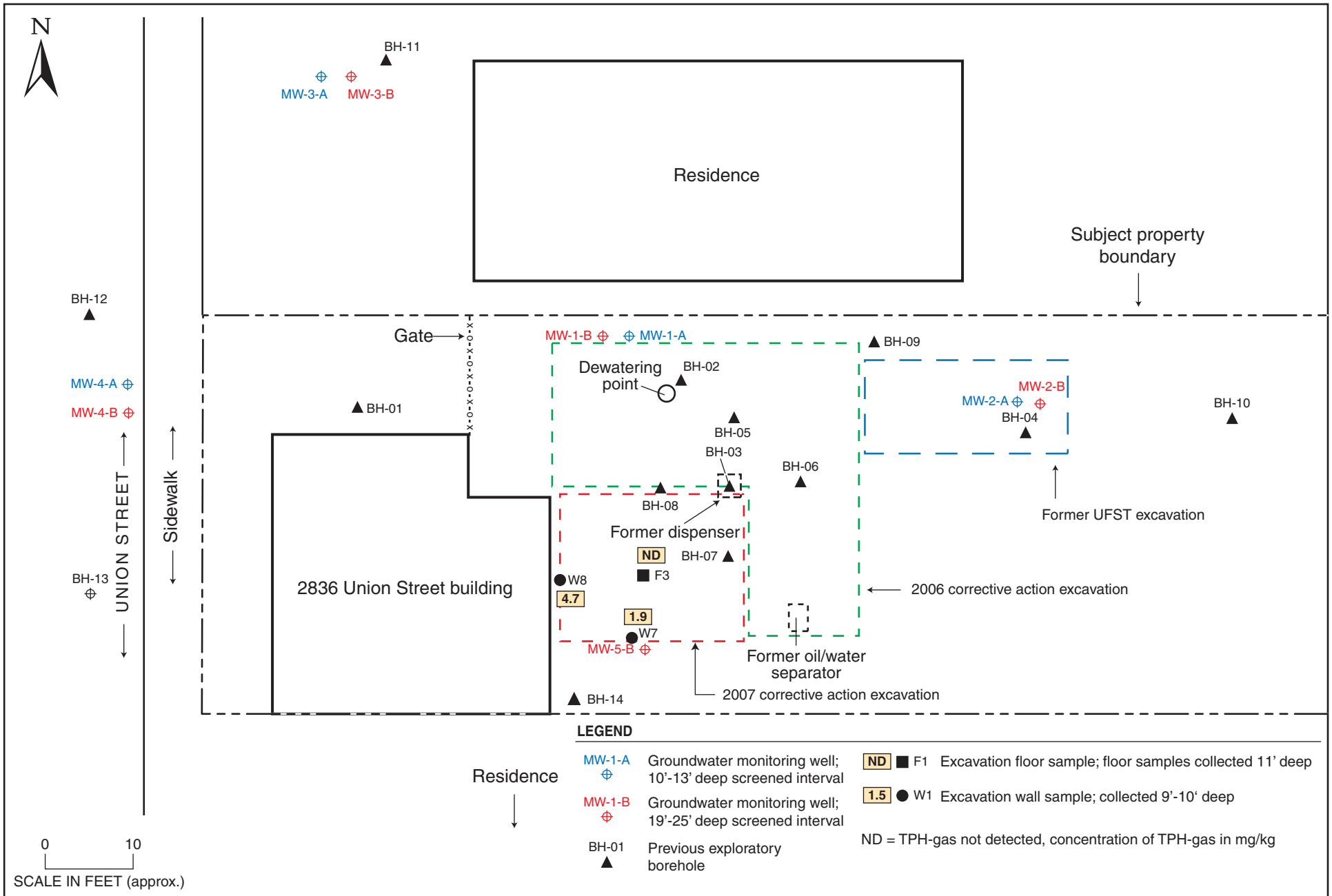
GEOLOGIC CROSS SECTION B-B'

2836 Union Street, Oakland, CA

Figure 4

by: MJC | DECEMBER 2007

2005-65-60



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

EXCAVATION CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS

2836 Union Street, Oakland, CA

Figure 5

by: MJC | DECEMBER 2007

2005-65-62

Table 1
November 2007 Soil and Excavation Dewatering Analytical Results
2836 Union Street, Oakland, California

Sample Identifier	Sample Depth (feet bgs)	TVHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Soil Samples (mg/kg)							
W7	9-10	1.9	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
W8	9-10	4.7	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046
F3	11	<0.97	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
Soil Comp	-	**540**	<0.5	<0.5	4.3	5.25	<0.5
Soil ESLs		*100/400*	*0.044/0.38*	*2.9/9.3*	*3.3/32*	*2.3/11*	*0.23/5.6*
Excavation Dewatering (µg/L)							
Exc. Well	-	**2,800**	**42**	20	**220**	**174**	NA
Groundwater ESLs		100 / 500	1.0 / 46	40 / 130	30 / 290	13 / 13	-
MCLs		*100*	*1.0*	*40*	*30*	*20*	-

Notes:

ESLs = Water Board Environmental Screening Levels for residential or commercial/industrial sites where groundwater is/is not a potential drinking water resource.

MCLs = CA Drinking Water Maximum Contaminant Levels

MTBE = methyl tertiary-butyl ether
TVHg = total volatile hydrocarbons as gasoline

NA = not analyzed for this constituent

bgs = below ground surface

Samples in **bold-face type** exceed the ESL criterion.

Table 2
November 2007 Soil Sample Analytical Results
Lead Scavengers and Fuel Oxygenates
2836 Union Street, Oakland, California

Sample I.D.	Sample Depth (feet bgs)	EDC	EDB	ETBE	DIPE	TAME	TBA
W7	9-10	*<4.8*	*<4.8*	*<4.8*	*<4.8*	*<4.8*	*<96*
W8	9-10	*<4.6*	*<4.6*	*<4.6*	*<4.6*	*<4.6*	*<93*
F3	11	*<4.8*	*<4.8*	*<4.8*	*<4.8*	*<4.8*	*<96*
Soil Comp	-	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<10*
Soil ESLs		*4.5/70*	*0.33/20*	*NLP*	*NLP*	*NLP*	*NLP*

Notes:

ESLs = Water Board Environmental Screening Levels for residential or commercial/industrial sites where groundwater is/is not a potential drinking water resource.

DIPE =di-isopropyl ether
EDB =1,2-dibromoethane
EDC =1,2-dichloroethane
ETBE =ethyl tertiary-butyl ether
TAME=tertiary-amyl methyl ether
TBA= tertiary-butyl alcohol

All concentrations are in milligrams per kilogram (mg/kg).

NLP = no level published

bgs = below ground surface