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# FIRST QUARTER 2006 GROUNDWATER MONITORING, ANNUAL SUMMARY REPORT, AND PETITION FOR CASE CLOSURE

# BENNER AUTOMOTIVE 488 25<sup>TH</sup> STREET OAKLAND, CALIFORNIA

## Prepared for:

JOSEPH & LORETTA BENNER FAMILY TRUST OAKLAND, CALIFORNIA

March 2006







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Mr. Barney Chan Hazardous Materials Specialist Alameda County Health Care Services Agency Department of Environmental Health – Local Oversight Program 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

Subject: First Quarter 2006 Groundwater Monitoring, Annual Summary Report, and

Petition for Case Closure – Benner Automotive (488 25<sup>th</sup> Street, Oakland, California) Alameda County Health Case No. RO002518 / GeoTracker Global ID T0600114301

Dear Mr. Hwang:

This report documents the fourth consecutive groundwater monitoring event (Q1 2006) conducted in February 2006 by Stellar Environmental Solutions, Inc. at the referenced site. Three site groundwater monitoring wells were installed and first sampled in May 2005 to evaluate impacts from a former onsite underground fuel storage tank. The scope of work was conducted in accordance with the Alameda County Health-approved technical workplan. This report also presents an evaluation of hydrologic and contaminant data from inception through present, including an evaluation of residual contamination distribution and potential for migration.

In our professional opinion, the site meets case closure criteria. On behalf of the Responsible Party, we hereby petition Alameda County Health to grant closure, which would include the discontinuation of groundwater monitoring and permanent decommissioning of the site wells.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge. This report was uploaded to the State Water Resources Control Board's GeoTracker system, as well as the Alameda County Health "ftp" website. Please contact us at (510) 644-3123 if you have any questions. We look forward to your reply regarding the case closure petition.

Sincerely,

Bruce Rucker, R.G., R.E.A.

Bruce M. Ruh.

Project Manager and Senior Geologist

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

Budth S. Waldin

cc: Mr. Michael Benner – Representative of Benner Family Trust

Table C-1 Historical Groundwater Monitoring Well Analytical Results 488 25<sup>th</sup> Street, Oakland, California

Sample I.D.	TVHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	МТВЕ	Lead Scavengers and Fuel Oxygenates (a)			
May 2005 Groundwater Sampling	May 2005 Groundwater Sampling Event									
MW-1	64	< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	ND			
MW-2	< 50	< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	ND			
MW-3	57	< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	ND			
August 2005 Groundwater Sampl	August 2005 Groundwater Sampling Event									
MW-1	66	< 0.50	0.57	< 0.50	< 1.0	< 5.0	ND			
MW-2	< 50	< 0.50	< 0.50	< 0.50	< 1.0	< 5.0	ND			
MW-3	< 50	< 0.50	< 0.50	< 0.50	< 1.0	< 5.0	EDC = 0.62			
November 2005 Groundwater Sai	mpling Event									
MW-1	< 50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	ND			
MW-2	< 50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	ND			
MW-3	< 50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	EDC = 0.63			
Groundwater ESLs (b)	100	1.0	40	30	13	5.0	EDC = 0.5			
Drinking Water Standards (c)	NLP	5.0	1,000	700	10,000	13 <sup>(d)</sup>	Various			

#### Notes:

EDC = 1,2-dichloroethane

ND = not detected (see Appendix B for reporting limits)

MTBE = methyl *tertiary*-butyl ether

TVHg = total volatile hydrocarbons, gasoline range

NLP = no level published

All concentrations are in micrograms per liter ( $\mu$ g/L).

<sup>(</sup>a) Table shows only detected analytes.
(b) ESLs = Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels for commercial/industrial sites where groundwater is a potential drinking water resource.
(c) Primary Maximum Contaminant Level, unless specified otherwise.

<sup>(</sup>d) State of California Public Health Goal.

# FIRST QUARTER 2006 GROUNDWATER MONITORING, ANNUAL SUMMARY REPORT, AND PETITION FOR CASE CLOSURE

## BENNER AUTOMOTIVE 488 25<sup>TH</sup> STREET OAKLAND, CALIFORNIA

## Prepared for:

JOSEPH & LORETTA BENNER FAMILY TRUST
488 25<sup>TH</sup> STREET
OAKLAND, CALIFORNIA 94612

Prepared by:

STELLAR ENVIRONMENTAL SOLUTIONS, INC. 2198 SIXTH STREET BERKELEY, CALIFORNIA 94710

March 24, 2006

Project No. 2002-55

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## 1.0 INTRODUCTION

#### PROJECT BACKGROUND

Stellar Environmental Solutions, Inc. (SES) was retained by the Joseph & Loretta Benner Family Trust (as property owner) to conduct groundwater monitoring and sampling activities at 488 25<sup>th</sup> Street in Oakland, California. This work follows the removal of one gasoline underground fuel storage tank (UFST) in 2003, a Preliminary Site Assessment (PSA) in July 2003, additional site characterization (borehole drilling and sampling) in July 2004, and groundwater monitoring well installation and sampling activities in May 2005. Previous site corrective actions and investigations are summarized later in this report. The Alameda County Health Care Services Agency (Alameda County Health) Department of Environmental Health is the lead regulatory agency for the investigation, and has assigned the site as Fuel Leak Case No. RO002518.

### SITE AND VICINITY DESCRIPTION

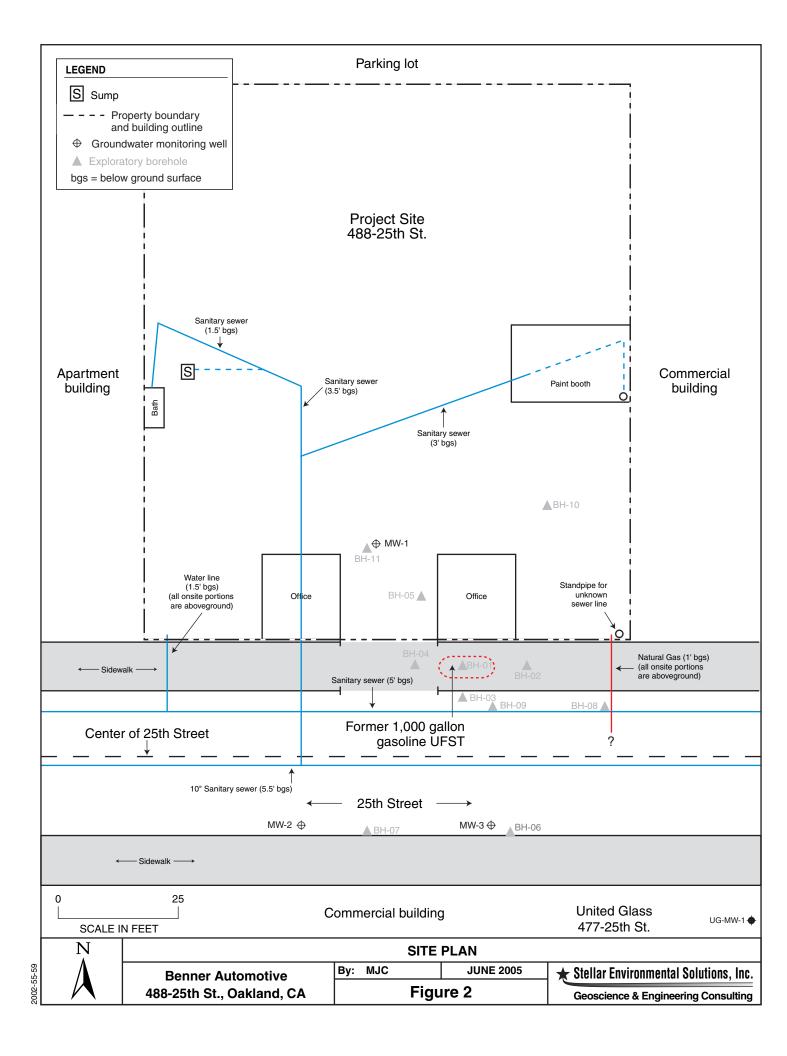
The project site is an active automobile service facility (Benner Automotive) at 488 25<sup>th</sup> Street, Oakland, Alameda County, California (site). The site is located in downtown Oakland on the north side of 25<sup>th</sup> Street, approximately 500 feet east of Telegraph Avenue. Figure 1 is a site location map. Figure 2 is a site plan showing the location of the former UFST.

Previous investigations are summarized as follows:

- *January 2003*. A 1,000-gallon gasoline UFST was removed from the subject site. Gasoline-range petroleum hydrocarbon contamination was detected in soil samples collected from the base of the tank excavation.
- July 2003. A preliminary borehole investigation was conducted to define the extent and type of contamination that resulted from the leaking UFST. Five boreholes were advanced to depths of 16 to 25 feet below ground surface (bgs); soil and groundwater samples collected from these boreholes indicated gasoline contamination beneath the former UFST and to the east and south, with minor to insignificant gasoline contamination to the west and northwest.
- *July 2004*. Six exploratory boreholes were drilled and sampled in the vicinity of the former UFST to further define the extent of groundwater and soil contamination. Additionally, a well search indicated no vicinity water wells that could intercept site-sourced groundwater



2002-55-01



contamination, except for an inactive groundwater monitoring well (installed to monitor a fuel release) at a property across the street. A preferential pathway survey was also conducted to identify underground utility trenches that may act as a preferential pathway for groundwater contamination. Only sanitary and storm sewer lines located approximately 150 feet west (crossgradient) of the subject property were potentially at the depth of groundwater. Based on the distance of these lines from the site, they are unlikely to intercept site-sourced groundwater and thus act as preferential contaminant migration pathways.

- *May 2005*. Three groundwater monitoring wells were installed, developed, surveyed, and sampled in May 2005 as the first quarterly groundwater monitoring event at the subject site.
- August and November 2005. Quarterly groundwater monitoring events #2 and #3 were conducted.

This event represents the fourth consecutive quarterly groundwater monitoring event at the site.

#### **OBJECTIVES AND SCOPE OF WORK**

This report discusses the following activities conducted/coordinated by SES between January 1 and March 31, 2006:

- Collecting water levels in site wells to determine shallow groundwater flow direction; and
- Sampling site wells for contaminant analysis and indicators of natural attenuation.

### REGULATORY OVERSIGHT

The lead regulatory agency for the site investigation and remediation is Alameda County Health. All workplans and reports are submitted to this agency. The most recent Alameda County Health directive regarding the site (letter dated January 6, 2004) approved the well installation and quarterly groundwater monitoring and sampling.

The site is in compliance with the State Water Resources Control Board's GeoTracker requirements for uploading electronic data and reports. In addition, electronic copies of technical documentation reports published since Q3 2005 have been uploaded to Alameda County Health's file transfer protocol (ftp) system. Per Alameda County Health's October 31, 2005 "Miscellaneous Administrative Topics and Procedures" directive, effective January 31, 2006, paper copies of reports will no longer be submitted to Alameda County Health.

## 2.0 PHYSICAL SETTING

This section discusses the site lithology and groundwater hydrology, based on the three borehole sampling programs, conducted in 2003 through 2005. Appendix D contains geologic cross-sections for the site.

Including the 3 well installation boreholes advanced in May 2005, a total of 14 exploratory boreholes at the subject property have been geologically logged (using the visual method of the Unified Soils Classification System) and evaluated. The majority of site boreholes have been advanced to at least 24 feet bgs. One of the 2005 well installation boreholes was advanced to 30 feet bgs. These intervals include the upper water-bearing zone and the underlying low-permeability nonwater-bearing zone (aquitard).

#### LITHOLOGY

A laterally-extensive clay (occasionally gravelly) is present in all boreholes, extending from ground surface to approximately 17 to 20 feet bgs. In two of the boreholes, a thin (1- to 3-foot-thick) sandy lens was encountered between 10 and 15 feet bgs. The clay layer is generally underlain by a sand or gravel unit, beginning at depths of 18.5 to 21.5 feet bgs. This more permeable unit varies in thickness from 2.5 feet to at least 5.5 feet. In the majority of boreholes, this unit consists of sand grading downward into gravel. A clay unit was encountered below the sand/gravel unit in most of the boreholes greater than 20 feet bgs. In several of the boreholes, the underlying clay unit was not reached, but is likely shallower than 30 feet bgs. The lithology is typical of this area of Oakland, showing lenticular lenses of more permeable sand and gravel (paleochannels) flanked by low-permeability clays and silts (overbank deposits). These deposits typically display small-scale lateral and vertical heterogeneity.

The borehole advanced through the former UFST excavation encountered backfill material (gravelly, clayey silt) to a depth of approximately 9 feet bgs, underlain by native soil (as described above).

#### **GROUNDWATER HYDROLOGY**

In the July 2003 borehole program, very moist to wet soil samples were encountered in site boreholes, at depths of approximately 9.5 to 12 feet bgs, with equilibrated groundwater levels in boreholes at approximately 10 feet bgs.

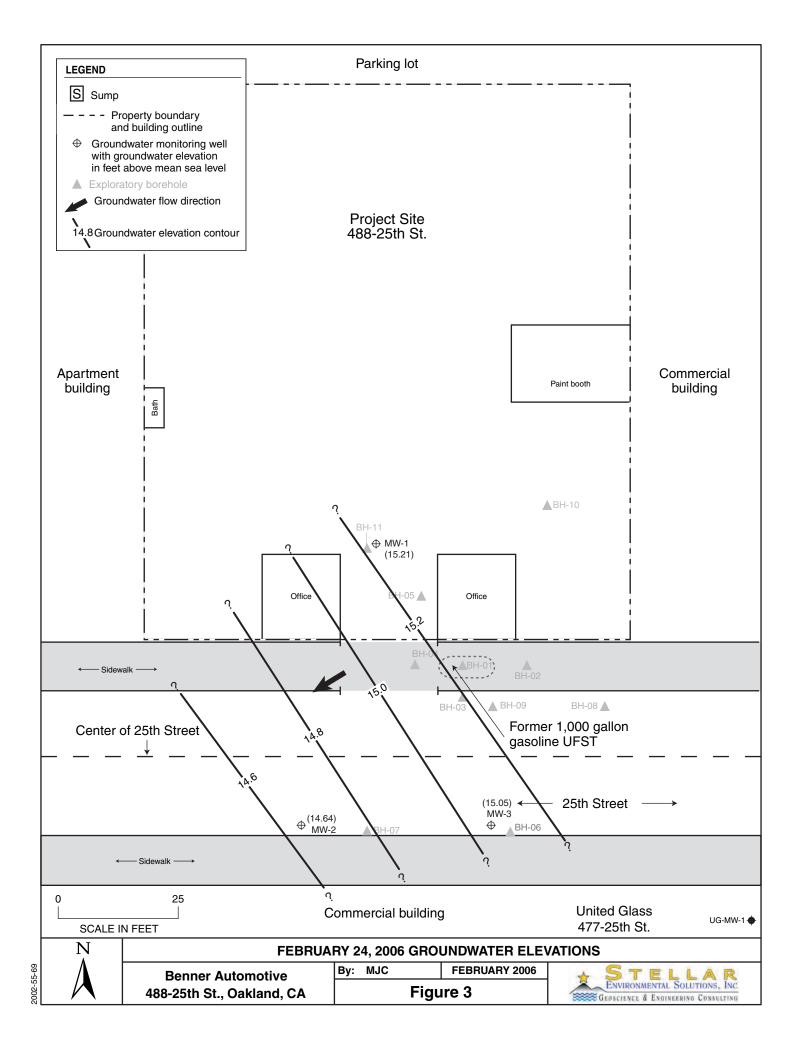
In the July 2004 program, there was no evidence of water in any boreholes above 12 feet bgs (either saturated samples or measurable water in boreholes). Water entered the boreholes after the sampling rods were advanced from 12 to 16 feet bgs, and the water quickly rose to depths of approximately 7 to 10 feet bgs. In the majority of boreholes, groundwater was first encountered in the upper clay unit rather than the underlying sand/gravel unit. Relatively dry soils were encountered below this upper water-bearing zone, and groundwater was again encountered in the fully saturated sands at approximately 20 feet bgs. The underlying clay unit showed little to no water.

In the May 2005 boreholes, there was no evidence of water in any boreholes above 20 feet bgs (either saturated samples or measurable water in boreholes). Water entered the boreholes after the sampling rods were advanced from 20 to 24 feet bgs, and the water quickly rose to depths of approximately 9 to 10 feet bgs. The underlying clay unit showed little to no moisture.

Depth to groundwater (equilibrated in wells) in the February 2006 monitoring event ranged from approximately 8.8 to 10.0 feet below grade (corresponding to approximately 14.6 to 15.2 feet above mean sea level). These equilibrated water levels in the wells were several feet above first occurrence of saturated cuttings in boreholes, indicating that groundwater at the site occurs under confining or semi-confining conditions. The direction of local groundwater flow in this event was to the southwest, with a hydraulic gradient of approximately 0.01 feet/foot. Figure 3 shows groundwater elevations and flow contours for the most recent monitoring event.

Section 6.0 discusses historical groundwater elevation and flow direction data.

The "Geo Well" data for this event (water levels) were uploaded in electronic data file (EDF) format to the GeoTracker on-line database.



## 3.0 FEBRUARY 2006 GROUNDWATER WELL SAMPLING

This section presents the groundwater monitoring and sampling methods for the most recent groundwater sampling event. Analytical results are discussed in a subsequent section. Activities included:

- Measuring static water levels with an electric water level indicator;
- Purging wells to obtain representative formation water (and collecting aquifer stability parameters between each purging); and
- Collecting post-purge groundwater samples for laboratory analysis.

Groundwater monitoring well water level measurements, purging, and sampling activities were conducted on February 24, 2006 by Dysert Environmental, Inc. under the supervision of SES personnel. Table 1 shows the well construction and groundwater elevation data. Appendix A contains the groundwater monitoring field records for the sampling event.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data
February 24, 2006 – 488 25<sup>th</sup> Street, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation
MW-1	25	10 to 25	25.24	15.21
MW-2	25	10 to 25	23.71	14.64
MW-3	25	10 to 25	23.86	15.05

Notes:

TOC = Top of casing.

All wells are 1-inch-diameter. All elevations are in feet above mean sea level.

As the first task of the monitoring event, static water levels were measured using an electric water level indicator. Each well was then purged (with a downhole pump) of three wetted casing volumes. Aquifer stability parameters were measured between each purged casing volume to ensure that representative formation water entered the well before sampling. Neither separate-phase petroleum product nor sheen was observed during well purging/sampling.

## 4.0 REGULATORY CONSIDERATIONS

#### **REGULATORY STATUS**

The lead regulatory agency for petroleum contamination cases in the City of Oakland is Alameda County Health, which is a Local Oversight Program (LOP) for the State Water Resources Control Board (covering Regional Water Quality Control Board [Water Board] Region 2). As such, Alameda County Health directly oversees soil and groundwater investigations/remediation on UFST sites (with or without Water Board guidance) until determining that case closure is appropriate, at which time Alameda County Health recommends case closure to the Water Board. Alameda County Health has designated the case as Fuel Leak Case No. RO002518. The site is listed in the GeoTracker database of reported releases from petroleum UFSTs (Global ID T0600114301).

#### RESIDUAL CONTAMINATION REGULATORY CONSIDERATIONS

The most applicable published numerical criteria governing residual soil and groundwater contamination at this site are the Water Board's Environmental Screening Levels (ESLs) (Water Board, 2005). These are screening-level criteria used to evaluate if additional investigation and/or remediation is warranted. Criteria to be considered in using the ESLs include: contamination limited to surface soil (less than 10 feet deep) or to subsurface soil; fine-grained vs. coarse-grained soil; residential or commercial/industrial land use; and whether groundwater <u>is</u> or <u>is not</u> a known or potential drinking water source. For the detected site contaminants, the ESL values are the same for surface soil and subsurface soil.

The appropriate ESLs for this site are for coarse-grained soil (a conservative assumption, as grain-size analysis has not been conducted and the soils are generally clay) and commercial/industrial land use (because the owner has no plans to redevelop the property with residential land use). Qualifying for the (usually higher) ESL values for sites where groundwater is not a current or potential drinking water source requires obtaining a site-specific variance from the Water Board. The Water Board completed an East Bay Beneficial Use Study (Water Board, 1999) that covers the Richmond-to-Hayward East Bay Basin Area and, based on multiple technical criteria, divided the Basin into three zones:

- Zone A (significant drinking water resource);
- Zone B (groundwater unlikely to be used as drinking water source); and
- Zone C (shallow groundwater proposed for redesignation as Municipal Supply Beneficial Use).

The subject site falls within Zone A. The most conservative assumption for the site is that there is a potential for private drinking water wells to be impacted. However, a search of vicinity water wells identified no wells downgradient of the subject property (SES, 2004c). There is an inactive groundwater monitoring well immediately downgradient of the site; however, that well was installed to monitor a fuel release. This suggests that the less conservative ESLs of "a potential or current drinking water source is not threatened" may be appropriate for this site. As case closure is being requested in this report, this report discusses residual soil and groundwater contamination relative to both drinking water and non-drinking water criteria.

Section 6.0 contains a discussion of site closure criteria and an evaluation of current site conditions relative to those criteria.

#### ELECTRONIC DATA REPORTING COMPLIANCE

This site is listed in the GeoTracker database, and all required electronic uploads have been made for previous site activities. Tasks conducted in this phase of work related to GeoTracker compliance include:

- Uploading *GeoWell* data (water level monitoring-related data for the Q1 2006 monitoring event).
- Uploading *GeoReport* (portable data format [pdf]) electronic copy of this report.
- Uploading *EDD* (electronic version) of the analytical laboratory report for the Q1 2006 groundwater sampling event.

An electronic copy of the report was uploaded to Alameda County Health's ftp system.

## 5.0 ANALYTICAL RESULTS AND FINDINGS

This section discusses the findings of the most recent sampling event. Historical groundwater monitoring well analytical results are included as Appendix C, and are discussed in detail in Section 6.0.

All groundwater samples in this groundwater monitoring event were analyzed for:

- Total volatile hydrocarbons gasoline range (TVHg), by modified EPA Method 8015.
- BTEX (benzene, toluene, ethylbenzene, and xylenes); MTBE (methyl *tertiary*-butyl ether); fuel oxygenates (TAME, ETBE, DIPE, TBA, and ethanol); and lead scavengers (1,2-dibromoethane [EDB] and 1,2-dichloroethane [EDC]), by EPA Method 8260.

The groundwater samples were analyzed by EnTech Analytical Labs (Santa Clara, California), which maintains current ELAP certifications for all of the analytical methods utilized in this investigation. Appendix B contains the certified analytical laboratory reports and chain-of-custody records.

Table 2 summarizes the groundwater sample analytical results from the four quarterly groundwater monitoring events conducted to date.

Only one site contaminant was detected (and in only one monitoring well) in the current event. EDC was detected in MW-3 at 0.84 microgram per liter ( $\mu$ g/L). The Water Board ESL for EDC is 0.5  $\mu$ g/L. Contaminants analyzed for and not detected in the current event include TVHg, BTEX, MTBE, EDB, and all of the fuel oxygenates.

The analytical laboratory report for this (and previous) event was uploaded in EDF format to the GeoTracker on-line database.

Table 2 Historical Groundwater Monitoring Well Groundwater Analytical Results – 488 25<sup>th</sup> Street, Oakland

Sample I.D.	TVHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	Fuel Oxygenates (a)
May 2005 Event							
MW-1	64	< 0.5	< 0.5	< 0.5	< 1.00	< 0.5	ND
MW-2	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 0.5	ND
MW-3	57	< 0.5	< 0.5	< 0.5	< 1.00	< 0.5	ND
August 2005 Event							
MW-1	66	< 0.5	0.57	< 0.5	< 1.00	< 5.0	ND
MW-2	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 5.0	ND
MW-3	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 5.0	EDC = 0.62
November 2005 Event							
MW-1	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 1.0	ND
MW-2	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 1.0	ND
MW-3	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 1.0	EDC = 0.62
February 2006 Event							
MW-1	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 1.0	ND
MW-2	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 1.0	ND
MW-3	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 1.0	EDC = 0.84
Groundwater ESLs (b)	100 / 500	1.0 / 46	40 / 130	30 / 290	13 / 13	5.0 / 1,800	EDC = 0.50 / 200
Drinking Water Standards (c)	NLP	5.0	1,000	700	10,000	13 <sup>(c)</sup>	Various

#### Notes:

EDC = 1,2-dichloroethane

MTBE = methyl *tertiary*-butyl ether

TVHg = total volatile hydrocarbons, gasoline range

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

ND = not detected (see Appendix B for reporting limits)

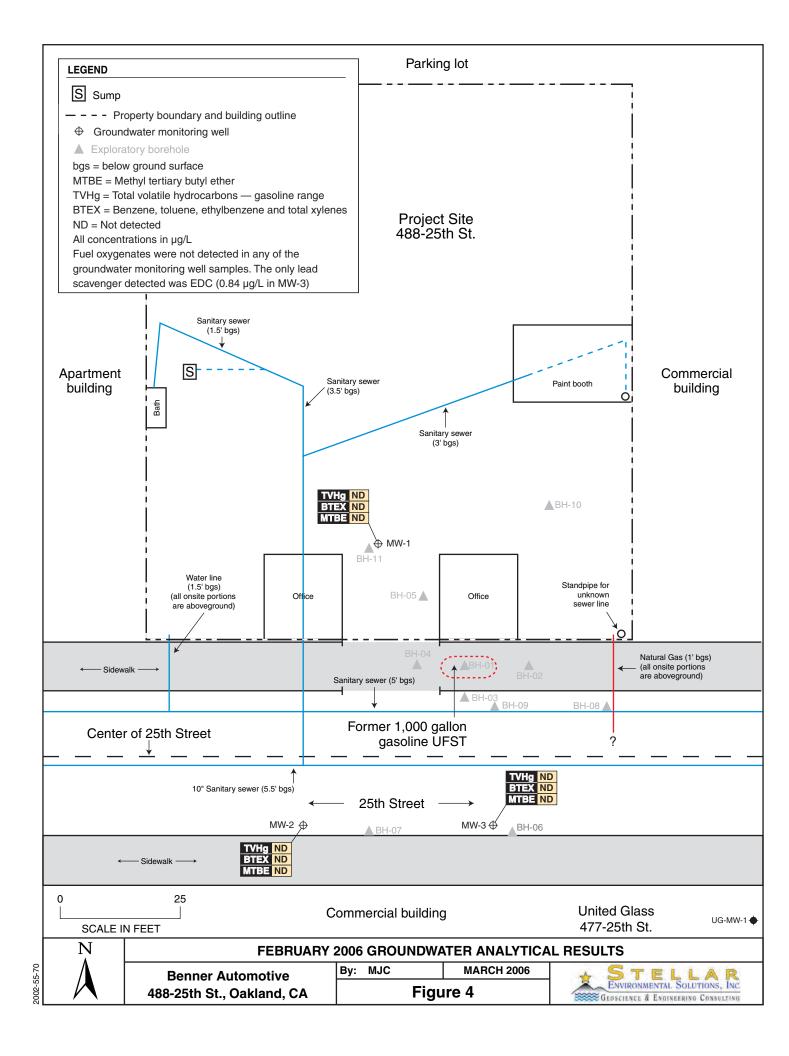
NLP = no level published

<sup>(</sup>a) Table reports only detected fuel oxygenates and lead scavengers.

<sup>(</sup>b) ESLs = Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels for commercial/industrial sites. First value is for sites where groundwater is a potential drinking water resource; second value is for sites where groundwater is not a potential drinking water resource.

<sup>(</sup>c) Primary Maximum Contaminant Level, unless specified otherwise.

<sup>(</sup>d) State of California Public Health Goal.



## 6.0 DATA EVALUATION AND PETITION FOR CLOSURE

This section evaluates the observed hydrologic conditions and contaminant concentrations and distribution, in the context of regulatory closure criteria.

#### WATER LEVEL TRENDS

Appendix D contains historical (since inception) groundwater elevation data, including groundwater elevation contour maps. Figure 5 shows a trendline of site groundwater elevations over the four quarters of monitoring. In general, groundwater elevations showed a declining trend in the dry season followed by an increase in the rainy season. This is a common seasonal trend observed in the upper water-bearing zone in the Bay Area region. An anomalously low groundwater elevation was measured in well MW-2 in November 2005.

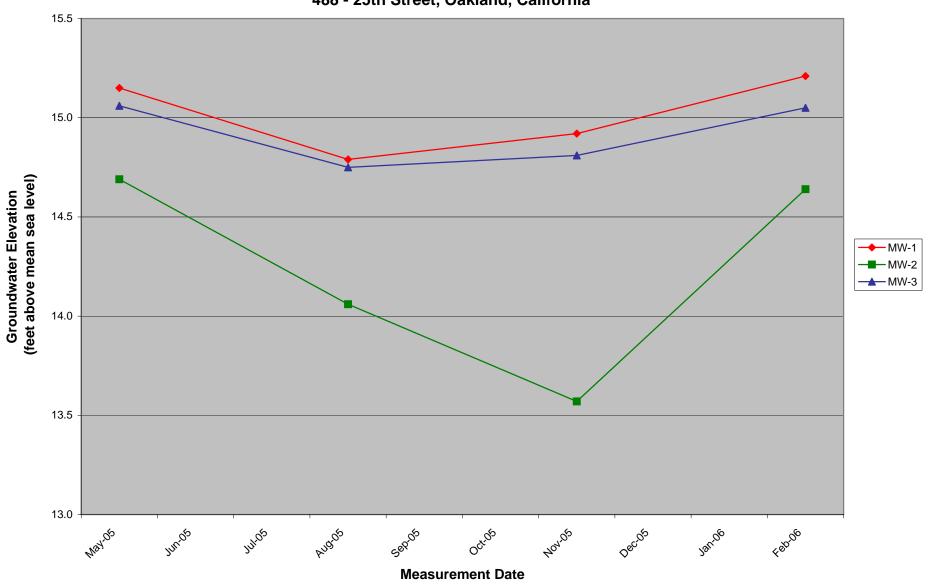
Apparent local flow direction has been consistently to the west or west-southwest in the four quarterly events. Groundwater gradient has been fairly consistent at 0.01 to 0.02 feet/foot.

#### HYDROCHEMICAL TRENDS AND CONTAMINANT DISTRIBUTION

The four quarters of groundwater analytical data show the following:

- Gasoline was detected in two wells in the initial groundwater monitoring event (maximum of  $64 \mu g/L$ ), and was detected in the next event (in only one well) at  $67 \mu g/L$ . Gasoline was not detected in the subsequent two events.
- Toluene was detected only once (in the second event), at  $0.57 \mu g/L$ .
- The lead scavenger EDC was been detected in the final three events (only in MW-3), at concentrations between 0.62 μg/L and 0.84 μg/L. There was no correlation between EDC detection and other contaminants in this well.
- Contaminants analyzed for and not detected in any of the four events include: benzene, ethylbenzene, xylenes, MTBE, fuel oxygenates, and the lead scavenger EDB.
- There is no apparent correlation between seasonal water level trends and contaminant concentrations.

Figure 5: Historical Groundwater Elevations in Monitoring Wells 488 - 25th Street, Oakland, California



Appendix C contains historical soil and grab-groundwater sample analytical data. The site data collected to date suggest that:

- Residual soil contamination by gasoline (only) above ESL criteria is confined laterally to the
  immediate vicinity of the former UFST, and attenuates rapidly with increasing depth. No
  soil contamination has been detected in the low-permeability clay zone underlying the upper
  water-bearing zone. The low to non-detectable contaminant concentrations in groundwater
  monitoring wells confirms that residual soil contamination likely will not have a continued
  impact on groundwater.
- 2. Grab-groundwater samples collected from boreholes prior to well installation contained elevated levels of gasoline; toluene, ethylbenzene, and xylenes (but no benzene); and MTBE—at up to 2 orders of magnitude greater than has been detected in monitoring wells. In our professional opinion, this is a common condition in which the annular filter pack of the monitoring well reduces turbidity, thereby reducing dissolved solids that have sorbed contamination.
- 3. The only contaminant detected in the previous two groundwater monitoring events above the most restrictive ESL (potential drinking water resource scenario) is EDC, which has been present at maximum concentrations of 0.84 μg/L, marginally exceeding the 0.5-μg/L criterion. The less restrictive ESL (non-drinking water scenario) for EDC is 200 μg/L.
- 4. The completed one year of consecutive quarterly groundwater monitoring appears sufficient to demonstrate groundwater flow direction, gradient, and seasonal trends in groundwater hydrology.
- 5. Available borehole geologic data are sufficient to evaluate site lithology in the context of contaminant distribution and potential migrational pathways.

## **CLOSURE CRITERIA ASSESSMENT**

Alameda County Health and the Water Board generally require that the following criteria be met before issuing regulatory closure of contaminant cases:

- 1. The contaminant source (i.e., the UFST and obviously-contaminated backfill material) has been removed. This criterion has been met, and the available soil analytical results indicate that the majority of contaminated soil has been removed and that residual gasoline contamination will not be an appreciable long-term source of groundwater contamination.
- 2. 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 been met.

3. If residual contamination (in 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. A 2005 vicinity well survey and sensitive receptor survey identified no water supply wells or sensitive receptors likely to be impacted by the release.

In our professional opinion, this site meets the closure criteria. The data collected to date form the basis for our petition for site closure following this event.

## 7.0 SUMMARY CONCLUSIONS AND PROPOSED ACTIONS

#### SUMMARY AND CONCLUSIONS

The available data support the following findings and conclusions:

- One 1,000-gallon gasoline UFST was removed in January 2003 under regulatory oversight, along with 40 tons of obviously-contaminated backfill material. Gasoline was detected at 2,500 milligrams per kilogram (mg/kg) in native soil 2 feet beneath the UFST (at a depth of 9 feet); BTEX and MTBE concentrations were less than approximately 2 mg/kg each. Groundwater was not encountered (at the excavation depth of 9 feet).
- The lead agency for UFST-related petroleum contamination sites is Alameda County Health, which has provided oversight of this case since the UFST removal report was submitted in January 2003.
- The subject property is located within Water Board Zone A (Significant Drinking Water Source Potential) designation, as described in the 1999 East Bay Plain Beneficial Use Study.
- Groundwater occurs under semi-confining conditions, equilibrating at depths approximately 10 feet above first occurrence (2005 program). Local groundwater flow direction is to the west or southwest with a relatively shallow hydraulic gradient.
- The lateral and vertical extent of soil contamination above regulatory agency screening levels is well defined by available data, and appears to be limited to an approximately 2-foot-thick zone above groundwater, in the immediate vicinity of the former UFST excavation. The data suggest that no significant mass of residual soil contamination exists to act as a long-term source of groundwater contamination; this is likely due to the age of the release and the subsequent diffusion of hydrocarbons to groundwater. No contamination above ESL criteria has been detected in the unsaturated clay unit that underlies the shallow water-bearing zone.
- Groundwater contamination in the 2005 well baseline sampling event was several orders of magnitude below concentrations in the 2003 and 2004 borehole programs. This could be due to a combination of factors, including the filtration of contaminated dissolved solids by the well annular filter pack and/or seasonal fluctuations in groundwater levels and concomitant "pulses" of dissolved contamination. However, it is unlikely that the reduced concentrations are the result of either natural attenuation or plume migration.

- Current contaminant concentrations in groundwater do not exceed Water Board ESL criteria—except for EDC, which was detected in well just above the 0.5-µg/L ESL.
- Neither soil nor groundwater concentrations exceed ESL criteria for potential indoor air impacts.
- The property owner has been accepted into, and has been receiving reimbursement from, the State of California Underground Storage Tank Cleanup Fund (Fund) for regulatory agency-directed corrective action and investigation costs.
- All required electronic uploads for previous work have been made to the State GeoTracker on-line database system, and this report was also uploaded to the Alameda County Health ftp system.

### PETITION FOR CLOSURE

- The Responsible Party hereby petitions Alameda County Health to grant case closure. When granted, the wells will be closed in accordance with local permitting requirements, and a well closure documentation report will be submitted to Alameda County Health.
- The property owner will continue to pursue reimbursement of eligible incurred corrective action costs from the Fund.

## 8.0 REFERENCES

- Alameda County Health Care Services Agency, Environmental Health Services (Alameda County Health), 2004. Letter requesting scope of work revisions to technical workplan for 488 25<sup>th</sup> Street, Oakland, California. March 23.
- Alameda County Health Care Services Agency, Environmental Health Services (Alameda County Health), 2003a. Letter requesting technical workplan for 488 25<sup>th</sup> Street, Oakland, California. April 2.
- Alameda County Health Care Services Agency, Environmental Health Services (Alameda County Health), 2003b. Letter requesting scope of work revisions to technical workplan for 488 25<sup>th</sup> Street, Oakland, California. June 26.
- Alameda County Health Care Services Agency, Environmental Health Services (Alameda County Health), 2003c. Letter approving technical workplan for 488 25<sup>th</sup> Street, Oakland, California. July 8.
- Alameda County Health Care Services Agency, Environmental Health Services (Alameda County Health), 2003d. Letter requesting additional site characterization activities for 488 25<sup>th</sup> Street, Oakland, California. December 17.
- Regional Water Quality Control Board (Water Board), San Francisco Bay Region, 2005. Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater.
- Regional Water Quality Control Board (Water Board), San Francisco Bay Region, 1999. East Bay Plain Groundwater Basin Beneficial Use Evaluation Report. June.
- Stellar Environmental Solutions, Inc. (SES), 2005a. Groundwater Monitoring Well Installation and Sampling Specifications, Benner Automotive 488 25<sup>th</sup> Street, Oakland, California. March 23.
- Stellar Environmental Solutions, Inc. (SES), 2005b. Groundwater Monitoring Well Installation and Baseline Groundwater Monitoring Report, Benner Automotive 488 25<sup>th</sup> Street, Oakland, California. June 20.

- Stellar Environmental Solutions, Inc. (SES), 2005c. Third Quarter 2005 Groundwater Monitoring Report, Benner Automotive 488 25<sup>th</sup> Street, Oakland, California. September 15.
- Stellar Environmental Solutions, Inc. (SES), 2005d. Fourth Quarter 2005 Groundwater Monitoring Report, Benner Automotive 488 25<sup>th</sup> Street, Oakland, California. December 19.
- Stellar Environmental Solutions, Inc. (SES), 2004a. Workplan for Groundwater Characterization, Benner Automotive, 488 25<sup>th</sup> Street, Oakland, California. February 13.
- Stellar Environmental Solutions, Inc. (SES), 2004b. Workplan Addendum for Groundwater Characterization, Benner Automotive, 488 25<sup>th</sup> Street, Oakland, California. March 26.
- Stellar Environmental Solutions, Inc. (SES), 2004c. Additional Site Characterization Report, Benner Automotive Facility, 488 25<sup>th</sup> Street, Oakland, California. August 9.
- Stellar Environmental Solutions, Inc. (SES), 2003a. Gasoline Underground Storage Tank Removal Report, Benner Automotive, 488 25<sup>th</sup> Street, Oakland, California. January 24.
- Stellar Environmental Solutions, Inc. (SES), 2003b. Workplan for Site Investigation Benner Auto Repair, Inc. Facility, 488 25<sup>th</sup> Street, Oakland, California. April 21.
- Stellar Environmental Solutions, Inc. (SES), 2003c. Revisions to Workplan for Site Investigation Benner Auto Repair, Inc. Facility, 488 25<sup>th</sup> Street, Oakland, California. July 2.
- Stellar Environmental Solutions, Inc. (SES), 2003d. Preliminary Site Assessment Report Benner Automotive, 488 25<sup>th</sup> Street, Oakland, California. July 2.

## 9.0 LIMITATIONS

This report has been prepared for the exclusive use of the Joseph and Loretta Benner Family Trust, Benner Automotive, their authorized representatives, and the regulatory agencies. 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 on a review of previous investigators' findings at the site, as well as site investigations conducted by SES since 2003. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The SES personnel who performed this limited remedial investigation 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.

The findings of this report are valid as of the present. Site conditions may change with the passage of time, natural processes, or human intervention, which can invalidate the findings and conclusions presented in this report. As such, this report should be considered a reflection of the current site conditions as based on the activities completed.

# **APPENDIX A**

# **Current Event Well Monitoring and Sampling Field Records**

<u>:</u>-

# Dysert Environmental, Inc.

## FLUID-LEVEL MONITORING DATA

Project No				Date	e: 2.24-0C.			
Project/Sit	e Location:	Bearen An	ro Righia	438 25	St. ONELAND			
	: <u>J</u> u			Method:				
Boring/ Well	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Total Well Depth (feet)	Comments			
Mw-1	10.03	_		24.65	e:3:4			
MW-2	9.07	-	_	24.20	e1312			
MW-3	18.8	,	-	24.85	01310			
		·						
			:					
					-			
			···					
			···					
		-						
			i i					

Measurements referenced to top of well casing.

Page \_ 1 \_ of \_ 4

DATE: 2-24-5%

PROJECT: BENEFIX AND RELL PURGING / SAMPLING DATA SITE LOCATION: 488 25Th S

CITY: BAK	-N-D			STATE:	CN			
			PURG	E DEVIC	E			
circle one	12volt subme	rsible pump	peristat	ic pump ING DEVI	bladder p	ump d	isposable ba	iller
circle one	bladder p	ump	peristaltic		disposable	bailer	other	
	er (inches)					4	6	
	es (gallons)					7 1.4	52	
ŭ	,			LL DATA				
SAMPLER:	5008			·			·	
WELL NUMB	ER / FIELD P	OINT ID:	1-am	· · · ·				÷.
A. TOTAL WE		24	f. 65					
B. DEPTH TO		١ ١	5-0多					-
C. WATER H		1<	+.62					
D. WELL CAS			,75					
E. CASING V			5.52					
F. SINGLE CA			5-29					7.7.
G. CASE VOL				<del> </del>		_	-	
H: 80% RECH	ARGE LEVEL	(F+5):						<u> </u>
			PUR	GE DATA				
START TIME:					<del></del>	<del></del>		
PUMP DEPTH				·	<del>-</del>			
FINISH TIME:								
PUMP DEPTH	1: 17.		DEOLLADOE	/ O 41500			<u> </u>	
DEPTH TO W	ATED- :7 12	# 14 b3	RECHARGE			(/25		<del></del>
GREATER TH			DECHARGE	I I ELE ME	ASURED:	1650	<del>- (:-)</del>	
SAMPLE TIME	F.	(63 D	ALC: MICE	DEDTU T	O WATER:	one YE	s No	
SAMPLE APP			UMAR -N			16.57		
TOTAL GALL			- During - P	5 CIV (	214_	<del></del>	<del></del>	
			NELL FLUID	PARAM	ETERS			<del></del>
				· · · · · · · · · · · · · · · · · · ·			T	<del></del>
CASE VOL.	0	0.5	1 1	1.5	2	2.5	3	POST
Ph	C-62		6.74	-	6.73		7.71	6.69
TEMP in °C	19,7		19.8		19.5		19.6	19.6
		<u> </u>	<del>                                     </del>		<del>                                     </del>	<del> </del>		
COND / SC	133.7		133.4		1347		137.0	137.3
				<del>- 1 - 1</del> - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	<del> </del>		<u> </u>	
DO in mg/L					1			1.85
~~							1	2 2 2 2
DO in %				-	1		}	20.22
ORP								
TURBIDITY								
		P	AGE 2	OF 🛆	£	<u> </u>	<u> </u>	
		-			<del></del>			

DYSERT ENVIRONMENTAL, INC.
WELL PURGING / SAMPLING DATA
PROJECT: DESCRIPTION CONTROLL
SITE LOCATION: 488 25th Tol.

DATE: 2-24.06

CITY: OAKL	C 5.4			STATE: 6	LA_					
<u>PURGE DEVICE</u> <u>circle one</u> 12volt submersible pump peristaltic pump bladder pump disposable bailer <u>SAMPLING DEVICE</u>										
circle one	bladder pu		peristaltic p		disposable l	bailer	other			
casing diamete		<u>circle one</u>	(0.75	1			3			
casing volumes	(galions)	<u>circle one</u>	0.02		0.7	1.5	2			
SAMPLER: Sw>										
WELL NUMBER / FIELD POINT ID: MW-2										
A. TOTAL WEL		24.7	20							
B. DEPTH TO	WATER:		57							
C. WATER HE		15.								
D. WELL CASI			<u> 75</u>					<u></u>		
E. CASING VO			2.62				·- ·			
F. SINGLE CAS			2.30							
G. CASE VOLU			1.37							
H: 80% RECHA	AKGE LEVEL	.(++b).		GE DATA				<del></del>		
START TIME:	~ . A G	- 1,,	FUK	DE DATA		<del> </del>				
PUMP DEPTH:				<del></del>	<del></del>					
FINISH TIME:	<del></del>			······································	· · · · · · · · · · · · · · · · · · ·					
PUMP DEPTH:				٠.	····					
		F	RECHARGE	/SAMPLE	TIME					
<b>DEPTH TO WA</b>	TER: \5.28			TIME MEA				<del> </del>		
GREATER THA		L TO 80% I	RECHARGE	LEVEL (F	i): circle o	ne XE	( NO )			
SAMPLE TIME				DEPTH TO	WATER:	12.22				
SAMPLE APPE			TAR 100	70 QC	<u>-</u>					
TOTAL GALLO	NS PURGE		1/P1 1 P1 1 1/1							
	<u> </u>	<u> </u>	VELL FLUID	PARAME	TERS					
CASE VOL.	0	0.5	1	1.5	2	2.5	3	POST		
Ph	6.66		6.67		6.70		6.74	6.72		
TEMP in °C	18.2		18.7	·····	18.7		18.3	18.8		
COND/SC	158.8		127.3		127.1		124.9	125.3		
DO in mg/L				·				25. L.T. 2.352 mg		
DO in %				·				2.352 mg		
ORP				· · · · · · · · · · · · · · · · · · ·						
TURBIDITY			405	n= 4						
		<u>P</u> ,	AGE 3	OF 4						

# DYSERT ENVIRONMENTAL, INC.

PROJECT: ENVIRONMENTAL, INC.
WELL PURGING / SAMPLING DATA
SITE LOCATION: \$8 & 25" ST.

DATE: 2.24.06

CITY: OAKU	1ND		·	STATE:	<u> </u>			
			PURG	SE DEVICE				<del></del>
circle one 1	2volt subme	ersible pump	peristali	ic pump ING DEVI	bladder pu	ımp dis	posable bai	ler
circle one	bladder p	ump	peristaltic	pump	disposable	bailer	other	
casing diameter	r (inches)	circle one	, 0.75	1	$2$ $\checkmark$	. (	3	
casing volumes	(gallons)	circle one	0.02		2 0.7	1.52	2	
			WE	LL DATA		~		· · · · · · · · · · · · · · · · · · ·
SAMPLER:		<u> </u>				<del></del>		
WELL NUMBE				->	····		····	·
A TOTAL WEL		2_	<u>4.85</u>					
B. DEPTH TO			8. 51					····
C. WATER HEI			075	<del> </del>		<del></del>	<del></del>	<del></del>
E. CASING VO		EN.	0-07-					
F. SINGLE CAS		(CxE):	0.32					<del></del>
G. CASE VOLU			0.96					
H: 80% RECHA			9,13					
				GE DATA				<del></del>
START TIME:	152B			<u> </u>				
PUMP DEPTH:	12.7					-	•	
FINISH TIME:	1533							
PUMP DEPTH:	12-						_	
			RECHARGE					
DEPTH TO WA					ASURED: \		· · · · · · · · · · · · · · · · · · ·	
GREATER THA	N OR EQU	AL TO 80% I	RECHARGE				D NO	
SAMPLE TIME:					O WATER:	9.13		
SAMPLE APPE			045 \ 50 8	Or on-		-	<del> </del>	<del>,</del>
TOTAL GALLO	NO PURGE		VELL FLUIL	DARAMA	TEDS			
	7	<del></del>	COLL I LUIL	2 F ANAIME	TERS	[	<u> </u>	r
CASE VOL.	0	0.5	1	1.5	2	2.5	3	POST
Ph	6.71		6.72		6.76		18.0	660
TEMP in °C	18.6		<i>ری.</i> ن		19.2		19.2	18.8
COND / SC	339		187.2		ما . هاما ا		152.1	123.8
DO in mg/L			,					1.79
DO in %								19.7%
ORP								
TURBIDITY	CLIAR	1	<u>&gt;</u>					
		<u>P.</u>	AGE 4	OF 4				

# **APPENDIX B**

Current Event Analytical Laboratory Report & Chain-of-Custody Record

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Bruce Rucker Lab Certificate Number: 48095

Stellar Environmental Sol. Issued: 03/13/2006

2198 Sixth Street Suite 201

Berkeley, CA 94710

Global ID: T0600114301

Project Name: Benner Auto Repair Project Location: 488 25th St. /Oakland

## Certificate of Analysis - Final Report

On February 27, 2006, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix Test / Comments

Liquid Electronic Deliverables

EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

Mushy

Volatile-GC

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346). If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,

Laurie Glantz-Murphy Laboratory Director

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Stellar Environmental Sol. 2198 Sixth Street Suite 201 Berkeley, CA 94710 Attn: Bruce Rucker

Project Name: Benner Auto Repair Project Location: 488 25th St. /Oakland

GlobalID: T0600114301

### Certificate of Analysis - Data Report

Samples Received: 02/27/2006 Sample Collected by: Client

**Lab #:** 48095-001 **Sample ID: MW-1 Matrix:** Liquid **Sample Date:** 2/24/2006

Volatile-GC									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analysis Date</b>	QC Batch
TPH as Gasoline	ND		1.0	50	$\mu g/L$	N/A	N/A	3/3/2006	WGC060303
Surrogate	Surrogate Recovery	7	Control Limits (%) Analyzed			Analyzed by: mrua	n		
4-Bromofluorobenzene	85.8		65 -	135		Reviewed by: dba			

#### EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	<b>Prep Date</b>	Prep Batch	<b>Analysis Date</b>	QC Batch
Benzene	ND		1.0	0.50	μg/L	N/A	N/A	3/10/2006	WM2B060309B
Toluene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
Ethyl Benzene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
Xylenes, Total	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
Methyl-t-butyl Ether	ND		1.0	1.0	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
tert-Butyl Ethyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
tert-Butanol (TBA)	ND		1.0	10	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
Diisopropyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
tert-Amyl Methyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
1,2-Dichloroethane	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B
1,2-Dibromoethane (EDB)	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM2B060309B

Surrogate	Surrogate Recovery	Control 1	Limits (%)
4-Bromofluorobenzene	91.8	60 -	130
Dibromofluoromethane	100	60 -	130
Toluene-d8	99.0	60 -	130

Analyzed by: TAF Reviewed by: MaiChiTu

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Stellar Environmental Sol. 2198 Sixth Street Suite 201 Berkeley, CA 94710 Attn: Bruce Rucker

Project Name: Benner Auto Repair Project Location: 488 25th St. /Oakland

GlobalID: T0600114301

### Certificate of Analysis - Data Report

Samples Received: 02/27/2006 Sample Collected by: Client

**Lab #:** 48095-002 **Sample ID: MW-2 Matrix:** Liquid **Sample Date:** 2/24/2006

Volatile-GC									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analysis Date</b>	QC Batch
TPH as Gasoline	ND		1.0	50	μg/L	N/A	N/A	3/3/2006	WGC060303
Surrogate	Surrogate Recovery	7	Control Limits (%)				Analyzed by: mruan		
4-Bromofluorobenzene	88.3		65 -	135		Reviewed by: dba			

#### EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	<b>Prep Date</b>	Prep Batch	<b>Analysis Date</b>	QC Batch
Benzene	ND		1.0	0.50	μg/L	N/A	N/A	3/10/2006	WM1060310
Toluene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Ethyl Benzene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Xylenes, Total	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Methyl-t-butyl Ether	ND		1.0	1.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
tert-Butyl Ethyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
tert-Butanol (TBA)	ND		1.0	10	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Diisopropyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
tert-Amyl Methyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
1,2-Dichloroethane	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
1,2-Dibromoethane (EDB)	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310

Surrogate	Surrogate Recovery	Control Li	imits (%)
4-Bromofluorobenzene	101	60 -	130
Dibromofluoromethane	112	60 -	130
Toluene-d8	100	60 -	130

Analyzed by: XBian Reviewed by: MaiChiTu

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Stellar Environmental Sol. 2198 Sixth Street Suite 201 Berkeley, CA 94710 Attn: Bruce Rucker

Project Name: Benner Auto Repair Project Location: 488 25th St. /Oakland

GlobalID: T0600114301

### Certificate of Analysis - Data Report

Samples Received: 02/27/2006 Sample Collected by: Client

Lab #: 48095-003 Sample ID: MW-3 Matrix: Liquid Sample Date: 2/24/2006

Volatile-GC									
Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	<b>Prep Date</b>	Prep Batch	<b>Analysis Date</b>	QC Batch
TPH as Gasoline	ND		1.0	50	$\mu g/L$	N/A	N/A	3/3/2006	WGC060303
Surrogate	Surrogate Recovery	7	Control 1	Limits (%)				Analyzed by: mrua	n
4-Bromofluorobenzene	85.1		65 -	135	Reviewed by: dba				

#### EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

Parameter	Result	Qual	D/P-F	<b>Detection Limit</b>	Units	<b>Prep Date</b>	Prep Batch	<b>Analysis Date</b>	QC Batch
Benzene	ND		1.0	0.50	μg/L	N/A	N/A	3/10/2006	WM1060310
Toluene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Ethyl Benzene	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Xylenes, Total	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Methyl-t-butyl Ether	ND		1.0	1.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
tert-Butyl Ethyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
tert-Butanol (TBA)	ND		1.0	10	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
Diisopropyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
tert-Amyl Methyl Ether	ND		1.0	5.0	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
1,2-Dichloroethane	0.84		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310
1,2-Dibromoethane (EDB)	ND		1.0	0.50	$\mu g/L$	N/A	N/A	3/10/2006	WM1060310

Surrogate	Surrogate Recovery	Control L	imits (%)
4-Bromofluorobenzene	86.4	60 -	130
Dibromofluoromethane	109	60 -	130
Toluene-d8	110	60 -	130

Qual = Data Qualifier

Analyzed by: XBian Reviewed by: MaiChiTu

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Method Blank - Liquid - Volatile-GC

**QC Batch ID: WGC060303**Validated by: dba - 03/07/06

QC Batch Analysis Date: 3/3/2006

Surrogate for Blank% RecoveryControl Limits4-Bromofluorobenzene87.065 - 135

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Method Blank - Liquid - EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

QC Batch ID: WM1060310 Validated by: MaiChiTu - 03/13/06

QC Batch Analysis Date: 3/10/2006

Parameter	Result	DF	PQLR	Units
1,2-Dibromoethane (EDB)	ND	1	0.50	μg/L
1,2-Dichloroethane	ND	1	0.50	μg/L
Benzene	ND	1	0.50	μg/L
Diisopropyl Ether	ND	1	5.0	μg/L
Ethyl Benzene	ND	1	0.50	μg/L
Methyl-t-butyl Ether	ND	1	1.0	μg/L
tert-Amyl Methyl Ether	ND	1	5.0	μg/L
tert-Butanol (TBA)	ND	1	10	μg/L
tert-Butyl Ethyl Ether	ND	1	5.0	μg/L
Toluene	ND	1	0.50	μg/L
Xylenes, Total	ND	1	0.50	μg/L

Surrogate for Blank	% Recovery	Cont	rol	Limits
4-Bromofluorobenzene	100	60	-	130
Dibromofluoromethane	108	60	-	130
Toluene-d8	98.3	60	_	130

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Method Blank - Liquid - EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

QC Batch ID: WM2B060309B Validated by: MaiChiTu - 03/13/06

QC Batch Analysis Date: 3/9/2006

Parameter	Result	DF	PQLR	Units
1,2-Dibromoethane (EDB)	ND	1	0.50	μg/L
1,2-Dichloroethane	ND	1	0.50	μg/L
Benzene	ND	1	0.50	μg/L
Diisopropyl Ether	ND	1	5.0	μg/L
Ethyl Benzene	ND	1	0.50	μg/L
Methyl-t-butyl Ether	ND	1	1.0	μg/L
tert-Amyl Methyl Ether	ND	1	5.0	μg/L
tert-Butanol (TBA)	ND	1	10	μg/L
tert-Butyl Ethyl Ether	ND	1	5.0	μg/L
Toluene	ND	1	0.50	μg/L
Xylenes, Total	ND	1	0.50	μg/L

Surrogate for Blank	% Recovery	Cont	rol L	imits
4-Bromofluorobenzene	90.9	60	-	130
Dibromofluoromethane	99.6	60	-	130
Toluene-d8	97.7	60	_	130

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LCS / LCSD - Liquid - Volatile-GC

**QC Batch ID: WGC060303** Reviewed by: dba - 03/07/06

QC Batch ID Analysis Date: 3/3/2006

**LCS** 

Surrogate % Recovery Control Limits 4-Bromofluorobenzene 104.0 65 - 135

**LCSD** 

Parameter Method Blank Spike Amt SpikeResult Units % Recovery RPD RPD Limits Recovery Limits

TPH as Gasoline <50 120 118 µg/L 94.4 **4.3** 25.0 65 - 135

Surrogate% RecoveryControl Limits4-Bromofluorobenzene102.065 - 135

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

LCS / LCSD - Liquid - EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

**QC Batch ID: WM1060310** Reviewed by: MaiChiTu - 03/13/06

QC Batch ID Analysis Date: 3/10/2006

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Parameter	Method B	lank Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
Benzene	<0.50	20	20.5	μg/L	102	70 - 130
Methyl-t-butyl Ether	<1.0	20	24.2	μg/L	121	70 - 130
Toluene	< 0.50	20	18.6	μg/L	93.0	70 - 130
Surrogate	% Recovery	<b>Control Limits</b>				
4-Bromofluorobenzene	97.1	60 - 130				
Dibromofluoromethane	109.0	60 - 130				
Toluene-d8	91.6	60 - 130				

#### **LCSD**

Parameter	Method Blani	C Spike Amt	SpikeResult	Units	% Recovery	RPD	RPD Limits	Recovery Limits	
Benzene	<0.50	20	19.2	μg/L	96.0	6.5	25.0	70 - 130	
Methyl-t-butyl Ether	<1.0	20	22.1	μg/L	110	9.1	25.0	70 - 130	
Toluene	<0.50	20	17.7	μg/L	88.5	5.0	25.0	70 - 130	
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	92.3	60 - 130							
Dibromofluoromethane	102.0	60 - 130							
Toluene-d8	89.9	60 - 130							

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LCS / LCSD - Liquid - EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

QC Batch ID: WM2B060309B Reviewed by: MaiChiTu - 03/13/06

QC Batch ID Analysis Date: 3/9/2006

LCS
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LUU						
Parameter	Method Blan	k Spike Amt	SpikeResult	Units	% Recovery	Recovery Limits
1,1-Dichloroethene	< 0.50	20	18.5	μg/L	92.7	70 - 130
Benzene	< 0.50	20	20.3	μg/L	102	70 - 130
Chlorobenzene	< 0.50	20	19.4	μg/L	97.0	70 - 130
Methyl-t-butyl Ether	<1.0	20	20.5	μg/L	102	70 - 130
Toluene	< 0.50	20	18.6	μg/L	92.9	70 - 130
Trichloroethene	<0.50	20	20.2	μg/L	101	70 - 130
Surrogate	% Recovery	Control Limits				
4-Bromofluorobenzene	95.6	60 - 130				
Dibromofluoromethane	106.0	60 - 130				
Toluene-d8	91.9	60 - 130				

#### LCSD

Parameter	Method Blank	Spike Amt	SpikeResult	Units	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	< 0.50	20	17.7	μg/L	88.4	4.8	25.0	70 - 130
Benzene	< 0.50	20	20.5	μg/L	103	0.93	25.0	70 - 130
Chlorobenzene	< 0.50	20	19.6	μg/L	98.0	1.1	25.0	70 - 130
Methyl-t-butyl Ether	<1.0	20	19.9	μg/L	99.3	3.1	25.0	70 - 130
Toluene	< 0.50	20	18.4	μg/L	92.1	0.92	25.0	70 - 130
Trichloroethene	< 0.50	20	19.8	μg/L	98.8	2.4	25.0	70 - 130

Surrogate	% Recovery	Control Limits				
4-Bromofluorobenzene	95.4	60 - 130				
Dibromofluoromethane	107.0	60 - 130				
Toluene-d8	91.7	60 - 130				

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MS / MSD - Liquid - EPA 8260B for Groundwater and Water - EPA 624 for Wastewater

**QC Batch ID: WM2B060309B**Reviewed by: MaiChiTu - 03/13/06

QC Batch ID Analysis Date: 3/9/2006 MS Sample Spiked: 48095-001

	Sample	Spike	Spike		Analysis		Recovery
Parameter	Result	Amount	Result	Units	Date	% Recovery	Limits
Benzene	ND	20	21.1	μg/L	3/9/2006	105	70 - 130
Methyl-t-butyl Ether	ND	20	21.3	μg/L	3/9/2006	106	70 - 130
Toluene	0.201	20	19.4	μg/L	3/9/2006	96.2	70 - 130

Surrogate	% Recovery	Control Limits				
4-Bromofluorobenzene	96.7	60	- 130			
Dibromofluoromethane	106.0	60	- 130			
Toluene-d8	93.4	60	- 130			

MSD Sample Spiked: 48095-001

	Sample	Spike	Spike		Analysis				Recovery
Parameter	Result	Amount	Result	Units	Date	% Recovery	RPD	<b>RPD Limits</b>	Limits
Benzene	ND	20	20.0	μg/L	3/9/2006	99.8	5.4	25.0	70 - 130
Methyl-t-butyl Ether	ND	20	19.0	μg/L	3/9/2006	95.2	11	25.0	70 - 130
Toluene	0.201	20	19.0	μg/L	3/9/2006	94.2	2.1	25.0	70 - 130

Surrogate	% Recovery	<b>Control Limits</b>				
4-Bromofluorobenzene	92.2	60	-	130		
Dibromofluoromethane	105.0	60	-	130		
Toluene-d8	92.6	60	_	130		

#### Entech Analytical Labs, Inc. Chain of Custody / Analysis Request 3334 Victor Court (408) 588-0200 Santa Clara, CA 95054 (408) 588-0201 - Fax **ELAP No. 2346** Invoice to: (If Different) Purchase Order No.: 510-644-3123 JOE Dimen BRIVER RUCKIE Project No. / Name: BENNER AUTO REFAIR Billing Address: (If Different) Mailing Address: 219 8 SIXTH ST., STEZDI Project Location: 488 - 25th St. Zip Code: CIPY DELLAND Entech Order ID: **Turn Around Time** Circle Applicable ☐ Same Day ☐ 1 Day 3 Day ☐ 2 Day □ 5 Day ☐ 4 Day T\$6\$7114301 ் தி 10 Day Sample Information No. of Containers Remarks Entech Instructions Lab. Date Time No. Client ID Field Point MW-1 1-WM 2-24-20 4 X MW-2 MW-2 X MW-3 MW-3 Lab Use: LOG CODE SESB Al, As, Sb, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Hg, Mo, Ni, K,Si, Ag, Na, Se, Tl, Sn, Ti, Zn, V Metals: LUFT-5 RCRA-8 Of the NOAs lock rid cold & what Dest Sample The match cochage Loff Lab Use: Shipment Method: Temperature: 5 Samples: Iced 1/N Custody Seals? YN Appropriate Containers/Preservatives VN Seperate Receipt Log YA Headspace? Y(N) Labels match CoC/ N

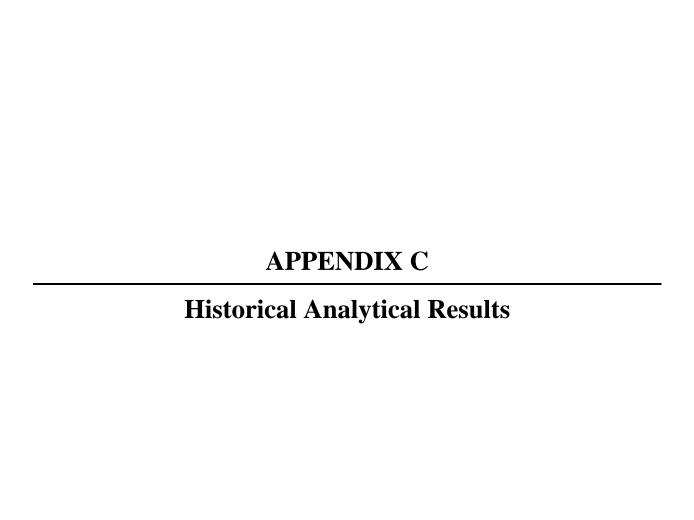


Table C-1 Historical and Current Soil Analytical Results 488 25<sup>th</sup> Street, Oakland, California <sup>(a)</sup>

Sample I.D.	Sample Depth (feet)	TVHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes	мтве	Lead Scavengers and Fuel Oxygenates (c)
January 2003 Base of	of UFST Exc	avation Soil Sa	mples					
UFST Base-East	9.0	2,500	<1.7 <sup>(b)</sup>	<1.7 <sup>(b)</sup>	<1.7 <sup>(b)</sup>	<1.7 <sup>(b)</sup>	<1.7 (b)	NA
UFST Base-West	9.0	<1.1	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0053	NA
July 2003 Explorato	ry Borehole	Soil Samples						
BH-1-10'	10.0	14	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.022	NA
BH-1-14'	14.0	<1.1	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.021	NA
BH-2-6.5'	6.5	<1.1	< 0.0054	< 0.0054	< 0.0054	< 0.0054	<00022	NA
BH-2-9'	9.0	<1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.020	NA
BH-2-15'	15.0	<1.1	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.021	NA
BH-3-5'	5.0	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.021	NA
BH-3-9'	9.0	<1.1	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.022	NA
BH-3-13'	13.0	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.021	NA
BH-4-5'	5.0	<1.0	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.020	NA
BH-4-9'	9.0	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.021	NA
BH-4-13'	13.0	<1.1	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.022	NA
BH-5-6.5'	6.5	<1.1	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.022	NA
BH-5-11.5'	11.5	49	< 0.010	< 0.010	< 0.010	< 0.010	< 0.040	NA
BH-5-13'	13.0	1.7	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.021	NA
July 2004 Explorato	ry Borehole	Soil Samples						
BH-06-4.5'	4.5	7.3	< 0.0056	< 0.0056	< 0.0056	< 0.0056	<0.0048	ND
BH-06-9.5'	9.5	<1.1	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0049	ND
BH-06-14.5'	14.5	4.9	< 0.0054	0.0082	< 0.0054	< 0.0054	< 0.0047	ND
BH-06-19.5'	19.5	<1.1	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0049	ND
BH-06-22.5'	22.5	<1.0	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0045	ND
BH-07-4.5'	4.5	<1.1	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0050	ND
BH-07-10.5'	10.5	7.9	< 0.0054	0.009	< 0.0054	< 0.0054	< 0.0047	ND
BH-07-14.5'	14.5	< 0.98	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0045	ND
BH-07-19.5'	19.5	< 0.96	< 0.0048	< 0.0048	< 0.0048	<0.0048	< 0.0049	ND
BH-07-23.5'	23.5	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0046	ND
BH-08-4.5'	4.5	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0049	ND
BH-08-9.5'	9.5	<1.1	< 0.0053	< 0.0053	< 0.0053	< 0.0053	< 0.0047	ND
BH-08-14.5'	14.5	< 0.97	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0045	ND
BH-08-20'	20	3.6	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0049	ND

(Table continued and footnotes on next page)

**Table C-1 continued** 

Sample I.D.	Sample Depth (feet)	TVHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	Lead Scavengers and Fuel Oxygenates (c)	
July 2004 Exploratory Borehole Soil Samples (continued)									
BH-08-23.5'	23.5	<1.1	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0046	ND	
BH-09-4.5'	4.5	<1.0	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0045	ND	
BH-09-11'	11	150	< 0.0500	< 0.0500	< 0.0500	0.120	< 0.0049	ND	
BH-09-15.5'	15.5	< 0.99	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0045	ND	
BH-09-19.5'	19.5	< 0.98	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0047	ND	
BH-09-23.5'	23.5	<1.0	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0049	ND	
BH-10-4.5'	4.5	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0049	ND	
BH-10-9.5'	9.5	<1.1	< 0.0055	< 0.0055	< 0.0055	< 0.0055	< 0.0047	ND	
BH-10-14.5'	14.5	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0048	ND	
BH-10-19.5'	19.5	< 0.99	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0045	ND	
BH-10-23.5'	23.5	<1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0047	ND	
BH-11-4.5'	4.5	< 0.97	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	ND	
BH-11-11'	11	130	< 0.0250	0.240	< 0.0250	< 0.0250	< 0.0047	ND	
BH-11-15'	15	<1.0	< 0.0051	< 0.0051	< 0.0051	< 0.0051	< 0.0050	ND	
BH-11-19.5	19.5	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	<0.0048	ND	
BH-11-23.5'	23.5	<1.0	< 0.0052	< 0.0052	< 0.0052	< 0.0052	< 0.0046	ND	
	Soil ESLs (d)	100 / NLP	0.045 / 0.5	2.6 / 420,000	2.5 / 13,000	1.0 / 100,000	0.028 / 5,600	Various	

#### Notes:

$$\label{eq:total_total_total} \begin{split} TVHg &= Total \ volatile \ hydrocarbons - gasoline \ range. \\ NLP &= No \ level \ published. \end{split}$$

NA = Not analyzed for these constituents. ND = Not detected (see Appendix D for reporting limits).

<sup>(</sup>a) All concentrations in mg/kg.

<sup>(</sup>b) High concentrations of gasoline required sample dilution, resulting in the listed increased method reporting limit.

<sup>(</sup>c) See Appendix D for full list of analytes.

<sup>(</sup>d) ESL = RWQCB Environmental Screening Levels for commercial/industrial sites with coarse-grained soil where groundwater is a potential drinking water source. First value is for shallow soils. Second value is for evaluation of potential indoor air impacts.

Table C-2 Historical Borehole and Grab-Groundwater Analytical Results 488 25<sup>th</sup> Street, Oakland, California <sup>(a)</sup>

Sample I.D.	Sample Depth (feet)	TVHg	Benzene	Toluene	Ethyl- benzene	Total Xylenes	МТВЕ	Lead Scavengers and Fuel Oxygenates (b)	
July 2003 Borehole Groundwater Samples									
BH-01- GW	~ 10-11	5,800	<0.50	<0.50	7.4	4.5	<2.0	NA	
BH-02- GW	~ 10-11	7,900	<13	15	24	61	<50	NA	
BH-03- GW	~ 10-11	3,700	<1.0	<1.0	<1.0	<1.0	<4.0	NA	
BH-04- GW	~ 10-11	260	< 0.50	<0.50	< 0.50	< 0.50	<2.0	NA	
BH-05- GW	~ 10-11	260	< 0.50	<0.50	< 0.50	< 0.50	3.1	NA	
July 2004 Borehole Groundwater Samples									
BH-06- GW	~ 12-16	120,000	<13	<13	70	540	<1.7	ND	
BH-07- GW	~ 12-16	2,000	< 0.50	3.4	8.1	14	< 0.50	ND	
BH-08- GW	~ 12-16	380	< 0.50	0.77	< 0.50	1.6	< 0.50	ND	
BH-09- GW	~ 12-16	7,700	<1.0	<1.0	21	39.7	< 0.50	ND	
BH-10- GW	~ 12-16	<50	< 0.50	<0.50	< 0.50	< 0.50	< 0.50	ND	
BH-11- GW	~ 12-16	1,300	< 0.50	<0.50	0.88	6.0	8.2	ND	
July 2004 United Glass Groundwater Monitoring Well Sample (grab sample)									
MW-1	NA	< 50	< 0.50	< 0.50	< 0.50	< 0.50	1.2	ND	
Groundy	vater ESLs <sup>(c)</sup>	100 / NLP	1.0 / 1,800	40 / 530,000	30 / 47,000	13 / 160,000	5.0 / 80,000	Various	
Drinking Water Standards <sup>(d)</sup>		NLP	1.0	40	30	20	5.0 <sup>(e)</sup> / 13	Various	

#### Notes:

TVHg = Total volatile hydrocarbons – gasoline range.

NLP = No level published.

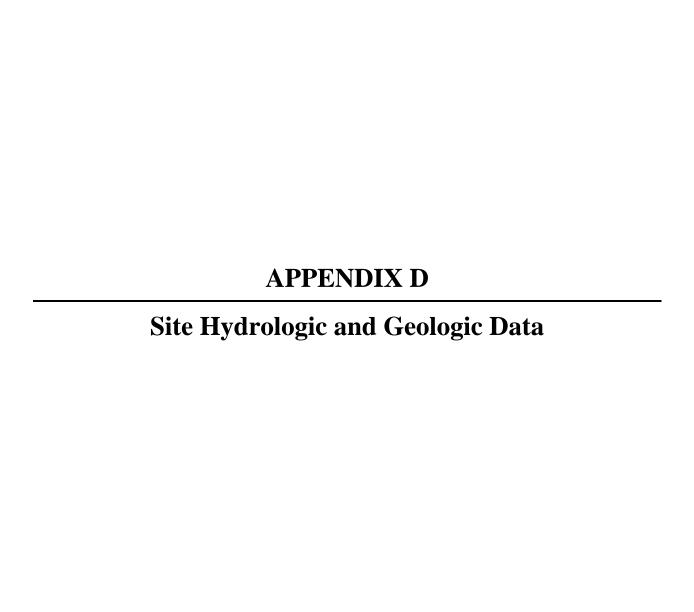
NA = Not analyzed for these constituents. ND = Not detected (see Appendix D for reporting limits).

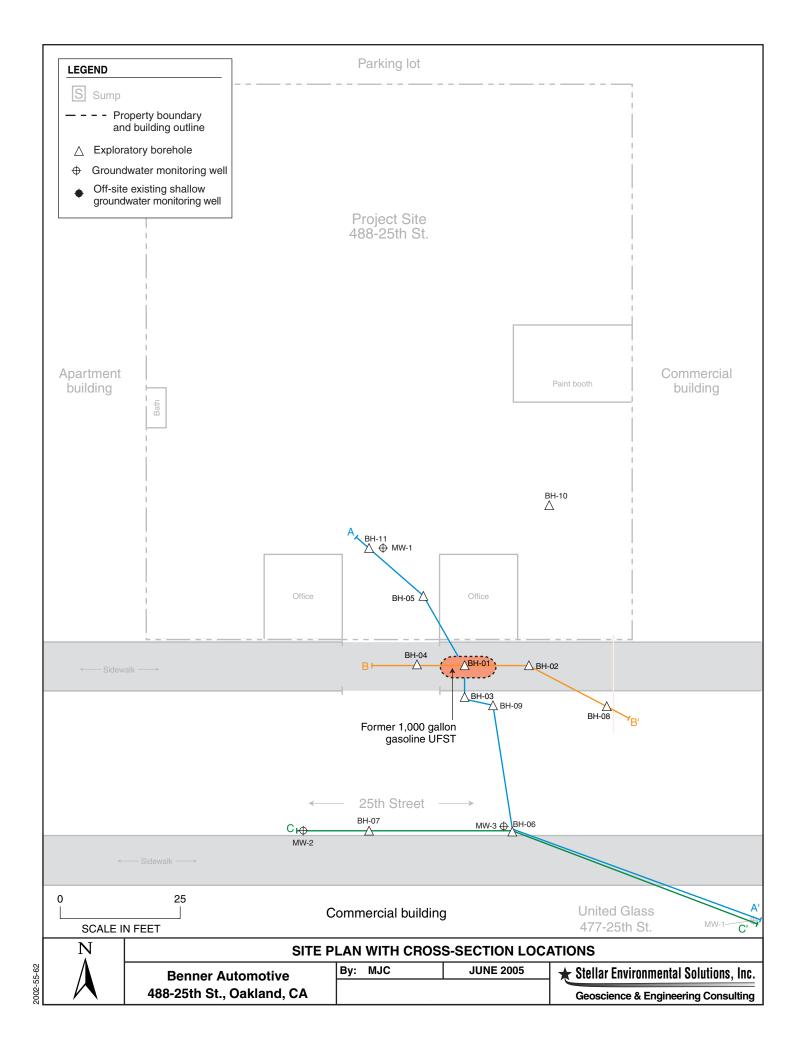
 $<sup>^{(</sup>a)}$  All concentrations in  $\mu g/L$  .  $^{(b)}$  See Appendix D for full list of analytes.

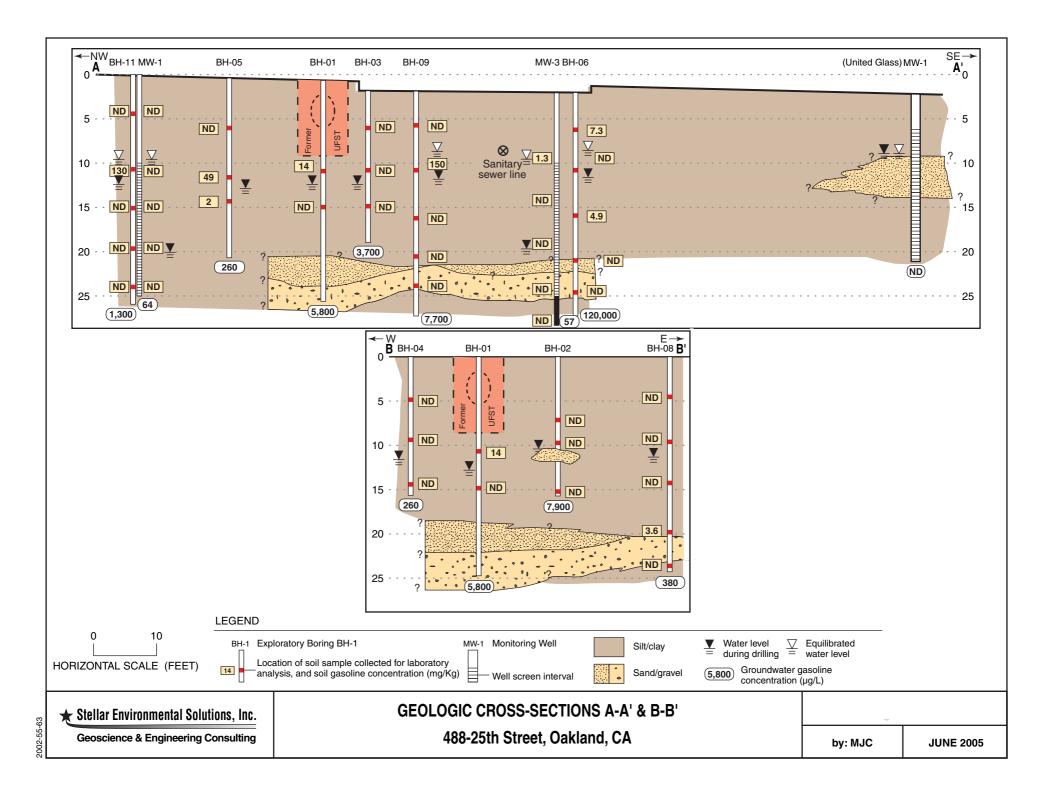
<sup>(</sup>c) ESL = RWQCB Environmental Screening Levels for commercial/industrial sites with coarse-grained soil where groundwater is a potential drinking water source. First value is groundwater ESL. Second value is for evaluation of potential indoor air impacts (high permeability soil).

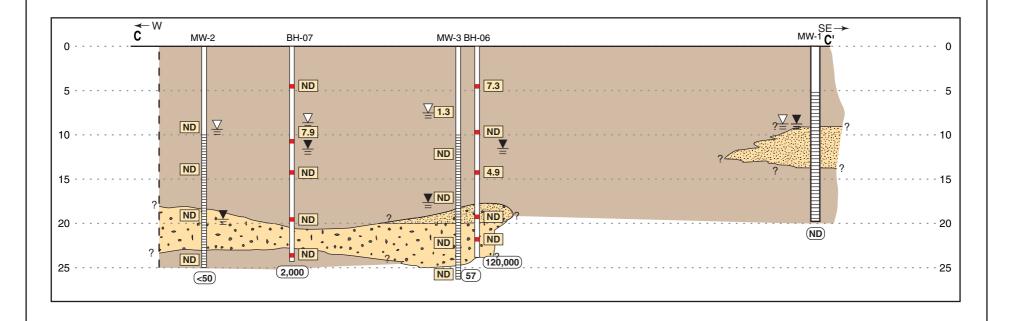
(d) Primary Maximum Contaminant Level (MCL), unless specified otherwise.

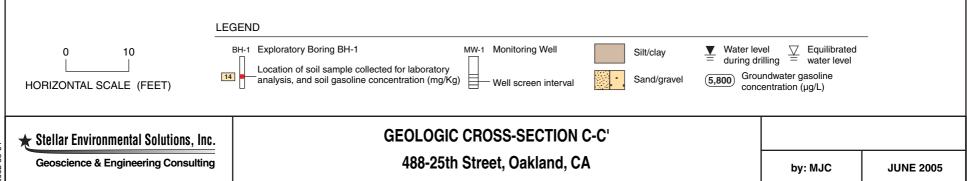
<sup>(</sup>e) Secondary (nuisance) MCL.











### Historical Groundwater Elevations and Depths in Monitoring Wells 488 - 25th Street, Oakland, California

Measurement Date		MW-1	MW-2	MW-3
May-05	Elevation (a)	15.15	14.69	15.06
Iviay-05	Depth (b)	10.09	9.02	8.8
Aug-05	Elevation (a)	14.79	14.06	14.75
Aug 00	Depth (b)	10.45	9.65	9.11
Nov-05	Elevation (a)	14.92	13.57	14.81
1407-03	Depth (b)	10.32	10.14	9.05
Feb-06	Elevation (a)	15.21	14.64	15.05
1 05-00	Depth (b)	15.21	14.64	15.05

<sup>(</sup>a) Elevations are in feet above mean sea level

<sup>(</sup>b) Depths are in feet below top of well casing (approximately ground surface)

