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LIMITED PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT

**R & H AUTO REPAIR
5315 SAN PABLO AVENUE
OAKLAND, CALIFORNIA**

Prepared for:

**ALAMEDA COUNTY HEALTH CARE SERVICES
ALAMEDA, CALIFORNIA**

March 2010

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**R & H AUTO REPAIR
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OAKLAND, CALIFORNIA**

Prepared for:

**ALAMEDA COUNTY HEALTH CARE SERVICES
1131 HARBOR BAY PARKWAY, SUITE 250
ALAMEDA, CA 94502**

Prepared by:

**STELLAR ENVIRONMENTAL SOLUTIONS, INC.
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March 26, 2010

March 26, 2010

Ms. Barbara Jakub
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Subsurface Investigation Report Findings – 5315 San Pablo Avenue, Oakland,
California—ACHCS RO 0002965.

Dear Ms. Jakub:

We are submitting this report of findings on behalf of Mr. and Mr. Jasbinder and Gulbinder Grewel, the responsible parties (RPs) for the Alameda County Environmental Health Care Services (ACHCS) case order RO 0002965. The property is currently owned by Kenneth J. Schmier. The scope of this investigation was based on an October 2008 Work Plan prepared by AEI Consultants of Walnut Creek, California. That Work Plan, approved by ACHCS on February 20, 2009, outlined limited soil and groundwater sampling at the site to further evaluate the extent of residual fuel hydrocarbons detected in soil after gasoline and diesel underground storage tanks (USTs) were removed from the property in 2007.

We 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 our knowledge. Please call the undersigned at (510) 644-3123 if you have any questions.

Sincerely,



Steve Bittman, R.E.A.
Senior Environmental Scientist



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



cc: Mr. and Mr. Grewel; Mr. Kenneth J Schmier

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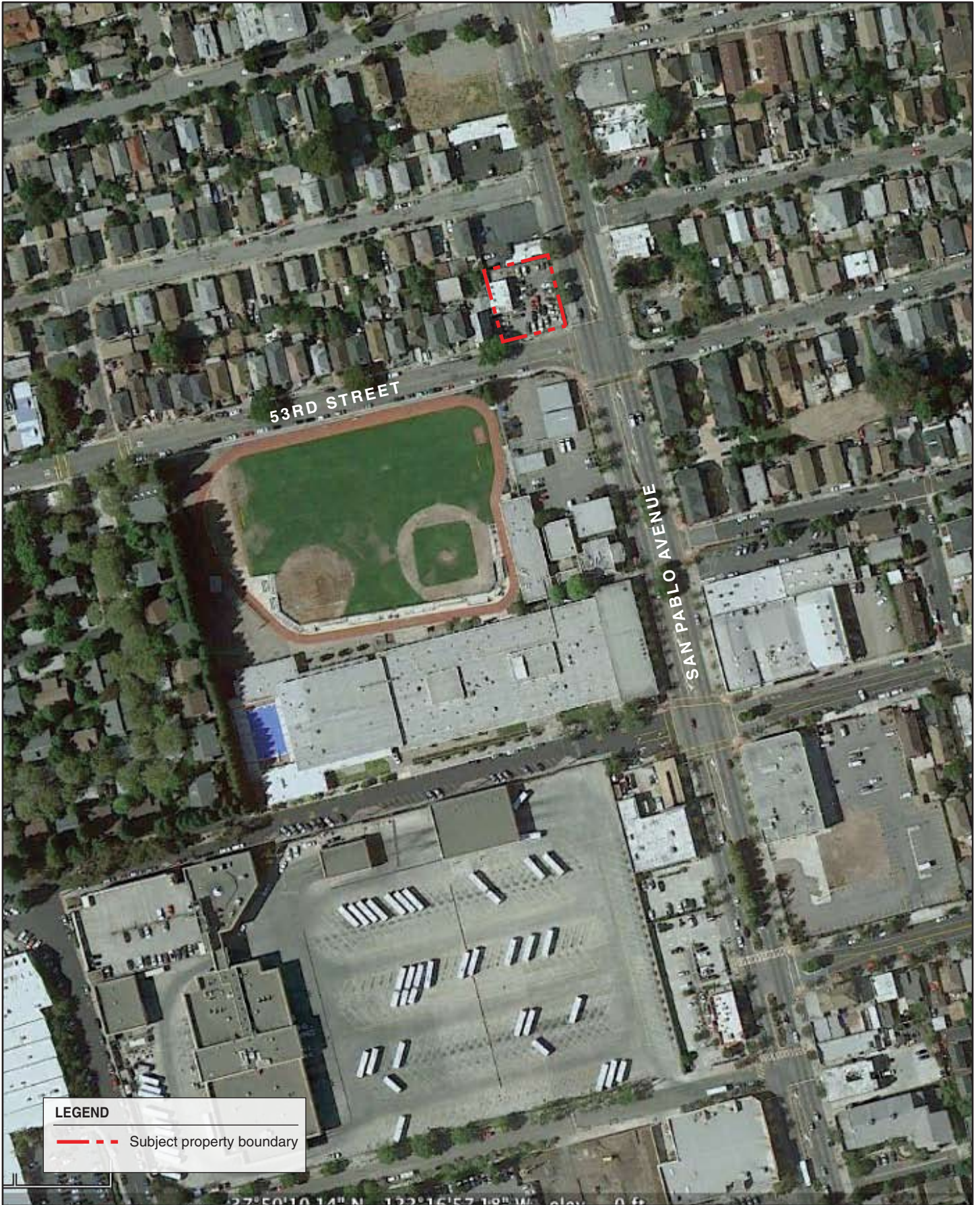
1.0 INTRODUCTION

INTRODUCTION AND PROJECT BACKGROUND

On behalf of Jasbinder and Gulbinder Grewel (the responsible parties), Stellar Environmental Solutions, Inc. (Stellar Environmental) is providing this report of findings for the subsurface investigation at the referenced property to address the investigation Work Plan, approved by ACHCS on February 20, 2009. The property is currently owned by Kenneth J. Schmier.

The subject site is located at the northwest corner of San Pablo Avenue and 53rd Street in Oakland, California and was an operating Shell service station until the mid-1970's, after which the site was used for auto repair. This phase II subsurface investigation was designed to focus on areas previously identified by onsite work done by AEI in 2007 and 2008 associated with the removal of four USTs at the site. Two 7,500-gallon gasoline USTs, one 10,000-gallon diesel UST and one 550-gallon waste oil UST were removed from the site in September 2007. The gasoline and diesel tank pit were subsequently enlarged in January 2008 in an effort to remove hydrocarbon impacted soil. Impacted soil was removed to less than 100 mg/kg in all areas except for 160 mg/kg total petroleum hydrocarbons as gasoline (TPH-g) in soil on the south side of the property near the 53rd Street sidewalk (AEI 2008). Due to the close proximity of the sidewalk and other space constraints, the excavation could not be enlarged further. According to AEI reports reviewed by Stellar Environmental, the depth of the final excavation was approximately 12 feet below the ground surface (bgs). No groundwater was encountered during AEI's work at the site. In January 2008, the fuel tank UST excavation was backfilled with clean, imported material consisting of drain rock and class II ¾" baserock.

In a letter dated June 26, 2008, the ACHCS requested an investigation to determine if groundwater beneath the site had been affected by residual hydrocarbons in soil. The scope of this investigation implements an October 2008 Work Plan prepared by AEI, that was subsequently approved by the ACHCS in February 2009 with minor modifications, that outlined work at the site designed to satisfy the agency requirement. Appendix A contains the ACHCS workplan approval letter and other critical background data referenced in this report. Figures 1 and 2 on the following pages indicate the location of the subject site and site features including boring locations.



LEGEND

--- Subject property boundary



SUBJECT PROPERTY LOCATION

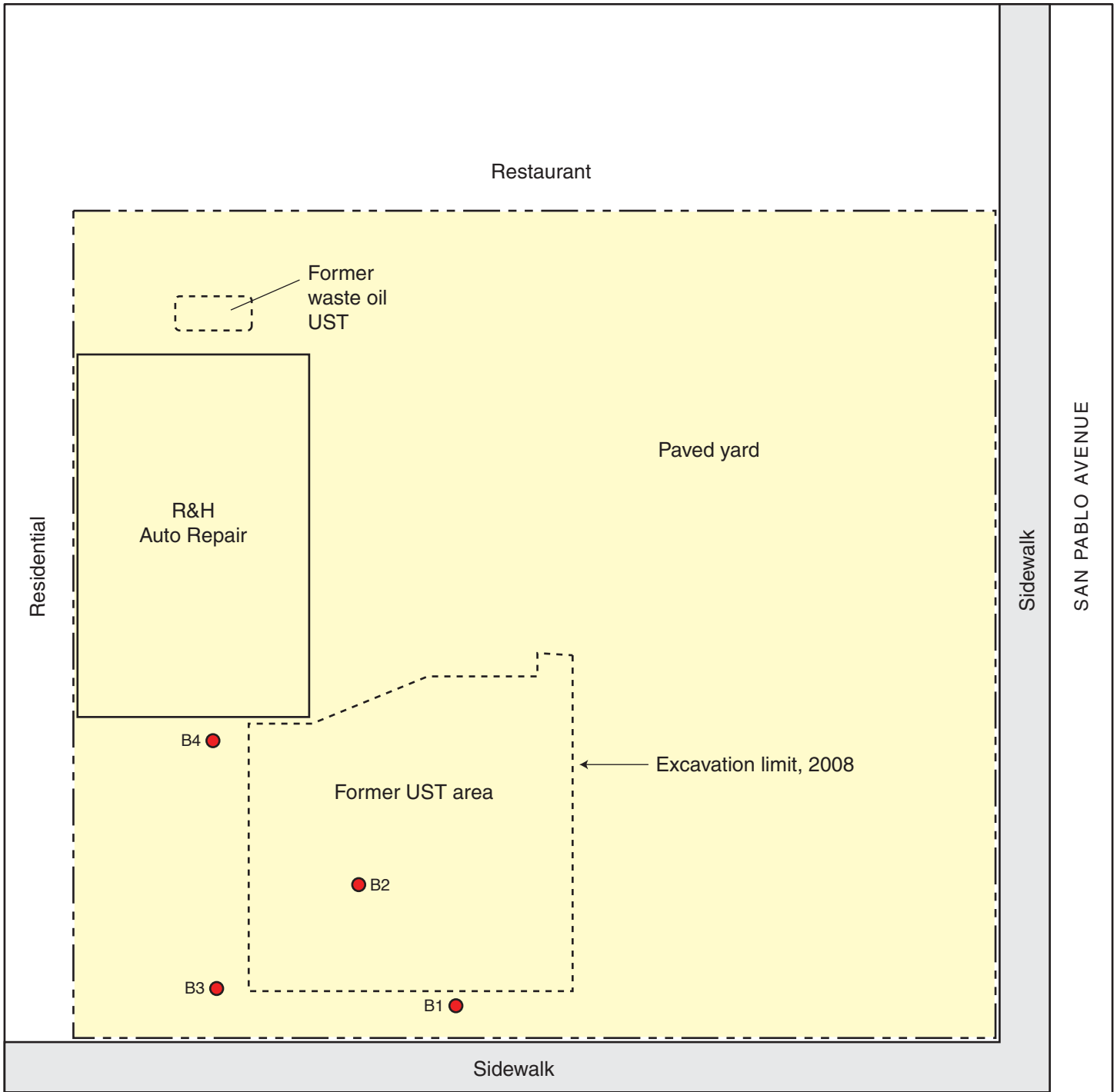
5315 San Pablo Ave.
Oakland, CA

By: MJC

MARCH 2010

Figure 1





LEGEND

B1 ● Approximate soil boring location

--- Subject property boundary



SITE PLAN AND BORING LOCATION MAP

5315 San Pablo Ave.
Oakland, CA

By: MJC

MARCH 2010

Figure 2



PURPOSE AND SCOPE OF WORK

The objective of the work was to collect subsurface data to adequately evaluate the nature and extent of residual hydrocarbon impacted to soil and to determine if a release to groundwater has occurred. The scope of work includes modifications to boring location, sampling protocols and laboratory analytical requirements as described by the technical comments made by the ACHCS in that Agency's letter referenced above.

The principal approved objectives of this site evaluation study are to:

- Collect soil and groundwater samples at four locations on the site in locations approved by ACHCS in February 2009, to determine if contaminants of concern are present in soil and groundwater including: gasoline and diesel range hydrocarbons, benzene, toluene, ethylbenzene and xylenes (BTEX) and fuel oxygenates, at concentrations that exceed State Environmental Screening Levels (ESLs).
- Assess the site data in the context of business risk to a potential property owner in terms of existing site use, future residential or commercial use associated with site redevelopment and potential regulatory considerations and/or requirements.

2.0 SUBSURFACE SITE INVESTIGATION

This section describes the drilling completed and sampling methods used to evaluate for presence of subsurface contamination beneath the site in and around the area of the former fuel tanks.

Drilling Location Rationale and Sampling Methods

The bore locations were designed to evaluate the extent of residual hydrocarbons in soil and for the presence of groundwater contamination. The four exploratory bores were situated in the southwest quadrant of the site both because that is where the former UFST area was and the southwest is the presumed downgradient area of the property, and downgradient of the R&H Auto Repair building. No bores were needed near the former waste oil UST based on their no detection of concern in the initial soil sampling at that location during the UST removal.

Boring B1 was located within 5 feet of the south side of the UST excavation and was intended to evaluate soil and groundwater to the south of the January 2008 excavation confirmation sample GSW1BC, which contained elevated concentrations of gasoline hydrocarbons. Boring B2 was drilled in the area of the former excavation to the north of the south side dispensers and to the west of the former gasoline USTs. Borings B3 and B4 were located within 5 feet of the western limit of the UST excavation in the presumed downgradient direction of groundwater flow.

Soil sampling depths both above and below the groundwater table were collected per ACDEH's preferences to document a vertical profile in the unsaturated and saturated zone. Three vertical soil samples were collected at bore B-2 in the area of the former UFST at depth of 12 and 16 feet (unsaturated) and 19 feet (saturated). Bores 1, 2 and 3 had one soil sample collected in the unsaturated and one in the saturated zones at approximately 14 and 19 feet, respectively.

Drilling was conducted by Vapor Tech Services (C-57 License No. 916085) under the direct supervision of Stellar Environmental Geologist Steve Bittman, who continuously logged the bores. The boreholes were drilled with a GeoProbe™ 7720 DT rig using 2½-inch-diameter steel outer drive casing lined with acetate sleeves. Soil samples were evaluated in the field using a RAE Systems MiniRAE™ photoionization detector (PID) to detect hydrocarbons. The soil samples were retained in their acetate sleeves and sealed with inert Teflon® tape and plastic caps. Groundwater samples were collected using a peristaltic pump equipped with new tubing

and stored in appropriate glass containers. All soil and groundwater samples were immediately placed on ice at 4° C., and transported to McCampbell Analytical, a State of California Environmental Laboratory Accreditation Program (ELAP) certified laboratory, via laboratory courier under chain-of-custody documentation. Prior to drilling, Underground Service Alert (USA) was contacted with regard to potential underground utilities, and a drilling permit was obtained from the Alameda County Public Works Agency. Appendix D contains a copy of the drilling permit. Appendix B contains photodocumentation of this event.

The drilling program objective involved collecting continuous soil cores in the acetate liners to the total depth of the boring in all four locations, logging the soil using the Unified Soils Classification System, and submitting selected samples for laboratory analysis. Groundwater samples were to be collected from all four boring locations and submitted for analysis. The following summarizes the depths reached and sampling protocol used for each boring:

- Boreholes B1 and B3 were drilled to a depth of 20 feet bgs while boring B4 was drilled to 22 feet bgs. Two soil samples from each boring were selected for laboratory analyses based on PID readings and lithology. Temporary wells constructed of ¾-inch diameter pvc, screened across the bottom 5-feet of each boring, were placed in each boring.
- Borehole B2 was located within the former UST area, which was excavated in 2007 to a reported depth of 12 feet bgs, then backfilled with clean, imported material. Boring B2 was advanced directly to 10 feet bgs before soil samples were collected. Continuous soil samples were then collected from 10 feet bgs to the total drilled depth of 20 feet bgs. Three soil samples from boring B2 were selected for laboratory analyses based on PID readings and lithology. A temporary well was constructed of ¾-inch diameter pvc, screened across the bottom 5-feet of the boring.

Following completion of drilling and sampling activities, the temporary pvc wells were removed and the boreholes tremie-grouted to surface with a mixture of neat Portland cement and potable water. Mr. John Shouldice of the Alameda County Department of Public Works observed the grouting. Waste soil and groundwater from this investigation was contained onsite in two 5-gallon buckets labeled “Non-Hazardous Waste” pending analysis.

Lithology and Hydrogeology

Site-specific lithology to a depth of 20 feet bgs was characterized at boring B1, B2, and B3, and to a depth of 22 feet bgs in boring B4. Subsurface lithology can be described as silty clay to gravelly clay fill with fragments of brick to approximately 2.5 feet bgs. The upper fill is underlain by native, grey to brown, damp, stiff, silty clay to about 17 feet bgs. Between 17 feet and 22 feet bgs, interbedded layers of saturated sandy silt, silty sand and clayey gravel are present. Groundwater did not immediately flow into the borings, which prompted the installation of pvc casing into the borings. All borings had water levels of about 6 to 8 feet bgs

after 1 to 2 hours after installation of the pvc pipe. Geologic logs of the borings are included in Appendix C.

ANALYTICAL RESULTS

Soil and the groundwater samples collected were analyzed for the following constituents by McCampbell Analytical of Pittsburg, California by the methods described below:

- Total Volatile Hydrocarbons as gasoline (TVH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX) and the fuel oxygenates methyl-tertiary-butyl-ether (MTBE), ethyl-tertiary-ether (ETBE), di-isopropyl-ether (DIPE), tertiary-amyl-methyl-ether (TAME), and tertiary-butyl-alcohol (TBA) by EPA Method 8260;
- Total Extractable Hydrocarbons as diesel (TEH-d) by EPA Method 8015C.

Soil Analytical Results

Low concentrations of TVHg (0.30 mg/kg to 13 mg/kg) were detected in four of the nine soil samples analyzed, all of which occurred within a depth range of 12 to 16 feet bgs. The highest concentration of 13 mg/kg TVHg was detected in the sample collected from 12 feet bgs in boring B2 below the former UST locations. Diesel range hydrocarbons (TEHd) were detected in seven of the nine soil samples (1.1 mg/kg to 90 mg/kg) within the depth range of 12 to 16 feet bgs. The highest concentration of 90 mg/kg TEHd was detected in boring B4 adjacent to the former diesel UST location at a depth of about 15 feet bgs. BTEX (0.021 mg/kg benzene, 0.18 mg/kg ethylbenzene and 0.030 mg/kg xylenes) was detected in one sample collected from boring B2 at a depth of 12 feet bgs. None of the other 14 soil samples contained BTEX compounds or fuel oxygenates.

Groundwater Analytical Results

A grab-groundwater sample was collected from each boring as described above. TVHg was detected between 890 µg/L and 2,300 µg/L in samples collected from borings B1, B2 and B3, with 2,300 µg/L detected in boring B3, located hydraulically downgradient of the former UST locations. TEHd was detected in all four groundwater samples with concentrations ranging between 360 µg/L and 760 µg/L. BTEX (11 µg/L benzene and 53 µg/L ethylbenzene) was detected in the groundwater sample collected from boring B2 in the former UST locations with 22 µg/L ethylbenzene and 0.54 µg/L xylenes detected in the sample from boring B3. No fuel oxygenates were detected in any of the groundwater samples.

Appendix E contains the certified analytical laboratory report and chain-of-custody record. Table 1 shows the total and volatile petroleum hydrocarbon data. Figure 3 summarizes the soil and groundwater analytical results.

Table 1
Total and Volatile Petroleum Hydrocarbons
5315 San Pablo Avenue, Oakland, CA

Sample ID	TVHg	TEHd	Oxygenates MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes
B1-14-15	1.6	2.6	<0.005	<0.005	<0.005	<0.005	<0.005
B1-19-20	< 0.25	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
B2-12-13	13	11	<0.010	0.021	<0.010	0.18	0.030
B2-16-17	<0.25	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
B2-19-20	<0.25	1.7	<0.005	<0.005	<0.005	<0.005	<0.005
B3-15-16	3.7	2.2	<0.005	<0.005	<0.005	<0.005	<0.005
B3-19-20	<0.25	1.1	<0.005	<0.005	<0.005	<0.005	<0.005
B4-15-16	0.30	90	<0.005	<0.005	<0.005	<0.005	<0.005
B4-21-22	<0.25	1.4	<0.005	<0.005	<0.005	<0.005	<0.005
ESLs Residential ^(a)	83 / 100	83 / 100	variable	0.044 / 0.27	2.9 / 9.3	3.3 / 4.7	2.3 / 11
ESLs Industrial ^(a)	83 / 180	83 / 180	variable	0.044 / 0.12	2.9 / 9.3	2.3 / 2.3	2.3 / 11
B1-W	890	360	<2	<0.5	<0.5	<0.5	<0.5
B2-W	1500	480	<4	11	<1.0	53	<9.5
B3-W	2300	760	<2	<0.5	<0.5	22	0.54
B4-W	<50	430	<2	<0.5	<0.5	<0.5	<0.5
ESLs Residential and Industrial ^(b)	100 / 210	100 / 210	variable	1.0 / 46	40 / 130	30 / 43	20 / 100

Notes:

ESLs = Environmental Screening Levels

^(a) Water Board Tier 1 shallow soil Environmental Screening Levels for sites where groundwater is/is not a likely drinking water resource.

^(b) Water Board Tier 1 groundwater Environmental Screening Levels for both residential and industrial sites where groundwater is/is not a likely drinking water resource.

Oxygenates /MTBE = Fuel oxygenates- ethyl-tertiary-ether (ETBE), di-isopropyl-ether (DIPE), tertiary-amyl-methyl-ether (TAME), tertiary butyl-alcohol (TBA) and methyl-tertiary-butyl-ether (MTBE).

TEHd = total extractable hydrocarbons as diesel

TVHg = total volatile hydrocarbons as gasoline

All soil samples and associated ESLs are reported in mg/kg. All groundwater samples and associated ESLs are reported in µg/L.

Concentrations of contaminants exceeding their appropriate ESL are indicated in **BOLD** type.

Soil mg/k				Groundwater $\mu\text{g/L}$	
15'-16'		21'-22'			
TVHg	0.30	TVHg	ND	TVHg	ND
TEHd	90	TEHd	1.4	TEHd	430
BTEX	ND	BTEX	ND	BTEX	ND
Oxygenates	ND	Oxygenates	ND	Oxygenates	ND

Approximate groundwater flow direction

Restaurant

Former waste oil UST

Residential

R&H Auto Repair

Paved yard

Soil mg/k						Groundwater $\mu\text{g/L}$	
12'-13'		16'-17'		19'-20'			
TVHg	13	TVHg	ND	TVHg	ND	TVHg	1,500
TEHd	11	TEHd	ND	TEHd	1.7	TEHd	480
Benzene	0.021	BTEX	ND	BTEX	ND	Benzene	11
Ethylbenzene	0.18	Oxygenates	ND	Oxygenates	ND	Ethylbenzene	53
Xylenes	0.030					Xylenes	9.5
Oxygenates	ND					Oxygenates	ND

Sidewalk

SAN PABLO AVENUE

B4

Former gasoline and diesel UST area

Excavation limit, 2008

B2

B3

B1

Sidewalk

53RD STREET

Soil mg/k				Groundwater $\mu\text{g/L}$	
15'-16'		19'-20'			
TVHg	3.7	TVHg	ND	TVHg	2,300
TEHd	2.2	TEHd	1.1	TEHd	760
BTEX	ND	BTEX	ND	Ethylbenzene	22
Oxygenates	ND	Oxygenates	ND	Xylenes	0.54
				Oxygenates	ND

Soil mg/k				Groundwater $\mu\text{g/L}$	
14'-15'		19'-20'			
TVHg	1.6	TVHg	ND	TVHg	890
TEHd	2.6	TEHd	ND	TEHd	360
BTEX	ND	BTEX	ND	BTEX	ND
Oxygenates	ND	Oxygenates	ND	Oxygenates	ND

LEGEND

- B4 ● Location of boring, SES 2010
- Subject property boundary
- ND Not detected above lab reporting limit
- TEHd Total extractable hydrocarbons as diesel
- TVHg Total volatile hydrocarbons as gasoline
- BETX Benzene, toluene, ethylbenzene + total xylenes



N



SOIL BORING LOCATIONS AND CONCENTRATIONS OF CONTAMINANTS OF CONCERN

5315 San Pablo Ave.
Oakland, CA

By: MJC

MARCH 2010

Figure 3



3.0 REGULATORY CONSIDERATIONS

The concentrations reported in soil and groundwater samples must be compared to regulatory limits and guidance to evaluate the extent of any potential impact on the property and the environment.

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 likely versus unlikely drinking water resource, and the type of receiving water body. A Water Board-published “proposed groundwater management zones and designated areas map” in their East Bay Plains Beneficial Use Study (Water Board, 1999) shows the property area in a location where groundwater is unlikely to be used for drinking water.

The appropriate ESLs for the subject site are based on the following:

- Residential land use (due to the residences adjoining the property in the downgradient direction) and commercial/industrial use (for the subject property itself). Note that, for groundwater contaminants, all ESLs for the site contaminants are the same for both residential and commercial/industrial land use.
- Groundwater is not likely to be used as a potential drinking water resource based on both the property zoning status (commercial/industrial) and the designation of this area of Oakland as “Zone B – Unlikely to be used as a Drinking Water Resource (Water Board, 1999). Thus, while the Water Board Basin Plan considers all groundwater with potential for drinking water, the appropriate ESLs for the subject site are *groundwater is not a likely drinking water resource*.
- 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;

This criteria has been met, with all soil sample results below their respective ESL in those areas near the former UFST most likely to show high residual contamination.

- The extent of residual contamination has been fully characterized to obtain sufficient lithologic and hydrogeologic understanding (generally referred to as a Site Conceptual Model);

This criteria has been met with respect to the onsite residual contamination.

- Groundwater wells have been installed and are monitored periodically to evaluate groundwater contaminant concentrations and hydrochemical trends;

This criteria has not been met, and will likely be required to monitor hydrochemical trends and confirm groundwater flow direction.

- The stability of the contaminant plume has been evaluated to determine whether it is moving or increasing in concentration; and

This criteria has not been met- no groundwater wells have been installed (see above).

- A determination has been made as to whether the residual contamination poses an unacceptable risk to sensitive receptors.

This criteria has not been met, and will likely require a conduit survey and offsite bores to determine whether dissolved gasoline and diesel hydrocarbons attenuate in the groundwater.

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.

4.0 DISCUSSION OF FINDINGS, AND CONCLUSIONS AND RECOMMENDATIONS

DISCUSSION OF FINDINGS

None of the soil samples contained significant concentrations of fuel hydrocarbons or BTEX and all detections were well below their respective ESLs. Sample depths for five of the nine soil samples were within the 12 to 16 bgs unsaturated zone (near or below UST burial depth) and approximately below the depth that the site was excavated to in 2007. Four of the nine soil samples were collected from the saturated zone between 19 and 22 feet bgs. None of the soil samples contained detectable concentrations of fuel oxygenates. This, and the lack of significant concentrations of BTEX compounds can in part be attributed to the age of the spill and to the fuel itself, which was last added to the USTs in 1975 when fuel oxygenates were generally not used in gasoline. Reportedly, no fuel was added to the system after 1975.

Three of the four groundwater samples contained concentrations of TVHg ranging from 890 to 2,300 µg/L, exceeding the least restrictive ESL of 210 µg/L. The highest detection of 2,300 µg/L was collected from boring B3, downgradient of the former UST locations.

The detected TEHd concentrations exceeded the diesel hydrocarbon ESL in all four groundwater samples, ranging from 360 to 760 µg/L TPHd with the highest concentration of 760 µg/L found in boring B3.

Benzene and ethylbenzene were detected (11 µg/L and 53 µg/L respectively) in the groundwater sample collected from boring B2 in the former UST area. The concentration of 11 µg/L benzene does not exceed the ESL where groundwater is not a likely drinking water resource, but does exceed the ESL where groundwater is a likely drinking water resource. The 53 µg/L ethylbenzene concentration exceeds both ESL groundwater resource criteria. The groundwater sample originating from boring B3 contained 22 µg/L ethylbenzene and 0.54 µg/L xylenes, below all ESL criteria. No fuel oxygenates were detected in any of the groundwater samples. The lack of significant BTEX compounds in the groundwater beneath the site is indicative of an older release, with volatilization of these compounds. The presence of the highest concentrations of TVHg and TEHd in groundwater from the downgradient boring B3 indicates some movement of the contaminant mass from the original release source and may extend off site towards the southwest.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the Phase II Environmental Site Assessment for the subject property located at 5315 San Pablo Avenue in Oakland, Alameda County, California.

- The lack of significant residual hydrocarbon contamination in soil beneath the site in the 12 to 16 feet bgs zone, in and around the former UST area, suggests that no significant hydrocarbon contaminant remains in soil as a source for continued significant impact to groundwater.
- The appropriate ESL criterion for groundwater at the site is residential/industrial where groundwater *is not* a likely drinking water resource.
- Groundwater beneath the site has been impacted with gasoline and diesel range hydrocarbons exceeding ESL criteria.
- The highest concentrations of TVHg (2,300 µg/L) and TEHd (760 µg/L) in groundwater were detected in the groundwater sample collected from boring B3, near the southwest corner of the site, downgradient of the former USTs, suggesting offsite migration of the residual dissolved hydrocarbons to the southwest.
- With the exception of ethylbenzene detected at 53 µg/L in one groundwater sample which exceeds all ESL criteria, the lack of significant BTEX compounds in groundwater beneath the site is characteristic of an older release where these compounds have volatilized.

Based on the limited Phase II findings and Stellar Environmental Solutions' understanding of ACHCS's site closure evaluation criteria we recommend the following:

- Provide this report to the ACHCS and discuss strategies and pathways to move the site towards regulatory closure;
- Establish the site in the State Geotracker database to satisfy ACHCS requirement.
- Install three groundwater wells onsite to establish hydrologic conditions, groundwater flow direction and monitor hydrochemical trends;
- Evaluate the offsite migration of the TVHg and TEHd to the southwest to determine whether there appears to be rapid attenuation to below ESLs;
- Complete a conduit survey per ACHCS guidance to evaluate the offsite migration along preferential pathways;

5.0 LIMITATIONS

This report has been prepared for the use of the R&H Auto Repair property owners; its members, property manager, and tenants; and all of their authorized representatives.

The information presented in this report is based on a review of site-specific documents provided by the property owner and its agents—such as historical environmental assessments, monitoring, and communication with regulatory agencies. 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 included in the report.

The findings of this report are valid as of the date of this report. Subject property 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 updated as needed with monitoring reports, inspection reports, contact information, and monitoring schedules.

6.0 REFERENCES

AEI Consultants, 2008. Work Plan – Soil and Groundwater Investigation, 5315 San Pablo Avenue, Oakland, California. October 31.

Alameda County Health Care Services Agency, 2009. Fuel Leak Case # RO0002965 and Geotracker Global ID T0619704141, R&H Auto Repair, 5315 San Pablo Avenue, Oakland, California 94608. February 20.

Regional Water Quality Control Board (Water Board), 1999. East Bay Plain Groundwater Basin Beneficial Use Evaluation Report – Alameda and Contra Costa Counties. June.

Regional Water Quality Control Board (Water Board), 2007. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. November.

APPENDIX A

ACHCS Workplan Approval and Background Data



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

February 20, 2009

Jasbinder and Gulbinder Grewel
R&H Auto
5315 San Pablo Avenue
Oakland, CA 94612

Subject: Fuel Leak Case No. RO0002965 and Geotracker Global ID T0619704141, R&H Auto Repair, 5315 San Pablo Avenue, Oakland, CA 94608

Dear Mr. Jasbinder and Mrs. Gulbinder Grewel:

Alameda County Environmental Health (ACEH) staff has reviewed the October 31, 2008 *Work Plan – Soil and Groundwater Investigation* prepared by AEI Consultants. The work plan proposes advancing four soil borings to investigate the nature and extent of residual impact and determine if a release to groundwater has occurred.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments, perform the proposed scope of work, and send us the technical reports requested below. The proposed scope of work may be implemented provided that the modifications requested in the technical comments below are addressed and incorporated during field implementation. Submittal of a revised work plan is not required. Please provide 72-hour advance written notification to this office by e-mail (barbara.jakub@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Boring Locations** – Please adjust boring locations to within 10 feet downgradient from the previous confirmation boring locations. This includes moving proposed borings SB-3 and SB-4 approximately 15 feet closer and moving SB-1 to the west of former sample GSW1BC.
2. **Groundwater and Soil Analysis** – Please analyze your benzene, toluene, ethylbenzene, toluene, xylenes, methyl tertiary butyl ether (MTBE) samples using EPA Method 8260. In addition, analyze groundwater and soil samples for the following: ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary amyl methyl ether (TAME), tert butyl alcohol (TBA), ethylene dibromide (EDB), and ethylene dichloride (EDC) by EPA Method 8260.
3. **Soil Sampling** – In addition to your proposed sampling at four foot intervals, collect samples at the capillary fringe, at lithologic changes and at areas with high PID readings, ACEH also requests that you collect continuous soil samples for lithologic logging and submit soil samples in the saturated zone to define the vertical extent of soil contamination since fluctuations in groundwater levels can submerge contaminated soils, leaving a soil source that would otherwise go undetected if not sampled.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Barbara Jakub), according to the following schedule:

- **May 29, 2009** – Soil and Water Investigation Report

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "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 letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature,

Mr. Jasbinder and Mrs. Gulbinder Grewel
RO0002965
February 20, 2009, Page 3

and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 639-1287 or send me an electronic mail message at barbara.jakub@acgov.org.

Sincerely,



Barbara J. Jakub, P.G.
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Kirby Fernando, AEI Consultants, 2500 Camino Diablo, Walnut Creek, CA 94597
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032
Donna Drogos, ACEH
Barbara Jakub, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	ISSUE DATE: July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in Excel format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:

- a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to dehloptoxic@acgov.org
or
 - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
- b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**

2) Upload Files to the ftp Site

- a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>.
 - (i) Note: Netscape and Firefox browsers will not open the FTP site.
- b) Click on File, then on Login As.
- c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
- d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
- e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs

- a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
- b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
- c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload)



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

NOTICE OF VIOLATION

July 24, 2009

JASBINDER AND GULBINDER GREWAL
B&H AUTO REPAIR
5315 SAN PABLO AVE
OAKLAND CA 946083023

Subject: Fuel Leak Case No. RO0002965 and Geotracker Global ID T0619704141, SITE R&H AUTO REPAIR, 5315 SAN PABLO AVE, OAKLAND CA 94608– Groundwater Monitoring Requirements

Dear JASBINDER AND GULBINDER GREWAL:

On July 3, 2008, Alameda County Environmental Health (ACEH) sent a correspondence to you identifying that your site, R&H AUTO REPAIR, located at 5315 SAN PABLO AVE, OAKLAND CA 94608 has not been claimed in the State Water Resources Control Board's (SWRCB) GeoTracker database. It was further stated that the site must be claimed by August 15, 2008 in order to remain in compliance. A review of the case file and the State's GeoTracker database indicate that the site still has not been "claimed," and your site is out of compliance with directives from this agency. Pursuant to California Code of Regulations, Title 23, Division 3, Chapter 30, Articles 1 and 2, Sections 3893, 3894, and 3895, you are required to claim your site and subsequently electronically transmit reports and other site data, as required.

In order to regain compliance, please claim the site (www.geotracker.waterboards.ca.gov) and submit verification to ACEH by **August 10, 2009**. Failure to claim the site by the due date specified above may result in referral and possible enforcement action by the District Attorney and/or ineligibility for reimbursement of corrective action costs incurred at the site from the Underground Storage Tank Clean-up Fund. Pursuant to Chapter 6.7, California Health and Safety code, civil penalties up to \$10,000 for each UST for each day of violation may be imposed. Once removed from the Clean-up Fund, the costs associated with the subsurface investigation and/or cleanup work that may be required at your site will not be reimbursed. Please note that civil penalties for non-compliance are assessed from the original due date (August 15, 2008).

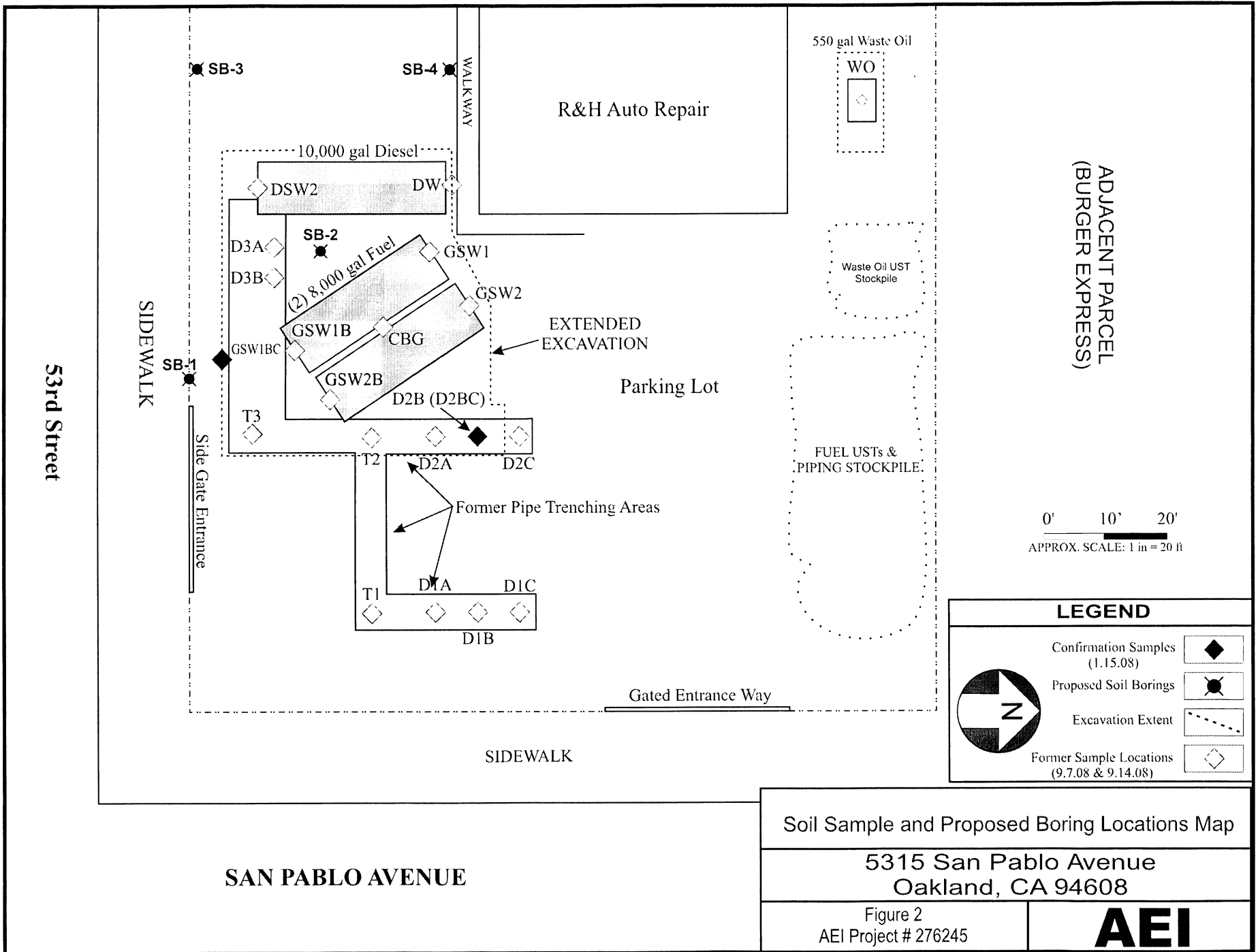
If you have any questions, please call me at (510) 639-1279 or send me an electronic mail message at barbara.jakub@acgov.org.

Sincerely,

Barbara J. Jakub, P.G.
Hazardous Materials Specialist

JASBINDER GREWAL
RO0002965
July 24, 2009, Page 4

cc: Kirby Fernando, AEI, 2500 Camino Diablo, Walnut Creek, CA 94597
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)
Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Barbara Jakub, ACEH
Geotracker, File



**Table 1 - USTs and Piping
Petroleum Hydrocarbon Sample Data**

Sample ID	Date	TPHg	TPHd	POG	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes	
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
		<i>Method 8015</i>	<i>Method 5520</i>		<i>Method 8021</i>					
WO	9/7/2007	<1.0	<1.0	<50.0	<0.05	<0.005	<0.005	<0.005	<0.005	
WSTK 1,2,3,4	9/7/2007	<1.0	190	1200	<0.05	<0.005	<0.005	<0.005	<0.005	
D1A	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	
D1B	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	
D1C	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	
D2A	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	0.0076	<0.005	0.014	
D2B	9/7/2007	1500	350	-	<0.05	<0.005	36	26	180	
D2C	9/7/2007	1.4	3.7	-	<0.05	<0.005	0.029	0.011	0.077	
D3A	9/7/2007	<1.0	2.9	-	<0.05	<0.005	<0.005	<0.005	<0.005	
D3B	9/7/2007	<1.0	3.3	-	<0.05	<0.005	<0.005	<0.005	<0.005	
T1	9/7/2007	<1.0	1.8	-	<0.05	<0.005	<0.005	<0.005	<0.005	
T2	9/7/2007	<1.0	<1.0	-	<0.05	<0.005	0.0053	<0.005	0.017	
T3	9/7/2007	<1.0	3.4	-	<0.05	<0.005	<0.005	<0.005	<0.005	
TSTK 1,2,3,4	9/7/2007	3.8	8.8	-	<0.05	<0.005	0.063	0.033	0.24	
STK 1,2,3,4	9/14/2007	210	230	-	<0.05	<0.005	<0.005	<0.005	0.77	
STK 5,6,7,8	9/14/2007	85	38	-	<0.05	<0.005	<0.005	<0.005	<0.005	
GSW1	9/14/2007	27	25	-	<0.05	0.008	0.043	0.051	0.33	
GSW2	9/14/2007	2.9	1.2	-	<0.05	<0.005	<0.005	0.0072	0.046	
CBG	9/14/2007	5.1	1.8	-	<0.05	<0.005	<0.005	0.0061	<0.005	
GSW1B	9/14/2007	170	43	-	<0.05	<0.005	0.077	0.11	0.46	
GSW2B	9/14/2007	61	7.3	-	<0.05	<0.005	<0.005	<0.005	<0.005	
DSW1	9/14/2007	230	73	-	<0.05	<0.005	0.64	<0.005	1.1	
DSW2	9/14/2007	6	12	-	<0.05	<0.005	<0.005	<0.005	<0.005	
DW	1/15/2008	68	32	-	<0.05	<0.005	0.21	<0.005	0.16	
D2BC	1/15/2008	19	-	-	<0.05	<0.005	<0.005	<0.005	0.06	
GSW1BC	1/15/2008	160	-	-	<0.05	<0.005	0.42	<0.005	0.44	
Sample ID	Date	All VOCs	All SVOCs							
		<i>Method 8240</i>								
WO	9/7/2007	ND<MDL	ND<MDL							
WSTK 1,2,3,4	9/7/2007	ND<MDL	ND<MDL							
DETECTION LIMIT		Varies 0.005 - 0.02	Varies 0.33 - 1.6							

VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
mg/Kg = milligrams per kilogram
TPHg= total petroleum hydrocarbons as gas
TPHd= total petroleum hydrocarbons as diesel
MTBE = Methyl-tert-butyl ether
POG = total petroleum oil & grease
< = below method detection limit
- = Not analyzed
MDL = method detection limit

**Table 2 - USTs
LUFT 5 Metals Data**

Sample ID	Date	Cadmium mg/Kg	Chromium mg/Kg	Lead mg/Kg <i>EPA Method 6010C</i>	Nickel mg/Kg	Zinc mg/Kg	STLC - Lead mg/Kg <i>EPA Method 6010</i>
WO	9/7/2007	<1.5	52	7.4	41	74	-
WSTK 1,2,3,4	9/7/2007	< 1.5	49	85	59	190	-
STK 1,2,3,4	9/14/2007	-	-	200	-	-	4.9
STK 5,6,7,8	9/14/2007	-	-	78	-	-	1.9
GSW1	9/14/2007	-	-	11	-	-	-
GSW2	9/14/2007	-	-	7.3	-	-	-
CBG	9/14/2007	-	-	8.9	-	-	-
GSW1B	9/14/2007	-	-	8.8	-	-	-
GSW2B	9/14/2007	-	-	11	-	-	-
DSW1	9/14/2007	-	-	8.4	-	-	-
DSW2	9/14/2007	-	-	7.3	-	-	-

mg/Kg = milligrams per kilogram (parts per million)

< = below method detection limit

APPENDIX B

Photodocumentation



Subject: Boring B1 with temporary well in foreground, with former UST area and boring B4 near site building beyond

Site: 5315 San Pablo Avenue, Oakland, CA

Date Taken: March 5 2010

Project No.: SES 2010-06

Photographer: Steve Bittman

Photo No.: 01



Subject: Boring B3 location near property southwest corner.

Site: 5315 San Pablo Avenue, Oakland, CA

Date Taken: March 5, 2010

Project No.: SES 2010-06

Photographer: Steve Bittman

Photo No.: 02



Subject: Sandy silt and silty sand water bearing zone from boring B3

Site: 5315 San Pablo Avenue, Oakland, CA

Date Taken: March 5 2010

Project No.: SES 2010-06

Photographer: Steve Bittman

Photo No.: 03



Subject: View of boring B4 location and marked electrical utility

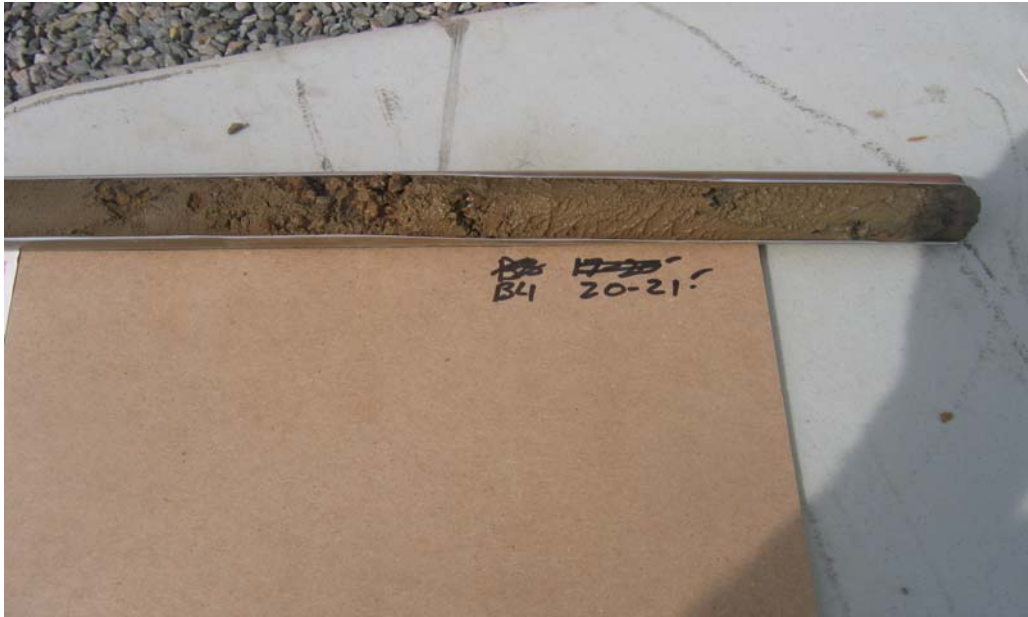
Site: 5315 San Pablo Avenue, Oakland, CA

Date Taken: March 5, 2010

Project No.: SES 2010-06

Photographer: Steve Bittman

Photo No.: 04



Subject: View of gravelly clay and clayey gravel water bearing zone from boring B4

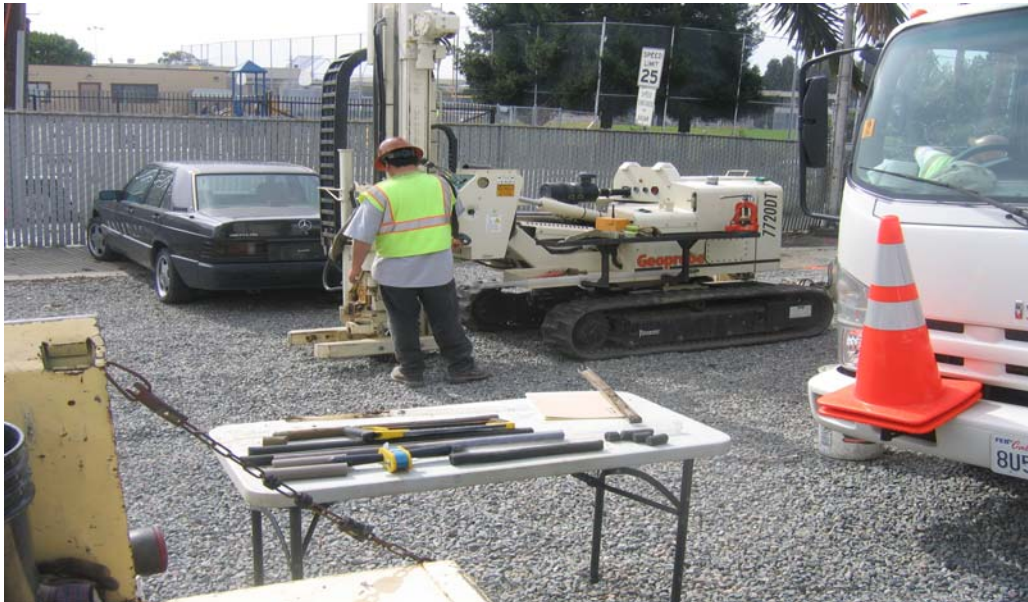
Site: 5315 San Pablo Avenue, Oakland, CA

Date Taken: March 5, 2010

Project No.: SES 2010-06

Photographer: Steve Bittman

Photo No.: 05



Subject: Setting up on Boring B2 within former fuel UST location area

Site: 5315 San Pablo Avenue, Oakland, CA

Date Taken: March 5, 2010

Project No.: SES 2010-06

Photographer: Steve Bittman


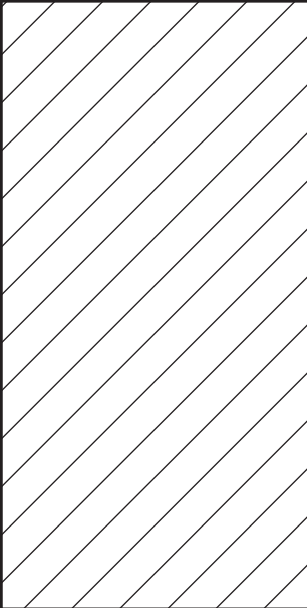
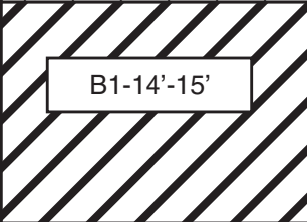
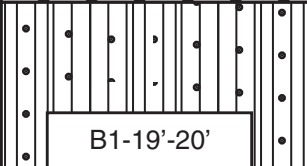
Photo No.: 06

APPENDIX C

Boring Logs

BORING NUMBER B1 Page 1 of 1

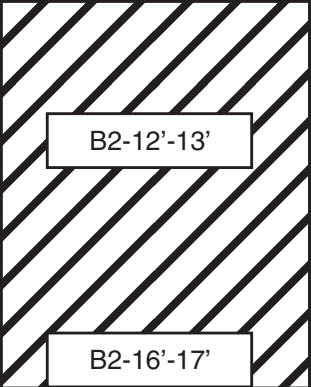
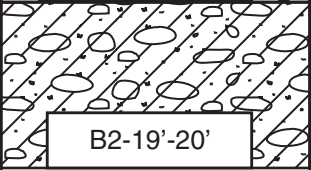
PROJECT R & H Auto Repair OWNER _____
 LOCATION 5315 San Pablo Avenue, Berkeley PROJECT NUMBER 2010-06
 TOTAL DEPTH 20 feet bgs BOREHOLE DIA. 2.25 inch
 SURFACE ELEV. Approx. 40 feet WATER FIRST ENCOUNTERED 17 feet
 DRILLING COMPANY VTS DRILLING METHOD Direct Push 7720 DT
 DRILLER Glenn GEOLOGIST S. Bittman DATE DRILLED 3/5/2010

DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0			3" asphalt	Notes: PID = Photoionization Detector. Values are in parts per million per volume air (ppmv) Continuous core sampling—100% core recovery unless specified otherwise Grab groundwater sample collected. Temporary screen set 15'-20' <div style="border: 1px solid black; display: inline-block; padding: 2px;">B1-14'-15'</div> Soil sample collected for analysis
2			CL/GC, Silty clay to gravelly clay, brown to black, moist, stiff	
4			CL, Silty clay, dark brown, damp, stiff, medium plasticity, no odor	
8		130	▼ Becomes grey @ 8', slight hydrocarbon odor	
12		60		
14		40	CH, becomes brown, increasing plasticity	
18			ML/SM, clayey silt to sandy silt, grey & brown, moist to wet, increasing sand, 19'-20'	
20				
22			Bottom of boring = 20 feet	

2010-06-05

BORING NUMBER B2 Page 1 of 1

PROJECT R & H Auto Repair OWNER _____
 LOCATION 5315 San Pablo Avenue, Berkeley PROJECT NUMBER 2010-06
 TOTAL DEPTH 20 feet bgs BOREHOLE DIA. 2.25 inch
 SURFACE ELEV. Approx. 40 feet WATER FIRST ENCOUNTERED 17 feet
 DRILLING COMPANY VTS DRILLING METHOD Direct Push 7720 DT
 DRILLER Glenn GEOLOGIST S. Bittman DATE DRILLED 3/5/2010

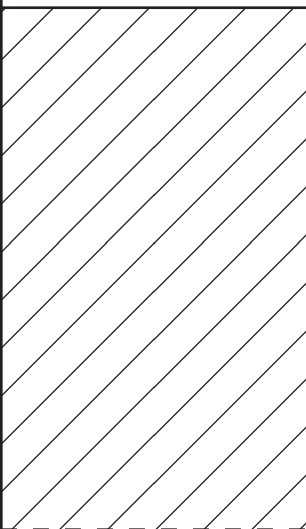
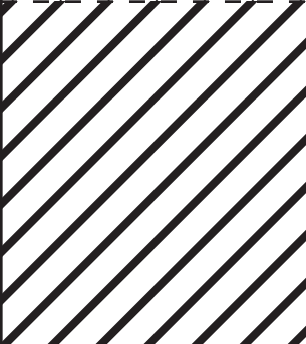
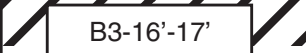
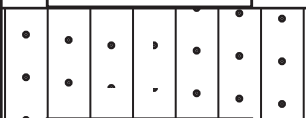
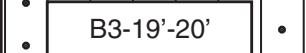
DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	REMARKS	
0			1/2" drain rock		
2	Fill		Former UST location backfilled with imported material. Pushed to 10' bgs and sampled from that depth.		
4					
6					
8					
10					
12			1,200		CL/CH, Silty clay, dark blue green, damp, medium to high plasticity, very stiff, strong hydrocarbon odor
14			1,050		
16			0.0		
18			0.0		GC, Clayey gravel, sandy, brown, moist to wet, medium dense
20					
22			Bottom of boring = 20 feet		

Notes:
 PID = Photoionization Detector. Values are in parts per million per volume air (ppmv)
 Continuous core sampling—100% core recovery unless specified otherwise
 Grab groundwater sample collected. Temporary screen set 15'-20'
 B2-12'-13'
 Soil sample collected for analysis

2010-06-06B2

BORING NUMBER B3 Page 1 of 1

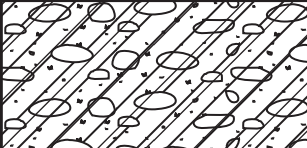
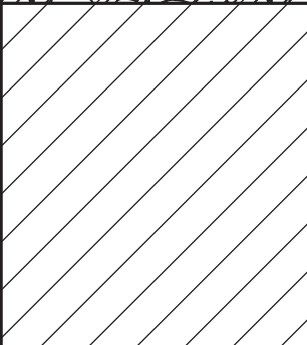
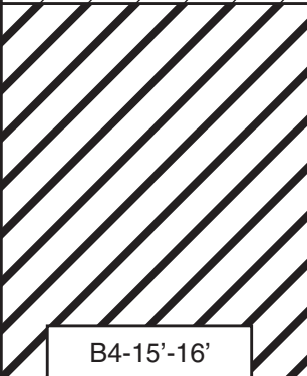

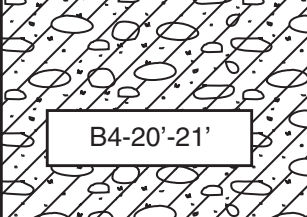
PROJECT R & H Auto Repair OWNER _____
 LOCATION 5315 San Pablo Avenue, Berkeley PROJECT NUMBER 2010-06
 TOTAL DEPTH 20 feet bgs BOREHOLE DIA. 2.25 inch
 SURFACE ELEV. Approx. 40 feet WATER FIRST ENCOUNTERED 17 feet
 DRILLING COMPANY VTS DRILLING METHOD Direct Push 7720 DT
 DRILLER Glenn GEOLOGIST S. Bittman DATE DRILLED 3/5/2010

DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0			3" asphalt	Notes: PID = Photoionization Detector. Values are in parts per million per volume air (ppmv) Continuous core sampling—100% core recovery unless specified otherwise Grab groundwater sample collected. Temporary screen set 15'-20' <div style="border: 1px solid black; display: inline-block; padding: 2px;">B3-16'-17'</div> Soil sample collected for analysis
2		0.0	CL, Silty clay, tan, mottled black, moist, medium plasticity, stiff, becomes dark brown with oxide staining and small roots	
4				
6				
8			▼	
10		125	CH, Becomes blue grey, increasing plasticity, slight hydrocarbon odor	
12				
14			Becomes brown	
16			▽	
18		0.0	SM, Sandy silt to silty sand, orange brown, moist to wet	
20				
22			Bottom of boring = 20 feet	

2010-06-07

BORING NUMBER B4 Page 1 of 1

PROJECT R & H Auto Repair OWNER _____
 LOCATION 5315 San Pablo Avenue, Berkeley PROJECT NUMBER 2010-06
 TOTAL DEPTH 22 feet bgs BOREHOLE DIA. 2.25 inch
 SURFACE ELEV. Approx. 40 feet WATER FIRST ENCOUNTERED 20.5 feet
 DRILLING COMPANY VTS DRILLING METHOD Direct Push
 DRILLER Glenn GEOLOGIST S. Bittman DATE DRILLED 3/5/2010

DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0			3" asphalt	Notes: PID = Photoionization Detector. Values are in parts per million per volume air (ppmv) Continuous core sampling—100% core recovery unless specified otherwise Grab groundwater sample collected. Temporary screen set 17'-22' <div style="border: 1px solid black; padding: 2px; display: inline-block;">B4-15'-16'</div> Soil sample collected for analysis
2			CL/GC, Silty clay to gravelly clay, brown to black with fragments of brick, moist to wet, fill	
4			CL, Silty clay, dark brown, medium plasticity, very stiff, no odor	
6		0.0	▼	
8				
10			CH, Becomes grey, increasing plasticity, no odor	
12		0.0		
14				
16			Becomes brown, no odor	
18			GC, Gravelly clay, brown, moist to wet	
20			▼ Clayey sand and gravel, 20.5-22 ft.	
22			Bottom of boring = 22 feet	

2010-06-04

APPENDIX D

Drilling Permit

Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 02/23/2010 By jamesy

Permit Numbers: W2010-0115
Permits Valid from 03/05/2010 to 03/05/2010

Application Id: 1266869578374
Site Location: R&H Auto Repair

City of Project Site:Oakland

5315 San Pablo Avenue, Oakland.
NW corner San Pablo Avenue and 53rd Street.

Project Start Date: 03/05/2010

Completion Date:03/05/2010

Assigned Inspector: Contact John Shouldice at (510) 670-5424 or johns@acpwa.org

Applicant: Stellar Environmental Solutions - Steve Bittman
2198 Sixth Street, Berkeley, CA 94710

Phone: 510-644-3123

Property Owner: Kenneth Schmier
1475 Powell St, Emeryville, CA 94608

Phone: 510-652-6080

Client: Jim & Gulbinder Grewel
5315 San Pablo Avenue, Oakland, CA 94608

Phone: 510-547-7511

Contact: Steve Bittman

Phone: 510-644-3123
Cell: 510-612-8751

Receipt Number: WR2010-0051 Total Due: \$265.00
Payer Name : Teal Glass Total Amount Paid: \$265.00
Paid By: VISA PAID IN FULL

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 4 Boreholes
Driller: Vapor Tech Services - Lic #: 916085 - Method: DP

Work Total: \$265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2010-0115	02/23/2010	06/03/2010	4	2.25 in.	20.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
4. Applicant shall contact John Shouldice for an inspection time at 510-670-5424 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters

Alameda County Public Works Agency - Water Resources Well Permit

generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

7. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

APPENDIX E

Laboratory Analytical Results and Chain-of-Custody Documentation



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Reported: 03/15/10
	Client P.O.:	Date Completed: 03/15/10

WorkOrder: 1003226

March 15, 2010

Dear Steve:

Enclosed within are:

- 1) The results of the **14** analyzed samples from your project: **#2010-06; R & H Auto**,
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McC Campbell Analytical, Inc.

Chain of Custody Record

1003226

Lab job no. _____
 Date _____
 Page 1 of 2

Laboratory McC Campbell Analytical
 Address 1534 Willow Pass Rd
Pittsburg CA 94565
877-252-9262

Method of Shipment Courrier

Shipment No. _____

Airbill No. _____

Cooler No. Stellar Environmental Sol.

Project Manager Steve Bittman

Telephone No. 510 644-3123

Fax No. _____

Samplers: (Signature) St. Bittman

Project Owner _____

Site Address 5315 San Pablo Ave
Oakland CA

Project Name R & H Auto

Project Number 2010-06

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Filtered	No. of Containers	Analysis Required										Remarks				
						Cooler	Chemical			1	2	3	4	5	6	7	8	9	10		11	12		
B1-11-12		3/5/10		S	Acetate 1.5"	✓				X	X													HOLD
B1-14-15				S		✓				X	X													
B1-19-20				S		✓				X	X													
B2-10-11				S		✓				X	X													HOLD
B2-12-13				S		✓				X	X													
B2-16-17				S		✓				X	X													
B2-19-20				S		✓				X	X													
B3-11-12				S		✓				X	X													HOLD
B3-15-16				S		✓				X	X													
B3-19-20				S		✓				X	X													
B4-12-13				S		✓				X	X													HOLD
B4-15-16		3/5/10		S	Acetate 1.5"	✓				X	X													

Filtered
 No. of Containers
 TPHs BTEX+Oxy's by 8/260
 TEH-d

Relinquished by: St. Bittman
 Signature _____
 Printed Steve Bittman
 Company SES

Received by: Rob Pringle
 Signature _____
 Printed _____
 Company _____

Relinquished by: Rob Pringle
 Signature _____
 Printed _____
 Company _____

Received by: Melissa
 Signature _____
 Printed Melissa Valles
 Company MAI

Turnaround Time: 5-day
 Comments: email results to:
sbittman@stellar-environmental.com

Relinquished by: _____
 Signature _____
 Printed _____
 Company _____

Received by: _____
 Signature _____
 Printed _____
 Company _____

REC'D SEALED & INTACT VIA R.P (MTCamer)

GOOD CONDITION HEAD SPACE ABSENT DECHLORINATED IN LAB PRESERVATION
 APPROPRIATE CONTAINERS PRESERVED IN LAB _____
 VOAS O & G METALS OTHER

Chain of Custody Record

Lab job no. _____
 Date _____
 Page 2 of 2

Laboratory McCampbell Analytical Method of Shipment Courier
 Address 1534 Willow Pass Rd Shipment No. _____
Pittsburg CA 94565 Airbill No. _____
877-252-9262 Cooler No. Stellar Environmental S
 Project Owner _____ Project Manager Steve Bittman
 Site Address 5315 San Pablo Ave Telephone No. 510 644-3123
Oakland CA Fax No. _____
 Project Name R&H Auto Samplers: (Signature) Steve Bittman
 Project Number 2010-06

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Filtered	No. of Containers	Analysis Required										Remarks					
						Cooler	Chemical			1	2	3	4	5	6	7	8	9	10		11	12			
B4-21-22		3/5/10		S	Acetate 1.5'	✓			1	X	X														
B1-W				W	40ml VOA	✓	HCL		4	X	X														
B1-W				W	Amber Liter	✓			1		X														
B2-W				W	40ml VOA	✓	HCL		4	X															
B2-W				W	Amber Liter	✓			1		X														
B2-W2				W	40ml VOA	✓	HCL		3	X															HOLD
B2-W2				W	Amber Liter	✓			1		X														HOLD
B3-W				W	40ml VOA	✓	HCL		4	X															
B3-W				W	Amber Liter	✓			1		X														
B4-W				W	40ml VOA	✓	HCL		4	X															
B4-W		3/5/10		W	Amber Liter	✓			1		X														

+
+B
+10
+
+10

Filtered
 No. of Containers
 THIS BTEX & ORY's by 8260
 TELL

Relinquished by: <u>Steve Bittman</u> Signature: <u>Steve Bittman</u> Printed: <u>SES</u> Company: <u>SES</u>	Date: <u>3/8/10</u> Time: <u>1000</u>	Received by: <u>Rob King</u> Signature: <u>Rob King</u> Printed: <u>Rob King</u> Company: _____	Date: <u>3/8/10</u> Time: <u>245</u>	Relinquished by: <u>Rob King</u> Signature: <u>Rob King</u> Printed: <u>Rob King</u> Company: _____	Date: <u>3/8/10</u> Time: <u>345</u>	Received by: <u>Melissa Valle</u> Signature: <u>Melissa Valle</u> Printed: <u>MA</u> Company: _____	Date: <u>3/8/10</u> Time: <u>3:05pm</u>		
Turnaround Time: <u>5-day</u> Comments: <u>email results to: sbittman@stellar-environmental.com</u>				Relinquished by: _____ Signature: _____ Printed: _____ Company: _____				Received by: _____ Signature: _____ Printed: _____ Company: _____	

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1003226

ClientCode: SESB

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:	Steve Bittman	Email: sbittman@stellar-environmental.com,int	Bill to:	Accounts Payable	Requested TAT: 5 days
	Stellar Environmental Solutions	cc:		Stellar Enviormental Solutions	Date Received: 03/08/2010
	2198 Sixth St. #201	PO:		2198 Sixth St. #201	Date Printed: 03/08/2010
	Berkeley, CA 94710	ProjectNo: #2010-06; R & H Auto		Berkeley, CA 94710	
	(510) 612-8751 FAX (510) 644-3859				

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1003226-002	B1-14-15	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-003	B1-19-20	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-005	B2-12-13	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-006	B2-16-17	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-007	B2-19-20	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-009	B3-15-16	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-010	B3-19-20	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-012	B4-15-16	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-013	B4-21-22	Soil	3/5/2010	<input type="checkbox"/>	A												
1003226-014	B1-W	Water	3/5/2010	<input type="checkbox"/>			B										
1003226-015	B2-W	Water	3/5/2010	<input type="checkbox"/>			B										
1003226-017	B3-W	Water	3/5/2010	<input type="checkbox"/>			B										
1003226-018	B4-W	Water	3/5/2010	<input type="checkbox"/>			B										

Test Legend:

1	TPH(D)_S	2	TPH(D)_W	3		4		5	
6		7		8		9		10	
11		12							

The following SampIDs: 002A, 003A, 005A, 006A, 007A, 009A, 010A, 012A, 013A, 014A, 015A, 017A, 018A contain testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



Sample Receipt Checklist

Client Name: **Stellar Environmental Solutions**

Date and Time Received: **3/8/2010 5:40:38 PM**

Project Name: **#2010-06; R & H Auto**

Checklist completed and reviewed by: **Melissa Valles**

WorkOrder N°: **1003226** Matrix Soil/Water

Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Sample IDs noted by Client on COC? Yes No
- Date and Time of collection noted by Client on COC? Yes No
- Sampler's name noted on COC? Yes No

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes No NA
- Shipping container/cooler in good condition? Yes No
- Samples in proper containers/bottles? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No
 - Container/Temp Blank temperature Cooler Temp: 4.8°C NA
 - Water - VOA vials have zero headspace / no bubbles? Yes No No VOA vials submitted
 - Sample labels checked for correct preservation? Yes No
 - Metal - pH acceptable upon receipt (pH<2)? Yes No NA
 - Samples Received on Ice? Yes No
- (Ice Type: WET ICE)

* NOTE: If the "No" box is checked, see comments below.

Client contacted:

Date contacted:

Contacted by:

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mcccampbell.com E-mail: main@mcccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Extracted: 03/08/10-03/10/10
	Client P.O.:	Date Analyzed 03/09/10-03/10/10

TPH(g) by Purge & Trap and GC/MS*

Extraction method SW5030B

Analytical methods SW8260B

Work Order: 1003226

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS	Comments
002A	B1-14-15	S	1.6	1	108	
003A	B1-19-20	S	ND	1	117	
005A	B2-12-13	S	13	2	99	
006A	B2-16-17	S	ND	1	117	
007A	B2-19-20	S	ND	1	117	
009A	B3-15-16	S	3.7	1	74	
010A	B3-19-20	S	ND	1	116	
012A	B4-15-16	S	0.30	1	117	
013A	B4-21-22	S	ND	1	117	
014A	B1-W	W	890	1	100	
015A	B2-W	W	1500	2	105	b1
017A	B3-W	W	2300	2	108	
018A	B4-W	W	ND	1	98	b1

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	0.25	mg/kg

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment



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Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Extracted: 03/08/10
	Client P.O.:	Date Analyzed: 03/10/10

Oxygenates, MBTEX & Lead Scavengers by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 1003226

Lab ID	1003226-002A	1003226-003A	1003226-005A	1003226-006A	Reporting Limit for DF =1	
Client ID	B1-14-15	B1-19-20	B2-12-13	B2-16-17		
Matrix	S	S	S	S		
DF	1	1	2	1		

Compound	Concentration				mg/kg	ug/L
tert-Amyl methyl ether (TAME)	ND	ND	ND<0.010	ND	0.005	NA
Benzene	ND	ND	0.021	ND	0.005	NA
t-Butyl alcohol (TBA)	ND	ND	ND<0.10	ND	0.05	NA
Diisopropyl ether (DIPE)	ND	ND	ND<0.010	ND	0.005	NA
Ethylbenzene	ND	ND	0.18	ND	0.005	NA
Ethyl tert-butyl ether (ETBE)	ND	ND	ND<0.010	ND	0.005	NA
Methyl-t-butyl ether (MTBE)	ND	ND	ND<0.010	ND	0.005	NA
Toluene	ND	ND	ND<0.010	ND	0.005	NA
Xylenes	ND	ND	0.030	ND	0.005	NA

Surrogate Recoveries (%)

%SS1:	81	85	86	88
%SS2:	104	104	101	106

Comments

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.



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Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Extracted: 03/08/10
	Client P.O.:	Date Analyzed: 03/10/10

Oxygenates, MBTEX & Lead Scavengers by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 1003226

Lab ID	1003226-007A	1003226-009A	1003226-010A	1003226-012A	Reporting Limit for DF =1	
Client ID	B2-19-20	B3-15-16	B3-19-20	B4-15-16		
Matrix	S	S	S	S		
DF	1	1	1	1		

Compound	Concentration				mg/kg	ug/L
tert-Amyl methyl ether (TAME)	ND	ND	ND	ND	0.005	NA
Benzene	ND	ND	ND	ND	0.005	NA
t-Butyl alcohol (TBA)	ND	ND	ND	ND	0.05	NA
Diisopropyl ether (DIPE)	ND	ND	ND	ND	0.005	NA
Ethylbenzene	ND	ND	ND	ND	0.005	NA
Ethyl tert-butyl ether (ETBE)	ND	ND	ND	ND	0.005	NA
Methyl-t-butyl ether (MTBE)	ND	ND	ND	ND	0.005	NA
Toluene	ND	ND	ND	ND	0.005	NA
Xylenes	ND	ND	ND	ND	0.005	NA

Surrogate Recoveries (%)

%SS1:	88	80	87	87
%SS2:	106	101	105	105

Comments

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.



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Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Extracted: 03/08/10
	Client P.O.:	Date Analyzed: 03/10/10

Oxygenates, MBTEX & Lead Scavengers by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 1003226

Lab ID	1003226-013A				Reporting Limit for DF =1
Client ID	B4-21-22				
Matrix	S				
DF	1				

Compound	Concentration				mg/kg	ug/L
tert-Amyl methyl ether (TAME)	ND				0.005	NA
Benzene	ND				0.005	NA
t-Butyl alcohol (TBA)	ND				0.05	NA
Diisopropyl ether (DIPE)	ND				0.005	NA
Ethylbenzene	ND				0.005	NA
Ethyl tert-butyl ether (ETBE)	ND				0.005	NA
Methyl-t-butyl ether (MTBE)	ND				0.005	NA
Toluene	ND				0.005	NA
Xylenes	ND				0.005	NA

Surrogate Recoveries (%)

%SS1:	87			
%SS2:	106			

Comments

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.



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Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Extracted: 03/09/10
	Client P.O.:	Date Analyzed: 03/09/10

Oxygenates, MBTEX & Lead Scavengers by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 1003226

Lab ID	1003226-014A	1003226-015A	1003226-017A	1003226-018A	Reporting Limit for DF =1	
Client ID	B1-W	B2-W	B3-W	B4-W		
Matrix	W	W	W	W		
DF	1	2	1	1		

Compound	Concentration				ug/kg	ug/L
tert-Amyl methyl ether (TAME)	ND	ND<1.0	ND	ND	NA	0.5
Benzene	ND	11	ND	ND	NA	0.5
t-Butyl alcohol (TBA)	ND	ND<4.0	ND	ND	NA	2.0
Diisopropyl ether (DIPE)	ND	ND<1.0	ND	ND	NA	0.5
Ethylbenzene	ND	53	22	ND	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND	ND<1.0	ND	ND	NA	0.5
Methyl-t-butyl ether (MTBE)	ND	ND<1.0	ND	ND	NA	0.5
Toluene	ND	ND<1.0	ND	ND	NA	0.5
Xylenes	ND	9.5	0.54	ND	NA	0.5

Surrogate Recoveries (%)

%SS1:	96	97	109	93	
%SS2:	98	102	98	102	
Comments		b1		b1	

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment



McC Campbell Analytical, Inc.

"When Quality Counts"

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Stellar Environmental Solutions 2198 Sixth St. #201 Berkeley, CA 94710	Client Project ID: #2010-06; R & H Auto	Date Sampled: 03/05/10
		Date Received: 03/08/10
	Client Contact: Steve Bittman	Date Extracted: 03/08/10
	Client P.O.:	Date Analyzed 03/09/00-03/11/10

Total Extractable Petroleum Hydrocarbons*

Extraction method SW3510C/SW3550C

Analytical methods: SW8015B

Work Order: 1003226

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	DF	% SS	Comments
1003226-002A	B1-14-15	S	2.6	1	100	e2,e4
1003226-003A	B1-19-20	S	ND	1	90	
1003226-005A	B2-12-13	S	11	1	100	e11,e2
1003226-006A	B2-16-17	S	ND	1	106	
1003226-007A	B2-19-20	S	1.7	1	105	e2
1003226-009A	B3-15-16	S	2.2	1	110	e2,e11
1003226-010A	B3-19-20	S	1.1	1	104	e2
1003226-012A	B4-15-16	S	90	1	108	e7,e2
1003226-013A	B4-21-22	S	1.4	1	87	e2
1003226-014B	B1-W	W	360	1	91	e11
1003226-015B	B2-W	W	480	1	94	e11,b1
1003226-017B	B3-W	W	760	1	94	e11
1003226-018B	B4-W	W	430	1	94	e7,e2

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	1.0	mg/Kg

* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

- b1) aqueous sample that contains greater than ~1 vol. % sediment
- e2) diesel range compounds are significant; no recognizable pattern
- e4) gasoline range compounds are significant.
- e7) oil range compounds are significant
- e11) stoddard solvent/mineral spirit (?)



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Soil

QC Matrix: Soil

BatchID: 49117

WorkOrder 1003226

EPA Method SW8260B		Extraction SW5030B							Spiked Sample ID: 1003213-003A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	0.050	79.5	80.1	0.671	84.8	88.9	4.76	70 - 130	30	70 - 130	30
Benzene	ND	0.050	104	103	1.08	102	108	4.84	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	0.25	84.4	86.3	2.17	93.2	94.3	1.14	70 - 130	30	70 - 130	30
Chlorobenzene	ND	0.050	111	107	3.16	106	112	6.18	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	0.050	99.4	90.7	9.06	101	103	2.12	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	0.050	95.5	96.7	1.24	101	103	1.96	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	0.050	105	106	0.869	109	110	0.739	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	0.050	102	102	0	104	107	3.10	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	0.050	94	92.1	2.04	98.3	99.5	1.23	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	0.050	93	95.6	2.81	102	105	2.79	70 - 130	30	70 - 130	30
Toluene	ND	0.050	122	112	8.75	111	120	7.01	70 - 130	30	70 - 130	30
Trichloroethene	ND	0.050	100	101	1.27	102	108	5.84	70 - 130	30	70 - 130	30
%SS1:	85	0.13	79	82	3.22	82	83	0.673	70 - 130	30	70 - 130	30
%SS2:	108	0.13	113	108	4.86	111	111	0	70 - 130	30	70 - 130	30
%SS3:	111	0.013	116	125	7.79	112	115	2.93	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49117 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-002A	03/05/10	03/08/10	03/10/10 2:52 PM	1003226-003A	03/05/10	03/08/10	03/10/10 3:31 PM
1003226-005A	03/05/10	03/08/10	03/10/10 10:38 PM	1003226-006A	03/05/10	03/08/10	03/10/10 4:47 PM
1003226-007A	03/05/10	03/08/10	03/10/10 5:26 PM	1003226-009A	03/05/10	03/08/10	03/10/10 6:05 PM
1003226-010A	03/05/10	03/08/10	03/10/10 8:42 PM	1003226-012A	03/05/10	03/08/10	03/10/10 9:21 PM
1003226-013A	03/05/10	03/08/10	03/10/10 9:59 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / (MS + MSD) * 2.

MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery. The LCS and LCSD are spikes into a clean, known, similar matrix and they and the surrogate standards reflect the overall validity of their extraction batch. Our control limits are 70-130% recovery and a 30% RPD for the LCS-LCSD and for the Surrogate Standards.



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49102

WorkOrder 1003226

EPA Method SW8260B		Extraction SW5030B							Spiked Sample ID: 1003187-001a			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	95.6	101	5.42	86.1	89.1	3.51	70 - 130	30	70 - 130	30
Benzene	ND	10	118	120	1.54	109	115	4.59	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	86.1	100	15.4	83.7	83	0.845	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	99	100	0.990	104	107	2.12	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	96.9	99.9	3.09	96.1	100	3.99	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	119	123	3.24	101	107	5.53	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	105	106	1.18	103	109	5.16	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	1.2	10	125	129	2.50	115	119	3.47	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	111	115	4.04	98.4	104	5.08	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	118	124	4.78	107	110	2.63	70 - 130	30	70 - 130	30
Toluene	ND	10	100	100	0	91.4	97.9	6.84	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	101	103	1.50	105	108	3.58	70 - 130	30	70 - 130	30
%SS1:	96	25	98	98	0	91	92	0.833	70 - 130	30	70 - 130	30
%SS2:	103	25	105	104	0.875	103	104	0.249	70 - 130	30	70 - 130	30
%SS3:	93	2.5	114	110	3.61	99	91	8.11	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49102 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-014A	03/05/10	03/09/10	03/09/10 4:53 PM	1003226-015A	03/05/10	03/09/10	03/09/10 9:10 PM
1003226-017A	03/05/10	03/09/10	03/09/10 9:54 PM	1003226-018A	03/05/10	03/09/10	03/09/10 7:00 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / (MS + MSD) * 2.

MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery. The LCS and LCSD are spikes into a clean, known, similar matrix and they and the surrogate standards reflect the overall validity of their extraction batch. Our control limits are 70-130% recovery and a 30% RPD for the LCS-LCSD and for the Surrogate Standards.



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Soil

QC Matrix: Soil

BatchID: 49117

WorkOrder 1003226

EPA Method SW8260B		Extraction SW5030B							Spiked Sample ID: 1003213-003A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	0.050	79.5	80.1	0.671	84.8	88.9	4.76	70 - 130	30	70 - 130	30
Benzene	ND	0.050	104	103	1.08	102	108	4.84	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	0.25	84.4	86.3	2.17	93.2	94.3	1.14	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	0.050	99.4	90.7	9.06	101	103	2.12	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	0.050	95.5	96.7	1.24	101	103	1.96	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	0.050	102	102	0	104	107	3.10	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	0.050	94	92.1	2.04	98.3	99.5	1.23	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	0.050	93	95.6	2.81	102	105	2.79	70 - 130	30	70 - 130	30
Toluene	ND	0.050	122	112	8.75	111	120	7.01	70 - 130	30	70 - 130	30
%SS1:	85	0.13	79	82	3.22	82	83	0.673	70 - 130	30	70 - 130	30
%SS2:	108	0.13	113	108	4.86	111	111	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49117 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-002A	03/05/10	03/08/10	03/10/10 2:52 PM	1003226-003A	03/05/10	03/08/10	03/10/10 3:31 PM
1003226-005A	03/05/10	03/08/10	03/10/10 10:38 PM	1003226-006A	03/05/10	03/08/10	03/10/10 4:47 PM
1003226-007A	03/05/10	03/08/10	03/10/10 5:26 PM	1003226-009A	03/05/10	03/08/10	03/10/10 6:05 PM
1003226-010A	03/05/10	03/08/10	03/10/10 8:42 PM	1003226-012A	03/05/10	03/08/10	03/10/10 9:21 PM
1003226-013A	03/05/10	03/08/10	03/10/10 9:59 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49102

WorkOrder 1003226

EPA Method SW8260B		Extraction SW5030B							Spiked Sample ID: 1003187-001a			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	95.6	101	5.42	86.1	89.1	3.51	70 - 130	30	70 - 130	30
Benzene	ND	10	118	120	1.54	109	115	4.59	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	86.1	100	15.4	83.7	83	0.845	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	96.9	99.9	3.09	96.1	100	3.99	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	119	123	3.24	101	107	5.53	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	1.2	10	125	129	2.50	115	119	3.47	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	111	115	4.04	98.4	104	5.08	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	118	124	4.78	107	110	2.63	70 - 130	30	70 - 130	30
Toluene	ND	10	100	100	0	91.4	97.9	6.84	70 - 130	30	70 - 130	30
%SS1:	96	25	98	98	0	91	92	0.833	70 - 130	30	70 - 130	30
%SS2:	103	25	105	104	0.875	103	104	0.249	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49102 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-014A	03/05/10	03/09/10	03/09/10 4:53 PM	1003226-015A	03/05/10	03/09/10	03/09/10 9:10 PM
1003226-017A	03/05/10	03/09/10	03/09/10 6:17 PM	1003226-018A	03/05/10	03/09/10	03/09/10 7:00 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Soil

QC Matrix: Soil

BatchID: 49114

WorkOrder 1003226

EPA Method SW8015B		Extraction SW3550C							Spiked Sample ID: 1003222-002A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	ND	40	81.3	81.6	0.406	95.4	93.5	2.01	70 - 130	30	70 - 130	30
%SS:	99	25	96	98	1.49	91	88	3.56	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49114 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-002A	03/05/10	03/08/10	03/09/10 6:51 PM	1003226-003A	03/05/10	03/08/10	03/11/10 6:49 PM
1003226-005A	03/05/10	03/08/10	03/09/10 12:41 PM	1003226-006A	03/05/10	03/08/10	03/09/10 7:03 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Soil

QC Matrix: Soil

BatchID: 49123

WorkOrder 1003226

EPA Method SW8015B		Extraction SW3550C							Spiked Sample ID: 1003226-013A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	1.5	40	117	117	0	93	93.9	0.936	70 - 130	30	70 - 130	30
%SS:	111	25	112	111	0.354	89	90	1.31	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49123 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-007A	03/05/10	03/08/10	03/11/10 7:59 PM	1003226-009A	03/05/10	03/08/10	03/09/10 8:07 AM
1003226-010A	03/05/10	03/08/10	03/11/10 9:09 PM	1003226-012A	03/05/10	03/08/10	03/10/10 12:40 AM
1003226-013A	03/05/10	03/08/10	03/11/10 5:39 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 49122

WorkOrder 1003226

EPA Method SW8015B		Extraction SW3510C							Spiked Sample ID: N/A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	107	104	2.88	N/A	N/A	70 - 130	30
%SS:	N/A	625	N/A	N/A	N/A	94	94	0	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49122 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003226-014B	03/05/10	03/08/10	03/09/00 3:58 PM	1003226-015B	03/05/10	03/08/10	03/09/00 1:42 PM
1003226-017B	03/05/10	03/08/10	03/09/00 6:46 AM	1003226-018B	03/05/10	03/08/10	03/09/00 5:38 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.