SECOND INVESTIGATION REPORT FOR LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) CHARACTERIZATION

DEFENSE FUEL SUPPORT POINT NORWALK
15306 NORWALK BOULEVARD
NORWALK, CALIFORNIA

Prepared for

Defense Logistics Agency Energy
8725 John J. Kingman Road
Fort Belvoir, Virginia 22060-6222

January 12, 2012

Prepared by

PARSONS

100 WEST WALNUT STREET • PASADENA • CALIFORNIA 91124

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ABBREVIATIONS AND ACRONYMS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
Calscience	Calscience Environmental Laboratories, Inc.
CoreLab	Core Laboratories
CPT	Cone Penetration Test
CSM	conceptual site model
DFSP	Defense Fuel Support Point
DigAlert	Underground Service Alert
DLA	Defense Logistics Agency
GC	gas choromatograph
IDW	investigation-derived waste
JP	jet propellant
KMEP	Kinder Morgan Energy Partners, L.P.
LIF	laser induced fluorescence
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilograms
ml/min	milliliters per minute
MS	mass spectrometer
MTBE	methyl tert-butyl ether
PPE	personal protective equipment
RWQCB	Regional Water Quality Control Board, Los Angeles Region
SFPP	Santa Fe Pacific Pipeline, L.P.
site	DFSP Norwalk Facility
SubSurface	SubSurface Surveys & Associates, Inc.
TBA	tert-butyl alcohol
TFS	truck fill stations
TIC	total ion chromatograms
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
UVOST	ultra-violet optical screening tool
VOCs	volatile organic compounds
ZymaX	ZymaX Forensics

1 INTRODUCTION

This report presents the results of further investigation conducted at the Defense Fuel Support Point (DFSP) Norwalk facility (site) located at 15306 Norwalk Boulevard, Norwalk, California. This work has been conducted at the request of the Regional Water Quality Control Board, Los Angeles Region (RWQCB) in their letter dated May 10, 2011[1] where comments were provided on the ***Investigation Report for Light Non-Aqueous Phase Liquid (LNAPL) Characterization and Vapor Monitoring Program*, Defense Fuel Support Point Norwalk, California**[2] dated January 14, 2011. This report addresses the RWQCB comments provided in the May 10 and August 10[3], 2011 letters and provides details on additional data collection and evaluation. This report has been prepared on behalf of the Defense Logistics Agency (DLA) Energy. The site location map is shown on Figure 1-1. This second investigation report provides supplemental data to the January 14th report and not all information is repeated herein. Please refer to the January 14th report for detailed site and investigation information collected in 2010.

This report only discusses the LNAPL portion of the work and does not address the vapor monitoring program. The ***First Semiannual 2011 Soil Vapor Monitoring Report*** was submitted in August[4] and the second semiannual report will be submitted in the first quarter of 2012.

1.1 Site Description

The DFSP Norwalk facility is a 50-acre facility consisting of 12 aboveground storage tanks that previously stored and distributed jet propellant (JP)-5 and JP-8. Aviation gasoline and JP-4 also were reportedly stored at the facility. Santa Fe Pacific Pipeline, L.P. (SFPP), an operating partner of Kinder Morgan Energy Partners, L.P. (KMEP), leases a 2-acre easement along the southern and eastern boundaries of DFSP for operation of its pipelines, which convey gasoline, diesel, and jet fuel. Within the southern easement lie three active pipelines, one of which is a 16-inch diameter pipeline, designated LS-1, that bends at the southeastern corner of the facility and continues northward within the eastern easement. An abandoned pipeline, likely owned or formerly operated by Golden West Pipeline, also runs along the eastern boundary of the site. The DLA has decommissioned the site, but SFPP pipelines continue to operate. Refer to previous reports for additional detailed background site information, which is not repeated here.

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1 Regional Water Quality Control Board (RWQCB), 2011a, Comments on Investigation Report for Light Non-Aqueous Phase Liquid Characterization and Vapor Monitoring Program; letter dated May 10.

2 Parsons, 2011a, *Investigation Report LNAPL Characterization and Vapor Monitoring Program*, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California; January 14.

3 RWQCB, 2011b, Approval of WorkPlans for Light Non-Aqueous Phase Liquid (LNAPL) Characterization and Vapor Monitoring Program; letter dated August 10.

4 Parsons, 2011b, *First Semiannual 2011 Soil Vapor Monitoring Report*, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California; August 29.

1.2 Geology & Hydrogeology

Cone penetrometer tests (CPT) in conjunction with a ultraviolet optical scanning tool (UVOST) were performed for the first phase of this investigation at 15 locations around the site to provide basic interpretations in terms of soil behavior type and various geotechnical parameters using current published empirical correlations[5]. Soil encountered during the investigation was comprised primarily of unconsolidated fine sand, silty fine sand, and silt, with lesser concentrations of clay. The depth of investigation was approximately 80 feet below ground surface (bgs) at each location. Figure 1-2 shows the locations of the UVOST/CPTs. The January 2011 investigation report presented geologic cross-sections that were prepared using the CPT and UVOST data.

The cross sections show that the unconsolidated alluvial sediments at the surface are approximately 50 feet thick and consist mostly of fine sand and silty fine sand with lesser amounts of interbedded silt and clay. A widely continuous sand unit that is approximately 15 to 18 feet thick occurs at the base of the alluvial section. With the water table generally about 30 feet bgs in the site area, this lower sand unit comprises most of the semi-perched aquifer.

Underlying the basal sand of the alluvial section is a finer grained unit comprised mostly of silt and clay, with several interbedded fine sandy layers. This unit, termed the Bellflower Aquitard, is approximately 30 feet thick and generally occurs at a depth of 50 to 80 feet bgs. The interpretations indicate that the Bellflower Aquitard is slightly thinner on the east side of the site and dips below the 80 foot depth of investigation to the west. Although there are several fairly continuous thin sand layers within the Bellflower, the predominance of silty and clayey layers most likely retards vertical migration of contaminants through the Aquitard. Previous investigations of this unit noted it to be organic rich, often containing wood fragments.

The Exposition aquifer is the shallowest reported regional aquifer beneath the site[6]. The sand unit at the top of this aquifer, which is reported to be about 70 feet thick in this area, is interpreted to occur at a depth of 72 feet bgs at drilling location UV-12. Additional information on subsurface conditions encountered below the depth of this investigation (80 feet) for the DFSP property is available in previous reports on the DFSP site, and indicate that the Exposition aquifer is comprised primarily of fine sand and silty fine sand.

5 Lunne, T., Robertson, P.K., and Powell, J.J.M, 1997. Cone Penetration Testing in geotechnical Practice, E&FN Routledge, 352 p, ISBN 0-7514-0393-8.

6 California Department of Water Resources (CDWR), 1961. Bulletin No. 104 – Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County (Ground Water Geology), dated June 1961 (reprinted May 1991).

1.3 Objectives

The objectives of the initial LNAPL investigation were as follows:

- Assess whether petroleum hydrocarbons were present in soil and groundwater at specific onsite areas where existing data is insufficient to determine its presence or its lateral/vertical extent; and
- Confirm the presence and character of the Bellflower Aquitard.

The 2010 investigation included the following tasks: CPT at 15 locations; UVOST at 15 locations; soil sampling from 4 CPT locations to confirm UVOST results; and 1 split soil sample for geotechnical parameters. Figure 1-2 shows the UVOST locations (the UVOST data were collected at the same CPT borehole locations) throughout the site. Details for the CPT/UVOST location rationale were provided in the January 2011 investigation report.

Additional objectives for this investigation reported herein were as follows:

- Confirm UVOST responses from the deeper zone at two UVOST locations;
- Provide LNAPL waveform interpretations and LNAPL forensic results; and
- Conduct LNAPL mobility study.

To assess the first objective, hollow-stem auger drilling was used to assess the deep soil conditions at UV-2 and UV-9, where the UVOST logs exhibited a low magnitude reflectance response. The CPT and UVOST logs for UV-2 and UV-9 are included as Appendix A of this report.

Discussion for the second objective is discussed below in Section 3.2.

The third objective was addressed by following the example procedures summarizing the methodologies for the evaluation of LNAPL transmissivity provided by the RWQCB in an email to Parsons on May 12, 2011. A LNAPL product baildown test was conducted at GMW-62, the only well that contains measurable product thickness sufficient to perform test.

2 FIELD ACTIVITIES

The investigations were conducted in accordance with a work plan[7] and two addendum work plans[8,9] for the site. Approval of the work plan and addendums were received from the RWQCB[10,11]. This effort is comprised of deep soil sampling at two hollow-stem auger drilling locations located adjacent to former UVOST locations UV-2 (north of truck fueling stations and south of water tank) and UV-9 (south of former AST 80004), and a LNAPL product baildown test at GMW-62. The field work was conducted in December 2011.

2.1 Project Planning and Preparation

Preparation for fieldwork included acquisition of field equipment and permits, mobilization, and coordinating lines of communication. Parsons procured a geophysical survey subcontractor to clear the planned soil sampling locations.

2.1.1 Permitting

Prior to the start of subsurface activities, soil boring permits to drill with the hollow-stem auger tools into saturated soils beneath the site were obtained prior to this investigation from the Los Angeles County Department of Public Work and City of Norwalk.

2.1.2 Geophysical Clearance

Underground Service Alert (DigAlert) was notified of Parsons planned subsurface activities at least 48 hours prior to the start of the field investigation. The proposed drilling locations were clearly marked with white paint. DigAlert contacted all utility owners within the site vicinity and notified them of the subsurface investigation plans.

In addition to notifying DigAlert, each drilling location and surrounding areas were surveyed using a combination of electromagnetic induction and ground-penetrating radar instruments to investigate and clear all boring locations for any subsurface obstructions (e.g., piping, utilities, metallic debris, etc.). SubSurface Surveys & Associates, Inc.

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7 Parsons, 2010a, *LNAPL Characterization via Ultra-Violet Optical Screening Tool Technology and Vapor Monitoring Program*, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California, dated September 14.

8 Parsons, 2010b, *Addendum to the LNAPL Characterization via Ultra-Violet Optical Screening Tool Technology and Vapor Monitoring Program Work Plan*, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California, dated October 12.

9 Parsons, 2011c, *Second Addendum Work Plan for the Light Non-Aqueous Phase Liquid (LNAPL) Characterization and Vapor Monitoring Program*, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California, dated June 30.

10 RWQCB, 2010, *Workplan Approval for Light Non-Aqueous Phase Liquid (LNAPL) Characterization via Ultra-Violet Optical Screening Tool Technology and Vapor Monitoring Program, Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk, California (SCP NO. 0286A, Site No. 16638)*, letter dated October 26.

11 RWQCB, 2011b.

conducted the geophysical survey immediately prior to the start of the field investigation. They clearly delineated all underground utility lines detected in proximity to the sampling locations.

2.2 Hollow-Stem Auger Drilling and Soil Sampling

Hollow-stem auger drilling and soil sampling was conducted on December 8, 2011. J. & H. Drilling Co., Inc. of Santa Ana, California provided the drilling rig equipped with the sampling tools. The soil drilling and sampling was overseen by a California-licensed Professional Geologist.

2.2.1 Locations and Depths

Two locations (UVB-2 and UVB-9) within the DFSP Norwalk facility shown on Figure 1-2, were cored with the hollow-stem auger drilling system. Borehole UVB-2 was drilled to a depth of 76.5 feet and UVB-9 was drilled to a depth of 73.5 feet. Lithologic logs of these boreholes are provided in Appendix B. This relatively deep sampling was conducted in order to assess the chemistry of contaminants present at the UVOST reflectance zones.

2.2.2 Boring Backfill

Each open boring was backfilled with a cement-bentonite slurry (a 95%:5% ratio). The slurry was pumped through a tremie pipe that extended to the bottom of the open boring. The tremie pipe was pulled up incrementally following successive injections of slurry. The slurry was monitored for settlement at the surface. Additional slurry was poured into the boring to compensate for any settlement.

2.2.3 Soil Sampling

As noted above, soil samples were collected from UVB-2 and UVB-9. The UVOST data from the primary borehole locations at UV-2 and UV-9 indicated the presence of petroleum hydrocarbon LNAPLS at depths of about 30 and 76 feet at UV-2 and about 61 and 73 feet at UV-9. The soil samples for laboratory analysis were collected from the depths with the highest measured UVOST petroleum hydrocarbon reflectance at each location, and were fine-tune selected near these depths based on odor, staining and PID screening of the recovered cores from the two new boreholes.

A hollow-stem auger rig was used to collect the soil samples. The sampling device was comprised of a stainless steel drive sampler lined with three stainless steel tubes (2-inch diameter by 6-inch length). Immediately following the collection of soil, the lower tube was capped at each end with Teflon tape and plastic caps (following preparation of discreet sample aliquots utilizing EPA Method 5035 techniques). The capped sample was labeled, placed in a sealable plastic bag, and then immediately placed into an ice-cooled chest. The soil within the remaining upper two tube was used for lithologic classification.

The collected soil samples were reviewed for classification by a California-licensed professional geologist. The soil descriptions included soil type, texture (grain size; using the Unified Soil Classification System), color (Munsell soil color system), general moisture content, and evidence of contamination.

2.2.4 Analytical Methods

Calscience Environmental Laboratories, Inc. (Calscience) analyzed the soil samples collected during this investigation. Calscience is certified by the California Department of Health Services Environmental Accreditation Laboratory Program. In addition, the soil physical parameters were analyzed by Core Laboratories (CoreLab) and the LNAPL samples were analyzed by ZymaX Forensics (ZymaX). Each collected soil sample was analyzed for the following compounds:

- Total petroleum hydrocarbons (TPH) as gasoline using USEPA Method 8015B (modified);
- TPH as JP-5 using USEPA Method 8015B (modified);
- TPH as diesel using USEPA Method 8015B (modified); and
- Volatile organic compounds (VOCs), including oxygenates using USEPA Method 8260B (via 5035).

Specific samples were also analyzed for the following compounds:

- Moisture content using USEPA Method API RP 40/ASTM D2216;
- Dry bulk density, grain density, porosity, and pore fluid saturation using USEPA Method API RP 40;
- Sieve and laser particle size analysis and summary; and
- LNAPL forensic evaluation.

Analytical data summary tables for soil are provided in Tables 3-1 and 3-2. Copies of the final soil laboratory reports are provided in Appendix C.

2.3 LNAPL Bail-down and Recovery Test

Monitoring well GMW-62 was selected for a LNAPL bail-down test because it had the thickest measured LNAPL column of all the wells at the site at 0.92 feet. A pneumatic skimmer pump was used to remove the free product to a sheen. The well was pumped until mostly water was seen at the discharge point. The depth to product and water was measured on the recovery time schedule specified in the work plan.

2.4 Field Variations from Work Plan

All field activities were conducted in general conformance with Parsons' sampling work plan[12] and work plan addendums[13,14]. The sampling locations were consistent with those proposed.

2.5 Equipment Decontamination

All soil sampling equipment that came into contact with potentially contaminated soil or water was carefully decontaminated to assure the quality of samples collected and prevent transference of impacted materials from the area sampled. Decontamination was conducted prior to and after each use of equipment. All sampling devices used were decontaminated according to USEPA Region IX recommended procedures.

The drilling and sampling equipment used were decontaminated using the following procedures:

- Non-phosphate detergent and tap water wash,
- Initial tap water rinse, and
- Final distilled water rinse.

The wash water and rinse water generated during the field investigation were placed into 55-gallon drums. These drums were stored within the southwestern portion of the DFSP facility (near the office area).

2.6 Investigation-Derived Waste Disposal

Different types of investigation-derived waste (IDW) were generated during the field activities, included the following:

- Used personal protective equipment (PPE),
- Disposable sampling equipment,
- Decontamination fluids, and
- Soil cuttings.

IDW was managed and disposed of in accordance with current Federal, State, and local requirements. IDW was labeled and stored in accordance with the requirements of the Los Angeles County Health Department.

Soil cuttings and decontamination water generated during field investigations were collected in properly labeled and sealed U.S. DOT approved 55-gallon drums. At the end

12 Parsons, 2010a.
13 Parsons, 2010b.
14 Parsons, 2011c.

of the field program, the drums were moved to the southwestern portion of the DESC facility. Profiling of soil cuttings and waste water was done to ensure appropriate disposal. Proper arrangements were made to haul and dispose of the IDW drums.

Used PPE and disposable equipment was double bagged and placed in a municipal refuse dumpster at the site. These wastes are not considered hazardous and were sent to a municipal landfill.

3 INVESTIGATION RESULTS AND DATA EVALUATION

This section discusses the results from the LNAPL and soil investigations and data evaluation summaries.

3.1 Occurrence of Petroleum Hydrocarbons

In the October 2010 field work, the vertical distribution of petroleum hydrocarbons was investigated using UVOST technology and was reported in the January 2011 report. Different types of PAHs will fluoresce at different wave lengths leaving different characteristic signatures. Measuring the intensity and wavelength of the fluoresced PAH allows one to assess the type and relative concentration of the PAH present in the subsurface. In general, as the number of aromatic (benzene) rings increases, the fluorescent response shifts toward longer wavelengths. Therefore, lighter compounds tend to fluoresce at shorter wavelengths and heavier compounds fluoresce at longer wavelengths. The intensity of the radiation emitted by the contaminant is an indication of the relative concentration of aromatics as well as the number of aromatic rings in the compounds present.

3.1.1 Soil Analytical Results

The January 2011 report presented the UVOST and soil analytical results per UVOST location (UV-1 through UV-15). Below presents the deep soil results from this field effort at adjacent borings to UV-2 and UV-9.

UVB-2 Location UV-2 is situated immediately north of the truck fill stations (TFS) and just west of MW-15. Free product has been measured at MW-15 since 2002. The UVOST log indicates a large amplitude spike at 29.8 to 30.4 feet bgs, which is about 2 feet below the current potentiometric surface. Several smaller magnitude increases in fluorescence occur at 11-12 feet bgs and 18-19 feet bgs. The CPT log indicates that these depths are clayey silt or silty clay layers immediately above and below a sandy unit. These may be indicative of irreducible concentrations of hydrocarbons or may be natural organic rich layers. The "callout" graph on the UVOST log indicates higher voltages in the longer wavelengths, and therefore has a different hydrocarbon character than shown at UV-1. The UV-2 waveform character is more similar to motor oil or gasoline. This may indicate a different source at the UV-2 location than at UV-1. There are no PAHs indicated on the UVOST log in the Bellflower Aquitard below the alluvial basal sand unit.

A soil sample was collected at location UV-2 at a depth of 30 feet bgs, in the exact interval of the highest UV reflectance spike. The laboratory analytical results, summarized on Table 4-1 and Appendix C of the original January 2011 report, show a concentration of 370 milligrams per kilogram (mg/kg) TPH as gasoline range and 510 mg/kg TPH as JP-5. Considering that there is considerable overlap in the aliphatic carbon chain length of these two analyses (TPH as gasoline has a carbon range of C4 – C14 and TPH as JP-5 has a

carbon range of C8 – C17), it is reasonable to conclude that the soil in this smear zone is below the cleanup standard of 1,000 mg/kg. In addition to the TPH analyses, the soil sample was also analyzed for VOCs. Table 4-2 of the January 2011 report summarizes all of detected VOCs from the UV-2 borehole, and shows that many aromatic hydrocarbons, including benzene, toluene, ethylbenzene, and xylenes (BTEX) constituents, were detected and contributed to the UV reflectance spike. No oxygenates (methyl tert-butyl ether [MTBE], tert-butyl alcohol [TBA], and others) were detected.

New borehole UVB-2, drilled adjacent to UV-2, was cored and sampled at six separate depths as indicated on Table 3-1. These depths were all selected based on even the slightest increase in UV reflectance at the offset UV-2 UVOST log. The sample collected at 11 to 11.5 feet had the highest detected TPH concentrations (Table 3-1), but all were an order of magnitude lower than the 1,000 mg/kg clean up standard. Some VOCs were detected in all sampled depths at low, estimated concentrations as indicated on Table 3-2.

Of particular interest is the sample from 71.5 to 72 feet, which had benzene detected at 140 mg/kg and toluene at 130 mg/kg. This is not at a depth that indicated any UV reflectance on the adjacent UVOST log, indicating that the benzene and toluene are from dissolved phase adsorbed to the clay matrix and are not present as LNAPLs. That core sample from this depth had no odor, stain, or PID reading above background.

The core sample from UVB-2 at 76 feet, where there was a slight UV reflectance at UV-2, had no odor or stain; and had no TPHs or VOCs detected above the reporting limit. The lithologic description for the clay at a depth of 71.5 to 72 feet was described as organic rich.

The lithologic description from this depth is silt that has some very fine grained sand mixed in, just as was interpreted from the CPT log at UV-2. The lithologic classification of the sample from 76 feet is also confirmed by the CoreLab sieve analysis included in Appendix C. A pore fluid saturation test indicated a hydrocarbon saturation of 2.25 % of the pore volume. This result is explained in Section 3.2 with the forensic analysis.

UVB-9 Borehole UV-9 is located approximately 45 feet south of Tank 80004, between GMW-45 and TF-23. Free product was reported in TF-23 in October 2009 with a thickness of 0.01 foot, but was not observed prior to this occurrence or subsequently in 2010 or 2011. The UVOST log indicates that there are no residual concentrations of TPH in the soil column at this location that may be contributing to the dissolved phase plume.

The highest magnitude UV reflectance at UV-9 was at a depth of 72 feet. However, that was attributed to organic material in the silty unit or mineral fluorescence. To verify this interpretation, borehole UVB-9 was drilled adjacent to UV-9. A core sample from UVB-9, collected at a depth of 71.5 to 72 feet, had no detectable TPHs (Table 3-1), and no VOCs (Table 3-2) detected above the reporting limit. The core sample from 28 feet deep, approximately at the water table, had some low concentrations of TPHs and

VOCs (Tables 3-1 and 3-2), but all were well below the clean-up standard of 1,000 mg/kg.

The core sample from UVB-9 at 72 feet, which had no odor or stain, was also sent to CoreLab to analyze physical properties. The lithologic description for the clay at a depth of 67 feet was described as organic rich. The sieve analysis indicates a silt with trace amounts of fine and very fine sand, just as interpreted for this depth on the UV-9 CPT log (Appendix A).

A pore fluid saturation test indicated a hydrocarbon saturation of 3.48 % of the pore volume. This result is explained in Section 3.2 with the forensic analysis.

3.1.2 Distribution of Hydrocarbons

The following interpretations are based on the observations presented above and from the January 2011 report. A review of the cross sections (January 2011 report, Figures 1-3 through 1.9) show that residual LNAPLs occur both above the water table (vadose zone) and below the water table (saturated zone). Residual LNAPLs in the saturated zone more readily contribute to the dissolved phase contaminant plumes, which are described in more detail in the semiannual reports.

Figure 3-1 shows a conceptual site model (CSM) that integrates all of the CPT and UVOST data. The vertical and lateral extents of the contamination shown on the CSM are based on the UVOST reflectance, and since the UVOST tool detects only non-aqueous phase aromatic hydrocarbons - the plume extents shown do not depict the extent of the dissolved phase plumes. Although the UVOST tool measures UV reflectance every 0.1 foot, the data for modeling was reduced to the maximum reflectance value for each foot. This has the effect of exaggerating the thickness and magnitude of contamination shown on the CSM and also on the cross sections shown on Figures 1-3 through 1-9 in the January 2011 report. Based on the magnitude of the UV reflectance on the UVOST logs, the thickness of the LNAPL zones, and the soil analytical results, the plumes shown on the CSM are most likely at residual levels and are no longer migrating. However, these residual hydrocarbons do continue to be a source for the dissolved phase plumes. The CSM shows that the residual LNAPLs are confined to a few thin layers and are not distributed throughout the entire vadose (unsaturated) zone and do not occur below the historical fluctuations in the water table.

Figure 3-2 shows a plan view of the lateral extents of hydrocarbons in the vadose zone. The limits shown were determined by statistical krieging of the UV reflectance data and were not influenced by geological interpretation. The occurrence of LNAPLs is limited to the area around and south of the TFS as indicated at locations UV-3 and UV-4. The UV waveform for the hydrocarbons in this area and interval is more like a motor oil or gasoline than jet fuel. A small area of LNAPLs above the water table is also indicated at UV-10 at very low concentration. As mentioned above, the waveform type at this location is indicative of jet fuel.

Figure 3-3 shows a plan view of the lateral extents of hydrocarbons at or below the water table. Several areas are indicated to have residual levels of LNAPLs. The area extending from the TFS (UV-2) northward toward Tank 55003 (UV-1) is interpreted to be motor oil at UV-2 and low concentration of jet fuel at UV-1. Another area with LNAPLs at or below the water table occurs southwest of Tank 80008 (UV-10) and extends westward toward Tank 80007 (UV-14). The UV waveform type indicates a jet fuel source, which is confirmed by the laboratory analysis for UV-10 (3,300 mg/kg as TPH as JP-5). The concentration of TPH as JP-5 appears to be lower at UV-10 than at UV-14 based on the magnitude of the UV reflectance at the two wells, but both locations appear to be at irreducible residual concentrations that are no longer mobile.

Figure 3-3 shows a small area of LNAPLs at the east side of the site adjacent to Holifield Park centered around UV-12. As noted above for location UV-12, this plume is identified as jet fuel source based on UV waveform and laboratory analysis of a soil sample. The aerial extent of this plume is limited to the immediate area around GW-15, UV-12, and GMW-62.

A fourth area with LNAPLs near the water table is at UV-5. Although this plume is depicted on Figure 3-3 as comingled with the plume at UV-1 and UV-2, it may also be interpreted as a separate plume based on the different UV waveform character, and different reflectance magnitudes at different stratigraphic levels. The LNAPLs at the UV-5 plume are in a thin layer and most likely at irreducible residual levels that are no longer mobile, but will continue to be a source for the dissolved phase plume.

3.2 Forensic Results and LNAPL Waveform Interpretation

Two soils samples were submitted to ZymaX for forensic analysis of any contained hydrocarbons. A soil sample from a depth of 72 feet was collected from UVB-2, and a sample from 72 feet was collected from UVB-9. Methylene chloride was used as a solvent to extract any hydrocarbons, The concentrated extract was directly injected into a gas choromatograph (GC) with a mass spectrometer (MS) analyzer. Hydrocarbons in the range of C8 to C40 were identified. The total ion chromatograms (TIC) provide the distributions of fingerprints of hydrocarbons and other organic chemicals. The major detected constituents are non-hydrocarbons, several light halocarbons, a phenol, and other oxygen-containing compounds.

The chromatogram for UVB-2-72 indicated a suite of hydrocarbons from C13 to above C29. The n-alkane (Ion 85) chromatogram of this sample shows a strong preference for the odd-numbered alkanes from C25 to C32. This is a characteristic of hydrocarbons from recent organic matter, rather than petroleum hydrocarbons. The remaining suite of hydrocarbons contains abundant hydrocarbons heavier than C17, which are beyond the carbon range of jet fuel (C9 to C16). There is no evidence in the TIC chromatograms of hydrocarbons associated with gasoline. Depending on the quantitation method, it is possible that the light halocarbons and oxygen-containing compounds in this sample would be included in a TPH as gasoline concentration.

The chromatogram for sample UVB-9-72 also shows that the major constituents are non-hydrocarbons with several light halocarbons and oxygen-containing compounds. A suite of hydrocarbons primarily from C17 to above C19 was also detected. These hydrocarbons are beyond the carbon range of jet fuel. There is no evidence in the TIC chromatogram of hydrocarbons associated with gasoline.

The conclusion is that the forensic analysis indicates that the low magnitude UV reflectance indicated on the UVOST logs and also detected as LNAPL saturation on the CoreLab pore fluid saturation tests for depths below 60 feet are most likely due to decay of natural organic material deposited with the fine grained sediments.

The waveform character shown in the call-outs on the UVOST logs for these deeper depths shows very little reflectance on the short wavelength frequency (lighter compounds), and much higher reflectance response in the longer wavelength channels (more carbon rings). These waveform characters correlate very well with the forensic spectral analysis.

3.3 LNAPL Mobility Study

A product baildown test was performed in an effort to determine the transmissivity of the LNAPL at the water table. Monitoring well GMW-62 was selected because it had the thickest measured LNAPL column of all the wells at the site at 0.92 feet. A pneumatic skimmer pump was used to remove the free product to a sheen. The initial pump rate was about 700 milliliters per minute (ml/min), but was reduced to 166 ml/min by the end of the test. The well was pumped until mostly water was observed at the discharge point. Just over 1 gallon of product and 3 gallons of water were removed in one hour. The depth to product and water was measured on the recovery time schedule specified in the work plan.

Table 3-3 shows the recovery measurements of depth to product and depth to water, and the calculated product thickness for each measurement. Figure 3-4 shows hydrographs and product thickness curves for all of the data and a blow-up of the measurements for the first day only. Figure 3-4 shows that the water level rose as the product was removed, and rebounded much faster to a level higher than the initial product level. The product thickness immediately recovered 0.02 feet (0.24-inches) and remained that thickness for the first hour. Over the next five days, the product thickness increased to a maximum thickness of 0.04 feet before decreasing to a thickness of 0.01 feet.

The combination of water level changes, minimal recovery, and data variability make calculation of LNAPL transmissivity dubious. The CPT and UVOST logs for UV-12, which is located near GMW-62, indicate that less than one foot of soil with some LNAPL saturation occurs in a clay or silty clay unit. Typically, hydraulic conductivity in this type of lithology is in the range of 10^{-6} to 10^{-8} cm/sec. It is reasonable to assume that LNAPL conductivity would be even less due to differences in density, viscosity, and being the non-wetting liquid. We assume that with a LNAPL saturated thickness of less than a foot, the LNAPL transmissivity would be very low. The current data set and site

conditions do not allow adequate data to calculate the LNAPL transmissivity using the proposed/suggested calculations that the RWQCB provided.

4 SUMMARY AND RECOMMENDATIONS

The objectives of this investigation were as follows:

- Assess whether petroleum hydrocarbons are present in soil and groundwater at specific on-site areas where existing data is insufficient to determine its presence or its lateral/vertical extent;
- Confirm the presence of the Bellflower Aquitard; and
- Confirm UVOST responses from the deeper zone at two UVOST locations;
- Provide LNAPL waveform interpretations and LNAPL forensic results; and
- Conduct LNAPL mobility study.

4.1 Summary

The objectives of the investigation as outlined above were met by:

- Conducting CPT at 15 locations;
- Conducting UVOST at 15 locations;
- Collecting soil samples from 4 CPT locations to confirm UVOST results;
- Collecting 1 split soil sample for geotechnical parameters;
- Drilling and coring at two locations with deep UVOST indications;
- Sending deep cores to ZymaX for forensic analysis of hydrocarbons; and
- Performing a LNAPL baildown and recovery test at GMW-62.

Based on the CPT, UVOST, and soil analytical results, hydrocarbon LNAPLs were detected at low concentrations in several areas. Where detected, the vertical extent is limited to a 1 to 2 feet thick smear zone at depths near the perched water table, as shown in the CSM depicted on Figure 3-1. Hydrocarbons, tentatively suspected at deeper depths in the saturated zone were not substantiated. The detected hydrocarbons are interpreted to be at less than residual saturation and are therefore no longer mobile, based on the low concentrations and lack of LNAPL displacement head. As shown on Figure 3-3, the horizontal extent of hydrocarbons in soil is limited to three specific areas on the southern portions of the site and one area on the eastern edge of the site. The hydrocarbon plume near the TFS is interpreted to have a motor oil or diesel source, and the southwestern plume is interpreted to be a gasoline type. The plume near Tank 80007 and the eastern plume probably had a jet fuel source. The statistically contoured plume extents shown on

Figure 3-3 are larger than would be manually interpreted, and show a conservative maximum areal distribution.

The CPT data confirmed the presence of the Bellflower Aquitard everywhere across the site generally at a depth of 50 feet bgs. The thickness varies from greater than 36 feet on the west side of the site (UV-6) and thins to 25 feet on the east side (UV-12). The Bellflower Aquitard is comprised mostly of silt and clay, with several interbedded fine sandy layers. Although there are several fairly continuous thin sand layers within the Bellflower, the predominance of silty and clayey layers most likely retards vertical migration of contaminants through the Aquitard.

4.2 Recommendations

The UVOST data indicates that there are occurrences of residual hydrocarbons in the soil column near the water table that are at irreducible concentrations. Therefore, it would not be productive to install an active extraction system to remove free product, as was verified by the GMW-62 baildown test. It is recommended to utilize passive recovery with absorbent socks to remove the low volume of hydrocarbons that may accumulate in any well. This conclusion does not apply to the current extraction systems that are utilized to manage the dissolved phase plume and influence hydraulic gradients.

TABLES

TABLE 3-1
Hydrocarbon Fraction In Soil Analytical Results
Defense Fuel Support Point
Norwalk, California

		TPH as Gasoline (C4-C14)	TPH as JP5 (C8-C17)	TPH as Diesel (C6-C44)
Units		mg/kg	mg/kg	mg/kg
Sample Location and Depth	**Sample Date**			
UVB-2:				
11	12/8/2011	**200**	**460**	**510**
30	12/8/2011	**0.38**	<5.0	<5.0
43	12/8/2011	<0.22	<5.0	<5.0
65	12/8/2011	<0.21	<5.0	<5.0
72	12/8/2011	**0.34**	<5.0	<5.0
76	12/8/2011	<0.19	<5.0	<5.0
UVB-9:				
24	12/8/2011	**0.76**	<5.0	<5.0
28	12/8/2011	**150**	**7.0**	**7.3**
61	12/8/2011	<0.19	<5.0	<5.0
61 duplicate	12/8/2011	<0.20	<5.0	<5.0
68	12/8/2011	<0.19	<5.0	<5.0
72	12/8/2011	<0.20	<5.0	<5.0

Notes:
TPH = total petroleum hydocarbons
mg/kg = milligrams per kilogram
<0.22 = Analyte concentration not detected above specified method detection limit.

TABLE 3-2
Detected Volatile Organic Compounds In Soil Analytical Results
Defense Fuel Support Point
Norwalk, California

Sample Location and Depth	Sample Date	Acetone	Benzene	Butanone-2	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon Disulfide	Ethylbenzene	Isopropylbenzene	Methylene Chloride	Naphthalene	n-Propylbenzene	Toluene	Trimethylbenzene-1,2,4	Trimethylbenzene-1,3,5	p/m-Xylene	o-Xylene	Methyl-t-Butyl Ether	Tert-Butly Alcohol
	Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
UVB-2:																				
11	12/8/2011				97	64			18 J			91 J			73 J		68 J			
30	12/8/2011	19 J	2.5	4.0 J					0.33 J		1.3 J			2.2			0.60 J			
43	12/8/2011	7.4 J	0.23 J					0.33 J			4.2 J									
65	12/8/2011	4.9 J	0.19 J								1.4 J									
72	12/8/2011	**67**	**140**	25	0.45 J			2.1 J	**23**	1.4		1.8 J	1.2 J	**130**	3.9	0.98 J	**23**	**10**		
76	12/8/2011	20 J		3.4 J																
UVB-9:																				
24	12/8/2011	18 J	1.4				0.23 J	1.5 J	0.55 J					1.1 J			1.3 J			
28	12/8/2011	**320 J**	**91**		**120**	**59**			**510**	**130**		**210 J**	**200**	**1000**	**920**	**500**	**2400**	**740**		
61	12/8/2011	33 J	0.50 J	7.3 J				0.38J	0.21 J					0.81 J			0.67J		0.34 J	
61 duplicate	12/8/2011	27 J	0.42 J	6.0 J				0.26 J	0.12 J					0.62 J			0.34 J		0.34J	
68	12/8/2011	20 J	0.38 J	3.7 J				1.7 J												8.0 J
72	12/8/2011		0.29 J																	

Notes:
µg/kg = micrograpms per kilogram
Blank cells indicate that the concentration is below the method detection limit.
J = Analyte was detected at a concentration below the reporting limit and above the method detection limit. Reported value is estimated.

TABLE 3-3
GMW-62 Product Baildown Test
Defense Fuel Support Point
Norwalk, California

Date & Time	Elapsed Time	DTP (feet bgs)	DTW (feet bgs)	LNAPL Thickness (feet)
12/14/11 9:00	-41	29.86	30.78	0.92
12/14/11 9:42	1	30.47	30.47	0
12/14/11 9:43	2	30.35	30.37	0.02
12/14/11 9:44	3	30.32	30.34	0.02
12/14/11 9:45	4	30.28	30.30	0.02
12/14/11 9:46	5	30.23	30.25	0.02
12/14/11 9:47	6	30.21	30.23	0.02
12/14/11 9:48	7	30.19	30.21	0.02
12/14/11 9:49	8	30.18	30.20	0.02
12/14/11 9:50	9	30.17	30.19	0.02
12/14/11 9:51	10	30.16	30.18	0.02
12/14/11 9:56	15	30.13	30.15	0.02
12/14/11 10:01	20	30.12	30.14	0.02
12/14/11 10:11	30	30.11	30.13	0.02
12/14/11 10:21	40	30.09	30.11	0.02
12/14/11 10:31	50	30.08	30.10	0.02
12/14/11 10:41	60	30.07	30.09	0.02
12/14/11 11:41	120	30.04	30.07	0.03
12/14/11 12:41	180	30.01	30.05	0.04
12/14/11 13:41	240	29.98	30.02	0.04
12/14/11 14:41	300	29.98	30.02	0.04
12/14/11 15:41	360	29.97	30.01	0.04
12/15/11 7:45	1,324	29.79	29.82	0.03
12/19/11 15:04	7,523	29.33	29.34	0.01
12/23/11 9:15	12,934	30.08	30.20	0.12

Notes:
DTP = depth to product
bgs = below ground surface
DTW = depth to water
LNAPL = light non-aqueous phase liquid

FIGURES

N

FIGURE 1-1

Site Location Map

DEFENSE FUEL SUPPORT POINT
Norwalk, California

PARSONS

Pasadena, California

K:\Depts\Dept48\DESC 07-2008 Contract\Norwalk\ACO-0011 LNAPL-VMP Investigations\Report\Figure 1-1 Site Location Map.cdr

E 20000.00

℄ EXCELSIOR DRIVE

℄ NORWALK BLVD

SERVICE ROAD

SERVICE ROAD

TANK 80001

TANK 80002

TANK 80004

TANK 80005

TANK 80006

TANK 80007

TANK 80008

TANK 80009

TANK 80013

TANK 55003

TANK 55004

TANK 80017

UV-15

UV-8

UV-9/UVB-9

UV-7

UV-11

UV-12

UV-6

UV-10

UV-14

UV-1

UV-13

UV-5

UV-2/UVB-2

UV-3

UV-4

OIL-WATER SEPARATOR

ADMINISTRATION BUILDING

LABORATORY BUILDING

TANK

TANK

SUMP

Truck Fill Stands

Manifold Pit

KMEP LEASE AREA

El Toro (Navy) Pumphouse

Main (Air Force) Pumphouse

Holifield Park

℄ CHESHIRE STREET

Legend

UV-1: Ultra-Violet Optical Screening Tool (UVOST) /Cone Penetration Testing (CPT) Location

N

0 80 160 320 Feet

1 in = 160 feet

FIGURE 1-2

UVOST Location Map

DEFENSE FUEL SUPPORT POINT

Norwalk, California

PARSONS

Pasadena, California

S:\ES\Remed\DFSP\Norwalk\GIS\dQ11\UVOST_VMP_Locations_11x17_r1.mxd lxh 1/10/2012

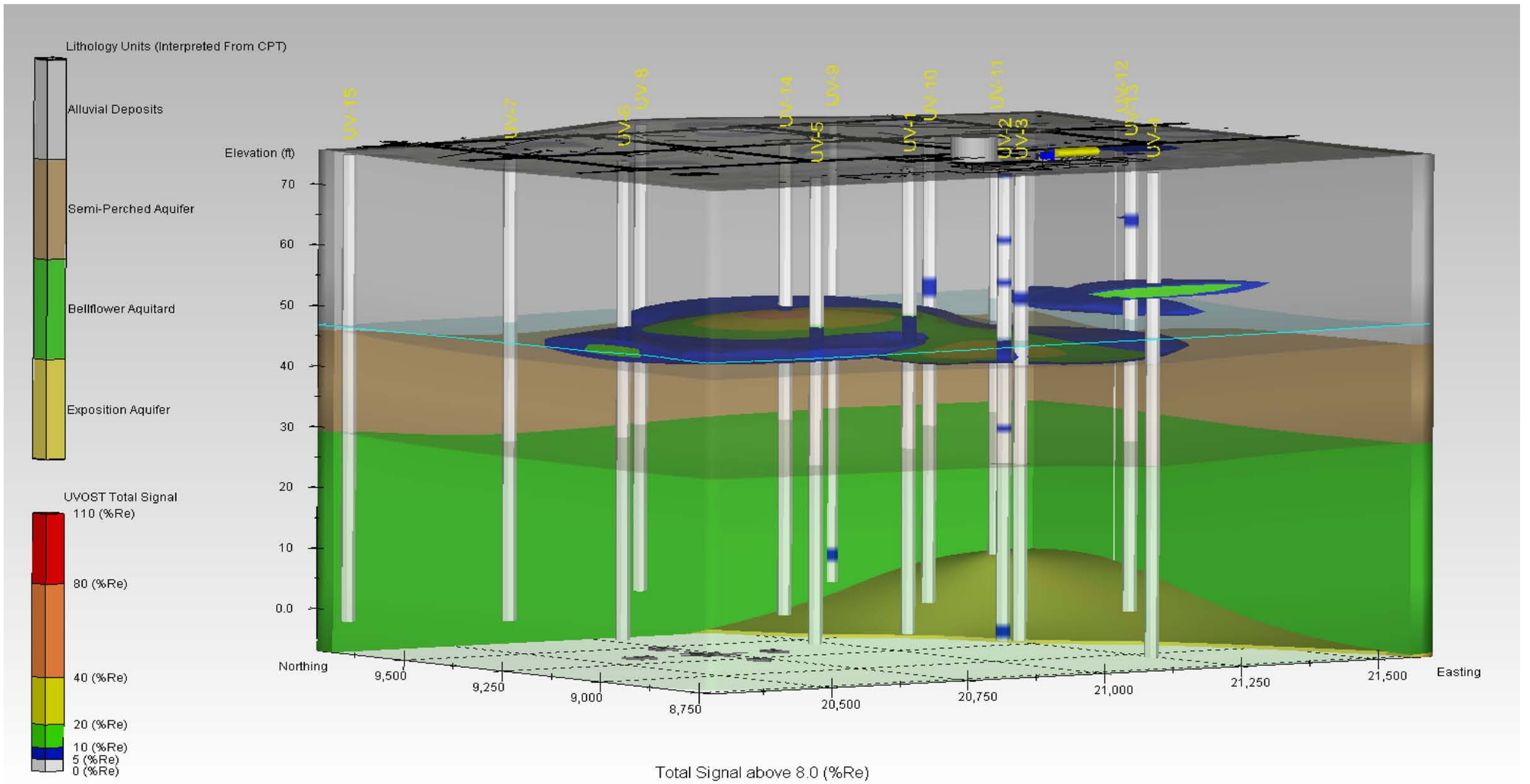


FIGURE 3-1

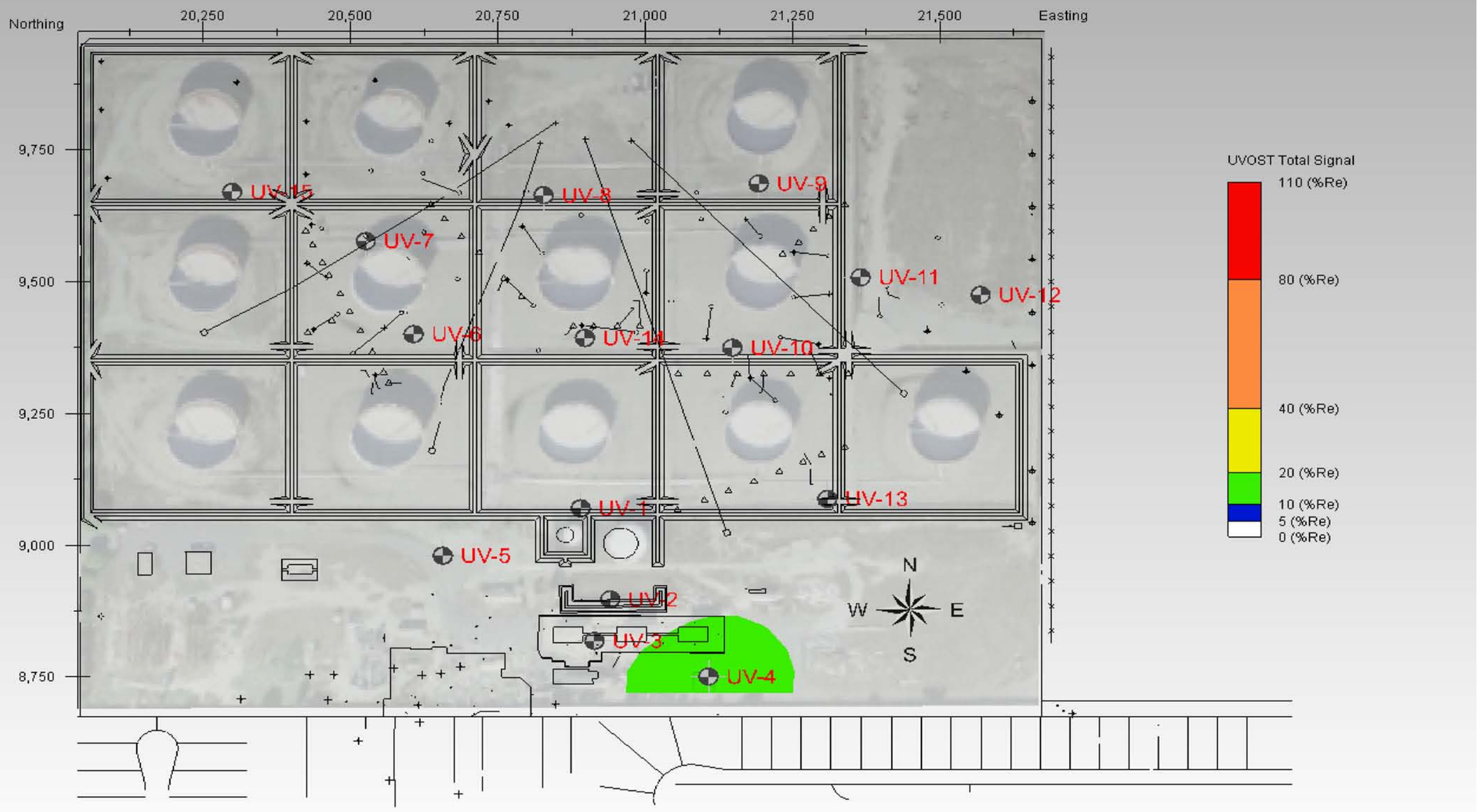
3-D CSM of LNAPL Distribution

DEFENSE FUEL SUPPORT POINT
Norwalk, California

PARSONS

Pasadena, California

S:\ES\Remed\DFSP\Norwalk\CSM\Figures\1Q11\Fig4-1_3-D_CSM_LNAPL_distribution.mxd lxh 1/10/2012



Total Signal above 10 (%Re)

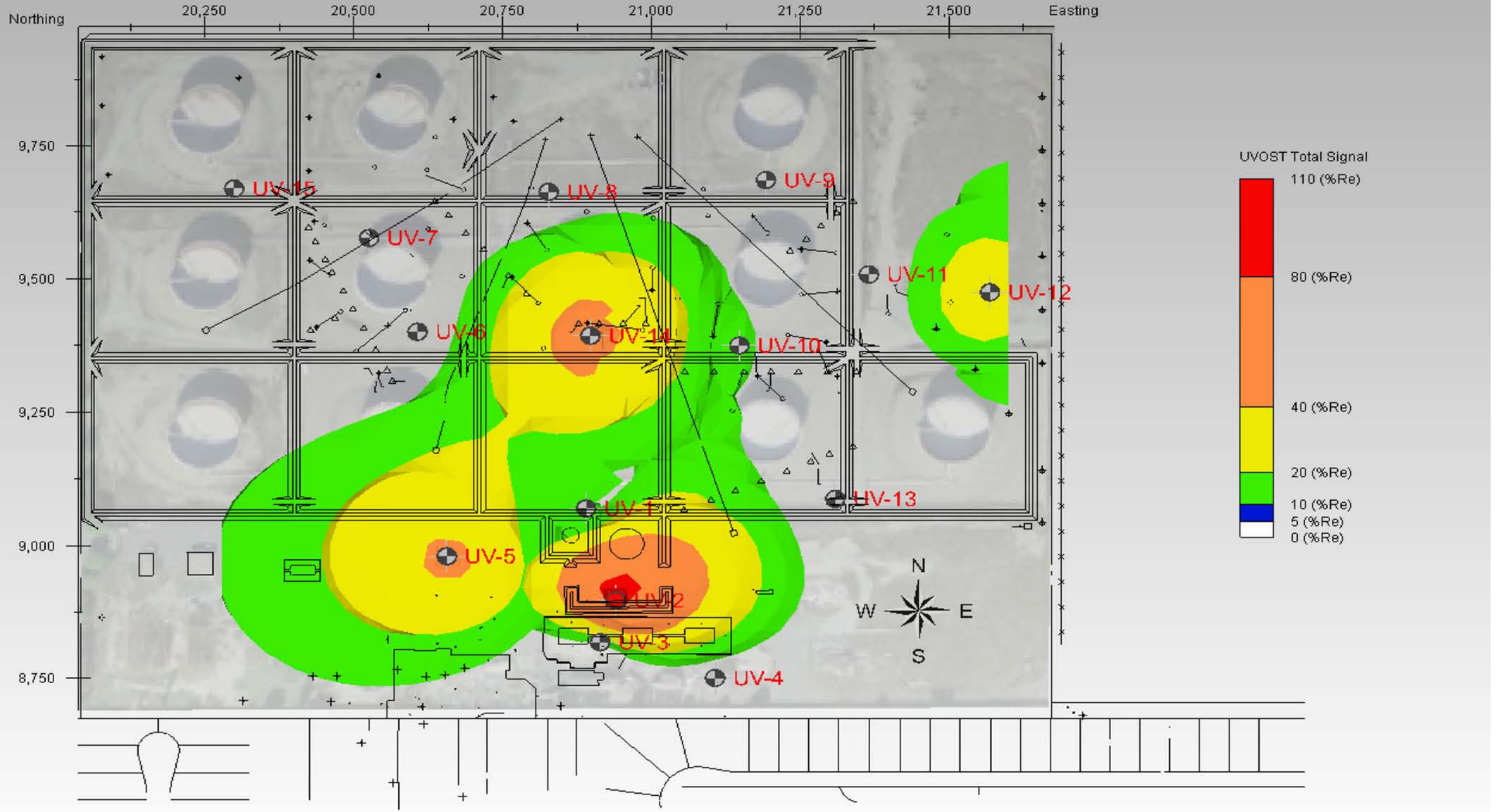
FIGURE 3-2

Distribution of LNAPLS in Vadose Zone by UVOST

DEFENSE FUEL SUPPORT POINT
Norwalk, California

PARSONS
Pasadena, California

S:\ES\Brea\dfSP\Norwalk\CSM\Figures\1Q11\Fig4-2_Distrib_LNAPLS_VadoseZone_UVOST.mxd lxh 1/10/2012



Total Signal above 10 (%Re)

FIGURE 3-3

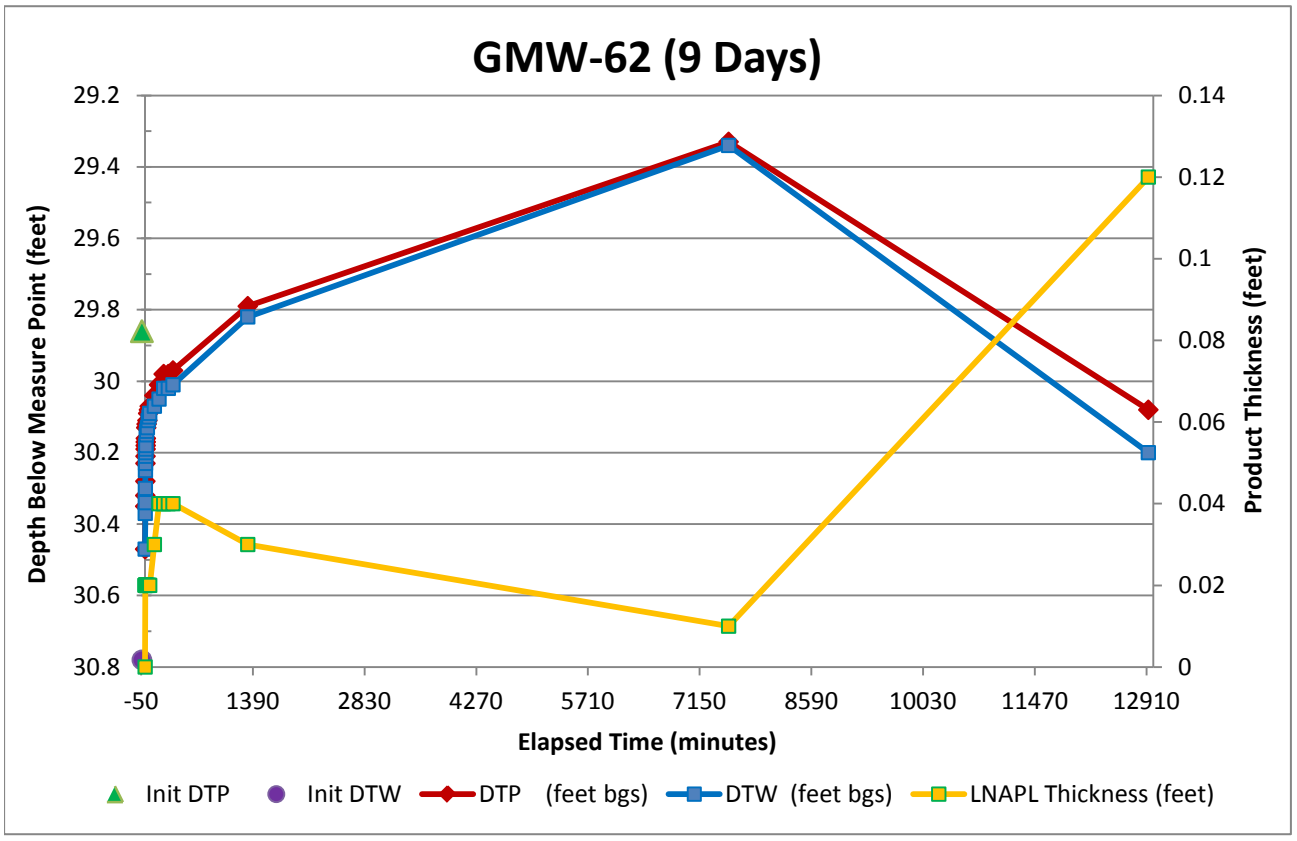
Distribution of LNAPLS near the Water Table by UVOST

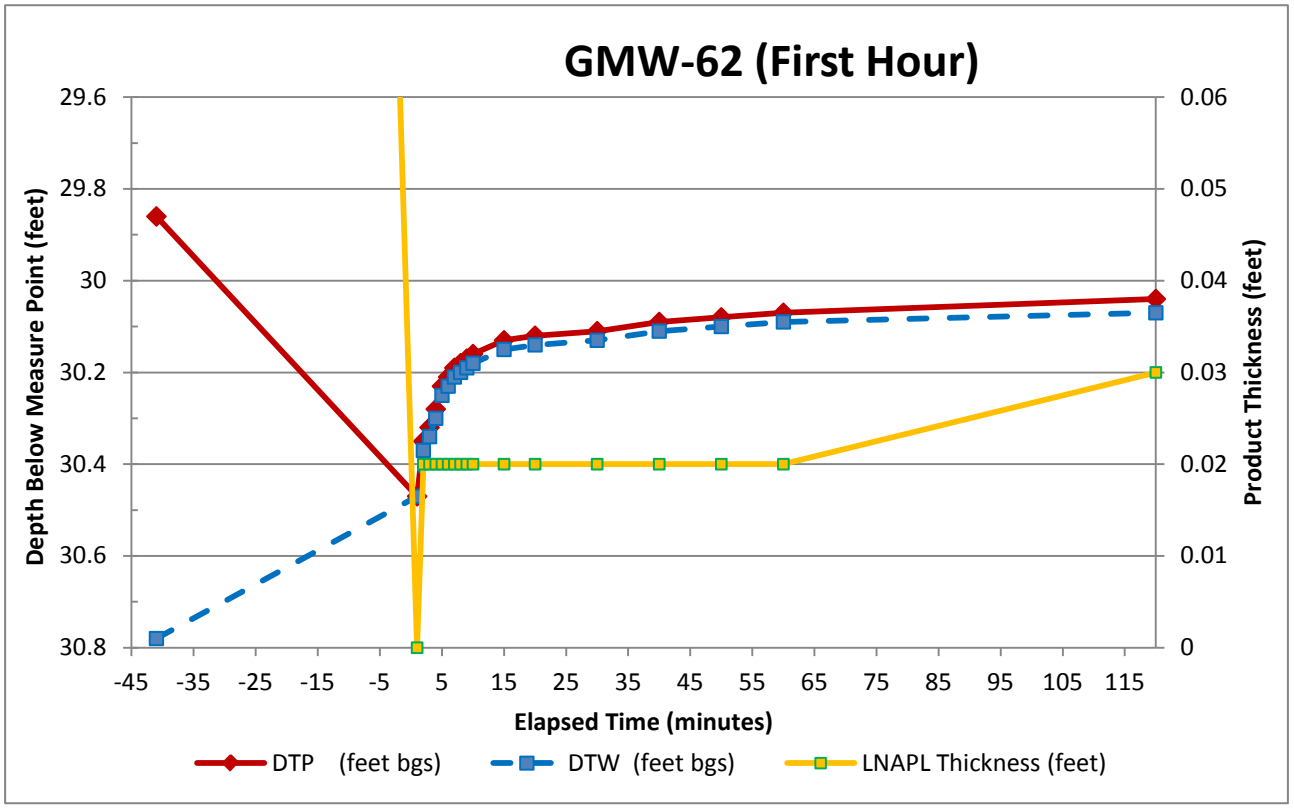
DEFENSE FUEL SUPPORT POINT
Norwalk, California

PARSONS
Pasadena, California

S:\ES\Rennel\DFSP\Norwalk\CSM\Figures\1Q11\Fig4-3 Distrib LNAPLS WaterTable UVOST.mxd lxh 1/10/2012

FIGURE 3-4
GMW-62 Product Recovery Test Hydrograph





APPENDIX A

CPT AND UVOST DATA LOGS FOR UV-2 AND UV-9

GREGG

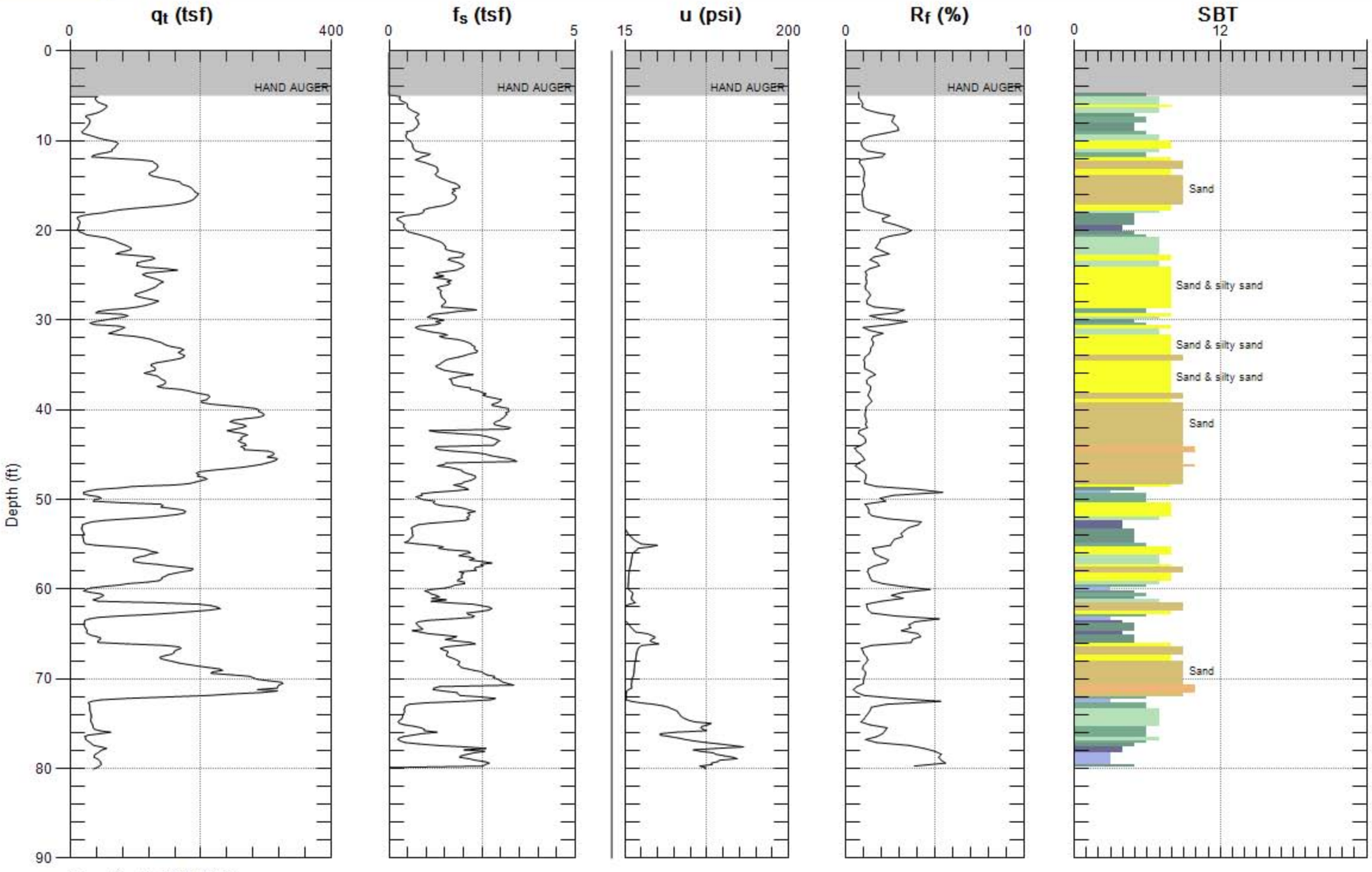
PARSONS

Site: DFSP

Sounding: UV-2

Engineer: Q.KINNEBREW

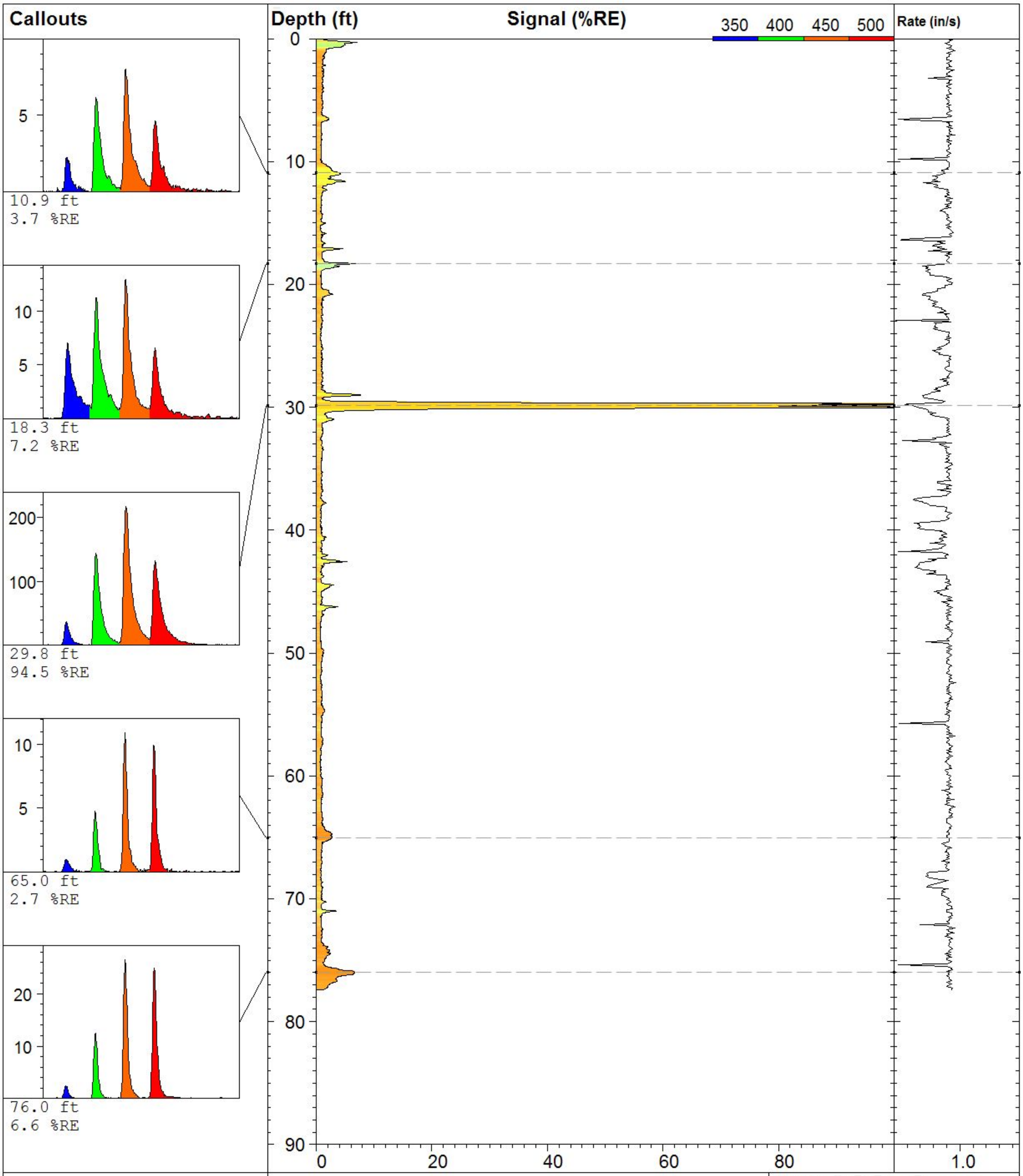
Date: 10/25/2010 01:37



Max. Depth: 80.052 (ft)

Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



GREGG

www.greggdrilling.com

UV-2

UVOST By Dakota
www.DakotaTechnologies.com

Site: **DFSP**	*Latitude / Datum:* **Unavailable / NA**	*Final depth:* **77.39 ft**
Client: **PARSONS**	*Longitude / Fix:* **Unavailable / NA**	*Max signal:* **109.7 % @ 29.69 ft**
Job: **344**	*Operator/Unit:* **EC/UVOST1007**	*Date & Time:* **2010-10-25 13:38 PDT**

GREGG

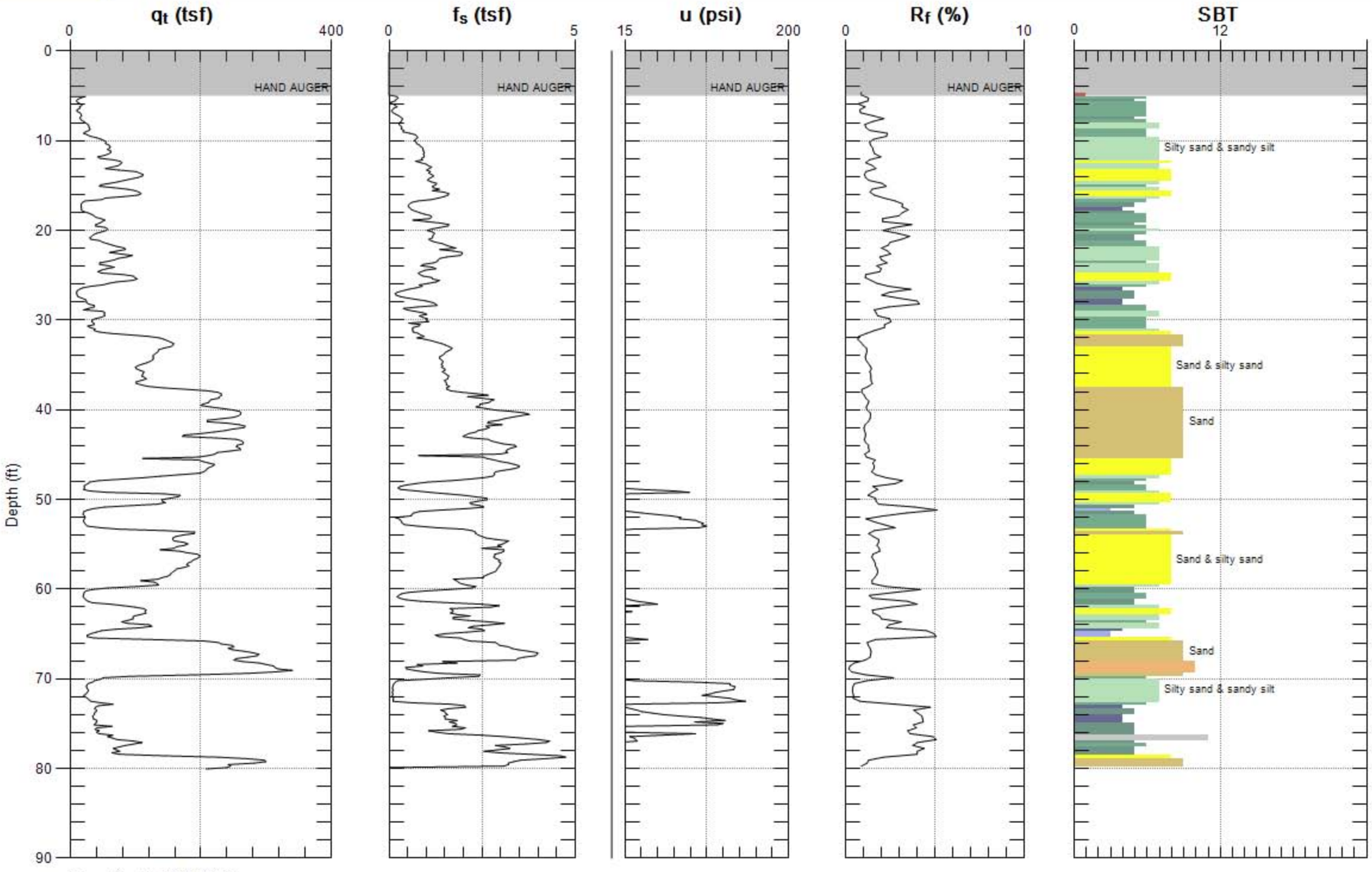
PARSONS

Site: DFSP

Sounding: UV-9

Engineer: Q.KINNEBREW

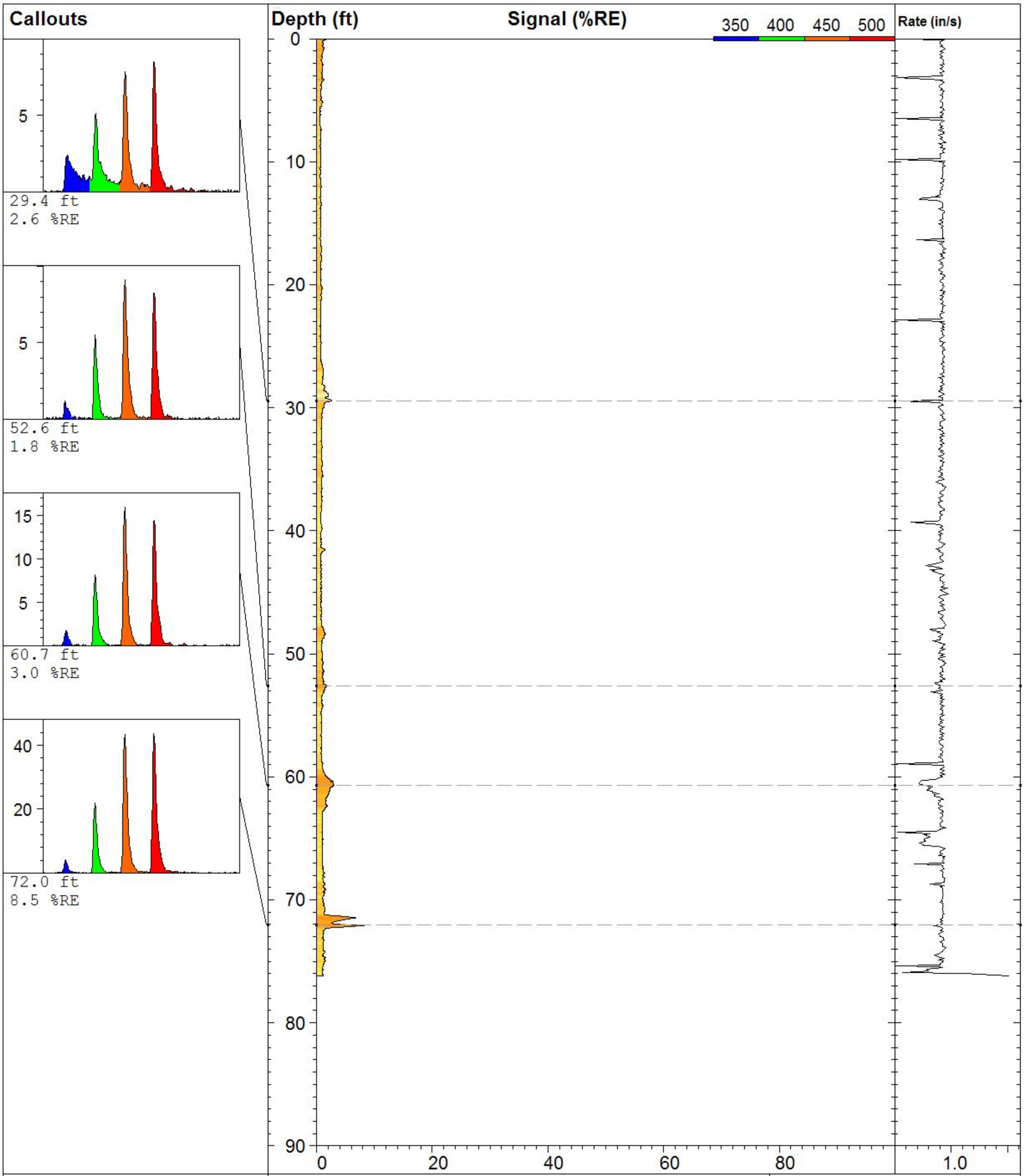
Date: 10/27/2010 07:49



Max. Depth: 80.052 (ft)

Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



GREGG www.greggdrilling.com	**UV-9**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **DFSP**	*Latitude / Datum:* **Unavailable / NA**	*Final depth:* **76.17 ft**
	Client: **PARSONS**	*Longitude / Fix:* **Unavailable / NA**	*Max signal:* **8.5 % @ 72.04 ft**
	Job: **344**	*Operator/Unit:* **EC/UVOST1007**	*Date & Time:* **2010-10-27 07:48 PDT**

APPENDIX B

BORING LOGS FOR UVB-2 AND UVB-9

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No.	947565
Client/Site	DF3P - Norwalk
Drilling Co./Method	J&H Drilling
Sampling Method	CME-85 Hollow Stem Auger; Split spoon sampler w/ [illegible] tubes
Background Conditions	Cool & clear
Surface Conditions	Soil
Boring/Well Number	UVB-2
Sheet	1 of 4
Drilling Start Date	12.08.11
Drilling Finish Date	→
Drilling Start Time	
Drilling Finish Time	

Notes:

Geologist:

Reviewed By:

Type of Instrument/Serial No.:

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ No ☐ Yes

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	
				hand augered ↓			0	sm	@0' yellowish brown (10YR 5/4) silty fine sand, damp-moist, no odor or staining
							1		
							2		
							3		
							4	sp	@4.5' fine sand, lt. yellowish brown (10YR 5/4), moist, no odor or staining
	0843				0.0		5		
							6		
							7	ml	@7' f. sandy silt, olive brown (2.5Y 4/3), moist no odor or staining
	0845				0.0		8		
		5 6 7					9	sp	@9.5' fine sand, dark gray (2.5Y 4/1), moist, stained w/ sl. odor
					0900		10		
UVB-2-11	0853	10 12 13			4961		11		
							12		
		9					13	sp	@13 fine sand, light brownish gray (2.5Y 6/2) damp, solvent & fuel odor, no apparent staining
	0857	10 12			4950		14	sp	@14' SAME: Becomes gray (2.5Y 6/1)
		10 11 13					15	cl	@15' silty clay, very dark gray (2.5Y 3/1), moist-wet, slight fuel odor, stained
	0901	—			427		16		
		9					17		@17.5'
	0906	12 12			1375		18		
							19		
	0910	12 13 15			234		20	ml	@19.5 f. sandy silt, olive gray (5Y 5/2) moist, v. sl. fuel odor
							21		

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565

Client/Site

Drilling Co./Method

Boring/Well Number UVB-2

Sampling Method

Sheet 2 of 4

Background Conditions

Drilling Start Date 12/8/11 Finish Date

Surface Conditions

Drilling Start Time Finish Time

Notes:

Geologist:

Reviewed By:

Type of Instrument/Serial No.:

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ No ☐ Yes

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	
							20		
							21		
		12 13 16					22	SP	@22' Fine to v. fine sand, dark gray (5Y 4/1), moist, sl. fuel odor
	0914				387		23		
							24		
		10 9					25	SM	@24.5' silty f. sand, v. dark gray (2.5Y 3/1) wet-saturated, v. slight fuel odor
	0918	12			43.2		26		
		12					27	SP	@27.0' fine sand, olive gray (5Y 4/2), wet-saturated, sl. fuel odor
	0921	14 16			55.6		28		
							29		
UVB-2-30		10 12					30	CL	@29.5' silty clay, olive gray (5Y 4/2), wet, sl. fuel odor
	0931	12			19.4		31	SM	@30.5 silty f. sand, dark gray (5Y 4/1), saturated, no apparent odor
		11					32	SP	@32.0' fine sand, very dark gray (5Y 3/1), saturated, no apparent odor
	0938	13 15			9.3		33		
							34		
	0943	12 14 16			NM		35	SP	@34.5 SAME: becomes dark gray (5Y 4/1)
							36		
		13					37	SP	@37' SAME
	0946	14 15			6.7		38		
							39		
	0956	12 13			7.3		40	SP	@39.5' SAME
		15					41		

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565.02000 | Client/Site DFSP- Norwalk

Drilling Co./Method

Sampling Method

Background Conditions

Surface Conditions

Boring/Well Number UVB-2

Sheet 3 of 4

Drilling Start Date 12.8.11 | Finish Date

Drilling Start Time | Finish Time

Notes:

Geologist:

Reviewed By:

Type of Instrument/Serial No.

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ Yes ☐ No

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	
							40		
							41		
		10 12 14					42	SP	@42' Same as above: Fine sand, dark gray (5Y 4/1), saturated, slight petroleum hydrocarbon odor
UV-B-43	1000				4.3		43		
							44		
	1006	12 14 15			5.9		45	SP	@44.5' SAME
							46		
		10 11					47	SP	@47' SAME
	1011	13			6.8		48		
							49		
	1019	11 14 15			8.2		50	SP	@49.5' SAME
							51	ML	@50.9' Silt, dark gray (5Y 4/1), wet, no odor ~½" thick lens.
		13					52	SP	@50.95': Fine sand (as above)
	1028	16 17			9.2		53	SP	@52': Fine sand, dark gray (5Y 4/1), saturated, slight pet. hyd. odor
							54		
	1034	12 14			9.9		55	SP	@54.5' SAME AS ABOVE f. sandy ~~mott~~ or
		16					56	ML	@55.8' Silt, dark gray (5Y 4/1), wet, slight pet. hyd. odor
		12					57	SP	@57' Fine sand, dark gray (5Y 4/1), saturated, no apparent odor
	1040	14 15			6.5		58		
							59		(5Y 3/1)
	1046	13 14 14			6.6		60	ML	@59.5' V. dark gray, silt, moist-wet, no apparent odor
							61		

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565.02000 | Client/Site DFSP-Norwalk

Drilling Co./Method

Sampling Method

Background Conditions

Surface Conditions

Boring/Well Number UVB-2

Sheet 4 of 4

Drilling: Start Date 12.8.11 | Finish Date

Notes:

Start Time | Finish Time

Geologist:

Reviewed By:

Type of Instrument/Serial No.

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ No ☐ Yes

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	
							60		
							61		
							62	ML	@62' silt (SAME AS ABOVE)
		13							
		16					63	CL	@63' Clay to silty clay, gray and black (5Y 5/1 and 5Y 2.5/1), wet, no odor
	1052	17			7.2				
							64		
UVB-2-65	1100	14			4.3		65	ML	@64.5' V. fine sandy silt, dark gray (5Y 4/1), moist-wet, no odor, trace charcoal (carbonized tree roots?)
		16							
		14					66	SP	@66' fine sand w/ trace med. sand, dark gray (5Y 4/1), saturated, slight pet. hyd. odor
	1105	15			6.2		67		
		16							
		11					68		
		13							
	1109	14			4.3		69		
		10							
		12					70		
		13						ML	@70.3' silt, dark gray (5Y 4/1), saturated, no odor
UVB-2-72	1119	11					71		
		12			3.7			CL	@71.5 Black (5Y 2.5/1) clay, organic rich, moist
		14					72		
		10						CL	@72' Grades to Greenish gray (10Y 6/1 and 5/1) clay, moist, no odor
		11					73		
		14			5.6				
		14					74	CL	@73.5 Clay w/ abundant CaCO3 inclusions, gray (5Y 6/1), saturated, no odor
		16							
		16					75		
		12			4.1				
UVB-2-76	1137	13					76	ML	@75.7' v. fine sandy silt, brown (10YR 4/3), moist, no odor
		15			5.9				
							77		
							78		TD = 76.5'
							79		
							80		
							1		

*2

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565 | Client/Site DFSP - Norwalk

Drilling Co./Method J & H Drilling / Hollow Stem Auger

Sampling Method split spoon sampler w/ stainless steel tubes

Background Conditions cool & clear

Surface Conditions soil

Boring/Well Number UVB-9

Sheet 1 of 4

Drilling Start Date 12-08-11 | Drilling Finish Date →

Drilling Start Time | Drilling Finish Time

Notes:

Geologist:

Reviewed By:

Type of Instrument/Serial No.

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ No ☐ Yes

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	
				hand auger			0		
							1		
							2	SP	@2' yel. brown (10YR 5/4) fine sand, moist, no odor or staining
							3		
							4		
		4 5					4	SP	@4.5' fine sand, light brownish gray (10YR 6/2), moist, no odor or staining
	1328				3.3		5	ML	@5.3' fine sandy silt, very dark grayish brown (10YR 3/2), wet, no odor or staining
		5 5					6		
	1332	5 6			1.9		7		
		7 8					8	SP	@8' fine sand, light olive brown (2.5Y 5/3), moist, no odor or staining, trace silt
		9 8			4.7		9		
	1338	5 7			2.2		10		
		9 10					11	SP/SM	@11 silty fine sand to fine sand, olive brown (2.5Y 4/3), moist, no odor or staining
		11			2.3		12		
	1344	8 10			13		13	SP	@12.5 fine sand, lt gray (2.5Y 7/2), damp, no odor or staining
		12					14		
		16					15	SM	@15.0 silty fine sand, light olive brown (2.5Y 5/3), moist, no odor or staining
	1346	9			29.0		16	ML	@15.5' f. sandy silt, olive gray (5Y 4/2), moist, no odor or staining
		10 12			22.0		17	ML	@16. becomes very dark gray (5Y 3/1)
	1353	10 12					18	ML	@17.5 silt to f. sandy silt, olive gray (5Y 4/2)
		13			59.0		19		
		9 12					20	ML	@21' DK greenish gray (5GY 4/1) silt to f. sandy silt, moist, no odor, possible staining
	1357	13			54.4		21		

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565

Client/Site DFSP - Norwalk

Drilling Co./Method

Sampling Method

Background Conditions

Surface Conditions

Boring/Well Number UVB-9

Sheet 2 of 4

Drilling Start Date 12.08.11 Time

Drilling Finish Date Time

Notes:

Geologist:

Reviewed By:

Type of Instrument/Serial No.

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ No ☐ Yes

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	
							20		
							21	SM	@2' silty f. sand, dark greenish gray (gley 4/1), moist-wet, ~~no odor or staining~~ v. slight fuel odor, possible staining
		10							
	1400	12 14			74.0		22		
		8 11					23	ML	@22.5 Greenish gray (gley 5/1) silt, wet, stained w/ slight odor
UVB-9-24	1405	12 ~~13~~			27.6		24	SM	@23.5 Black ~~fine sandy silt~~ silty f. sand, wet, slight odor, stained
		10 12					25	ML	@24.5 DK gray (5Y 4/1) clayey silt, wet, mod. fuel odor, stained
		14			>9999		26		
							27	SM	@27 ~~Silty~~ f. sand, dark gray (5Y 4/1), wet-saturated, fuel odor, stained
UVB-9-28	1416				>9999		28	ML	@28 Silt, dark gray (5Y 4/1), moist-wet, st. fuel odor
							29		
		10 13					30	SP	@29.5 fine sand, dark gray (5Y 4/1), saturated, st. fuel odor, stained
	1420	14			>9999		31	ML	@30.2' f. sandy silt to silt, dk greenish gray (gley 4/1), wet, st. fuel odor, stained
		11					32	SP	@32' fine sand, dark gray (5Y 4/1), saturated mod. fuel odor
		12 14					33		
							34		
	1428	12 13			430		35	SP	SAME; slight fuel odor
		14					36		
							37	SP	SAME
		10							
	1432	10 14			53		38		
							39		
		10 11			33.8		40	SP	SAME
		13					41		

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565	Client/Site DFSP - Norwalk
Drilling Co./Method	Boring/Well Number UVB-9
Sampling Method	Sheet 3 of 4
Background Conditions	Drilling Start Date / Finish Date
Surface Conditions	Notes: 12.08.11

Geologist: _____ Reviewed By: _____

Type of Instrument/Serial No. _____ Calibration Date/Gas: _____

Sample Container: _____ Sample Analyses: _____

Personal Sampling: ☐ No ☐ Yes Person Sampled: _____

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	Notes
							40		
							41		
					70.0		42	SP	SAME
		11 12 15					43		
							44		
	1447	10 13 15			124		45	SP	SAME
							46		
		9					47	SP	@47' SAME
		12 15			1,085		48	CL	@48.2' Silty clay, dark gray (gley 4), wet, no discernable odor
							49		
	1457	11 14 15			247		50	SP	@49.5' Fine sand, dark gray (5Y 4/1), saturated, no discernable odor
							51	CL	@50.2' Clay, dark gray (5Y 4/1), wet-moist, no discernable odor
		14					52	SM	@52 Silty fine sand, dark gray (5Y 4/1), saturated, no discernable odor
	1503	16 17			58.8		53		
							54		
	1509	12 14 15			72.3		55	SP	@54.5' Fine sand, dark gray (5Y 4/1), saturated, no discernable odor
							56		
		10					57	SP	57.0', SAME
	1515	12 13			28.9		58	ML	@57.8 Silt, v. dark gray (5Y 3/1) moist-wet, no odor
							59	CL	@58.2' clay, black (5Y 2.5/1), moist, no odor, appears organic rich
		12 13					60	ML	@59.5' Silt to v. f. sandy silt, dark gray (5Y 4/1), moist, no odor
UVB-9-61	1520	15			15.7		1		

Parsons

Field Boring Log

Location of Boring/Well:

Datum:

Job No. 747565

Client/Site DFSP - Norwalk

Drilling Co./Method

Sampling Method

Background Conditions

Surface Conditions

Boring/Well Number UVB-9

Sheet 4 of 4

Drilling Start Date 12.08.11 Time

Drilling Finish Date Time

Notes:

Geologist:

Reviewed By:

Type of Instrument/Serial No.

Calibration Date/Gas:

Sample Container:

Sample Analyses:

Personal Sampling: ☐ No ☐ Yes

Person Sampled:

Sample No. / Sample Depth	Time	Sampler Blows	Inches Driven / % Recovery	Instrument: Auger	Instrument: Sample	Instrument: Breathing Zone	Depth in Feet	USCS Soil Type	Notes
							60		
							61		
							62	CL	@62' clay, gray (5Y 5/1), moist-damp, no odor
	1525	13 13 15			13.0		63		
							64		
	1531	12 13			10.6		65	SP	@64.5 fine sand, dark gray (5Y 4/1), saturated, no odor
		15 12					66	SP	@66' Fine to medium sand w/trace coarse sand, one gravel clast, dark gray (5Y 4/1), saturated, no odor
UVB-9-68	1536	14 16			12.2		67		
	1542	10 14			10.6		68	CL	@67.4' clay, black (5Y 2.5/1), moist, no odor, organic rich
		15 12					69	CL	@68.7' DK greenish gray (gley 4/1) clay, moist, no odor, some CaCO3 inclusions
		12 14			3.1		70		
		12 14					71	CL	@70.5 Grades to dark yellowish brown (10YR 4/4) clay to silty clay, moist, no odor
UVB-9-72	1553	16 13			3.7		72		@72' SAME
		15 17					73		
							74		TD = 73.5'
							75		
							76		
							77		
							78		
							79		
							80		
							1		

APPENDIX C

LABORATORY ANALYTICAL REPORTS

Calscience Environmental Laboratories, Inc.

Supplemental Report 1

Additional requested analyses have been added to the original report.

CALSCIENCE

WORK ORDER NUMBER: 11-12-0606

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Parsons, Inc.

Client Project Name: DFSP - Norwalk / 747565

Attention: Mary Lucas
100 West Walnut Street
Pasadena, CA 91124-0002

Ranjit K. K. Clarke

Approved for release on 01/5/2012 by:
Ranjit Clarke
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: DFSP - Norwalk / 747565
Work Order Number: 11-12-0606

Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.	Date Received: 12/08/11
100 West Walnut Street	Work Order No: 11-12-0606
Pasadena, CA 91124-0002	Preparation: EPA 3550B
	Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-11	**11-12-0606-1-C**	**12/08/11 08:53**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 22:33**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	460	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	96	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-30	**11-12-0606-2-C**	**12/08/11 09:31**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 22:48**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	112	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-43	**11-12-0606-3-C**	**12/08/11 10:00**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:03**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	101	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-65	**11-12-0606-4-C**	**12/08/11 11:00**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:18**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	101	61-145	

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.	Date Received: 12/08/11
100 West Walnut Street	Work Order No: 11-12-0606
Pasadena, CA 91124-0002	Preparation: EPA 3550B
	Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-76	**11-12-0606-5-C**	**12/08/11 11:37**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:33**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	102	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-72	**11-12-0606-6-C**	**12/08/11 11:19**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:48**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	100	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-24	**11-12-0606-7-C**	**12/08/11 14:05**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:03**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	103	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-28	**11-12-0606-8-C**	**12/08/11 14:16**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:18**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	7.0	5.0	1	HD	mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	96	61-145	

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61	**11-12-0606-9-C**	**12/08/11 15:20**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:33**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	103	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61D	**11-12-0606-10-C**	**12/08/11 15:20**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:48**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	100	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-68	**11-12-0606-11-C**	**12/08/11 15:42**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 01:32**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	100	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-72	**11-12-0606-12-C**	**12/08/11 15:52**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 01:47**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	102	61-145	

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.		Date Received:	12/08/11
100 West Walnut Street		Work Order No:	11-12-0606
Pasadena, CA 91124-0002		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-295-86**	**N/A**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 20:19**	**111212B13**

Parameter	Result	RL	DF	Qual	Units
TPH as JP5	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	101	61-145	

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-11	**11-12-0606-1-C**	**12/08/11 08:53**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 22:33**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	510	5.0	1	HD	mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	96	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-30	**11-12-0606-2-C**	**12/08/11 09:31**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 22:48**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	112	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-43	**11-12-0606-3-C**	**12/08/11 10:00**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:03**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	101	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-65	**11-12-0606-4-C**	**12/08/11 11:00**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:18**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	101	61-145	

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.	Date Received: 12/08/11
100 West Walnut Street	Work Order No: 11-12-0606
Pasadena, CA 91124-0002	Preparation: EPA 3550B
	Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-76	**11-12-0606-5-C**	**12/08/11 11:37**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:33**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	102	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-72	**11-12-0606-6-C**	**12/08/11 11:19**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 23:48**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	100	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-24	**11-12-0606-7-C**	**12/08/11 14:05**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:03**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	103	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-28	**11-12-0606-8-C**	**12/08/11 14:16**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:18**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	7.3	5.0	1	HD	mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	96	61-145	

Return to Contents

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.	Date Received: 12/08/11
100 West Walnut Street	Work Order No: 11-12-0606
Pasadena, CA 91124-0002	Preparation: EPA 3550B
	Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61	**11-12-0606-9-C**	**12/08/11 15:20**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:33**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	103	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61D	**11-12-0606-10-C**	**12/08/11 15:20**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 00:48**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	100	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-68	**11-12-0606-11-C**	**12/08/11 15:42**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 01:32**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	100	61-145	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-72	**11-12-0606-12-C**	**12/08/11 15:52**	**Solid**	**GC 48**	**12/12/11**	**12/13/11 01:47**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	102	61-145	

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Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.	Date Received: 12/08/11
100 West Walnut Street	Work Order No: 11-12-0606
Pasadena, CA 91124-0002	Preparation: EPA 3550B
	Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-275-4,300**	**N/A**	**Solid**	**GC 48**	**12/12/11**	**12/12/11 20:19**	**111212B12**

Parameter	Result	RL	DF	Qual	Units
TPH as Diesel	ND	5.0	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
Decachlorobiphenyl	101	61-145	

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-11	**11-12-0606-1-J**	**12/08/11 08:53**	**Solid**	**GC 18**	**12/08/11**	**12/12/11 13:06**	**111212B01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	200	5.8	23	HD	mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	112	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-30	**11-12-0606-2-H**	**12/08/11 09:31**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 05:44**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	0.38	0.22	0.867		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	99	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-43	**11-12-0606-3-H**	**12/08/11 10:00**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 06:58**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.22	0.89		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	91	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-65	**11-12-0606-4-H**	**12/08/11 11:00**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 06:21**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.21	0.826		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	92	60-126	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-76	**11-12-0606-5-I**	**12/08/11 11:37**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 07:34**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.19	0.773		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	89	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-72	**11-12-0606-6-J**	**12/08/11 11:19**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 15:39**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	0.34	0.21	0.825		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	68	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-24	**11-12-0606-7-H**	**12/08/11 14:05**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 10:40**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	0.76	0.21	0.831		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	102	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-28	**11-12-0606-8-J**	**12/08/11 14:16**	**Solid**	**GC 18**	**12/08/11**	**12/12/11 12:28**	**111212B01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	150	5.2	20.9		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	155	60-126	2,7

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61	**11-12-0606-9-H**	**12/08/11 15:20**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 08:11**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.19	0.75		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	92	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61D	**11-12-0606-10-H**	**12/08/11 15:20**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 08:48**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.20	0.797		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	91	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-68	**11-12-0606-11-J**	**12/08/11 15:42**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 09:25**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.19	0.769		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	86	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-72	**11-12-0606-12-J**	**12/08/11 15:52**	**Solid**	**GC 18**	**12/08/11**	**12/10/11 10:03**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.20	0.785		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	90	60-126	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

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Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-285-4,008**	**N/A**	**Solid**	**GC 18**	**12/09/11**	**12/10/11 04:30**	**111209B02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	0.25	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	84	60-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-285-4,009**	**N/A**	**Solid**	**GC 18**	**12/12/11**	**12/12/11 10:36**	**111212B01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	10	40		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	82	60-126	

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

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Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-11	**11-12-0606-1-G**	**12/08/11 08:53**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 14:58**	**111209L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	ND	2900	370	58.7		c-1,3-Dichloropropene	ND	59	15	58.7	
Benzene	ND	59	7.6	58.7		t-1,3-Dichloropropene	ND	120	36	58.7	
Bromobenzene	ND	59	12	58.7		Ethylbenzene	18	59	8.9	58.7	J
Bromochloromethane	ND	120	41	58.7		2-Hexanone	ND	1200	100	58.7	
Bromodichloromethane	ND	59	14	58.7		Isopropylbenzene	ND	59	32	58.7	
Bromoform	ND	290	47	58.7		p-Isopropyltoluene	ND	59	37	58.7	
Bromomethane	ND	1200	550	58.7		Methylene Chloride	ND	590	79	58.7	
2-Butanone	ND	1200	220	58.7		4-Methyl-2-Pentanone	ND	1200	250	58.7	
n-Butylbenzene	97	59	9.2	58.7		Naphthalene	91	590	48	58.7	J
sec-Butylbenzene	64	59	34	58.7		n-Propylbenzene	ND	120	29	58.7	
tert-Butylbenzene	ND	59	8.9	58.7		Styrene	ND	59	35	58.7	
Carbon Disulfide	ND	590	18	58.7		1,1,1,2-Tetrachloroethane	ND	59	14	58.7	
Carbon Tetrachloride	ND	59	17	58.7		1,1,2,2-Tetrachloroethane	ND	120	20	58.7	
Chlorobenzene	ND	59	13	58.7		Tetrachloroethene	ND	59	12	58.7	
Chloroethane	ND	120	110	58.7		Toluene	ND	59	30	58.7	
Chloroform	ND	59	14	58.7		1,2,3-Trichlorobenzene	ND	120	54	58.7	
Chloromethane	ND	1200	40	58.7		1,2,4-Trichlorobenzene	ND	120	18	58.7	
2-Chlorotoluene	ND	59	14	58.7		1,1,1-Trichloroethane	ND	59	13	58.7	
4-Chlorotoluene	ND	59	13	58.7		1,1,2-Trichloroethane	ND	59	56	58.7	
Dibromochloromethane	ND	120	33	58.7		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	590	21	58.7	
1,2-Dibromo-3-Chloropropane	ND	290	100	58.7		Trichloroethene	ND	120	18	58.7	
1,2-Dibromoethane	ND	59	15	58.7		Trichlorofluoromethane	ND	590	22	58.7	
Dibromomethane	ND	59	45	58.7		1,2,3-Trichloropropane	ND	120	40	58.7	
1,2-Dichlorobenzene	ND	59	13	58.7		1,2,4-Trimethylbenzene	73	120	34	58.7	J
1,3-Dichlorobenzene	ND	59	10	58.7		1,3,5-Trimethylbenzene	ND	120	32	58.7	
1,4-Dichlorobenzene	ND	59	13	58.7		Vinyl Acetate	ND	590	280	58.7	
Dichlorodifluoromethane	ND	120	26	58.7		Vinyl Chloride	ND	59	30	58.7	
1,1-Dichloroethane	ND	59	59	58.7		p/m-Xylene	68	120	16	58.7	J
1,2-Dichloroethane	ND	59	18	58.7		o-Xylene	ND	59	33	58.7	
1,1-Dichloroethene	ND	59	20	58.7		Methyl-t-Butyl Ether (MTBE)	ND	120	17	58.7	
c-1,2-Dichloroethene	ND	59	16	58.7		Tert-Butyl Alcohol (TBA)	ND	1200	300	58.7	
t-1,2-Dichloroethene	ND	59	30	58.7		Diisopropyl Ether (DIPE)	ND	59	28	58.7	
1,2-Dichloropropane	ND	59	26	58.7		Ethyl-t-Butyl Ether (ETBE)	ND	59	30	58.7	
1,3-Dichloropropane	ND	59	15	58.7		Tert-Amyl-Methyl Ether (TAME)	ND	59	21	58.7	
2,2-Dichloropropane	ND	290	19	58.7		Ethanol	ND	29000	4900	58.7	
1,1-Dichloropropene	ND	120	19	58.7							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	111	80-120		Dibromofluoromethane	92	79-133	
1,2-Dichloroethane-d4	94	71-155		Toluene-d8	105	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-30	**11-12-0606-2-E**	**12/08/11 09:31**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 16:57**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	19	44	5.4	0.871	J	c-1,3-Dichloropropene	ND	0.87	0.22	0.871	
Benzene	2.5	0.87	0.11	0.871		t-1,3-Dichloropropene	ND	1.7	0.53	0.871	
Bromobenzene	ND	0.87	0.18	0.871		Ethylbenzene	0.33	0.87	0.13	0.871	J
Bromochloromethane	ND	1.7	0.60	0.871		2-Hexanone	ND	17	1.5	0.871	
Bromodichloromethane	ND	0.87	0.20	0.871		Isopropylbenzene	ND	0.87	0.48	0.871	
Bromoform	ND	4.4	0.69	0.871		p-Isopropyltoluene	ND	0.87	0.55	0.871	
Bromomethane	ND	17	8.2	0.871		Methylene Chloride	1.3	8.7	1.2	0.871	J
2-Butanone	4.0	17	3.3	0.871	J	4-Methyl-2-Pentanone	ND	17	3.8	0.871	
n-Butylbenzene	ND	0.87	0.14	0.871		Naphthalene	ND	8.7	0.71	0.871	
sec-Butylbenzene	ND	0.87	0.50	0.871		n-Propylbenzene	ND	1.7	0.44	0.871	
tert-Butylbenzene	ND	0.87	0.13	0.871		Styrene	ND	0.87	0.53	0.871	
Carbon Disulfide	ND	8.7	0.27	0.871		1,1,1,2-Tetrachloroethane	ND	0.87	0.21	0.871	
Carbon Tetrachloride	ND	0.87	0.25	0.871		1,1,2,2-Tetrachloroethane	ND	1.7	0.30	0.871	
Chlorobenzene	ND	0.87	0.20	0.871		Tetrachloroethene	ND	0.87	0.18	0.871	
Chloroethane	ND	1.7	1.6	0.871		Toluene	2.2	0.87	0.45	0.871	
Chloroform	ND	0.87	0.21	0.871		1,2,3-Trichlorobenzene	ND	1.7	0.80	0.871	
Chloromethane	ND	17	0.60	0.871		1,2,4-Trichlorobenzene	ND	1.7	0.27	0.871	
2-Chlorotoluene	ND	0.87	0.20	0.871		1,1,1-Trichloroethane	ND	0.87	0.20	0.871	
4-Chlorotoluene	ND	0.87	0.19	0.871		1,1,2-Trichloroethane	ND	0.87	0.83	0.871	
Dibromochloromethane	ND	1.7	0.50	0.871		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.7	0.31	0.871	
1,2-Dibromo-3-Chloropropane	ND	4.4	1.5	0.871		Trichloroethene	ND	1.7	0.26	0.871	
1,2-Dibromoethane	ND	0.87	0.22	0.871		Trichlorofluoromethane	ND	8.7	0.33	0.871	
Dibromomethane	ND	0.87	0.67	0.871		1,2,3-Trichloropropane	ND	1.7	0.60	0.871	
1,2-Dichlorobenzene	ND	0.87	0.20	0.871		1,2,4-Trimethylbenzene	ND	1.7	0.51	0.871	
1,3-Dichlorobenzene	ND	0.87	0.15	0.871		1,3,5-Trimethylbenzene	ND	1.7	0.48	0.871	
1,4-Dichlorobenzene	ND	0.87	0.19	0.871		Vinyl Acetate	ND	8.7	4.1	0.871	
Dichlorodifluoromethane	ND	1.7	0.39	0.871		Vinyl Chloride	ND	0.87	0.44	0.871	
1,1-Dichloroethane	ND	0.87	0.87	0.871		p/m-Xylene	0.60	1.7	0.23	0.871	J
1,2-Dichloroethane	ND	0.87	0.27	0.871		o-Xylene	ND	0.87	0.48	0.871	
1,1-Dichloroethene	ND	0.87	0.30	0.871		Methyl-t-Butyl Ether (MTBE)	ND	1.7	0.26	0.871	
c-1,2-Dichloroethene	ND	0.87	0.24	0.871		Tert-Butyl Alcohol (TBA)	ND	17	4.5	0.871	
t-1,2-Dichloroethene	ND	0.87	0.44	0.871		Diisopropyl Ether (DIPE)	ND	0.87	0.42	0.871	
1,2-Dichloropropane	ND	0.87	0.38	0.871		Ethyl-t-Butyl Ether (ETBE)	ND	0.87	0.44	0.871	
1,3-Dichloropropane	ND	0.87	0.22	0.871		Tert-Amyl-Methyl Ether (TAME)	ND	0.87	0.31	0.871	
2,2-Dichloropropane	ND	4.4	0.29	0.871		Ethanol	ND	440	73	0.871	
1,1-Dichloropropene	ND	1.7	0.29	0.871							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	107	80-120		Dibromofluoromethane	97	79-133	
1,2-Dichloroethane-d4	103	71-155		Toluene-d8	105	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-43	**11-12-0606-3-E**	**12/08/11 10:00**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 17:26**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	7.4	46	5.7	0.916	J	c-1,3-Dichloropropene	ND	0.92	0.23	0.916	
Benzene	0.23	0.92	0.12	0.916	J	t-1,3-Dichloropropene	ND	1.8	0.55	0.916	
Bromobenzene	ND	0.92	0.19	0.916		Ethylbenzene	ND	0.92	0.14	0.916	
Bromochloromethane	ND	1.8	0.63	0.916		2-Hexanone	ND	18	1.6	0.916	
Bromodichloromethane	ND	0.92	0.21	0.916		Isopropylbenzene	ND	0.92	0.50	0.916	
Bromoform	ND	4.6	0.73	0.916		p-Isopropyltoluene	ND	0.92	0.58	0.916	
Bromomethane	ND	18	8.6	0.916		Methylene Chloride	4.2	9.2	1.2	0.916	J
2-Butanone	ND	18	3.5	0.916		4-Methyl-2-Pentanone	ND	18	4.0	0.916	
n-Butylbenzene	ND	0.92	0.14	0.916		Naphthalene	ND	9.2	0.75	0.916	
sec-Butylbenzene	ND	0.92	0.53	0.916		n-Propylbenzene	ND	1.8	0.46	0.916	
tert-Butylbenzene	ND	0.92	0.14	0.916		Styrene	ND	0.92	0.55	0.916	
Carbon Disulfide	0.33	9.2	0.28	0.916	J	1,1,1,2-Tetrachloroethane	ND	0.92	0.22	0.916	
Carbon Tetrachloride	ND	0.92	0.26	0.916		1,1,2,2-Tetrachloroethane	ND	1.8	0.32	0.916	
Chlorobenzene	ND	0.92	0.21	0.916		Tetrachloroethene	ND	0.92	0.19	0.916	
Chloroethane	ND	1.8	1.7	0.916		Toluene	ND	0.92	0.47	0.916	
Chloroform	ND	0.92	0.22	0.916		1,2,3-Trichlorobenzene	ND	1.8	0.84	0.916	
Chloromethane	ND	18	0.63	0.916		1,2,4-Trichlorobenzene	ND	1.8	0.28	0.916	
2-Chlorotoluene	ND	0.92	0.21	0.916		1,1,1-Trichloroethane	ND	0.92	0.21	0.916	
4-Chlorotoluene	ND	0.92	0.20	0.916		1,1,2-Trichloroethane	ND	0.92	0.87	0.916	
Dibromochloromethane	ND	1.8	0.52	0.916		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	9.2	0.32	0.916	
1,2-Dibromo-3-Chloropropane	ND	4.6	1.6	0.916		Trichloroethene	ND	1.8	0.28	0.916	
1,2-Dibromoethane	ND	0.92	0.23	0.916		Trichlorofluoromethane	ND	9.2	0.34	0.916	
Dibromomethane	ND	0.92	0.71	0.916		1,2,3-Trichloropropane	ND	1.8	0.63	0.916	
1,2-Dichlorobenzene	ND	0.92	0.21	0.916		1,2,4-Trimethylbenzene	ND	1.8	0.54	0.916	
1,3-Dichlorobenzene	ND	0.92	0.16	0.916		1,3,5-Trimethylbenzene	ND	1.8	0.50	0.916	
1,4-Dichlorobenzene	ND	0.92	0.20	0.916		Vinyl Acetate	ND	9.2	4.3	0.916	
Dichlorodifluoromethane	ND	1.8	0.41	0.916		Vinyl Chloride	ND	0.92	0.46	0.916	
1,1-Dichloroethane	ND	0.92	0.92	0.916		p/m-Xylene	ND	1.8	0.25	0.916	
1,2-Dichloroethane	ND	0.92	0.29	0.916		o-Xylene	ND	0.92	0.51	0.916	
1,1-Dichloroethene	ND	0.92	0.32	0.916		Methyl-t-Butyl Ether (MTBE)	ND	1.8	0.27	0.916	
c-1,2-Dichloroethene	ND	0.92	0.26	0.916		Tert-Butyl Alcohol (TBA)	ND	18	4.7	0.916	
t-1,2-Dichloroethene	ND	0.92	0.46	0.916		Diisopropyl Ether (DIPE)	ND	0.92	0.44	0.916	
1,2-Dichloropropane	ND	0.92	0.40	0.916		Ethyl-t-Butyl Ether (ETBE)	ND	0.92	0.46	0.916	
1,3-Dichloropropane	ND	0.92	0.23	0.916		Tert-Amyl-Methyl Ether (TAME)	ND	0.92	0.32	0.916	
2,2-Dichloropropane	ND	4.6	0.30	0.916		Ethanol	ND	460	77	0.916	
1,1-Dichloropropene	ND	1.8	0.30	0.916							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	105	80-120		Dibromofluoromethane	113	79-133	
1,2-Dichloroethane-d4	103	71-155		Toluene-d8	103	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-65	**11-12-0606-4-E**	**12/08/11 11:00**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 17:55**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	4.9	38	4.8	0.762	J	c-1,3-Dichloropropene	ND	0.76	0.19	0.762	
Benzene	0.19	0.76	0.099	0.762	J	t-1,3-Dichloropropene	ND	1.5	0.46	0.762	
Bromobenzene	ND	0.76	0.16	0.762		Ethylbenzene	ND	0.76	0.12	0.762	
Bromochloromethane	ND	1.5	0.53	0.762		2-Hexanone	ND	15	1.3	0.762	
Bromodichloromethane	ND	0.76	0.18	0.762		Isopropylbenzene	ND	0.76	0.42	0.762	
Bromoform	ND	3.8	0.61	0.762		p-Isopropyltoluene	ND	0.76	0.48	0.762	
Bromomethane	ND	15	7.2	0.762		Methylene Chloride	1.4	7.6	1.0	0.762	J
2-Butanone	ND	15	2.9	0.762		4-Methyl-2-Pentanone	ND	15	3.3	0.762	
n-Butylbenzene	ND	0.76	0.12	0.762		Naphthalene	ND	7.6	0.62	0.762	
sec-Butylbenzene	ND	0.76	0.44	0.762		n-Propylbenzene	ND	1.5	0.38	0.762	
tert-Butylbenzene	ND	0.76	0.11	0.762		Styrene	ND	0.76	0.46	0.762	
Carbon Disulfide	ND	7.6	0.23	0.762		1,1,1,2-Tetrachloroethane	ND	0.76	0.18	0.762	
Carbon Tetrachloride	ND	0.76	0.22	0.762		1,1,2,2-Tetrachloroethane	ND	1.5	0.26	0.762	
Chlorobenzene	ND	0.76	0.17	0.762		Tetrachloroethene	ND	0.76	0.16	0.762	
Chloroethane	ND	1.5	1.4	0.762		Toluene	ND	0.76	0.39	0.762	
Chloroform	ND	0.76	0.18	0.762		1,2,3-Trichlorobenzene	ND	1.5	0.70	0.762	
Chloromethane	ND	15	0.52	0.762		1,2,4-Trichlorobenzene	ND	1.5	0.24	0.762	
2-Chlorotoluene	ND	0.76	0.18	0.762		1,1,1-Trichloroethane	ND	0.76	0.17	0.762	
4-Chlorotoluene	ND	0.76	0.16	0.762		1,1,2-Trichloroethane	ND	0.76	0.72	0.762	
Dibromochloromethane	ND	1.5	0.43	0.762		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.6	0.27	0.762	
1,2-Dibromo-3-Chloropropane	ND	3.8	1.3	0.762		Trichloroethene	ND	1.5	0.23	0.762	
1,2-Dibromoethane	ND	0.76	0.19	0.762		Trichlorofluoromethane	ND	7.6	0.29	0.762	
Dibromomethane	ND	0.76	0.59	0.762		1,2,3-Trichloropropane	ND	1.5	0.52	0.762	
1,2-Dichlorobenzene	ND	0.76	0.17	0.762		1,2,4-Trimethylbenzene	ND	1.5	0.45	0.762	
1,3-Dichlorobenzene	ND	0.76	0.13	0.762		1,3,5-Trimethylbenzene	ND	1.5	0.42	0.762	
1,4-Dichlorobenzene	ND	0.76	0.17	0.762		Vinyl Acetate	ND	7.6	3.6	0.762	
Dichlorodifluoromethane	ND	1.5	0.34	0.762		Vinyl Chloride	ND	0.76	0.38	0.762	
1,1-Dichloroethane	ND	0.76	0.76	0.762		p/m-Xylene	ND	1.5	0.20	0.762	
1,2-Dichloroethane	ND	0.76	0.24	0.762		o-Xylene	ND	0.76	0.42	0.762	
1,1-Dichloroethene	ND	0.76	0.26	0.762		Methyl-t-Butyl Ether (MTBE)	ND	1.5	0.23	0.762	
c-1,2-Dichloroethene	ND	0.76	0.21	0.762		Tert-Butyl Alcohol (TBA)	ND	15	3.9	0.762	
t-1,2-Dichloroethene	ND	0.76	0.39	0.762		Diisopropyl Ether (DIPE)	ND	0.76	0.37	0.762	
1,2-Dichloropropane	ND	0.76	0.33	0.762		Ethyl-t-Butyl Ether (ETBE)	ND	0.76	0.39	0.762	
1,3-Dichloropropane	ND	0.76	0.19	0.762		Tert-Amyl-Methyl Ether (TAME)	ND	0.76	0.27	0.762	
2,2-Dichloropropane	ND	3.8	0.25	0.762		Ethanol	ND	380	64	0.762	
1,1-Dichloropropene	ND	1.5	0.25	0.762							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	105	80-120		Dibromofluoromethane	108	79-133	
1,2-Dichloroethane-d4	109	71-155		Toluene-d8	103	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-76	**11-12-0606-5-F**	**12/08/11 11:37**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 18:25**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	20	38	4.8	0.767	J	c-1,3-Dichloropropene	ND	0.77	0.20	0.767	
Benzene	ND	0.77	0.10	0.767		t-1,3-Dichloropropene	ND	1.5	0.46	0.767	
Bromobenzene	ND	0.77	0.16	0.767		Ethylbenzene	ND	0.77	0.12	0.767	
Bromochloromethane	ND	1.5	0.53	0.767		2-Hexanone	ND	15	1.4	0.767	
Bromodichloromethane	ND	0.77	0.18	0.767		Isopropylbenzene	ND	0.77	0.42	0.767	
Bromoform	ND	3.8	0.61	0.767		p-Isopropyltoluene	ND	0.77	0.48	0.767	
Bromomethane	ND	15	7.2	0.767		Methylene Chloride	ND	7.7	1.0	0.767	
2-Butanone	3.4	15	2.9	0.767	J	4-Methyl-2-Pentanone	ND	15	3.3	0.767	
n-Butylbenzene	ND	0.77	0.12	0.767		Naphthalene	ND	7.7	0.62	0.767	
sec-Butylbenzene	ND	0.77	0.44	0.767		n-Propylbenzene	ND	1.5	0.38	0.767	
tert-Butylbenzene	ND	0.77	0.12	0.767		Styrene	ND	0.77	0.46	0.767	
Carbon Disulfide	ND	7.7	0.23	0.767		1,1,1,2-Tetrachloroethane	ND	0.77	0.18	0.767	
Carbon Tetrachloride	ND	0.77	0.22	0.767		1,1,2,2-Tetrachloroethane	ND	1.5	0.27	0.767	
Chlorobenzene	ND	0.77	0.17	0.767		Tetrachloroethene	ND	0.77	0.16	0.767	
Chloroethane	ND	1.5	1.4	0.767		Toluene	ND	0.77	0.40	0.767	
Chloroform	ND	0.77	0.18	0.767		1,2,3-Trichlorobenzene	ND	1.5	0.70	0.767	
Chloromethane	ND	15	0.53	0.767		1,2,4-Trichlorobenzene	ND	1.5	0.24	0.767	
2-Chlorotoluene	ND	0.77	0.18	0.767		1,1,1-Trichloroethane	ND	0.77	0.17	0.767	
4-Chlorotoluene	ND	0.77	0.16	0.767		1,1,2-Trichloroethane	ND	0.77	0.73	0.767	
Dibromochloromethane	ND	1.5	0.44	0.767		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.7	0.27	0.767	
1,2-Dibromo-3-Chloropropane	ND	3.8	1.3	0.767		Trichloroethene	ND	1.5	0.23	0.767	
1,2-Dibromoethane	ND	0.77	0.20	0.767		Trichlorofluoromethane	ND	7.7	0.29	0.767	
Dibromomethane	ND	0.77	0.59	0.767		1,2,3-Trichloropropane	ND	1.5	0.53	0.767	
1,2-Dichlorobenzene	ND	0.77	0.18	0.767		1,2,4-Trimethylbenzene	ND	1.5	0.45	0.767	
1,3-Dichlorobenzene	ND	0.77	0.14	0.767		1,3,5-Trimethylbenzene	ND	1.5	0.42	0.767	
1,4-Dichlorobenzene	ND	0.77	0.17	0.767		Vinyl Acetate	ND	7.7	3.6	0.767	
Dichlorodifluoromethane	ND	1.5	0.34	0.767		Vinyl Chloride	ND	0.77	0.39	0.767	
1,1-Dichloroethane	ND	0.77	0.77	0.767		p/m-Xylene	ND	1.5	0.21	0.767	
1,2-Dichloroethane	ND	0.77	0.24	0.767		o-Xylene	ND	0.77	0.43	0.767	
1,1-Dichloroethene	ND	0.77	0.27	0.767		Methyl-t-Butyl Ether (MTBE)	ND	1.5	0.23	0.767	
c-1,2-Dichloroethene	ND	0.77	0.21	0.767		Tert-Butyl Alcohol (TBA)	ND	15	4.0	0.767	
t-1,2-Dichloroethene	ND	0.77	0.39	0.767		Diisopropyl Ether (DIPE)	ND	0.77	0.37	0.767	
1,2-Dichloropropane	ND	0.77	0.34	0.767		Ethyl-t-Butyl Ether (ETBE)	ND	0.77	0.39	0.767	
1,3-Dichloropropane	ND	0.77	0.19	0.767		Tert-Amyl-Methyl Ether (TAME)	ND	0.77	0.27	0.767	
2,2-Dichloropropane	ND	3.8	0.25	0.767		Ethanol	ND	380	64	0.767	
1,1-Dichloropropene	ND	1.5	0.25	0.767							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	103	80-120		Dibromofluoromethane	98	79-133	
1,2-Dichloroethane-d4	102	71-155		Toluene-d8	102	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-2-72	**11-12-0606-6-G**	**12/08/11 11:19**	**Solid**	**GC/MS Z**	**12/08/11**	**12/10/11 12:30**	**111210L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	67	43	5.3	0.852		c-1,3-Dichloropropene	ND	0.85	0.22	0.852	
Benzene	140	0.85	0.11	0.852		t-1,3-Dichloropropene	ND	1.7	0.52	0.852	
Bromobenzene	ND	0.85	0.18	0.852		Ethylbenzene	23	0.85	0.13	0.852	
Bromochloromethane	ND	1.7	0.59	0.852		2-Hexanone	ND	17	1.5	0.852	
Bromodichloromethane	ND	0.85	0.20	0.852		Isopropylbenzene	1.4	0.85	0.47	0.852	
Bromoform	ND	4.3	0.68	0.852		p-Isopropyltoluene	ND	0.85	0.54	0.852	
Bromomethane	ND	17	8.0	0.852		Methylene Chloride	ND	8.5	1.1	0.852	
2-Butanone	25	17	3.2	0.852		4-Methyl-2-Pentanone	ND	17	3.7	0.852	
n-Butylbenzene	0.45	0.85	0.13	0.852	J	Naphthalene	1.8	8.5	0.69	0.852	J
sec-Butylbenzene	ND	0.85	0.49	0.852		n-Propylbenzene	1.2	1.7	0.43	0.852	J
tert-Butylbenzene	ND	0.85	0.13	0.852		Styrene	ND	0.85	0.52	0.852	
Carbon Disulfide	2.1	8.5	0.26	0.852	J	1,1,1,2-Tetrachloroethane	ND	0.85	0.20	0.852	
Carbon Tetrachloride	ND	0.85	0.24	0.852		1,1,2,2-Tetrachloroethane	ND	1.7	0.29	0.852	
Chlorobenzene	ND	0.85	0.19	0.852		Tetrachloroethene	ND	0.85	0.18	0.852	
Chloroethane	ND	1.7	1.6	0.852		Toluene	130	0.85	0.44	0.852	
Chloroform	ND	0.85	0.20	0.852		1,2,3-Trichlorobenzene	ND	1.7	0.78	0.852	
Chloromethane	ND	17	0.59	0.852		1,2,4-Trichlorobenzene	ND	1.7	0.26	0.852	
2-Chlorotoluene	ND	0.85	0.20	0.852		1,1,1-Trichloroethane	ND	0.85	0.19	0.852	
4-Chlorotoluene	ND	0.85	0.18	0.852		1,1,2-Trichloroethane	ND	0.85	0.81	0.852	
Dibromochloromethane	ND	1.7	0.49	0.852		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.5	0.30	0.852	
1,2-Dibromo-3-Chloropropane	ND	4.3	1.5	0.852		Trichloroethene	ND	1.7	0.26	0.852	
1,2-Dibromoethane	ND	0.85	0.22	0.852		Trichlorofluoromethane	ND	8.5	0.32	0.852	
Dibromomethane	ND	0.85	0.66	0.852		1,2,3-Trichloropropane	ND	1.7	0.58	0.852	
1,2-Dichlorobenzene	ND	0.85	0.19	0.852		1,2,4-Trimethylbenzene	3.9	1.7	0.50	0.852	
1,3-Dichlorobenzene	ND	0.85	0.15	0.852		1,3,5-Trimethylbenzene	0.98	1.7	0.47	0.852	J
1,4-Dichlorobenzene	ND	0.85	0.19	0.852		Vinyl Acetate	ND	8.5	4.0	0.852	
Dichlorodifluoromethane	ND	1.7	0.38	0.852		Vinyl Chloride	ND	0.85	0.43	0.852	
1,1-Dichloroethane	ND	0.85	0.85	0.852		p/m-Xylene	23	1.7	0.23	0.852	
1,2-Dichloroethane	ND	0.85	0.27	0.852		o-Xylene	10	0.85	0.47	0.852	
1,1-Dichloroethene	ND	0.85	0.29	0.852		Methyl-t-Butyl Ether (MTBE)	ND	1.7	0.25	0.852	
c-1,2-Dichloroethene	ND	0.85	0.24	0.852		Tert-Butyl Alcohol (TBA)	ND	17	4.4	0.852	
t-1,2-Dichloroethene	ND	0.85	0.43	0.852		Diisopropyl Ether (DIPE)	ND	0.85	0.41	0.852	
1,2-Dichloropropane	ND	0.85	0.37	0.852		Ethyl-t-Butyl Ether (ETBE)	ND	0.85	0.43	0.852	
1,3-Dichloropropane	ND	0.85	0.22	0.852		Tert-Amyl-Methyl Ether (TAME)	ND	0.85	0.30	0.852	
2,2-Dichloropropane	ND	4.3	0.28	0.852		Ethanol	ND	430	71	0.852	
1,1-Dichloropropene	ND	1.7	0.28	0.852							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	69	80-120	2,6	Dibromofluoromethane	111	79-133	
1,2-Dichloroethane-d4	117	71-155		Toluene-d8	94	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-24	**11-12-0606-7-E**	**12/08/11 14:05**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 19:23**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	18	65	8.1	1.3	J	c-1,3-Dichloropropene	ND	1.3	0.33	1.3	
Benzene	1.4	1.3	0.17	1.3		t-1,3-Dichloropropene	ND	2.6	0.79	1.3	
Bromobenzene	ND	1.3	0.27	1.3		Ethylbenzene	0.55	1.3	0.20	1.3	J
Bromochloromethane	ND	2.6	0.90	1.3		2-Hexanone	ND	26	2.3	1.3	
Bromodichloromethane	ND	1.3	0.30	1.3		Isopropylbenzene	ND	1.3	0.71	1.3	
Bromoform	ND	6.5	1.0	1.3		p-Isopropyltoluene	ND	1.3	0.82	1.3	
Bromomethane	ND	26	12	1.3		Methylene Chloride	ND	13	1.7	1.3	
2-Butanone	ND	26	4.9	1.3		4-Methyl-2-Pentanone	ND	26	5.6	1.3	
n-Butylbenzene	ND	1.3	0.20	1.3		Naphthalene	ND	13	1.1	1.3	
sec-Butylbenzene	ND	1.3	0.75	1.3		n-Propylbenzene	ND	2.6	0.65	1.3	
tert-Butylbenzene	0.23	1.3	0.20	1.3	J	Styrene	ND	1.3	0.79	1.3	
Carbon Disulfide	1.5	13	0.40	1.3	J	1,1,1,2-Tetrachloroethane	ND	1.3	0.31	1.3	
Carbon Tetrachloride	ND	1.3	0.37	1.3		1,1,2,2-Tetrachloroethane	ND	2.6	0.45	1.3	
Chlorobenzene	ND	1.3	0.29	1.3		Tetrachloroethene	ND	1.3	0.27	1.3	
Chloroethane	ND	2.6	2.4	1.3		Toluene	1.1	1.3	0.67	1.3	J
Chloroform	ND	1.3	0.31	1.3		1,2,3-Trichlorobenzene	ND	2.6	1.2	1.3	
Chloromethane	ND	26	0.89	1.3		1,2,4-Trichlorobenzene	ND	2.6	0.40	1.3	
2-Chlorotoluene	ND	1.3	0.30	1.3		1,1,1-Trichloroethane	ND	1.3	0.29	1.3	
4-Chlorotoluene	ND	1.3	0.28	1.3		1,1,2-Trichloroethane	ND	1.3	1.2	1.3	
Dibromochloromethane	ND	2.6	0.74	1.3		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	13	0.46	1.3	
1,2-Dibromo-3-Chloropropane	ND	6.5	2.3	1.3		Trichloroethene	ND	2.6	0.39	1.3	
1,2-Dibromoethane	ND	1.3	0.33	1.3		Trichlorofluoromethane	ND	13	0.49	1.3	
Dibromomethane	ND	1.3	1.0	1.3		1,2,3-Trichloropropane	ND	2.6	0.89	1.3	
1,2-Dichlorobenzene	ND	1.3	0.30	1.3		1,2,4-Trimethylbenzene	ND	2.6	0.76	1.3	
1,3-Dichlorobenzene	ND	1.3	0.23	1.3		1,3,5-Trimethylbenzene	ND	2.6	0.71	1.3	
1,4-Dichlorobenzene	ND	1.3	0.29	1.3		Vinyl Acetate	ND	13	6.2	1.3	
Dichlorodifluoromethane	ND	2.6	0.58	1.3		Vinyl Chloride	ND	1.3	0.65	1.3	
1,1-Dichloroethane	ND	1.3	1.3	1.3		p/m-Xylene	1.3	2.6	0.35	1.3	J
1,2-Dichloroethane	ND	1.3	0.41	1.3		o-Xylene	ND	1.3	0.72	1.3	
1,1-Dichloroethene	ND	1.3	0.45	1.3		Methyl-t-Butyl Ether (MTBE)	ND	2.6	0.38	1.3	
c-1,2-Dichloroethene	ND	1.3	0.36	1.3		Tert-Butyl Alcohol (TBA)	ND	26	6.7	1.3	
t-1,2-Dichloroethene	ND	1.3	0.66	1.3		Diisopropyl Ether (DIPE)	ND	1.3	0.63	1.3	
1,2-Dichloropropane	ND	1.3	0.57	1.3		Ethyl-t-Butyl Ether (ETBE)	ND	1.3	0.66	1.3	
1,3-Dichloropropane	ND	1.3	0.33	1.3		Tert-Amyl-Methyl Ether (TAME)	ND	1.3	0.46	1.3	
2,2-Dichloropropane	ND	6.5	0.43	1.3		Ethanol	ND	650	110	1.3	
1,1-Dichloropropene	ND	2.6	0.43	1.3							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	103	80-120		Dibromofluoromethane	121	79-133	
1,2-Dichloroethane-d4	105	71-155		Toluene-d8	106	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-28	**11-12-0606-8-G**	**12/08/11 14:16**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 21:50**	**111209L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	320	2400	300	48.4	J	c-1,3-Dichloropropene	ND	48	12	48.4	
Benzene	91	48	6.3	48.4		t-1,3-Dichloropropene	ND	97	29	48.4	
Bromobenzene	ND	48	10	48.4		Ethylbenzene	510	48	7.3	48.4	
Bromochloromethane	ND	97	33	48.4		2-Hexanone	ND	970	85	48.4	
Bromodichloromethane	ND	48	11	48.4		Isopropylbenzene	130	48	26	48.4	
Bromoform	ND	240	38	48.4		p-Isopropyltoluene	76	48	30	48.4	
Bromomethane	ND	970	460	48.4		Methylene Chloride	ND	480	65	48.4	
2-Butanone	ND	970	180	48.4		4-Methyl-2-Pentanone	ND	970	210	48.4	
n-Butylbenzene	120	48	7.6	48.4		Naphthalene	210	480	39	48.4	J
sec-Butylbenzene	59	48	28	48.4		n-Propylbenzene	200	97	24	48.4	
tert-Butylbenzene	ND	48	7.3	48.4		Styrene	ND	48	29	48.4	
Carbon Disulfide	ND	480	15	48.4		1,1,1,2-Tetrachloroethane	ND	48	12	48.4	
Carbon Tetrachloride	ND	48	14	48.4		1,1,2,2-Tetrachloroethane	ND	97	17	48.4	
Chlorobenzene	ND	48	11	48.4		Tetrachloroethene	ND	48	10	48.4	
Chloroethane	ND	97	91	48.4		Toluene	1000	48	25	48.4	
Chloroform	ND	48	12	48.4		1,2,3-Trichlorobenzene	ND	97	44	48.4	
Chloromethane	ND	970	33	48.4		1,2,4-Trichlorobenzene	ND	97	15	48.4	
2-Chlorotoluene	ND	48	11	48.4		1,1,1-Trichloroethane	ND	48	11	48.4	
4-Chlorotoluene	ND	48	10	48.4		1,1,2-Trichloroethane	ND	48	46	48.4	
Dibromochloromethane	ND	97	28	48.4		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	480	17	48.4	
1,2-Dibromo-3-Chloropropane	ND	240	84	48.4		Trichloroethene	ND	97	15	48.4	
1,2-Dibromoethane	ND	48	12	48.4		Trichlorofluoromethane	ND	480	18	48.4	
Dibromomethane	ND	48	37	48.4		1,2,3-Trichloropropane	ND	97	33	48.4	
1,2-Dichlorobenzene	ND	48	11	48.4		1,2,4-Trimethylbenzene	920	97	28	48.4	
1,3-Dichlorobenzene	ND	48	8.5	48.4		1,3,5-Trimethylbenzene	500	97	27	48.4	
1,4-Dichlorobenzene	ND	48	11	48.4		Vinyl Acetate	ND	480	230	48.4	
Dichlorodifluoromethane	ND	97	21	48.4		Vinyl Chloride	ND	48	24	48.4	
1,1-Dichloroethane	ND	48	48	48.4		p/m-Xylene	2400	97	13	48.4	
1,2-Dichloroethane	ND	48	15	48.4		o-Xylene	740	48	27	48.4	
1,1-Dichloroethene	ND	48	17	48.4		Methyl-t-Butyl Ether (MTBE)	ND	97	14	48.4	
c-1,2-Dichloroethene	ND	48	14	48.4		Tert-Butyl Alcohol (TBA)	ND	970	250	48.4	
t-1,2-Dichloroethene	ND	48	24	48.4		Diisopropyl Ether (DIPE)	ND	48	23	48.4	
1,2-Dichloropropane	ND	48	21	48.4		Ethyl-t-Butyl Ether (ETBE)	ND	48	24	48.4	
1,3-Dichloropropane	ND	48	12	48.4		Tert-Amyl-Methyl Ether (TAME)	ND	48	17	48.4	
2,2-Dichloropropane	ND	240	16	48.4		Ethanol	ND	24000	4000	48.4	
1,1-Dichloropropene	ND	97	16	48.4							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	109	80-120		Dibromofluoromethane	107	79-133	
1,2-Dichloroethane-d4	96	71-155		Toluene-d8	108	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61	**11-12-0606-9-E**	**12/08/11 15:20**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 19:52**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	33	49	6.2	0.986	J	c-1,3-Dichloropropene	ND	0.99	0.25	0.986	
Benzene	0.50	0.99	0.13	0.986	J	t-1,3-Dichloropropene	ND	2.0	0.60	0.986	
Bromobenzene	ND	0.99	0.21	0.986		Ethylbenzene	0.21	0.99	0.15	0.986	J
Bromochloromethane	ND	2.0	0.68	0.986		2-Hexanone	ND	20	1.7	0.986	
Bromodichloromethane	ND	0.99	0.23	0.986		Isopropylbenzene	ND	0.99	0.54	0.986	
Bromoform	ND	4.9	0.78	0.986		p-Isopropyltoluene	ND	0.99	0.62	0.986	
Bromomethane	ND	20	9.3	0.986		Methylene Chloride	ND	9.9	1.3	0.986	
2-Butanone	7.3	20	3.7	0.986	J	4-Methyl-2-Pentanone	ND	20	4.3	0.986	
n-Butylbenzene	ND	0.99	0.15	0.986		Naphthalene	ND	9.9	0.80	0.986	
sec-Butylbenzene	ND	0.99	0.57	0.986		n-Propylbenzene	ND	2.0	0.49	0.986	
tert-Butylbenzene	ND	0.99	0.15	0.986		Styrene	ND	0.99	0.60	0.986	
Carbon Disulfide	0.38	9.9	0.30	0.986	J	1,1,1,2-Tetrachloroethane	ND	0.99	0.24	0.986	
Carbon Tetrachloride	ND	0.99	0.28	0.986		1,1,2,2-Tetrachloroethane	ND	2.0	0.34	0.986	
Chlorobenzene	ND	0.99	0.22	0.986		Tetrachloroethene	ND	0.99	0.21	0.986	
Chloroethane	ND	2.0	1.9	0.986		Toluene	0.81	0.99	0.51	0.986	J
Chloroform	ND	0.99	0.24	0.986		1,2,3-Trichlorobenzene	ND	2.0	0.90	0.986	
Chloromethane	ND	20	0.68	0.986		1,2,4-Trichlorobenzene	ND	2.0	0.31	0.986	
2-Chlorotoluene	ND	0.99	0.23	0.986		1,1,1-Trichloroethane	ND	0.99	0.22	0.986	
4-Chlorotoluene	ND	0.99	0.21	0.986		1,1,2-Trichloroethane	ND	0.99	0.94	0.986	
Dibromochloromethane	ND	2.0	0.56	0.986		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	9.9	0.35	0.986	
1,2-Dibromo-3-Chloropropane	ND	4.9	1.7	0.986		Trichloroethene	ND	2.0	0.30	0.986	
1,2-Dibromoethane	ND	0.99	0.25	0.986		Trichlorofluoromethane	ND	9.9	0.37	0.986	
Dibromomethane	ND	0.99	0.76	0.986		1,2,3-Trichloropropane	ND	2.0	0.68	0.986	
1,2-Dichlorobenzene	ND	0.99	0.23	0.986		1,2,4-Trimethylbenzene	ND	2.0	0.58	0.986	
1,3-Dichlorobenzene	ND	0.99	0.17	0.986		1,3,5-Trimethylbenzene	ND	2.0	0.54	0.986	
1,4-Dichlorobenzene	ND	0.99	0.22	0.986		Vinyl Acetate	ND	9.9	4.7	0.986	
Dichlorodifluoromethane	ND	2.0	0.44	0.986		Vinyl Chloride	ND	0.99	0.50	0.986	
1,1-Dichloroethane	ND	0.99	0.99	0.986		p/m-Xylene	0.67	2.0	0.26	0.986	J
1,2-Dichloroethane	ND	0.99	0.31	0.986		o-Xylene	ND	0.99	0.55	0.986	
1,1-Dichloroethene	ND	0.99	0.34	0.986		Methyl-t-Butyl Ether (MTBE)	0.34	2.0	0.29	0.986	J
c-1,2-Dichloroethene	ND	0.99	0.28	0.986		Tert-Butyl Alcohol (TBA)	ND	20	5.1	0.986	
t-1,2-Dichloroethene	ND	0.99	0.50	0.986		Diisopropyl Ether (DIPE)	ND	0.99	0.48	0.986	
1,2-Dichloropropane	ND	0.99	0.43	0.986		Ethyl-t-Butyl Ether (ETBE)	ND	0.99	0.50	0.986	
1,3-Dichloropropane	ND	0.99	0.25	0.986		Tert-Amyl-Methyl Ether (TAME)	ND	0.99	0.35	0.986	
2,2-Dichloropropane	ND	4.9	0.33	0.986		Ethanol	ND	490	82	0.986	
1,1-Dichloropropene	ND	2.0	0.32	0.986							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	102	80-120		Dibromofluoromethane	119	79-133	
1,2-Dichloroethane-d4	102	71-155		Toluene-d8	102	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-61D	**11-12-0606-10-E**	**12/08/11 15:20**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 20:22**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	27	40	5.0	0.804	J	c-1,3-Dichloropropene	ND	0.80	0.20	0.804	
Benzene	0.42	0.80	0.10	0.804	J	t-1,3-Dichloropropene	ND	1.6	0.49	0.804	
Bromobenzene	ND	0.80	0.17	0.804		Ethylbenzene	0.12	0.80	0.12	0.804	J
Bromochloromethane	ND	1.6	0.56	0.804		2-Hexanone	ND	16	1.4	0.804	
Bromodichloromethane	ND	0.80	0.19	0.804		Isopropylbenzene	ND	0.80	0.44	0.804	
Bromoform	ND	4.0	0.64	0.804		p-Isopropyltoluene	ND	0.80	0.51	0.804	
Bromomethane	ND	16	7.6	0.804		Methylene Chloride	ND	8.0	1.1	0.804	
2-Butanone	6.0	16	3.0	0.804	J	4-Methyl-2-Pentanone	ND	16	3.5	0.804	
n-Butylbenzene	ND	0.80	0.13	0.804		Naphthalene	ND	8.0	0.65	0.804	
sec-Butylbenzene	ND	0.80	0.46	0.804		n-Propylbenzene	ND	1.6	0.40	0.804	
tert-Butylbenzene	ND	0.80	0.12	0.804		Styrene	ND	0.80	0.49	0.804	
Carbon Disulfide	0.26	8.0	0.25	0.804	J	1,1,1,2-Tetrachloroethane	ND	0.80	0.19	0.804	
Carbon Tetrachloride	ND	0.80	0.23	0.804		1,1,2,2-Tetrachloroethane	ND	1.6	0.28	0.804	
Chlorobenzene	ND	0.80	0.18	0.804		Tetrachloroethene	ND	0.80	0.17	0.804	
Chloroethane	ND	1.6	1.5	0.804		Toluene	0.62	0.80	0.41	0.804	J
Chloroform	ND	0.80	0.19	0.804		1,2,3-Trichlorobenzene	ND	1.6	0.73	0.804	
Chloromethane	ND	16	0.55	0.804		1,2,4-Trichlorobenzene	ND	1.6	0.25	0.804	
2-Chlorotoluene	ND	0.80	0.19	0.804		1,1,1-Trichloroethane	ND	0.80	0.18	0.804	
4-Chlorotoluene	ND	0.80	0.17	0.804		1,1,2-Trichloroethane	ND	0.80	0.76	0.804	
Dibromochloromethane	ND	1.6	0.46	0.804		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.0	0.28	0.804	
1,2-Dibromo-3-Chloropropane	ND	4.0	1.4	0.804		Trichloroethene	ND	1.6	0.24	0.804	
1,2-Dibromoethane	ND	0.80	0.21	0.804		Trichlorofluoromethane	ND	8.0	0.30	0.804	
Dibromomethane	ND	0.80	0.62	0.804		1,2,3-Trichloropropane	ND	1.6	0.55	0.804	
1,2-Dichlorobenzene	ND	0.80	0.18	0.804		1,2,4-Trimethylbenzene	ND	1.6	0.47	0.804	
1,3-Dichlorobenzene	ND	0.80	0.14	0.804		1,3,5-Trimethylbenzene	ND	1.6	0.44	0.804	
1,4-Dichlorobenzene	ND	0.80	0.18	0.804		Vinyl Acetate	ND	8.0	3.8	0.804	
Dichlorodifluoromethane	ND	1.6	0.36	0.804		Vinyl Chloride	ND	0.80	0.40	0.804	
1,1-Dichloroethane	ND	0.80	0.80	0.804		p/m-Xylene	0.34	1.6	0.22	0.804	J
1,2-Dichloroethane	ND	0.80	0.25	0.804		o-Xylene	ND	0.80	0.45	0.804	
1,1-Dichloroethene	ND	0.80	0.28	0.804		Methyl-t-Butyl Ether (MTBE)	0.34	1.6	0.24	0.804	J
c-1,2-Dichloroethene	ND	0.80	0.22	0.804		Tert-Butyl Alcohol (TBA)	ND	16	4.2	0.804	
t-1,2-Dichloroethene	ND	0.80	0.41	0.804		Diisopropyl Ether (DIPE)	ND	0.80	0.39	0.804	
1,2-Dichloropropane	ND	0.80	0.35	0.804		Ethyl-t-Butyl Ether (ETBE)	ND	0.80	0.41	0.804	
1,3-Dichloropropane	ND	0.80	0.20	0.804		Tert-Amyl-Methyl Ether (TAME)	ND	0.80	0.28	0.804	
2,2-Dichloropropane	ND	4.0	0.27	0.804		Ethanol	ND	400	67	0.804	
1,1-Dichloropropene	ND	1.6	0.26	0.804							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	103	80-120		Dibromofluoromethane	119	79-133	
1,2-Dichloroethane-d4	105	71-155		Toluene-d8	102	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-68	**11-12-0606-11-F**	**12/08/11 15:42**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 20:52**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	20	39	4.8	0.775	J	c-1,3-Dichloropropene	ND	0.78	0.20	0.775	
Benzene	0.38	0.78	0.10	0.775	J	t-1,3-Dichloropropene	ND	1.6	0.47	0.775	
Bromobenzene	ND	0.78	0.16	0.775		Ethylbenzene	ND	0.78	0.12	0.775	
Bromochloromethane	ND	1.6	0.54	0.775		2-Hexanone	ND	16	1.4	0.775	
Bromodichloromethane	ND	0.78	0.18	0.775		Isopropylbenzene	ND	0.78	0.42	0.775	
Bromoform	ND	3.9	0.62	0.775		p-Isopropyltoluene	ND	0.78	0.49	0.775	
Bromomethane	ND	16	7.3	0.775		Methylene Chloride	ND	7.8	1.0	0.775	
2-Butanone	3.7	16	2.9	0.775	J	4-Methyl-2-Pentanone	ND	16	3.3	0.775	
n-Butylbenzene	ND	0.78	0.12	0.775		Naphthalene	ND	7.8	0.63	0.775	
sec-Butylbenzene	ND	0.78	0.45	0.775		n-Propylbenzene	ND	1.6	0.39	0.775	
tert-Butylbenzene	ND	0.78	0.12	0.775		Styrene	ND	0.78	0.47	0.775	
Carbon Disulfide	1.7	7.8	0.24	0.775	J	1,1,1,2-Tetrachloroethane	ND	0.78	0.19	0.775	
Carbon Tetrachloride	ND	0.78	0.22	0.775		1,1,2,2-Tetrachloroethane	ND	1.6	0.27	0.775	
Chlorobenzene	ND	0.78	0.17	0.775		Tetrachloroethene	ND	0.78	0.16	0.775	
Chloroethane	ND	1.6	1.5	0.775		Toluene	ND	0.78	0.40	0.775	
Chloroform	ND	0.78	0.19	0.775		1,2,3-Trichlorobenzene	ND	1.6	0.71	0.775	
Chloromethane	ND	16	0.53	0.775		1,2,4-Trichlorobenzene	ND	1.6	0.24	0.775	
2-Chlorotoluene	ND	0.78	0.18	0.775		1,1,1-Trichloroethane	ND	0.78	0.17	0.775	
4-Chlorotoluene	ND	0.78	0.17	0.775		1,1,2-Trichloroethane	ND	0.78	0.74	0.775	
Dibromochloromethane	ND	1.6	0.44	0.775		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.8	0.27	0.775	
1,2-Dibromo-3-Chloropropane	ND	3.9	1.3	0.775		Trichloroethene	ND	1.6	0.23	0.775	
1,2-Dibromoethane	ND	0.78	0.20	0.775		Trichlorofluoromethane	ND	7.8	0.29	0.775	
Dibromomethane	ND	0.78	0.60	0.775		1,2,3-Trichloropropane	ND	1.6	0.53	0.775	
1,2-Dichlorobenzene	ND	0.78	0.18	0.775		1,2,4-Trimethylbenzene	ND	1.6	0.45	0.775	
1,3-Dichlorobenzene	ND	0.78	0.14	0.775		1,3,5-Trimethylbenzene	ND	1.6	0.43	0.775	
1,4-Dichlorobenzene	ND	0.78	0.17	0.775		Vinyl Acetate	ND	7.8	3.7	0.775	
Dichlorodifluoromethane	ND	1.6	0.34	0.775		Vinyl Chloride	ND	0.78	0.39	0.775	
1,1-Dichloroethane	ND	0.78	0.77	0.775		p/m-Xylene	ND	1.6	0.21	0.775	
1,2-Dichloroethane	ND	0.78	0.24	0.775		o-Xylene	ND	0.78	0.43	0.775	
1,1-Dichloroethene	ND	0.78	0.27	0.775		Methyl-t-Butyl Ether (MTBE)	ND	1.6	0.23	0.775	
c-1,2-Dichloroethene	ND	0.78	0.22	0.775		Tert-Butyl Alcohol (TBA)	8.0	16	4.0	0.775	J
t-1,2-Dichloroethene	ND	0.78	0.39	0.775		Diisopropyl Ether (DIPE)	ND	0.78	0.37	0.775	
1,2-Dichloropropane	ND	0.78	0.34	0.775		Ethyl-t-Butyl Ether (ETBE)	ND	0.78	0.39	0.775	
1,3-Dichloropropane	ND	0.78	0.20	0.775		Tert-Amyl-Methyl Ether (TAME)	ND	0.78	0.27	0.775	
2,2-Dichloropropane	ND	3.9	0.26	0.775		Ethanol	ND	390	65	0.775	
1,1-Dichloropropene	ND	1.6	0.25	0.775							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	74	80-120	2,6	Dibromofluoromethane	124	79-133	
1,2-Dichloroethane-d4	111	71-155		Toluene-d8	98	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
UVB-9-72	**11-12-0606-12-F**	**12/08/11 15:52**	**Solid**	**GC/MS Z**	**12/08/11**	**12/09/11 21:21**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	ND	41	5.1	0.816		c-1,3-Dichloropropene	ND	0.82	0.21	0.816	
Benzene	0.29	0.82	0.11	0.816	J	t-1,3-Dichloropropene	ND	1.6	0.49	0.816	
Bromobenzene	ND	0.82	0.17	0.816		Ethylbenzene	ND	0.82	0.12	0.816	
Bromochloromethane	ND	1.6	0.56	0.816		2-Hexanone	ND	16	1.4	0.816	
Bromodichloromethane	ND	0.82	0.19	0.816		Isopropylbenzene	ND	0.82	0.45	0.816	
Bromoform	ND	4.1	0.65	0.816		p-Isopropyltoluene	ND	0.82	0.51	0.816	
Bromomethane	ND	16	7.7	0.816		Methylene Chloride	ND	8.2	1.1	0.816	
2-Butanone	ND	16	3.1	0.816		4-Methyl-2-Pentanone	ND	16	3.5	0.816	
n-Butylbenzene	ND	0.82	0.13	0.816		Naphthalene	ND	8.2	0.66	0.816	
sec-Butylbenzene	ND	0.82	0.47	0.816		n-Propylbenzene	ND	1.6	0.41	0.816	
tert-Butylbenzene	ND	0.82	0.12	0.816		Styrene	ND	0.82	0.49	0.816	
Carbon Disulfide	ND	8.2	0.25	0.816		1,1,1,2-Tetrachloroethane	ND	0.82	0.20	0.816	
Carbon Tetrachloride	ND	0.82	0.23	0.816		1,1,2,2-Tetrachloroethane	ND	1.6	0.28	0.816	
Chlorobenzene	ND	0.82	0.18	0.816		Tetrachloroethene	ND	0.82	0.17	0.816	
Chloroethane	ND	1.6	1.5	0.816		Toluene	ND	0.82	0.42	0.816	
Chloroform	ND	0.82	0.19	0.816		1,2,3-Trichlorobenzene	ND	1.6	0.75	0.816	
Chloromethane	ND	16	0.56	0.816		1,2,4-Trichlorobenzene	ND	1.6	0.25	0.816	
2-Chlorotoluene	ND	0.82	0.19	0.816		1,1,1-Trichloroethane	ND	0.82	0.18	0.816	
4-Chlorotoluene	ND	0.82	0.17	0.816		1,1,2-Trichloroethane	ND	0.82	0.78	0.816	
Dibromochloromethane	ND	1.6	0.47	0.816		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.2	0.29	0.816	
1,2-Dibromo-3-Chloropropane	ND	4.1	1.4	0.816		Trichloroethene	ND	1.6	0.25	0.816	
1,2-Dibromoethane	ND	0.82	0.21	0.816		Trichlorofluoromethane	ND	8.2	0.31	0.816	
Dibromomethane	ND	0.82	0.63	0.816		1,2,3-Trichloropropane	ND	1.6	0.56	0.816	
1,2-Dichlorobenzene	ND	0.82	0.19	0.816		1,2,4-Trimethylbenzene	ND	1.6	0.48	0.816	
1,3-Dichlorobenzene	ND	0.82	0.14	0.816		1,3,5-Trimethylbenzene	ND	1.6	0.45	0.816	
1,4-Dichlorobenzene	ND	0.82	0.18	0.816		Vinyl Acetate	ND	8.2	3.9	0.816	
Dichlorodifluoromethane	ND	1.6	0.36	0.816		Vinyl Chloride	ND	0.82	0.41	0.816	
1,1-Dichloroethane	ND	0.82	0.82	0.816		p/m-Xylene	ND	1.6	0.22	0.816	
1,2-Dichloroethane	ND	0.82	0.26	0.816		o-Xylene	ND	0.82	0.45	0.816	
1,1-Dichloroethene	ND	0.82	0.28	0.816		Methyl-t-Butyl Ether (MTBE)	ND	1.6	0.24	0.816	
c-1,2-Dichloroethene	ND	0.82	0.23	0.816		Tert-Butyl Alcohol (TBA)	ND	16	4.2	0.816	
t-1,2-Dichloroethene	ND	0.82	0.41	0.816		Diisopropyl Ether (DIPE)	ND	0.82	0.39	0.816	
1,2-Dichloropropane	ND	0.82	0.36	0.816		Ethyl-t-Butyl Ether (ETBE)	ND	0.82	0.41	0.816	
1,3-Dichloropropane	ND	0.82	0.21	0.816		Tert-Amyl-Methyl Ether (TAME)	ND	0.82	0.29	0.816	
2,2-Dichloropropane	ND	4.1	0.27	0.816		Ethanol	ND	410	68	0.816	
1,1-Dichloropropene	ND	1.6	0.27	0.816							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	105	80-120		Dibromofluoromethane	113	79-133	
1,2-Dichloroethane-d4	109	71-155		Toluene-d8	104	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received:	12/08/11
Work Order No:	11-12-0606
Preparation:	EPA 5035
Method:	EPA 8260B
Units:	ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-025-22,380**	**N/A**	**Solid**	**GC/MS Z**	**12/09/11**	**12/09/11 13:59**	**111209L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	ND	5000	620	100		c-1,3-Dichloropropene	ND	100	25	100	
Benzene	ND	100	13	100		t-1,3-Dichloropropene	ND	200	61	100	
Bromobenzene	ND	100	21	100		Ethylbenzene	ND	100	15	100	
Bromochloromethane	ND	200	69	100		2-Hexanone	ND	2000	180	100	
Bromodichloromethane	ND	100	23	100		Isopropylbenzene	ND	100	55	100	
Bromoform	ND	500	79	100		p-Isopropyltoluene	ND	100	63	100	
Bromomethane	ND	2000	940	100		Methylene Chloride	ND	1000	130	100	
2-Butanone	ND	2000	380	100		4-Methyl-2-Pentanone	ND	2000	430	100	
n-Butylbenzene	ND	100	16	100		Naphthalene	ND	1000	81	100	
sec-Butylbenzene	ND	100	58	100		n-Propylbenzene	ND	200	50	100	
tert-Butylbenzene	ND	100	15	100		Styrene	ND	100	60	100	
Carbon Disulfide	ND	1000	31	100		1,1,1,2-Tetrachloroethane	ND	100	24	100	
Carbon Tetrachloride	ND	100	28	100		1,1,2,2-Tetrachloroethane	ND	200	35	100	
Chlorobenzene	ND	100	22	100		Tetrachloroethene	ND	100	21	100	
Chloroethane	ND	200	190	100		Toluene	ND	100	52	100	
Chloroform	ND	100	24	100		1,2,3-Trichlorobenzene	ND	200	91	100	
Chloromethane	ND	2000	69	100		1,2,4-Trichlorobenzene	ND	200	31	100	
2-Chlorotoluene	ND	100	23	100		1,1,1-Trichloroethane	ND	100	23	100	
4-Chlorotoluene	ND	100	21	100		1,1,2-Trichloroethane	ND	100	95	100	
Dibromochloromethane	ND	200	57	100		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	1000	35	100	
1,2-Dibromo-3-Chloropropane	ND	500	170	100		Trichloroethene	ND	200	30	100	
1,2-Dibromoethane	ND	100	26	100		Trichlorofluoromethane	ND	1000	38	100	
Dibromomethane	ND	100	77	100		1,2,3-Trichloropropane	ND	200	69	100	
1,2-Dichlorobenzene	ND	100	23	100		1,2,4-Trimethylbenzene	ND	200	59	100	
1,3-Dichlorobenzene	ND	100	18	100		1,3,5-Trimethylbenzene	ND	200	55	100	
1,4-Dichlorobenzene	ND	100	22	100		Vinyl Acetate	ND	1000	470	100	
Dichlorodifluoromethane	ND	200	44	100		Vinyl Chloride	ND	100	50	100	
1,1-Dichloroethane	ND	100	100	100		p/m-Xylene	ND	200	27	100	
1,2-Dichloroethane	ND	100	31	100		o-Xylene	ND	100	56	100	
1,1-Dichloroethene	ND	100	35	100		Methyl-t-Butyl Ether (MTBE)	ND	200	30	100	
c-1,2-Dichloroethene	ND	100	28	100		Tert-Butyl Alcohol (TBA)	ND	2000	520	100	
t-1,2-Dichloroethene	ND	100	51	100		Diisopropyl Ether (DIPE)	ND	100	48	100	
1,2-Dichloropropane	ND	100	44	100		Ethyl-t-Butyl Ether (ETBE)	ND	100	51	100	
1,3-Dichloropropane	ND	100	25	100		Tert-Amyl-Methyl Ether (TAME)	ND	100	35	100	
2,2-Dichloropropane	ND	500	33	100		Ethanol	ND	50000	8400	100	
1,1-Dichloropropene	ND	200	33	100							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	104	80-120		Dibromofluoromethane	95	79-133	
1,2-Dichloroethane-d4	99	71-155		Toluene-d8	102	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-025-22,384**	**N/A**	**Solid**	**GC/MS Z**	**12/09/11**	**12/09/11 14:29**	**111209L02**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	ND	50	6.2	1		c-1,3-Dichloropropene	ND	1.0	0.25	1	
Benzene	ND	1.0	0.13	1		t-1,3-Dichloropropene	ND	2.0	0.61	1	
Bromobenzene	ND	1.0	0.21	1		Ethylbenzene	ND	1.0	0.15	1	
Bromochloromethane	ND	2.0	0.69	1		2-Hexanone	ND	20	1.8	1	
Bromodichloromethane	ND	1.0	0.23	1		Isopropylbenzene	ND	1.0	0.55	1	
Bromoform	ND	5.0	0.79	1		p-Isopropyltoluene	ND	1.0	0.63	1	
Bromomethane	ND	20	9.4	1		Methylene Chloride	ND	10	1.3	1	
2-Butanone	ND	20	3.8	1		4-Methyl-2-Pentanone	ND	20	4.3	1	
n-Butylbenzene	ND	1.0	0.16	1		Naphthalene	ND	10	0.81	1	
sec-Butylbenzene	ND	1.0	0.58	1		n-Propylbenzene	ND	2.0	0.50	1	
tert-Butylbenzene	ND	1.0	0.15	1		Styrene	ND	1.0	0.60	1	
Carbon Disulfide	ND	10	0.31	1		1,1,1,2-Tetrachloroethane	ND	1.0	0.24	1	
Carbon Tetrachloride	ND	1.0	0.28	1		1,1,2,2-Tetrachloroethane	ND	2.0	0.35	1	
Chlorobenzene	ND	1.0	0.22	1		Tetrachloroethene	ND	1.0	0.21	1	
Chloroethane	ND	2.0	1.9	1		Toluene	ND	1.0	0.52	1	
Chloroform	ND	1.0	0.24	1		1,2,3-Trichlorobenzene	ND	2.0	0.91	1	
Chloromethane	ND	20	0.69	1		1,2,4-Trichlorobenzene	ND	2.0	0.31	1	
2-Chlorotoluene	ND	1.0	0.23	1		1,1,1-Trichloroethane	ND	1.0	0.23	1	
4-Chlorotoluene	ND	1.0	0.21	1		1,1,2-Trichloroethane	ND	1.0	0.95	1	
Dibromochloromethane	ND	2.0	0.57	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	0.35	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.7	1		Trichloroethene	ND	2.0	0.30	1	
1,2-Dibromoethane	ND	1.0	0.26	1		Trichlorofluoromethane	ND	10	0.38	1	
Dibromomethane	ND	1.0	0.77	1		1,2,3-Trichloropropane	ND	2.0	0.69	1	
1,2-Dichlorobenzene	ND	1.0	0.23	1		1,2,4-Trimethylbenzene	ND	2.0	0.59	1	
1,3-Dichlorobenzene	ND	1.0	0.18	1		1,3,5-Trimethylbenzene	ND	2.0	0.55	1	
1,4-Dichlorobenzene	ND	1.0	0.22	1		Vinyl Acetate	ND	10	4.7	1	
Dichlorodifluoromethane	ND	2.0	0.44	1		Vinyl Chloride	ND	1.0	0.50	1	
1,1-Dichloroethane	ND	1.0	1.0	1		p/m-Xylene	ND	2.0	0.27	1	
1,2-Dichloroethane	ND	1.0	0.31	1		o-Xylene	ND	1.0	0.56	1	
1,1-Dichloroethene	ND	1.0	0.35	1		Methyl-t-Butyl Ether (MTBE)	ND	2.0	0.30	1	
c-1,2-Dichloroethene	ND	1.0	0.28	1		Tert-Butyl Alcohol (TBA)	ND	20	5.2	1	
t-1,2-Dichloroethene	ND	1.0	0.51	1		Diisopropyl Ether (DIPE)	ND	1.0	0.48	1	
1,2-Dichloropropane	ND	1.0	0.44	1		Ethyl-t-Butyl Ether (ETBE)	ND	1.0	0.51	1	
1,3-Dichloropropane	ND	1.0	0.25	1		Tert-Amyl-Methyl Ether (TAME)	ND	1.0	0.35	1	
2,2-Dichloropropane	ND	5.0	0.33	1		Ethanol	ND	500	84	1	
1,1-Dichloropropene	ND	2.0	0.33	1							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	103	80-120		Dibromofluoromethane	95	79-133	
1,2-Dichloroethane-d4	98	71-155		Toluene-d8	103	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Analytical Report

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received:	12/08/11
Work Order No:	11-12-0606
Preparation:	EPA 5035
Method:	EPA 8260B
Units:	ug/kg

Project: DFSP - Norwalk / 747565

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-025-22,386**	**N/A**	**Solid**	**GC/MS Z**	**12/10/11**	**12/10/11 12:00**	**111210L01**

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Acetone	ND	50	6.2	1		c-1,3-Dichloropropene	ND	1.0	0.25	1	
Benzene	ND	1.0	0.13	1		t-1,3-Dichloropropene	ND	2.0	0.61	1	
Bromobenzene	ND	1.0	0.21	1		Ethylbenzene	ND	1.0	0.15	1	
Bromochloromethane	ND	2.0	0.69	1		2-Hexanone	ND	20	1.8	1	
Bromodichloromethane	ND	1.0	0.23	1		Isopropylbenzene	ND	1.0	0.55	1	
Bromoform	ND	5.0	0.79	1		p-Isopropyltoluene	ND	1.0	0.63	1	
Bromomethane	ND	20	9.4	1		Methylene Chloride	ND	10	1.3	1	
2-Butanone	ND	20	3.8	1		4-Methyl-2-Pentanone	ND	20	4.3	1	
n-Butylbenzene	ND	1.0	0.16	1		Naphthalene	ND	10	0.81	1	
sec-Butylbenzene	ND	1.0	0.58	1		n-Propylbenzene	ND	2.0	0.50	1	
tert-Butylbenzene	ND	1.0	0.15	1		Styrene	ND	1.0	0.60	1	
Carbon Disulfide	ND	10	0.31	1		1,1,1,2-Tetrachloroethane	ND	1.0	0.24	1	
Carbon Tetrachloride	ND	1.0	0.28	1		1,1,2,2-Tetrachloroethane	ND	2.0	0.35	1	
Chlorobenzene	ND	1.0	0.22	1		Tetrachloroethene	ND	1.0	0.21	1	
Chloroethane	ND	2.0	1.9	1		Toluene	ND	1.0	0.52	1	
Chloroform	ND	1.0	0.24	1		1,2,3-Trichlorobenzene	ND	2.0	0.91	1	
Chloromethane	ND	20	0.69	1		1,2,4-Trichlorobenzene	ND	2.0	0.31	1	
2-Chlorotoluene	ND	1.0	0.23	1		1,1,1-Trichloroethane	ND	1.0	0.23	1	
4-Chlorotoluene	ND	1.0	0.21	1		1,1,2-Trichloroethane	ND	1.0	0.95	1	
Dibromochloromethane	ND	2.0	0.57	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	0.35	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.7	1		Trichloroethene	ND	2.0	0.30	1	
1,2-Dibromoethane	ND	1.0	0.26	1		Trichlorofluoromethane	ND	10	0.38	1	
Dibromomethane	ND	1.0	0.77	1		1,2,3-Trichloropropane	ND	2.0	0.69	1	
1,2-Dichlorobenzene	ND	1.0	0.23	1		1,2,4-Trimethylbenzene	ND	2.0	0.59	1	
1,3-Dichlorobenzene	ND	1.0	0.18	1		1,3,5-Trimethylbenzene	ND	2.0	0.55	1	
1,4-Dichlorobenzene	ND	1.0	0.22	1		Vinyl Acetate	ND	10	4.7	1	
Dichlorodifluoromethane	ND	2.0	0.44	1		Vinyl Chloride	ND	1.0	0.50	1	
1,1-Dichloroethane	ND	1.0	1.0	1		p/m-Xylene	ND	2.0	0.27	1	
1,2-Dichloroethane	ND	1.0	0.31	1		o-Xylene	ND	1.0	0.56	1	
1,1-Dichloroethene	ND	1.0	0.35	1		Methyl-t-Butyl Ether (MTBE)	ND	2.0	0.30	1	
c-1,2-Dichloroethene	ND	1.0	0.28	1		Tert-Butyl Alcohol (TBA)	ND	20	5.2	1	
t-1,2-Dichloroethene	ND	1.0	0.51	1		Diisopropyl Ether (DIPE)	ND	1.0	0.48	1	
1,2-Dichloropropane	ND	1.0	0.44	1		Ethyl-t-Butyl Ether (ETBE)	ND	1.0	0.51	1	
1,3-Dichloropropane	ND	1.0	0.25	1		Tert-Amyl-Methyl Ether (TAME)	ND	1.0	0.35	1	
2,2-Dichloropropane	ND	5.0	0.33	1		Ethanol	ND	500	84	1	
1,1-Dichloropropene	ND	2.0	0.33	1							

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	103	80-120		Dibromofluoromethane	100	79-133	
1,2-Dichloroethane-d4	99	71-155		Toluene-d8	102	80-120	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
UVB-2-30	**Solid**	**GC 48**	**12/12/11**	**12/12/11**	**111212S12**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	400.0	87	92	64-130	6	0-15	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: 12/08/11
Work Order No: 11-12-0606
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
UVB-2-30	**Solid**	**GC 48**	**12/12/11**	**12/12/11**	**111212S13**

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as JP5	400.0	99	95	64-130	4	0-15	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.		Date Received:	N/A
100 West Walnut Street		Work Order No:	11-12-0606
Pasadena, CA 91124-0002		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-275-4,300	**Solid**	**GC 48**	**12/12/11**	**12/12/11**	**111212B12**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	400.0	89	84	75-123	7	0-12	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.		Date Received:	N/A
100 West Walnut Street		Work Order No:	11-12-0606
Pasadena, CA 91124-0002		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-295-86	**Solid**	**GC 48**	**12/12/11**	**12/12/11**	**111212B13**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as JP5	400.0	102	97	75-123	5	0-12	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.		Date Received:	N/A
100 West Walnut Street		Work Order No:	11-12-0606
Pasadena, CA 91124-0002		Preparation:	EPA 5035
		Method:	EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-285-4,008	**Solid**	**GC 18**	**12/09/11**	**12/10/11**	**111209B02**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	2.000	97	95	55-139	1	0-18	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.		Date Received:	N/A
100 West Walnut Street		Work Order No:	11-12-0606
Pasadena, CA 91124-0002		Preparation:	EPA 5035
		Method:	EPA 8015B (M)

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-285-4,009	**Solid**	**GC 18**	**12/12/11**	**12/12/11**	**111212B01**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	2.000	98	98	55-139	0	0-18	

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: N/A
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-025-22,380	**Solid**	**GC/MS Z**	**12/09/11**	**12/09/11**	**111209L01**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	50.00	109	108	80-120	73-127	1	0-20	
Carbon Tetrachloride	50.00	123	122	65-137	53-149	1	0-20	
Chlorobenzene	50.00	94	93	80-120	73-127	0	0-20	
1,2-Dibromoethane	50.00	92	95	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	50.00	85	86	80-120	73-127	1	0-20	
1,2-Dichloroethane	50.00	115	115	80-120	73-127	0	0-20	
1,1-Dichloroethene	50.00	116	116	68-128	58-138	0	0-20	
Ethylbenzene	50.00	90	89	80-120	73-127	1	0-20	
Toluene	50.00	107	106	80-120	73-127	1	0-20	
Trichloroethene	50.00	109	110	80-120	73-127	1	0-20	
Vinyl Chloride	50.00	114	116	67-127	57-137	2	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	110	112	70-124	61-133	2	0-20	
Tert-Butyl Alcohol (TBA)	250.0	90	86	73-121	65-129	4	0-20	
Diisopropyl Ether (DIPE)	50.00	110	110	69-129	59-139	0	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	109	109	70-124	61-133	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	106	106	74-122	66-130	0	0-20	
Ethanol	500.0	100	94	51-135	37-149	6	0-27	

Total number of LCS compounds : 17
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: N/A
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-025-22,384	**Solid**	**GC/MS Z**	**12/09/11**	**12/09/11**	**111209L02**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	50.00	109	108	80-120	73-127	1	0-20	
Carbon Tetrachloride	50.00	123	122	65-137	53-149	1	0-20	
Chlorobenzene	50.00	94	93	80-120	73-127	0	0-20	
1,2-Dibromoethane	50.00	92	95	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	50.00	85	86	80-120	73-127	1	0-20	
1,2-Dichloroethane	50.00	115	115	80-120	73-127	0	0-20	
1,1-Dichloroethene	50.00	116	116	68-128	58-138	0	0-20	
Ethylbenzene	50.00	90	89	80-120	73-127	1	0-20	
Toluene	50.00	107	106	80-120	73-127	1	0-20	
Trichloroethene	50.00	109	110	80-120	73-127	1	0-20	
Vinyl Chloride	50.00	114	116	67-127	57-137	2	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	110	112	70-124	61-133	2	0-20	
Tert-Butyl Alcohol (TBA)	250.0	90	86	73-121	65-129	4	0-20	
Diisopropyl Ether (DIPE)	50.00	110	110	69-129	59-139	0	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	109	109	70-124	61-133	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	106	106	74-122	66-130	0	0-20	
Ethanol	500.0	100	94	51-135	37-149	6	0-27	

Total number of LCS compounds : 17
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Parsons, Inc.
100 West Walnut Street
Pasadena, CA 91124-0002

Date Received: N/A
Work Order No: 11-12-0606
Preparation: EPA 5035
Method: EPA 8260B

Project: DFSP - Norwalk / 747565

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-025-22,386	**Solid**	**GC/MS Z**	**12/10/11**	**12/10/11**	**111210L01**

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	50.00	105	112	80-120	73-127	7	0-20	
Carbon Tetrachloride	50.00	119	128	65-137	53-149	7	0-20	
Chlorobenzene	50.00	89	94	80-120	73-127	6	0-20	
1,2-Dibromoethane	50.00	89	96	80-120	73-127	7	0-20	
1,2-Dichlorobenzene	50.00	82	86	80-120	73-127	4	0-20	
1,2-Dichloroethane	50.00	113	120	80-120	73-127	7	0-20	
1,1-Dichloroethene	50.00	111	120	68-128	58-138	7	0-20	
Ethylbenzene	50.00	85	90	80-120	73-127	6	0-20	
Toluene	50.00	103	110	80-120	73-127	6	0-20	
Trichloroethene	50.00	105	112	80-120	73-127	6	0-20	
Vinyl Chloride	50.00	109	113	67-127	57-137	4	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	107	116	70-124	61-133	8	0-20	
Tert-Butyl Alcohol (TBA)	250.0	84	89	73-121	65-129	6	0-20	
Diisopropyl Ether (DIPE)	50.00	105	113	69-129	59-139	8	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	105	113	70-124	61-133	7	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	103	109	74-122	66-130	6	0-20	
Ethanol	500.0	94	100	51-135	37-149	7	0-27	

Total number of LCS compounds : 17
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

Return to Contents

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

ACCREDITED IN ACCORDANCE WITH nelac

Work Order Number: 11-12-0606

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS/LCSD Recovery Percentage is within Marginal Exceedance (ME) Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
MPN - Most Probable Number

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Calscience Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

☒ SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

☐ NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

WO # / LAB USE ONLY: **11-12-0606**

Date 12/8/11

Page 1 of 2

LABORATORY CLIENT: Parsons

ADDRESS: 100 W. Walnut St.

CITY: Pasadena STATE: CA ZIP: 91124

TEL: 626-440-6032 E-MAIL: mary.lucas@parsons.com

CLIENT PROJECT NAME / NUMBER: DFSP Norwalk 747565

P.O. NO.:

PROJECT CONTACT: Mary Lucas

SAMPLER(S): (PRINT) Kinnebrew, Quin

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☑ STANDARD

☐ COELT EDF

GLOBAL ID

LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6-C36) or (C6-C44)	TPH (JP5)	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010/747X)	Cr(VI) [7196 or 7199 or 218.6]	Air - VOCs (TO-14A) or (TO-15)	Air - TPH (g) [TO-3]	MOISTURE (API RP40 / ASTM D2216) BULK + GRAIN DENSITY (API RP40) POROSITY (API RP40) NAPL (API RP40) PART SIZE (API RP40)			
1	UVB-2-11	12/8/2011	0853	SO	8				X	X	X		X	X												
2	UVB-2-30	12/8/2011	0931	SO	8				X	X	X		X	X												
3	UVB-2-43	12-8-2011	1000	SO	8				X	X	X		X	X												
4	UVB-2-65	12/8/2011	1100	SO	8				X	X	X		X	X												
5	UVB-2-76	12/8/2011	1137	SO	9				X	X	X		X	X											X	X	X
6	UVB-2-72	12/8/2011	1119	SO	9				X	X	X		X	X												
7	UVB-9-24	12/8/2011	1405	SO	8				X	X	X		X	X												
8	UVB-9-28	12/8/2011	1416	SO	8				X	X	X		X	X												
9	UVB-9-61	12/8/2011	1520	SO	8				X	X	X		X	X												
10	UVB-9-61D	12/8/2011	1520	SO	8				X	X	X		X	X												

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 12/8/11	Time: 1620
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 12/8/11	Time: 18:30
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

06/01/10 Revision

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Calscience Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

WO # / LAB USE ONLY: 12-0606

Date: 12/8/11
Page: 2 of 2

LABORATORY CLIENT: Parsons
ADDRESS: 100 W Walnut
CITY: Pasadena STATE: CA ZIP: 91124
TEL: 626-440-6032 E-MAIL: cindy.zicker@parsons
TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD
☐ COELT EDF GLOBAL ID: LOG CODE:
SPECIAL INSTRUCTIONS:

CLIENT PROJECT NAME / NUMBER: DESP Norwalk UVB
P.O. NO.: 747565
PROJECT CONTACT: Mary Lucas
SAMPLER(S): (PRINT) Q. Kinnebrew

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6-C36) or (C6-C44)	TPH (JP5)	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010/747X)	Cr(VI) [7196 or 7199 or 218.6]	Air - VOCs (TO-14A) or (TO-15)	Air - TPH (g) [TO-3]	MOISTURE BULK + GRAIN SPECIFIC GRAVITY	POROSITY PORE FLUID	PARTICLE SIZE	NAPL
11	UVB-9-68	12-8-11	1542	SO	9				X	X	X		X	X										X	X	X	
12	UVB-9-72	12/8/11	1552	SO	9				X	X	X		X	X										X	X	X	

Relinquished by: (Signature) Cindy Zicker — Received by: (Signature/Affiliation) Jensen Ying — Date: 12/8/11 — Time: 1720
Relinquished by: (Signature) Jensen Ying — Received by: (Signature/Affiliation) Dannyle CCL — Date: 12/9/11 — Time: 18:30
Relinquished by: (Signature) — Received by: (Signature/Affiliation) — Date: — Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

06/01/10 Revision

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-12-0606

SAMPLE RECEIPT FORM

Cooler 1 of 2

CLIENT: Parsons DATE: 12/8/11

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.9 °C - 0.3 °C (CF) = 1.6 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: BJ

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: BJ

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: WB

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☑Sleeve (5) ☐EnCores® ☑TerraCores® ☑80MIL BJ

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** WB

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** POP

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** POP

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-12-0606

SAMPLE RECEIPT FORM

Cooler 2 of 2

CLIENT: Parsons DATE: 12/8/11

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 2.3 °C - 0.3 °C (CF) = 2.0 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter **Initial:** JG

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** JG

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WB

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☑Sleeve (S) ☐EnCores® ☑TerraCores® ☑80mlPT

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** WB

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** POP

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** POP

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Calscience Environmental Laboratories, Inc.

Subcontractor Analysis Report

ACCREDITED IN ACCORDANCE WITH nelac

Work Order # 11-12-0606

One or more samples in this Work Order have tests that were subcontracted. The subcontract report(s) follows.

For subcontracted tests, please reference the laboratory information noted below.

1 Core Laboratories - Bakersfield,CA ISO 9001:2000, CERT-0014993, ELAP CA # 1247
Geotechnical Testing

2 DPRA/Zymax Forensics - Escondido,CA
Deuterium

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Petroleum Services Division
3437 Landco Dr.
Bakersfield, California 93308
Tel: 661-325-5657
Fax: 661-325-5808
www.corelab.com

January 4, 2012

Virendra Patel
CalScience Environmental Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92641-1432

Re: Physical Properties Analyses
Project: 11-12-0606
CL File No: 411088EN

Dear Mr. Patel:

Attached are final results for the samples submitted from your Project # 11-12-0606. This electronic version of the report will constitute the final report unless otherwise instructed.

Appropriate ASTM, EPA or API methodologies were used for this project and SOP's are available on request. The sample was used up during the course of the testing.

We appreciate the opportunity to be of service to Calscience Environmental Laboratories, Inc. and trust these data will prove beneficial in the development of this project. Please do not hesitate to contact us (661-325-5657) if you have any questions regarding these results, or if we can be of any additional service.

Sincerely,
Core Laboratories

Jeffry L. Smith
ARP Supervisor

Encl.

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PORE FLUID SATURATION DATA

PETROLEUM SERVICES

Company: **Calscience**
Project No: 11-12-0606

Core Lab File No: 411088EN

			METHODS:	**API RP 40 / ASTM D2216**		**API RP 40**				
Sample ID.	Depth ft.	Sample Orientation (1)	Moisture Content, %	Density g/cc		Porosity, %Vb (2)		Pore Fluid Saturations, % Pv (3)		
				Dry Bulk	Grain	Total	Air-Filled	Air (Void)	Hydrocarbon	Water
UVB-2-76	76	V	6.28	1.82	2.74	33.40	21.81	65.30	2.25	32.45
UVB-9-72	72	V	9.58	1.86	2.73	31.76	13.72	43.20	3.48	53.32

(1) Sample Orientation: H = horizontal; V = vertical

(2) Total Porosity = All interconnected pore channels; Air Filled = pore channels not occupied by pore fluids

(3) Water = 0.9996 g/cc, Hydrocarbon = 0.80 g/cc;

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

SIEVE and LASER PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

Petroleum Services

Calscience Environmental Laboratories, Inc.
Proj. No. : 11-12-0606

Core Lab File No : 57111-411088EN
Date : 1/4/2012

Sample ID	Grain Size Description (Mean from Folk)	Median Grain Size, mm	Component Percentages								Silt & Clay
			Gravel	Sand Size					Silt	Clay	
				VCoarse	Coarse	Medium	Fine	VFine			
UVB-2-76	silt	0.02	0.00	0.00	0.00	2.22	10.23	16.41	54.09	17.05	71.1
UVB-9-72	silt	0.02	0.00	0.00	0.00	0.00	0.95	15.14	68.59	15.32	83.9

Comp. : Calscience Environmental Laboratories, Inc.
Proj. No. : 11-12-0606

C.L. File No. : 57111-411088EN
Date : 1/4/2012

Sieve and Laser Particle Size Analysis (Metric)

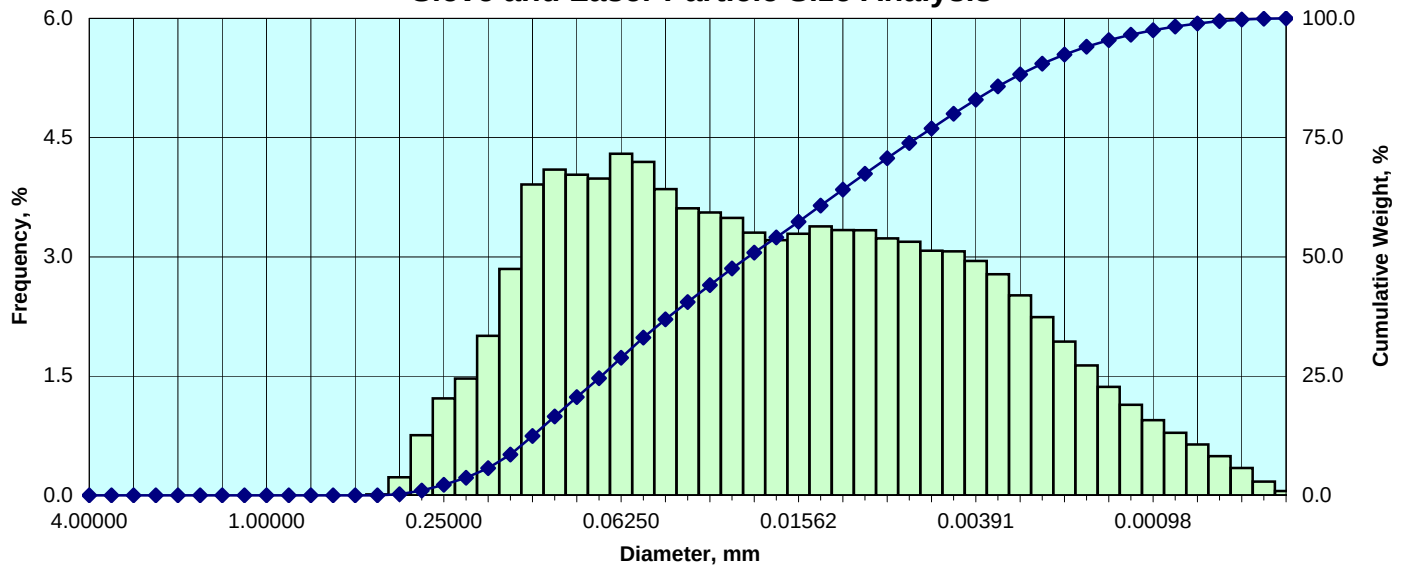
Sample ID/ Depth(ft)	Component Percentages								Percentiles										Sorting Statistics (Folk)				
	Gravel	Sand					Fines		Particle Diameter (mm)										Median	Mean	Sorting	Skew.	Kurt.
		vcgr	cgr	mgr	fgr	vfgr	silt	clay	5	10	16	25	40	50	75	84	90	95	mm	mm	ϕ		
UVB-2-76	0.00	0.00	0.00	2.22	10.23	16.41	54.09	17.05	0.1851 fgr	0.1390 fgr	0.1075 vfgr	0.0729 vfgr	0.0381 silt	0.0231 silt	0.0062 silt	0.0037 clay	0.0024 clay	0.0015 clay	0.023 silt	0.021 silt	2.277 v. Poor	0.116 fine	0.803 platykurtic
UVB-9-72	0.00	0.00	0.00	0.00	0.95	15.14	68.59	15.32	0.0967 vfgr	0.0782 vfgr	0.0625 silt	0.0464 silt	0.0296 silt	0.0215 silt	0.0071 silt	0.0041 silt	0.0026 clay	0.0016 clay	0.021 silt	0.018 silt	1.883 Poor	0.243 fine	0.899 platykurtic

** Particle-size distribution pattern precludes calculation of these statistical parameters

Comp. : Calscience Environmental Laboratories, Inc.
Proj. No. : 11-12-0606

CL File No. : 57111-411088EN
Sample ID/ Depth : UVB-2-76

Sieve and Laser Particle Size Analysis



Particle Size Distribution

	Diameter				Weight %	
	[US Mesh]	[in.]	[mm]	[ϕ]	[Incl.]	[Cum.]
Granule	5	0.157480	4.00000	-2.00	0.000	0.00
	6	0.132425	3.36359	-1.75	0.000	0.00
	7	0.111355	2.82843	-1.50	0.000	0.00
	8	0.093638	2.37841	-1.25	0.000	0.00
	10	0.078740	2.00000	-1.00	0.000	0.00
V Crse Sand	12	0.066212	1.68179	-0.75	0.000	0.00
	14	0.055678	1.41421	-0.50	0.000	0.00
	16	0.046819	1.18921	-0.25	0.000	0.00
	18	0.039370	1.00000	0.00	0.000	0.00
Coarse Sand	20	0.033106	0.84090	0.25	0.000	0.00
	25	0.027839	0.70711	0.50	0.000	0.00
	30	0.023410	0.59460	0.75	0.000	0.00
	35	0.019685	0.50000	1.00	0.000	0.00
Medium Sand	40	0.016553	0.42045	1.25	0.013	0.01
	45	0.013919	0.35355	1.50	0.227	0.24
	50	0.011705	0.29730	1.75	0.756	1.00
	60	0.009843	0.25000	2.00	1.220	2.22
Fine Sand	70	0.008277	0.21022	2.25	1.469	3.69
	80	0.006960	0.17678	2.50	2.008	5.69
	100	0.005852	0.14865	2.75	2.848	8.54
	120	0.004921	0.12500	3.00	3.910	12.45
V. Fine Sand	140	0.004138	0.10511	3.25	4.098	16.55
	170	0.003480	0.08839	3.50	4.034	20.58
	200	0.002926	0.07433	3.75	3.986	24.57
Silt	230	0.002461	0.06250	4.00	4.297	28.87
	270	0.002069	0.05256	4.25	4.195	33.06
	325	0.001740	0.04419	4.50	3.853	36.91
	400	0.001463	0.03716	4.75	3.611	40.52
	450	0.001230	0.03125	5.00	3.558	44.08
	500	0.001035	0.02628	5.25	3.491	47.57
	635	0.000870	0.02210	5.50	3.306	50.88
		0.000732	0.01858	5.75	3.210	54.09
		0.000615	0.01562	6.00	3.291	57.38
		0.000517	0.01314	6.25	3.384	60.76
		0.000435	0.01105	6.50	3.337	64.10
		0.000366	0.00929	6.75	3.335	67.43
		0.000308	0.00781	7.00	3.233	70.67
		0.000259	0.00657	7.25	3.190	73.86
		0.000217	0.00552	7.50	3.076	76.93
		0.000183	0.00465	7.75	3.070	80.00
		0.000154	0.00391	8.00	2.948	82.95
Clay		0.000129	0.00328	8.25	2.782	85.73
		0.000109	0.00276	8.50	2.516	88.25
		0.000091	0.00232	8.75	2.241	90.49
		0.000077	0.00195	9.00	1.935	92.42
		0.000065	0.00164	9.25	1.635	94.06
		0.000054	0.00138	9.50	1.364	95.42
		0.000046	0.00116	9.75	1.139	96.56
		0.000038	0.00098	10.00	0.946	97.51
		0.000032	0.00082	10.25	0.788	98.30
		0.000027	0.00069	10.50	0.639	98.94
		0.000023	0.00058	10.75	0.493	99.43
		0.000019	0.00049	11.00	0.343	99.77
		0.000016	0.00041	11.25	0.174	99.95
		0.000015	0.00038	11.50	0.054	100.00

Sorting Statistics (Folk)

Parameter	Trask	Inman	Folk
Median	Silt sized		
(in)	0.0009	0.0009	0.0009
(mm)	0.0231	0.0231	0.0231
Mean	Silt sized		
(in)	0.0016	0.0008	0.0008
(mm)	0.0395	0.0199	0.0209
Sorting	V. Poor		
	3.441	0.185	2.277
Skewness	Finely skewed		
	0.916	0.202	0.116
Kurtosis	Platykurtic		
	0.244	0.433	0.803

Component Percentages

Gravel	Sand	Silt	Clay	Silt + Clay
0.00	28.87	54.09	17.05	71.13

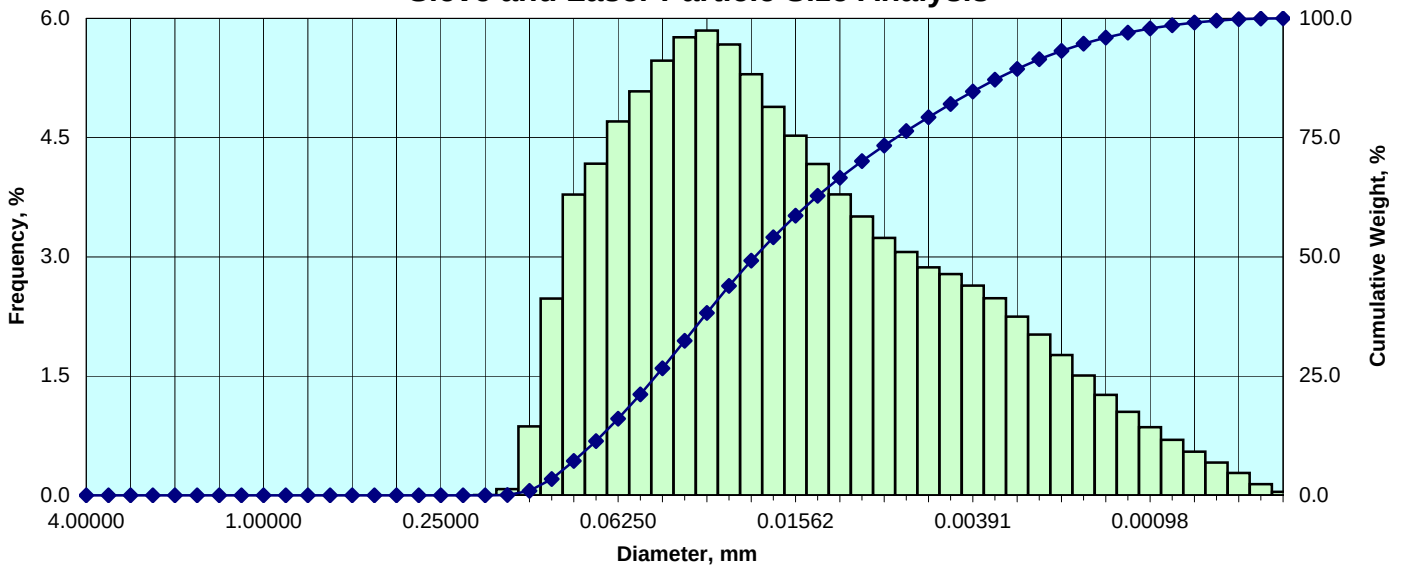
Percentile [Weight, %]	Particle Diameter [in.]	[mm]	[phi]
5	0.0073	0.1851	2.4334
10	0.0055	0.1390	2.8467
16	0.0042	0.1075	3.2171
25	0.0029	0.0729	3.7783
40	0.0015	0.0381	4.7156
50	0.0009	0.0231	5.4338
75	0.0002	0.0062	7.3440
84	0.0001	0.0037	8.0921
90	0.0001	0.0024	8.6926
95	0.0001	0.0015	9.4173

** Distribution pattern precludes calculation of these statistical parameters.

Comp. : Calscience Environmental Laboratories, Inc.
Proj. No. : 11-12-0606

CL File No. : 57111-411088EN
Sample ID/ Depth : UVB-9-72

Sieve and Laser Particle Size Analysis



Particle Size Distribution

	Diameter				Weight %	
	[US Mesh]	[in.]	[mm]	[ϕ]	[Incl.]	[Cum.]
Granule	5	0.157480	4.00000	-2.00	0.000	0.00
	6	0.132425	3.36359	-1.75	0.000	0.00
	7	0.111355	2.82843	-1.50	0.000	0.00
	8	0.093638	2.37841	-1.25	0.000	0.00
	10	0.078740	2.00000	-1.00	0.000	0.00
V Crse Sand	12	0.066212	1.68179	-0.75	0.000	0.00
	14	0.055678	1.41421	-0.50	0.000	0.00
	16	0.046819	1.18921	-0.25	0.000	0.00
	18	0.039370	1.00000	0.00	0.000	0.00
Coarse Sand	20	0.033106	0.84090	0.25	0.000	0.00
	25	0.027839	0.70711	0.50	0.000	0.00
	30	0.023410	0.59460	0.75	0.000	0.00
	35	0.019685	0.50000	1.00	0.000	0.00
Medium Sand	40	0.016553	0.42045	1.25	0.000	0.00
	45	0.013919	0.35355	1.50	0.000	0.00
	50	0.011705	0.29730	1.75	0.000	0.00
	60	0.009843	0.25000	2.00	0.000	0.00
Fine Sand	70	0.008277	0.21022	2.25	0.000	0.00
	80	0.006960	0.17678	2.50	0.004	0.00
	100	0.005852	0.14865	2.75	0.078	0.08
	120	0.004921	0.12500	3.00	0.868	0.95
V. Fine Sand	140	0.004138	0.10511	3.25	2.475	3.42
	170	0.003480	0.08839	3.50	3.785	7.21
	200	0.002926	0.07433	3.75	4.172	11.38
Silt	230	0.002461	0.06250	4.00	4.704	16.08
	270	0.002069	0.05256	4.25	5.082	21.17
	325	0.001740	0.04419	4.50	5.468	26.63
	400	0.001463	0.03716	4.75	5.763	32.40
	450	0.001230	0.03125	5.00	5.847	38.24
	500	0.001035	0.02628	5.25	5.671	43.92
	635	0.000870	0.02210	5.50	5.297	49.21
		0.000732	0.01858	5.75	4.888	54.10
		0.000615	0.01562	6.00	4.525	58.63
		0.000517	0.01314	6.25	4.168	62.79
		0.000435	0.01105	6.50	3.785	66.58
		0.000366	0.00929	6.75	3.509	70.09
		0.000308	0.00781	7.00	3.238	73.33
		0.000259	0.00657	7.25	3.062	76.39
		0.000217	0.00552	7.50	2.868	79.26
		0.000183	0.00465	7.75	2.784	82.04
		0.000154	0.00391	8.00	2.639	84.68
Clay		0.000129	0.00328	8.25	2.480	87.16
		0.000109	0.00276	8.50	2.249	89.41
		0.000091	0.00232	8.75	2.022	91.43
		0.000077	0.00195	9.00	1.765	93.20
		0.000065	0.00164	9.25	1.508	94.70
		0.000054	0.00138	9.50	1.264	95.97
		0.000046	0.00116	9.75	1.051	97.02
		0.000038	0.00098	10.00	0.857	97.87
		0.000032	0.00082	10.25	0.698	98.57
		0.000027	0.00069	10.50	0.550	99.12
		0.000023	0.00058	10.75	0.413	99.54
		0.000019	0.00049	11.00	0.281	99.82
		0.000016	0.00041	11.25	0.140	99.96
		0.000015	0.00038	11.50	0.044	100.00

Sorting Statistics (Folk)

Parameter	Trask	Inman	Folk
Median	**Silt sized**		
(in)	0.0008	0.0008	0.0008
(mm)	0.0215	0.0215	0.0215
Mean	**Silt sized**		
(in)	0.0011	0.0006	0.0007
(mm)	0.0267	0.0160	0.0176
Sorting	**Poor**		
	2.554	0.256	1.883
Skewness	**Finely skewed**		
	0.845	0.405	0.243
Kurtosis	**Platykurtic**		
	0.260	0.509	0.899

Component Percentages

Gravel	Sand	Silt	Clay	Silt + Clay
0.00	16.08	68.59	15.32	83.92

Percentile [Weight, %]	Particle Diameter [in.]	[mm]	[phi]
5	0.0038	0.0967	3.3701
10	0.0031	0.0782	3.6761
16	0.0025	0.0625	4.0002
25	0.0018	0.0464	4.4307
40	0.0012	0.0296	5.0776
50	0.0008	0.0215	5.5401
75	0.0003	0.0071	7.1362
84	0.0002	0.0041	7.9336
90	0.0001	0.0026	8.5704
95	0.0001	0.0016	9.3048

** Distribution pattern precludes calculation of these statistical parameters.

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 . FAX: (714) 894-7501

TO: Core Labs

CHAIN OF CUSTODY RECORD

DATE: 12/12/11

PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.

ADDRESS: 7440 Lincoln Way

CITY: Garden Grove, CA 92841-1427

TEL: (714) 895-5494

E-MAIL: rclarke@calscience.com

CLIENT PROJECT NAME / NUMBER: 11-12-0606

PROJECT CONTACT: Ranjit Clarke

SAMPLER(S): (PRINT)

P.O. NO.:

QUOTE NO.:

LAB USE ONLY

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR 72 HR ☐ 5 DAYS ☒ Normal

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS

Original COC attached. Call if any questions.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	Particle Size Distribution (ASTM D422 or 4464)	Total Porosity	Moisture (ASTM D2216)	Bulk & Grain Density	Pore Fluid Saturation (API RP40)	NAPL
	UVB-2-76	12/08/11	11:37	S	1	X	X	X	X	X	X
	UVB-2-72	12/08/11	11:19	S	1						X
	UVB-9-68	12/08/11	15:42	S	1						X
	UVB-9-72	12/08/11	15:45	S	1	X	X	X	X	X	X

Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
(CALSCIENCE)	GSO # 518024094	12/12/11	1615
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
	Tracey Bishop	12/13/11	10:30 AM
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:

411088 EN

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Calscience Environmental Laboratories, Inc.

#411088EN

CHAIN OF CUSTODY RECORD

Date 12/8/11

Page 1 of 2

SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

WO # / LAB USE ONLY: 11-12-0606

LABORATORY CLIENT: Parsons

ADDRESS: 100 W. Walnut St.

CITY: Pasadena STATE: CA ZIP: 91124

TEL: 626-440-6032 E-MAIL: mary.lucas@parsons.com

PROJECT CONTACT: Mary Lucas

CLIENT PROJECT NAME / NUMBER: DFSP Norwalk 747565

P.O. NO.:

SAMPLER(S): (PRINT) Kinnebrew Quin

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☑ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6-C36) or (C6-C44)	TPH (JP5)	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010/747X)	Cr(VI) [7196 or 7199 or 218.6]	Air - VOCs (TO-14A) or (TO-15)	Air - TPH (g) [TO-3]	MOISTURE (API RP40) (ASTM D2216) BULK DENSITY (API RP40) POROSITY (API RP40) PORE FLUID SATURATION (API RP40) PART SIZE DIST (ASTM D422 / API RP40)			
1	UVB-2-11	12/8/2011	0853	SO	8				X	X	X		X	X													
2	UVB-2-30	12/8/2011	0931	SO	8				X	X	X		X	X													
3	UVB-2-43	12-8-2011	1000	SO	8				X	X	X		X	X													
4	UVB-2-65	12/8/2011	1100	SO	8				X	X	X		X	X													
5	UVB-2-76	12/8/2011	1137	SO	9				X	X	X		X	X											X	X	X
6	UVB-2-72	12/8/2011	1119	SO	9				X	X	X		X	X													X
7	UVB-9-24	12/8/2011	1405	SO	8				X	X	X		X	X													
8	UVB-9-28	12/8/2011	1416	SO	8				X	X	X		X	X													
9	UVB-9-61	12/8/2011	1520	SO	8				X	X	X		X	X													
10	UVB-9-61D	12/8/2011	1520	SO	8				X	X	X		X	X													

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Cindy Zorba	Jenson	12/8/11	1620
Jenson	Dannyle	12/8/11	18:30
	Nancy Bishop	12/13/11	10:30 AM

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

06/01/10 Revision

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Calscience Environmental Laboratories, Inc.

411088EN

CHAIN OF CUSTODY RECORD

Date 12/8/11

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SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

WO # / LAB USE ONLY: 12-0600

LABORATORY CLIENT: Parsons

ADDRESS: 100 W Walnut

CITY: Pasadena STATE: CA ZIP: 91124

TEL: 626-440-6032 E-MAIL: cindy.zicker@parsons

CLIENT PROJECT NAME / NUMBER: DFSP Norwalk UVB

P.O. NO.: 747565

PROJECT CONTACT: Mary Lucas

SAMPLER(S): (PRINT) Q. Kinnebrew

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD

☐ COELT EDF | GLOBAL ID | LOG CODE

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C6-C36) or (C6-C44)	TPH (JP5)	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010/747X)	Cr(VI) [7196 or 7199 or 218.6]	Air - VOCs (TO-14A) or (TO-15)	Air - TPH (g) [TO-3]	MOISTURE BULK + GRAIN SPECIFIC DENSITY	POROSITY PORE FLUID	PARTICLE SIZE	* = NAPL
11	UVB-9-68	12-8-11	1542	SO	9				X	X	X		X	X										X	X	X	
12	UVB-9-72	12/8/11	1552	SO	9				X	X	X		X	X										X	X	X	

Relinquished by: (Signature) Cindy Zicker	Received by: (Signature/Affiliation) Jensen Yang	Date: 12/8/11	Time: 1720
Relinquished by: (Signature) Jensen Yang	Received by: (Signature/Affiliation) Dannyle CEL	Date: 12/9/11	Time: 18:30
Relinquished by: (Signature)	Received by: (Signature/Affiliation) Tracey Bishop	Date: 12/13/11	Time: 10:30 AM

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DPRA
Creative People. Smart Solutions.

January 05, 2012

Mr. Ranjit Clarke
Calscience Environmental Laboratories
7440 Lincoln Way
Garden Grove, CA. 92841-1432

Re: 11-12-0606

Dear Mr. Clarke,

Enclosed are analytical results for two soil samples ID UVB-2-72 and UVB-9-72 submitted to Zymax on December 16, 2011. The data were obtained from GC/MS full scan analysis on the extract of samples.

The project was performed at Zymax forensics as Laboratory No. 42478.

Please call us at 760-781-3338 or email me at Shantan@zymaxusa.com if you have any questions regarding the analytical results.

Sincerely,

Shan-Tan Lu, PhD
Director of Forensic Geochemistry

ZYMAX
Environmental Forensics Solutions from DPRA

N 033 DEG 06 MIN 56.52 SEC
W 117 DEG 06 MIN 45.27 SEC

600 S. Andreasen Drive
Suite B
Escondido, CA 92029

760.781.3338 Voice
760.781.3339 Fax

www.dpra.com

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DFSP Norwalk

Report Prepared for:

Parsons
100 West Walnut Street
Pasadena, CA 92214

Report Prepared By:
Alan Jeffrey, PhD

ZymaX Forensics , 600 S. Andreasen Ave, Suite B, Escondido, CA 92029

6 January 2012

TABLE OF CONTENTS

Introduction

Two soil samples, labeled UVB-2-72 and UVB-9-72, were received at Zymax on December 16, 2011 for identification of hydrocarbons and other organic chemicals in the samples. C_8-C_{40} GC/MS Full Scan analysis was performed on solvent extracts of the soil samples.

The complete laboratory data report is presented as an Appendix to this report.

Methodology

C_8-C_{40} GC/MS Full Scan analysis

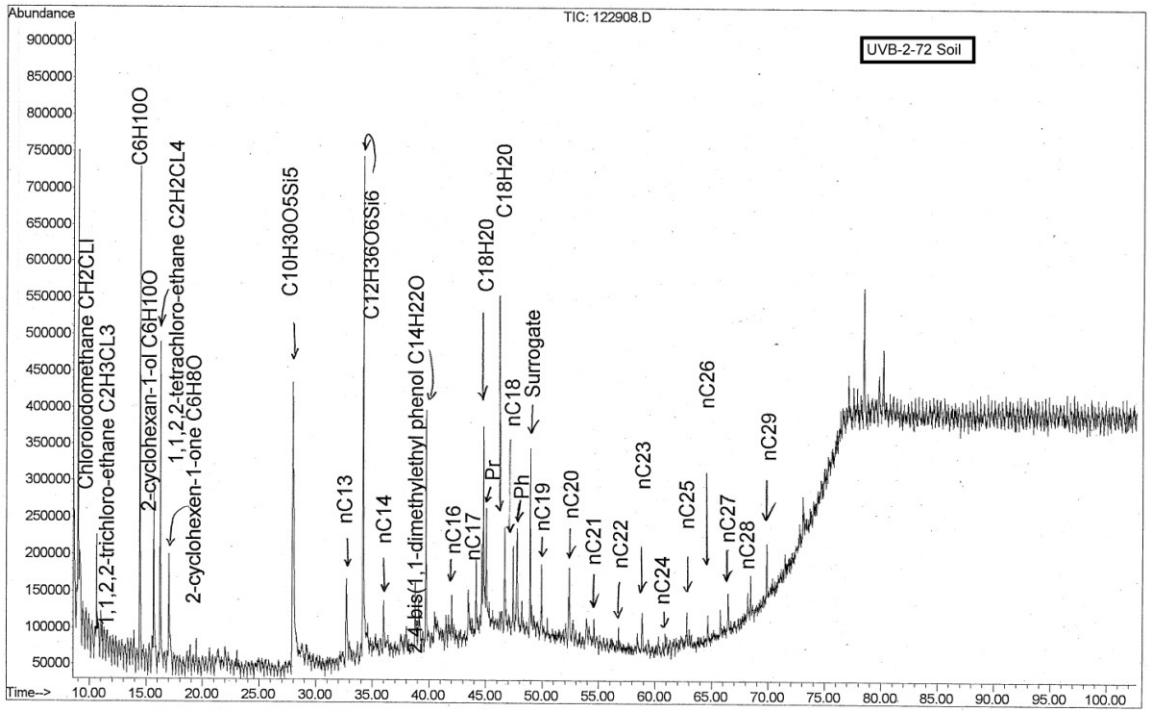
In an effort to obtain as much material as possible from the samples, 25g of soil was extracted with methylene chloride solvent and the solvent extract concentrated to 0.2 ml.

Extracts were directly injected into a GC equipped with a 60 meter DB1 column to separate the hydrocarbons, which are detected with a mass spectrometer (MS) in full scan mode, interfaced to the GC. Hydrocarbons in the range of C_8 to C_{40} are identified. By scanning the ion fragments shown in the following table, chromatograms of a number of classes of hydrocarbons are generated. Aromatic hydrocarbons are identified by scanning over a large number of ion fragments, and the results are normalized in a bar diagram.

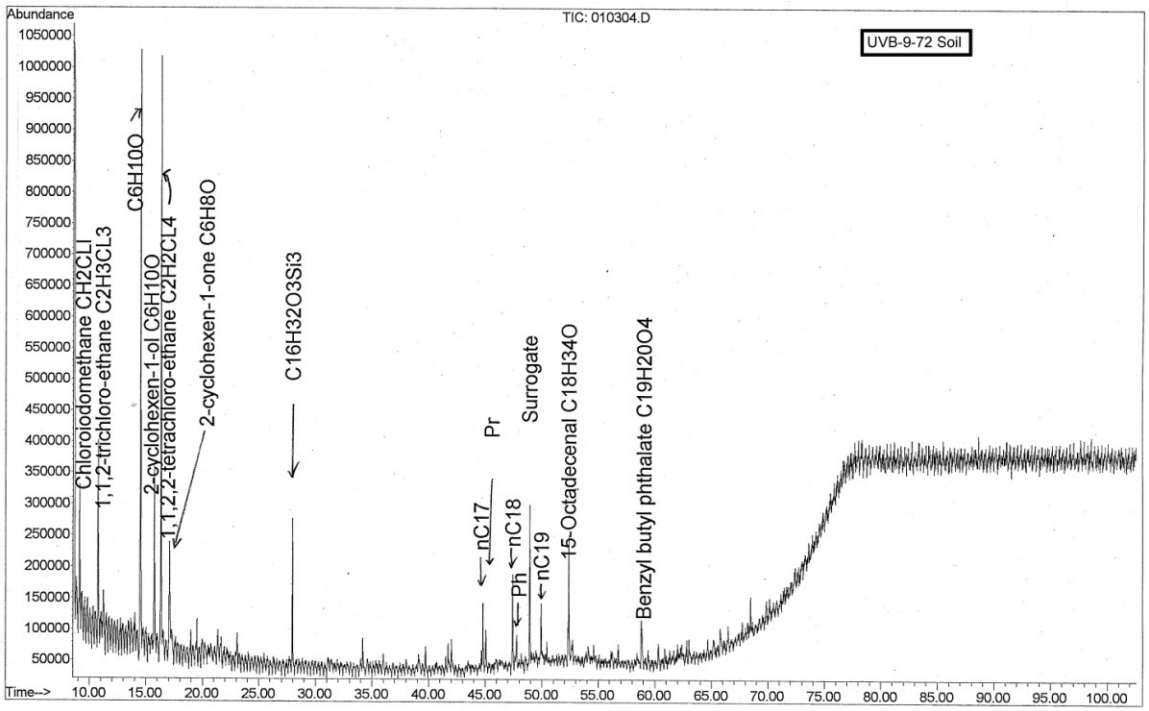
ION (M/Z)	COMPOUND CLASS
TIC	All Compounds
85	n-Alkanes
113	Iso-Alkanes and Isoprenoids
83	Alkylcyclohexanes
134	C_4-benzenes
123	Bicyclanes
191	Terpanes
217	Steranes
253	Monoaromatic Steranes
231	Triaromatic Steranes
Bar Diagram	Aromatic Hydrocarbon Distribution

Organic Compounds in Soil Samples

The Total Ion Chromatograms (TIC), which provide the distributions or fingerprints of hydrocarbons and other organic chemicals in the samples are shown on the following pages. The chromatogram of UVB-2-72 is shown below. The major constituents are non-hydrocarbons: several light halocarbons, a phenol and other oxygen-containing compounds. A suite of hydrocarbons from nC_{13} to above nC_{29} was also detected. The n-alkane (Ion 85) chromatogram of this sample in the data appendix shows a strong preference for the odd-numbered alkanes from C25 to C32. This is a characteristic of hydrocarbons formed from recent organic matter, rather than petroleum hydrocarbons. The remaining suite of hydrocarbons contains abundant hydrocarbon heavier than C17; these are beyond the carbon range of jet fuel, which is C9 to C16. There is no evidence in the TIC chromatogram of hydrocarbons associated with gasoline, although the C_8-C_{40} GC/MS Full Scan analysis is not designed to detect hydrocarbons smaller than C7. Depending on the quantitation method, it is possible that the light halocarbons and oxygen-containing compounds in this sample would be included in a Total Petroleum Hydrocarbon (TPH) gasoline concentration.



The chromatogram of UVB-9-72 is shown below. The major constituents are again non-hydrocarbons: several light halocarbons and oxygen-containing compounds. A suite of hydrocarbons primarily from nC_{17} to nC_{19} was also detected. These hydrocarbons are beyond the carbon range of jet fuel. There is no evidence in the TIC chromatogram of hydrocarbons associated with gasoline.



Traces of aromatic hydrocarbons were identified in both samples, as shown in the data appendix. However, the hydrocarbon-specific chromatograms in the appendix are very sensitive to the hydrocarbons detected, which, in the case of the aromatic hydrocarbons, are in such trace amounts that their peaks are not detectable in the TIC.

Conclusions

Soil samples UVB-2-72 and UVB-9-72 contain predominantly light halocarbons and oxygen-containing compounds.

UVB-2-72 also contains a suite of hydrocarbons from nC_{13} to above nC_{29}. The heavier hydrocarbons are formed from recent organic matter, rather than petroleum hydrocarbons. Most of the remaining hydrocarbons are heavier than jet fuel.

UVB-9-72 also contains a suite of hydrocarbons from nC_{17} to nC_{19}, which is heavier than the hydrocarbons in jet fuel.

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 . FAX: (714) 894-7501

TO: DPRA Zymax

CHAIN OF CUSTODY RECORD

DATE: 12/16/11

PAGE: 1 OF 1

LABORATORY CLIENT: Calscience Environmental Laboratories, Inc.

ADDRESS: 7440 Lincoln Way

CITY: Garden Grove, CA 92841-1427

TEL: (714) 895-5494

E-MAIL: rclarke@calscience.com

CLIENT PROJECT NAME / NUMBER: 11-12-0606

PROJECT CONTACT: Ranjit Clarke

SAMPLER(S): (PRINT)

P.O. NO.:

QUOTE NO.:

LAB USE ONLY

TURNAROUND TIME

☐ SAME DAY ☐ 24 HR ☐ 48HR 72 HR ☐ 5 DAYS ☒ Normal

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS

Any questions on analysis required please call Mary Lucas (Parsons) at 626-440-6032.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	Matrix	#Cont	GCMS	GC/FID
	UVB-2-72 42478-1	12/08/11	11:19	S	2	X	X
	UVB-9-72 -2	12/08/11	15:45	S	2	X	X

Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
(CALSCIENCE)	Ryan Woon / Zymax	12/16/11	13:35
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by / Affiliation: (Signature)	Date:	Time:

GC/MS Full Scan Analysis

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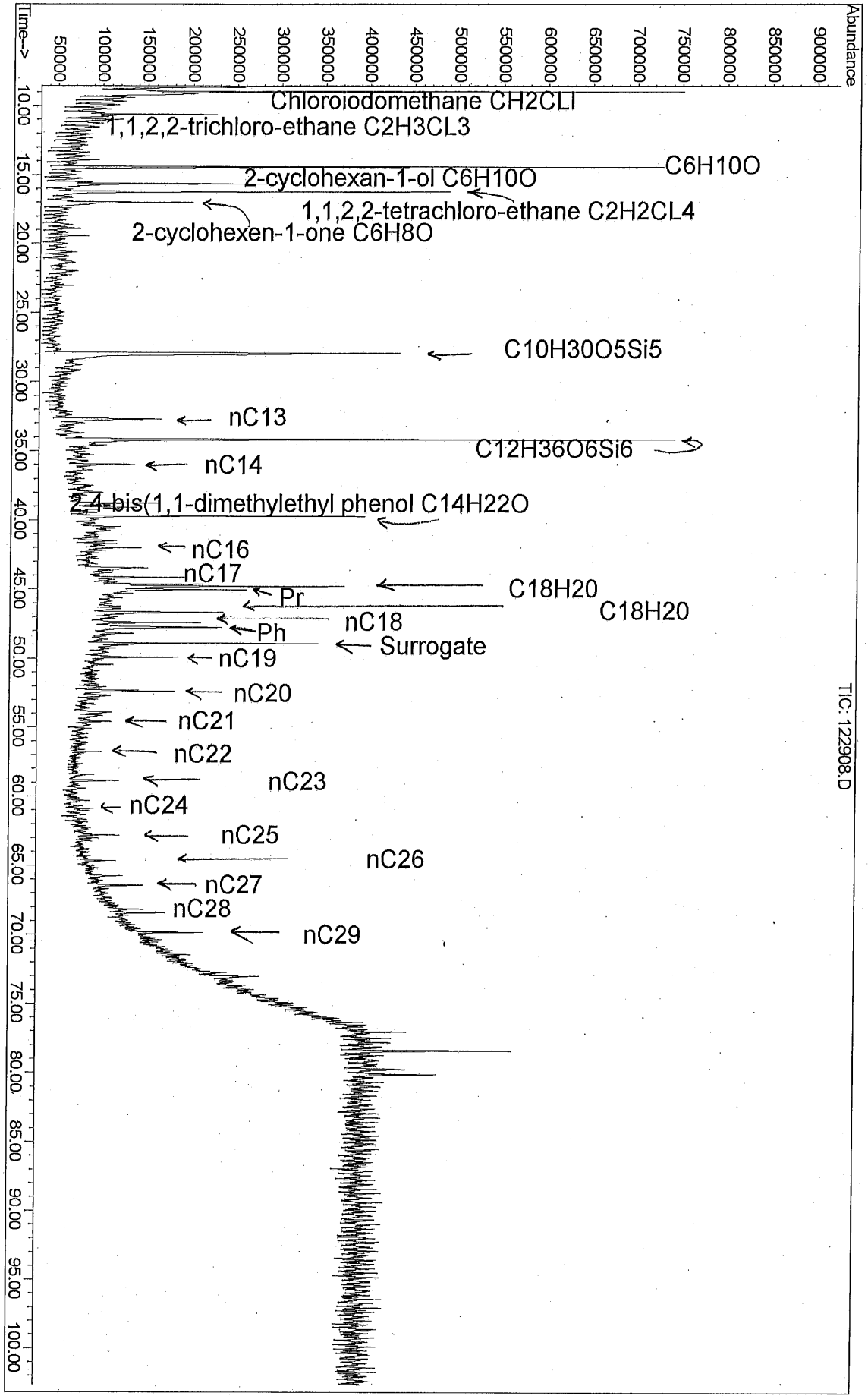
Sample Name: UVB-2-72 (42478-1) soil extract
Misc Info : Vf=0.2ml, 25g, 11-12-0606, CalScience



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Sample Name: UVB-9-72 (42478-2) soil extract
Misc Info : Vf=0.2ml, 25g, 11-12-0606, Calscience

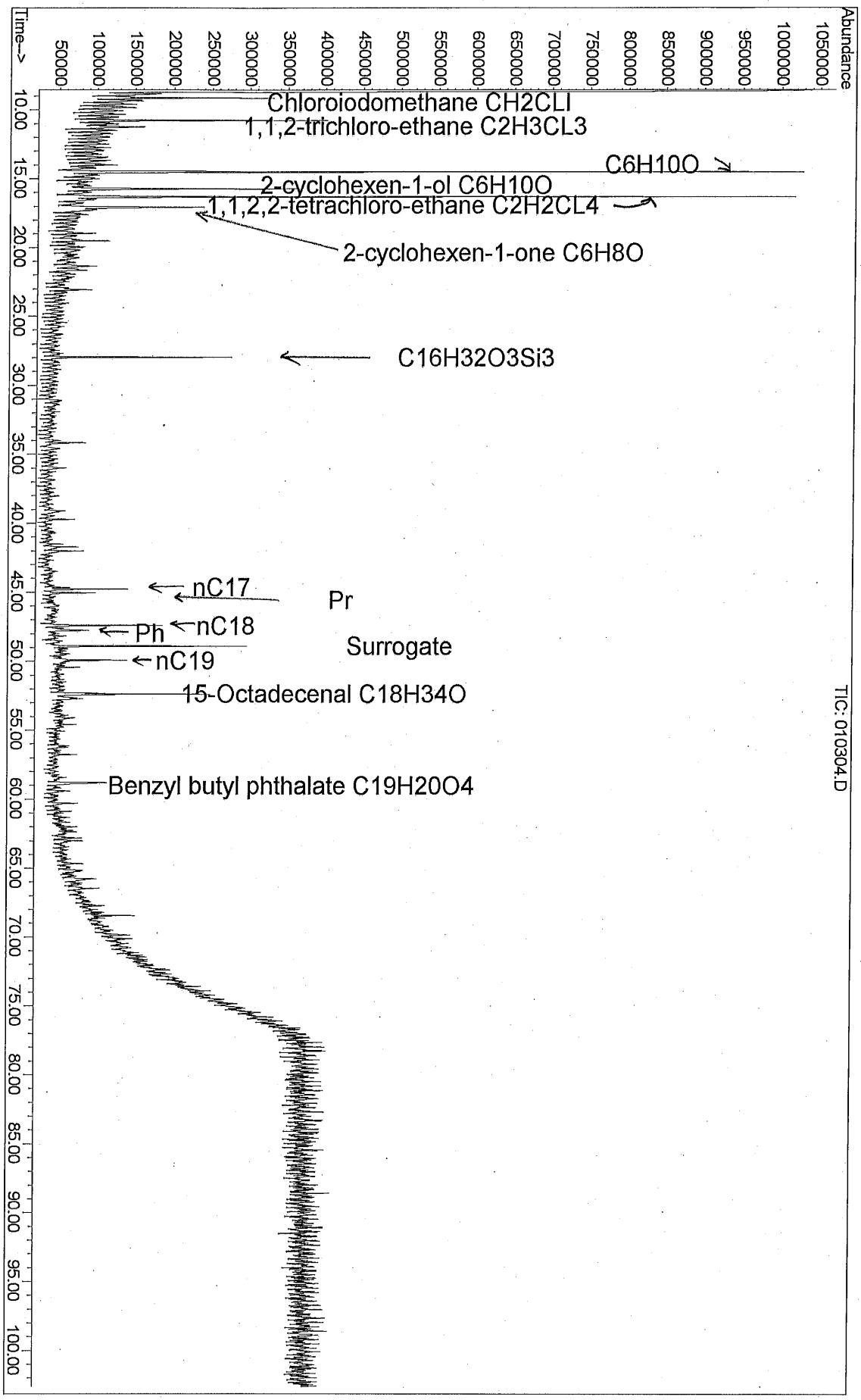

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Table

Key to Chromatogram Symbol Identification for m/z 85 and m/z 113 Paraffins and Isoparaffins

Symbol	Detail
i-10	Iso-alkane with 10 carbon atoms
i-15	Farnesane (isoprenoid with 15 carbon atoms)
i-16	Isoprenoid with 16 carbon atoms
Pr	Pristane (isoprenoid with 19 carbon atoms)
Ph	Phytane (isoprenoid with 20 carbon atoms)
nC_8	n-C_8 normal alkane
nC_{15}	n-C_{15} normal alkane
i-8	2,5-(2,4)-Dimethylhexane
i-8'	2,3,4-Trimethylpentane
i-8"	2,3-Dimethylhexane
CH-*n*	Alkylcyclohexane (where *n* indicates number of carbon atoms in the side chain)

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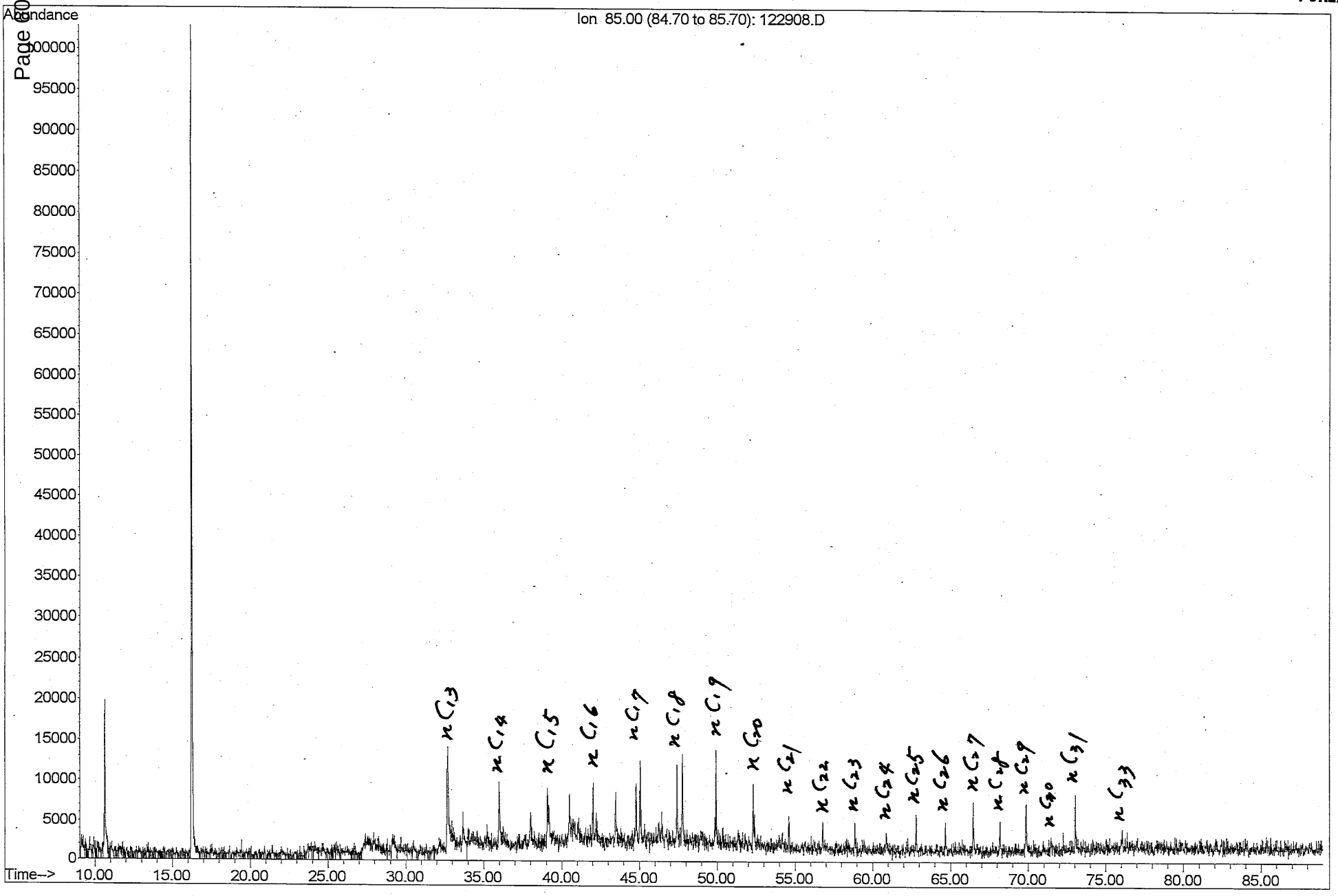
UVB-2-72 (42478-1) soil extract
Vf=0.2ml, 25g, 11-12-0606, CalScience



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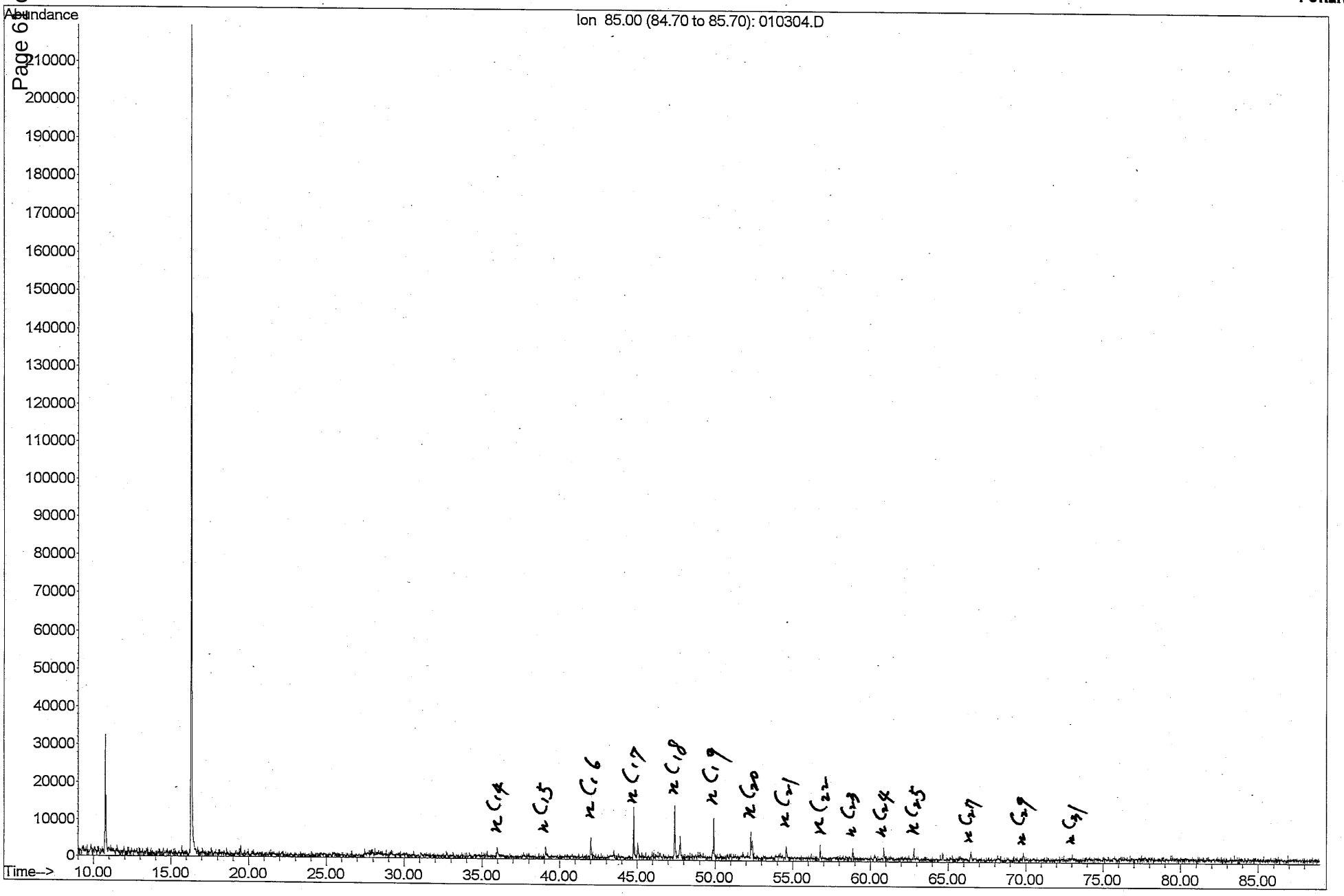
ZymaX FORENSICS



UVB-2-72 (42478-1) soil extract
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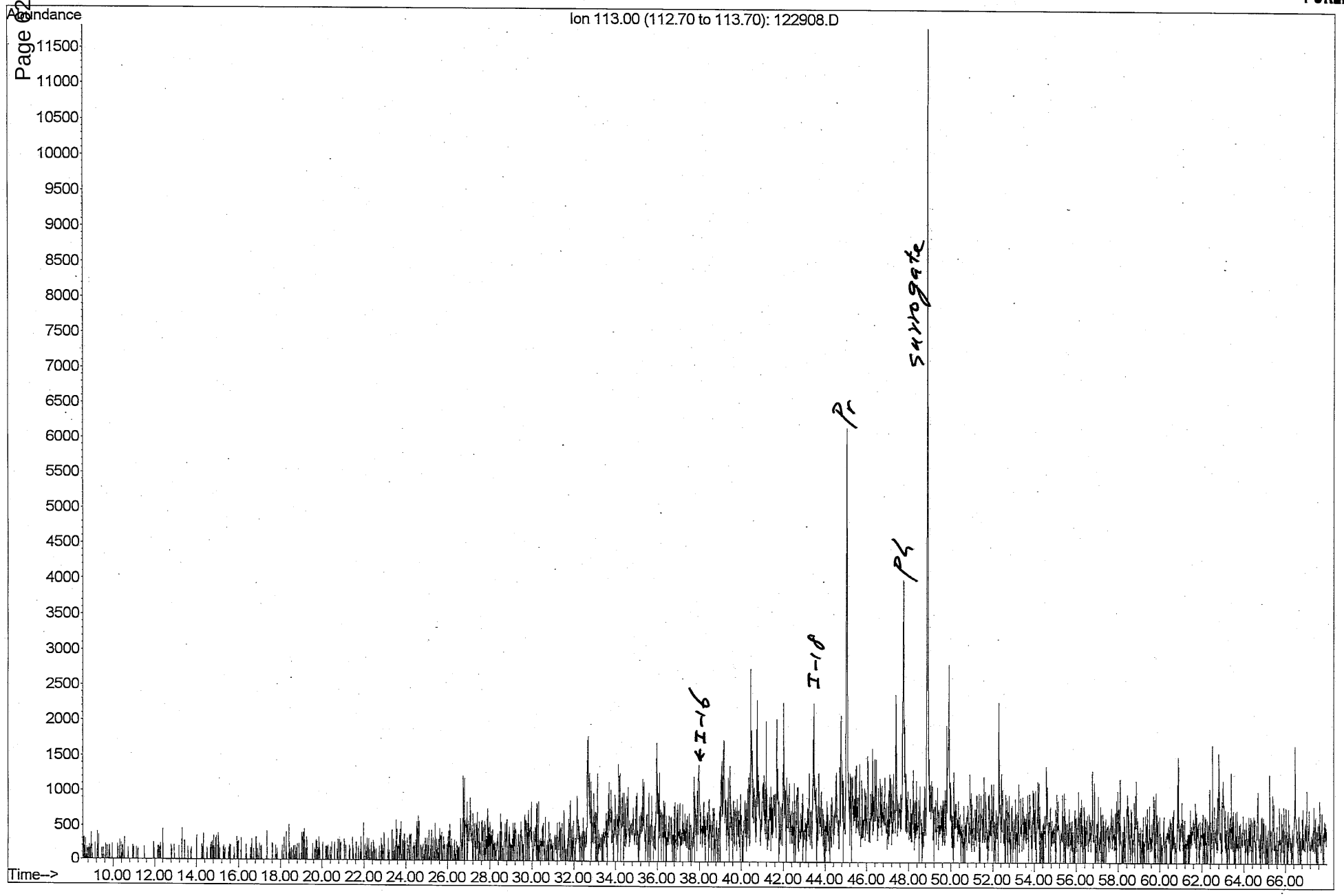
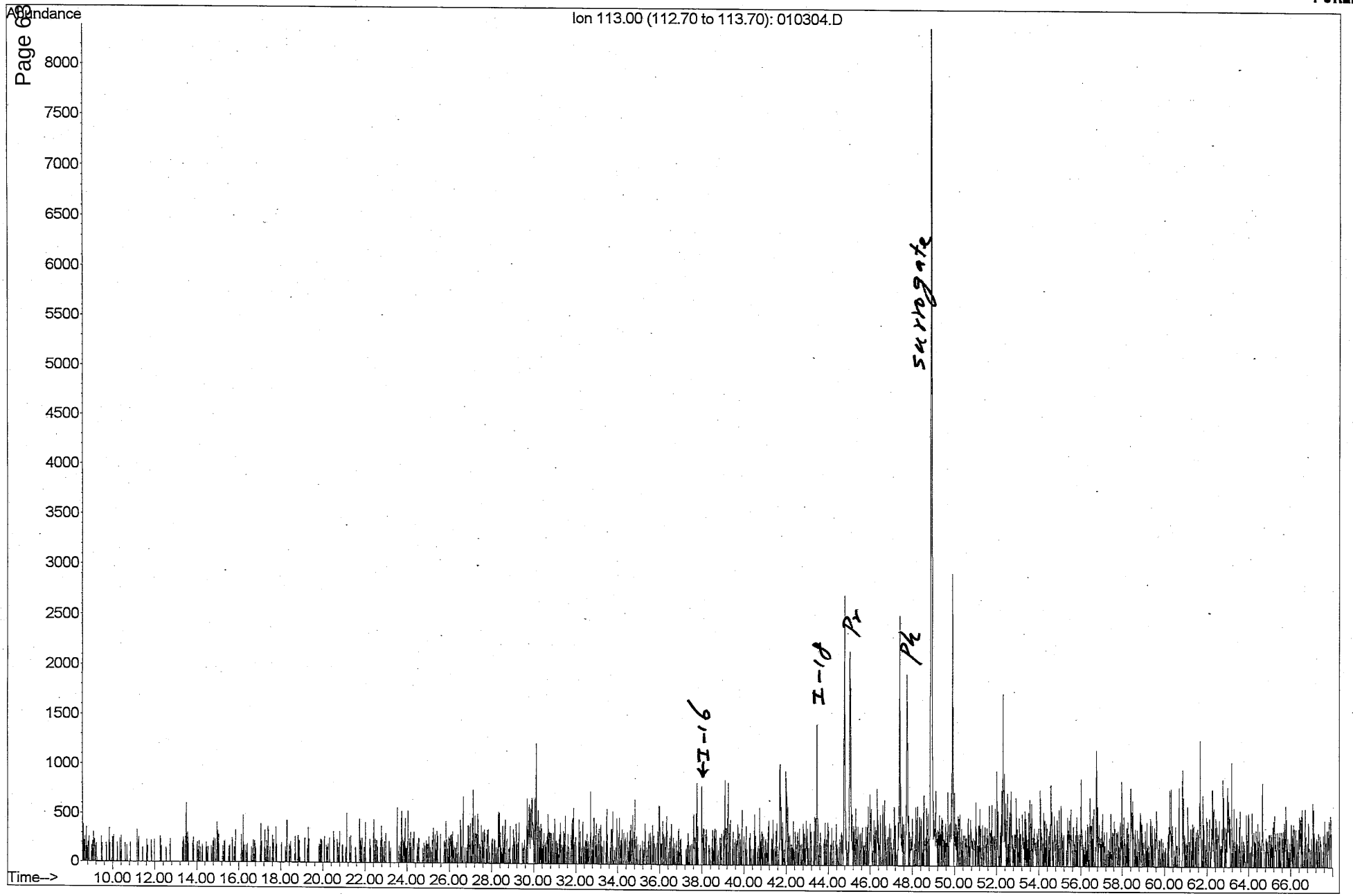


UVB-9-72 (42478-2) soil extract
VF=0.2ml, 25g, 11-12-0606, Calscience

ZymaX FORENSICS



Table

Key for Alkylcyclohexanes at m/z 83

Symbol	Detail
CH-1:	Methylcyclohexane
CH-2:	Ethylcyclohexane
CH-3:	Propylcylohexane
CH-4:	Butylcyclohexane
CH-5:	Pentylcyclohexane
CH-6:	Hexylcyclohexane
CH-7:	Heptylcyclohexane
CH-8:	Octylcyclohexane
CH-9:	Nonylcyclohexane
CH-10:	Decylcyclohexane
CH-11:	Undecylcyclohexane
CH-12:	Dodecylcyclohexane
CH-13:	Tridecylcyclohexane
CH-14:	Tetradecylcyclohexane

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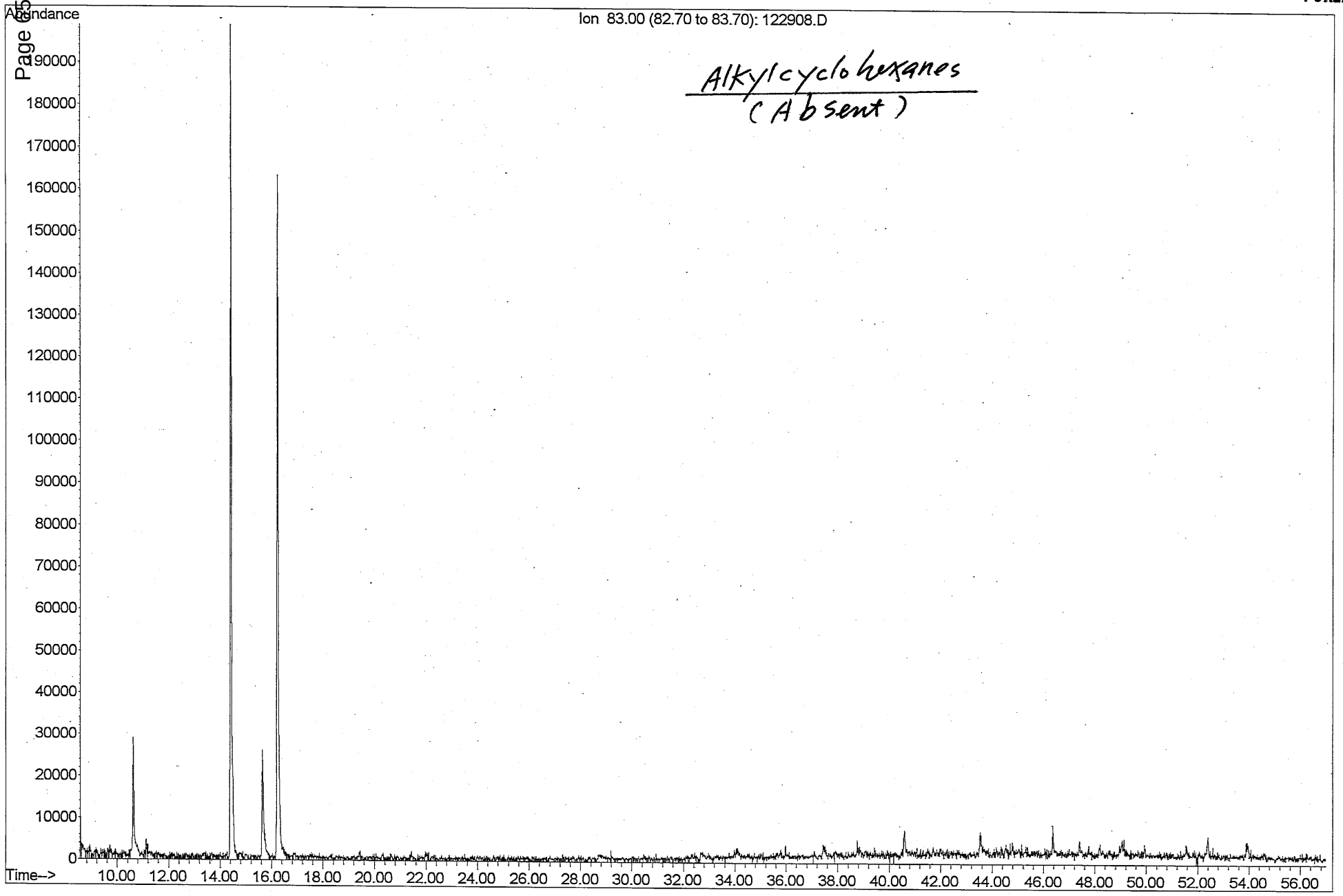
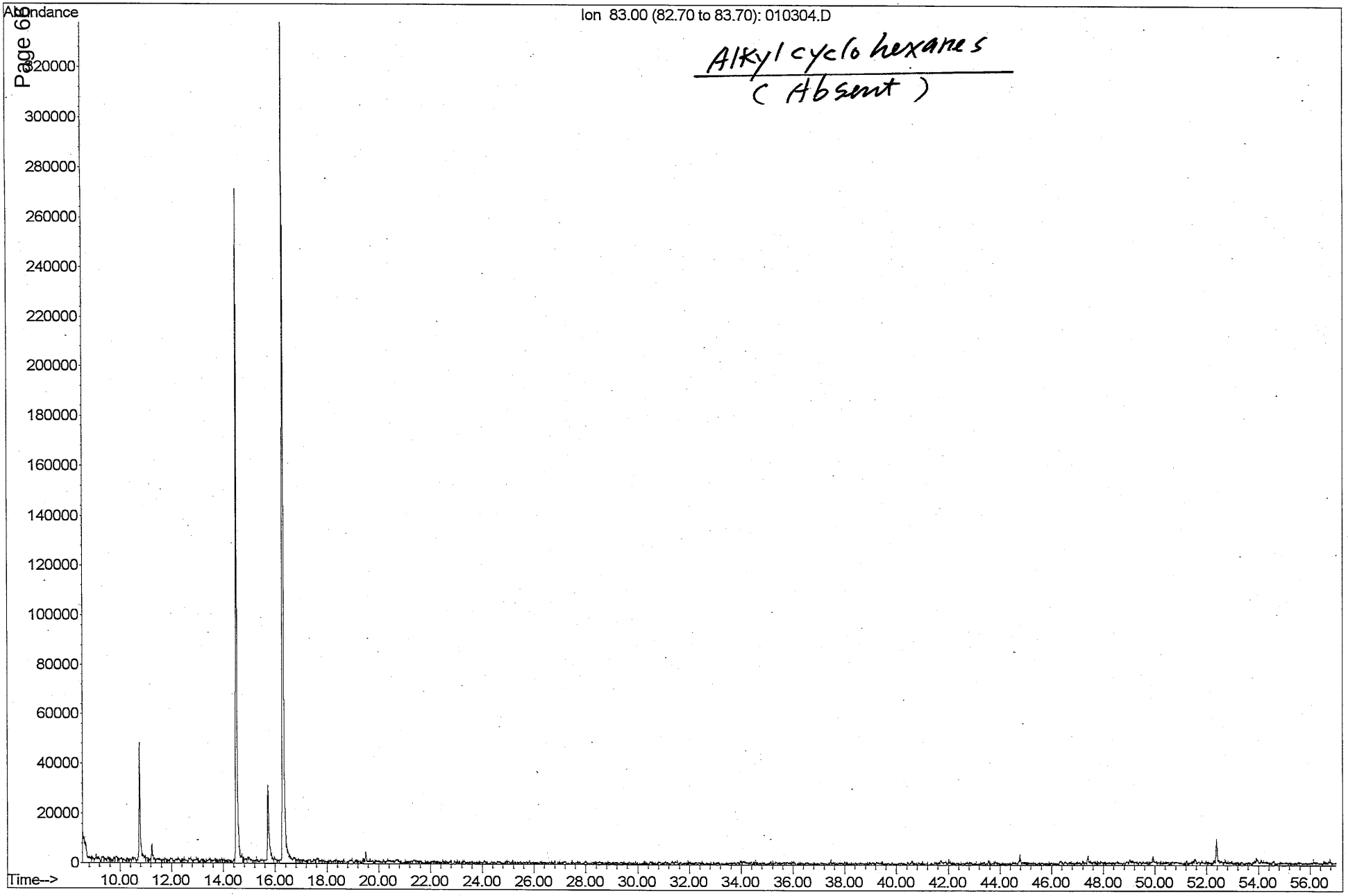
UVB-2-72 (42478-1) soil extract
Vf=0.2ml, 25g, 11-12-0606, CalScience



Alkylcyclohexanes
(Absent)

UVB-9-72 (42478-2) soil extract
V=0.2ml, 25g, 11-12-0606, Calscience

ZymaX FORENSICS



Alkylcyclohexanes
(Absent)

Table

Key for Identifying Aromatic Hydrocarbons

No.	m/z	Abbreviation	Compound
1	120	AB	C_3-alkylbenzenes
2	134		C_4-alkylbenzenes
3	148		C_5-alkylbenzenes
4	162		C_6-alkylbenzenes
5	128	NAPH	C_0-naphthalene
6	142		C_1-naphthalenes
7	156		C_2-naphthalenes
8	170		C_3-naphthalenes
9	184		C_4-naphthalenes
10	166	FL	C_0-fluorene
11	180		C_1-fluorenes
12	194		C_2-fluorenes
13	208		C_3-fluorenes
14	222		C_4-fluorenes
15	154	BP	C_0-biphenyl
16	168		C_1-biphenyls + dibenzofuran
17	182		C_2-biphenyls + C_1-dibenzofuran
18	178	PHEN	C_0-phenanthrene
19	192		C_1-phenanthrenes
20	206		C_2-phenanthrenes
21	220		C_3-phenanthrenes
22	234		C_4-phenanthrenes
23	202	PY	C_0-pyrene/fluoranthene
24	216		C_1-pyrenes/fluoranthenes
25	230		C_2-pyrenes/fluoranthenes
26	244		C_3-pyrenes/fluoranthenes
27	258		C_4-pyrenes/fluoranthenes
28	228	CHR	C_0-chrysene
29	242		C_1-chrysenes
30	256		C_2-chrysenes
31	270		C_3-chrysenes
32	284		C_4-chrysenes
33	148	BT	C_1-benzothiophenes
34	162		C_2-benzothiophenes
35	176		C_3-benzothiophenes
36	190		C_4-benzothiophenes
37	204		C_5-benzothiophenes
28	184	DBT	C_0-dibenzothiophene
39	198		C_1-dibenzothiophenes
40	212		C_2-dibenzothiophenes
41	226		C_3-dibenzothiophenes
42	240		C_4-dibenzothiophenes
43	234	NBT	C_0-naphthobenzothiophene
44	248		C_1-naphthobenzothiophenes
45	262		C_2-naphthobenzothiophenes
46	276		C_3-naphthobenzothiophenes
47	290		C_4-naphthobenzothiophenes
48	253	MAS	Monoaromatic steranes
49	267		Monoaromatic steranes
50	239		Monoaromatic steranes
51	231	TAS	Triaromatic steranes
52	245		Triaromatic steranes

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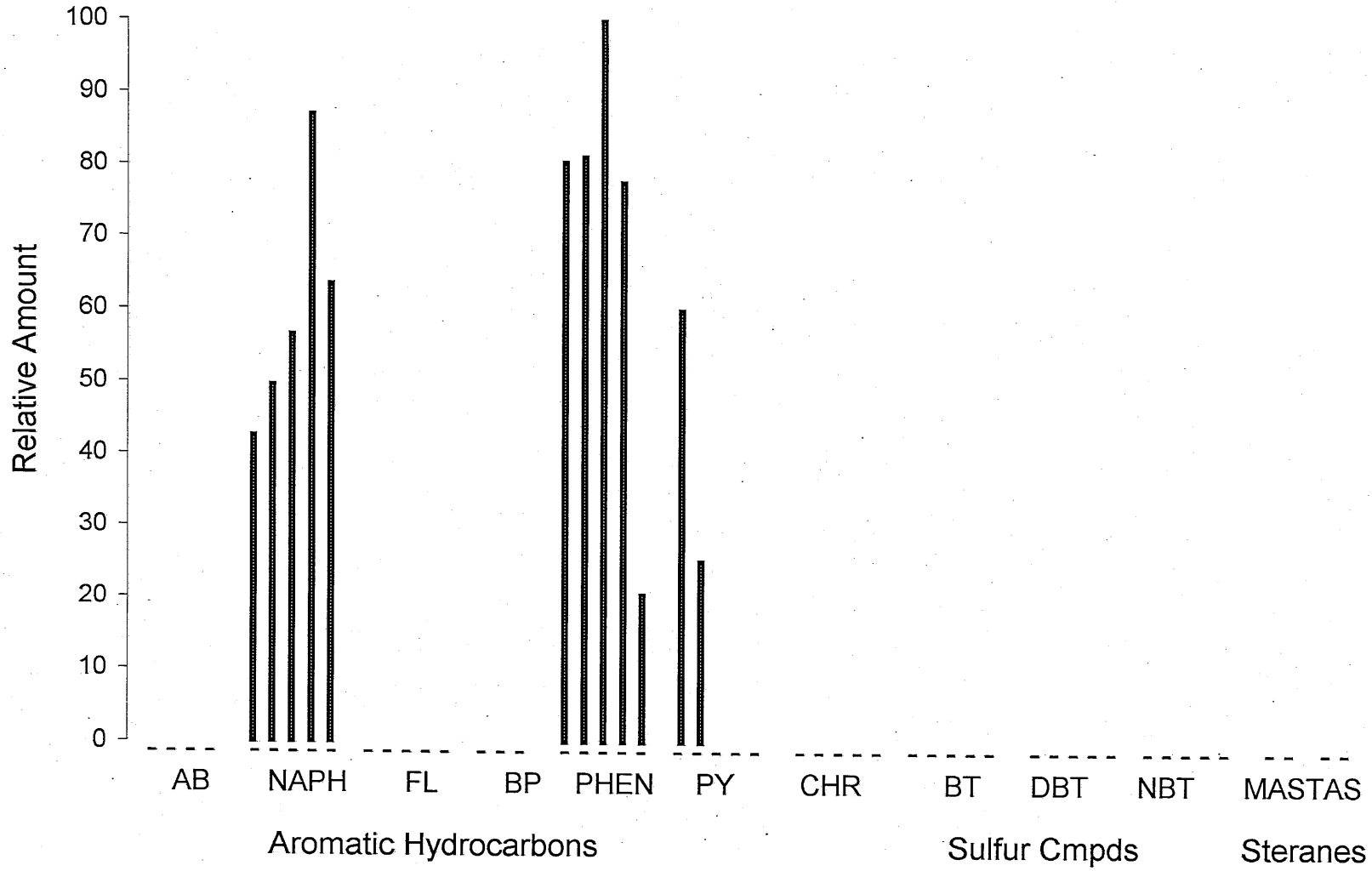
Aromatic Hydrocarbon Distribution

UVB-2-72 (Trace Amounts)



Aromatic Hydrocarbon Distribution

UVB-9-72 (Trace Amounts)