SOIL AND GROUNDWATER INVESTIGATION RELATED TO AN EXISTING HEATING OIL UST

387 ORANGE STREET
OAKLAND, CALIFORNIA

Prepared for:

MS. MARY KRANZ
(EXECUTOR OF THE ESTATE OF DAVID ULIBARRI)
10106 CORONADO AVENUE NE
ALBUQUERQUE, NEW MEXICO

June 2007

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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Prepared by:

STELLAR ENVIRONMENTAL SOLUTIONS, INC.
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May 31, 2007

STELLAR
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May 31, 2007

Mr. Steven Plunkett
Hazardous Material Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Soil and Groundwater Investigation Related to an Existing Heating Oil UFST
387 Orange Street, Oakland, California (Fuel Leak Case No. RO0002921)

Dear Mr. Plunkett:

Stellar Environmental Solutions, Inc. (SES) is pleased to submit this report of findings for the recent site investigation at the referenced site, on behalf of the property executor (Ms. Mary Kranz) for the property owner. The objective of the work was to evaluate residual soil and potential groundwater contamination associated with a 500 to 1,000-gallon home heating underground storage tank beneath the sidewalk that fronts the subject property.

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

Sincerely,

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

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

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SUMMARY AND FINDINGS

This April 2007 site investigation by Stellar Environmental Solutions, Inc. (SES) follows an initial site investigation conducted in March 2006 by another environmental consultant, Clearwater Group (CG).

The scope of work for this April 2007 investigation implements the SES workplan, and incorporates technical comments from the workplan review letter by Alameda County Health Care Services Agency, Department of Environmental Health (ACEH), dated March 5, 2007.

The analytical results for soil revealed a maximum contaminant concentration of 100 milligrams per kilogram [mg/kg] of TEH as diesel [TEHd]) at a depth of approximately 18 feet below ground surface (bgs). The highest detected level of groundwater contamination was reported at 2,400,000 micrograms per liter [µg/L] of TEHd, collected from 21 feet below ground surface (bgs) immediately adjacent to the projected location of the underground fuel storage tank (UFST).

During this investigation, soil samples collected adjacent to the UFST near the fill port revealed the highest soil contamination (100 mg/kg). In the March 2006 investigation, the highest TEHd concentration (recorded at a substantially higher concentration of 15,000 mg/kg) was also detected in the boring adjacent to the UFST, near the fillport.

The results from these borings suggest a localized contaminant source with a steep vertical gradient, as evidenced by the absence of extensive lateral soil contamination and supported by the high level of TEHd detected in groundwater during this investigation (2,400,000 µg/L). Lithologic observations indicate moderately permeable soil ranging from fine sand to clayey silt that could promote a steep gradient. The contamination likely resulted from faulty piping, as the highest detected contamination was in borings closest to the fillport and service line, in both this April 2007 and previous March 2006 investigations. In addition, the UFST was purged of 340 gallons of product in 2006, which suggests that it had integrity at the base and up the lower sides at a minimum. The UFST may be concealing localized subsurface soil contamination located directly beneath it. The contaminant source may have entirely moved into groundwater, or if concealed beneath the UFST, may comprise an area of soil estimated to be 20 cubic yards or less

Groundwater in the immediate vicinity of the UFST occurs at a depth of 21 feet, and appears to be under unconfined conditions. Groundwater may be in contact with residual contaminated soil. The groundwater contaminant plume has not been fully delineated, but may be moving toward the west-southwest based on an inspection of site topography. However, additional groundwater investigation would be required to support this conclusion.

The extent of the groundwater contaminant plume is determined by the mass of residual soil contamination, hydrogeologic characteristics, and the ability of natural degradation mechanisms to reduce contaminant mass. Groundwater contamination will continue to migrate downgradient from the source area, primarily by advection.

RECOMMENDATIONS

- SES recommends following up with Alameda County Environmental Health (ACEH) after its receipt of this report, to discuss the requirements to achieve regulatory closure. Per ACEH requirements, this technical report will be provided to the appropriate regulatory agencies (including electronic uploads to Alameda County Environmental Health's ftp system and the State Water Resources Control Board's GeoTracker system).
- SES recommends the removal of the UFST, fill-port piping and the excavation of associated contaminated soil to the extent possible to meet the closure requirements. An attempt to complete temporary purging of the contaminated groundwater should also be completed at the same time. Removal of the UFST will necessitate removing and replacing at least 10 feet of sidewalk and possibly removing the plum tree on the city sidewalk strip.
- The groundwater at the site has been impacted and the lateral extent may need to be further evaluated.
- These investigation activities may be eligible for reimbursement from the California Underground Storage Tank Cleanup Fund (Fund), depending largely on the permit status of the UFST when it was removed. We recommend that you conduct an initial evaluation of your records to determine potential eligibility, and then initiate the Fund application if the results are favorable.

1.0 INTRODUCTION

SUBJECT PROPERTY UNDERGROUND STORAGE TANK HISTORY

The objective of the work was to evaluate residual soil and potential groundwater contamination associated with a 500 to 1,000 gallon home heating underground fuel storage tank (UFST) located beneath the sidewalk in front of the subject property.

The subject site UFST is typical of historical UFSTs that supplied fuel to the boiler to heat a residential unit before on-demand natural gas became widely used. Such fuel USTs were commonly buried beneath the sidewalk near the driveway, as in the case of the subject site UFST. The size of the UFST (500 to 1,000 gallons) is also typical for a residential heating oil UST. A site inspection revealed evidence of a fill pipe in the sidewalk area.

The regulatory history of this UFST evaluation project began in approximately October 2005, during the due diligence phase of the sale of the adjacent property located at 385 and 387 Orange Street (properties owned by the Ulibarri Estate). At that time, the 500-gallon (possibly 1,000-gallon) fuel UST between the 385 and 387 Orange Street residences, which was associated with historical fueling of a boiler located within the 387 Orange Street residence, was discovered. As part of the real estate agreement, it was stipulated that the Ulibarri Estate would be responsible for the regulatory closure of the fuel UST.

In February 2006, Ms. Mary Kranz, executor of the estate of David Ulibarri, retained Clearwater Group to initiate the environmental closure of the historical UFST. While Clearwater Group was originally retained to remove the UFST, the stringent site constraints prompted an application to the Oakland Fire Prevention Bureau to "Abandon/Close in Place" the 500-gallon UST (Tank Permit Number T-06-0008, granted on February 28, 2006). The closure in-place required that subsurface sampling be conducted to document if any residual contamination remained at concentrations of potential regulatory concern.

SITE INVESTIGATION HISTORY

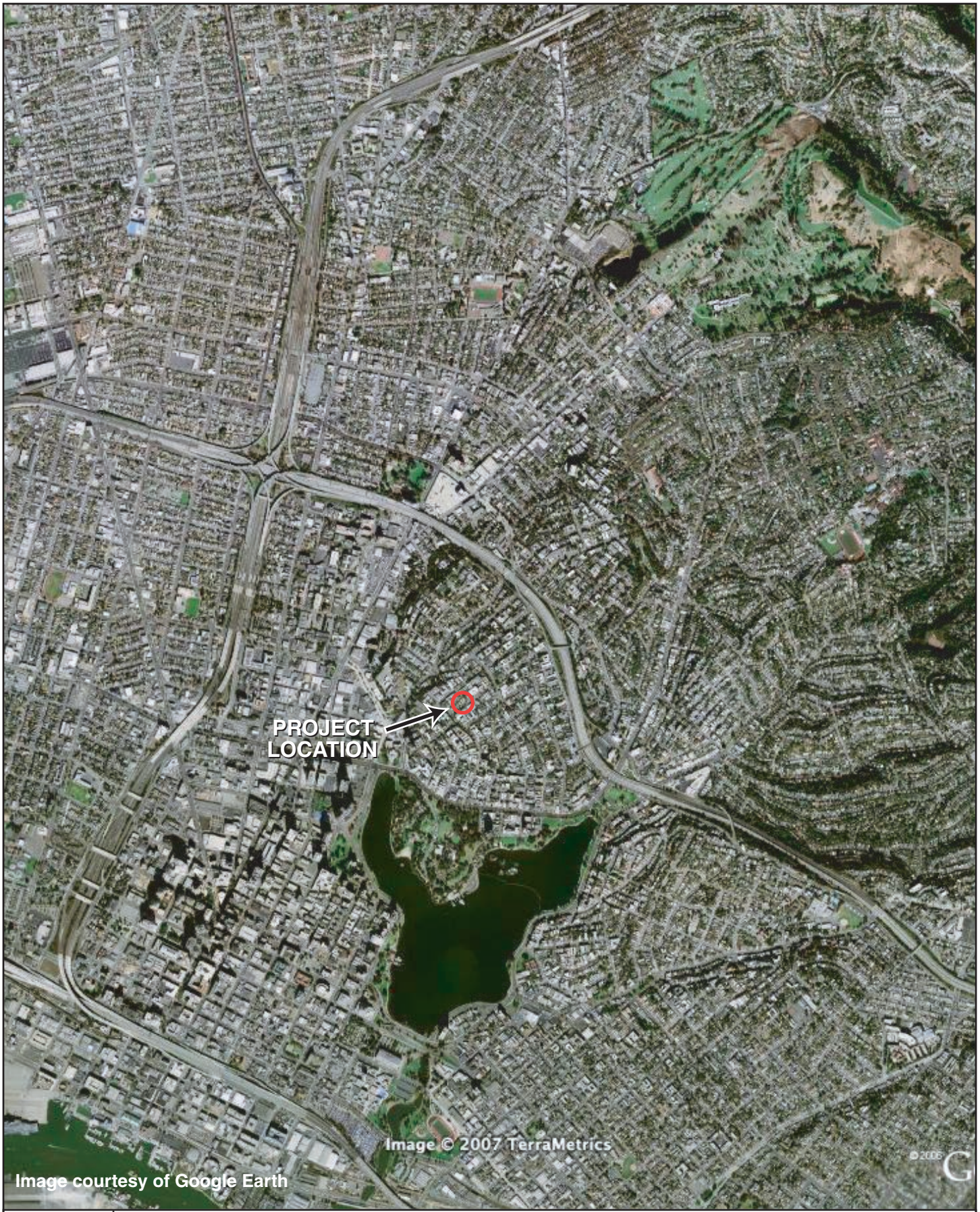
An initial site investigation by Clearwater Group in March 2006 documented soil contamination, including 15,000 milligrams per kilogram (mg/kg) of total extractable hydrocarbons as diesel (TEHd) and trace amounts of ethylbenzene and total xylenes. The Alameda County Health Care

Services Agency, Department of Environmental Health (Alameda County Environmental Health) requested, in a letter dated December 20, 2006, that the extent of soil contamination and potential groundwater contamination be investigated. SES, retained by Ms. Mary Kranz, submitted a technical workplan (dated January 31, 2007) to Alameda County Environmental Health. This investigation implements that workplan and incorporates the technical comments included in Alameda County Environmental Health's review letter, dated March 5, 2007. Both the March 2006 Clearwater Group investigation and the current SES investigation revealed subsurface contamination.

Figure 1 shows the site location. Figure 2 is a site plan showing the locations of the borings and the UFST. Appendix A contains photographic documentation of investigation activities.

REGULATORY STATUS

Alameda County Environmental Health has assigned the site to its fuel leak case system (#RO0002921), and a case officer has been appointed. The case has also been assigned as No. T06019730058 in the State Water Resources Control Board's GeoTracker system. Electronic uploads of required data/reports will be submitted to both of these agencies.



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SITE LOCATION ON AERIAL PHOTO

385-387 Orange St. Oakland, CA	By: MJC	JANUARY 2007
	Figure 1	

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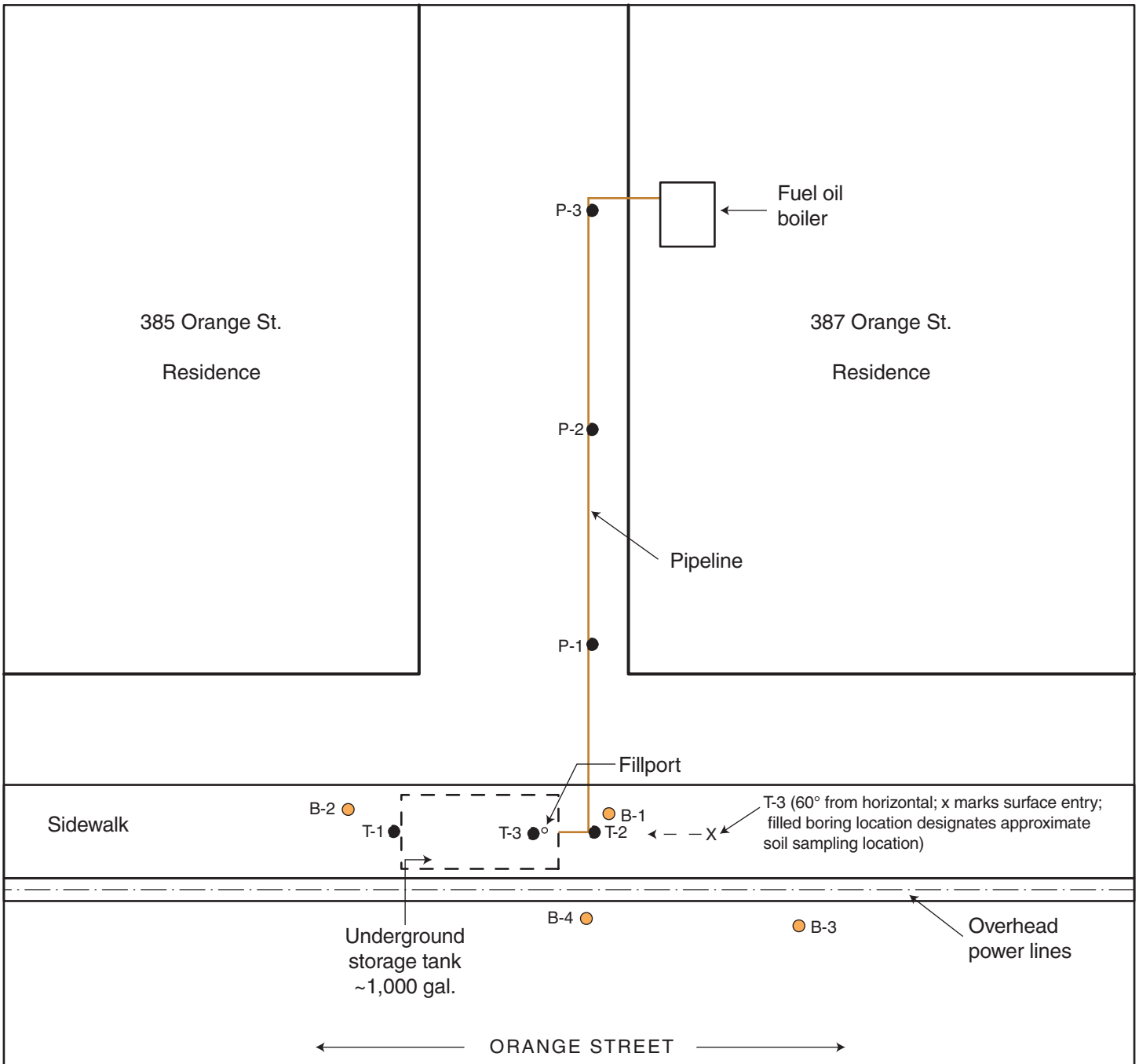

LEGEND

- T-2 Clearwater Group tank sample (2006)
- P-2 Clearwater Group pipeline sample (2006)
- B-1 SES boring (2007)

TPHd = Total parts hydrocarbons as diesel; concentrations in mg/kg

0 10

APPROX. SCALE IN FEET

Source: Clearwater Group

SITE PLAN AND LOCATION OF BORINGS

385-387 Orange St. Oakland, CA	By: MJC	APRIL 2007
	Figure 2	

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2.0 PHYSICAL SETTING

TOPOGRAPHY AND SURFACE WATER DRAINAGE

The site is on a gently sloping alluvial fan at the base of the Berkeley/Oakland Hills, which rise approximately 1,100 feet above mean sea level (amsl) and are located approximately 3 miles east of San Francisco Bay. The mean elevation of the subject property is approximately 105 feet above mean sea level (amsl). The subject property is in a moderately hilly area with a local downward sloping topographic gradient to the north-northwest. The nearest surface water body is Glen Echo Creek, a northeast-southwest trending creek located approximately 1,500 feet northwest to west of the subject property where it becomes culverted prior to emptying into Lake Merritt (located about 0.5 mile south-southwest of the site).

LITHOLOGY AND HYDROGEOLOGY

The site is underlain by Late Pleistocene alluvium that generally consist of weakly consolidated slightly weathered poorly sorted irregularly interbedded clay, silt, sand, and gravel. Local heterogeneities in shallow lithology and groundwater levels are typical of the alluvial deposits in this area.

Shallow site lithology was determined in the current investigations by the visual method of the Unified Soils Classification System (USCS) using continuous core soil samples from the two borehole programs. The lithology encountered in boreholes B-1 and B-2 consisted of light brown clayey silt from the ground surface that extended from 6 to 9 feet below ground surface (bgs); this was underlain by light brown silty clay to clay with occasional zones of interbedded fine sands that persisted to the bottom of the borings (which ranged from 22 to 24 feet bgs). In B-4, a clay interval was encountered from near surface to 6 feet bgs; this was underlain by clayey silt that extended to 11 feet bgs, at which depth it was underlain by the silty clay encountered in borings B-1 and B-2. Light brown yellow silt was encountered in boring B-A to a depth of 6 to 7 feet bgs, and was abandoned after encountering the top of the UFST.

The subject property is in the Oakland sub-area boundary of the East Bay Plains groundwater basin according to the East Bay Plain Groundwater Basin Beneficial Use and Evaluation Report (Water Board, 1999). This hydrologic sub-area, similar to much of the East Bay plains, consists

of a sequence of alluvial fans downslope of upland hill and estuarine muds at the Bay margins. Groundwater was encountered in borings B-1 and B-2 at approximately 21 feet bgs.

Appendix C contains borehole geologic logs compiled during this investigation.

3.0 EXPLORATORY BOREHOLE DRILLING AND SAMPLING

Exploratory borehole drilling and sampling was conducted on April 19, 2007 by EnProb Environmental Probing (C-57 License No. 777007), under the direct supervision of an SES Registered Geologist.

Soil and groundwater samples were collected and placed in an ice chest with ice at approximately 4°C and transported to the analytical laboratory under chain-of-custody the same day. Laboratory analysis was conducted by Curtis and Tompkins, Ltd. (of Berkeley, California), an analytical laboratory certified by the State of California Environmental Laboratory Accreditation Program (ELAP).

Figure 2 shows the borehole locations. Appendix A contains photodocumentation of the drilling activities. Permits are contained in Appendix B. Appendix C contains the borehole geologic logs.

PRE-FIELD WORK PLANNING AND PERMITTING

- Prior to drilling, SES marked the drilling locations with white paint and reported the planned drilling activities to Underground Service Alert of Northern California (USA North), which is responsible for notifying local utility companies to conduct a site-specific survey and mark underground utilities (USA ticket #119814).
- SES obtained and paid for the required borehole drilling permit from Alameda County Public Works Agency (ACPWA) (Permit No. W2007-0323). After being notified of the drilling schedule by SES, ACPWA inspected the grouting of the bores the afternoon of April 19, 2007.
- SES submitted a traffic control plan to the City of Oakland Public Works Agency, and obtained an excavation permit (#X0700343 and obstruction permit (#OB070227) as required when conducting work on a public street or sidewalk in the City of Oakland.

BOREHOLE DRILLING AND SAMPLING

The boreholes were drilled with a truck-mounted direct-push (GeoProbe™) rig that advances 2-inch-diameter steel outer drive casing lined with acetate sampling sleeves. Continuous soil

samples were collected for geologic logging. Site lithology was determined by geologic logging the core samples (results discussed in the previous section). Soil was placed in a clean glass jar with a Teflon lid, and screened with a photoionization detector (PID) that provides direct reading of total ionizable vapors (calibrated to isobutylene). This provides a qualitative screening for the presence and relative concentration of volatile hydrocarbons, and these measurements are noted on the geologic logs.

In accordance with Alameda County Environmental Health, at least one soil sample was collected from every borehole. In the boreholes that displayed no field evidence of contamination (discoloration, odor, or positive PID readings), that soil sample was collected at the capillary fringe (just above first occurrence of groundwater).

Soil samples were collected for laboratory analysis from critical depths, with the overall objectives of characterizing contaminant extent and local hydrogeology:

- Zones with high field evidence of contamination (discoloration or high PID)
- Capillary fringe (just above groundwater), which varied by depth depending on borehole due to the presence of water-bearing zones
- Saturated zone
- Changes in soil lithology
- Bottom of the boring

Four successful boreholes (B-1 through B4) were advanced, as shown on Figure 2. Borehole locations were selected to provide additional information on the extent of soil and groundwater contamination. Borehole BA was located approximately 4 feet from the previously (by Clearwater Group) mapped location of the UFST. At approximately 7 feet bgs, the top of the UFST was encountered by the drill rod, and boring BA was immediately abandoned. The drill rod did not appear to pierce the UFST. Only boring B-1 had a noticeable petroleum odor and measurable PID readings.

GROUNDWATER SAMPLING

Boreholes were advanced to the first occurrence of groundwater, as defined by sufficient groundwater entering the borehole to allow for the collection of groundwater samples. Groundwater samples were collected by inserting temporary PVC casing (with basal screen) into the borehole, allowing groundwater to infiltrate the casing, then withdrawing groundwater with a new disposable Teflon bailer.

Grab-groundwater samples were collected from two of the boreholes. Due to drilling refusal, the borings could not be advanced below 22 to 24 feet; therefore, groundwater could not be collected in borings B3 and B4. Boring B3 was cored for a grab-groundwater sample, and not continuously sampled for lithology; however, groundwater did not infiltrate into this boring.

DECONTAMINATION PROCEDURES AND BORE ABANDONMENT

All downhole equipment used for borehole drilling and sampling was decontaminated before each bore location and between sampling depths. All surfaces of the sampling equipment and materials were washed with water until all visible dirt, grime, and grease was rinsed from the equipment.

Following completion of drilling and sampling activities (the same day), the boreholes were tremie-grouted to surface with a slurry of neat Portland cement and potable water. Ms. Vicky Hamlin of ACPWA inspected the grouting of the bores on the afternoon of April 19.

Drill cuttings from the investigation were placed in labeled, covered, 5-gallon buckets, which were removed from the site. As a cost-savings measure, we recommend that this waste soil be held until it is known that no further waste soil will be generated.

4.0 REGULATORY CONSIDERATIONS, ANALYTICAL RESULTS, AND DISCUSSION OF FINDINGS

REGULATORY CONSIDERATIONS AND SCREENING LEVELS

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

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

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

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

The State of California has also promulgated drinking water standards (Maximum Contaminant Levels [MCLs]) for some of the site contaminants. Drinking water standards may also be

utilized by regulatory agencies to evaluate the potential risk associated with groundwater contamination. For the site contaminants, MCLs are generally the same as the ESLs (except that there is no MCL for gasoline).

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

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

As stated above, ESLs are used as a preliminary guide in determining whether additional remediation or other action is warranted. Exceedance of 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.

GROUNDWATER IMPACTS AND BENEFICIAL USES

How much groundwater contamination impacts the current and projected beneficial use of the groundwater? In general, impacts of contamination on the environment by petroleum products are evaluated on a case-by-case basis by the regulators, with consideration given to Water Board ESLs.

There are no known immediate impacts to the groundwater that affect current beneficial use, although the area of immediate site area is within the “Zone A” designation by Water Board “East Bay Plain Groundwater Basin Beneficial Use Evaluation Report” (Water Board, 1999). The Zone A designation calls the groundwater a “significant drinking water resource.” The nearest surface water body is Glen Echo Creek, a northeast-southwest trending creek located

approximately 1,500 feet northwest to west of the subject property where it becomes culverted prior to emptying into Lake Merritt (located about 0.5 mile south-southwest of the site).

LABORATORY ANALYSES

Soil and groundwater samples were submitted for the following laboratory analyses, in accordance with Alameda County Environmental Health requirements:

- TEHd – by EPA Method 8015M
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl *tertiary*-butyl ether (MTBE) – by EPA Method 8260B
- Lead scavengers (1,2-dichloroethane [EDC] and 1,2-dibromoethane [EDB]) – by EPA Method 8260B
- Fuel oxygenates (*tertiary*-butyl alcohol [TBA], di-isopropyl ether [DIPE], ethyl *tertiary*-butyl ether [ETBE], and *tertiary*-amyl methyl ether [TAME]) – by EPA Method 8260B
- Ethanol – by EPA Method 8260

Curtis and Tompkins, Ltd. (a California-certified analytical laboratory) completed all laboratory analyses

ANALYTICAL RESULTS

TEHd was detected at its ESL in one soil sample, and above its ESL in both groundwater samples collected during this investigation.

Table 1 summarizes the soil and groundwater analytical results. Figure 3 illustrates the soil results, and Figure 4 presents the groundwater results. Appendix D contains the certified analytical laboratory reports and chain-of-custody records for the soil and groundwater samples.

CONTAMINANT TRANSPORT CONCEPTUAL MODEL

The site conceptual model suggests that the onsite soil and groundwater contamination originated from leaks from the UFST fill pipe. The highest concentration of soil contamination was detected very close (within 2 feet) around the UFST fillport and service line, suggesting leakage from that area. The high concentration of groundwater contamination detected directly below the UFST, and the very limited lateral spread of contamination, suggest an almost vertically downward contaminant migration from the UFST and/or associated piping.

Based on its distribution in soil and groundwater, the fuel contamination appears to have migrated from the UFST leakage at the upper portion or where it connects to the fill pipe (the previous product removal shows containment integrity of the UFST base and sides), or from the

fill port overflow itself. The contamination then appears to have moved directly downward to groundwater, without significant lateral migration into soil or groundwater.

Table 1
Soil and Groundwater Analytical Results
387 Orange Street, Oakland, California
April 19, 2007

Sample ID	TEHd	BTEX	MTBE	Fuel Oxygenates	Lead Scavengers	Ethanol
Grab-Groundwater Samples [(a)]						
B-1-GW	**2,400,000**	ND	ND	ND	ND	ND
B-2-GW	**460**	ND	ND	ND	ND	ND
Borehole Soil Samples [(b)]						
B-1-13	2.5	ND	ND	ND	ND	ND
B-1-18	**100**	ND	ND	ND	ND	ND
B-2-14.5	3.7	ND	ND	ND	ND	ND
B-2-18	< 1.0	ND	ND	ND	ND	ND
B3-19	4.2	ND	ND	ND	ND	ND
B4-14	22	ND	ND	ND	ND	ND
B4-18	< 1.0	ND	ND	ND	ND	ND
B4-23	1.7	ND	ND	ND	ND	ND
ESLs	**100**	**1.0**	**40**	**30**	**13**	**5.0**

Notes:

[(a)] Groundwater concentrations are in micrograms per liter (µg/L).

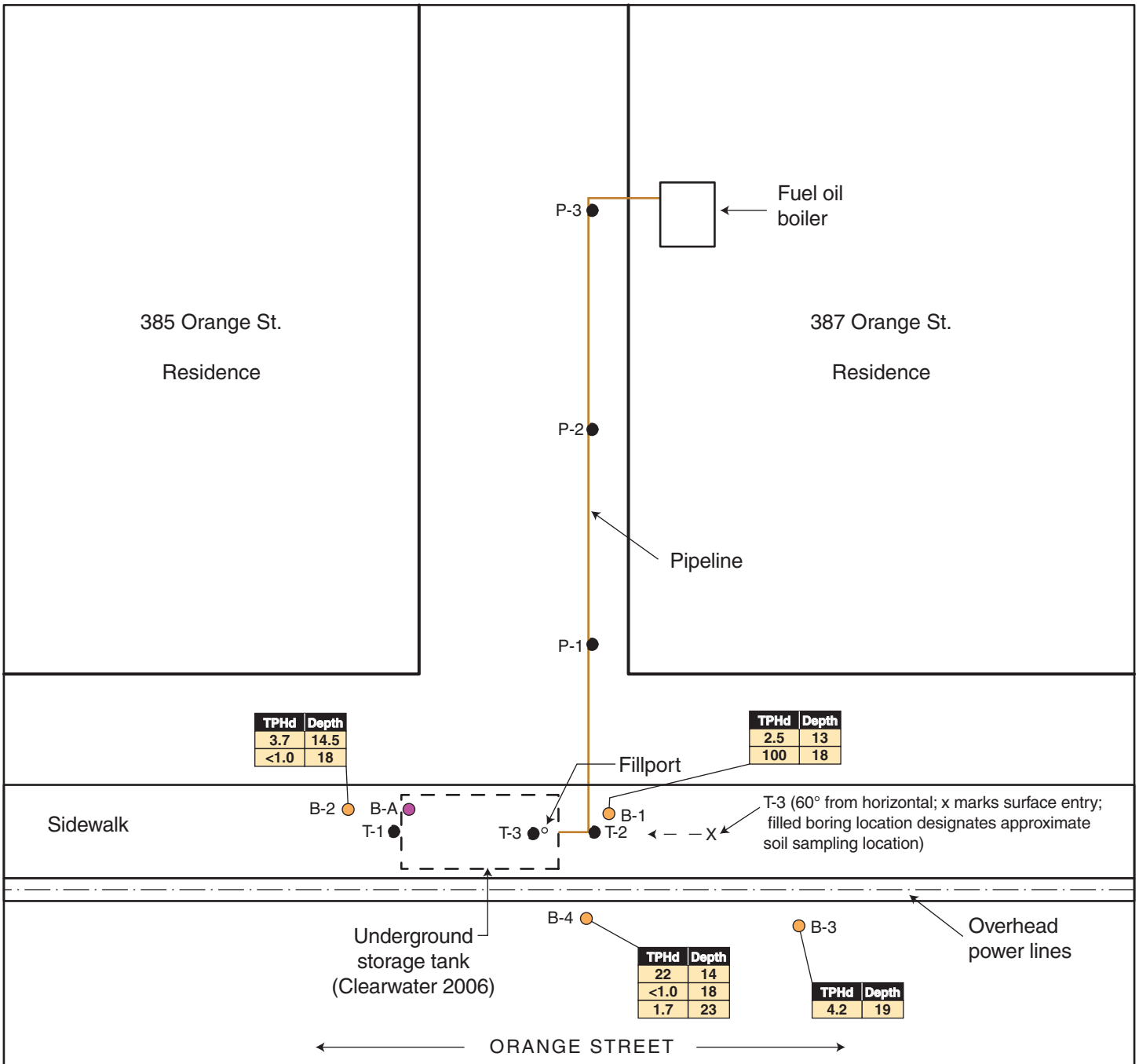
[(b)] Soil concentrations are in milligrams per kilogram (mg/kg).

BTEX = benzene, toluene, ethylbenzene, and total xylenes
MTBE = methyl tertiary-butyl ether
TEHd = total extractable hydrocarbons as diesel
Fuel oxygenates = TBA, DIPE, ETBE, and TAME
Lead scavengers = EDC and EDB

ND = none detected above laboratory reporting limit

ESLs = Water Board Environmental Screening Levels for residential sites where groundwater is a potential drinking water resource

Samples in **bold-face type** equal or exceed the ESL criteria.



LEGEND

- T-2 Clearwater Group tank sample (2006)
- P-2 Clearwater Group pipeline sample (2006)
- B-1 SES boring (2007)
- B-A Abandoned boring location (SES 2007)
- Inferred location of UST (CWG, 2006; SES, 2007)

TPHd=Total petroleum hydrocarbons as diesel concentrations in mg/kg

Source: Clearwater Group

0 10

APPROX. SCALE IN FEET

SOIL ANALYTICAL RESULTS

385-387 Orange St. Oakland, CA	By: MJC	MAY 2007
	Figure 3	

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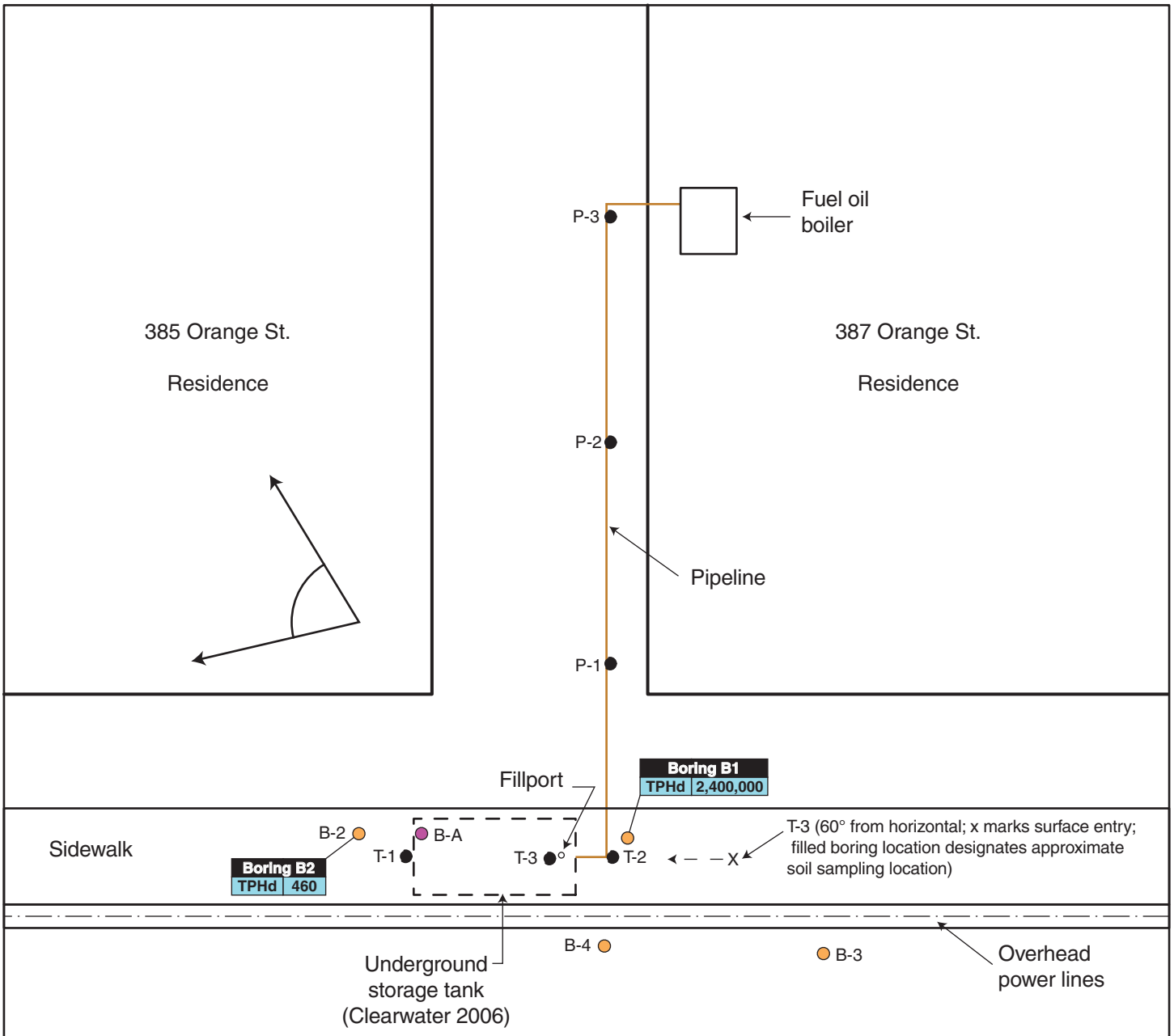

LEGEND

- T-2 Clearwater Group tank sample (2006)
- P-2 Clearwater Group pipeline sample (2006)
- B-1 SES boring (2007)
- B-A Abandoned boring location (SES 2007)
- Inferred location of UST (CWG, 2006; SES, 2007)

TPHd=Total petroleum hydrocarbons as diesel concentrations in μg/L

Presumed groundwater flow direction based on topography

0 10

APPROX. SCALE IN FEET

Source: Clearwater Group

GROUNDWATER ANALYTICAL RESULTS

385-387 Orange St. Oakland, CA	By: MJC	MAY 2007
	Figure 4	

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2007-09-08

There appears to be a pooled zone of free-floating product in the groundwater beneath the UFST; however, the dissolved concentration drops off 4 orders of magnitude within a relatively short distance (25 feet) in the presumed downgradient direction between bores B-1 and B-2. As suggested by the groundwater contamination detected in boring B-2, the petroleum product moved down through relatively uniform fine sand and silt stratigraphy, until it reached the groundwater layer where it traveled laterally at least 25 feet to the west. Topographic evidence suggests that the downgradient direction is to the west-southwest.

Numerous field and laboratory studies have concluded that the subsurface behavior of petroleum hydrocarbons is significantly impacted by their high capacity to undergo biodegradation (Lawrence Livermore National Laboratory, 1995). A variety of naturally-occurring microorganisms utilize petroleum hydrocarbons as a carbon (food) source. Biodegradation of hydrocarbons can occur under anaerobic conditions, but is more highly favored in aerobic conditions.

Biodegradation should be enhanced following excavation and removal of the UFST and associated contaminated soil to the extent possible given the limited access conditions of the site. Aerobic conditions would be increased by the removal of contaminated soil and replacement with more permeable backfill material. Most hydrocarbon plume conceptual models show biodegradation of petroleum hydrocarbons in groundwater as having a significant role in creating a stable plume, minimizing groundwater plume configuration and concentrations over time (Lawrence Livermore National Laboratory, 1995).

In general, natural attenuation of petroleum in groundwater is very likely occurring, unless petroleum concentrations are sufficient to overwhelm the biodegradation process (i.e., in the high-concentration area of the plume at this site). In these areas, biodegradation progresses occur until one of the process-limiting factors (usually oxygen) is depleted to the point at which biodegradation is not supported.

5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY AND CONCLUSIONS

- This April 2007 site investigation follows a preliminary site investigation in March 2006 which showed a significant diesel concentration in soil beneath the UFST in close proximity to the fillport and service piping.
- No groundwater sampling was completed in the March 2006 investigation, leaving the question of potential groundwater impacts open, which resulted in the lead regulatory agency, ACEH, requesting additional site characterization work be completed.
- The field work completed in April 2007 followed, to the extent possible, the SES workplan of March 2007 approved by ACEH.
- This site investigation was designed to document the extent and magnitude of residual UFST-related soil and groundwater contamination in the immediate vicinity of the formerly used UFST.
- Site soil and groundwater have been contaminated by diesel grade (heating oil) hydrocarbons. Soil analytical results show that soil contamination began at a depth of approximately 18 feet, and extended to the first occurrence of groundwater at 21 feet.
- Four boreholes were drilled and sampled in areas and at depths likely to intercept UFST and associated piping sourced contamination, and to investigate the vertical and lateral extent of soil and potential groundwater contamination.
- This investigation did not reveal a significant source of soil contamination. It appears that either much of the contaminant source in soil migrated into the underlying groundwater or that additional sources of soil contamination is concealed beneath the UFST. The general absence of odor, discoloration, and measurable PID readings in surrounding soils suggest that any existing contaminant source is concealed and contained mainly beneath the UFST. Estimating from the reported size of the UFST, a concealed source would likely be 20 cubic yards or less.
- The highest contamination encountered during this investigation was in groundwater directly in the vicinity of the UFST, at 2,400,000 µg/L. Concentrations exceeding a value of 1,000,000 µg/L are generally considered indicative of free-floating petroleum product.

- Topographic evidence suggests that the downgradient direction is to the west-southwest. While groundwater flow direction has not been determined at the site, it is likely to the west-southwest (toward Glen Echo Creek and Lake Merritt, following local topography). It is very likely that groundwater contamination above ESL criteria extends offsite.
- The extent of the contaminant plume is determined by the mass of residual soil contamination, hydrogeologic characteristics, and the ability of natural degradation mechanisms to reduce contaminant mass. Groundwater contamination will continue to migrate downgradient from the source area, primarily by advection.
- The dissolved phase hydrocarbon contamination in the groundwater appears to have a moderate degree of adsorption onto surrounding soils.
- All technical reports are to be provided to the appropriate regulatory agencies, including electronic uploads to Alameda County Environmental Health's ftp system and the State Water Resources Control Board's GeoTracker system.

RECOMMENDATIONS

- SES recommends that the UFST be excavated, along with associated contaminated soil and temporary groundwater extraction to remove the contaminant source. This is a key requirement for closure in which significant residual contamination exists above the regulatory ESLs (which is the case with the subject property). SES proposes that the UFST and fill piping be removed, and that the soil directly beneath it be screened. If, as suggested, contaminated soil is revealed, we recommend that it be excavated to the extent possible. Some portion of the contaminant source has moved into groundwater, as indicated by the data, at a depth of approximately 20 feet bgs. The contaminated soil beneath the UFST to be removed would likely constitute 20 cubic yards or less.
- Several site constraints exist to severely complicate the efficient UFST removal remedy—including a plum tree that would require removal, at least 10 feet of sidewalk area that would require replacement, and temporary closure of the street to traffic.
- SES recommends completing a workplan for Alameda County Environmental Health approval and discussing the requirements to move the site toward regulatory closure.
- We further recommend that the workplan be approved by Alameda County Environmental Health to better ensure the successful compensation of the work by the California Underground Storage Tank Cleanup Reimbursement Fund (Fund). These investigation activities may be eligible for reimbursement from the Fund, depending largely on the permit status of the UFST and other factors. SES recommends the completion of an initial application for the Fund after an assessment to determine eligibility. If the results are favorable, the Fund application can then be further pursued.

6.0 REFERENCES

Alameda County Health Care Services Agency, Department of Environmental Health (Alameda County Environmental Health), 2007. Letter approving technical workplan for 385-387 Orange Street, Oakland, California. March 5.

Burke, D.B., E.J. Helley, and K.R. LaJoie, 1974. Geologic Map of the Flatland Deposits of the Northwestern Part of the San Francisco Bay Region. U.S. Geological Survey.

Clearwater Group, 2006. Interim Underground Storage Tank Investigation Report, 385-387 Orange Street, Oakland, California. March 14.

Lawrence Livermore National Laboratory, 1995. California Leaking Underground Fuel Tank Historical Case Analyses (UCRL-AR-121762).

Regional Water Quality Control Board – San Francisco Bay Region (Water Board), 2006. Environmental Screening Levels for shallow soils and groundwater for residential or commercial areas where groundwater is a potential drinking water source. November 6.

Regional Water Quality Control Board – San Francisco Bay Region (Water Board), 1999. East Bay Plains Beneficial Use Study, San Francisco Bay. June 15.

U.S. Geological Survey (USGS), 1959. Oakland West 7.5-minute Quadrangle, 1:24000 Scale, photorevised 1959.

7.0 LIMITATIONS

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

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

APPENDIX A

Photodocumentation

Subject: Drilling at location B1	
Site: 385-397 Orange Street, Oakland, CA	
Date Taken: April 19, 2007	Project No.: SES 2007-09
Photographer: H. Pietropaoli	Photo No.: 01

Subject: UST fillport in sidewalk	
Site: 385-397 Orange Street, Oakland, CA	
Date Taken: April 19, 2007	Project No.: SES 2007-09
Photographer: H. Pietropaoli	Photo No.: 02

Subject: Drilling at location B2	
Site: 385-397 Orange Street, Oakland, CA	
Date Taken: April 19, 2007	Project No.: SES 2007-09
Photographer: H. Pietropaoli	Photo No.: 03

Subject: Drilling at location B4	
Site: 385-397 Orange Street, Oakland, CA	
Date Taken: April 19, 2007	Project No.: SES 2007-09
Photographer: H. Pietropaoli	Photo No.: 04

Subject: Drilling at location B1	
Site: 385-397 Orange Street, Oakland, CA	
Date Taken: April 19, 2007	Project No.: SES 2007-09
Photographer: H. Pietropaoli	Photo No.: 05

Subject: Grouting with tremie pipe at boring B2	
Site: 385-397 Orange Street, Oakland, CA	
Date Taken: April 19, 2007	Project No.: SES 2007-09
Photographer: H. Pietropaoli	Photo No.: 06

APPENDIX B

Regulatory Notifications and Permits

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: 03/27/2007 By jamesy

Permit Numbers: W2007-0323
Permits Valid from 04/18/2007 to 04/18/2007

Application Id: 1175013607865
City of Project Site: Oakland
Site Location: 387 Orange Street
Oakland, CA 94610
Project Start Date: 04/18/2007
Completion Date: 04/18/2007

Applicant: Stellar Environmental Solutions Inc. - Henry Pietropaoli
2198 Sixth Street, Berkeley, CA 94710
Phone: 510-644-3123

Property Owner: Mary Kranz (executor) Estate of David Ulibarri
10106 Coronado Ave, Albuquerque, NM 87122
Phone: 505-342-7617

Client: Mary Kranz
10106 Coronado Ave, Albuquerque, NM 81722
Phone: 505-432-7617

Contact: Henry Pietropaoli
Phone: 510-644-3123
Cell: 510-295-3544

Total Due: $200.00
Receipt Number: WR2007-0141 **Total Amount Paid:** $200.00
Payer Name : Stellar Enviro Solutions Paid By: MC **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 5 Boreholes
Driller: Enprob Environmental Probing - Lic #: 777007 - Method: DP **Work Total: $200.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2007-0323	03/27/2007	07/17/2007	5	3.00 in.	40.00 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.

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 Vicky Hamlin for an inspection time at 510-670-5443 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. 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.

6. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

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.

777 3211

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

PAGE 2 of 2

Permit valid for 90 days from date of issuance.

PERMIT NUMBER	SITE ADDRESS/LOCATION
X 0 7 0 0 3 4 3	* 385-387 Orange St Oakland
APPROX. START DATE: 4/19/2007 — APPROX. END DATE: 4/19/2007	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number): 510 295 3544
CONTRACTOR'S LICENSE # AND CLASS: CA 777007 C57	CITY BUSINESS TAX #: 322462

ATTENTION:

1- State law requires that the contractor/owner call Underground Service Alert (USA) two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1-800-642-2444. Underground Service Alert (USA) # _____

2- 48 hours prior to starting work, you MUST CALL (510) 238-3651 to schedule an inspection.

3- 48 hours prior to re-paving, a compaction certificate is required (waived for approved slurry backfill).

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____.

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X _____

Signature of Permittee ☐ Agent for ☒ Contractor ☒ Owner — Date _____

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☐ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☐ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☐ NO
ISSUED BY		DATE ISSUED	

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • Fax (510) 238-2263

Applications for which no permit is issued within 180 days shall expire by limitation.

Job Site 385 ORANGE ST Parcel# 010 -0794-007-00 Appl# X0700343

Descr soil boring Permit Issued 04/05/07

Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job # Acctg#:
Util Fund #:

		Applcnt	Phone#	Lic#	--License Classes--
Owner	ms M. Krantz/Ulibarri estate ~~POYWING GLEN & ELIZABETH~~				
Contractor	ENPROB ENVIRONMENTAL PROBING	X	(530)589-2019	777007	C57
Arch/Engr					
Agent	STELLER ENVIRON/H PIETROPAOLI		(510)644-3123		
Applic Addr	P O BOX 6093, OROVILLE, CA, 95966				

$414.25	TOTAL FEES PAID AT ISSUANCE		
$61.00	Applic	$300.00	Permit
$.00	Process	$34.30	Rec Mgmt
$.00	Gen Plan	$.00	Invstg
$.00	Other	$18.95	Tech Enh

JOB SITE

ADDRESS:

DIST:

Date: 04/05/07 Amt Paid: $1,761.43
By: DLR Register and Receipt# 101655

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • Fax (510) 238-2263

Applications for which no permit is issued within 180 days shall expire by limitation.

Job Site 385 ORANGE ST Parcel# 010 -0794-007-00 Appl# OB070227

soil boring block s/w per approved TCP & reserve parking Permit Issued 04/05/07
Post 72 hours prior

Nbr of days: 1 Linear feet: 250
Effective: 04/19/07 Expiration: 04/19/07

SHORT TERM NON-METERED

		Applcnt	Phone#	Lic#	--License Classes--
Owner	~~DOYWING GLEN & ELIZABETH~~ Ms M. Krantz/Ulibarri Estate				
Contractor	ENPROB ENVIRONMENTAL PROBING	X	(530)589-2019	777007	C57
Arch/Engr					
Agent	STELLER ENVIRON/H PIETROPAOLI		(510)644-3123		
Applic Addr	P O BOX 6093, OROVILLE, CA, 95966				

$242.13 TOTAL FEES PAID AT ISSUANCE

$61.00 Applic	$150.00 Permit
$.00 Process	$20.05 Rec Mgmt
$.00 Gen Plan	$.00 Invstg
$.00 Other	$11.08 Tech Enh

ADDRESS:

JOB SITE

DIST:

Notify Fire Marshal
72 hr

TCP needs to be approved by Transportation Services every 30 days or whenever deviated from the previously approved plan.

Applicant: Henry Pietropaoli 4/5/07

Issued by: _____

Date: 04/05/07 Amt Paid: $242.13
By: BLK Register # Receipt 131652

APPLICATION FOR TRAFFIC CONTROL PLAN

Transportation Services Fee: $100/hour
(Check or Money Order Only)

City of Oakland

Public Works Agency
Transportation Services Division

Check the box that apply:
- [x] **New Application** (Utility, Excavation)
- [ ] **Renewal Application**
- [ ] **New Development w/ Mgmt Plan**
- [ ] **City of Oakland Project**

RECEIVED
PUBLIC WORKS AGENCY
TRAFFIC ENGINEERING
07 MAR 26 PM 12:02

Please read the following:

1. Processing time for a Traffic Control Application is a minimum of 10 working days.
2. Traffic Control review is scheduled only on Tuesdays and Thursdays from 8:30am thru 11:30am by appointment only.
3. A scheduled appointment by phone or email with a TSD staff member is necessary to discuss any and all traffic control application and plans.
4. Please call ahead to confirm that the traffic control application is ready for pickup @ 510-238-3467.
5. Businesses and residences adjacent to the work area must be provided 72 hour advance notice.
6. A completed traffic control application may be faxed to (510) 238-7415.
7. Incomplete traffic control applications will not be processed and will be returned to applicant.
8. The initial approval for a traffic control plan is 1 month, the renewal submittal may be approved up to 3 months.
9. The traffic control provision dates cannot be changed or extended if work has already commenced.
10. Upon receiving TSD approval of the traffic control plan, the applicant (or contractor) shall proceed to the Building Services Division of CEDA to obtain an "Obstruction Permit." CEDA is located at 250 Frank Ogawa Plaza, 2nd Floor, Oakland, CA 94612.

Contact Person: Henry Pietropaoli Phone: 510 644-3123
Name of Company: Stellar Environmental Solutions Fax: 510 644-3859
Address of Company: 2198 Sixth St Berkeley, CA 94710
Describe type of work to be performed: Exploratory environmental boring / sampling

Location of work: 385-387 Orange St Between* Perkins St And* Pearl St.
Between* And*
* Name the streets that are the boundaries of your work area.

Work date (s): [x] Mon-Fri [ ] Sat-Sun [ ] Mon-Fri [ ] Sat-Sun Work Hours: 8 am to 6 pm to

3rd or 4th week of April 2007

April 19, 2007

Please Follow these Steps to Complete a Traffic Control Plan

A. **Drawing Area**: The full width of all streets adjacent to the site MUST be included in the drawing. Include the entire block in which your work is located for every street that is adjacent to your site.

B. **Include Street Names, Direction of Traffic on the Street, and North Arrow**

C. **Show Existing Number of Lanes in all Directions** (with any pavement arrows)

D. **Check the Box(s) that Apply:** All checked items MUST be shown on the drawing

- [ ] Lane Closure
- [ ] Street Closures (must provide detour plan)
- [ ] Use of Median
- [ ] Use Parking Lane
- [x] Sidewalk Closure (must provide pedestrian walk way)

E. **Show All Dimensions** of street widths (curb to curb), lane widths, sidewalk widths, and work area dimension.
(Note: Traffic Control Application / Plans missing the above information will not be accepted or processed.)

F. **Show the Name and Locations** of all advanced warning devices, flaggers, delineators, warning and construction signs to be used.

RENEWAL PROCESS: Resubmit a completed Traffic Control Application with the old approved plan (with the necessary modifications / changes to the plans).

FOR HELP in constructing a traffic control plan please refer to the "WATCH" hand book or chapter 5 of the MUTCD manual available online at: http://www.dot.ca.gov/hq/traffops/signtech/signdel/chp5/chap5.htm

For our Website: http://www.oaklandpw.com/transportation/traffic_control_plan.htm

SPECIAL PROVISION 7-10.1 TRAFFIC REQUIREMENTS

Project Name: _____
Project Number: TSD-07-0054
Reviewed By: JWatson
Date: _4/04/2007_
Permit good from___4/19/2007___
to____4/19/2007___

ADD NEW SUBSECTION TO READ:
SP 7-10.1.4 Vehicular Traffic

Attention is directed to Section 7-10. Public Convenience and Safety, of the City of Oakland Standard Specification for Public Works Construction, 2000 Edition (Include this paragraph for p-jobs, excavation permits or obstruction permits).

The Contractor shall conduct its work in such a manner as to provide public convenience and safety and according to the provisions in this subsection. The provisions shall not be modified or altered without written approval from the Engineer.

Standard traffic control devices shall be placed at the construction zone according to the latest edition of the Work Area Traffic Control Handbook or Caltrans Traffic Manual, Chapter 5 – "Traffic Controls for Construction and Maintenance Work Zone," or as directed by the Engineer.

All trenches and excavations in any public street or roadway shall be back filled and opened to traffic, or covered with suitable steel plates securely placed and opened to traffic at all times except during actual construction operations unless otherwise permitted by the Engineer.

Each section of work shall be completed or temporarily paved and open to traffic in not more than 5 days after commencing work unless otherwise permitted in writing by the Engineer.

Where construction encroaches into the sidewalk area, a minimum of 5 ½ feet of unobstructed sidewalk shall be maintained at all times for pedestrian use. Pedestrian barricades, shelter, and detour signs per Caltrans standards may be required.

The contractor shall conduct its operation in such a manner as to leave the following traffic lanes unobstructed and in a condition satisfactory for vehicular travel during the Obstruction Period. At all times traffic lanes will be restricted and reopened to travel. Emergency access shall be provided at all times.

Street Name Limits	Obstruction Period	North Bound	South Bound	East Bound	West Bound
Orange Street between Pearl Street and Perkins Street	Mon – Fri 9am – 4pm	N/A	N/A	N/A	Sidewalk Closure

The Contractor Shall Also include all check item:

1. ☐ Design a construction traffic control plan and submit (2) copies to the Engineer for approval prior to starting any work.
2. ☒ Replace all signs, pavement markings, and traffic detector loops damaged or removed due to construction within 3 days of completion of work or the final pavement lift.
3. ☒ Provide advance notice to Oakland Police at (510) 615-5874 (24-hrs) and Oakland Fire at (510) 238-3331 (2-rhs) when a single lane of traffic or less is provided on any street.
4. ☒ Provide 72-hour advance notice to AC Transit at (510) 891-4909 when affecting a bus stop.
5. ☒ For Caltrans roadways, ramps, or maintained facilities, the Contractor shall obtain appropriate permits and notify the Traffic Management Center 24 hours in advance of any work.
6. ☐ Flagger control is required. Certified Flagger is required.
7. ☐ Pedestrian walkway by K-rail, Canopy or Plywood is required. (See detour plan)
8. ☒ Pedestrian traffic shall be maintained and guided through the project at all times.
9. ☒ Provide advance notice to Business and Residence within 72-hours.
10. ☒ Allow all traffic movement at intersection.

Nothing specified herein shall prohibit emergency work and/or repair necessary to ensure public health and safety.

APPENDIX C

Borehole Geologic Logs

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring and Well Construction Log

BORING NUMBER B1 Page 1 of 1

PROJECT 385-387 Orange St. OWNER Mary Kranz/Ulibarri Estate

LOCATION Oakland, CA PROJECT NUMBER 2007-09

TOTAL DEPTH 23 feet bgs BOREHOLE DIA. 2.5 inches

SURFACE ELEV. _____ WATER ENCOUNTERED 21 feet

DRILLING COMPANY Enprobe DRILLING METHOD Geoprobe direct push

DRILLER Jeff GEOLOGIST H. Pietropaoli DATE DRILLED 4/19/07

DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	NOTES
0			4 inches concrete with underlying gravel (3 inches)	
			Light brown clayey silt (ML), hard, moist, angular fragments	
5		0.0		
		0.0	Light brown clayey silt (ML), dark gray-black inclusions, moist, soft, plastic, blue-green discoloration at 15 feet. Heavy fuel odor at 17 feet, interbedded fine-grain sand, mod.-well sorted, loose, saturated below 21 feet.	
10	B1-13			
15		42		
	B1-18	180		
20		▼		
			Bottom of bore = 23 feet	
25				

Notes:
PID = Photoionization Detector "Readings" are in parts per million per volume air (ppmv)

Continuous core sampling—100% core recovery unless specified otherwise

B1-13 Sample submitted for lab analysis

B1-GW groundwater sample collected

2007-09-03

▼ Groundwater encountered

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring and Well Construction Log

BORING NUMBER B2 Page 1 of 1

PROJECT 385-387 Orange St.
OWNER Mary Kranz/Ulibarri Estate
LOCATION Oakland, CA
PROJECT NUMBER 2007-09
TOTAL DEPTH 22 feet bgs
BOREHOLE DIA. 2.5 inches
SURFACE ELEV.
WATER ENCOUNTERED 22 feet
DRILLING COMPANY Enprobe
DRILLING METHOD Geoprobe direct push
DRILLER Jeff
GEOLOGIST H. Pietropaoli
DATE DRILLED 4/19/07

DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	NOTES
0			4 inches concrete with underlying gravel	
		0.0	Light brown clayey silt (ML), hard, moist, angular fragments	
5		0.0	Light brownish gray clayey silt (ML), firm to hard, dry	
			Light brown clayey silt (ML), medium plastic, damp, silty zones	
10		0.0	As above with black organics	
15	B2-14.5	0.0	Light brown, stiff, damp	
	B2-18			
20		0.0	As above, moist to wet	
			As above, with interbedded fine-grained sand, saturated	
25			Bottom of bore = 22 feet	

Notes:
PID = Photoionization Detector "Readings" are in parts per million per volume air (ppmv)

Continuous core sampling—100% core recovery unless specified otherwise

B2-14.5
Sample submitted for lab analysis

B2-GW groundwater sample collected

▼ Groundwater encountered

2007-09-04

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring and Well Construction Log

BORING NUMBER B4 Page 1 of 1

PROJECT 385-387 Orange St. OWNER Mary Kranz/Ulibarri Estate

LOCATION Oakland, CA PROJECT NUMBER 2007-09

TOTAL DEPTH 24 feet bgs BOREHOLE DIA. 2.5 inches

SURFACE ELEV. _____ WATER ENCOUNTERED NA

DRILLING COMPANY Enprobe DRILLING METHOD Geoprobe direct push

DRILLER Jeff GEOLOGIST H. Pietropaoli DATE DRILLED 4/19/07

DEPTH (feet)	GRAPHIC LOG	PID	DESCRIPTION/SOIL CLASSIFICATION	NOTES
0			4-6 inches asphalt	
			Light brown clay (CL), plastic, medium stiff, damp	
5		0.0		
			Clayey silt to fine-grained sand (ML), dark black spots, mottled light brown and gray, <2% white chert fragments (≤1/4 inch), friable, loose	
10		0.0		
	B4-14	0.0	Light brown clayey silt (ML), soft, plastic, damp, occasional streaks of blue-green discoloration, interbedded fine-grained sand below 16 feet, saturated at 18 feet, very hard to push rods	
15				
	B4-18	0.0		
20				
	B4-23			
25			Bottom of bore = 24 feet	

Notes:
PID = Photoionization Detector "Readings" are in parts per million per volume air (ppmv)

Continuous core sampling—100% core recovery unless specified otherwise

B4-14
Sample submitted for lab analysis

Groundwater not encountered

2007-09-05

APPENDIX D

Certified Analytical Laboratory Reports and Chain-of-Custody Documentation

Laboratory Job Number 194282

Stellar Environmental Solutions	Project : STANDARD
2198 6th Street	Location : 387 Orange St
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
B1-13	194282-001
B1-18	194282-002
B1-GW	194282-003
B2-14.5	194282-004
B2-18	194282-005
B2-GW	194282-006
B3-19	194282-007
B4-14	194282-008
B4-18	194282-009
B4-23	194282-010

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

Signature: _____ Date: 05/02/2007
Project Manager

Signature: _____ Date: 05/02/2007
Operations Manager

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**194282**
Client:	**Stellar Environmental Solutions**
Location:	**387 Orange St**
Request Date:	**04/19/07**
Samples Received:	**04/19/07**

This hardcopy data package contains sample and QC results for eight soil samples and two water samples, requested for the above referenced project on 04/19/07. The samples were received on ice and intact.

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

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

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

Volatile Organics by GC/MS (EPA 8260B) Soil:
High recovery was observed for 1,2-dichloroethane in the MS of B3-19 (lab # 194282-007); the LCS was within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples. High surrogate recoveries were observed for 1,2-dichloroethane-d4 in B2-18 (lab # 194282-005) and B4-14 (lab # 194282-008); no target analytes were detected in these samples. No other analytical problems were encountered.

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	04/19/07
Units:	ug/L	Received:	04/19/07
Batch#:	124391	Prepared:	04/20/07

Field ID: B1-GW
Type: SAMPLE
Lab ID: 194282-003
Diln Fac: 100.0
Analyzed: 04/23/07

Analyte	Result	RL
Diesel C10-C24	2,400,000	5,000

Surrogate	%REC	Limits
Hexacosane	DO	61-134

Field ID: B2-GW
Type: SAMPLE
Lab ID: 194282-006
Diln Fac: 1.000
Analyzed: 04/23/07

Analyte	Result	RL
Diesel C10-C24	460	50

Surrogate	%REC	Limits
Hexacosane	78	61-134

Type: BLANK
Lab ID: QC384534
Diln Fac: 1.000
Analyzed: 04/22/07

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	87	61-134

DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC384535	Batch#:	124391
Matrix:	Water	Prepared:	04/20/07
Units:	ug/L	Analyzed:	04/22/07

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,520	101	58-130

Surrogate	%REC	Limits
Hexacosane	104	61-134

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	124391
MSS Lab ID:	194237-005	Sampled:	04/18/07
Matrix:	Water	Received:	04/18/07
Units:	ug/L	Prepared:	04/20/07
Diln Fac:	1.000	Analyzed:	04/22/07

Type: MS
Lab ID: QC384536

Cleanup Method: EPA 3630C

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	41.02	2,500	2,539	100	57-134

Surrogate	%REC	Limits
Hexacosane	105	61-134

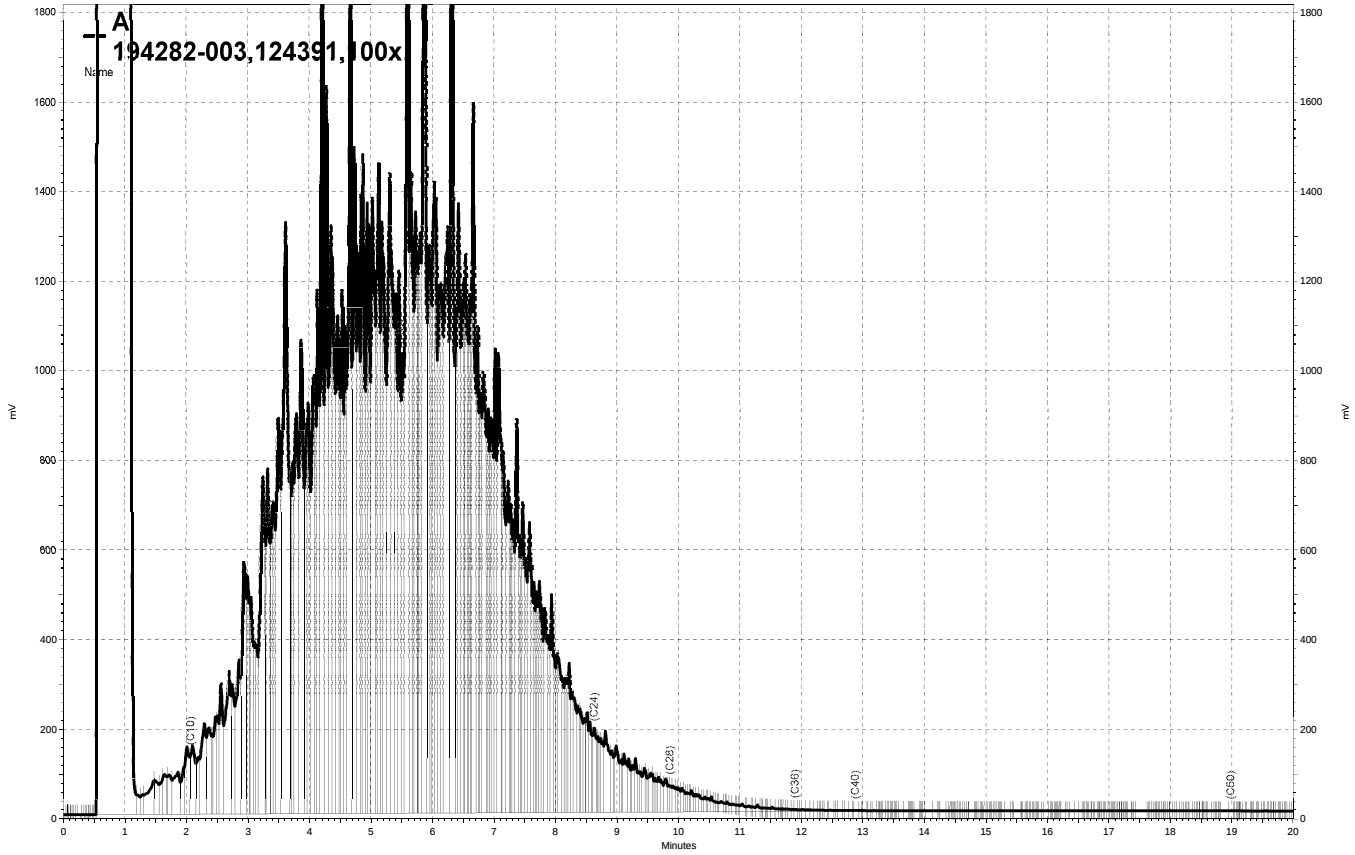
Type: MSD
Lab ID: QC384537

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,820	111	57-134	10	32

Surrogate	%REC	Limits
Hexacosane	116	61-134

RPD= Relative Percent Difference



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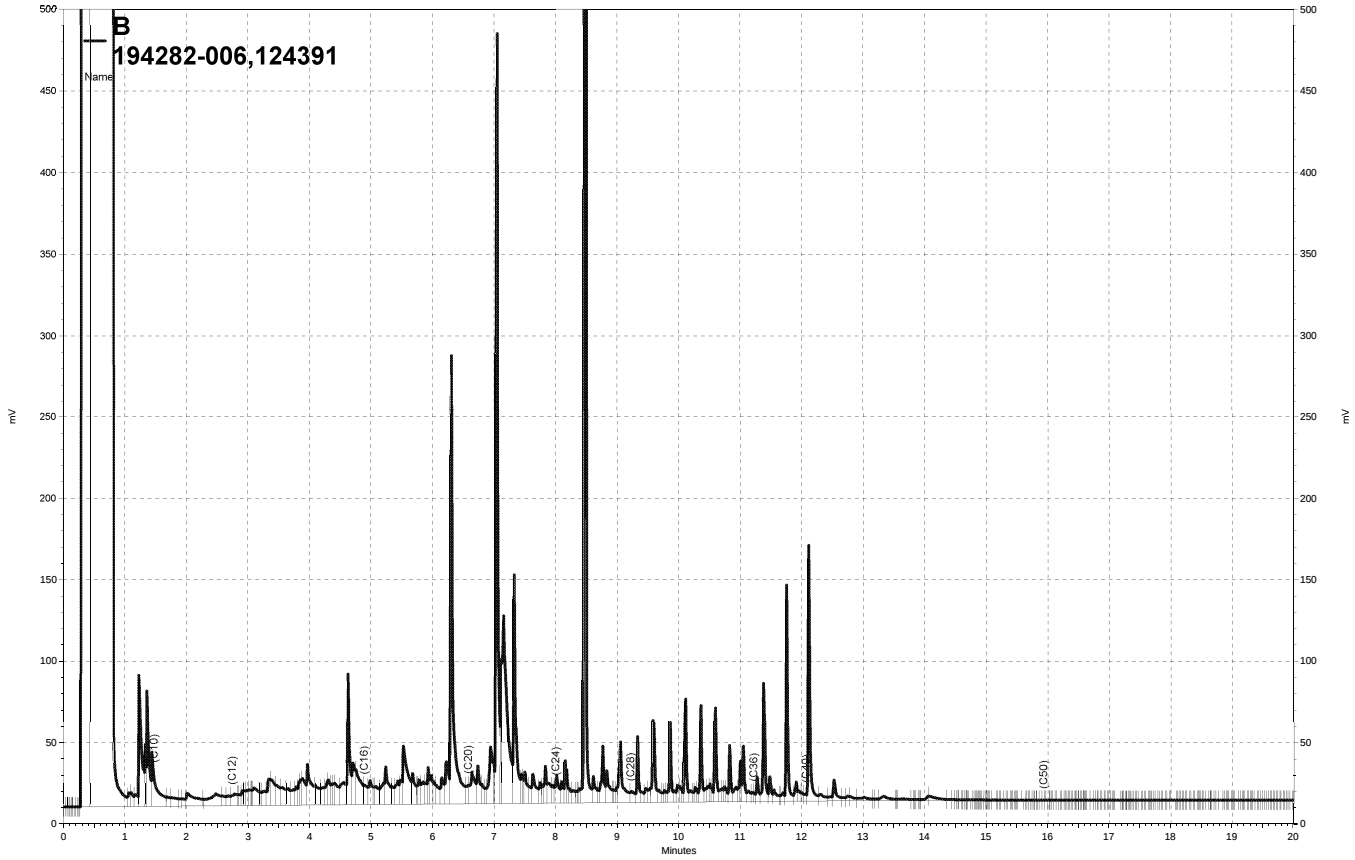

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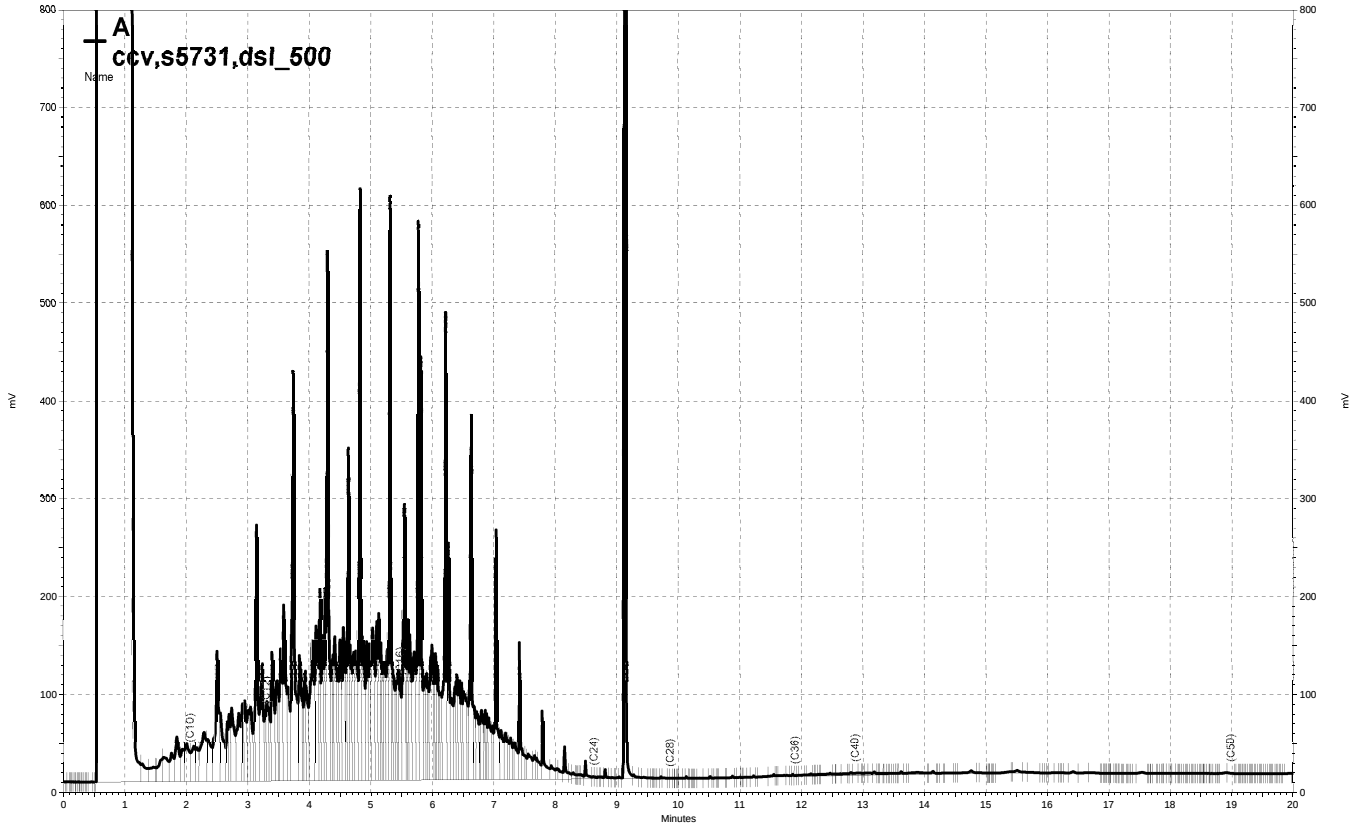

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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	SHAKER TABLE
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	04/19/07
Units:	mg/Kg	Received:	04/19/07
Basis:	as received	Prepared:	04/20/07
Diln Fac:	1.000	Analyzed:	04/22/07
Batch#:	124388		

Field ID: B1-13 Lab ID: 194282-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	2.5 Y	1.0

Surrogate	%REC	Limits
Hexacosane	102	40-127

Field ID: B1-18 Lab ID: 194282-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	100	1.0

Surrogate	%REC	Limits
Hexacosane	94	40-127

Field ID: B2-14.5 Lab ID: 194282-004
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	3.7 Y	0.99

Surrogate	%REC	Limits
Hexacosane	119	40-127

Field ID: B2-18 Lab ID: 194282-005
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	1.0

Surrogate	%REC	Limits
Hexacosane	101	40-127

Y= Sample exhibits chromatographic pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	SHAKER TABLE
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	04/19/07
Units:	mg/Kg	Received:	04/19/07
Basis:	as received	Prepared:	04/20/07
Diln Fac:	1.000	Analyzed:	04/22/07
Batch#:	124388		

Field ID: B3-19 Lab ID: 194282-007
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	4.2 Y Z	1.0

Surrogate	%REC	Limits
Hexacosane	108	40-127

Field ID: B4-14 Lab ID: 194282-008
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	22	1.0

Surrogate	%REC	Limits
Hexacosane	118	40-127

Field ID: B4-18 Lab ID: 194282-009
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	1.0

Surrogate	%REC	Limits
Hexacosane	92	40-127

Field ID: B4-23 Lab ID: 194282-010
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	1.7 Y	1.0

Surrogate	%REC	Limits
Hexacosane	99	40-127

Type: BLANK Lab ID: QC384523

Analyte	Result	RL
Diesel C10-C24	ND	1.0

Surrogate	%REC	Limits
Hexacosane	115	40-127

Y= Sample exhibits chromatographic pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	SHAKER TABLE
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC384524	Batch#:	124388
Matrix:	Soil	Prepared:	04/20/07
Units:	mg/Kg	Analyzed:	04/22/07
Basis:	as received		

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.71	46.09	93	58-127

Surrogate	%REC	Limits
Hexacosane	97	40-127

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	SHAKER TABLE
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	B4-14	Batch#:	124388
MSS Lab ID:	194282-008	Sampled:	04/19/07
Matrix:	Soil	Received:	04/19/07
Units:	mg/Kg	Prepared:	04/20/07
Basis:	as received	Analyzed:	04/25/07
Diln Fac:	1.000		

Type: MS Lab ID: QC384525

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	22.34	49.91	58.14	72	29-147

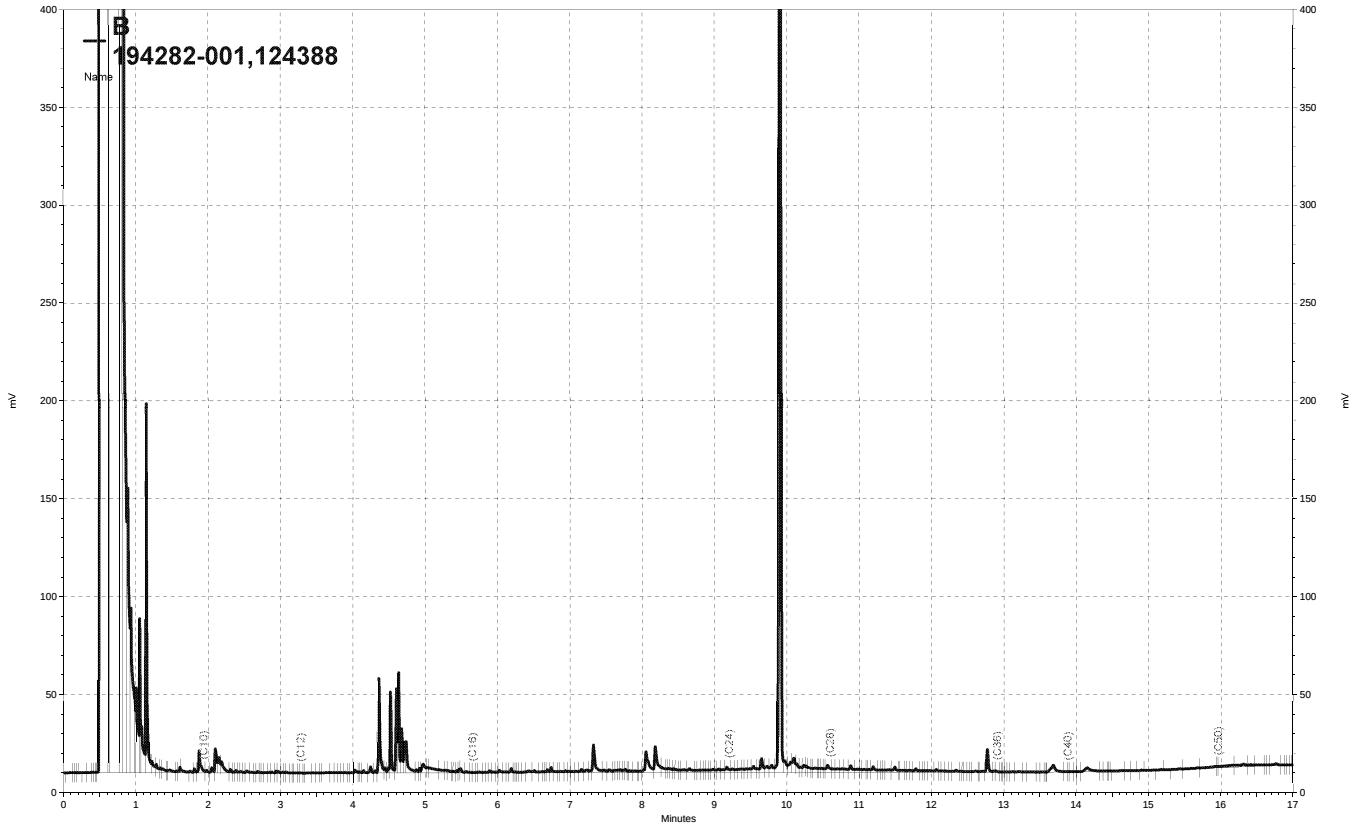
Surrogate	%REC	Limits
Hexacosane	93	40-127

Type: MSD Lab ID: QC384526

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	49.75	72.24	100	29-147	22	46

Surrogate	%REC	Limits
Hexacosane	101	40-127

RPD= Relative Percent Difference



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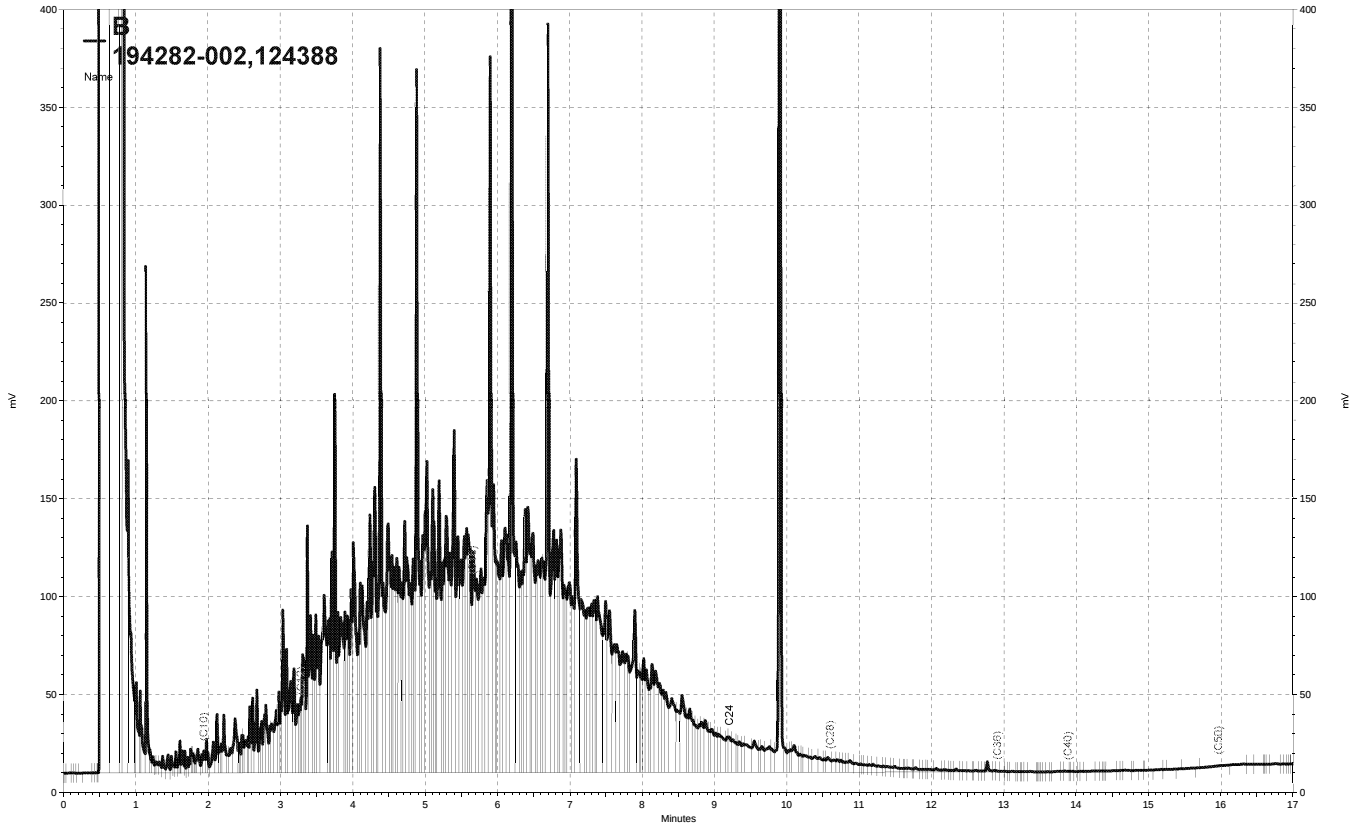

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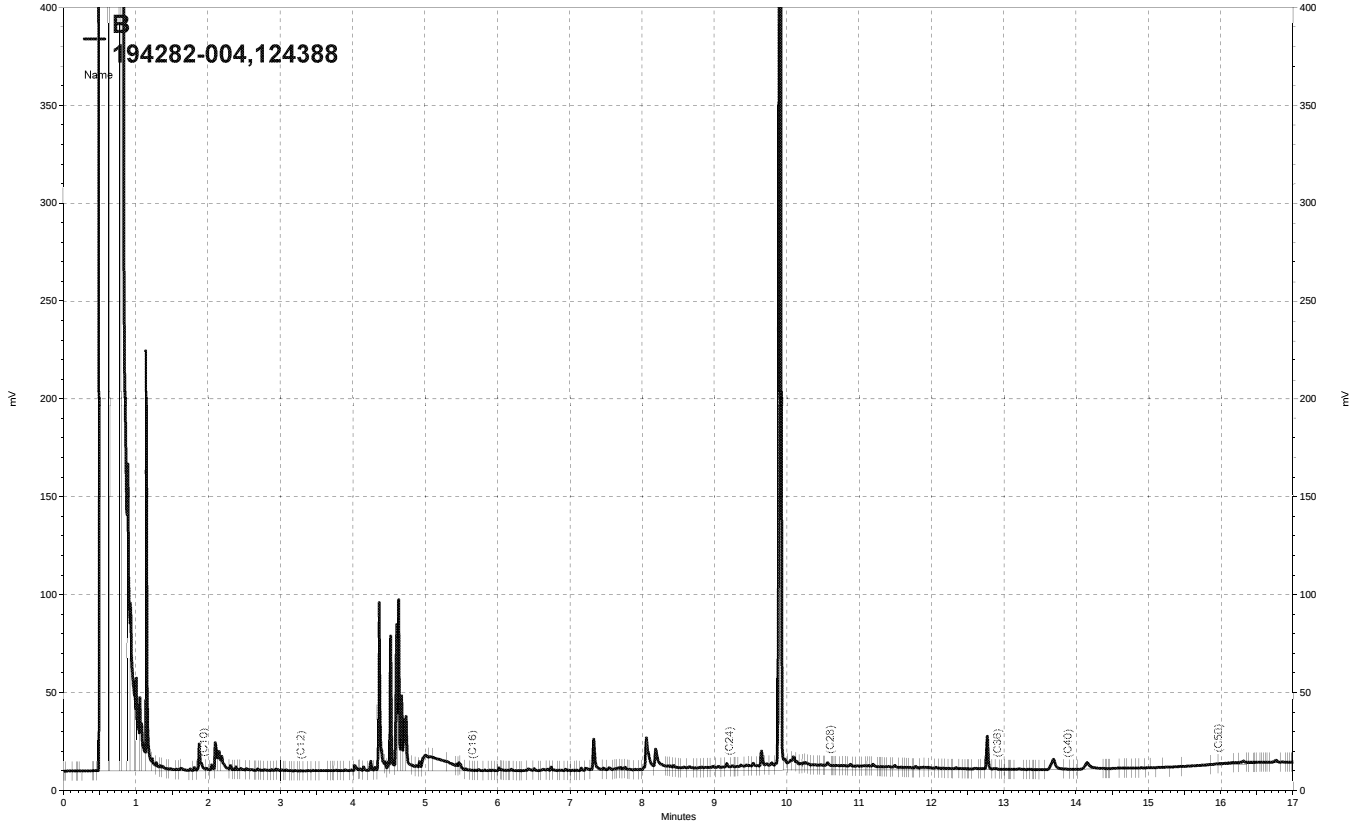

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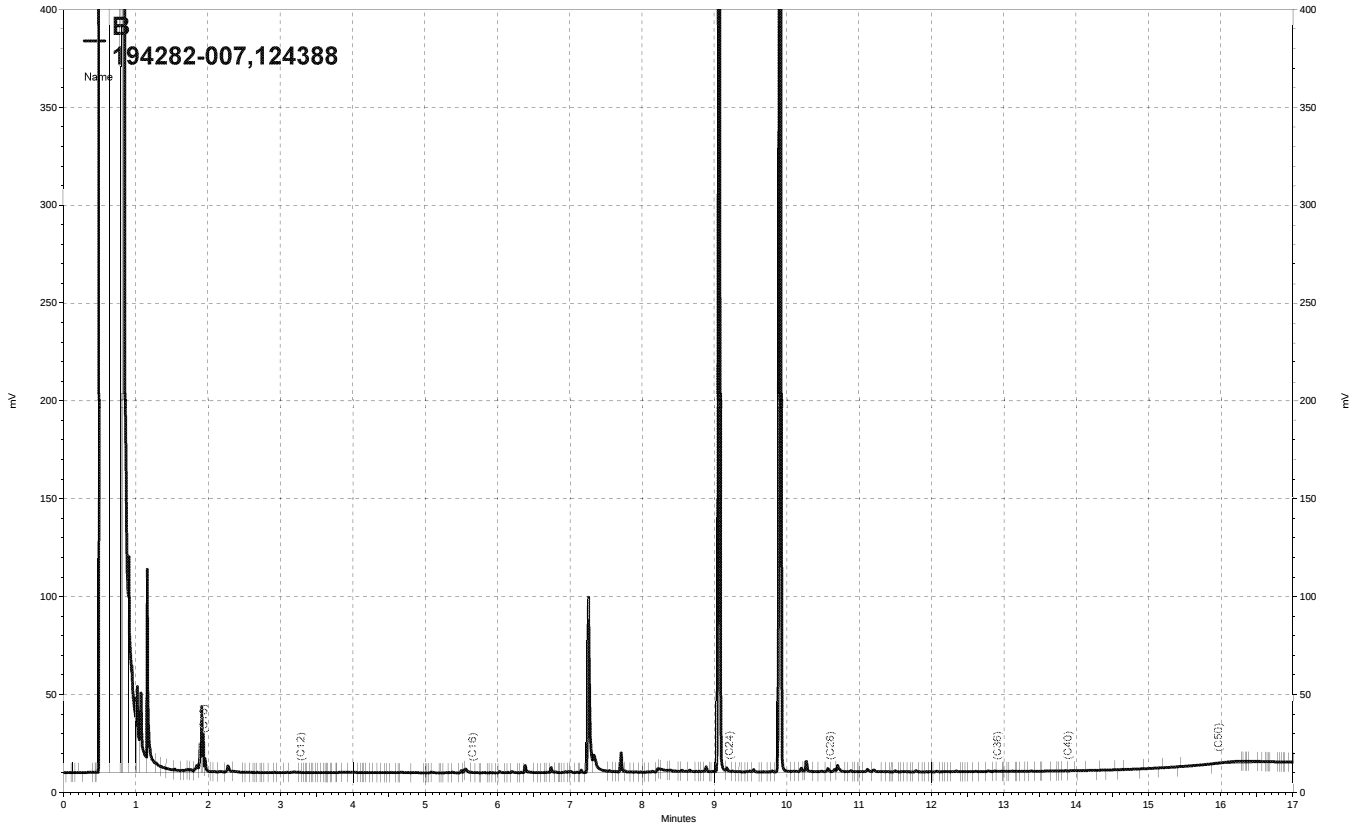

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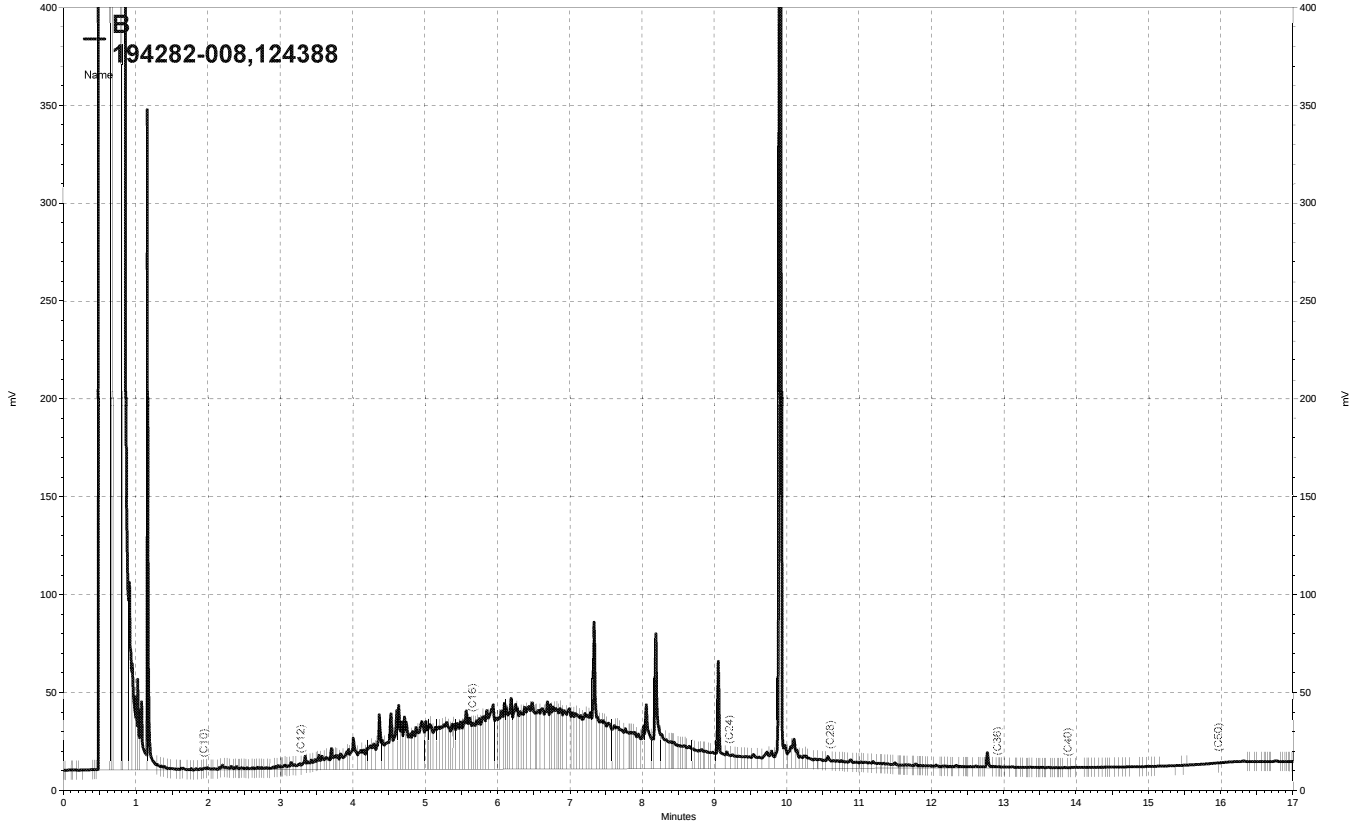

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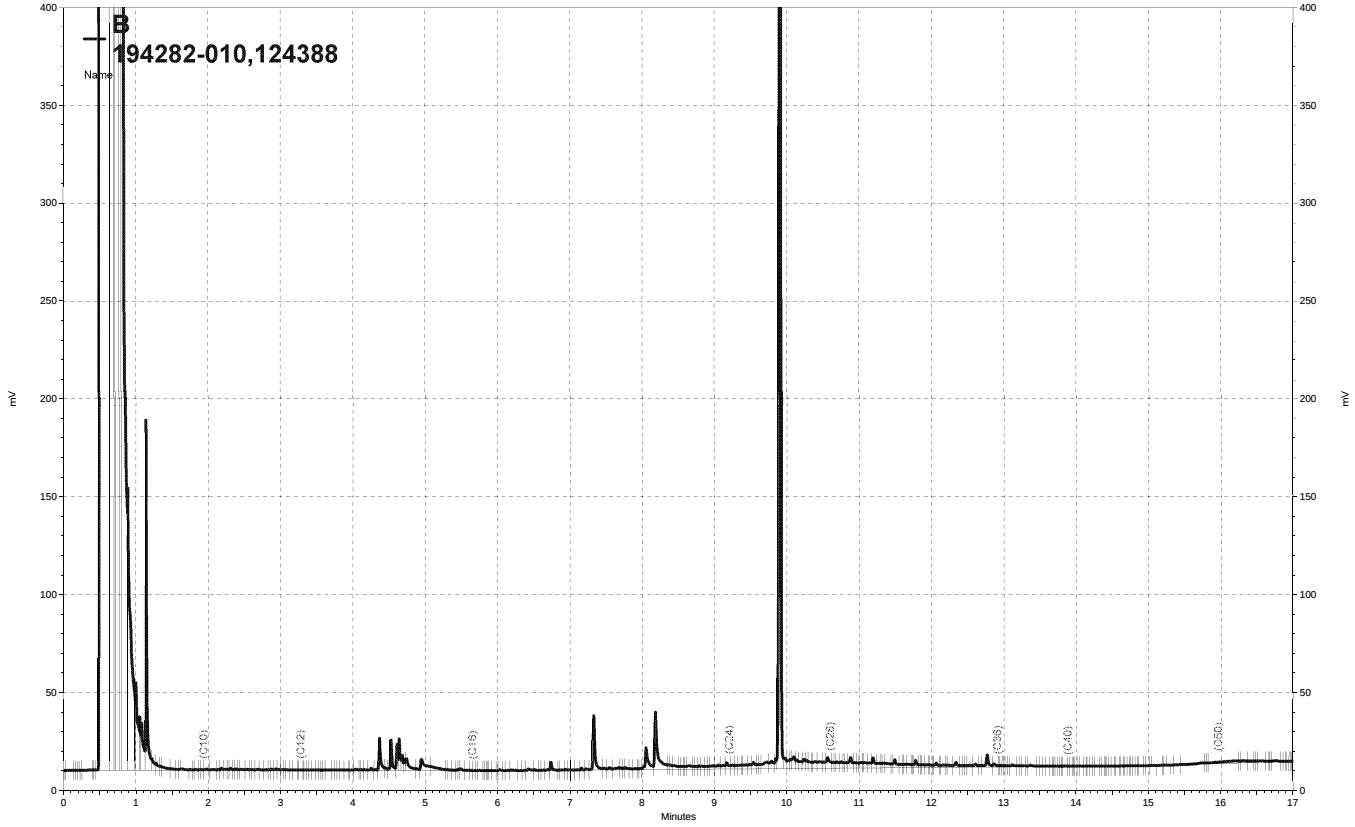

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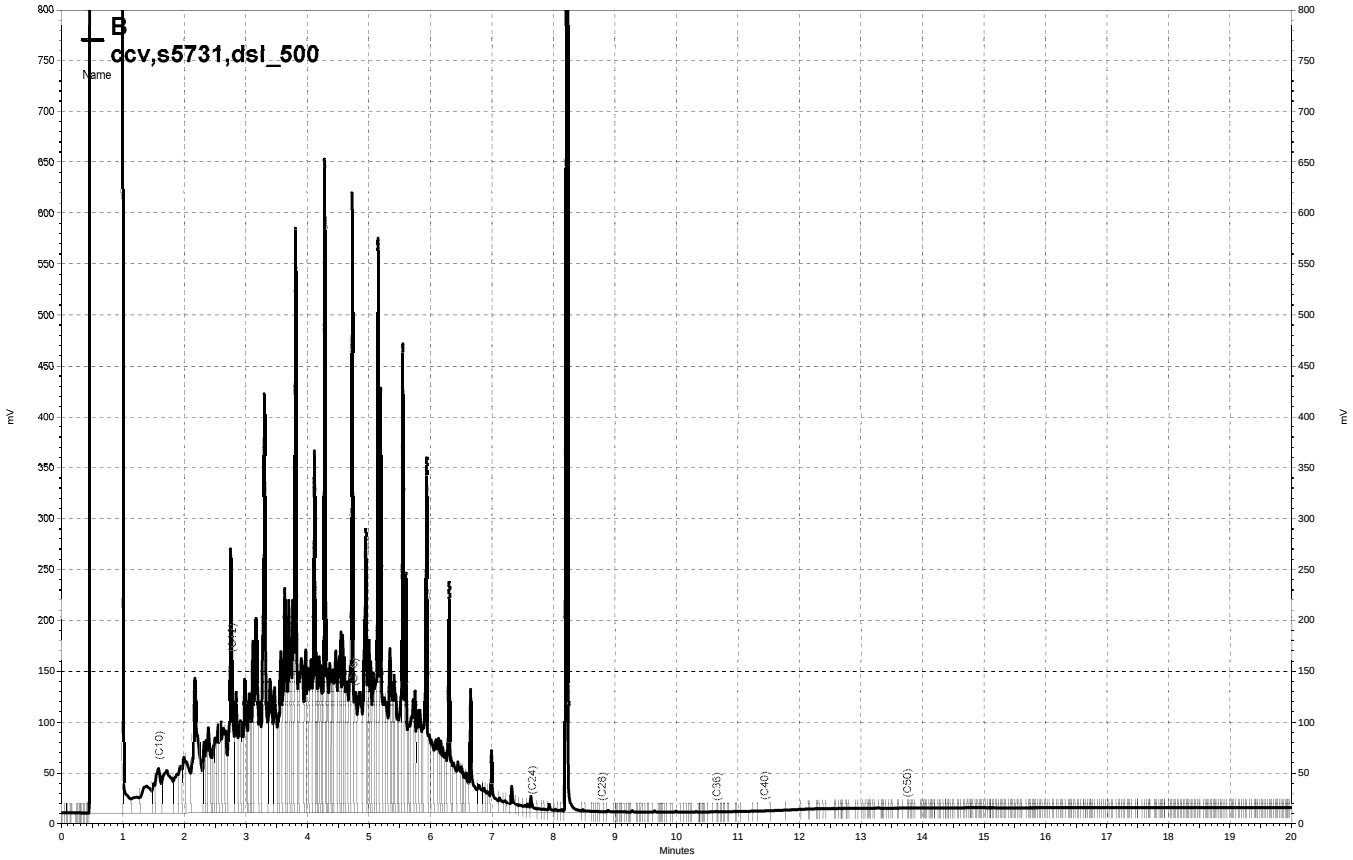

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Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B1-GW	Batch#:	124463
Lab ID:	194282-003	Sampled:	04/19/07
Matrix:	Water	Received:	04/19/07
Units:	ug/L	Analyzed:	04/24/07
Diln Fac:	1.000		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Ethanol	ND	1,000
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-123
1,2-Dichloroethane-d4	107	79-134
Toluene-d8	100	80-120
Bromofluorobenzene	110	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B2-GW	Batch#:	124463
Lab ID:	194282-006	Sampled:	04/19/07
Matrix:	Water	Received:	04/19/07
Units:	ug/L	Analyzed:	04/24/07
Diln Fac:	1.000		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Ethanol	ND	1,000
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	92	80-123
1,2-Dichloroethane-d4	99	79-134
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC384836	Batch#:	124463
Matrix:	Water	Analyzed:	04/24/07
Units:	ug/L		

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Ethanol	ND	1,000
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-123
1,2-Dichloroethane-d4	103	79-134
Toluene-d8	98	80-120
Bromofluorobenzene	104	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	124463
Units:	ug/L	Analyzed:	04/24/07
Diln Fac:	1.000		

Type: BS Lab ID: QC384837

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	122.2	98	68-132
MTBE	25.00	23.57	94	71-120
Isopropyl Ether (DIPE)	25.00	22.80	91	65-120
Ethyl tert-Butyl Ether (ETBE)	25.00	21.54	86	75-124
1,2-Dichloroethane	25.00	25.21	101	79-121
Benzene	25.00	25.74	103	80-120
Methyl tert-Amyl Ether (TAME)	25.00	24.08	96	77-120
Toluene	25.00	26.31	105	80-120
1,2-Dibromoethane	25.00	25.55	102	80-120
Ethylbenzene	25.00	29.01	116	80-124
m,p-Xylenes	50.00	56.53	113	80-127
o-Xylene	25.00	28.26	113	80-124

Surrogate	%REC	Limits
Dibromofluoromethane	91	80-123
1,2-Dichloroethane-d4	102	79-134
Toluene-d8	100	80-120
Bromofluorobenzene	104	80-122

Type: BSD Lab ID: QC384838

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	126.7	101	68-132	4	20
MTBE	25.00	23.91	96	71-120	1	20
Isopropyl Ether (DIPE)	25.00	22.61	90	65-120	1	20
Ethyl tert-Butyl Ether (ETBE)	25.00	21.23	85	75-124	1	20
1,2-Dichloroethane	25.00	24.39	98	79-121	3	20
Benzene	25.00	25.04	100	80-120	3	20
Methyl tert-Amyl Ether (TAME)	25.00	23.49	94	77-120	3	20
Toluene	25.00	25.96	104	80-120	1	20
1,2-Dibromoethane	25.00	25.42	102	80-120	1	20
Ethylbenzene	25.00	28.57	114	80-124	2	20
m,p-Xylenes	50.00	55.99	112	80-127	1	20
o-Xylene	25.00	27.53	110	80-124	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	85	80-123
1,2-Dichloroethane-d4	102	79-134
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	124463
MSS Lab ID:	194290-002	Sampled:	04/17/07
Matrix:	Water	Received:	04/20/07
Units:	ug/L	Analyzed:	04/24/07
Diln Fac:	1.429		

Type: MS Lab ID: QC384866

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<1.635	178.6	158.9	89	69-137
MTBE	<0.2135	35.71	32.76	92	73-120
Isopropyl Ether (DIPE)	<0.2000	35.71	32.52	91	69-120
Ethyl tert-Butyl Ether (ETBE)	<0.1868	35.71	32.35	91	78-127
1,2-Dichloroethane	<0.2599	35.71	34.53	97	80-128
Benzene	<0.1464	35.71	35.92	101	80-123
Methyl tert-Amyl Ether (TAME)	<0.1443	35.71	34.87	98	79-120
Toluene	<0.1219	35.71	36.27	102	80-122
1,2-Dibromoethane	<0.1788	35.71	34.65	97	80-120
Ethylbenzene	<0.1593	35.71	39.60	111	80-126
m,p-Xylenes	<0.2719	71.43	77.15	108	80-125
o-Xylene	<0.1242	35.71	39.39	110	80-124

Surrogate	%REC	Limits
Dibromofluoromethane	87	80-123
1,2-Dichloroethane-d4	105	79-134
Toluene-d8	98	80-120
Bromofluorobenzene	104	80-122

Type: MSD Lab ID: QC384867

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	178.6	157.3	88	69-137	1	20
MTBE	35.71	32.19	90	73-120	2	20
Isopropyl Ether (DIPE)	35.71	31.42	88	69-120	3	20
Ethyl tert-Butyl Ether (ETBE)	35.71	30.93	87	78-127	5	20
1,2-Dichloroethane	35.71	34.71	97	80-128	1	20
Benzene	35.71	35.08	98	80-123	2	20
Methyl tert-Amyl Ether (TAME)	35.71	35.98	101	79-120	3	20
Toluene	35.71	35.71	100	80-122	2	20
1,2-Dibromoethane	35.71	34.64	97	80-120	0	20
Ethylbenzene	35.71	39.34	110	80-126	1	20
m,p-Xylenes	71.43	77.04	108	80-125	0	20
o-Xylene	35.71	39.19	110	80-124	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	83	80-123
1,2-Dichloroethane-d4	103	79-134
Toluene-d8	98	80-120
Bromofluorobenzene	102	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B1-13	Diln Fac:	0.9091
Lab ID:	194282-001	Batch#:	124373
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	91
MTBE	ND	4.5
Isopropyl Ether (DIPE)	ND	4.5
Ethyl tert-Butyl Ether (ETBE)	ND	4.5
1,2-Dichloroethane	ND	4.5
Benzene	ND	4.5
Methyl tert-Amyl Ether (TAME)	ND	4.5
Ethanol	ND	910
Toluene	ND	4.5
1,2-Dibromoethane	ND	4.5
Ethylbenzene	ND	4.5
m,p-Xylenes	ND	4.5
o-Xylene	ND	4.5

Surrogate	%REC	Limits
Dibromofluoromethane	118	78-126
1,2-Dichloroethane-d4	132	76-135
Toluene-d8	104	80-120
Bromofluorobenzene	112	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B1-18	Diln Fac:	333.3
Lab ID:	194282-002	Batch#:	124426
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/23/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	33,000
MTBE	ND	1,700
Isopropyl Ether (DIPE)	ND	1,700
Ethyl tert-Butyl Ether (ETBE)	ND	1,700
1,2-Dichloroethane	ND	1,700
Benzene	ND	1,700
Methyl tert-Amyl Ether (TAME)	ND	1,700
Ethanol	ND	330,000
Toluene	ND	1,700
1,2-Dibromoethane	ND	1,700
Ethylbenzene	ND	1,700
m,p-Xylenes	ND	1,700
o-Xylene	ND	1,700

Surrogate	%REC	Limits
Dibromofluoromethane	111	78-126
1,2-Dichloroethane-d4	124	76-135
Toluene-d8	104	80-120
Bromofluorobenzene	107	80-126
Trifluorotoluene (MeOH)	DO	58-142

DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B2-14.5	Diln Fac:	0.9804
Lab ID:	194282-004	Batch#:	124373
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	98
MTBE	ND	4.9
Isopropyl Ether (DIPE)	ND	4.9
Ethyl tert-Butyl Ether (ETBE)	ND	4.9
1,2-Dichloroethane	ND	4.9
Benzene	ND	4.9
Methyl tert-Amyl Ether (TAME)	ND	4.9
Ethanol	ND	980
Toluene	ND	4.9
1,2-Dibromoethane	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9

Surrogate	%REC	Limits
Dibromofluoromethane	125	78-126
1,2-Dichloroethane-d4	135	76-135
Toluene-d8	105	80-120
Bromofluorobenzene	111	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B2-18	Diln Fac:	0.9615
Lab ID:	194282-005	Batch#:	124373
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	96
MTBE	ND	4.8
Isopropyl Ether (DIPE)	ND	4.8
Ethyl tert-Butyl Ether (ETBE)	ND	4.8
1,2-Dichloroethane	ND	4.8
Benzene	ND	4.8
Methyl tert-Amyl Ether (TAME)	ND	4.8
Ethanol	ND	960
Toluene	ND	4.8
1,2-Dibromoethane	ND	4.8
Ethylbenzene	ND	4.8
m,p-Xylenes	ND	4.8
o-Xylene	ND	4.8

Surrogate	%REC	Limits
Dibromofluoromethane	123	78-126
1,2-Dichloroethane-d4	137 *	76-135
Toluene-d8	102	80-120
Bromofluorobenzene	111	80-126

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

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B3-19	Diln Fac:	0.9615
Lab ID:	194282-007	Batch#:	124382
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	96
MTBE	ND	4.8
Isopropyl Ether (DIPE)	ND	4.8
Ethyl tert-Butyl Ether (ETBE)	ND	4.8
1,2-Dichloroethane	ND	4.8
Benzene	ND	4.8
Methyl tert-Amyl Ether (TAME)	ND	4.8
Ethanol	ND	960
Toluene	ND	4.8
1,2-Dibromoethane	ND	4.8
Ethylbenzene	ND	4.8
m,p-Xylenes	ND	4.8
o-Xylene	ND	4.8

Surrogate	%REC	Limits
Dibromofluoromethane	121	78-126
1,2-Dichloroethane-d4	133	76-135
Toluene-d8	98	80-120
Bromofluorobenzene	99	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B4-14	Diln Fac:	0.9259
Lab ID:	194282-008	Batch#:	124382
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	93
MTBE	ND	4.6
Isopropyl Ether (DIPE)	ND	4.6
Ethyl tert-Butyl Ether (ETBE)	ND	4.6
1,2-Dichloroethane	ND	4.6
Benzene	ND	4.6
Methyl tert-Amyl Ether (TAME)	ND	4.6
Ethanol	ND	930
Toluene	ND	4.6
1,2-Dibromoethane	ND	4.6
Ethylbenzene	ND	4.6
m,p-Xylenes	ND	4.6
o-Xylene	ND	4.6

Surrogate	%REC	Limits
Dibromofluoromethane	124	78-126
1,2-Dichloroethane-d4	139 *	76-135
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-126

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

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B4-18	Diln Fac:	0.9091
Lab ID:	194282-009	Batch#:	124382
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	91
MTBE	ND	4.5
Isopropyl Ether (DIPE)	ND	4.5
Ethyl tert-Butyl Ether (ETBE)	ND	4.5
1,2-Dichloroethane	ND	4.5
Benzene	ND	4.5
Methyl tert-Amyl Ether (TAME)	ND	4.5
Ethanol	ND	910
Toluene	ND	4.5
1,2-Dibromoethane	ND	4.5
Ethylbenzene	ND	4.5
m,p-Xylenes	ND	4.5
o-Xylene	ND	4.5

Surrogate	%REC	Limits
Dibromofluoromethane	118	78-126
1,2-Dichloroethane-d4	134	76-135
Toluene-d8	101	80-120
Bromofluorobenzene	102	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B4-23	Diln Fac:	0.9804
Lab ID:	194282-010	Batch#:	124382
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	98
MTBE	ND	4.9
Isopropyl Ether (DIPE)	ND	4.9
Ethyl tert-Butyl Ether (ETBE)	ND	4.9
1,2-Dichloroethane	ND	4.9
Benzene	ND	4.9
Methyl tert-Amyl Ether (TAME)	ND	4.9
Ethanol	ND	980
Toluene	ND	4.9
1,2-Dibromoethane	ND	4.9
Ethylbenzene	ND	4.9
m,p-Xylenes	ND	4.9
o-Xylene	ND	4.9

Surrogate	%REC	Limits
Dibromofluoromethane	125	78-126
1,2-Dichloroethane-d4	134	76-135
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC384469	Diln Fac:	1.000
Matrix:	Soil	Batch#:	124373
Units:	ug/Kg	Analyzed:	04/20/07

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	99.57	80	56-130
MTBE	25.00	21.64	87	66-120
Isopropyl Ether (DIPE)	25.00	20.44	82	57-120
Ethyl tert-Butyl Ether (ETBE)	25.00	20.48	82	68-120
1,2-Dichloroethane	25.00	23.86	95	73-120
Benzene	25.00	24.78	99	80-120
Methyl tert-Amyl Ether (TAME)	25.00	23.05	92	73-120
Toluene	25.00	25.85	103	80-120
1,2-Dibromoethane	25.00	24.97	100	80-120
Ethylbenzene	25.00	27.51	110	80-125
m,p-Xylenes	50.00	54.26	109	80-123
o-Xylene	25.00	25.70	103	80-122

Surrogate	%REC	Limits
Dibromofluoromethane	102	78-126
1,2-Dichloroethane-d4	95	76-135
Toluene-d8	98	80-120
Bromofluorobenzene	101	80-126

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC384470	Diln Fac:	1.000
Matrix:	Soil	Batch#:	124373
Units:	ug/Kg	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Ethanol	ND	1,000
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	106	78-126
1,2-Dichloroethane-d4	105	76-135
Toluene-d8	99	80-120
Bromofluorobenzene	104	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC384497	Diln Fac:	1.000
Matrix:	Soil	Batch#:	124382
Units:	ug/Kg	Analyzed:	04/20/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Ethanol	ND	1,000
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	108	78-126
1,2-Dichloroethane-d4	122	76-135
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC384498	Diln Fac:	1.000
Matrix:	Soil	Batch#:	124382
Units:	ug/Kg	Analyzed:	04/20/07

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	250.0	246.1	98	56-130
MTBE	50.00	50.05	100	66-120
Isopropyl Ether (DIPE)	50.00	50.42	101	57-120
Ethyl tert-Butyl Ether (ETBE)	50.00	48.04	96	68-120
1,2-Dichloroethane	50.00	56.15	112	73-120
Benzene	50.00	48.67	97	80-120
Methyl tert-Amyl Ether (TAME)	50.00	51.67	103	73-120
Toluene	50.00	51.71	103	80-120
1,2-Dibromoethane	50.00	46.95	94	80-120
Ethylbenzene	50.00	51.42	103	80-125
m,p-Xylenes	100.0	102.2	102	80-123
o-Xylene	50.00	49.59	99	80-122

Surrogate	%REC	Limits
Dibromofluoromethane	101	78-126
1,2-Dichloroethane-d4	124	76-135
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-126

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B2-18	Dil'n Fac:	0.9615
MSS Lab ID:	194282-005	Batch#:	124373
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Type: MS Lab ID: QC384554

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<2.955	240.4	229.7	96	45-123
MTBE	<0.1843	48.08	45.74	95	55-120
Isopropyl Ether (DIPE)	<0.1664	48.08	41.43	86	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.08716	48.08	41.98	87	58-120
1,2-Dichloroethane	<0.1905	48.08	50.26	105	56-120
Benzene	<0.1325	48.08	45.44	95	61-122
Methyl tert-Amyl Ether (TAME)	<0.1735	48.08	46.49	97	60-120
Toluene	<0.5313	48.08	47.17	98	57-124
1,2-Dibromoethane	<0.2137	48.08	45.83	95	57-120
Ethylbenzene	<0.5605	48.08	48.74	101	55-129
m,p-Xylenes	<1.257	96.15	94.70	98	53-127
o-Xylene	<0.4957	48.08	46.04	96	54-127

Surrogate	%REC	Limits
Dibromofluoromethane	118	78-126
1,2-Dichloroethane-d4	126	76-135
Toluene-d8	104	80-120
Bromofluorobenzene	98	80-126

Type: MSD Lab ID: QC384555

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	240.4	205.7	86	45-123	11	32
MTBE	48.08	45.24	94	55-120	1	20
Isopropyl Ether (DIPE)	48.08	41.62	87	50-120	0	20
Ethyl tert-Butyl Ether (ETBE)	48.08	42.20	88	58-120	1	20
1,2-Dichloroethane	48.08	47.07	98	56-120	7	20
Benzene	48.08	44.42	92	61-122	2	20
Methyl tert-Amyl Ether (TAME)	48.08	45.99	96	60-120	1	20
Toluene	48.08	45.66	95	57-124	3	21
1,2-Dibromoethane	48.08	42.17	88	57-120	8	20
Ethylbenzene	48.08	48.88	102	55-129	0	23
m,p-Xylenes	96.15	94.77	99	53-127	0	23
o-Xylene	48.08	46.01	96	54-127	0	22

Surrogate	%REC	Limits
Dibromofluoromethane	115	78-126
1,2-Dichloroethane-d4	120	76-135
Toluene-d8	105	80-120
Bromofluorobenzene	99	80-126

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B3-19	Dil'n Fac:	0.9615
MSS Lab ID:	194282-007	Batch#:	124382
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/19/07
Basis:	as received	Analyzed:	04/20/07

Type: MS Lab ID: QC384600

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<1.376	240.4	221.9	92	45-123
MTBE	<0.1139	48.08	49.63	103	55-120
Isopropyl Ether (DIPE)	<0.1312	48.08	49.96	104	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.1053	48.08	48.88	102	58-120
1,2-Dichloroethane	<0.1937	48.08	63.13	131 *	56-120
Benzene	<0.1888	48.08	54.56	113	61-122
Methyl tert-Amyl Ether (TAME)	<0.09257	48.08	53.84	112	60-120
Toluene	<0.2475	48.08	56.95	118	57-124
1,2-Dibromoethane	<0.2821	48.08	54.47	113	57-120
Ethylbenzene	<0.3493	48.08	57.29	119	55-129
m,p-Xylenes	<0.5741	96.15	113.3	118	53-127
o-Xylene	<0.1711	48.08	55.39	115	54-127

Surrogate	%REC	Limits
Dibromofluoromethane	104	78-126
1,2-Dichloroethane-d4	128	76-135
Toluene-d8	103	80-120
Bromofluorobenzene	99	80-126

Type: MSD Lab ID: QC384601

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	240.4	219.3	91	45-123	1	32
MTBE	48.08	48.85	102	55-120	2	20
Isopropyl Ether (DIPE)	48.08	49.50	103	50-120	1	20
Ethyl tert-Butyl Ether (ETBE)	48.08	48.37	101	58-120	1	20
1,2-Dichloroethane	48.08	53.56	111	56-120	16	20
Benzene	48.08	46.06	96	61-122	17	20
Methyl tert-Amyl Ether (TAME)	48.08	52.86	110	60-120	2	20
Toluene	48.08	47.62	99	57-124	18	21
1,2-Dibromoethane	48.08	46.05	96	57-120	17	20
Ethylbenzene	48.08	48.11	100	55-129	17	23
m,p-Xylenes	96.15	94.67	98	53-127	18	23
o-Xylene	48.08	46.59	97	54-127	17	22

Surrogate	%REC	Limits
Dibromofluoromethane	102	78-126
1,2-Dichloroethane-d4	126	76-135
Toluene-d8	102	80-120
Bromofluorobenzene	100	80-126

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC384665	Diln Fac:	1.000
Matrix:	Soil	Batch#:	124426
Units:	ug/Kg	Analyzed:	04/23/07

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	125.0	106.6	85	56-130
MTBE	25.00	21.99	88	66-120
Isopropyl Ether (DIPE)	25.00	20.26	81	57-120
Ethyl tert-Butyl Ether (ETBE)	25.00	20.44	82	68-120
1,2-Dichloroethane	25.00	22.77	91	73-120
Benzene	25.00	24.43	98	80-120
Methyl tert-Amyl Ether (TAME)	25.00	23.03	92	73-120
Toluene	25.00	25.04	100	80-120
1,2-Dibromoethane	25.00	25.11	100	80-120
Ethylbenzene	25.00	25.62	102	80-125
m,p-Xylenes	50.00	51.54	103	80-123
o-Xylene	25.00	24.55	98	80-122

Surrogate	%REC	Limits
Dibromofluoromethane	101	78-126
1,2-Dichloroethane-d4	90	76-135
Toluene-d8	97	80-120
Bromofluorobenzene	101	80-126

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC384746	Diln Fac:	1.000
Matrix:	Soil	Batch#:	124426
Units:	ug/Kg	Analyzed:	04/23/07

Analyte	Result	RL
tert-Butyl Alcohol (TBA)	ND	100
MTBE	ND	5.0
Isopropyl Ether (DIPE)	ND	5.0
Ethyl tert-Butyl Ether (ETBE)	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Methyl tert-Amyl Ether (TAME)	ND	5.0
Ethanol	ND	1,000
Toluene	ND	5.0
1,2-Dibromoethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	111	78-126
1,2-Dichloroethane-d4	111	76-135
Toluene-d8	101	80-120
Bromofluorobenzene	111	80-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

BTXE & Oxygenates

Lab #:	194282	Location:	387 Orange St
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Dil'n Fac:	0.9259
MSS Lab ID:	194292-015	Batch#:	124426
Matrix:	Soil	Sampled:	04/19/07
Units:	ug/Kg	Received:	04/20/07
Basis:	as received	Analyzed:	04/24/07

Type: MS Lab ID: QC384747

Analyte	MSS Result	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	<2.846	231.5	204.4	88	45-123
MTBE	<0.1775	46.30	47.27	102	55-120
Isopropyl Ether (DIPE)	<0.1602	46.30	42.88	93	50-120
Ethyl tert-Butyl Ether (ETBE)	<0.08394	46.30	44.61	96	58-120
1,2-Dichloroethane	<0.1835	46.30	51.86	112	56-120
Benzene	<0.1276	46.30	44.88	97	61-122
Methyl tert-Amyl Ether (TAME)	<0.1670	46.30	47.11	102	60-120
Toluene	<0.5117	46.30	42.96	93	57-124
1,2-Dibromoethane	<0.2058	46.30	36.64	79	57-120
Ethylbenzene	<0.5398	46.30	43.24	93	55-129
m,p-Xylenes	<1.211	92.59	77.43	84	53-127
o-Xylene	<0.4774	46.30	40.64	88	54-127

Surrogate	%REC	Limits
Dibromofluoromethane	124	78-126
1,2-Dichloroethane-d4	134	76-135
Toluene-d8	105	80-120
Bromofluorobenzene	110	80-126

Type: MSD Lab ID: QC384748

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	231.5	231.9	100	45-123	13	32
MTBE	46.30	48.70	105	55-120	3	20
Isopropyl Ether (DIPE)	46.30	43.06	93	50-120	0	20
Ethyl tert-Butyl Ether (ETBE)	46.30	45.67	99	58-120	2	20
1,2-Dichloroethane	46.30	50.36	109	56-120	3	20
Benzene	46.30	43.02	93	61-122	4	20
Methyl tert-Amyl Ether (TAME)	46.30	48.43	105	60-120	3	20
Toluene	46.30	41.72	90	57-124	3	21
1,2-Dibromoethane	46.30	34.29	74	57-120	7	20
Ethylbenzene	46.30	41.92	91	55-129	3	23
m,p-Xylenes	92.59	78.03	84	53-127	1	23
o-Xylene	46.30	40.03	86	54-127	2	22

Surrogate	%REC	Limits
Dibromofluoromethane	124	78-126
1,2-Dichloroethane-d4	134	76-135
Toluene-d8	107	80-120
Bromofluorobenzene	113	80-126

RPD= Relative Percent Difference

194282

Chain of Custody Record

Lab job no. _____

Date _____

Page 1 of 1

Laboratory Curtis and Tompkins, Ltd.
Address 2323 Fifth Street
Berkeley, California 94710
510-486-0900

Project Owner Ulibarri Estate/Ms. Mary Krantz
Site Address 387 Orange Street
Oakland, CA
Project Name Orange Street
Project Number 2007-08

Method of Shipment Hand Delivery
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature) Henry Pietropaoli

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TPH-diesel	BTEX, MTBE	Fuel oxygenates	Pb-scavengers	Naphthalene	Remarks
-1	B1-13	13-13.5'	4/19/07	0930	soil	plastic sleeve	yes	—	No	1	X	X	X	X	X	
-2	B1-18	18-18.5'		0945	soil	" "		—		1						
-3	B1-GW	~~1[illegible]~~		1015	H_2O	3-40 ml/1-amber		HCl/none		4						
-4	B2-14.5	14.5-15		1110	Soil	plastic sleeve		—		1						
-5	B2-18	18-18.5		~~1120~~	Soil	" "		—		1						
-6	B2-GW	—		1140	H_2O	3-40 ml/1-amber		HCl/none		4						
-7	B3-18	~~18.5-19.0~~		1245	Soil	plastic sleeve		—		1						
-8	B4-14	13.5-14		1445	Soil	" "		—		1						
-9	B4-18	18-18.5		1525	Soil	" "		—		1						
-10	B4-23	22.5-23		1600	Soil	" "		—		1						

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Henry Pietropaoli	4/19/07	Signature Anna Pajarillo	4/19/07	Signature		Signature	
Printed H. Pietropaoli	Time 1700	Printed Anna Pajarillo	Time 1700	Printed	Time	Printed	Time
Company Stellar Environmental		Company Curtis & Tompkins		Company		Company	

Turnaround Time: 5 Day TAT
Comments: Samples on ice

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

2000-00-01

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

* ~~sample-004=COC-B2-14.5 sleeve~~; on sample-007: COC=B3-19; sleeve=B3-18 } Both ID's by time logged in as ID on COC
sample-005 = COC: B2-18 sleeve: B2-19