IRIS ENVIRONMENTAL

Via FedEx

August 15, 2007

Ms. Kathy San Miguel
Department of Toxic Substances Control
Geology and Corrective Action Branch
Southern California Region
5796 Corporate Avenue
Cypress, CA 90630

Re: Data Gap Investigation Report
Phibro-Tech, Inc.
Santa Fe Springs, California
Iris Environmental Contract No. 06-441-F

Dear Ms. San Miguel:

On behalf of Phibro-Tech, Inc., Iris Environmental is pleased to submit the Data Gap Investigation Report for the Phibro-Tech, Inc facility in Santa Fe Springs, California. The data gaps addressed in this investigation were established in the Expanded Alternative Corrective Action Work Plan (Iris Environmental 2007).

If you have any comments or questions, please feel free to contact me at (510) 834-4747 ext. 21.

Sincerely,
IRIS ENVIRONMENTAL

Christopher S. Alger, P.G.
Principal

Enclosure

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Cc: Ron Leach, USEPA
Mark Alling
Zack Walton
Dwight Glover
Chris Wiernicki

1438 Webster Street, Suite 302 • Oakland, California 94612 • (510) 834-IRIS (4747) • (510) 834-4199 fax • www.irisenv.com

DATA GAP INVESTIGATION REPORT

PHIBRO-TECH, INC.
SANTA FE SPRINGS, CA

August 15, 2007

IRIS ENVIRONMENTAL

DATA GAP INVESTIGATION REPORT

August 15, 2007

Prepared for:
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, CA 90670

Prepared by:
IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
(510) 834-4747

The information contained in the document titled "Data Gap Investigation Report" for the PTI facility located in Santa Fe Springs, California and dated August 15, 2007, has received appropriate technical review and approval. The conclusions and recommendations presented represent professional judgments and are based upon findings from the investigations and sampling identified in the report and the interpretation of such data based on our experience and background. This acknowledgement is made in lieu of all warranties, either expressed or implied. The activities outlined in this report were performed under the supervision of a California Professional Geologist.

Reviewed and Approved by:

CERTIFIED HYDROGEOLOGIST
CHRISTOPHER S. ALGER
NO. 396
STATE OF CALIFORNIA

Name: Christopher S. Alger, PG, CEG, CHG
Title: Principal Engineering Geologist

Name: Chris Johnson, PG
Title: Geologist

Name: Joan Ball
Title: Scientist

TABLE OF CONTENTS

Table of Contents i
1.0 Introduction 1
1.1 Objectives 1
1.1.1 Data Gap Field Program 1
1.1.2 Bench-Scale Treatability Study 3
1.1.3 Soil Vapor Extraction and Bioventing Pilot Test 3
2.0 Data Gap Investigation Field Program 4
2.1 Site Preparation 4
2.2 Cone Penetrometer Testing 4
2.3 Sonic Drilling Program 5
2.3.1 General Procedures 5
2.3.2 Installation of Piezometers and Monitoring Wells 6
2.3.3 SVE Extraction Well and Monitoring Probe Installation 7
2.4 Downhole Geophysical Logging 8
2.5 Well Surveying 9
2.6 Investigation Derived Waste 9
2.7 Soil and Groundwater Sampling 10
2.7.1 Soil Sampling 10
2.7.2 Groundwater Sampling of New Monitoring Wells 11
2.7.3 Groundwater Sampling for the Bench-Scale Treatability Study 13
2.7.4 Groundwater Sampling of Existing Monitoring Wells 13
3.0 Results 17
3.1 Analytical Results 17
3.1.1 Laboratory Quality Assurance/Quality Control 17
3.1.2 Soil Analytical Results 17
3.1.3 Groundwater Analytical Results 21
3.2 Site Stratigraphy 23
3.2.1 CPT Borings 23
3.2.2 Site Hydrogeologic Units 23
3.2.3 Downhole Geophysical Logging 25
3.2.4 Summary of Stratigraphic Units 26
3.3 Unnamed Aquitard Pore Water Conditions 26
3.3 Gage Aquifer Saturation 27
3.4 Bench-Scale Treatability Study 27
4.0 Analysis and Interpretation 28
4.1 Gage Aquifer Saturation 28
4.2 Unnamed Aquitard 28
4.3 Hexavalent Chromium and VOCs Distribution in Soils 28
4.3.1 Hexavalent Chromium in Soil 29
4.3.2 VOCs in Soil 29
4.3.3 Total Petroleum Hydrocarbons 30
4.4 Hexavalent Chromium and VOC Distribution in Upper Hollydale Aquifer Groundwater 31

4.4.1 Hexavalent Chromium in Groundwater 31
4.4.2 VOCs in Groundwater 32
5.0 Conclusions 33
6.0 References 34

Tables

Table 1 New Monitoring Wells Construction Details
Table 2 Summary of Soil Samples and Analyses
Table 3 Summary of Groundwater Samples and Analyses
Table 4 Summary of Volatile Organic Compounds Concentrations in Soil
Table 5 Summary of Metals and Cr VI Concentrations in Soil
Table 6 Summary of Total Petroleum Hydrocarbon Concentrations in Soil
Table 7 Summary of Total Organic Carbon Concentrations in Soil
Table 8 Summary of Geotechnical Results
Table 9 Summary of Volatile Organic Compounds Concentrations in Groundwater
Table 10 Summary of Metals and Cr VI Concentration in Groundwater
Table 11 Number and Range of Aromatic Volatile Organic Compounds Detections in Soil
Table 12 Number and Range of Halogenated Volatile Organic Compounds Detections in Soil

Figures

Figure 1 Site Location
Figure 2 Site Layout Showing Existing Monitoring Wells
Figure 3 New Monitoring Well, Piezometer, SVE Well, SVE Monitoring Probe, and CPT Boring Locations
Figure 4 Total Halogenated Volatile Organic Compounds in Soil 0-5 feet bgs
Figure 5 Total Halogenated Volatile Organic Compounds in Soil 5-15 feet bgs
Figure 6 Total Halogenated Volatile Organic Compounds in Soil 15-31 feet bgs
Figure 7 Total Halogenated Volatile Organic Compounds in Soil 31-55 feet bgs
Figure 8 Total Halogenated Volatile Organic Compounds in Soil 55-75 feet bgs
Figure 9 Total Aromatic Volatile Organic Compounds in Soil 0-5 feet bgs
Figure 10 Total Aromatic Volatile Organic Compounds in Soil 5-15 feet bgs

Figure 11 Total Aromatic Volatile Organic Compounds in Soil 15-31 feet bgs
Figure 12 Total Aromatic Volatile Organic Compounds in Soil 31-55 feet bgs
Figure 13 Total Aromatic Volatile Organic Compounds in Soil 55-75 feet bgs
Figure 14 Hexavalent Chromium in Soil 0-5 feet bgs
Figure 15 Hexavalent Chromium in Soil 5-15 feet bgs
Figure 16 Hexavalent Chromium in Soil 15-31 feet bgs
Figure 17 Hexavalent Chromium in Soil 31-55 feet bgs
Figure 18 Hexavalent Chromium in Soil 55-75 feet bgs
Figure 19 Total Petroleum Hydrocarbon in Soil 0-5 feet bgs
Figure 20 Total Petroleum Hydrocarbon in Soil 5-15 feet bgs
Figure 21 Total Petroleum Hydrocarbon in Soil 15-31 feet bgs
Figure 22 Total Petroleum Hydrocarbon in Soil 31-55 feet bgs

Appendices

Appendix A CPT Report
Appendix B Boring Logs and Well Completion Forms
Appendix C Field Forms
Appendix D Geophysical Logs
Appendix E Survey Report
Appendix F Laboratory Analytical Reports and Chain of Custody Forms
Appendix G Laboratory Chromatograms for Total Petroleum Hydrocarbons
Appendix H Geotechnical Report

1.0 INTRODUCTION

This report presents field activities conducted at the Phibro-Tech Inc. (PTI) facility located at 5581 Dice Road, Santa Fe Springs, California (Figure 1) during June 2007. These field activities were performed in accordance with work scopes presented in the Expanded Alternative Groundwater Corrective Action Work Plan (Iris Environmental 2006c), the Revised Comprehensive Soil Vapor Survey Report and SVE Pilot Test Work Plan (Iris Environmental 2006b) and Addendum to Soil Vapor Extraction Pilot Test Work Plan (Iris Environmental 2007c). These work plans were approved by the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) on April 17, 2007, and August 3, 2007, respectively.

The following field tasks were performed:

Groundwater Corrective Action:

- Conduct Soil and Groundwater Data Gap Investigation
- Collect samples for bench-scale testing
- Install Hollydale Aquifer groundwater monitoring wells
- Install Gage Aquifer piezometers

Soil Vapor Extraction (SVE)/Bioventing Pilot Test Program:

- Install SVE extraction wells
- Install SVE monitoring points
- Collect soil samples for air permeability laboratory testing

1.1 Objectives

The tasks listed above, as previously described in the respective work plans, were designed to meet a series of objectives both to address recognized data gaps in the previously DTSC approved site conceptual model and to install test wells for use in the upcoming corrective action programs. For efficiency, the drilling programs were combined into a single mobilization to collect a maximum amount of data within a shortened time period. The objectives are described below.

1.1.1 Data Gap Field Program

One of the primary objectives of these field activities was to address perceived gaps in existing geologic and chemical data sets. During development of the groundwater corrective action program, Iris Environmental identified specific data gaps regarding subsurface conditions in groundwater and the vadose zone at the Site. These data gaps are described below.

1.1.1.1 Gage Aquifer Saturation

Regionally, the Gage Aquifer is intermittently saturated, with the presence and amount of saturation closely linked to annual and long-term rainfall patterns. At the Site, existing borings drilled through the Gage Aquifer generally have not revealed saturated conditions, nor has groundwater been detected in the one existing well screened within the Gage Aquifer (MW-6A). Saturation in the Gage Aquifer is a concern for planning corrective action and needs to be monitored to meet existing corrective action requirements. Installation of three piezometers was proposed to enhance the Gage Aquifer monitoring network.

1.1.1.2 Pore Water Conditions

The distribution of moisture as pore water in the unnamed aquitard sediments located above the Hollydale Aquifer was identified as a data gap due to a lack of current data and because these parameters are critical design variables for *in situ* remediation technologies. To address this data gap, soil samples were collected during the drilling program and analyzed for a range of parameters.

1.1.1.3 Hexavalent Chromium and Volatile Organic Compounds Distribution in Soil

To design and implement more effectively the pilot-scale corrective action program, additional characterization of the vertical and horizontal distribution of hexavalent chromium and volatile organic compounds (VOCs) was deemed necessary for soils in the assumed source area. To address this data gap, soil samples were collected from each borehole and analyzed for hexavalent chromium and VOCs.

1.1.1.4 Hexavalent Chromium Distribution in Upper Hollydale Aquifer Groundwater

Planned implementation of the groundwater corrective action required further definition of the lateral extent of hexavalent chromium at and downgradient of the assumed source area. To address this data gap, three new monitoring wells were installed to refine the lateral and downgradient extent of the hexavalent chromium plume. In addition, a monitoring well was installed near the location of the suspected former chromic acid tank to monitor groundwater conditions specifically at the source area.

In addition to the installation and sampling of four new groundwater monitoring wells, a one-time sampling event was conducted in all wells at the Site, regardless of whether or not each well was part of the facility's existing quarterly monitoring program.

1.1.1.5 Detailed Site Stratigraphy and Lithologic Characterization

The majority of past site stratigraphic interpretations have been based on data collected from borings drilled in the 1980's and 1990's, using an approach in which samples were collected and logged only at five to ten foot intervals. A more detailed assessment of the variability of soil types within each geologic unit was needed for designing the pilot test and ultimately the full-scale corrective action program. To address this data gap, all borings drilled during this investigation were logged continuously and described in detail. Selected samples were sent

to a geotechnical laboratory for detailed physical testing. In addition, five cone-penetrometer test (CPT) borings were advanced through the Gage Aquifer to provide supplemental data on soil types.

1.1.1.6 Potential Monitoring Well Leakage and Proposed Abandonment

Two existing monitoring wells (WM-04 and MW-09) and one extraction well (EX-1) are considered suspect and a recommendation to abandon properly the three wells has been made based on the data collected during the field program. Locations of existing monitoring wells are shown on Figure 2.

1.1.2 Bench-Scale Treatability Study

Soil and groundwater samples were collected during the field program for laboratory bench-scale tests. The groundwater correction action program includes the proposed injection of a mixture of calcium polysulfide and high-pH catalyzed persulfate into soil and groundwater to stabilize hexavalent chromium and destroy chlorinated volatile organic compounds (CVOCs). Validation of this remedy technology will be achieved through a combination of the bench-scale testing conducted on representative soil and groundwater samples followed by a pilot scale test at the Site.

1.1.3 Soil Vapor Extraction and Bioventing Pilot Test

A SVE/Bioventing Pilot Test will be conducted to provide the basis for the design of a full-scale SVE system and bioventing system. The pilot test SVE wells and SVE monitoring probes (SMPs) were installed in accordance with the approved work plans.

2.0 DATA GAP INVESTIGATION FIELD PROGRAM

This section describes the field activities conducted to address data gaps at the Site, install wells for the SVE and bioventing pilot test, and collect samples for the bench-scale treatability study.

For the purposes of describing the field program activities, the following terms are used for site stratigraphy. Artificial fill covers the top 3 feet of soil at Site. Under this is the upper silty sand unit (referred to as the Bellflower Aquiclude in the site conceptual model by Camp Dresser & McKee Inc. [CDM] 2005) to approximately 13 feet below ground surface (bgs). This unit is underlain by the Gage Aquifer to approximately 31 feet bgs and the unnamed aquitard to approximately 55 feet bgs. Under this is the upper Hollydale Aquifer. (CDM 2005).

2.1 Site Preparation

Prior to drilling, a monitoring well permit application was submitted to the County of Los Angeles Environmental Health Division on April 30, 2007 and approved on May 11, 2007. On May 8th, Iris Environmental met with an independent utility survey subcontractor (Spectrum Geophysics of Burbank, California) to clear borehole locations of potential underground utilities. In addition, Iris Environmental contacted Underground Service Alert (USA) more than 48 hours before any intrusive field activities. *Per* the State of California regulation SB 1359, no "high-priority subsurface installations" were identified at the Site. Before advancing borings, a concrete cutting contractor cored concrete and asphalt at the five CPT boring locations on May 16, 2007. Each borehole was cleared to five feet bgs with a hand auger to check for potential utilities not detected during the utility locating process.

2.2 Cone Penetrometer Testing

To supplement the existing stratigraphic data set, CPT borings were conducted at the Site on May 16 and 17, 2007, by Fugro Consultants Inc. of Santa Fe Springs, CA. The location of the five CPT borings are shown in Figure 3. At each of the CPT boring locations, a 24-ton CPT rig was utilized to drive a standard CPT electrical piezocone using 36mm CPT rods. The soundings were conducted using an electrical piezocone with a tip area of 15 cm^2 and a friction sleeve area of 225 cm^2. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85. All CPT borings were performed in accordance with revised (2002) ASTM standard D 5778-95.

As the CPT electrical piezocone was advanced, the tip friction, sleeve friction, pore pressure and inclination were continuously recorded. The piezocone data was analyzed on-Site to develop a rapid and reliable lithologic profile including relative density and strength. All data were displayed in real time and utilized to characterize the soil types.

Tip resistance and friction ratio (the ratio between tip resistance and sleeve friction) are used to derive a soil type based on a simplified soil behavior chart (Robertson and Campanella 1983).

CPT probe refusal ranged from 63.7 feet bgs to 71.6 feet bgs at approximately 120 kilonewtons (KN) of downward force using a 24-ton CPT drill rig. After completion of the CPT borings, each borehole was properly closed by adding neat cement to the hole through a tremie pipe at the bottom of the borehole. The upper foot of each boring was bridged with bentonite chips and the surface was restored using like materials. Following completion of the field investigation, data reduction and CPT interpretation was performed by the CPT contractor. The CPT data plots are presented in Appendix A. Results of the CPT borings are presented in Section 3.2.1.

2.3 Sonic Drilling Program

This section describes the sonic drilling procedures used to install groundwater monitoring wells, piezometers, SVE extraction wells and monitoring probes at the Site. Sonic drilling was conducted by Boart Longyear of Santa Fe Springs, California, a C-57 licensed driller. Prior to mobilization of the equipment to the Site, the drill rigs, drill pipe, sampling equipment, and other associated equipment were cleaned with a high pressure hot water cleaner.

2.3.1 General Procedures

General field and sample handling procedures were followed in accordance with the procedures outlined in the *2006 Revised Draft Water Quality Sampling and Analysis Plan* (Iris Environmental 2006a). Sonic drilling methods utilize a high frequency drive head to vibrate the drill pipe through both consolidated and unconsolidated sediments. During drilling, a temporary outer casing was advanced over the inner drill pipe to provide a temporary conductor casing for the borehole. Soil was continuously sampled in the drill pipe, retrieved, and then vibrated into long plastic bags. These bags were laid on plastic sheeting where the soil could be sampled and logged. During this soil sampling procedure most of the soil remains in place preserving lithologic contacts and many soil characteristics.

An Iris Environmental California Professional Geologist was present during drilling to collect soil samples, maintain a log of the boring, make observations of the work area conditions, conduct and oversee health and safety monitoring for possible organic vapors during drilling, and provide technical assistance as required. Soil was described on boring logs by classifying the soil according to the Unified Soil Classification System, and assigning colors using the Munsell color chart. Boring logs are in Appendix B.

Soil samples were collected for both chemical and geotechnical analysis. Discrete soil samples were collected in brass tubes from a 2-inch split spoon sampler driven into undisturbed soil or in brass tubes and En Core® samplers from soil in the plastic bags. Detailed sampling procedures are described in Section 2.7.1. The soil was screened in the field for VOCs using a Photo Ionization Detector (PID). PID readings were recorded on the boring logs. The PID was calibrated to both background conditions and 100 ppm isobutylene span gas at the beginning of each field week prior to sampling.

2.3.2 Installation of Piezometers and Monitoring Wells

Three piezometers were installed in the Gage Aquifer, and four new groundwater monitoring wells were installed in the upper Hollydale Aquifer. Locations of the piezometers and new monitoring wells are shown in Figure 3. Piezometer and monitoring well construction details are summarized in Table 1, and boring logs and well completion forms are in Appendix B. Site stratigraphic and chemical results derived from the installation of piezometers and monitoring wells are presented in Section 3.0.

2.3.2.1 Piezometer Installations

The three Gage Aquifer piezometers were installed and constructed using sonic drilling methods. Locations of the piezometers are shown on Figure 3. A six-inch diameter borehole was drilled to the base of the Gage Aquifer. Groundwater was not detected at the base of the Gage Aquifer while drilling the three piezometer boreholes. Piezometers were constructed of two inch diameter schedule 40 polyvinyl chloride (PVC) casing with five foot screen lengths. Screen slot size and sand filter pack were selected after the sediments were field sieved for filter pack and screen slot size design. The bottom of the well screens were located at the base of the medium- to coarse-grained sand of the Gage Aquifer. After lowering the casing into place through the drill pipe casing, the sand filter pack was poured into the drill pipe casing. An additional one foot of sand was poured to provide bedding for the sanitary seal. The casing was vibrated and lifted the length of the sand pack to blend the sand pack with the formation and prevent bridging of the sands in the borehole. The annular space above the filter pack was sealed with a bentonite chip sanitary seal to the surface. The bentonite chips were hydrated in-place using potable water in approximately two foot lifts. At the surface, the top of the casing was covered in a watertight, traffic-rated well box in concrete rated to 5,000 pounds per inch (PSI). A reference mark for surveying and water level measurements was established at the top of each well casing.

2.3.2.2 Monitoring Well Installations

The four groundwater monitoring wells were installed and constructed using sonic drilling methods. Locations of the monitoring wells are shown on Figure 3. The groundwater monitoring wells were constructed of four-inch diameter schedule 40 PVC casing in a nominal eight inch diameter borehole with ten foot well screens entirely within the upper Hollydale Aquifer. The total constructed depth of the four groundwater wells ranged from 67.5 to 74.5 feet bgs. The top of the screen for each well was set close to, and below the base of the unnamed aquitard. The upper Hollydale Aquifer sand at the screened interval was sun dried and sieved in the field for filter pack and screen slot size design. Based on the field sieving, a screen slot size of 0.01 inch was used for wells MW-17S, MW-19S, and MW-20S and a screen slot size of 0.02 inch was used for MW-18S. Lonestar 2/12 sand was used for the filter pack in all four wells. Monitoring wells were constructed in a manner similar to the piezometers. The sanitary seal above the filter pack was constructed of at least seven feet of coated, time-release, bentonite pellets. The bentonite pellets were hydrated in the formation groundwater for at least two hours. Above the bentonite, Portland cement grout was added to the borehole through a tremie hose. The grout mixture consisted of Portland cement with 5%bentonite. The top of each casing was completed in a watertight, traffic-rated well box in

a bed of concrete rated to 5,000 PSI. The wells were designated by number, with an "S" indicating that they are screened in the upper Hollydale Aquifer. Well construction details are summarized in Table 1. Well completion forms are in Appendix B.

2.3.2.3 Monitoring Well Development and Sampling

Each groundwater monitoring well was developed by Boart Longyear on June 25 and 26, 2007. Each well was first bailed using a five foot long, four inch diameter steel bailer to remove any standing sediment (if present) at the bottom of the well. The filter pack of each well was then settled using a surge block for two or three ten-minute intervals, each of which was followed by bailing of excess sediment introduced by the surging process. Following surging and bailing, water was purged from the well using a Grundfos 1.75-inch diameter variable-speed submersible pump. The pump was initially installed in the approximate middle of the screened interval and was moved to the upper and lower one-third of the screen to facilitate development of the entire length of the screened interval. During purging, water quality parameters (pH, temperature, electrical conductivity, salinity, dissolved oxygen, and turbidity) were measured using a Horiba U-10 multimeter and recorded on field forms (Appendix C). This instrument was calibrated prior to use with standard solutions in accordance with manufacturer's directions. The wells were purged until field measurements indicated that water quality parameters had stabilized to within 5 % and turbidity units were below at least 20 nephelometric turbidity units (NTU).

After field parameters stabilized to within five percent and turbidity measurements were below 10 NTUs for wells MW-17S, MW-18S, and MW-19S, and below 20 NTUs for MW-20S, development was determined to be complete. Six to 71 saturated casing volumes were purged from the four monitoring wells. Purge water was contained in storage containers provided by PTI and then treated within the PTI wastewater treatment system by PTI staff.

Following well development, all four wells were sampled using low-flow purging and sampling procedures in accordance with the ASTM standard "Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations" (ASTM, 2002). More information regarding specific groundwater sampling procedures for this data gap analysis is outlined in section 2.7.2.

Depth to groundwater was measured 72 hours following well development on June 25 and 26, 2007, and ranged from 43.8 to 45.1 feet bgs.

2.3.3 SVE Extraction Well and Monitoring Probe Installation

Three SVE extraction well pairs, seven SVE monitoring probe (SMP) pairs, and one single SMP were installed and constructed using sonic drilling methods in accordance with the *Revised Comprehensive Soil Vapor Survey Report and SVE Pilot Test Work Plan* (Iris Environmental 2006b) and *Addendum to Soil Vapor Extraction Pilot Test Work Plan* (Iris Environmental 2007c). Locations of the SVE wells and SMPs are shown on Figure 3. Site stratigraphic and chemical results derived from the installation of the SVE extraction and monitoring probes are presented in Section 3.0.

The SVE extraction well pairs were each constructed in separate boreholes located approximately five feet apart. Each well pair consists of an "A" well and a "B" well. The SVE extraction wells designated as "A" were screened in the sand unit at the base of the Gage Aquifer. The SVE extraction wells designated as "B" were screened in the unnamed aquitard. SVE "A" wells were constructed of 4 inch diameter schedule 40 PVC in nominal 8 inch diameter boreholes. Extraction wells SVE-02A and SVE-03A have 15-foot screen lengths and SVE-01A has a 10-foot screen length. Screens for all three "A" extraction wells span the sandy unit of the Gage Aquifer. SVE "A" well screens were constructed with a 0.125 inch slots and pea gravel filters. SVE "B" wells were constructed of 2-inch diameter schedule 40 PVC in 6-inch boreholes. SVE "B" wells have shorter, 5-foot screen lengths with coarse sand filters. SVE "B" well screens were constructed with a 0.05 inch slots.

Each SMP pair was constructed of two 1-inch diameter PVC casings nested in one 6-inch diameter borehole. The upper SMPs were designated as "A" are screened in the sand unit of the Gage Aquifer. The lower SMPs designated as "B" are screened in the unnamed aquitard. All SMPs have a 5-foot screen length with 0.05 inch slots. Construction details for the SVE wells and SMPs are summarized in Table 1 and well completion forms are presented in Appendix A.

There were two deviations from the work plan. SMP-06 was constructed with only one probe, and the SVE wells were not constructed as nested pairs as was proposed. SMP-06 is located in the former gasoline and diesel underground storage tank (UST) pit and gravel backfill was encountered during drilling to about 12 feet bgs. Perched groundwater in this gravel backfill filled the borehole as the drill pipe advanced to 36 feet bgs. After drilling, water had filled the borehole from 25 to 36 feet bgs. Due to the saturated conditions, a deep SMP was not installed at this location.

2.4 Downhole Geophysical Logging

On June 21 and 22, 2007, NORCAL Geophysical Consultants of Cotati, California, conducted downhole geophysical logging at four new and 13 existing monitoring wells at the Site. Downhole geophysical logging was conducted on the following monitoring wells:

MW-01D	MW-09	MW-14D	MW-19S
MW-03	MW-10	MW-15D	MW-20S
MW-04A	MW-11	MW-16	
MW-06D	MW-12D	MW-17S	
MW-07	MW-13D	MW-18S	

The geophysical logging was conducted with a dual induction and natural gamma tool. Logs are included in Appendix D. Induction tools use electromagnetic induction through a transmitter coil to measure the conductivity of the formation beyond the PVC casing and annular well materials. The dual induction tool uses one fixed transmitter coil and two receiving coils at two fixed positions from the transmitter resulting in a short- and long-spacing conductivity reading. The longer spaced coils measure conductivity deeper into the

formation reducing the effect of the borehole. The conductivity values are converted to resistivity in Ohm-meters and are then used by the geologist to interpret formation lithology. Resistivity curves in MW-15D, MW-17S, and MW-20S were smoothed during geophysical processing because a combination of low formation conductivity and well construction effects caused excessive noise in the log traces around 18 to 35 feet bgs.

The natural gamma tool measures natural gamma radiation emitted by the formation. Clay minerals tend to have more natural radioactive materials; therefore the natural gamma signal often reflects clayey intervals in the formation. The natural gamma tool reports the gamma-ray readings in American Petroleum Institute (API) units. Both resistivity and natural gamma can be used by the geologist to interpret formation lithology.

The dual induction and natural gamma tool were mounted together and lowered to the bottom of the wells using a cable, winch, and tripod set up over the well. Geophysical data was recorded as the tools were pulled up the well at a uniform rate. The full length of MW-07 and MW-13D were not logged due to obstructions in the well casing. MW-07 was logged to a depth of approximately 48 feet bgs and has a total depth of approximately 70 feet bgs (January 2007). MW-13D was logged to a depth of approximately 66 feet bgs, has a total depth of approximately 93 feet bgs (January 2007), and had an obstruction at approximately 50 feet bgs in the past.

The induction and natural gamma results were plotted in the field for review by the NORCAL geophysicist and Iris Environmental's California Professional Geologist.

Results of the downhole geophysical logging are presented in Section 3.2.3.

2.5 Well Surveying

All new monitoring wells, piezometers, SVE wells, and SVE monitoring probes were surveyed to the Los Angeles County Surveyor's Bench Mark 6667 (elevation 155.298 feet) with horizontal and vertical datum on June 25, 2007, by a California Professional Land Surveyor employed by KDM Meridian of Lake Forest, California. A reference mark was established on the north side of the top of each well casing. The elevation survey included the top of casing (TOC) reference mark and the ground surface elevation at the top of the traffic box rim (TOR). Survey results were reported to the nearest 0.01 feet of elevation and referenced to mean sea level (msl). Horizontal control measurements were also reported to the nearest 0.01 feet. The survey report is presented in Appendix E.

2.6 Investigation Derived Waste

Investigation derived waste at the Site included soil cuttings from the drilling program and solid waste such as paper towels and gloves. Soil cuttings were placed in clean, 55-gallon, steel drums, sealed, and labeled with the well name and approximate depth interval. Drums are currently stored on-site pending profiling and transport to an appropriate disposal facility.

2.7 Soil and Groundwater Sampling

This section describes soil and groundwater sampling procedures conducted during this investigation.

2.7.1 Soil Sampling

This section describes soil sampling procedures. Soil samples were collected during this investigation for four purposes:

- Physical description;
- Chemical characterization and distribution;
- Geotechnical analysis; and
- Bench-scale treatability study analysis.

One-hundred and three discrete soil samples were collected from boreholes at the Site during the investigation. Soil samples collected from each boring were generally collected from five approximate depth ranges that represented separate lithology units and include: artificial fill (~0-3 feet bgs), the upper silty sand unit (~3-15 feet bgs) (Bellflower Aquiclude of CDM 2005), the Gage Aquifer (~15-31 feet bgs), the unnamed aquitard unit (~31-55 feet bgs), and the upper Hollydale Aquifer (~55-75 feet bgs). A detailed list of soil samples collected during this investigation is presented in Table 2.

General field and sample handling procedures followed the procedures outlined in the 2006 *Revised Draft Water Quality Sampling and Analysis Plan* (Iris Environmental 2006a). During drilling, continuous soil coring was conducted, and soil was discharged directly from the sonic core barrel into tubular plastic bags. Soil samples retained for chemical analysis were collected from the plastic bags into brass tubes, labeled, the ends covered with Teflon™ tape, fitted with plastic end caps, and sealed with silicon tape, or collected in 5-gram En Core® tubes for VOCs analyses in accordance with EPA Method 5035. Sample tubes for chemical analysis are labeled as (CH) on boring logs. Samples were stored in iced coolers for transport under chain-of-custody protocol, and sent to Test America (formerly Del Mar Analytical) of Irvine California; a California Department of Health Services certified laboratory. Samples were tested by one or all of the following analyses:

- VOCs by EPA Method 8260B,
- CAM 17 Metals by EPA Method 6010B,
- Hexavalent chromium (Cr^{+6}) by EPA Method 7199,
- Mercury by EPA Method 7471A,
- Total Organic Carbon (TOC) by EPA Method 9060A Modified.,
- Polychlorinated Biphenyl's (PCBs) by EPA Method 8082, and
- Total Petroleum Hydrocarbons (TPHs) by EPA Method 8015 Modified.

Results of the chemical soil sample analyses are discussed in Sections 3.1.2, and presented in Tables 4-7.

Soil samples for geotechnical analysis were collected using a split-spoon drive sampler that was advanced through the sonic core barrel. Soil samples in brass tubes were taken directly from the split-spoon sampler, covered with Teflon™ tape, fitted with plastic end caps, and sealed with silicon tape. Samples collected in the split-spoon sampler for geotechnical analysis were labeled as (CG for core geotechnical) on boring logs. Additional soil samples were collected in brass tubes from the sonic sample bags for geotechnical analysis and were labeled as (GG for grab geotechnical) on boring logs. These samples were stored in coolers and sent under Chain-of-Custody protocol to PTS Laboratories of Santa Fe Springs, California, a California certified laboratory for the following analyses:

- Soil pH by EPA Method 9045,
- Grain Size Distribution by ASTM D422/4464M,
- TOC by Walkley-Black method,
- Vapor Transport Package by ASTM D2216, and
- Hydraulic Conductivity Package.

Results of the geotechnical soil sample analyses are discussed in Section 3.2, and presented in Table 8.

In accordance with the work plan, soil samples for bench-scale treatability testing were collected specifically from well MW-18S using two methods: one set of samples was collected from the plastic sample bags, placed into brass tubes and labeled "-BULK," and the second set of samples was collected using a split-spoon drive sampler lined with brass tubes to collect formation representative samples. Each of these samples was covered with Teflon™ tape, fitted with plastic end caps, and sealed with silicon tape. Each tube was labeled to reflect orientation for testing. These samples were labeled as (BT for bench-scale test) on boring logs. The samples were then placed immediately into iced coolers and shipped via Fed Ex to Spectrum Analytical, Inc. in Agawam, Massachusetts for bench-scale treatability testing. The study will determine the treatability of hexavalent chromium and VOC impacted soil at the Site through the injection of calcium polysulfide and sodium persulfate, and the optimum product application dosage for both injectants. Results of the study will be discussed under separate cover.

All soil samples were labeled using the following format:

PTI-MW18-S-10.0

where, MW18 = soil boring location, S = soil matrix, and 10.0 = sample depth.

2.7.2 Groundwater Sampling of New Monitoring Wells

Each of the four new monitoring wells (MW-17S, MW-18S, MW-19S, and MW-20S) were sampled twice during the first month following construction and development to further

characterize the distribution of hexavalent chromium, metals and VOCs in the upper Hollydale Aquifer. Both sampling rounds used the low-flow purging and sampling method, in accordance with the ASTM Standard, "Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations" (ASTM, 2002).

The first round of new monitoring well sampling was conducted on July 3, 2007, approximately one week following well construction and development. Before sampling, each well head space was screened for VOCs using a PID and the height of the water column in the well was measured. PID readings were recorded on field sheets and are included in Appendix C. Static water levels and total depth to the bottom of each well were measured using a water level indicator to establish a baseline water depth to monitor for induced drawdown during low-flow purging. The water level indicator was decontaminated with Alconox and deionized water and steam-cleaned prior to each groundwater measurement to prevent cross-contamination between wells.

A Grundfos Ready Flow 2 (Grundfos RF2) pump was lowered very carefully (to minimize disturbance within the well column during emplacement of the pump) to the approximate middle of the screened interval at each location. Standard flow rate for low-flow purging and sampling is 100 to 500 ml/min. The appropriate pump rate was determined at each well by starting with a low pump rate while simultaneously measuring the water level. If drawdown was imperceptible then the pump rate was increased slowly and adjusted to the point at which drawdown stabilized. The goal was to keep drawdown at or below approximately 0.33 feet, or less than 25% of the distance between the top of the screen and the pump. The optimal pump rates for the new wells were determined to be approximately 100 ml/min for MW-20S, and 150 ml/min for MW-17S, MW-18S, and MW-19S.

During purging, water quality parameters were measured using a Yellow Springs Incorporated (YSI) 556 model flow through cell, and a Hack turbidity meter. Water quality parameters were recorded on field sheets and are included in Appendix C. Low-flow purging continued until parameter measurements of temperature, pH, conductivity, dissolved oxygen, and oxygen reduction potential were within 10 % of previous readings, and turbidity was below 10 NTUs. In some cases, notably at MWS-20, the flow rate was decreased to obtain lower turbidity readings.

When the water quality parameters stabilized, the flow-through cell was removed and groundwater samples were collected through the dedicated tube while the pump rate remained constant. Unfiltered groundwater samples were collected in three 40 milliliter (ml) glass vials (preserved with hydrochloric acid) and one unpreserved 500 ml plastic bottle. Groundwater collected for dissolved metals analysis was field filtered using a new, disposable 0.45-micron filter, which was attached directly to the dedicated tubing. Filtered groundwater was collected in one 500 ml plastic bottle preserved with sodium hydroxide. Since the pump rates were all below the recommended maximum rate for VOC sampling (250 ml/min; ASTM 2002), there was no need to lower the pump rate for VOC sampling. Groundwater sample bottles were numbered using the following format: PTI-MW18-070613, where MW-18S is the monitoring well name and 070613 is the date June 13, 2007. The sample bottles were placed inside plastic zip-lock bags and then placed immediately into iced

coolers. Sample containers were stored in iced coolers for transport under chain-of-custody protocol, and sent to Test America Analytical of Irvine California, for the following analyses:

- VOCs by EPA Method 8260B
- Dissolved CAM 17 Metals by EPA Method 6010B and 7470A
- Hexavalent chromium (Cr^{+6}) by EPA Method 7199

Results of these groundwater analyses are discussed in Sections 3.1.3, and are presented in Tables 9 and 10 of this report.

The second round of sampling for the four new wells was conducted during the week of July 23rd, 2007. The four new monitoring wells were sampled using the same procedure and low-flow protocol as described above and analyzed for the same chemical suite. Field sampling parameters were recorded on field sheets presented in Appendix C. The laboratory results of this sampling event were not available at the time of this report writing and will be reported under separate cover.

2.7.3 Groundwater Sampling for the Bench-Scale Treatability Study

Groundwater samples were collected from the existing monitoring wells MW-04 and MW-09 on June 13 2007, for the bench-scale treatability study being conducted by Spectrum Analytical of Agawam, Massachusetts, and for hexavalent chromium analysis by Test America of Irvine, California. These samples were collected as described in the "Groundwater Corrective Action Bench-Scale Treatability Study Work Plan" (Iris Environmental 2007) using the same low-flow method as described above, except at a higher pump rate (approximately 2 L/min). Ten liters were collected for the bench-scale treatability study in 10, 1-liter amber glass containers. These water samples were shipped along with soil samples collected from MW-18S as described in Section 2.7.1.

2.7.4 Groundwater Sampling of Existing Monitoring Wells

To aid delineation of groundwater potentially impacted by hexavalent chromium prior to implementation of the pilot testing program, groundwater samples were collected during the week of July 23, 2007 from eight existing monitoring wells that are not monitored as part of the quarterly Groundwater Monitoring Program (Iris Environmental 2006a). This sampling was conducted concurrent with the second round of sampling of the four new wells. The following wells were included in this sampling event:

- MW-02
- MW-05
- MW-08
- MW-10
- MW-12S
- MW-12D

- MW-13S
- MW-14D

Well MW-13D was included in the data gap investigation work plan for sampling and analyses since this well is not sampled as part of the quarterly monitoring program. However, due to an obstruction in the well casing at approximately 65 feet bgs (total depth of the well is 93 feet bgs), the pump could not be emplaced at the appropriate depth for purging water from the well. Therefore, well MW-13D was not purged and sampled as part of this investigation. This well had been video surveyed and cleared earlier in 2007. The obstruction will be investigated further and mitigated.

Well sampling and analysis of samples were performed in accordance with the regular quarterly monitoring procedures as outlined in the *2006 Revised Draft Water Quality Sampling and Analysis Plan* (Iris Environmental 2006a). Sampling practices included the following: measure static water level and total depth of each well in order to calculate pre-sampling purge volumes, check for floating product and hydrocarbon vapors at each well, purge and collect a groundwater sample for laboratory analysis, decontaminate sampling equipment, and handle sample-filled containers in accordance with Section 4.3.3.5 of the RFI Work Plan. Copies of completed field forms are provided in Appendix C.

The maximum and background PID readings taken during the collection of water level measurements were recorded in the field and are presented in Appendix C.

The static water level of the on-site wells was measured three times at each well location with a decontaminated water level indicator (sounder) prior to the initiation of pumping activities. The sounder probe and line were decontaminated after each use.

The water level in each well was also measured immediately prior to initiating well pumping procedures for calculation of well purge volume. The water level was measured periodically while pumping to determine drawdown.

To detect the presence of light non-aqueous phase liquid (LNAPL), a clear disposable bailer was lowered approximately one-half the length of the bailer below the surface of the water of each sampled well. The bailer was removed from the well and its contents checked for LNAPL or sheen. The bailer used for LNAPL testing was decontaminated after each well so that it could be re-used for this purpose throughout the day. At the end of each day, the LNAPL test bailer was discarded.

If LNAPL or sheen had been detected, a sample would have been collected for laboratory analysis of VOCs (EPA Method 8260B) and total petroleum hydrocarbons (California Department of Health Services [CA DHS] Method) using a new bailer. As in all previous quarterly groundwater sampling at the PTI facility, LNAPL was not detected during this data gap investigation.

Depth to water and bottom sounding measurements obtained immediately prior to purging,were used to calculate the amount (height) of the saturated well casing. The inside

diameter of the casing was then measured, and the following formula applied in order to obtain the saturated casing volume:

Volume = (total depth-depth to water) (π * radius^2)

A minimum of three saturated casing volumes of water were removed from each well prior to collecting a groundwater sample for laboratory analysis.

Each well sampled was purged using a Grundfos 1.75-inch diameter variable-speed submersible pump, and each well was sampled using a new disposable bailer. In most cases, the pump was installed approximately five feet above the bottom of the well.

Field parameters were measured during well purging using a multimeter and turbidity meter for all wells. These instruments were calibrated or field checked prior to use with standard solutions in accordance with manufacturer's directions. These instruments were used to determine the stability of groundwater field parameters prior to collection of a sample for laboratory analysis.

Field parameters of the discharge water were measured periodically and recorded on field forms. Field parameters included temperature, pH, conductivity, turbidity, and depth to water. Characteristics such as color and odor were also noted and recorded. After a minimum of three saturated casing volumes of water were removed from each well, field parameters stabilized to within 5 percent, and turbidity measurements were below 30 nephelometric turbidity units (NTU).

All purge water collected from each well was contained in a 400-gallon truck- mounted portable tank and then discharged into a container provided by PTI, to be treated within the PTI wastewater treatment system.

Groundwater samples were collected with a new disposable bailer, and poured directly into pre-labeled sample bottles. During sample collection, the bailer was carefully lowered past the air/water interface to minimize agitation and aeration of water during sample collection. The sample bottles were placed inside plastic zip-lock bags and then placed immediately into iced coolers. Water collected for dissolved metals analysis was field filtered using a new, disposable 0.45-micron filter.

Groundwater samples were collected for laboratory analysis of the following parameters:

- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6010B
- Hexavalent Chromium (Cr+6) by EPA Method 7199
- pH by EPA Method 150.1

Groundwater sample bottles were numbered using the following format:

PTI-MW02-070725

where PTI = site acronym, MW02 = monitoring well (MW) location number, and 070725 = sample date.

Sample label information included date and time of sampling, Iris Environmental sample number, and analytical parameters.

Chain-of-custody forms that indicated the label information as well as the responsible person during each step of the transportation process accompanied all filled sample containers that were collected from each well. All samples collected during this sampling event were sent by courier to Test America in Irvine, California on the day that they were collected, and a copy of the chain-of-custody form for that day was retained by Iris Environmental field personnel. Copies of completed chain-of-custody forms are included in Appendix F.

The submersible pump used for well purging was decontaminated using the "triple-rinse" method to reduce the possibility of cross-contamination between monitoring wells. The first step of the decontamination procedure was to submerge the pump into a solution of Alconox (laboratory-grade detergent) and deionized water, and the pump was then turned on to circulate the water. The second and third steps of the procedure were to submerge the pump into the deionized water and the pump was turned on to circulate the rinse water. Between each rinse, the exterior of the pump was steam cleaned prior to placing it in the subsequent rinse water. After the triple-rinse was finished, the exterior of the pump and electric cord were again steam cleaned. The decontamination water was stored with the purged groundwater temporarily within the sampling rig holding tank. The purged groundwater and decontamination water were discharged into a container provided by PTI, which PTI personnel later emptied into the internal wastewater treatment system.

Accessory sampling equipment such as the water level sounder was decontaminated to minimize the possibility of cross-contamination between the monitoring wells. The sounder was decontaminated by first spraying the sounding line with an Alconox-deionized water solution and rinsing with a steam cleaner. Bailers used to test for an immiscible layer were decontaminated and reused throughout the day. The bailers and nylon string that were used to sample wells were discarded immediately after use.

The laboratory results of this investigation were not completed at the submittal time of this report and will be reported under separate cover.

3.0 RESULTS

This section includes a summary of the site investigation results of chemical analyses for soil and groundwater samples, cone penetrometer testing, geotechnical analyses of soil samples, and geophysical logging within select wells at the Site.

3.1 Analytical Results

Soil and groundwater samples were analyzed by Test America. Analytical laboratory data sheets are included in Appendix F.

3.1.1 Laboratory Quality Assurance/Quality Control

All analytical analyses were performed in accordance with the analyses specified in the chain-of-custody for each sample. Internal laboratory quality assurance/quality control (QA/QC) results were provided with each sample analytical report. All method-specific and laboratory quality control (QC) criteria were met with the exception of those identified and noted in the laboratory data sheets within each analytical report. None of the data has been qualified as rejected data and is considered useable for site characterization purposes.

3.1.2 Soil Analytical Results

This section presents a summary of chemical detections from soil samples collected during this investigation. All soil samples were analyzed for VOCs, CAM 17 Metals, and Cr^{+6}. Most soil samples were analyzed for TOC. Soil samples located within the vicinity of the former gasoline and diesel USTs were analyzed for TPHs, and samples located in areas with previous detections of PCBs were analyzed for these constituents as well as for waste disposal purposes. A complete summary of analytical data for soil samples collected during this data gap investigation is presented in Tables 4 through 7. Detections of Cr^{+6}, halogenated/halogenated aromatic VOCs, aromatic VOCs, and TPH from the five primary site lithologic zones included in this investigation are presented in Figures 4 through 22, and discussed below.

3.1.2.1 VOCs

The detected VOCs include both halogenated and halogenated aromatic VOCs (which will be referred to as HVOCs within this report section) and aromatic VOCs. Within the areas sampled during this investigation, detections of HVOCs and aromatic VOCs exhibited a pattern suggesting that two or more source mechanisms may exist. Aromatic VOCs are most often associated with petroleum products or byproducts, while HVOCs are more commonly derived from manufactured solvents and various chemical manufacturing processes.

Halogenated VOCs: The highest concentrations of HVOCs were generally detected in borings drilled near former Pond 1 and the suspected former chromic acid tank (Figures 4 to 8). Twenty-three halogenated VOCs were detected and are listed in Table 11. The four most frequently detected halogenated VOCs include trichloroethene (TCE), 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1-Dichloroethene (1,1-DCE).

TCE was the most frequently detected compound, with 52 detections ranging from 2.5 micrograms per kilogram (µg/kg) to12,000 µg/kg in borings SVE-02B at 30 feet bgs and MW-18S at 2.5 feet bgs, respectively. The two next highest detections of TCE were 7,100 µg/kg (MW-18S at 10.0 feet bgs) and 1,400 µg/kg (PZ-02 at 3.5 bgs).

1,1-DCA was detected in 50 samples at concentrations ranging from 2 µg/kg (MW-20S at 58.0 feet bgs) to 2,800 µg/kg (MW-18S at 2.5 feet bgs). The two next highest detections of 1,1-DCA were 350 µg/kg in boring SVE-01B at 14.0 feet bgs and 300 µg/kg in boring MW-18S at 10.0 feet bgs and PZ-02 at 3.5 feet bgs .

Cis-1,2-DCE was detected in 37 samples ranging from 1.9 µg/kg to 5,500 µg/kg in borings MW-18S at 55.0 feet bgs and PZ-02 at 3.5 feet bgs, respectively. The next highest detections of cis-1,2-DCE were 200 µg/kg (MW-20S at 1.5 feet bgs) and 180 µg/kg (MW-17S at 2.0 feet bgs).

1,1-DCE was detected in 30 samples, ranging from 4.4 µg/kg (SMP-04B at 9.5 feet bgs) to 1,000 µg/kg (MW-18S at 2.5 feet bgs). The next highest detections of 1,1-DCE were 510 µg/kg (PZ-02 at 3.5 feet bgs) and 150 µg/kg (MW-18S at 10.0 bgs).

PCE was detected in 12 samples, ranging from 2.6 (SMP-02B at 42.0 feet bgs) µg/kg to 1,300 µg/kg (MW-18S at 2.5 feet bgs). The next highest detections were 230 µg/kg and 190 µg/kg, found in samples MW-18S at 10.0 feet bgs and SVE-01B at 20.5 feet bgs, respectively.

Elevated concentrations of 1,3-dichlorobenzene, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,2,3-trichlorobenzene, and 1,4-dichlorobenzene were found in PZ-01 at 3.0 feet bgs, ranging from 1,600 µg/kg to 130,000 µg/kg. Other detections of these constituents were found in samples representing artificial fill (0-5 feet bgs) at MW-17S, MW-19S and MW-20S. It should be noted for this investigation that these halogenated aromatics were only detected two or three times in an isolated area and depth.

In summary, a majority of the highest number of HVOC detections, which include both the most commonly detected analytes as well as the halogenated aromatics mentioned above, were found in artificial fill soil samples generally located in the vicinity of former Pond 1 and the suspected former chromic acid tank. A greater number of HVOCs were detected in the upper sandy silt unit and the unnamed aquitard than in the Gage Aquifer and the Hollydale Aquifer. A complete summary of all HVOC detections are presented in Table 4. A graphical representation of HVOC detections within the described lithologic units is presented in Figures 4 to 8.

Aromatic VOCs: The highest detections of aromatic VOCs were generally located within the area of the former gasoline and diesel UST (Figures 9 to 13). Fourteen different aromatic VOCs were detected during this investigation, and are listed in Table 12. The five most frequently detected aromatic VOCs were isopropylbenzene, naphthalene, sec-butylbenzene, n-propylbenzene, and benzene.

Isopropylbenzene was detected in 15 samples, ranging from 1.9µg/kg in boring SVE-03B at 35 feet bgs to 3,700 µg/kg in boring SMP-08B at 26.0 feet bgs. The next highest detections were 3,500 µg/kg in borings SMP-07B (at 9.5 feet bgs) and SVE-03B (at 21.0 feet bgs) and 2,600 µg/kg in boring SMP-07 at 32 feet bgs.

Naphthalene was detected in 13 samples, ranging from 4.6µg/kg in boring SMP-04B at 5.5 feet bgs to 19,000 in boring SVE-03B at 21.0 feet bgs. The next highest detections were found in borings SMP-08B at 26.0 feet bgs and SMP-07B at 9.5 feet bgs at 18,000 µg/kg and 9,800 µg/kg, respectively.

Sec-butylbenzene was detected in 13 samples, ranging from 10 µg/kg (MW-20S at 1.5 feet bgs) to 2,600 µg/kg (SMP-08B at 26.0 feet bgs). The next highest detections were 2,500 µg/kg and 1,900 µg/kg found in borings SVE-03B at 21 feet bgs and SMP-07B at 9.5 feet bgs, respectively.

N-propylbenzene was detected in 11 samples, ranging from 11µg/kg (MW-20S at 1.5 feet bgs) to 5,100 µg/kg (SVE-03B at 21.0 feet bgs and SMP-08B at 26.0 feet bgs). The next highest detections were 5,000 µg/kg (SMP-07B at 9.5 feet bgs) and 3,300 (SMP-07B at 32.0 feet bgs).

Benzene was detected in 10 samples, ranging from 1.9µg/kg to 68 µg/kg, located in borings PZ-03 at 9.0 feet bgs and MW-20S at 1.5 feet bgs, respectively. The next highest detections of benzene were 25 µg/kg (SVE-03B at 35.0 feet bgs) and 11 µg/kg (SMP-04B at 5.5 feet bgs).

In summary, a majority of the highest detections of aromatic VOCs were located in the Gage Aquifer sediments (approximately 15-31 feet bgs). Aromatic VOCs were most frequently detected in the area of the former gasoline and diesel UST (boring locations SMP-06, SMP-07, SMP-08, SMP-09 and SVE-03) (Figures 9 to 13).

A complete list of all aromatic VOCs analytical data is presented in Table 4. A graphical representation of aromatic VOCs detections within the described lithologic units is presented in Figures 9 to 13.

3.1.2.2 Metals

Soil samples were analyzed for CAM 17 Metals and hexavalent chromium. Results of all metals analyses are presented in Table 5. This section will discuss only chemicals of concern on the site, which include chromium, hexavalent chromium, copper and cadmium. A graphical representation of hexavalent chromium detections within the described lithologic units is presented in Figures 14 to 18.

Total chromium detections ranged from 5.5 milligrams per kilogram (mg/kg) (SMP-02B and SMP-08B at 26.0 feet bgs) to 4,000 mg/kg (SMP-04B at 5.5 feet bgs). The next highest detections of total chromium were 3,900 mg/kg and 2,200 mg/kg and were found in soil boring MW-18S at 23.5 feet bgs and 30.0 feet bgs, respectively.

Hexavalent chromium detections ranged from 0.22 mg/kg (SMP-03B at 14.0 feet bgs) to 330 mg/kg (MW-18S at 43.0 feet bgs). The next highest detections of hexavalent chromium were 170 mg/kg and 130 mg/kg, found in soil boring MW-18S at 30.0 feet bgs and 10.0 feet bgs, respectively. The highest detection of hexavalent chromium was found in the unnamed aquitard sediments, and hexavalent chromium was most often detected in the upper silty sand unit and the unnamed aquitard. There were also occasional detections of hexavalent chromium in the Gage Aquifer and the Hollydale Aquifer sediments.

Copper detections ranged from 7 mg/kg (MW-20S at 58.0 feet bgs) to 8,700 mg/kg (MW-18S at 10.0 feet bgs). The next highest detections of copper were 2,000 mg/kg and 680 mg/kg, and were found in boring MW-18S at 30.0 feet bgs and 23.5 feet bgs, respectively.

Cadmium detections in soil ranged from 0.55 mg/kg (MW-20S at 1.5 feet bgs) to 5.4 mg/kg (SMP-02B at 2.0 feet bgs and MW-19S at 3.0 feet bgs). The next highest detections were 4.9 mg/kg (MW-20S at 58.0 feet bgs) and 4.4 mg/kg (MW-19S at 8.0 feet bgs).

3.1.2.3 Total Petroleum Hydrocarbons

Soil borings that were located in areas of previous TPH detections, such as the area of the former gasoline and diesel USTs, were analyzed for TPH in the gasoline (TPH-g), diesel (TPH-d) and motor oil (TPH-mo) ranges. The carbon ranges for TPH-g, TPH-d, and TPH-mo are reported by the laboratory as C4-C12, C13-C22, and C23-C40, respectively. Results of all TPH samples are listed in Table 6. TPH distributions within the various lithologic zones are presented in Figures 19 to 22. The Chromatograms for all TPH sample detections are included in Appendix G.

There were 12 detections of TPH-g ranging from 0.64 mg/kg found in boring MW-18S at 2.5 feet bgs to 1,500 mg/kg found in boring SMP-06 at 23.0 feet bgs. The next highest detections of TPH-g were 1,300 mg/kg in borings SMP-08B at 26.0 feet bgs and SVE-03B at 21.0 feet bgs and 800 mg/kg in boring SMP-08B at 13.0 feet bgs.

There were 15 detections of TPH-d ranging from 26 mg/kg (SMP-06 at 10.0 feet bgs) to 17,000 mg/kg (PZ-02 at 3.5 feet bgs). The next highest detections of TPH-d were 6,500 mg/kg (SVE-03B at 21.0 feet bgs) and 2,500 mg/kg (SMP-06 at 23.0 feet bgs).

There were 15 detections of TPH-mo ranging from 32 mg/kg (SMP-04B at 22.0 feet bgs) to 24,000 mg/kg (PZ-02 at 3.5 feet bgs). The next highest detections of TPH-mo were 3,900 mg/kg (SMP-04B at 1.5 feet bgs) and 3,700 mg/kg (SVE-03B at 21.0 feet bgs).

In samples collected during this investigation, there were slightly more TPH detections in the diesel and motor oil ranges and at much higher concentrations than detections in the gasoline range. The highest detections of TPH-d and TPH-mo were found in samples from the artificial fill in the areas of PZ-02, SMP-04 and MW-18S. The highest TPH detections in the vicinity of the former gasoline and diesel UST were in the diesel range and occurred at depths of 9.5 feet bgs to 32.0 feet bgs (within the upper silty sand and the Gage Aquifer lithologic units).

3.1.2.4 Total Organic Carbon

Soil samples collected from June 14 through June 23 were analyzed for TOC for Site characterization and possible future modeling purposes. There were 12 TOC detections, ranging from 5,600 mg/kg in boring SMP-06 at 23.0 feet bgs to 130,000 mg/kg in boring MW-20S at 1.5 feet bgs. A complete list of TOC results is presented in Table 7.

3.1.3 Groundwater Analytical Results

Groundwater samples were collected from the four new wells (MW-17S, MW-18S, MW-19S, and MW-20S) for the first time on July 3, 2007, and analyzed for VOCs, CAM 17 Metals, and Cr^{+6}. A second sampling event, consisting of samples from the four new wells as well as eight on-site wells not currently sampled during quarterly monitoring, took place during the week of July 23. Analyses for the latter sampling event were not available at the time of this report, so results of these analyses will be discussed under separate cover. A complete list of groundwater analytical results from the July 3, 2007 sampling event is presented in Tables 9 and 10 and discussed below.

3.1.3.1 VOCs

The detected VOCs included both halogenated/halogenated aromatic VOCs (which are referred to as HVOCs within this report) and aromatic VOCs. A complete list of both halogenated and aromatic VOCs results is presented in Table 9.

HVOCs: The following ten HVOCs were detected in one or more of the four new monitoring wells: 1,1-DCA, 1,1-DCE, 1,2-DCA, chlorobenzene, chloroform, cis-1,2-DCE, methylene chloride, PCE, trans-1,2-DCE, and TCE.

1,1-DCA was detected in all four new wells, with concentrations ranging from 5.4 micrograms per liter (µg/l) in well MW-17S to 93 µg/l in well MW-20S.

1,1-DCE was detected in all four wells with concentrations ranging from 1.9 µg/l in well MW-18S to 31 µg/l in well MW-20S.

1,2-DCA was detected in all four wells with concentrations ranging from 40 µg/l in well MW-17S to 340 µg/l in well MW-20S.

Chlorobenzene was detected in wells MW-20S and MW-19S, at concentrations of 1.5 µg/l and 2.1 µg/l, respectively.

Chloroform was detected in wells MW-18S and MW-19S, at concentrations of 3.9 µg/l and 9.7 µg/l, respectively.

Cis-1,2-DCE was detected in three wells, with concentrations of 8.6 µg/l, 8.8 µg/l, and 47 µg/l in wells MW-17S, MW-19S, and MW-20S, respectively.

Methylene chloride was only detected in well MW-18S at a concentration of 6.8 µg/l.

PCE was detected in wells MW-18S, MW-20S, and MW-19S at concentrations of 1.5 µg/l, 1.7 µg/l, and 2.5 µg/l, respectively.

Trans-1,2-DCE was only detected in well MW-20S at a concentration of 1.4 µg/l.

TCE was detected in all four wells, with concentrations ranging from 10 µg/l in well MW-17S to 140 µg/l in wells MW-19S and MW-20S.

In summary, HVOCs were detected in all four new wells. The following compounds were detected most frequently (in all four wells) 1,1-DCA, 1,1-DCE, 1,2-DCA, and TCE. The highest HVOC detection was 340 µg/l of 1,2-DCA, and was detected in well MW-20S. HVOCs were detected most frequently in well MW-19S, which had detections of 14 HVOCs. Both wells MW-17S and MW-19S had detections of 11 HVOCs.

Aromatic VOCs: The following aromatic VOCs were detected in one or more of the four new wells: benzene, ethylbenzene, xylenes, isopropylbenzene, and n-propylbenzene.

Benzene was detected in wells MW-20S, MW-17S, and MW-19S at concentrations of 2.2 µg/l, 2.4 µg/l, and 3.2 µg/l.

Ethylbenzene was detected in all four wells at concentrations ranging from 4.2 µg/l (MW-18S) to 1,900 (MW-17S).

Total xylenes were detected in wells MW-17S and MW-19S at concentrations of 32.3 µg/l and 70 µg/l, respectively.

Isopropylbenzene was detected in wells MW-20S, MW-19S, and MW-18S at concentrations of 4.9 µg/l, 14 µg/l, and 15 µg/l, respectively.

N-propylbenzene was detected in wells MW-19S and MW-17S at concentrations of 2.2 µg/l and 3 µg/l, respectively.

In summary, one or more aromatic VOCs were detected in all four wells. Ethylbenzene was detected most frequently (in all four new wells), and was also detected at the highest concentration (1,900 µg/l in well MW-17S). Wells MW-17S and MW-19S had the most aromatic VOCs detections.

3.1.2.2 Metals

Samples from the four new wells were analyzed for dissolved CAM 17 metals, and hexavalent chromium. In addition, wells MW-04 and MW-09 were analyzed for hexavalent chromium during water sample collection for the treatability study. The following metals were detected in the four new wells: barium, cadmium, chromium, lead, and nickel. Hexavalent chromium was only detected in older wells MW-04 and MW-09. A complete list of analytical metal results for groundwater samples is presented in Table 10.

Hexavalent chromium was not detected in any of the new wells. However, hexavalent chromium was detected in wells MW-09 and MW-04 at concentrations of 0.28 mg/l and 8.8 mg/l, respectively.

Dissolved chromium was detected only in well MW-20S at a concentration of 0.0089 mg/l.

Dissolved cadmium was detected only in well MW-20S at a concentration of 0.028 mg/l.

Dissolved barium was detected in all four new wells, with concentrations ranging from 0.035 mg/l in well MW--18S to 0.13 mg/l in well MW-20S.

Dissolved lead was detected in all four wells with concentrations ranging from 0.0071 in wells MW-19S and MW-20S to 0.0076 mg/l in well MW-18S.

Nickel was detected only in well MW-20S at a concentration of 0.011 mg/l.

In summary, well MW-20S had the most frequent and generally highest metals detections in samples from the four new wells during this investigation.

3.2 Site Stratigraphy

This section presents an updated and expanded interpretation of site stratigraphy to supplement the site conceptual model. The interpretations are based on observations and testing from five CPT borings, continuous coring using the sonic drilling method, and logging new and existing monitoring wells using downhole geophysical tools.

3.2.1 CPT Borings

The five CPT borings measured general soil types by using the tip resistance and friction ratio. Soil types derived from the sounding data simplified into sand, silt, and clay categories. CPT results confirmed the interpretation that the base of the Gage Aquifer ranged from approximately 28.5 to 31 feet bgs and the base of the unnamed aquitard ranged from approximately 56 to 62.5 feet bgs. In CPT-04, a sand lens was described from 31 to 33 feet bgs. This is generally consistent with the logs from previous investigations conducted by CDM and geophysical logging of existing wells that show some sand lenses within the unnamed aquitard unit at the west-southwest portion of the Site. Depths and thicknesses of these soil types are similar to soil described in other boreholes advanced during this investigation. The CPT report is presented in Appendix A.

3.2.2 Site Hydrogeologic Units

During the installation of all boreholes during this investigation, continuous soil cores were collected and described to gather a complete record of soil types within the corrective action implementation area. Five discrete hydrogeologic units were identified which are generally consistent with the site conceptual model: artificial fill, upper silty sand unit, sand unit of the Gage Aquifer, unnamed aquitard, and Upper Hollydale Aquifer. This updated description will be used to update, as necessary, the current site conceptual model. Each hydrogeologic unit is described below.

Artificial Fill: The artificial fill material generally consists of a black or dark brown silty sand unit with metal slag, brick, and wood fragments. The unit has occasional clay and gravel lenses. Metal slag fragments up to 1 foot diameter were encountered in most borings. The base of the artificial fill is approximately 3.5 feet bgs but ranges from approximately 3 to 5 feet bgs.

Upper Silty Sand Unit: This unit was referred to as the Bellflower Aquiclude by CDM in the site conceptual model. Borings drilling through this unit encountered mostly dark brown silty sand with fine to medium sand and a trace of clay. Color changes to dark red and greenish gray in some areas suggest historical variations in oxidation and wetting. The unit is generally poorly graded and quite dense. Based on field observations, grain size distribution ranges from approximately 50% sand and 50% silt and clay to approximately 75% sand and 25% silt and clay. This unit was not found to be saturated and was considered dry at the time of drilling. The upper silty sand unit is approximately 12 feet thick with the base at approximately 15 feet bgs.

Gage Aquifer: This unit consists of light yellowish brown to light olive brown sand with fine- to coarse-grained sand, and some very coarse sand and fine gravel lenses. Sand size generally increases downward with a 4-inch thick gravely sand layer at the base of the sand. The gravely sand layer at the base is indicative of an unconformity with the underlying aquitard. Sand in this unit is poorly graded and dry at the time of drilling. Results of the geotechnical analyses of eight samples from this unit characterize the Gage Aquifer sediments as mostly fine to coarse sand with some silt and a trace of clay. These sediments have high permeability to air (~3,000 to ~25,000 millidarcy range [dry conditions] with an outlier low result of 8.7 millidarcy not included), high porosity (~0.34 to ~0.49 cm^3/cm^3 range), and low moisture content (~8 to ~26 % range). Table 8 summarizes the geotechnical results and the full geotechnical report is included in Appendix H. The Gage Aquifer is approximately 16 feet thick with the base occurring at approximately 31 feet bgs.

Unnamed Aquitard: This unit consists primarily of a mixture of silts, clays and fine sand with occasional silty sand and sandy silt lenses. Occasional one to two feet lenses of multi-foot thick zones of precipitated gypsum crystals were observed at permeability boundaries suggesting historical moisture migration through the unit. Colors for this unit vary and include strong brown, olive brown, yellowish brown, dark reddish brown and olive grey. Some intervals have grey/brown/black mottling. Results of the geotechnical analyses of nine samples from this unit characterize the unnamed aquitard as mostly consisting of silt with some fine sand and clay. These sediments have low hydraulic conductivity (~1.6×10^{-7} to ~1.0×10^{-5} cm/s range), low permeability to air (~0.6 to ~125 millidarcy range), high porosity (~0.3 to ~0.49 cm^3/cm^3 range), and moderate moisture content (~0.23 to ~0.44 cm^3/cm^3 range). Most of this unit was hard and dense and appeared to be dry in the field indicating that the clay minerals were not fully hydrated. Consistent with many overconsolidated fine grained sediments, the majority of the pore space contained pore fluids approaching saturation by volume. Total pore fluid saturation values for this unit ranged from 62% to 98% with an average of 84% by volume. The total pore fluid saturation parameter is the proportion of the porosity filled with water. Table 8 summarizes the geotechnical results and the geotechnical report is included in Appendix H.

Previous investigations have described a lithologic facies change of the unnamed aquitard toward the southwestern portion of the Site. Continuous soil cores collected at PZ-01, the most southwesterly borehole installed during this investigation, exhibited interbedded sand and silty sand/sandy silt units from 25 to 40 feet bgs indicating that some of the silty units of the unnamed aquitard are interbedded with sandy units toward the southwest. Although the thickness varies across the site, generally the unnamed aquitard is approximately 24 feet thick with the base considered to occur at approximately 55 feet bgs.

Upper Hollydale Aquifer: Underlying the unnamed aquitard is the Hollydale Aquifer. The upper Hollydale Aquifer was the only portion of the Hollydale Aquifer sampled during this investigation. The upper Hollydale Aquifer unit consists of medium sand with some fine- and coarse-grained sand, some silt, and trace amounts of gravel and clay. The sand fraction generally increases downward from fine- and medium-grained sand to medium- and coarse-grained sand. Thin six inch thick lenses of fine sand, sandy silt, and coarse sand were observed in the upper 10 feet of the aquifer. Overall this unit is considered to be poorly graded. Field samples were wet, and wells constructed within the upper Hollydale Aquifer exhibited approximately 10 feet of head. Colors for this unit are generally dark yellowish brown to olive brown to dark greenish gray. Results of the geotechnical analyses of three samples from this unit show the upper Hollydale Aquifer as mostly consisting of fine- to medium-grained sand with some silt and clay. These sediments have high hydraulic conductivity (~2.56×10^{-4} to ~1.9×10^{-3} cm/s range), and high porosity (~34 to ~40% range). Table 8 summarizes the geotechnical results and the geotechnical report is included in Appendix H. The base of the Hollydale Aquifer was not reached during this field investigation, however previous investigations have documented the Hollydale Aquifer to be approximately 40 feet thick at the Site with at depth range of approximately 95 to 110 feet bgs (CDM 2005).

3.2.3 Downhole Geophysical Logging

The geophysical logging was conducted at 17 monitoring wells (four new monitoring wells and 13 existing monitoring wells) using a dual induction and natural gamma tool. The dual induction and natural gamma tools record physical properties of the formation beyond the well annulus that can be interpreted by a geologist as soil types. Continuous soil cores were available from the four new monitoring wells and used to calibrate the geophysical results to soil type. Once calibrated, the geophysical results were used to identify soil type and lithology contacts in the existing monitoring wells for which detailed soil descriptions and depths were not available.

The natural gamma tool measures natural gamma radiation in soil and is used to identify clay-rich soil zones because clay minerals tend to have more natural radioactive materials. Because the gamma log signature in known sands and clayey silts did not show enough of a variation to be used to identifying soil type and lithology contacts, the gamma log was not used for that purpose.

The dual induction tool measures the conductivity of soil, which is converted to resistivity. Resistivity is interpreted to represent relative grain size with a higher resistivity representing a sandier unit and a lower resistivity representing a siltier unit. The inflection point on the

26% to 44% with an average of 31% by volume. The total pore fluid saturation parameter is the proportion of the pore volume filled with water. Total pore fluid saturation values ranged from 62% to 98% with an average of 84% by volume. These parameters are summarized in Table 8. The geotechnical reports are presented in Appendix H.

3.3 Gage Aquifer Saturation

Five CPT borings were advanced through the Gage Aquifer and three piezometers were installed to the base of the Gage Aquifer to assess saturation conditions. Groundwater saturation was not detected in the Gage Aquifer during CPT borings or in piezometers.

3.4 Bench-Scale Treatability Study

At the time of this writing, the results of the bench-scale treatability study were not complete. These results will be presented at a later date under separate cover.

4.0 ANALYSIS AND INTERPRETATION

This section presents the analysis and interpretation of results discussed in Section 3.0 and outlines our current opinions regarding data gaps listed in Section 1. The results and interpretation from this investigation, the site conceptual model, and the bench-scale treatment study will be used in part to prepare for the *in situ* pilot test.

4.1 Gage Aquifer Saturation

Although the Gage Aquifer has historically and regionally been intermittently saturated, evidence of saturated conditions was not detected during the June 2007 field investigation in either logged soil or in the three new piezometers. A change in vadose zone moisture distribution that would lead to resaturation of the Gage Aquifer is not expected to develop in the short-term and will likely only occur if and when long-term rainfall patterns change. Saturation conditions in the Gage Aquifer will be regularly assessed using the three piezometers and the existing well MW-6A.

4.2 Unnamed Aquitard

The unnamed aquitard that separates the Gage Aquifer and the underlying Hollydale Aquifer is a major control feature for the fate and transport of historical chemical releases at the Site. Planning for both the SVE and *in situ* treatment of hexavalent chromium required updated characterization of the permeability and available porosity of the fine-grained silty sediments. The characteristics of this aquitard unit are now adequately defined to support the design of the pilot test program.

These fine-grained sediments in the aquitard have an average total porosity of 37% by volume, average moisture content of 31% by volume, and average total pore fluid saturation of 84% by volume. Consistent with most over consolidated fine-grained sediments, most of the moisture resides in the pore spaces. Most of the unnamed aquitard sediments were hard and dense and appeared to be dry in the field. The hard and dense field characterization suggests that the clay minerals were not fully hydrated. These observations and parameters indicate most of the porosity of the unnamed aquitard is saturated, but that overall the unit is an effective aquitard.

As detailed in Table 8, the range of air permeabilities within the aquitard are controlled in part by the pore moisture content. For example, native air permeability in a sample from SVE-02 at 43 feet bgs are a low 0.569 millidarcy, while the same sample has a value of 74.4 millidarcy without moisture. High vacuum will be used during the SVE pilot test to test vapor flow parameters in this lower permeability unit.

4.3 Hexavalent Chromium and VOCs Distribution in Soils

The vertical and horizontal distribution of hexavalent chromium and VOCs in soil collected during this field investigation were compared to the site conceptual model.

4.3.1 Hexavalent Chromium in Soil

The distribution of hexavalent chromium in soil samples collected during this investigation is generally consistent with the distribution of hexavalent chromium presented in the site conceptual model (CDM 2005). Horizontally, the majority of the hexavalent chromium detections were concentrated near the suspected former chromic acid tank and at, or southwest, of the former Pond 1. The only boring that encountered detectable concentrations of hexavalent chromium throughout the soil column was MW-18S. MW-18S is located within the estimated installation area of the suspected former chromic acid tank. Yellow-green precipitates interpreted as chromium salts were observed in cored soil from within the unnamed aquifer while drilling MW-18S. These precipitates were not observed in other borings during the field investigation. This further suggests that the primary source for hexavalent chromium was leakage from the suspected former chromic acid tank.

Consistent with previous interpretations, these new data suggests that some limited historical releases may have occurred from the former Pond 1 contributing hexavalent chromium to subsurface soil. However, the lower concentrations detected around former Pond 1 combined with the inconsistent vertical and horizontal distribution strongly suggests that the former Pond 1 was only a secondary source.

Vertical sampling data depicted in Figures 5 through 8 suggest that hexavalent chromium distribution is not as widespread as previously thought. Where detected, hexavalent chromium concentrations increased with depth with the highest concentrations detected in samples collected from within the unnamed aquitard. However, in three of the four monitoring well borings, hexavalent chromium detections in soil decreased with depth once through to the upper Hollydale Aquifer. The concentrations detected in the unnamed aquitard are up to two orders of magnitude higher than concentrations in the upper Hollydale Aquifer sediments. This pattern is consistent with the site conceptual model, in that the highly soluble hexavalent chromium molecule is not sorbing onto saturated aquifer sediments.

4.3.2 VOCs in Soil

HVOCs include halogenated and halogenated aromatic VOCs. Four of the most frequently detected halogenated VOCs included TCE; 1,1-DCA; cis-1,2-DCE; and 1,1-DCE. These HVOCs detections are consistent with soil results presented in the 1991 RCRA field investigation (RFI) cited in the site conceptual model (CDM 2005).

It is important to note that analysis of a full suite of VOCs was not required for the 1991 RFI and thus only the following VOCs were analyzed for prior to this current investigation: TCE, PCE; 1,1-DCA; 1,1-DCE; 1,2-DCE; 1,1,1-TCA chloroform, methylchloride, acetone, 2-butanone; 1,2-DCA; and Cis,1,2-DCE. A standard EPA method 8260 list of analytes was tested for during this current investigation and additional HVOCs and aromatic VOCs were detected. These additional detections do not document a new chemical release.

Five halogenated aromatic compounds (1,3-dichlorobenzene; 1,2,4-trichlorobenzene; 1,2-dichlorobenzene; 1,2,3-trichlorobenzene; and 1,4-dichlorobenzene) were detected for the first time at relatively elevated concentrations. Detections of these five compounds were limited

to three samples collected at three locations (PZ-01, MW-17S, and MW-20S) within the shallow artificial fill material. The halogenated aromatic compounds were not detected at depths below the artificial fill in soil or groundwater, nor were they detected at other locations within the fill. Chlorobenzenes have been related to solvent use, chemical production (as building blocks in the production of other chemicals) and at pesticide manufacturing/processing facilities. None of these activities were known to be associated with either the Southern California Chemical or PTI facilities. Therefore, this suggests that presence of these five halogenated aromatic compounds are the result of past industrial activities in the vicinity and are an isolated occurrence not associated with the other suspected HVOC source areas at the Site.

Under the artificial fill, HVOCs were detected in the upper silty sand unit at the former Pond 1 and suspected former chromic acid tank areas with the highest concentration at MW-18S (Figure 5). The highest detected concentrations of HVOCs in this near surface unit are at MW-18S and decrease horizontally away from this area. The detected concentrations of HVOCs decrease downward in samples collected from the underlying Gage Aquifer sand and are not as widespread horizontally as HVOCs in the overlying upper silty sand unit (Figure 6). HVOCs detections are more widespread and at slightly higher concentrations in samples collected from the unnamed aquitard. Samples collected near the former Pond 1 and suspected former chromic acid tank areas had the highest HVOC detected concentrations (Figure 7). The highest concentrations of HVOCs were detected in samples from the upper Hollydale Aquifer sediments were also located below the former Pond 1 and the suspected former chromic acid tank areas.

Of the fourteen, petroleum-related, aromatic VOCs detected during this investigation, the five most frequently detected aromatic VOCs were isopropylbenzene, naphthalene, sec-butylbenzene, n-propylbenzene, and benzene. Most of the aromatic VOC detections were in samples from the Gage Aquifer sand around the former gasoline and diesel UST area. As shown on boring logs presented in Appendix B, PID readings decreased substantially in the upper 10 feet of the unnamed aquitard beneath the former gasoline and diesel UST area. Aromatic VOCs were not detected in samples collected from below 35 feet bgs below the former tank pit. Because these aromatic VOCs are considered to be petroleum- related compounds and were generally not detected horizontally beyond the former UST area, they are considered to be associated only with the former gasoline and diesel USTs.

4.3.3 Total Petroleum Hydrocarbons

Petroleum hydrocarbon detections are widespread across the Site as described in the site conceptual model and documented in the results of this investigation. The distribution pattern and Site area history suggests that TPH compounds detected in Site soil and groundwater are not solely related to modern operation or the former fuel USTs. The majority of TPH detections observed during this investigation were in the diesel and motor oil carbon ranges from the former gasoline and diesel UST area. Most of these detections were in samples collected from the upper silty sand unit and the Gage Aquifer. These detections are considered to be associated with the former gasoline and diesel USTs.

In addition, there were detections of TPH-d and TPH-mo in soil samples collected from the artificial fill at borings located beyond the former gasoline and diesel UST area. Of the three samples of artificial fill material analyzed for TPHs, all three of these samples had detectable concentrations of TPH-d and TPH-mo. The remainder of the fill was not analyzed but a strong petroleum-like odor was observed in most shallow borings suggesting the wider presence of petroleum residue within the artificial fill. This is consistent with the site conceptual model, which described detections of total extractable hydrocarbons (TEPH; generally including TPH-d and TPH-mo ranges) primarily in soil samples collected from less than 5 feet bgs, presumably from fill material (CDM 2005). This suggests that TPH detections in soils located beyond the former UST area are either associated only with the imported artificial fill or historical petroleum usage in the area only impacted shallow soils.

To better understand the petroleum usage history beyond the site conceptual model, Iris Environmental acquired digital Sanborn maps from 1924 and 1925. The Sanborn maps show that the northeastern corner of the site was occupied by the Associated Oil Company that included a crude oil tank farm consisting of two large 80,000 barrel tanks, two 5,000 barrel tanks, and two 2,000 barrel tanks (one barrel = 42 gallons). In addition, the Sanborn maps show a boiler house, pump house, and laboratory located at the north central portion of the site and an oil loading area along the southern portion of the site along the railroad right of way (CDM 2005). Historical crude oil storage, the boiler house, pump house, and laboratory combined with likely used heavy fuel oil usage at the site are the likely sources of TPH-d and TPH-mo detected in the artificial fill material at the Site.

Chromatograms of the EPA method 8015m analyses from this investigation are included in Appendix G. The chromatographic pattern for TPH-mo in artificial fill material is similar to the pattern for TPH-mo detected at the former gasoline and diesel UST area. However, the two 10,000 gallon USTs at the former gasoline and diesel UST area reportedly did not store motor oil or other long chain hydrocarbon products. TPH-mo detections at the former gasoline and diesel UST area are most likely associated with historical crude oil storage activities at the Site and not with releases from the USTs.

For samples collected in the artificial fill, chromatographic patterns in the TPH-d range do not resemble the standard TPH-d pattern and are not similar to the pattern for TPH-d observed in samples collected from the former UST area. This suggests that TPH-d detections in samples collected from beyond the former UST area are more associated with past crude oil storage activities and likely not the former UST area.

4.4 Hexavalent Chromium and VOC Distribution in Upper Hollydale Aquifer Groundwater

This section presents a discussion of the vertical and horizontal distribution of hexavalent chromium and VOCs in groundwater collected during this field investigation.

4.4.1 Hexavalent Chromium in Groundwater

Hexavalent chromium has been consistently detected at elevated concentrations in wells MW-04 and MW-09 during quarterly monitoring events, and was also detected in the

samples collected from these wells during this investigation (on June 18, 2007). Lower concentrations of hexavalent chromium have been detected at various frequencies in other on-site wells, MW-04A, MW-14S, MW-16, MW-06B, MW-06D, and MW-07. In contrast, hexavalent chromium was not detected at concentrations above reporting limits in the new wells (MW-17S, MW-18S, MW-19S, and MW-20S) when they were sampled for the first time on July 3, 2007. This contrast is important because, if substantiated by subsequent sampling, the data may support a conclusion that hexavalent chromium concentrations are not as elevated in the upper Hollydale Aquifer as suggested by well MW-04 and MW-09 data.

After reviewing well construction information for the pre-1990 wells (MW-1 to MW-8), wells MW-17S and MW-18S were designed to monitor the Hollydale Aquifer directly below the base of the aquitard. Well MW-17S was strategically placed immediately adjacent to and downgradient of well MW-04. The screened intervals of these two wells, however, are significantly different. The interval within well MW-04 is thirty feet long, and extends approximately 10 to 15 feet into the aquitard. Well MW-17S was constructed with a ten-foot well screen and does not extend up into the aquitard. The screened interval of well MW-09 also extends as much as 10 feet into the unnamed aquitard. The other three new wells were constructed similarly to MW-17S. Since analytical results from this investigation have shown that much of the hexavalent chromium mass is stored within the unnamed aquitard sediments, it is possible that samples from wells MW-04 and MW-09 (and possibly others) are likely not representative of the Upper Hollydale Aquifer conditions. Further, it is our current opinion that wells MW-04 and MW-09 were constructed in a way that does not preclude migration of hexavalent chromium from the unnamed aquitard to the Hollydale Aquifer.

4.4.2 VOCs in Groundwater

Both halogenated and aromatic VOCs were detected in all four of the new wells. Individual VOCs were detected in the first round of samples at concentrations consistent with patterns found during quarterly monitoring of on-site wells. This tentatively positive correlation helps support the opinion that the new wells are screened in the appropriate intervals and accurately represent formation groundwater.

5.0 CONCLUSIONS

Based on the findings from this field investigation, it is our opinion that the data gaps established in the Expanded Alternative Corrective Action Work Plan (Iris Environmental 2006c) have been addressed adequately to support implementation of the next phases of the corrective action program. The following bullets summarize our conclusions from this investigation.

- The site stratigraphy is considered to be generally consistent with the structure outlined in the 2005 CDM Final Site Conceptual Model.
- The Gage Aquifer in the vicinity of the Site is not saturated.
- Based on the recent data and historical sampling data, it appears that the primary vertical zone of hexavalent chromium in soil is located in the vicinity of the suspected former chromic acid tank (MW-18S area). Elsewhere at the site, including the former Pond 1 area, hexavalent chromium detections are inconsistent and at lower relative concentrations. The pattern suggests that the former Pond 1 area is at most a secondary source, and the remainder of the deeper detections are reflective of unsaturated flow from the suspected former chromic acid tank downwards and then along the permeability boundary at the base of the Gage Aquifer.
- Wells MW-04 and MW-09 and possibly others were constructed in a way that may not preclude migration of hexavalent chromium from the unnamed aquitard to the Hollydale Aquifer.
- Elevated hexavalent chromium detections in groundwater at wells MW-4 and MW-9 may potentially be related to solute migration into the upper filter pack and well screens completed within the overlaying aquitard thereby producing unrepresentative values for the upper Hollydale Aquifer.
- Area wide detections of long-chain petroleum hydrocarbons, including the motor oil range (C23-C40) appear to be more related to past uses on the site, such as the Associated Oil Company crude oil tank farm than from more recent SCC or PTI operations.
- Chromatographic signatures of diesel range petroleum hydrocarbons can be differentiated between TPH in the diesel range (C13-C22) detected in the former UST area and the area wide hydrocarbon signature.
- The unnamed aquitard appears to bifurcate in the southwest direction into two continuous silt/clay units with an interbedded, intra aquitard sand lens.
- The Hollydale Aquifer appears to be continuous beneath the bifurcated, unnamed aquitard, and geophysical logging of Well MW-15D indicates that the well does not extend into the underlying Jefferson Aquifer.

6.0 REFERENCES

American Society for Testing and Materials (ASTM). 2002. *Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations.* February 10.

CDM (Camp Dresser & McKee Inc.). 2005. *Final Site Conceptual Model.* Phibro-Tech, Inc. Santa Fe Springs, California. March 9.

Iris Environmental. 2006a. *Revised Draft Water Quality Sampling and Analysis Plan.* August 18.

Iris Environmental. 2006b. *Revised Comprehensive Soil Vapor Survey Report and SVE Pilot Test Work Plan.* August 24.

Iris Environmental. 2006c. *Expanded Alternative Groundwater Corrective Action Work Plan.* November 6.

Iris Environmental. 2007a. *Groundwater Corrective Action Bench-Scale Treatability Study Work Plan.* March 23.

Iris Environmental. 2007b. *Draft April 2007 Quarterly Sampling Report.* July 17.

Iris Environmental. 2007c. *Addendum to Soil Vapor Extraction Pilot Test Work Plan.* Letter from Chris Alger, Iris Environmental to Kathy San Miguel, Department of Toxic Substances Control. May 18.

Robertson, P.K., and Campanella, R.G., 1983. *Interpretation of Cone Penetration Tests, Part I: Sand and Part II: Clay.* Canadian Geotechnical Journal. 20(4).

TABLES

TABLE 1: NEW MONITORING WELL CONSTRUCTION DETAILS
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Well Name	Completion Date	Total Depth (feet bgs)	Screen Interval (feet bgs)	Screen Length (feet)	TOS (feet bgs)	BOS (feet bgs)	Casing Diameter (inches)	Slot Size (inches)	Sand Type (Lonestar)	Latitude (Degrees)	Longitude (Degrees)	TOC Elevation (feet amsl)	TOR Elevation (feet amsl)
MW-17S	06/19/07	74.5	64-74	10	64.0	74.0	4	0.01	2/12	33.9597727	-118.0684001	151.74	152.22
MW-18S	06/14/07	67.5	57-67	10	57.0	67.0	4	0.02	2/12	33.9598774	-118.0680342	152.96	153.42
MW-19S	06/19/07	74.0	63.5-73.5	10	63.5	73.5	4	0.01	2/12	33.9598929	-118.0684426	153.30	153.79
MW-20S	06/15/07	68.5	58-68	10	58.0	68.0	4	0.01	2/12	33.9597192	-118.0682913	151.16	151.56
PZ-01	06/14/07	40.5	35-40	5	35.0	40.0	2	0.02	2/12	33.9597013	-118.0686182	152.01	152.45
PZ-02	06/12/07	29.5	24-29	5	24.0	29.0	2	0.02	2/12	33.9599710	-118.0681662	153.99	154.3
PZ-03	06/12/07	28.0	22.5-27.5	5	22.5	27.5	2	0.02	2/12	33.9597244	-118.0681272	151.92	152.17
SVE-01A	06/22/07	29.5	19-29	10	19.0	29.0	4	0.125	Pea Gravel	33.9598587	-118.0680520	152.86	153.21
SVE-01B	06/21/07	44.0	38.5-43.5	5	38.5	43.5	2	0.05	Medium Aquarium	33.9598389	-118.0680564	152.60	15303
SVE-02A	06/21/07	29.0	13.5-28.5	15	13.5	28.5	4	0.125	Pea Gravel	33.9599441	-118.0679815	153.25	153.83
SVE-02B	06/21/07	45.0	39.5-44.5	5	39.5	44.5	2	0.05	Medium Aquarium	33.9599461	-118.0680020	153.26	153.77
SVE-03A	06/23/07	27.5	12-27	15	12.0	27.0	4	0.125	Pea Gravel	33.9597460	-118.0677896	152.56	152.95
SVE-03B	06/23/07	45.5	40-45	5	40.0	45.0	2	0.05	Medium Aquarium	--	--	--	--
SMP-01A	06/22/07	29.0	24-29	5	24.0	29.0	1	0.05	Medium Aquarium	33.9600575	-118.0681824	--	--
SMP-01B	06/22/07	43.0	37.5-42.5	5	37.5	42.5	1	0.05	Medium Aquarium				
SMP-02A	06/21/07	25.0	19.5-24.5	5	19.5	24.5	1	0.05	Medium Aquarium	33.9599738	-118.0679634	--	--
SMP-02B	06/21/07	42.0	36.5-41.5	5	36.5	41.5	1	0.05	Medium Aquarium				
SMP-03A	06/22/07	25.5	20-25	5	20.0	25.0	1	0.05	Medium Aquarium	33.9599767	-118.0680392	--	--
SMP-03B	06/22/07	44.5	39-44	5	39.0	44.0	1	0.05	Medium Aquarium				
SMP-04A	06/20/07	25.5	20-25	5	20.0	25.0	1	0.05	Medium Aquarium	33.9597987	-118.0680779	--	--
SMP-04B	06/20/07	45.5	40-45	5	40.0	45.0	1	0.05	Medium Aquarium				
SMP-05A	06/22/07	29.0	23.5-28.5	5	23.5	28.5	1	0.05	Medium Aquarium	33.9599542	-118.0677593	--	--
SMP-05B	06/22/07	42.5	37-42	5	37.0	42.0	1	0.05	Medium Aquarium				
SMP-06	06/23/07	23.5	18-23	5	18.0	23.0	1	0.05	Medium Aquarium	33.9596845	-118.0678250	--	--
SMP-07A	06/23/07	27.5	22-27	5	22.0	27.0	1	0.05	Medium Aquarium				
SMP-07B	06/23/07	43.0	37.5-42.5	5	37.5	42.5	1	0.05	Medium Aquarium	33.9596678	-118.0677638	--	--
SMP-08A	06/23/07	27.5	22-27	5	22.0	27.0	1	0.05	Medium Aquarium				
SMP-08B	06/23/07	43.0	37.5-42.5	5	42.5	37.5	1	0.05	Medium Aquarium	33.9596575	-118.0678317	--	--

Notes:
amsl = Above mean sea level
bgs = Below ground surface
TOR = Top of Rim (Traffic Box Rim)
TOS = Top of screen
BOS = Bottom of screen

TABLE 2: SUMMARY of SOIL SAMPLES and ANALYSES
June 2007 Data Gap Investigation
Phibro-Tech, Inc.
Santa Fe Springs, California

				Chemical Testing							Physical Properties					
Sample Location	Depths	Sample ID	Date	VOCs	Metals	TPHg	BTEX	TPHd /mo	PCBs	TOC	pH	Grain Size	TOC -WB	Vapor Transport	Hydraulic Conductivity	Treatability Study
MW-17S	2.0	PTI-MW17-S-2.0	6/19/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	7.5	PTI-MW17-S-7.5	6/19/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	21.0	PTI-MW17-S-21.0	6/19/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	25.0	PTI-MW17-S-25.0	6/19/07	--	--	--	--	--	--	--	X	--	--	X	--	--
	30.0	PTI-MW17-S-30.0	6/19/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	42.5	PTI-MW17-S-42.5	6/19/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	46.0	PTI-MW17-S-46.0	6/19/07	--	--	--	--	--	--	--	X	--	--	X	--	--
	53.5	PTI-MW17-S-53.5	6/19/07	X	X	--	--	--	--	X	--	--	--	--	--	--
MW-18S	2.5	PTI-MW18-S-2.5	6/13/07	X	X	X	X	X	--	--	--	--	--	--	--	--
	10.0	PTI-MW18-S-10.0	6/13/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	20.0	PTI-MW18-S-20.0	6/13/07	--	--	--	--	--	--	--	--	--	--	--	--	X
	21.5	PTI-MW18-S-21.5	6/13/07	--	--	--	--	--	--	--	X	X	--	X	--	--
	23.5	PTI-MW18-S-23.5	6/13/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	24.0	PTI-MW18-S-24.0	6/13/07	--	--	--	--	--	--	--	--	--	--	--	--	X (1)
	30.0	PTI-MW18-S-30.0	6/13/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	32.0	PTI-MW18-S-32.0	6/13/07	--	--	--	--	--	--	--	--	--	--	--	--	X
	33.5	PTI-MW18-S-33.5	6/13/07	--	--	--	--	--	--	--	X	X	--	X	--	--
	34.0	PTI-MW18-S-34.0	6/13/07	--	--	--	--	--	--	--	--	--	--	--	--	X (1)
	43.0	PTI-MW18-S-43.0	6/13/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	46.0	PTI-MW18-S-46.0	6/13/07	--	--	--	--	--	--	--	--	--	--	--	--	X
	47.5	PTI-MW18-S-47.5	6/13/07	--	--	--	--	--	--	--	X	X	--	X	--	--
	49.0	PTI-MW18-S-49.0	6/13/07	--	--	--	--	--	--	--	--	--	--	--	--	X (1)
	55.0	PTI-MW18-S-55.0	6/14/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	58.5	PTI-MW18-S-58.5	6/14/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	59.0	PTI-MW18-S-59.0	6/14/07	--	--	--	--	--	--	--	X	X	X	--	X	
	65.0	PTI-MW18-S-65.0	6/14/07	--	--	--	--	--	--	--	--	--	--	--	--	X (1)
	66.0	PTI-MW18-S-67.0	6/14/07	--	--	--	--	--	--	--	--	--	--	--	--	X
MW-19S	3.0	PTI-MW19-S-3.0	6/18/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	8.0	PTI-MW19-S-8.0	6/18/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	24.5	PTI-MW19-S-24.5	6/18/07	X	X	--	--	--	--	X	X (1)	--	--	X (1)	--	--
	32.5	PTI-MW19-S-32.5	6/18/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	36.0	PTI-MW19-S-36.0	6/18/07	--	--	--	--	--	--	--	X	--	--	X	--	--
	45.0	PTI-MW19-S-45.0	6/18/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	60.5	PTI-MW19-S-60.5	6/18/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	66.0	PTI-MW19-S-66.0	6/18/07	--	--	--	--	--	--	--	X	X	--	--	X	--
	71.0	PTI-MW19-S-71.0	6/18/07	X	X	--	--	--	--	X	--	--	--	--	--	--

TABLE 2: SUMMARY of SOIL SAMPLES and ANALYSES
June 2007 Data Gap Investigation
Phibro-Tech, Inc.
Santa Fe Springs, California

				Chemical Testing							Physical Properties					
Sample Location	Depths	Sample ID	Date	VOCs	Metals	TPHg	BTEX	TPHd /mo	PCBs	TOC	pH	Grain Size	TOC -WB	Vapor Transport	Hydraulic Conductivity	Treatability Study
MW-20S	1.5	PTI-MW20-S-1.5	6/15/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	11.0	PTI-MW20-S-11.0	6/15/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	23.0	PTI-MW20-S-23.0	6/15/07	X	X	--	--	--	--	X	X (1)	--	--	X (1)	--	--
	30.0	PTI-MW20-S-30.0	6/15/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	39.0	PTI-MW20-S-39.0	6/15/07	--	--	--	--	--	--	--	X (1)	--	--	X (1)	--	--
	43.0	PTI-MW20-S-43.0	6/15/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	50.0	PTI-MW20-S-50.0	6/15/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	58.0	PTI-MW20-S-58.0	6/15/07	X	X	--	--	--	--	X	X (1)	X (1)	--	--	X (1)	--
PZ-01	3.0	PTI-PZ01-S-3.0	6/14/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	12.5	PTI-PZ01-S-12.5	6/14/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	22.5	PTI-PZ01-S-22.5	6/14/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	41.0	PTI-PZ01-S-41.0	6/14/07	X	X	--	--	--	--	X	--	--	--	--	--	--
PZ-02	3.5	PTI-PZ02-S-3.5	6/12/07	X	X	X	X	X	--	--	--	--	--	--	--	--
	7.5	PTI-PZ02-S-7.5	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	20.0	PTI-PZ02-S-20.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	30.0	PTI-PZ02-S-30.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
PZ-03	4.0	PTI-PZ03-S-4.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	9.0	PTI-PZ03-S-9.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	15.0	PTI-PZ03-S-15.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	24.0	PTI-PZ03-S-24.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
	29.0	PTI-PZ03-S-29.0	6/12/07	X	X	--	--	--	--	--	--	--	--	--	--	--
SVE-01B	14.0	PTI-SVE01B-S-14.0	6/21/07	X	X	--	--	--	X	X	--	--	--	--	--	--
	20.5	PTI-SVE01B-S-20.5	6/21/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	26.0	PTI-SVE01B-S-26.0	6/21/07	--	--	--	--	--	--	--	X (1)	--	--	X (1)	--	--
	30.0	PTI-SVE01B-S-30.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	44.0	PTI-SVE01B-S-44.0	6/21/07	--	--	--	--	--	--	--	X (1)	--	--	X (1)	--	--
SVE-02B	4.0	PTI-SVE02B-S-4.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	10.0	PTI-SVE02B-S-10.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	30.0	PTI-SVE02B-S-30.0	6/21/07	X	X	--	--	--	--	X	X (1)	--	--	X (1)	--	--
	43.0	PTI-SVE02B-S-43.0	6/21/07	X	X	--	--	--	--	X	X (1)	--	--	X (1)	--	--
SVE-03B	12.0	PTI-SVE03B-S-12.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	21.0	PTI-SVE03B-S-21.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	27.0	PTI-SVE03B-S-27.0	6/23/07	--	--	--	--	--	--	--	X (1)	--	--	X (1)	--	--
	35.0	PTI-SVE03B-S-35.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	43	PTI-SVE03B-S-43.0	6/23/07	--	--	--	--	--	--	--	X (1)	--	--	X (1)	--	--
	45.0	PTI-SVE03B-S-45.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
SMP-01B	11.0	PTI-SMP01B-S-11.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--

TABLE 2: SUMMARY of SOIL SAMPLES and ANALYSES
June 2007 Data Gap Investigation
Phibro-Tech, Inc.
Santa Fe Springs, California

				Chemical Testing							Physical Properties					
Sample Location	Depths	Sample ID	Date	VOCs	Metals	TPHg	BTEX	TPHd /mo	PCBs	TOC	pH	Grain Size	TOC -WB	Vapor Transport	Hydraulic Conductivity	Treatability Study
	16.5	PTI-SMP01B-S-16.5	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	30.0	PTI-SMP01B-S-30.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	43.0	PTI-SMP01B-S-43.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
SMP-02B	2.0	PTI-SMP02B-S-2.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	12.0	PTI-SMP02B-S-12.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	26.0	PTI-SMP02B-S-26.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
	42.0	PTI-SMP02B-S-42.0	6/21/07	X	X	--	--	--	--	X	--	--	--	--	--	--
SMP-03B	14.0	PTI-SMP03B-S-14.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	24.0	PTI-SMP03B-S-24.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	43.0	PTI-SMP03B-S-43.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
SMP-04B	1.5	PTI-SMP04B-S-1.5	6/20/07	X	X	X	X	X	X	X	--	--	--	--	--	--
	5.5	PTI-SMP04B-S-5.5	6/20/07	X	X	X	X	X	X	X	--	--	--	--	--	--
	9.5	PTI-SMP04B-S-9.5	6/20/07	X	X	X	X	X	--	X	--	--	--	--	--	--
	22.0	PTI-SMP04B-S-22.0	6/20/07	X	X	X	X	X	--	X	--	--	--	--	--	--
	24.0	PTI-SMP04B-S-24.0	6/20/07	--	--	--	--	--	--	--	X (1)	--	--	X (1)	--	--
	32.0	PTI-SMP04B-S-32.0	6/20/07	X	X	X	X	X	--	X	--	--	--	--	--	--
	42.5	PTI-SMP04B-S-42.5	6/20/07	X	X	X	X	X	--	X	X (1)	--	--	X (1)	--	--
SMP-05B	10.5	PTI-SMP05B-S-10.5	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	29.0	PTI-SMP05B-S-29.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	43.0	PTI-SMP05B-S-43.0	6/22/07	X	X	X	--	X	--	X	--	--	--	--	--	--
SMP-06B	10.0	PTI-SMP06B-S-10.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	23.0	PTI-SMP06B-S-23.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	32.0	PTI-SMP06B-S-32.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
SMP-07B	9.5	PTI-SMP07B-S-9.5	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	32.0	PTI-SMP07B-S-32.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	34.0	PTI-SMP07B-S-34.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	43.0	PTI-SMP07B-S-43.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
SMP-08B	13.0	PTI-SMP08B-S-13.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	26.0	PTI-SMP08B-S-26.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--
	41.0	PTI-SMP08B-S-41.0	6/23/07	X	X	X	--	X	--	X	--	--	--	--	--	--

TABLE 2: SUMMARY of SOIL SAMPLES and ANALYSES
June 2007 Data Gap Investigation
Phibro-Tech, Inc.
Santa Fe Springs, California

				Chemical Testing							Physical Properties					
Sample Location	Depths	Sample ID	Date	VOCs	Metals	TPHg	BTEX	TPHd /mo	PCBs	TOC	pH	Grain Size	TOC -WB	Vapor Transport	Hydraulic Conductivity	Treatability Study

Notes:
-- = Sample not analyzed for these constituents
"VOCs" indicates volatile compounds in soil by USEPA method 8260, using USEPA preparation method 5035.
"Metals" indicates CAM 17 Metals by USEPA method 6010, plus Chromium VI by USEPA method 7196.
"TPHd" indicates total petroleum hydrocarbons in the diesel range by USEPA method 8015B.
"TPHg" indicates total petroleum hydrocarbons in the gasoline range by USEPA method 8015B, using USEPA preparation method 5035.
"TPHd/mo" indicates total petroleum hydrocarbons in the diesel and motor oil ranges by USEPA method 8115B.
"BTEX" indicates benzene, toluene, ethylbenzene, and xylenes by USEPA method 8260, using USEPA preparation method 5035.
"PCBs" indicates polychlorinated biphenyls by USEPA method 8082.
"TOC" indicates total organic carbon by USEPA method 415.2.
"pH" indicates pH by USEPA Method 9045.
"Grain Size" indicates grain size distribution by ASTM D422/4464M.
"TOC -WB" indicates total organic carbon by the Walkley Black method.
"Vapor Transport" indicates the Vapor Transport Package.
"Hydraulic Conductivity" indicates the Hydraulic Conductivity Package.
"Treatability Study" indicates samples were subjected to the treatability study per the workplan.
(1) Bulk sample.

TABLE 3: SUMMARY of GROUNDWATER SAMPLES and ANALYSES
June 2007 Data Gap Investigation
Phibro-Tech, Inc.
Santa Fe Springs, California

Sample Location	Date	Cr IV	CAM 17 Metals	VOCs	Treatability Study
MW-04	6/13/07	X			X
MW-09	6/13/07	X			X
MW-17	7/3/07	X	X	X	
MW-18	7/3/07	X	X	X	
MW-19	7/3/07	X	X	X	
MW-20	7/3/07	X	X	X	

Notes:
-- = Sample not analyzed for these constituents
"VOCs" indicates samples analyzed for volatile organic compounds by EPA Method 8260B.
"Cr IV" indicates chromium IV by USEPA method 7196.
"Treatability Study" indicates samples were subjected to the treatability study per the workplan.

"CAM 17 Metals" indicates samples analyzed for California Administrative Manuals (CAM) 17 metals by USEPA Method 6010 and 7470A: antimony, arsenic barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-17S**	**MW-17S**	**MW-17S**	**MW-17S**	**MW-17S**
Sample Depth	**2.0**	**7.5**	**21.0**	**30.0**	**42.5**
Sample Date	**6/19/2007**	**6/19/2007**	**6/19/2007**	**6/19/2007**	**6/19/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
1,1,1-Trichloroethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,1,2,2-Tetrachloroethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,1,2-Trichloroethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,1-Dichloroethane	**240**	**13**	< 1.8	**5.1**	**33**
1,1-Dichloroethene	< 220	< 5.0	< 4.6	< 4.7	**4.5**
1,1-Dichloropropene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,2,3-Trichlorobenzene	**220**	< 5.0	< 4.6	< 4.7	< 4.1
1,2,3-Trichloropropane	< 430	< 10	< 9.2	< 9.4	< 8.2
1,2,4-Trichlorobenzene	**1,500**	< 5.0	< 4.6	< 4.7	< 4.1
1,2,4-Trimethylbenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,2-Dibromo-3-chloropropane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
1,2-Dibromoethane (EDB)	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,2-Dichlorobenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,2-Dichloroethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,2-Dichloropropane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,3,5-Trimethylbenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,3-Dichlorobenzene	**130**	< 2.0	< 1.8	< 1.9	< 1.6
1,3-Dichloropropane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
1,4-Dichlorobenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
2,2-Dichloropropane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
2-Chlorotoluene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
4-Chlorotoluene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Benzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Bromobenzene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Bromochloromethane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Bromodichloromethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Bromoform	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Bromomethane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Carbon tetrachloride	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Chlorobenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Chloroethane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Chloroform	< 87	< 2.0	< 1.8	< 1.9	**4.4**
Chloromethane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
cis-1,2-Dichloroethene	**180**	< 2.0	< 1.8	< 1.9	**6.1**
cis-1,3-Dichloropropene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Dibromochloromethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Dibromomethane	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Dichlorodifluoromethane	< 170	< 5.0	< 4.6	< 4.7	< 4.1
Ethylbenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Hexachlorobutadiene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Isopropylbenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
m,p-Xylenes	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Methylene chloride	< 870	< 20	< 18	< 19	**20**
Naphthalene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
n-Butylbenzene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
n-Propylbenzene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
o-Xylene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
p-Isopropyltoluene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
sec-Butylbenzene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Styrene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
tert-Butylbenzene	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Tetrachloroethene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Toluene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
trans-1,2-Dichloroethene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
trans-1,3-Dichloropropene	< 87	< 2.0	< 1.8	< 1.9	< 1.6
Trichloroethene	**680**	**4.2**	< 1.8	< 1.9	**25**
Trichlorofluoromethane	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Vinyl chloride	< 220	< 5.0	< 4.6	< 4.7	< 4.1
Total VOCs	**2,950**	**17.2**	ND	**5.1**	**93**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-17S**	**MW-18S**	**MW-18S**	**MW-18S**	**MW-18S**
Sample Depth	**53.5**	**2.5**	**10.0**	**23.5**	**30.0**
Sample Date	**6/19/2007**	**6/13/2007**	**6/13/2007**	**6/13/2007**	**6/13/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
1,1,1-Trichloroethane	< 1.7	**5,800**	**120**	< 2.0	**12**
1,1,2,2-Tetrachloroethane	< 1.7	< 98	< 1.6	< 2.0	**8.2**
1,1,2-Trichloroethane	< 1.7	< 98	< 1.6	< 2.0	**6.4**
1,1-Dichloroethane	**52**	**2,800**	**300**	< 2.0	**110**
1,1-Dichloroethene	**8.9**	**1,000**	**150**	< 5.0	**9**
1,1-Dichloropropene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,2,3-Trichlorobenzene	< 4.2	< 240	< 3.9	< 5.0	< 4.4[C]
1,2,3-Trichloropropane	< 8.3	< 490	< 7.9	< 10	< 8.9
1,2,4-Trichlorobenzene	< 4.2	< 240	< 3.9	< 5.0	< 4.4
1,2,4-Trimethylbenzene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,2-Dibromo-3-chloropropane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
1,2-Dibromoethane (EDB)	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,2-Dichlorobenzene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,2-Dichloroethane	< 1.7	< 98	< 1.6	< 2.0	**2.8**
1,2-Dichloropropane	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,3,5-Trimethylbenzene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,3-Dichlorobenzene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,3-Dichloropropane	< 1.7	< 98	< 1.6	< 2.0	< 1.8
1,4-Dichlorobenzene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
2,2-Dichloropropane	< 1.7	< 98	< 1.6	< 2.0	< 1.8
2-Chlorotoluene	< 4.2	< 240	**4.6**	< 5.0	< 4.4
4-Chlorotoluene	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Benzene	< 1.7	< 98	**2.3**	< 2.0	< 1.8
Bromobenzene	< 4.2	< 240	< 3.9	< 5.0	< 4.4[C]
Bromochloromethane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Bromodichloromethane	< 1.7	< 98	< 1.6	< 2.0	< 1.8
Bromoform	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Bromomethane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Carbon tetrachloride	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Chlorobenzene	< 1.7	< 98	**12**	< 2.0	< 1.8
Chloroethane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Chloroform	**8.4**	**540**	**40**	< 2.0	**31**
Chloromethane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
cis-1,2-Dichloroethene	**11**	< 98	**22**	< 2.0	**15**
cis-1,3-Dichloropropene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
Dibromochloromethane	< 1.7	< 98	< 1.6	< 2.0	< 1.8
Dibromomethane	< 1.7	< 98	< 1.6	< 2.0	< 1.8
Dichlorodifluoromethane	< 4.2	< 200	< 3.9	< 5.0	< 4.4
Ethylbenzene	< 1.7	< 98	**8.1**	< 2.0	< 1.8
Hexachlorobutadiene	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Isopropylbenzene	< 1.7	< 98	**4.5**	< 2.0	< 1.8
m,p-Xylenes	< 1.7	< 98	**31**	< 2.0	< 1.8
Methylene chloride	**48**	< 980	**35**	< 20	**30**
Naphthalene	< 4.2	< 240	< 3.9	< 5.0	< 4.4
n-Butylbenzene	< 4.2	< 240	< 3.9	< 5.0	< 4.4
n-Propylbenzene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
o-Xylene	< 1.7	< 98	**17**	< 2.0	< 1.8
p-Isopropyltoluene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
sec-Butylbenzene	< 4.2	< 240	**20**	< 5.0	< 4.4
Styrene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
tert-Butylbenzene	< 4.2	< 240	< 3.9	**19**	< 4.4
Tetrachloroethene	< 1.7	**1,300**	**230**	< 2.0	**2.7**
Toluene	< 1.7	< 98	**6.1**	< 2.0	< 1.8
trans-1,2-Dichloroethene	< 1.7	< 98	**4.8**	< 2.0	**2**
trans-1,3-Dichloropropene	< 1.7	< 98	< 1.6	< 2.0	< 1.8
Trichloroethene	**48**	**12,000**	**7,100**	< 2.0	**93**
Trichlorofluoromethane	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Vinyl chloride	< 4.2	< 240	< 3.9	< 5.0	< 4.4
Total VOCs	**176.3**	**23,440**	**8,107.4**	**19**	**322.1**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-18S**	**MW-18S**	**MW-18S**	**MW-19S**	**MW-19S**	**MW-19S**
Sample Depth	**43.0**	**55.0**	**58.5**	**3.0**	**8.0**	**24.5**
Sample Date	**6/13/2007**	**6/14/2007**	**6/14/2007**	**6/18/2007**	**6/18/2007**	**6/18/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
1,1,1-Trichloroethane	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,1,2,2-Tetrachloroethane	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,1,2-Trichloroethane	**5.4**	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,1-Dichloroethane	**120**	**110**	**3.3**	**49**	**2.7**	< 2.2
1,1-Dichloroethene	**8.6**	**14**	< 5.0	**10**	< 4.6	< 5.5
1,1-Dichloropropene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,2,3-Trichlorobenzene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
1,2,3-Trichloropropane	< 8.1	< 8.7	< 10	< 10	< 9.3	< 11
1,2,4-Trichlorobenzene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
1,2,4-Trimethylbenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,2-Dibromo-3-chloropropane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
1,2-Dibromoethane (EDB)	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,2-Dichlorobenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,2-Dichloroethane	**9.9**	**12**	**35**	< 2.0	< 1.9	< 2.2
1,2-Dichloropropane	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,3,5-Trimethylbenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,3-Dichlorobenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,3-Dichloropropane	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
1,4-Dichlorobenzene	< 1.6	< 1.7	< 2.0	2.7 I	< 1.9	< 2.2
2,2-Dichloropropane	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
2-Chlorotoluene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
4-Chlorotoluene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Benzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Bromobenzene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Bromochloromethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Bromodichloromethane	**4.6**	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Bromoform	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Bromomethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Carbon tetrachloride	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Chlorobenzene	< 1.6	< 1.7	< 2.0	**2.8**	< 1.9	< 2.2
Chloroethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Chloroform	< 110	**30**	< 2.0	< 2.0	< 1.9	< 2.2
Chloromethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
cis-1,2-Dichloroethene	**4.2**	**1.9**	< 2.0	**5**	< 1.9	< 2.2
cis-1,3-Dichloropropene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Dibromochloromethane	**1.7**	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Dibromomethane	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Dichlorodifluoromethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Ethylbenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Hexachlorobutadiene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Isopropylbenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
m,p-Xylenes	< 1.6	< 1.7	< 2.0	**2.4**	< 1.9	< 2.2
Methylene chloride	< 1100	**210**	< 20	< 20	< 19	< 22
Naphthalene	< 4.0	< 4.3	< 5.0	8 I	< 4.6	< 5.5
n-Butylbenzene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
n-Propylbenzene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
o-Xylene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
p-Isopropyltoluene	< 1.6	< 1.7	< 2.0	13 I	< 1.9	< 2.2
sec-Butylbenzene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Styrene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
tert-Butylbenzene	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Tetrachloroethene	< 1.6	< 1.7	< 2.0	**13**	< 1.9	< 2.2
Toluene	< 1.6	< 1.7	< 2.0	**2.2**	< 1.9	< 2.2
trans-1,2-Dichloroethene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
trans-1,3-Dichloropropene	< 1.6	< 1.7	< 2.0	< 2.0	< 1.9	< 2.2
Trichloroethene	**82**	**75**	**4.1**	**130**	< 1.9	< 2.2
Trichlorofluoromethane	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Vinyl chloride	< 4.0	< 4.3	< 5.0	< 5.0	< 4.6	< 5.5
Total VOCs	**236.4**	**452.9**	**42.4**	**214.4**	**2.7**	ND

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-19S**	**MW-19S**	**MW-19S**	**MW-19S**	**MW-20S**	**MW-20S**	**MW-20S**
Sample Depth	**32.5**	**45.0**	**60.5**	**71.0**	**1.5**	**11.0**	**23.0**
Sample Date	**6/18/2007**	**6/18/2007**	**6/18/2007**	**6/18/2007**	**6/15/2007**	**6/15/2007**	**6/15/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
1,1,1-Trichloroethane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,1,2,2-Tetrachloroethane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,1,2-Trichloroethane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,1-Dichloroethane	**37**	**13**	**14**	< 1.5	**3.2** [I]	**22**	< 2.1
1,1-Dichloroethene	< 4.5	< 4.0	< 4.3	< 3.8	**86** [I]	< 4.3	< 5.3
1,1-Dichloropropene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,2,3-Trichlorobenzene	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
1,2,3-Trichloropropane	< 9.1	< 8.0	< 8.6	< 7.6	< 9.1	< 8.7	< 11
1,2,4-Trichlorobenzene	< 4.5	< 4.0	< 4.3	< 3.8	**180** [I]	< 4.3	< 5.3
1,2,4-Trimethylbenzene	< 1.8	< 1.6	< 1.7	< 1.5	**41** [I]	< 1.7	< 2.1
1,2-Dibromo-3-chloropropane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
1,2-Dibromoethane (EDB)	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,2-Dichlorobenzene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,2-Dichloroethane	< 1.8	< 1.6	**7.6**	< 1.5	< 1.8	< 1.7	< 2.1
1,2-Dichloropropane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,3,5-Trimethylbenzene	< 1.8	< 1.6	< 1.7	< 1.5	**11** [I]	< 1.7	< 2.1
1,3-Dichlorobenzene	< 1.8	< 1.6	< 1.7	< 1.5	**62** [I]	< 1.7	< 2.1
1,3-Dichloropropane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
1,4-Dichlorobenzene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
2,2-Dichloropropane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
2-Chlorotoluene	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
4-Chlorotoluene	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Benzene	< 1.8	< 1.6	< 1.7	< 1.5	**68** [I]	< 1.7	< 2.1
Bromobenzene	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Bromochloromethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Bromodichloromethane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Bromoform	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Bromomethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Carbon tetrachloride	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Chlorobenzene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Chloroethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Chloroform	**2.9**	**4.1**	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Chloromethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
cis-1,2-Dichloroethene	**2.6**	< 1.6	< 1.7	< 1.5	**200** [I]	**5.9**	< 2.1
cis-1,3-Dichloropropene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Dibromochloromethane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Dibromomethane	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Dichlorodifluoromethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Ethylbenzene	< 1.8	< 1.6	< 1.7	**27**	**33** [I]	< 1.7	< 2.1
Hexachlorobutadiene	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Isopropylbenzene	< 1.8	< 1.6	< 1.7	< 1.5	**8.7** [I]	< 1.7	< 2.1
m,p-Xylenes	< 1.8	< 1.6	< 1.7	< 1.5	**130** [I]	< 1.7	< 2.1
Methylene chloride	< 18	< 16	< 17	< 15	< 18	< 17	< 21
Naphthalene	< 4.5	< 4.0	< 4.3	< 3.8	**29** [I]	< 4.3	< 5.3
n-Butylbenzene	< 4.5	< 4.0	< 4.3	< 3.8	**11** [I]	< 4.3	< 5.3
n-Propylbenzene	< 1.8	< 1.6	< 1.7	< 1.5	**11** [I]	< 1.7	< 2.1
o-Xylene	< 1.8	< 1.6	< 1.7	< 1.5	**35** [I]	< 1.7	< 2.1
p-Isopropyltoluene	< 1.8	< 1.6	< 1.7	< 1.5	**14** [I]	< 1.7	< 2.1
sec-Butylbenzene	< 4.5	< 4.0	< 4.3	< 3.8	**10** [I]	< 4.3	< 5.3
Styrene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
tert-Butylbenzene	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Tetrachloroethene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Toluene	< 1.8	< 1.6	< 1.7	< 1.5	**120** [I]	< 1.7	< 2.1
trans-1,2-Dichloroethene	< 1.8	< 1.6	< 1.7	< 1.5	19 I	< 1.7	< 2.1
trans-1,3-Dichloropropene	< 1.8	< 1.6	< 1.7	< 1.5	< 1.8	< 1.7	< 2.1
Trichloroethene	**25**	**19**	**21**	< 1.5	**57** [I]	**11**	< 2.1
Trichlorofluoromethane	< 4.5	< 4.0	< 4.3	< 3.8	< 4.5	< 4.3	< 5.3
Vinyl chloride	< 4.5	< 4.0	< 4.3	< 3.8	**5** [I]	< 4.3	< 5.3
Total VOCs	**67.5**	**36.1**	**42.6**	**27**	**1,133.9**	**38.9**	ND

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-20S**	**MW-20S**	**MW-20S**	**MW-20S**	**PZ-01**	**PZ-01**	**PZ-01**
Sample Depth	**30.0**	**43.0**	**50.0**	**58.0**	**3.0**	**12.5**	**22.5**
Sample Date	**6/15/2007**	**6/15/2007**	**6/15/2007**	**6/15/2007**	**6/14/2007**	**6/14/2007**	**6/14/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
1,1,1-Trichloroethane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,1,2,2-Tetrachloroethane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,1,2-Trichloroethane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,1-Dichloroethane	**50**	**86**	**140**	**2**	< 930	**7.2**	< 1.7
1,1-Dichloroethene	**4.8**	**12**	**27**	< 4.6	< 2,300	< 4.2	< 4.3
1,1-Dichloropropene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,2,3-Trichlorobenzene	< 4.8	< 3.7	< 4.2	< 4.6	**18,000**	< 4.2	< 4.3
1,2,3-Trichloropropane	< 9.5	< 7.5	< 8.3	< 9.3	< 4,600	< 8.4	< 8.6
1,2,4-Trichlorobenzene	< 4.8	< 3.7	< 4.2	< 4.6	**130,000**	< 4.2	< 4.3
1,2,4-Trimethylbenzene	< 1.9	< 1.5	< 1.7	< 1.9	**1,600**	< 1.7	< 1.7
1,2-Dibromo-3-chloropropane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
1,2-Dibromoethane (EDB)	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,2-Dichlorobenzene	< 1.9	< 1.5	< 1.7	< 1.9	**1,600**	< 1.7	< 1.7
1,2-Dichloroethane	< 1.9	< 1.5	< 1.7	**17**	< 930	< 1.7	< 1.7
1,2-Dichloropropane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,3,5-Trimethylbenzene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,3-Dichlorobenzene	< 1.9	< 1.5	< 1.7	< 1.9	**20,000**	< 1.7	< 1.7
1,3-Dichloropropane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
1,4-Dichlorobenzene	< 1.9	< 1.5	< 1.7	< 1.9	**7,200**	< 1.7	< 1.7
2,2-Dichloropropane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
2-Chlorotoluene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
4-Chlorotoluene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Benzene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Bromobenzene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Bromochloromethane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Bromodichloromethane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Bromoform	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Bromomethane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Carbon tetrachloride	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Chlorobenzene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Chloroethane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Chloroform	**2.1**	**13**	**27**	< 1.9	< 930	< 1.7	< 1.7
Chloromethane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
cis-1,2-Dichloroethene	**8.9**	**18**	**39**	< 1.9	< 930	< 1.7	< 1.7
cis-1,3-Dichloropropene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Dibromochloromethane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Dibromomethane	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Dichlorodifluoromethane	< 4.8	< 3.7	< 4.2	< 4.6	< 1,900	< 4.2	< 4.3
Ethylbenzene	< 1.9	< 1.5	< 1.7	**2.9**	< 930	< 1.7	< 1.7
Hexachlorobutadiene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Isopropylbenzene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
m,p-Xylenes	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Methylene chloride	< 19	< 15	**60**	< 19	< 9,300	< 17	< 17
Naphthalene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
n-Butylbenzene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
n-Propylbenzene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
o-Xylene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
p-Isopropyltoluene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
sec-Butylbenzene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Styrene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
tert-Butylbenzene	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Tetrachloroethene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Toluene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
trans-1,2-Dichloroethene	**2.6**	**3.6**	**7.8**	< 1.9	< 930	< 1.7	< 1.7
trans-1,3-Dichloropropene	< 1.9	< 1.5	< 1.7	< 1.9	< 930	< 1.7	< 1.7
Trichloroethene	**20**	**51**	**98**	**3.3**	< 930	**6.8**	< 1.7
Trichlorofluoromethane	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
Vinyl chloride	< 4.8	< 3.7	< 4.2	< 4.6	< 2,300	< 4.2	< 4.3
	88.4	**183.6**	**398.8**	**25.2**	**178,400**	**14**	ND

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**PZ-01**	**PZ-02**	**PZ-02**	**PZ-02**	**PZ-02**	**PZ-03**	**PZ-03**
Sample Depth	**41.0**	**3.5**	**7.5**	**20.0**	**30.0**	**4.0**	**9.0**
Sample Date	**6/14/2007**	**6/12/2007**	**6/12/2007**	**6/12/2007**	**6/12/2007**	**6/12/2007**	**6/12/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
1,1,1-Trichloroethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,1,2,2-Tetrachloroethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,1,2-Trichloroethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,1-Dichloroethane	**10**	**300**	**7.5**	< 1.9	**17**	**37**	**74**
1,1-Dichloroethene	< 4.2	**510**	< 4.9	< 4.8	< 4.3	**12**	**12**
1,1-Dichloropropene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,2,3-Trichlorobenzene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
1,2,3-Trichloropropane	< 8.4	< 550	< 9.9	< 9.6	< 8.7	< 7.7	< 8.1
1,2,4-Trichlorobenzene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
1,2,4-Trimethylbenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,2-Dibromo-3-chloropropane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
1,2-Dibromoethane (EDB)	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,2-Dichlorobenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,2-Dichloroethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,2-Dichloropropane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,3,5-Trimethylbenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,3-Dichlorobenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,3-Dichloropropane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
1,4-Dichlorobenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
2,2-Dichloropropane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
2-Chlorotoluene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
4-Chlorotoluene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Benzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	**1.9**
Bromobenzene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Bromochloromethane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Bromodichloromethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Bromoform	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Bromomethane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Carbon tetrachloride	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Chlorobenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Chloroethane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Chloroform	**4.3**	< 110	< 2.0	< 1.9	**3.1**	< 1.5	< 1.6
Chloromethane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
cis-1,2-Dichloroethene	< 1.7	**5,500**	**35**	< 1.9	**6.5**	**62**	**31**
cis-1,3-Dichloropropene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Dibromochloromethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Dibromomethane	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Dichlorodifluoromethane	< 4.2	< 220	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Ethylbenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Hexachlorobutadiene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Isopropylbenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
m,p-Xylenes	< 1.7	< 110	< 2.0	< 1.9	< 1.7	**2.1**	< 1.6
Methylene chloride	< 17	< 1100	< 20	< 19	< 17	< 15	< 16
Naphthalene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
n-Butylbenzene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
n-Propylbenzene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
o-Xylene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
p-Isopropyltoluene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
sec-Butylbenzene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Styrene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
tert-Butylbenzene	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Tetrachloroethene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	**41**	< 1.6
Toluene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
trans-1,2-Dichloroethene	< 1.7	**110**	< 2.0	< 1.9	< 1.7	**30**	**15**
trans-1,3-Dichloropropene	< 1.7	< 110	< 2.0	< 1.9	< 1.7	< 1.5	< 1.6
Trichloroethene	**19**	**1,400**	**6.9**	< 1.9	**11**	**140**	**33**
Trichlorofluoromethane	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Vinyl chloride	< 4.2	< 280	< 4.9	< 4.8	< 4.3	< 3.9	< 4.1
Total VOCs	**33.3**	**7,820**	**49.4**	ND	**37.6**	**324.1**	**166.9**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**PZ-03**	**PZ-03**	**PZ-03**	**SMP-01B**	**SMP-01B**	**SMP-01B**	**SMP-01B**
Sample Depth	**15.0**	**24.0**	**29.0**	**11.0**	**16.5**	**30.0**	**43.0**
Sample Date	**6/12/2007**	**6/12/2007**	**6/12/2007**	**6/22/2007**	**6/22/2007**	**6/22/2007**	**6/22/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
1,1,1-Trichloroethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,1,2,2-Tetrachloroethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,1,2-Trichloroethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,1-Dichloroethane	< 100	< 94	**120**	**11**	< 2.3	**21**	**130**
1,1-Dichloroethene	< 260	< 230	**16**	< 4.8	< 5.8	< 4.7	**34**
1,1-Dichloropropene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,2,3-Trichlorobenzene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
1,2,3-Trichloropropane	< 520	< 470	< 8.2	< 9.7	< 12	< 9.4	< 9.6
1,2,4-Trichlorobenzene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
1,2,4-Trimethylbenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,2-Dibromo-3-chloropropane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
1,2-Dibromoethane (EDB)	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,2-Dichlorobenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,2-Dichloroethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,2-Dichloropropane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,3,5-Trimethylbenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,3-Dichlorobenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,3-Dichloropropane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
1,4-Dichlorobenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
2,2-Dichloropropane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
2-Chlorotoluene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
4-Chlorotoluene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Benzene	< 100	< 94	**2.6**	< 1.9	< 2.3	< 1.9	< 1.9
Bromobenzene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Bromochloromethane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Bromodichloromethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Bromoform	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Bromomethane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Carbon tetrachloride	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Chlorobenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	**3**
Chloroethane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Chloroform	< 100	< 94	< 1.6	< 1.9	< 2.3	**2.9**	**16**
Chloromethane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
cis-1,2-Dichloroethene	< 100	< 94	**35**	**2.9**	< 2.3	**4.9**	**10**
cis-1,3-Dichloropropene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Dibromochloromethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Dibromomethane	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Dichlorodifluoromethane	< 210	< 190	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Ethylbenzene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Hexachlorobutadiene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Isopropylbenzene	**400**	**420**	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
m,p-Xylenes	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Methylene chloride	< 1000	< 940	< 16	< 19	< 23	< 19	< 19
Naphthalene	**390**	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
n-Butylbenzene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
n-Propylbenzene	**310**	**440**	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
o-Xylene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
p-Isopropyltoluene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
sec-Butylbenzene	**760**	**620**	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Styrene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
tert-Butylbenzene	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Tetrachloroethene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	**3.9**
Toluene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
trans-1,2-Dichloroethene	< 100	< 94	**17**	< 1.9	< 2.3	< 1.9	< 1.9
trans-1,3-Dichloropropene	< 100	< 94	< 1.6	< 1.9	< 2.3	< 1.9	< 1.9
Trichloroethene	**490**	**320**	**33**	**12**	< 2.3	**24**	**200**
Trichlorofluoromethane	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Vinyl chloride	< 260	< 230	< 4.1	< 4.8	< 5.8	< 4.7	< 4.8
Total VOCs	**2350**	**1800**	**223.6**	**25.9**	ND	**52.8**	**396.9**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**SMP-02B**	**SMP-02B**	**SMP-02B**	**SMP-02B**	**SMP-03B**	**SMP-03B**	**SMP-03B**
Sample Depth	**2.0**	**12.0**	**26.0**	**42.0**	**14.0**	**24.0**	**43.0**
Sample Date	**6/21/2007**	**6/21/2007**	**6/21/2007**	**6/21/2007**	**6/22/2007**	**6/22/2007**	**6/22/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
1,1,1-Trichloroethane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,1,2,2-Tetrachloroethane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,1,2-Trichloroethane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,1-Dichloroethane	**19**	**16**	< 2.3	**290**	**4.8**	< 2.5	**270**
1,1-Dichloroethene	< 5.5	< 3.9	< 5.8	**25**	< 4.4	< 6.1	**29**
1,1-Dichloropropene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,2,3-Trichlorobenzene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
1,2,3-Trichloropropane	< 11	< 7.8	< 12	< 8.0	< 8.9	< 12	< 9.3
1,2,4-Trichlorobenzene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
1,2,4-Trimethylbenzene	**3.6**	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,2-Dibromo-3-chloropropane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
1,2-Dibromoethane (EDB)	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,2-Dichlorobenzene	**4.3**	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,2-Dichloroethane	< 2.2	< 1.6	< 2.3	**4.6**	< 1.8	< 2.5	**5.1**
1,2-Dichloropropane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,3,5-Trimethylbenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,3-Dichlorobenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,3-Dichloropropane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
1,4-Dichlorobenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
2,2-Dichloropropane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
2-Chlorotoluene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
4-Chlorotoluene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Benzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Bromobenzene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Bromochloromethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Bromodichloromethane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Bromoform	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Bromomethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Carbon tetrachloride	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Chlorobenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	**1.9**
Chloroethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Chloroform	< 2.2	**1.9**	< 2.3	**25**	< 1.8	< 2.5	**51**
Chloromethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
cis-1,2-Dichloroethene	**3.3**	**3.8**	< 2.3	**8.8**	< 1.8	< 2.5	**11**
cis-1,3-Dichloropropene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Dibromochloromethane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Dibromomethane	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Dichlorodifluoromethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Ethylbenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Hexachlorobutadiene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Isopropylbenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
m,p-Xylenes	**4.6**	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Methylene chloride	< 22	< 16	< 23	**28**	< 18	< 25	**47**
Naphthalene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
n-Butylbenzene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
n-Propylbenzene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
o-Xylene	**2.9**	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
p-Isopropyltoluene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
sec-Butylbenzene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Styrene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
tert-Butylbenzene	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Tetrachloroethene	< 2.2	< 1.6	< 2.3	**2.6**	< 1.8	< 2.5	**3.6**
Toluene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
trans-1,2-Dichloroethene	< 2.2	< 1.6	< 2.3	**4.6**	< 1.8	< 2.5	**2.5**
trans-1,3-Dichloropropene	< 2.2	< 1.6	< 2.3	< 1.6	< 1.8	< 2.5	< 1.9
Trichloroethene	**56**	**18**	< 2.3	**200**	**3.8**	< 2.5	**240**
Trichlorofluoromethane	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Vinyl chloride	< 5.5	< 3.9	< 5.8	< 4.0	< 4.4	< 6.1	< 4.6
Total VOCs	**93.7**	**39.7**	ND	**588.6**	**8.6**	ND	**661.1**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**SMP-04B**	**SMP-04B**	**SMP-04B**	**SMP-04B**	**SMP-04B**	**SMP-04B**	**SMP-05B**
Sample Depth	**1.5**	**5.5**	**9.5**	**22.0**	**32.0**	**42.5**	**10.5**
Sample Date	**6/20/2007**	**6/20/2007**	**6/20/2007**	**6/20/2007**	**6/20/2007**	**6/20/2007**	**6/22/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
1,1,1-Trichloroethane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,1,2,2-Tetrachloroethane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,1,2-Trichloroethane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,1-Dichloroethane	< 99	**56** [A-01,I]	**31**	**3.5**	**170**	**260**	< 1.8
1,1-Dichloroethene	< 250	**39** [A-01,I]	**4.4**	< 5.3	**12**	**13**	< 4.4
1,1-Dichloropropene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,2,3-Trichlorobenzene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
1,2,3-Trichloropropane	< 490	< 8.0	< 8.1	< 11	< 8.2	< 8.2	< 8.9
1,2,4-Trichlorobenzene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
1,2,4-Trimethylbenzene	< 99	**3** [A-01,I]	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,2-Dibromo-3-chloropropane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
1,2-Dibromoethane (EDB)	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,2-Dichlorobenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	**7**
1,2-Dichloroethane	< 99	< 1.6	< 1.6	< 2.1	**2.5**	**4.6**	< 1.8
1,2-Dichloropropane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,3,5-Trimethylbenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,3-Dichlorobenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,3-Dichloropropane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
1,4-Dichlorobenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
2,2-Dichloropropane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
2-Chlorotoluene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
4-Chlorotoluene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Benzene	< 99	**11** [A-01,I]	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Bromobenzene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Bromochloromethane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Bromodichloromethane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Bromoform	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Bromomethane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Carbon tetrachloride	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Chlorobenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Chloroethane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Chloroform	< 99	< 1.6	< 1.6	< 2.1	**12**	**24**	< 1.8
Chloromethane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
cis-1,2-Dichloroethene	< 99	**29** [A-01,I]	**5**	< 2.1	**12**	**8.4**	< 1.8
cis-1,3-Dichloropropene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Dibromochloromethane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Dibromomethane	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Dichlorodifluoromethane	< 200	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Ethylbenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Hexachlorobutadiene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Isopropylbenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
m,p-Xylenes	< 99	**7** [A-01,I]	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Methylene chloride	< 990	< 16	< 16	< 21	< 16	< 16	< 18
Naphthalene	< 250	**4.6** [A-01,I]	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
n-Butylbenzene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
n-Propylbenzene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
o-Xylene	< 99	**2.3** [A-01,I]	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
p-Isopropyltoluene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
sec-Butylbenzene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Styrene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
tert-Butylbenzene	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Tetrachloroethene	< 99	**14** [A-01,I]	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Toluene	< 99	**9.3** [A-01,I]	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
trans-1,2-Dichloroethene	< 99	**17** [A-01,I]	< 1.6	< 2.1	**2.9**	**1.7**	< 1.8
trans-1,3-Dichloropropene	< 99	< 1.6	< 1.6	< 2.1	< 1.6	< 1.6	< 1.8
Trichloroethene	**110**	**150** [A-01,I]	**19**	**3.5**	**58**	**74**	< 1.8
Trichlorofluoromethane	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Vinyl chloride	< 250	< 4.0	< 4.1	< 5.3	< 4.1	< 4.1	< 4.4
Total VOCs	**110**	**342.2**	**59.4**	**7**	**269.4**	**385.7**	**7**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**SMP-05B**	**SMP-05B**	**SMP-06B**	**SMP-06B**	**SMP-06B**	**SMP-07B**	**SMP-07B**
Sample Depth	**29.0**	**43.0**	**10.0**	**23.0**	**32.0**	**9.5**	**32.0**
Sample Date	**6/22/2007**	**6/22/2007**	**6/23/2007**	**6/23/2007**	**6/23/2007**	**6/23/2007**	**6/23/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
1,1,1-Trichloroethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,1,2,2-Tetrachloroethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,1,2-Trichloroethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,1-Dichloroethane	< 2.2	**11**	< 1.7	< 95	< 1.7	< 90	< 100
1,1-Dichloroethene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
1,1-Dichloropropene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,2,3-Trichlorobenzene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
1,2,3-Trichloropropane	< 11	< 8.0	< 8.5	< 470	< 8.5	< 450	< 520
1,2,4-Trichlorobenzene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
1,2,4-Trimethylbenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,2-Dibromo-3-chloropropane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
1,2-Dibromoethane (EDB)	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,2-Dichlorobenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,2-Dichloroethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,2-Dichloropropane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,3,5-Trimethylbenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,3-Dichlorobenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,3-Dichloropropane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
1,4-Dichlorobenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
2,2-Dichloropropane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
2-Chlorotoluene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
4-Chlorotoluene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Benzene	< 2.2	< 1.6	< 1.7	< 95	**3.9**	< 90	< 100
Bromobenzene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Bromochloromethane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Bromodichloromethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Bromoform	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Bromomethane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Carbon tetrachloride	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Chlorobenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Chloroethane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Chloroform	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Chloromethane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
cis-1,2-Dichloroethene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
cis-1,3-Dichloropropene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Dibromochloromethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Dibromomethane	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Dichlorodifluoromethane	< 5.5	< 4.0	< 4.2	< 190	< 4.3	< 180	< 210
Ethylbenzene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	**110**	< 100
Hexachlorobutadiene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Isopropylbenzene	< 2.2	< 1.6	< 1.7	**1,500**	**4.8**	**3,500**	**2600**
m,p-Xylenes	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Methylene chloride	< 22	< 16	< 17	< 950	< 17	< 900	< 1000
Naphthalene	< 5.5	< 4.0	< 4.2	**5,500**	< 4.3	**9,800**	**7100**
n-Butylbenzene	< 5.5	< 4.0	< 4.2	**280**	< 4.3	**330**	< 260
n-Propylbenzene	< 2.2	< 1.6	< 1.7	**2,400**	< 1.7	**5,000**	**3300**
o-Xylene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
p-Isopropyltoluene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
sec-Butylbenzene	< 5.5	< 4.0	< 4.2	**1,300**	**21**	**1,900**	**1700**
Styrene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
tert-Butylbenzene	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Tetrachloroethene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Toluene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
trans-1,2-Dichloroethene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
trans-1,3-Dichloropropene	< 2.2	< 1.6	< 1.7	< 95	< 1.7	< 90	< 100
Trichloroethene	< 2.2	**3.9**	< 1.7	< 95	< 1.7	< 90	< 100
Trichlorofluoromethane	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Vinyl chloride	< 5.5	< 4.0	< 4.2	< 240	< 4.3	< 230	< 260
Total VOCs	ND	**14.9**	ND	**10,980**	**29.7**	**20,640**	**14,700**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**SMP-07B**	**SMP-07B**	**SMP-08B**	**SMP-08B**	**SMP-08B**	**SVE-01B**	**SVE-01B**
Sample Depth	**34.0**	**43.0**	**13.0**	**26.0**	**41.0**	**14.0**	**20.5**
Sample Date	**6/23/2007**	**6/23/2007**	**6/23/2007**	**6/23/2007**	**6/23/2007**	**6/21/2007**	**6/21/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
1,1,1-Trichloroethane	< 1.8	< 1.5	< 87	< 96	< 1.7	**5** [M1]	**55**
1,1,2,2-Tetrachloroethane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,1,2-Trichloroethane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,1-Dichloroethane	< 1.8	< 1.5	< 87	< 96	< 1.7	**350** [M-3]	**92**
1,1-Dichloroethene	< 4.6	< 3.8	< 220	< 240	< 4.3	**50** [M1]	**22**
1,1-Dichloropropene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,2,3-Trichlorobenzene	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
1,2,3-Trichloropropane	< 9.2	< 7.5	< 430	< 480	< 8.7	< 8.9	< 8.3
1,2,4-Trichlorobenzene	< 4.4	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
1,2,4-Trimethylbenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,2-Dibromo-3-chloropropane	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
1,2-Dibromoethane (EDB)	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,2-Dichlorobenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,2-Dichloroethane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,2-Dichloropropane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,3,5-Trimethylbenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,3-Dichlorobenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,3-Dichloropropane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
1,4-Dichlorobenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
2,2-Dichloropropane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
2-Chlorotoluene	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
4-Chlorotoluene	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Benzene	**2.4**	< 1.5	< 87	< 96	< 1.7	**2.5**	**5.5**
Bromobenzene	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Bromochloromethane	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Bromodichloromethane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
Bromoform	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Bromomethane	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Carbon tetrachloride	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Chlorobenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	**10**
Chloroethane	< 4.6	< 3.8	< 220	< 240	< 4.3	**4.6** [M1]	< 4.1
Chloroform	< 1.8	< 1.5	< 87	< 96	< 1.7	**17** [M1]	**11**
Chloromethane	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
cis-1,2-Dichloroethene	< 1.8	< 1.5	< 87	< 96	< 1.7	**49** [M1]	**12**
cis-1,3-Dichloropropene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
Dibromochloromethane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
Dibromomethane	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
Dichlorodifluoromethane	< 4.6	< 3.8	< 170	< 190	< 4.3	< 4.5	< 4.1
Ethylbenzene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	**9.9**
Hexachlorobutadiene	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Isopropylbenzene	< 1.8	< 1.5	**1,400**	**3,700**	< 1.7	**2.9**	**280**
m,p-Xylenes	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	**24**
Methylene chloride	< 18	< 15	< 870	< 960	< 17	< 18	< 17
Naphthalene	< 4.6	< 3.8	**730**	**18,000**	< 4.3	< 4.5	**170** [I]
n-Butylbenzene	< 4.6	< 3.8	< 220	**330**	< 4.3	< 4.5	**11** [I]
n-Propylbenzene	< 1.8	< 1.5	**1,300**	**5,100**	< 1.7	< 1.8	**340**
o-Xylene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	**20**
p-Isopropyltoluene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
sec-Butylbenzene	< 4.6	< 3.8	**1,500**	**2,600**	< 4.3	< 4.5	**95** [I]
Styrene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
tert-Butylbenzene	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	**15** [I]
Tetrachloroethene	< 1.8	< 1.5	< 87	< 96	< 1.7	**7.1**	**190**
Toluene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	**2.4**
trans-1,2-Dichloroethene	< 1.8	< 1.5	< 87	< 96	< 1.7	**11** [M1]	**5.3**
trans-1,3-Dichloropropene	< 1.8	< 1.5	< 87	< 96	< 1.7	< 1.8	< 1.7
Trichloroethene	< 1.8	< 1.5	< 87	< 96	< 1.7	**140** [M2]	**810**
Trichlorofluoromethane	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Vinyl chloride	< 4.6	< 3.8	< 220	< 240	< 4.3	< 4.5	< 4.1
Total VOCs	**2.4**	ND	**4,930**	**29,730**	ND	**639.1**	**2,180.1**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**SVE-01B**	**SVE-02B**	**SVE-02B**	**SVE-02B**	**SVE-02B**	**SVE-03B**	**SVE-03B**
Sample Depth	**30.0**	**4.0**	**10.0**	**30.0**	**43.0**	**12.0**	**21.0**
Sample Date	**6/21/2007**	**6/21/2007**	**6/21/2007**	**6/21/2007**	**6/21/2007**	**6/23/2007**	**6/23/2007**
Units	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
1,1,1-Trichloroethane	**2**	< 1.8	**19**	< 2.1	< 1.5	< 86	< 82
1,1,2,2-Tetrachloroethane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,1,2-Trichloroethane	**2.7**	< 1.8	**1.9**	< 2.1	**2.3**	< 86	< 82
1,1-Dichloroethane	**84**	**32** [M1]	**87**	< 2.1	**140**	< 86	< 82
1,1-Dichloroethene	**6.7**	**22** [M1]	**28**	< 5.3	**5.9**	< 210	< 210
1,1-Dichloropropene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,2,3-Trichlorobenzene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
1,2,3-Trichloropropane	< 8.5	< 8.9	< 8.9	< 11	< 7.5	< 430	< 410
1,2,4-Trichlorobenzene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
1,2,4-Trimethylbenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,2-Dibromo-3-chloropropane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
1,2-Dibromoethane (EDB)	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,2-Dichlorobenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,2-Dichloroethane	< 1.7	< 1.8	< 1.8	< 2.1	**5.6**	< 86	< 82
1,2-Dichloropropane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,3,5-Trimethylbenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,3-Dichlorobenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,3-Dichloropropane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
1,4-Dichlorobenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
2,2-Dichloropropane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
2-Chlorotoluene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
4-Chlorotoluene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Benzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
Bromobenzene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Bromochloromethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Bromodichloromethane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
Bromoform	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Bromomethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Carbon tetrachloride	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Chlorobenzene	< 1.7	< 1.8	**2.3**	< 2.1	< 1.5	< 86	< 82
Chloroethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Chloroform	**7.4**	< 1.8	**16**	< 2.1	**60**	< 86	< 82
Chloromethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
cis-1,2-Dichloroethene	**8.8**	**5.9**	**14**	< 2.1	**5**	< 86	< 82
cis-1,3-Dichloropropene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
Dibromochloromethane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
Dibromomethane	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
Dichlorodifluoromethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 170	< 160
Ethylbenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	**200**	**200**
Hexachlorobutadiene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Isopropylbenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	**1,600**	**3,500**
m,p-Xylenes	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	**90**
Methylene chloride	< 17	< 18	< 18	< 21	**150**	< 860	< 820
Naphthalene	**4.8**	< 4.4	< 4.4	< 5.3	< 3.8	**4,400**	**19,000**
n-Butylbenzene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	**240**	**540**
n-Propylbenzene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	**2,300**	**5,100**
o-Xylene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
p-Isopropyltoluene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
sec-Butylbenzene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	**930**	**2,500**
Styrene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
tert-Butylbenzene	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Tetrachloroethene	< 1.7	< 1.8	**21**	< 2.1	< 1.5	< 86	< 82
Toluene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
trans-1,2-Dichloroethene	**1.7**	< 1.8	**2.9**	< 2.1	< 1.5	< 86	< 82
trans-1,3-Dichloropropene	< 1.7	< 1.8	< 1.8	< 2.1	< 1.5	< 86	< 82
Trichloroethene	**40**	**110** [A-01, M1]	**130**	**2.5**	**63**	< 86	< 82
Trichlorofluoromethane	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Vinyl chloride	< 4.2	< 4.4	< 4.4	< 5.3	< 3.8	< 210	< 210
Total VOCs	**158.1**	**169.9**	**322.1**	**2.5**	**431.8**	**9,670**	**30,930**

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**SVE-03B**	**SVE-03B**
Sample Depth	**35.0**	**45.0**
Sample Date	**6/23/2007**	**6/23/2007**
Units	**ug/kg**	**ug/kg**
1,1,1,2-Tetrachloroethane	< 4.3	< 3.8
1,1,1-Trichloroethane	< 1.7	< 1.5
1,1,2,2-Tetrachloroethane	< 1.7	< 1.5
1,1,2-Trichloroethane	< 1.7	< 1.5
1,1-Dichloroethane	< 1.7	< 1.5
1,1-Dichloroethene	**7.8**	< 3.8
1,1-Dichloropropene	< 1.7	< 1.5
1,2,3-Trichlorobenzene	< 4.3	< 3.8
1,2,3-Trichloropropane	< 8.7	< 7.6
1,2,4-Trichlorobenzene	< 4.3	< 3.8
1,2,4-Trimethylbenzene	< 1.7	< 1.5
1,2-Dibromo-3-chloropropane	< 4.3	< 3.8
1,2-Dibromoethane (EDB)	< 1.7	< 1.5
1,2-Dichlorobenzene	< 1.7	< 1.5
1,2-Dichloroethane	**2.4**	< 1.5
1,2-Dichloropropane	< 1.7	< 1.5
1,3,5-Trimethylbenzene	< 1.7	< 1.5
1,3-Dichlorobenzene	< 1.7	< 1.5
1,3-Dichloropropane	< 1.7	< 1.5
1,4-Dichlorobenzene	< 1.7	< 1.5
2,2-Dichloropropane	< 1.7	< 1.5
2-Chlorotoluene	< 4.3	< 3.8
4-Chlorotoluene	< 4.3	< 3.8
Benzene	**25**	< 1.5
Bromobenzene	< 4.3	< 3.8
Bromochloromethane	< 4.3	< 3.8
Bromodichloromethane	< 1.7	< 1.5
Bromoform	< 4.3	< 3.8
Bromomethane	< 4.3	< 3.8
Carbon tetrachloride	< 4.3	< 3.8
Chlorobenzene	< 1.7	< 1.5
Chloroethane	< 4.3	< 3.8
Chloroform	< 1.7	< 1.5
Chloromethane	< 4.3	< 3.8
cis-1,2-Dichloroethene	< 1.7	< 1.5
cis-1,3-Dichloropropene	< 1.7	< 1.5
Dibromochloromethane	< 1.7	< 1.5
Dibromomethane	< 1.7	< 1.5
Dichlorodifluoromethane	< 4.3	< 3.8
Ethylbenzene	< 1.7	< 1.5
Hexachlorobutadiene	< 4.3	< 3.8
Isopropylbenzene	**1.9**	< 1.5
m,p-Xylenes	< 1.7	< 1.5
Methylene chloride	< 17	< 15
Naphthalene	< 4.3	< 3.8
n-Butylbenzene	< 4.3	< 3.8
n-Propylbenzene	< 1.7	< 1.5
o-Xylene	< 1.7	< 1.5
p-Isopropyltoluene	< 1.7	< 1.5
sec-Butylbenzene	< 4.3	< 3.8
Styrene	< 1.7	< 1.5
tert-Butylbenzene	< 4.3	< 3.8
Tetrachloroethene	< 1.7	< 1.5
Toluene	< 1.7	< 1.5
trans-1,2-Dichloroethene	< 1.7	< 1.5
trans-1,3-Dichloropropene	< 1.7	< 1.5
Trichloroethene	< 1.7	< 1.5
Trichlorofluoromethane	< 4.3	< 3.8
Vinyl chloride	< 4.3	< 3.8
Total VOCs	**37.1**	ND

TABLE 4: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Notes:

µg/kg = microgram per kilogram
< = Constituent not detected at concentrations greater than the reporting limit noted.
L = Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits.
C = Calibration Verification Summary was above the method control limit for this analyte.
I = Internal standard recovery was outside of method limits. Matrix interference was confirmed.
A-01 = The RPD exceeded the acceptance limit due to sample matrix effects.
A-01a = The RPD exceeded the acceptance limit due to sample matrix effects. The individual QA/QC recoveries, however, were within the acceptance limits.
M1 = The MS and/or MSD were above the acceptance limits due to sample matrix effects.
M2 = The MS and /or MSD were below the acceptance limits due to sample matrix interference.
M-3 = Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
ND = VOCs not detected in this sample.
(1) Soil samples collected in 5-gram encore tubes beginning with the depth indicated.
(2) Samples analyzed for Volatile Organic Compounds by EPA Method 8260B.

TABLE 5: SUMMARY of METALS and CrVI CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

				Chemical Analyses[(1)(2)]																	
Sample Location	Sample Depth	Sample Date	Units	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium VI	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MW-17S	2.0	6/19/2007	mg/kg	< 10	40	120	0.57	< 0.50	51	0.24 M2	11	46	25	0.034	< 2.0	21	< 2.0	< 1.0	< 10	49	86
	7.5	6/19/2007	mg/kg	< 20	12	190	1.1	< 1.0	46	0.42	14	40	11	0.081	< 4.0	30	< 4.0	< 2.0	< 20	75	61
	21.0	6/19/2007	mg/kg	< 10	3.6	70	< 0.50	< 0.50	12	< 0.20	5.8	15	2.8	0.057	< 2.0	10	< 2.0	< 1.0	< 10	28	33
	30.0	6/19/2007	mg/kg	< 10	7.9	130	< 0.50	< 0.50	29	4.5	9.8	28	4.5	0.044	< 2.0	18	< 2.0	< 1.0	< 10	50	54
	42.5	6/19/2007	mg/kg	< 10	3.4	120	0.65	< 0.50	35	1.9	16	40	7.3	0.16	< 2.0	27	< 2.0	< 1.0	< 10	49	74
	53.5	6/19/2007	mg/kg	< 10	3.1	110	0.53	< 0.50	32	8.8	8	24	5.1	0.049	< 2.0	18	< 2.0	< 1.0	< 10	48	49
MW-18S	2.5	6/13/2007	mg/kg	< 10	2.3	350	< 0.50	3.4	170	< 2.0	11	600	890	0.95	< 2.0	54	< 2.0	< 1.0	< 10	31	180
	10.0	6/13/2007	mg/kg	< 80	< 16	250	< 4.0	< 4.0	1,800	130	48	8,700	17	2	< 16	280	< 16	< 8.0	< 80	62	300
	23.5	6/13/2007	mg/kg	< 40	< 8.0	70	< 2.0	< 2.0	3,900 RL1	48	< 4.0	680	< 8.0	< 0.020	< 8.0	13	< 8.0	< 4.0	< 40	22	24
	30.0	6/13/2007	mg/kg	< 20	6	160	< 1.0	< 1.0	2,200	170	14	2,000	6.8	< 0.020	< 4.0	42	< 4.0	< 2.0	< 20	48	85
	43.0	6/13/2007	mg/kg	< 20	12	200	< 1.0	2.2	550	330	13	34	7.9	0.26	< 4.0	34	< 4.0	< 2.0	< 20	49	61
	55.0	6/14/2007	mg/kg	< 10	7.6	210 M1	0.59	< 0.50	28	3.5	12	35	9.7	0.047	< 2.0	26	< 2.0	< 1.0	< 10	51	56
	58.5	6/14/2007	mg/kg	< 10	< 2.0	48	< 0.50	< 0.50	11	< 1.0	4.4	10	2.2	< 0.020	< 2.0	7.4	< 2.0	< 1.0	< 10	26	22
MW-19S	3.0	6/18/2007	mg/kg	< 10	44	93	< 0.50	5.4	200	1.2 M2	7.9	210	27	0.37	< 2.0	18	< 2.0	< 1.0	< 10	28	250
	8.0	6/18/2007	mg/kg	< 9.8	7.7	140	0.67	4.4	43	< 0.20	10	30	7.5	< 0.020	< 2.0	23	< 2.0	< 0.98	< 9.8	56	53
	24.5	6/18/2007	mg/kg	< 10	2.7	50	< 0.50	< 0.50	9.3	0.29	4.1	11	2.2	0.033	< 2.0	7.1	< 2.0	< 1.0	< 10	17	24
	32.5	6/18/2007	mg/kg	< 20	12	350	< 1.0	< 1.0	25	0.87	15	38	8.5	0.13	< 4.0	24	< 4.0	< 2.0	< 20	55	69
	45.0	6/18/2007	mg/kg	< 10	8.5	140	0.63	< 0.50	33	1.3	13	28	7.3	0.045	< 2.0	19	< 2.0	< 1.0	< 10	62	53
	60.5	6/18/2007	mg/kg	< 9.9	5.6	77	< 0.50	< 0.50	13	< 0.20	6.4	16	2.7	< 0.020	< 2.0	12	< 2.0	< 0.99	< 9.9	28	38
	71.0	6/18/2007	mg/kg	< 10	2.7	32	< 0.50	< 0.50	8.6	< 0.20	3.8	8.2	< 2.0	0.035	< 2.0	5.5	< 2.0	< 1.0	< 10	12	19
MW-20S	1.5	6/15/2007	mg/kg	< 9.9	3.6	990	< 0.50	0.55	180	< 2.0	10	190	4,800	1.5	< 2.0	24	< 2.0	< 0.99	< 9.9	29	220
	11.0	6/15/2007	mg/kg	< 9.9	5.7	92	< 0.49	< 0.49	26	< 2.0	9.7	26	5.8	0.061	< 2.0	17	< 2.0	< 0.99	< 9.9	38	45
	23.0	6/15/2007	mg/kg	< 9.8	4.8	53	< 0.49	< 0.49	88	6.1	2.1	54	< 2.0	< 0.020	2.1	5.4	< 2.0	< 0.98	< 9.8	14	16
	30.0	6/15/2007	mg/kg	< 10	6.7	150	< 0.50	< 0.50	110	2.8	7.1	110	4.4	< 0.020	< 2.0	18	< 2.0	< 1.0	< 10	42	56
	43.0	6/15/2007	mg/kg	< 9.8	11	130	0.65	2.3	71	19	12	33	7	0.058	< 2.0	21	< 2.0	< 0.98	< 9.8	62	57
	50.0	6/15/2007	mg/kg	< 9.9	6	110	0.56	1.6	50	22	8.7	30	5.4	0.029	< 2.0	21	< 2.0	< 0.99	< 9.9	42	55
	58.0	6/15/2007	mg/kg	< 10	2.4	100	< 0.50	4.9	510	3.6	3	7	< 2.0	0.11	< 2.0	5.3	< 2.0	< 1.0	< 10	12	28
PZ-01	3.0	6/14/2007	mg/kg	< 10	10	140	0.61	2.5	970	61	16	650	160	0.14	14	69	< 2.0	< 1.0	< 10	39	380
	12.5	6/14/2007	mg/kg	< 10	6.5	170	< 0.50	< 0.50	23	< 2.0	11	28	6.2	0.038	2.8	21	< 2.0	< 1.0	< 10	40	51
	22.5	6/14/2007	mg/kg	< 10	< 2.0	59	< 0.50	< 0.50	17	< 1.0	4.5	11	2.9	0.39	< 2.0	8.7	< 2.0	< 1.0	< 10	20	30
	41.0	6/14/2007	mg/kg	< 10	16	120	0.77	< 0.50	120	48	16	380	7.7	< 0.020	< 2.0	42	< 2.0	< 1.0	< 10	47	100
PZ-02	3.5	6/12/2007	mg/kg	< 10	4.2	1,000	< 0.50	0.6	120	< 2.0	11	230	6,100	1.3	< 2.0	25	< 2.0	< 1.0	< 10	29	210
	7.5	6/12/2007	mg/kg	< 20	6.5	160	< 1.0	< 1.0	31	0.38	14	36	8.8	0.042	< 4.0	24	< 4.0	< 2.0	< 20	60	57
	20.0	6/12/2007	mg/kg	< 10	2.6	45	< 0.50	< 0.50	6.7	< 0.20	3.6	9.4	2.4	0.033	< 2.0	6.8	< 2.0	< 1.0	< 10	15	22
	30.0	6/12/2007	mg/kg	< 10	8.8	130	< 0.50	< 0.50	20	< 0.20	9.8	28	4.8	0.033	< 2.0	18	< 2.0	< 1.0	< 10	43	53
PZ-03	4.0	6/12/2007	mg/kg	< 10	6.3	200	0.62	< 0.50	30	< 1.0	19	30	8.5	< 0.020	< 2.0	22	< 2.0	< 1.0	< 10	52	75
	9.0	6/12/2007	mg/kg	< 10	6.5	140	0.5	< 0.50	29	< 0.20	12	39	6.8	0.11	< 2.0	22	< 2.0	< 1.0	< 10	48	64
	15.0	6/12/2007	mg/kg	< 10	3.6	55	< 0.50	< 0.50	8.9	< 0.20	4.3	14	2.5	0.045	< 2.0	8.2	< 2.0	< 1.0	< 10	25	25
	24.0	6/12/2007	mg/kg	< 10	3.5	43	< 0.50	< 0.50	8.3	< 0.20	3.5	8.8	2.1	0.043	< 2.0	6.2	< 2.0	< 1.0	< 10	15	18
	29.0	6/12/2007	mg/kg	< 10	10	160	< 0.50	< 0.50	21	< 0.20	12	31	6.3	0.1	< 2.0	20	< 2.0	< 1.0	< 10	43	60

TABLE 5: SUMMARY of METALS and CrVI CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

				Chemical Analyses[1][2]																	
Sample Location	Sample Depth	Sample Date	Units	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium VI	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SMP-01B	11.0	6/22/2007	mg/kg	< 10	10	190	0.69	0.55	26	0.33	9.6	34	8.1	0.055	< 2.0	24	< 2.0	< 1.0	< 10	45	69
	16.5	6/22/2007	mg/kg	< 10	6.6	49	< 0.50	< 0.50	6.4	< 0.20	3.7	11	2.6	0.073	3	7	< 2.0	< 1.0	< 10	16	20
	30.0	6/22/2007	mg/kg	< 10	9.1	110	< 0.50	< 0.50	18	< 0.20	7.7	22	4.5	0.065	< 2.0	16	< 2.0	< 1.0	< 10	34	47
	43.0	6/22/2007	mg/kg	< 20	24	310	1	< 1.0	35	0.98	19	61	16	0.16	< 4.0	31	< 4.0	< 2.0	< 20	74	74
SMP-02B	2.0	6/21/2007	mg/kg	< 10	4.4	96	< 0.50	5.4	360	13	3.2	670	200	0.13	3.9	170	< 2.0	< 1.0	< 10	14	340
	12.0	6/21/2007	mg/kg	< 10	9.7	250	0.82	< 0.50	39	0.24	17	41	9.8	0.072	< 2.0	30	< 2.0	< 1.0	< 10	58	62
	26.0	6/21/2007	mg/kg	< 10	< 2.0	65	< 0.50	< 0.50	5.5	< 0.20	2.7	9.5	2.1	< 0.020	< 2.0	4.3	< 2.0	< 1.0	< 10	12	14
	42.0	6/21/2007	mg/kg	< 9.8	8.5	130	0.58	< 0.49	30	< 0.20	10	30	6.3	0.49	< 2.0	19	< 2.0	< 0.98	< 9.8	45	56
SMP-03B	14.0	6/22/2007	mg/kg	< 10	10	180	0.68	< 0.50	26	0.22	11	36	7.9	0.032	< 2.0	23	< 2.0	< 1.0	< 10	46	50
	24.0	6/22/2007	mg/kg	< 10	18	140	0.92	0.63	40	< 0.20	17	54	11	0.032	< 2.0	34	< 2.0	< 1.0	< 10	58	77
	43.0	6/22/2007	mg/kg	< 10	4.5	46	< 0.50	< 0.50	9.5	< 0.20	4.2	11	3.1	0.13	< 2.0	7.7	< 2.0	< 1.0	< 10	19	22
SMP-04B	1.5	6/20/2007	mg/kg	< 10	4.7	740	< 0.50	< 0.50	120	< 0.20	9.1	430	6.5	0.99	2.5	22	< 2.0	< 1.0	< 10	31	230
	5.5	6/20/2007	mg/kg	< 50	< 10	250	< 2.5	< 2.5	4,000	1.1	8.1	320	570	0.25	< 10	22	< 10	< 5.0	< 50	34	900
	9.5	6/20/2007	mg/kg	< 10	9	130	0.73	< 0.50	33	< 0.20	15	34	9	0.023	< 2.0	24	< 2.0	< 1.0	< 10	59	69
	32.0	6/20/2007	mg/kg	< 20	12	190	< 0.99	< 0.99	32	< 0.20	16	51	11	0.063	< 4.0	32	< 4.0	< 2.0	< 20	48	85
	42.5	6/20/2007	mg/kg	< 10	12	110	0.56	< 0.50	26	< 0.20	9.7	32	7.7	0.06	< 2.0	18	< 2.0	< 1.0	< 10	51	57
	22.0	6/20/2007	mg/kg	< 10	3.3	64	< 0.50	< 0.50	9.4	< 0.20	4.8	14	3.1	0.035	< 2.0	8.7	< 2.0	< 1.0	< 10	24	30
SMP-05B	10.5	6/22/2007	mg/kg	< 10	12	160	0.93	0.67	88	4.4	15	40	10	0.085	< 2.0	29	< 2.0	< 1.0	< 10	60	63
	29.0	6/22/2007	mg/kg	< 10	3.8	55 [M2]	< 0.50	< 0.50	8.1	< 0.20	3.4	11	2.5	0.042	< 2.0	5.8	< 2.0	< 1.0	< 10	15	18
	43.0	6/22/2007	mg/kg	< 10	9.4	85	0.71	< 0.50	29	< 0.20	11	28	7	0.083	< 2.0	20	< 2.0	< 1.0	< 10	44	45
SMP-06B	10.0	6/23/2007	mg/kg	< 10	5.4	79	< 0.50	< 0.50	10	0.26	3.4	17	16	0.04	< 2.0	8.3	< 2.0	< 1.0	< 10	20	39
	23.0	6/23/2007	mg/kg	< 10	2	34	< 0.50	< 0.50	6.4	< 0.20	2.9	9.9	2.3	0.11	< 2.0	5.7	< 2.0	< 1.0	< 10	15	15
	32.0	6/23/2007	mg/kg	< 10	8.2	120	< 0.50	< 0.50	19	< 0.20	9.1	31	5.3	0.08	< 2.0	18	< 2.0	< 1.0	< 10	37	51
SMP-07B	9.5	6/23/2007	mg/kg	< 20	18	210	1.1	< 1.0	45	< 0.20	17	55	15	0.11	< 4.0	37	< 4.0	< 2.0	< 20	68	80
	32.0	6/23/2007	mg/kg	< 10	2.3	33	< 0.50	< 0.50	5.8	< 0.20	2.3	7.1	< 2.0	0.041	< 2.0	5.1	< 2.0	< 1.0	< 10	11	13
	34.0	6/23/2007	mg/kg	< 10	16	150	0.68	< 0.50	28	< 0.20	12	38	9	0.11	< 2.0	24	< 2.0	< 1.0	< 10	47	59
	43.0	6/23/2007	mg/kg	< 10	9.4	110	< 0.50	< 0.50	18	< 0.20	7.9	19	5.1	0.086	< 2.0	13	< 2.0	< 1.0	< 10	37	35
SMP-08B	13.0	6/23/2007	mg/kg	< 10	< 2.0	39	< 0.50	< 0.50	7.8	< 0.20	3.3	18	2.3	0.079	< 2.0	6.8	< 2.0	< 1.0	< 10	15	21
	26.0	6/23/2007	mg/kg	< 10	2.8	35	< 0.50	< 0.50	5.5	< 0.20	2.6	13	2.4	0.028	< 2.0	5.9	< 2.0	< 1.0	< 10	12	17
	41.0	6/23/2007	mg/kg	< 10	11	140	0.8	0.58	28	< 0.20	9.9	28	7.5	0.058	< 2.0	22	< 2.0	< 1.0	< 10	57	51
SVE-01B	14.0	6/21/2007	mg/kg	< 10	14	200	0.88	0.63	32	< 0.20	14	140	10	0.14	< 2.0	27	< 2.0	< 1.0	< 10	60	110
	20.5	6/21/2007	mg/kg	< 10	3.6	58	< 0.50	< 0.50	12	< 0.20	4.3	32	3.3	0.11	< 2.0	8.5	< 2.0	< 1.0	< 10	21	33
	30.0	6/21/2007	mg/kg	< 10	13	190	0.78	0.61	28	< 0.20	13	55	8.7	0.053	< 2.0	25	< 2.0	< 1.0	< 10	51	73
SVE-02B	4.0	6/21/2007	mg/kg	< 10	2	130 [M2]	0.52	< 0.50	320 [MHA]	< 0.40	9.8	28	44	0.56 [M2]	5.5	19	< 2.0	< 1.0	< 10	43	97
	10.0	6/21/2007	mg/kg	< 9.9	8.8	240	0.76	< 0.49	36	< 0.20	14	44	9.7	0.077	< 2.0	31	< 2.0	< 0.99	< 9.9	57	66
	30.0	6/21/2007	mg/kg	< 9.9	< 2.0	33	< 0.50	< 0.50	85	1.8	3.8	250	2.3	< 0.020	< 2.0	16	< 2.0	< 0.99	< 9.9	12	22
	43.0	6/21/2007	mg/kg	< 9.9	8.3	92	0.58	< 0.50	28	< 0.20	10	33	6.5	0.29	< 2.0	19	< 2.0	< 0.99	< 9.9	44	52

TABLE 5: SUMMARY of METALS and CrVI CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

				Chemical Analyses[1][2]																	
Sample Location	Sample Depth	Sample Date	Units	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium VI	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SVE-03B	12.0	6/23/2007	mg/kg	< 20	16	140	1	< 1.0	41	< 0.20	16	55	12	0.083	< 4.0	34	< 4.0	< 2.0	< 20	65	76
	21.0	6/23/2007	mg/kg	< 10	4.5	65	< 0.50	< 0.50	11	< 0.20	5.1	16	3.3	0.052	< 2.0	11	< 2.0	< 1.0	< 10	24	26
	35.0	6/23/2007	mg/kg	< 10	11	160	0.62	0.66	27	< 0.20	12	35	8.8	0.063	< 2.0	26	< 2.0	< 1.0	< 10	45	59
	45.0	6/23/2007	mg/kg	< 10	7.3	95	< 0.50	< 0.50	16	< 0.20	7.1	20	4.9	0.09	< 2.0	12	< 2.0	< 1.0	< 10	29	38

Notes:

mg/kg = milligram per kilogram

< = Constituent not detected at concentrations greater than the reporting limit noted.

RL1 = Reporting limit was raised due to sample matrix effects.

M2 = The MS and /or MSD were above the acceptance limits due to sample matrix interference.

MHA = Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.

(1) Soil samples collected in six-inch tubes beginning with the depth indicated.

(2) Samples analyzed for Hexavalent Chromium by EPA Method 7199.
Samples analyzed for Mercury by EPA Method 7471.
Samples analyzed for CAM 17 Metals by EPA Method 6010B.

TABLE 6: SUMMARY of TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	Sample Depth	Sample Date	Units	Chemical Analyses[1][2] TPH-g (C4 - C12)	TPH-d (C13-C22)	TPH-mo (C23 - C40)	TPH-d/mo (C13 - C40)
MW-18S	2.5	6/13/2007	mg/kg	**0.64**	**1,200**	**2,300**	**3,500**
PZ-02	3.5	6/12/2007	mg/kg	**1.9** [QP-1]	**17,000**	**24,000**	**41,000**
SMP-01B	11.0	6/22/2007	mg/kg	< 0.39	< 5.0	< 5.0	< 5.0
	16.5	6/22/2007	mg/kg	< 0.43	< 5.0	< 5.0	< 5.0
	30.0	6/22/2007	mg/kg	< 0.31	< 5.0	< 5.0	< 5.0
	43.0	6/22/2007	mg/kg	< 0.37	< 5.0	< 5.0	< 5.0
SMP-03B	14.0	6/22/2007	mg/kg	< 0.34	< 5.0	< 5.0	< 5.0
	24.0	6/22/2007	mg/kg	< 0.41	< 5.0	< 5.0	< 5.0
	43.0	6/22/2007	mg/kg	< 0.36	< 5.0	< 5.0	< 5.0
SMP-04B	1.5	6/20/2007	mg/kg	< 20	**2,100**	**3,900**	**6,100**
	5.5	6/20/2007	mg/kg	< 0.37	**650**	**1,400**	**2,100**
	9.5	6/20/2007	mg/kg	< 0.32	< 5.0	< 5.0	**5.9**
	22.0	6/20/2007	mg/kg	**5.4**[E] **J**	**41**	**32**	**73**
	32.0	6/20/2007	mg/kg	< 0.35	< 5.0	< 5.0	< 5.0
	42.5	6/20/2007	mg/kg	< 0.31	< 5.0	< 5.0	< 5.0
SMP-05B	10.5	6/22/2007	mg/kg	< 0.38	< 5.0	< 5.0	< 5.0
	29.0	6/22/2007	mg/kg	< 0.43	< 5.0	< 5.0	< 5.0
	43.0	6/22/2007	mg/kg	< 0.34	< 5.0	< 5.0	< 5.0
SMP-06B	10.0	6/23/2007	mg/kg	< 0.42	**26**	**250**	**280**
	23.0	6/23/2007	mg/kg	**1,500**	**2,500**	**1,700**	**4,200**
	32.0	6/23/2007	mg/kg	**1.1**	**160**	**98**	**260**
SMP-07B	9.5	6/23/2007	mg/kg	**580**	**960**	**650**	**1,600**
	32.0	6/23/2007	mg/kg	**700**	**1,900**	**1,300**	**3,200**
	34.0	6/23/2007	mg/kg	< 0.35	< 5.0	< 5.0	< 5.0
	43.0	6/23/2007	mg/kg	< 0.32	< 5.0	< 5.0	< 5.0
SMP-08B	13.0	6/23/2007	mg/kg	**800**	**1,500**	**960**	**2,500**
	26.0	6/23/2007	mg/kg	**1,300**	**2,200**	**1,400**	**3,600**
	41.0	6/23/2007	mg/kg	< 0.31	< 5.0	< 5.0	< 5.0
SVE-01B	20.5	6/21/2007	mg/kg	**93**	**1,100**	**650**	**1,700**
SVE-03B	12.0	6/23/2007	mg/kg	**330**	**1,700**	**1,000**	**2,700**
	21.0	6/23/2007	mg/kg	**1,300**	**6,500**	**3,700**	**10,000**
	35.0	6/23/2007	mg/kg	< 0.34	< 5.0	< 5.0	**5.1**
	45.0	6/23/2007	mg/kg	< 0.31	< 5.0	< 5.0	< 5.0

Notes:

mg/kg = milligram per kilogram

< = constituent not detected at concentrations greater than the reporting limit noted

QP-1 = Hydrocarbon result partly due to individual peak(s)

E = Concentration Exceeds the calibration range and therefore result is semi-quantitative.

J = The reported value is an estimate.

(1) Soil samples collected in six-inch tubes beginning with the depth indicated.

(2) Samples analyzed for Total Petroleum Hydrocarbons in the gasoline, diesel and motor oil ranges (TPH-g, TPH-d, TPH-mo) by USEPA Method 8015B.

TABLE 7: SUMMARY of TOTAL ORGANIC CARBON CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	Sample Depth	Sample Date	Units	Total Organic Carbon
MW-17S	2.0	6/19/2007	mg/kg	**20,000**
	7.5	6/19/2007	mg/kg	< 5,000
	21.0	6/19/2007	mg/kg	< 5,000
	30.0	6/19/2007	mg/kg	< 5,000
	42.5	6/19/2007	mg/kg	< 5,000
	53.5	6/19/2007	mg/kg	< 5,000
MW-19S	3.0	6/18/2007	mg/kg	**23,000**
	8.0	6/18/2007	mg/kg	< 5,000
	24.5	6/18/2007	mg/kg	< 5,000
	32.5	6/18/2007	mg/kg	< 5,000
	45.0	6/18/2007	mg/kg	< 5,000
	60.5	6/18/2007	mg/kg	< 5,000
	71.0	6/18/2007	mg/kg	< 5,000
MW-20S	1.5	6/15/2007	mg/kg	**130,000**
	11.0	6/15/2007	mg/kg	< 5,000
	23.0	6/15/2007	mg/kg	< 5,000
	30.0	6/15/2007	mg/kg	< 5,000
	43.0	6/15/2007	mg/kg	< 5,000
	50.0	6/15/2007	mg/kg	< 5,000
	58.0	6/15/2007	mg/kg	< 5,000
PZ-01	12.5	6/14/2007	mg/kg	< 5,000
	22.5	6/14/2007	mg/kg	< 5,000
	41.0	6/14/2007	mg/kg	< 5,000
SMP-01B	11.0	6/22/2007	mg/kg	< 5,000
	16.5	6/22/2007	mg/kg	< 5,000
	30.0	6/22/2007	mg/kg	< 5,000
	43.0	6/22/2007	mg/kg	< 5,000
SMP-02B	2.0	6/21/2007	mg/kg	**9,400**
	12.0	6/21/2007	mg/kg	< 5,000
	26.0	6/21/2007	mg/kg	< 5,000
	42.0	6/21/2007	mg/kg	< 5,000
SMP-03B	14.0	6/22/2007	mg/kg	< 5,000
	24.0	6/22/2007	mg/kg	< 5,000
	43.0	6/22/2007	mg/kg	< 5,000
SMP-04B	1.5	6/20/2007	mg/kg	**76,000**
	5.5	6/20/2007	mg/kg	**35,000**
	9.5	6/20/2007	mg/kg	< 5,000
	22.0	6/20/2007	mg/kg	< 5,000
	32.0	6/20/2007	mg/kg	< 5,000
	42.5	6/20/2007	mg/kg	< 5,000
SMP-05B	10.5	6/22/2007	mg/kg	< 5,000
	29.0	6/22/2007	mg/kg	< 5,000

TABLE 7: SUMMARY of TOTAL ORGANIC CARBON CONCENTRATIONS in SOIL
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	Sample Depth	Sample Date	Units	Total Organic Carbon
SMP-05B	43.0	6/22/2007	mg/kg	< 5,000
SMP-06B	10.0	6/23/2007	mg/kg	**26,000**
	23.0	6/23/2007	mg/kg	**5,600**
	32.0	6/23/2007	mg/kg	**6,400**
SMP-07B	9.5	6/23/2007	mg/kg	< 5,000
	32.0	6/23/2007	mg/kg	< 5,000
	34.0	6/23/2007	mg/kg	< 5,000
	43.0	6/23/2007	mg/kg	< 5,000
SMP-08B	13.0	6/23/2007	mg/kg	< 5,000
	26.0	6/23/2007	mg/kg	< 5,000
	41.0	6/23/2007	mg/kg	< 5,000
SVE-01B	14.0	6/21/2007	mg/kg	< 5,000
	20.5	6/21/2007	mg/kg	< 5,000
	30.0	6/21/2007	mg/kg	< 5,000
SVE-02B	4.0	6/21/2007	mg/kg	**21,000** [M2]
	10.0	6/21/2007	mg/kg	< 5,000
	30.0	6/21/2007	mg/kg	< 5,000
	43.0	6/21/2007	mg/kg	< 5,000
SVE-03B	12.0	6/23/2007	mg/kg	**6,300**
	21.0	6/23/2007	mg/kg	**18,000**
	35.0	6/23/2007	mg/kg	< 5,000
	45.0	6/23/2007	mg/kg	< 5,000

Notes:
mg/kg = milligram per kilogram
< = constituent not detected at concentrations greater than the reporting limit noted
M2 = The MS and /or MSD were above the acceptance limits due to sample matrix interference.
(1) Soil samples collected in six-inch tubes beginning with the depth indicated.
(2) Samples analyzed for Total Organic Carbon by EPA Method 9060A Modified.

TABLE 8: SUMMARY of GEOTECHNICAL RESULTS
June 2007 Data Gap Investigation
Phibro-Tech, Inc.
Santa Fe Springs, California

Sample Identification	Depths	Date	Particle Size Distribution, wt. percent: Gravel	Sand Size: Coarse	Sand Size: Medium	Sand Size: Fine	Silt	Clay	Hydraulic Conductivity (2) (cm/s)	Effective Permeability to Air (3) (millidarcy)	Total Porosity (1) (cm^3/cm^3)	Moisture Content (cm^3/cm^3)	Total Pore Fluid Saturations (5) % Pv	USCS Classification Group Symbol Name
Gage Aquifer														
PTI-MW18-S-21.5	21.5-23.0	6/13/07	0.00	0.00	6.37	74.61	15.80	3.21	4.74E-03	6,332	0.489	0.079	16.1	SM
PTI-MW20-S-23.0	23.0-24.5	6/15/07	2.60	1.45	58.55	32.50	4.9†		4.93E-03	3,030	0.407	0.277	68.1	SP
PTI-MW19-S-24.5	24.5-26.0	6/18/07	0.00	0.00	21.89	56.07	18.37	3.68	4.54E-04	9,723	0.420	0.129	30.6	SM
PTI-MW17-S-25.0	25.0-26.5	6/19/07	0.00	0.00	45.74	30.67	16.58	7.01	1.63E-05	8.70*	0.338	0.260	76.8	SM
PTI-SMP04B-S-24.0	24.0-25.5	6/20/07	0.71	2.38	56.79	35.08	5.03†		5.07E-03	24,341	0.396	0.087	22.0	SP-SM
PTI-SVE02B-S-30.0	30.0-40.5	6/21/07	0.62	6.26	65.09	22.36	5.67†		5.14E-03	25,229	0.422	0.158	37.5	SP-SM
PTI-SVE01B-S-26.0	26.0-27.5	6/21/07	0.00	0.00	47.98	35.76	12.98	3.28	5.82E-04	14,891	0.414	0.101	24.4	SM
PTI-SVE03B-S-27.0	27.0-28.5	6/22/07	0.00	0.23	31.18	57.20	11.38†		1.39E-03	6,145	0.419	0.242	57.6	SP-SM
		Mean Values	**0.49**	**1.29**	**41.70**	**43.03**	**15.93**	**4.29**	**2.79E-03**	**12,812.92**	**0.41**	**0.17**	**41.63**	
Unnamed Aquitard														
PTI-MW18-33.5	33.5-35.0	6/13/07	0.00	0.00	0.00	5.90	65.52	28.58	3.51E-07	125	0.431	0.374	86.7	CL
PTI-MW18-47.5	47.5-49.0	6/13/07	0.00	0.00	10.71	26.57	48.26	14.46	1.64E-07	5.01	0.331	0.292	88.2	CL
PTI-MW20-S-39.0	39.0-40.5	6/15/07	0.00	0.00	0.00	2.61	72.38	25.00	6.06E-07	0.309	0.494	0.437	88.4	CH
PTI-MW19-S-36.0	36.0-37.5	6/18/07	0.00	0.00	17.81	29.63	41.65	10.92	1.03E-05	13.1	0.411	0.324	78.7	CL
PTI-MW17-S-46.0	46.0-47.5	6/19/07	0.00	0.00	2.94	29.47	46.52	21.07	8.76E-07	0.709	0.327	0.321	98.2	CL
PTI-SMP04B-S-42.5	42.5-44.0	6/20/07	0.00	0.00	10.50	30.90	40.14	18.46	8.66E-07	2.26	0.318	0.263	82.7	CL
PTI-SVE02B-S-43.0	43.0-44.5	6/21/07	0.00	0.00	5.40	31.14	44.25	19.21	9.20E-07	0.569	0.331	0.274	82.9	CL
PTI-SVE01B-S-44.0	44.0-45.5	6/21/07	0.00	0.00	7.35	36.48	37.07	19.10	6.07E-07	6.41	0.300	0.277	92.4	CL
PTI-SVE03B-S-43.0	43.0-44.5	6/22/07	0.00	0.00	8.42	31.83	41.71	18.04	3.38E-06	4.23	0.365	0.227	62.2	CL
		Mean Values	**0.00**	**0.00**	**7.01**	**24.95**	**48.61**	**19.43**	**2.01E-06**	**17.50**	**0.37**	**0.31**	**84.49**	

Upper Hollydale Aquifer			Particle Size Distribution, wt. percent: Gravel	Sand Size: Coarse	Sand Size: Medium	Sand Size: Fine	Silt	Clay	Hydraulic Conductivity (4) (cm/s)	Effective Permeability to Air (3) (millidarcy)	Total Porosity (1) % Vb	Moisture Content % weight	Total Pore Fluid Saturations (5) % Pv	USCS Classification Group Symbol Name
PTI-MW18-59-60	59.0.-60.0	6/14/07	0.00	0.00	56.88	24.43	15.42	3.27	3.62E-04	--	34.3	15.1	77.5	--
PTI-MW20-S-58.0	58.0-59.5	6/15/07	0.03	0.17	50.00	44.19	5.61†		1.90E-03	--	37.0	15.83	--	--
PTI-MW19-S-66.0	66.0-67.5	6/18/07	0.00	0.00	17.31	64.16	15.74	2.80	2.56E-04	--	40.1	20.39	--	--
		Mean Values	**0.01**	**0.06**	**41.40**	**44.26**	**15.58**	**3.04**	**8.38E-04**	**NA**	**37.13**	**17.11**	**NA**	

Notes:
"--" Not analyzed
"NA" Not applicable.
"*" Value not included in mean value calculation.
"†" Silt and clay values not differentiated and are not included in mean value calculations.
(1) Total Porosity = no pore fluids in place; all interconnected pore channels.
(2) Permeability to water and conductivity measured at saturated conditions; 25 PSI confining pressure
(3) Native State = As received with pore fluids in place
(4) Native State or Effective = With as-received pore fluids in place; Permeability to water and hydraulic conductivity measured at saturated conditions; 25 PSI confining stress
(5) Water = 0.9996 g/cc; Vb = Bulk Volume, cc
PSI - pounds per square inch
% Vb ;= percent bulk volume

TABLE 9: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in GROUNDWATER
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-17S**	**MW-18S**	**MW-19S**	**MW-20S**
Sample Date	**7/3/2007**	**7/3/2007**	**7/3/2007**	**7/3/2007**
Units	**µg/l**	**µg/l**	**µg/l**	**µg/l**
1,1,1,2-Tetrachloroethane	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	**5.4**	**11**	**84**	**93**
1,1-Dichloroethene	**2.1**	**1.9**	**8.4**	**31**
1,1-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane (EDB)	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	**40**	**280**	**46**	**340**
1,2-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**2.4**	< 0.50	**3.2**	**2.2**
Bromobenzene	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	< 1.0	< 1.0	< 1.0	< 1.0
Carbon tetrachloride	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	< 1.0	< 1.0	**2.1**	**1.5**
Chloroethane	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	< 1.0	**3.9**	**9.7**	< 1.0
Chloromethane	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	**8.6**	< 1.0	**8.8**	**47**
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	**1,900**	**4.2**	**800**	**17**
Hexachlorobutadiene	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	**15**	< 1.0	**14**	**4.9**
m,p-Xylenes	**31**	< 1.0	**15**	< 1.0
Methylene chloride	< 5.0	**6.8**	< 5.0	< 5.0
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0
n-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	**3**	< 1.0	**2.2**	< 1.0
o-Xylene	**1.3**	< 1.0	**55**	< 1.0
p-Isopropyltoluene	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	< 1.0	**1.5**	**2.5**	**1.7**
Toluene	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	< 1.0	< 1.0	< 1.0	**1.4**
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	**10**	**14**	**140**	**140** MHA
Trichlorofluoromethane	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	< 0.50	< 0.50	< 0.50	< 0.50

TABLE 9: SUMMARY of VOLATILE ORGANIC COMPOUNDS CONCENTRATIONS in GROUNDWATER
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Notes:

µg/l = microgram per liter

< = Constituent not detected at concentrations greater than the reporting limit noted.

MHA = Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.

(1) Samples analyzed for Volatile Organic Compounds by EPA Method 8260B.

TABLE 10: SUMMARY of METALS and CrVI CONCENTRATIONS in GROUNDWATER
June 2007 Data Gap Investigation
Phibro-Tech, Inc., Santa Fe Springs, California

Sample Location	**MW-04**	**MW-09**	**MW-17S**	**MW-18S**	**MW-19S**	**MW-20S**
Sample Date	**6/13/2007**	**6/13/2007**	**7/3/2007**	**7/3/2007**	**7/3/2007**	**7/3/2007**
Units	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**
Antimony	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Arsenic	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Barium	--	--	**0.063**	**0.035**	**0.089**	**0.13**
Beryllium	--	--	< 0.0040	< 0.0040	< 0.0040	< 0.0040
Cadmium	--	--	< 0.0050	< 0.0050	< 0.0050	**0.028**
Chromium VI	**8.8**	**0.28**	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chromium,	--	--	< 0.0050	< 0.0050	< 0.0050	**0.0089**
Cobalt	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Copper	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Lead	--	--	**0.0074**	**0.0076**	**0.0071**	**0.0071**
Mercury	--	--	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Molybdenum	--	--	< 0.020	< 0.020	< 0.020	< 0.020
Nickel	--	--	< 0.010	< 0.010	< 0.010	**0.011**
Selenium	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Silver	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Thallium	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Vanadium	--	--	< 0.010	< 0.010	< 0.010	< 0.010
Zinc	--	--	< 0.020	< 0.020	< 0.020	< 0.020

Notes:
mg/l = miligrams per liter
< = Constituent not detected at concentrations greater than the reporting limit noted.
(1) Samples analyzed for Hexavalent Chromium by EPA Method 7199.
Samples analyzed for Mercury by EPA Method 7471A.
Samples analyzed for CAM 17 Metals by EPA Method 6010B.

TABLE 11: NUMBER and RANGE of HALOGENATED VOLATILE ORGANIC COMPOUNDS DETECTIONS in SOIL
June 2007 Data Gap Site Investigation
Phibro-Tech, Inc. Santa Fe Springs, California

Chemical Name [1]	Number of Detections	Minumum Detection (µg/kg)	Maximum Detection (µg/kg)	Location of Maximum Detection
Trichloroethene	52	2.5	12,000	MW18-2.5
1,1-Dichloroethane	50	2	2,800	MW18-2.5
cis-1,2-Dichloroethene	37	1.9	5,500	PZ02-3.5
1,1-Dichloroethene	30	4.4	1,000	MW18-2.5
Chloroform	25	1.9	540	MW18-2.5
trans-1,2-Dichloroethene	19	1.7	110	PZ02-3.5
Tetrachloroethene	12	2.6	1,300	MW18-2.5
1,2-Dichloroethane	12	2.4	35	MW18-58.5
Methylene chloride	9	20	210	MW18-55.0
1,1,1-Trichloroethane	7	2	5,800	MW18-2.5
Chlorobenzene	6	1.9	12	MW18-10.0
1,1,2-Trichloroethane	5	1.9	6.4	MW18-30.0
1,3-Dichlorobenzene	3	62	20,000	PZ01-3.0
1,2,4-Trichlorobenzene	3	180	130,000	PZ01-3.0
1,2-Dichlorobenzene	3	4.3	1,600	PZ01-3.0
1,2,3-Trichlorobenzene	2	220	18,000	PZ01-3.0
1,4-Dichlorobenzene	2	2.7	7,200	PZ01-3.0
Bromodichloromethane	1	4.6	4.6	MW18-43.0
1,1,2,2-Tetrachloroethane	1	8.2	8.2	MW18-30.0
2-Chlorotoluene	1	4.6	4.6	MW18-10.0
Vinyl chloride	1	5	5	MW20-1.5
Chloroethane	1	4.6	4.6	SVE01B-14.0
Dibromochloromethane	1	1.7	1.7	MW18-43.0

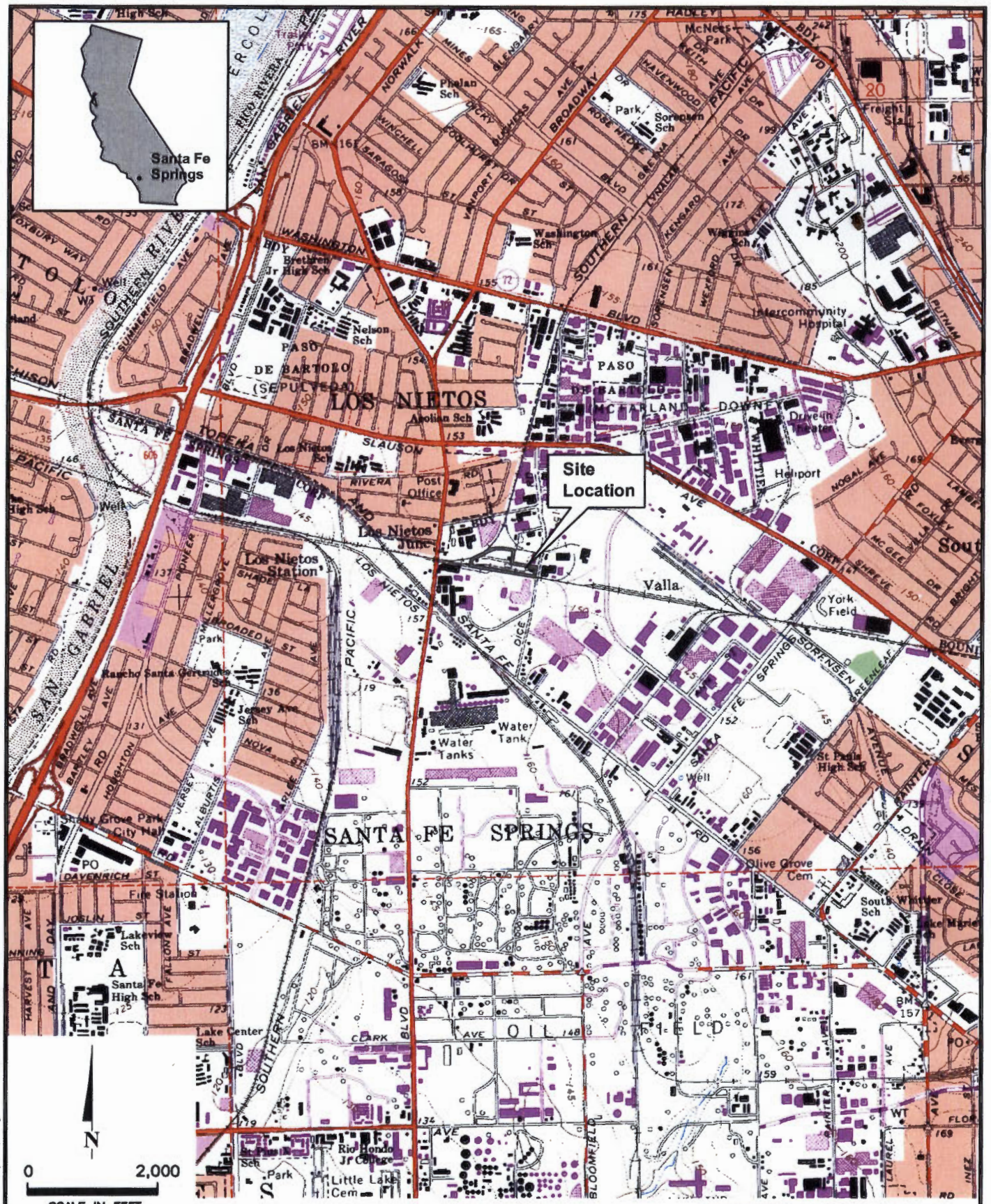
Notes:
µg/kg = micrograms per kilogram
(1) This halogenated VOCs list of detections includes halogenated aromatic compounds.

TABLE 12: NUMBER and RANGE of AROMATIC VOLATILE ORGANIC COMPOUNDS DETECTIONS in SOIL
Data Gap Site Investigation
Phibro-Tech, Inc. Santa Fe Springs, California

Chemical Name	Number of Detections	Minumum Detection	Maximum Detection	Location-Depth of Maximum Detection
Isopropylbenzene	15	1.9	3700	SMP08-26.0
Naphthalene	13	4.6	19000	SVE03B-21.0
sec-Butylbenzene	13	10	2600	SMP08-26.0
n-Propylbenzene	11	11	5100	SVE03B-21.0
Benzene	10	1.9	68	MW20-1.5
Ethylbenzene	8	2.9	200	SVE03B-21.0
m,p-Xylenes	8	2.1	130	MW20-1.5
n-Butylbenzene	7	11	540	SVE03B-21.0
o-Xylene	5	2.3	35	MW20-1.5
Toluene	5	2.2	120	MW20-1.5
1,2,4-Trimethylbenzene	4	3	1600	PZ01-3.0
p-Isopropyltoluene	2	13	14	MW20-1.5
tert-Butylbenzene	2	15	19	MW18-23.5
1,3,5-Trimethylbenzene	1	11	11	MW20-1.5

Notes:
µg/kg = micrograms per kilogram

FIGURES



Source: USGS 7.5' Whittier Quadrangle

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Site Vicinity Map
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
1

Drafter: EBH | Date: 7/12/07 | Contract Number: 06-441-D

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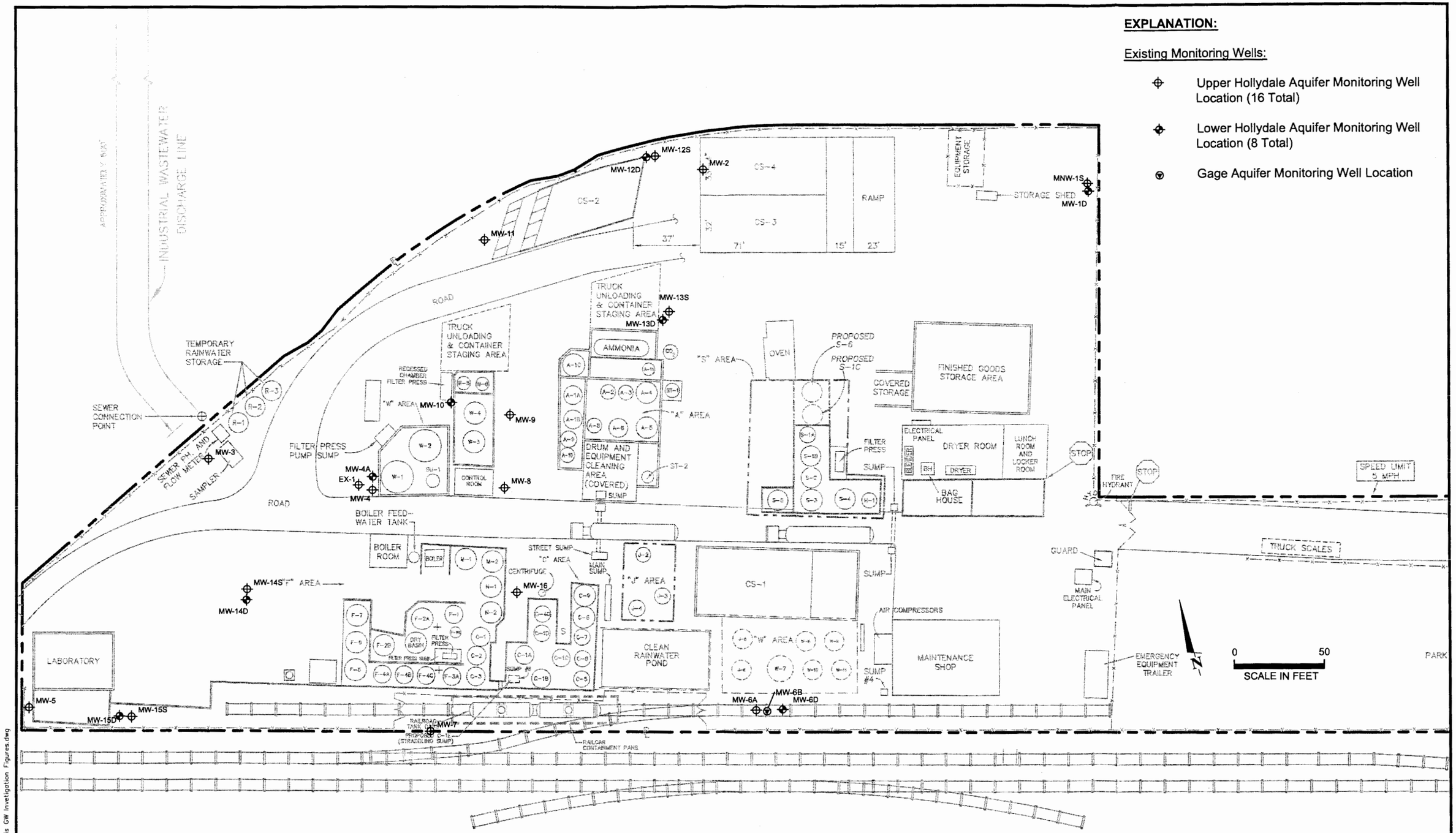
EXPLANATION:

Existing Monitoring Wells:

- Upper Hollydale Aquifer Monitoring Well Location (16 Total)
- Lower Hollydale Aquifer Monitoring Well Location (8 Total)
- Gage Aquifer Monitoring Well Location



IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Site Layout Showing Existing Monitoring Well Locations
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
2

Drafter: EBH
Date: 8/7/07
Contract Number: 06-441-B

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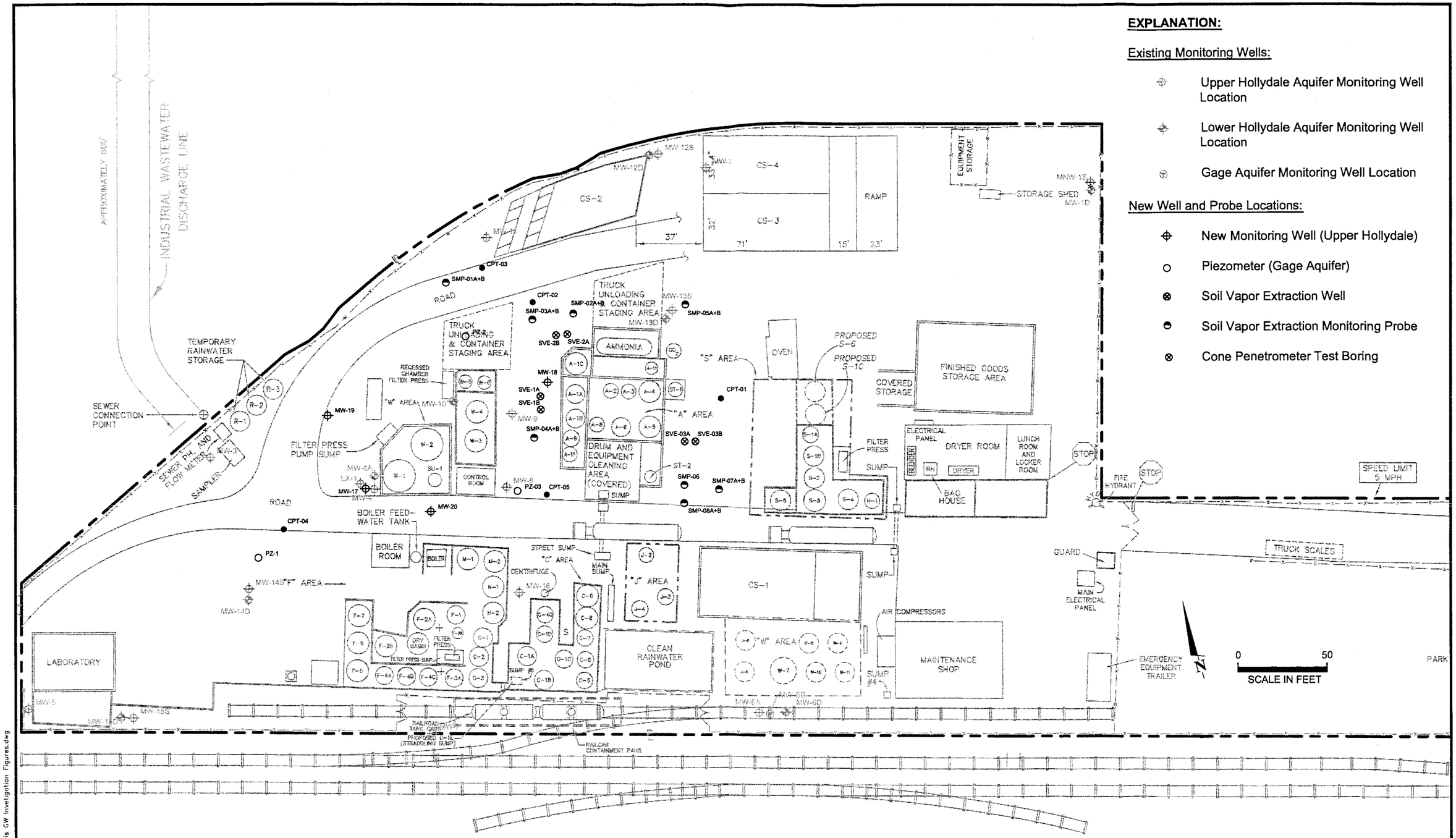

EXPLANATION:

Existing Monitoring Wells:

- Upper Hollydale Aquifer Monitoring Well Location
- Lower Hollydale Aquifer Monitoring Well Location
- Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
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New Monitoring Well, Piezometer, SVE Monitoring Probe, and CPT Boring Locations
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
3

Drafter: EBH | Date: 8/13/07 | Contract Number: 06-441-B

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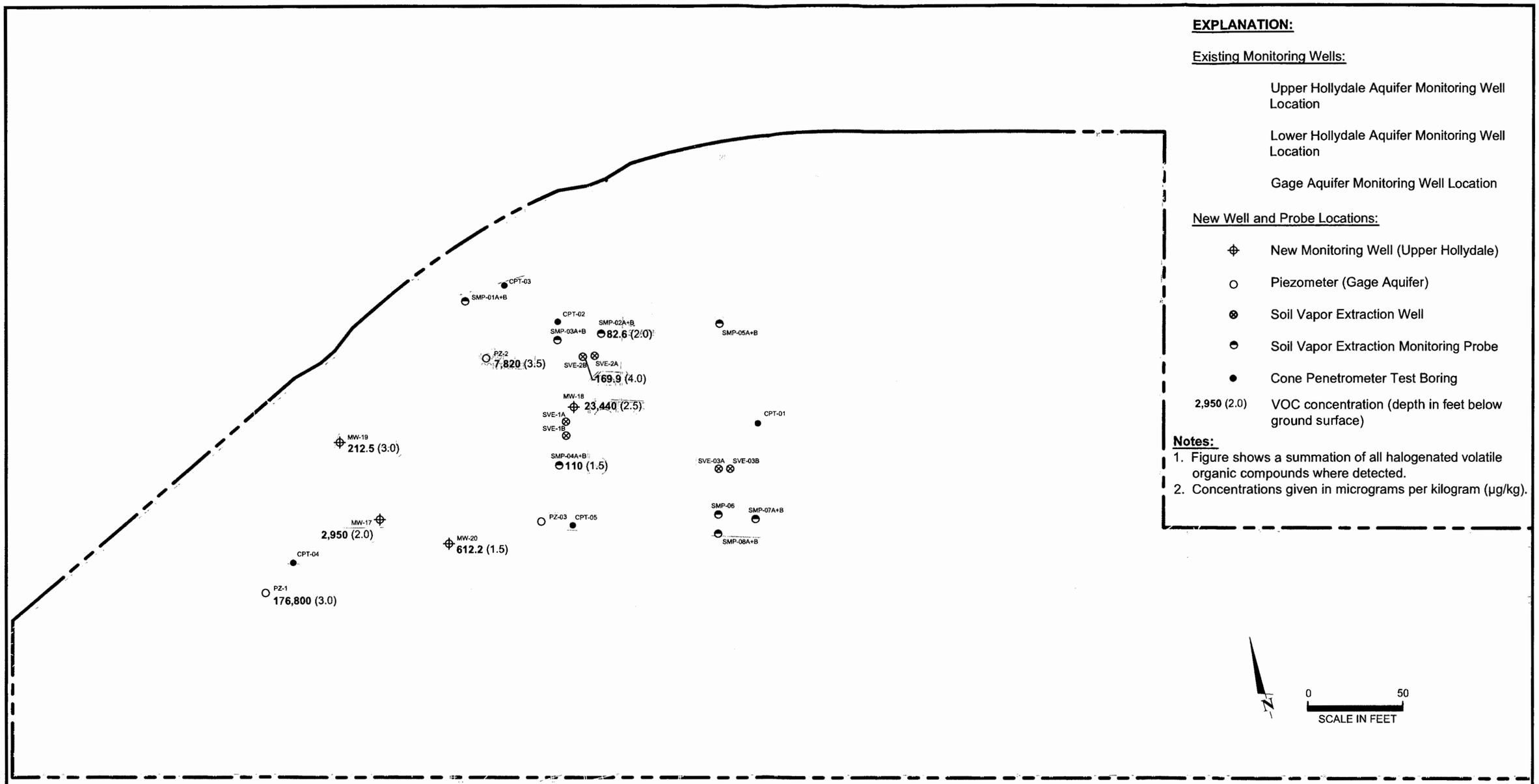

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- **2,950** (2.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all halogenated volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).

IRIS ENVIRONMENTAL
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Total Halogenated Volatile Organic Compounds in Soil 0-5 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure **4**

Drafter: EBH | Date: 8/13/07 | Contract Number: 06-441-B

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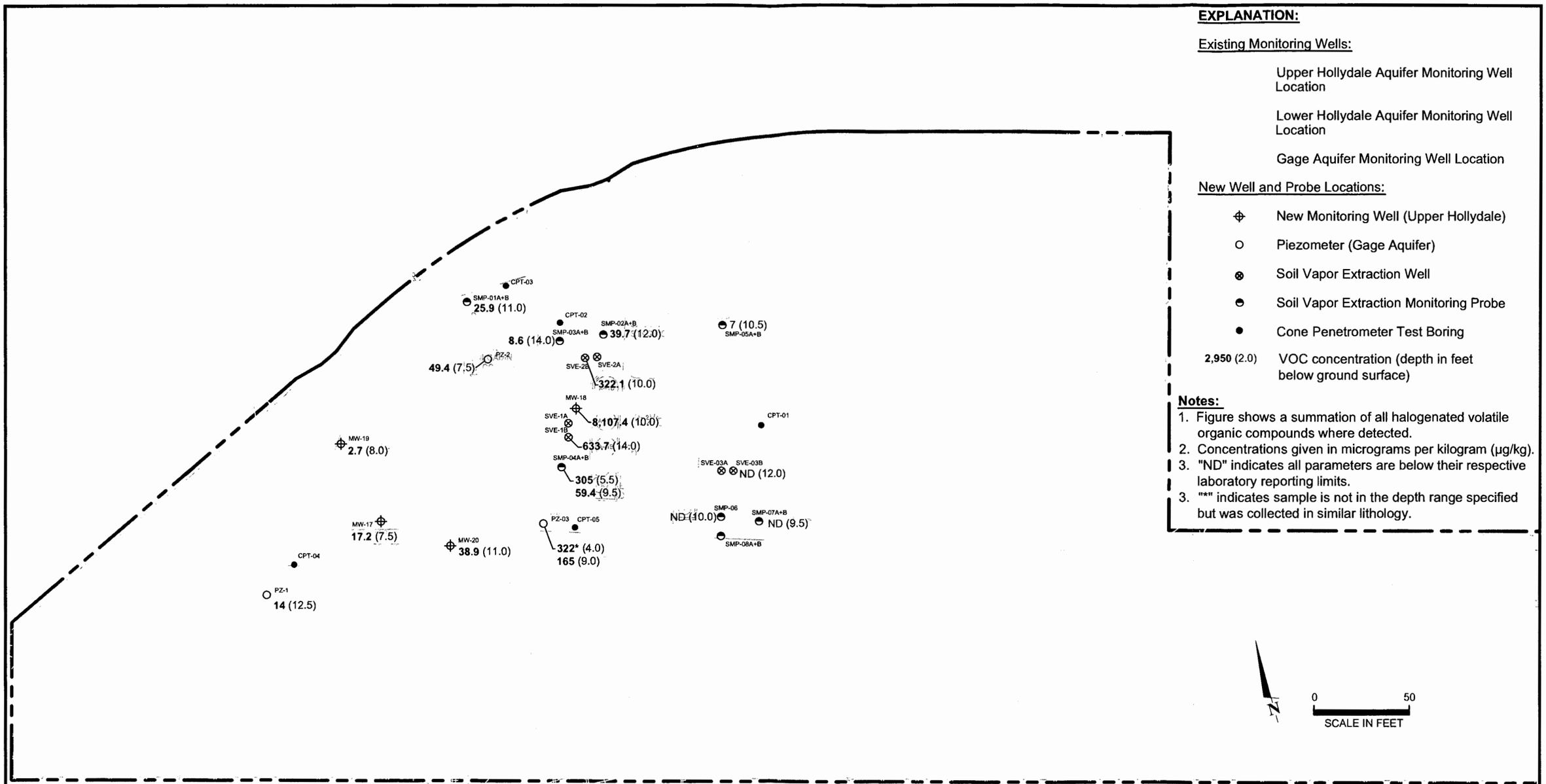

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

2,950 (2.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all halogenated volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.
3. "*" indicates sample is not in the depth range specified but was collected in similar lithology.

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Total Halogenated Volatile Organic Compounds in Soil 5-15 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
5

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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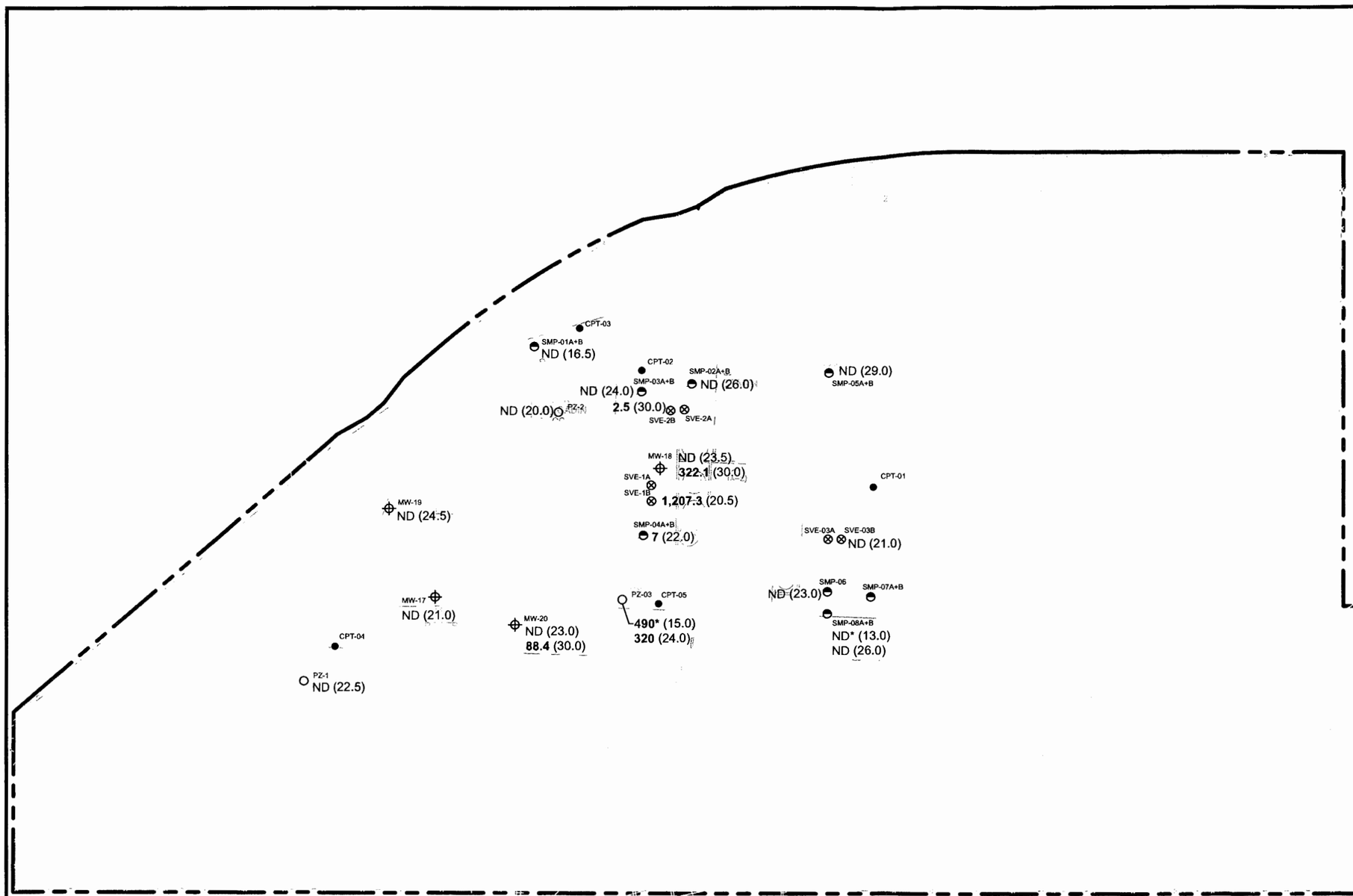

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- **2,950** (2.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all halogenated volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.
3. "*" indicates sample is not in the depth range specified but was collected in similar lithology.

N

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SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Total Halogenated Volatile Organic Compounds in Soil 15-31 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
6

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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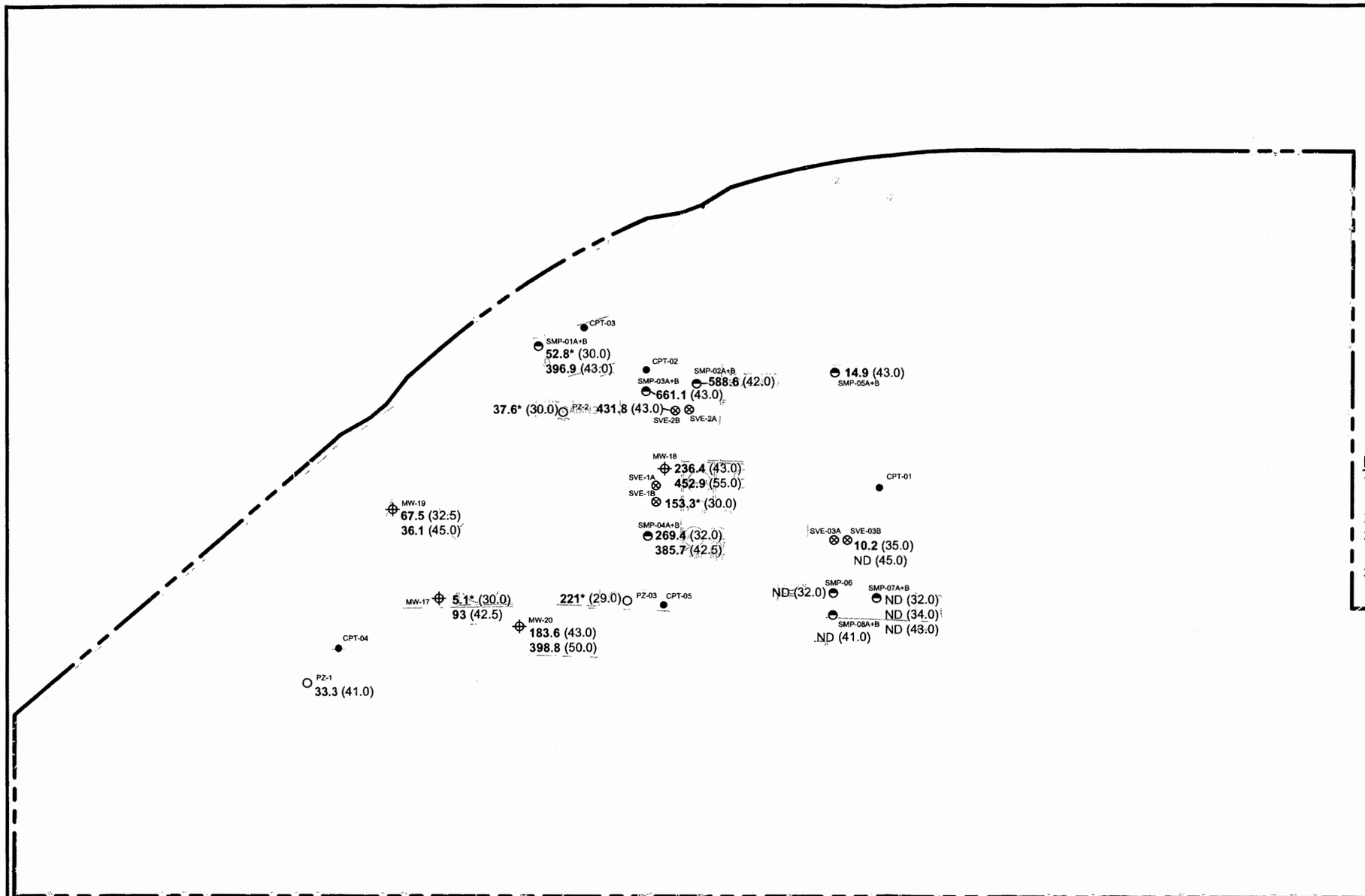

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

2,950 (2.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all halogenated volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.
3. "*" indicates sample is not in the depth range specified but was collected in similar lithology.

N

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SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
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Ph. (510) 834-4747 Fax: (510) 834-4199

Total Halogenated Volatile Organic Compounds in Soil 31-55 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
7

Drafter: EBH

Date: 8/13/07

Contract Number: 06-441-B

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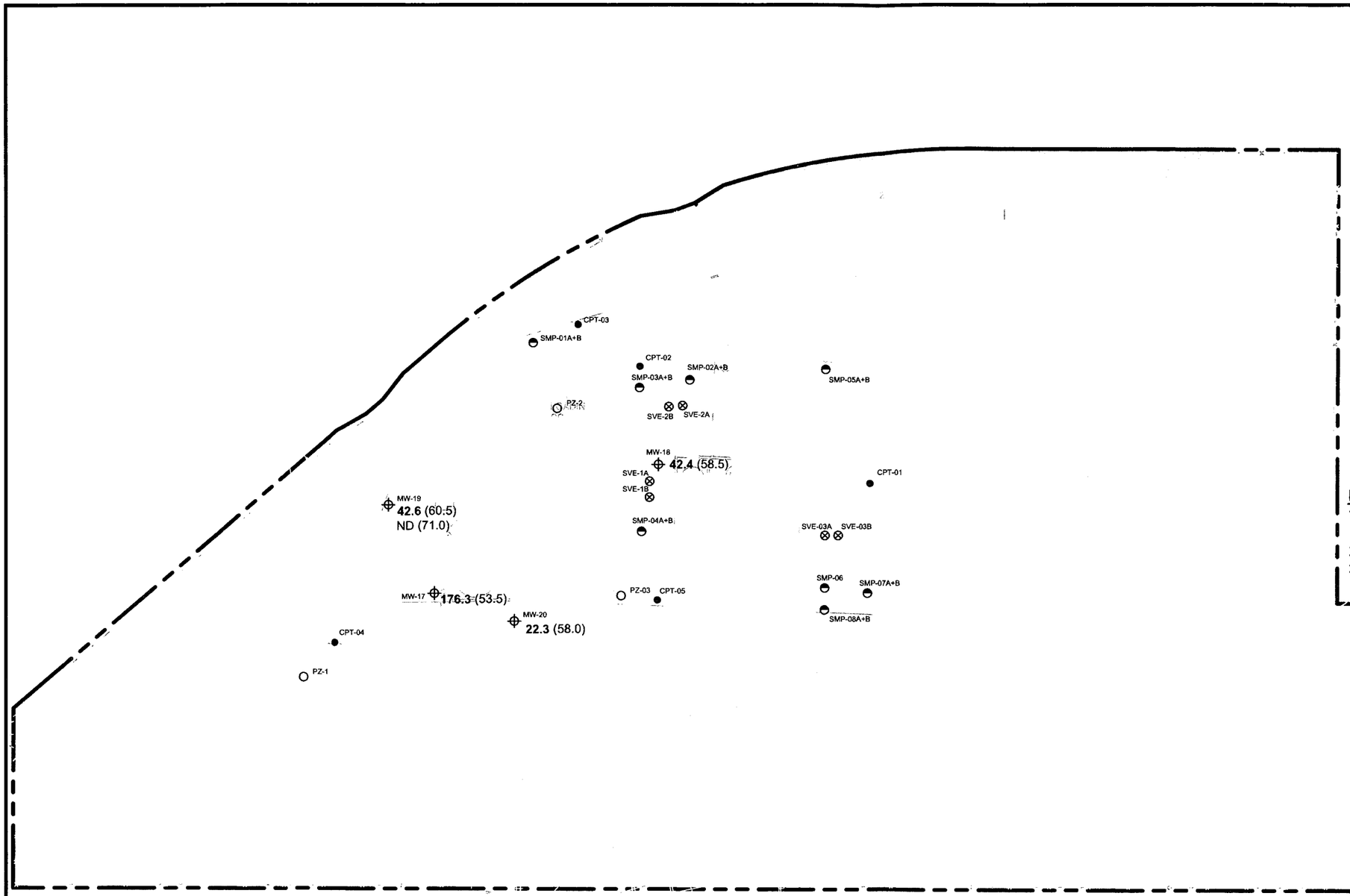

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- **2,950** (2.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all halogenated volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.

IRIS ENVIRONMENTAL
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Total Halogenated Volatile Organic Compounds in Soil 55-75 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
8

Drafter: EBH | Date: 8/13/07 | Contract Number: 06-441-B

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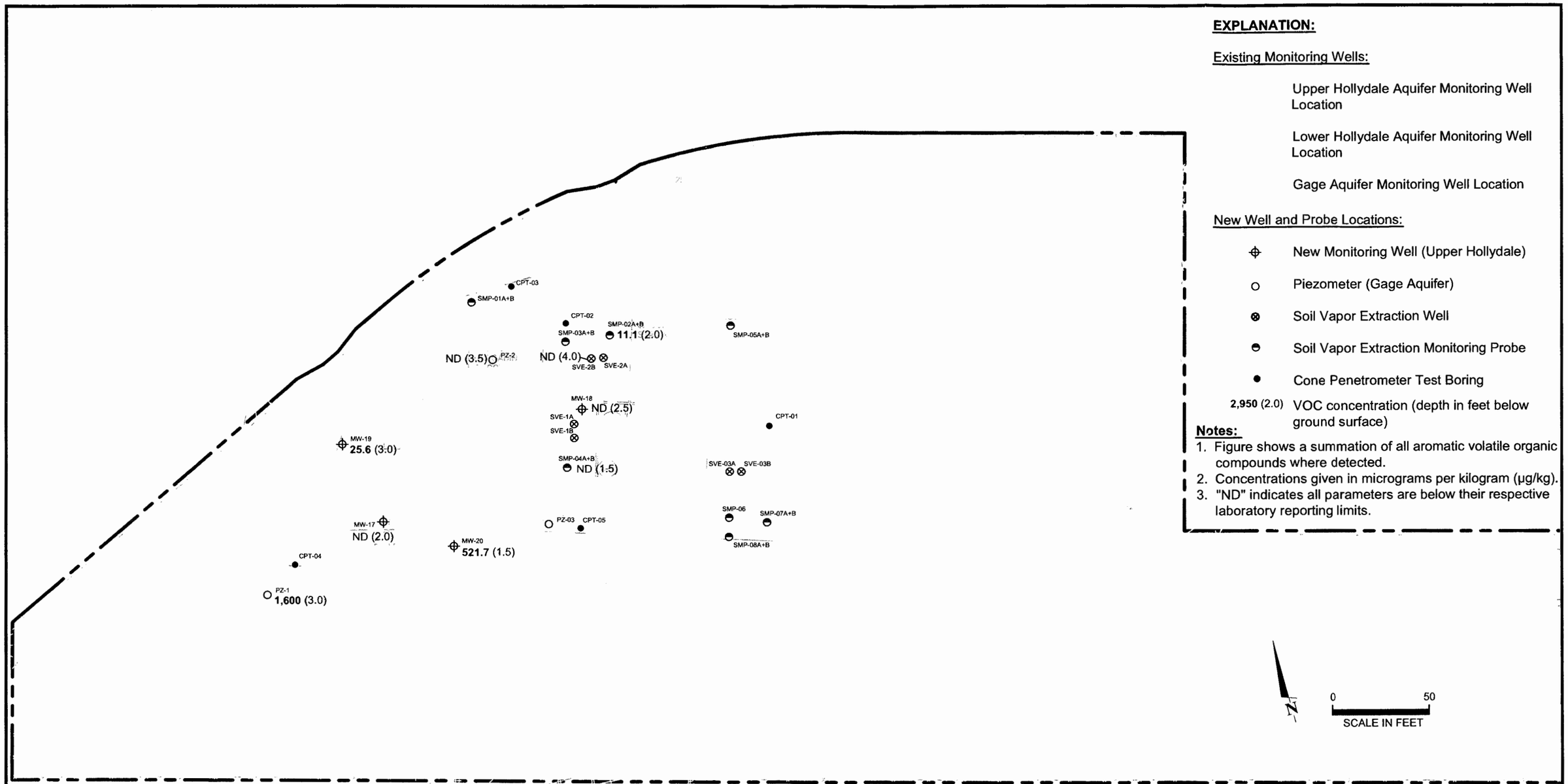

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- **2,950** (2.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all aromatic volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.

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Total Aromatic Volatile Organic Compounds in Soil 0-5 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
9

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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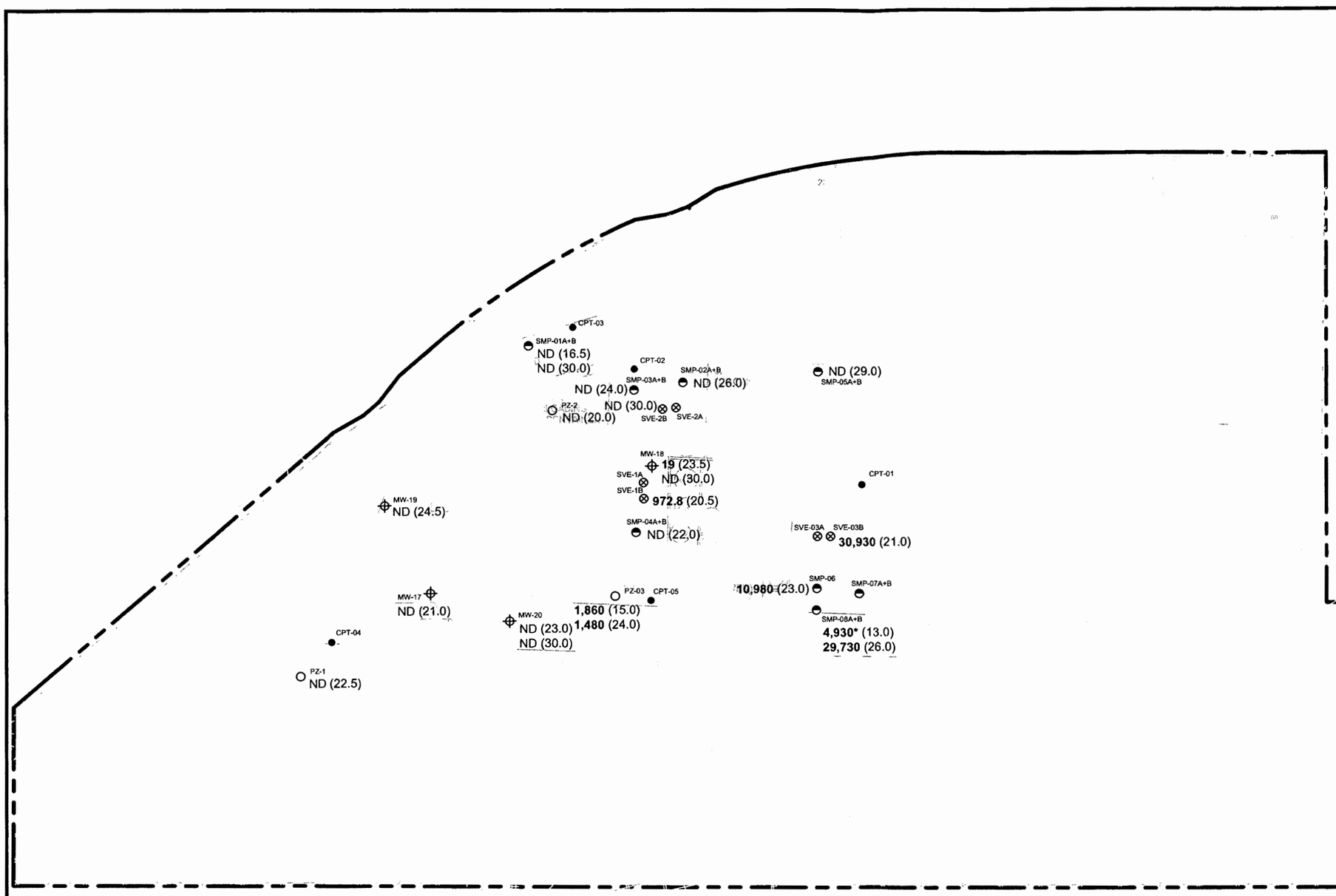

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

972.8 (20.5) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all aromatic volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.
4. "*" indicates sample is not in the depth range specified but was collected in similar lithology.

N

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SCALE IN FEET

IRIS ENVIRONMENTAL
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Oakland, California 94612
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Total Aromatic Volatile Organic Compounds in Soil 15-31 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
11

Drafter: EBH

Date: 8/13/07

Contract Number: 06-441-B

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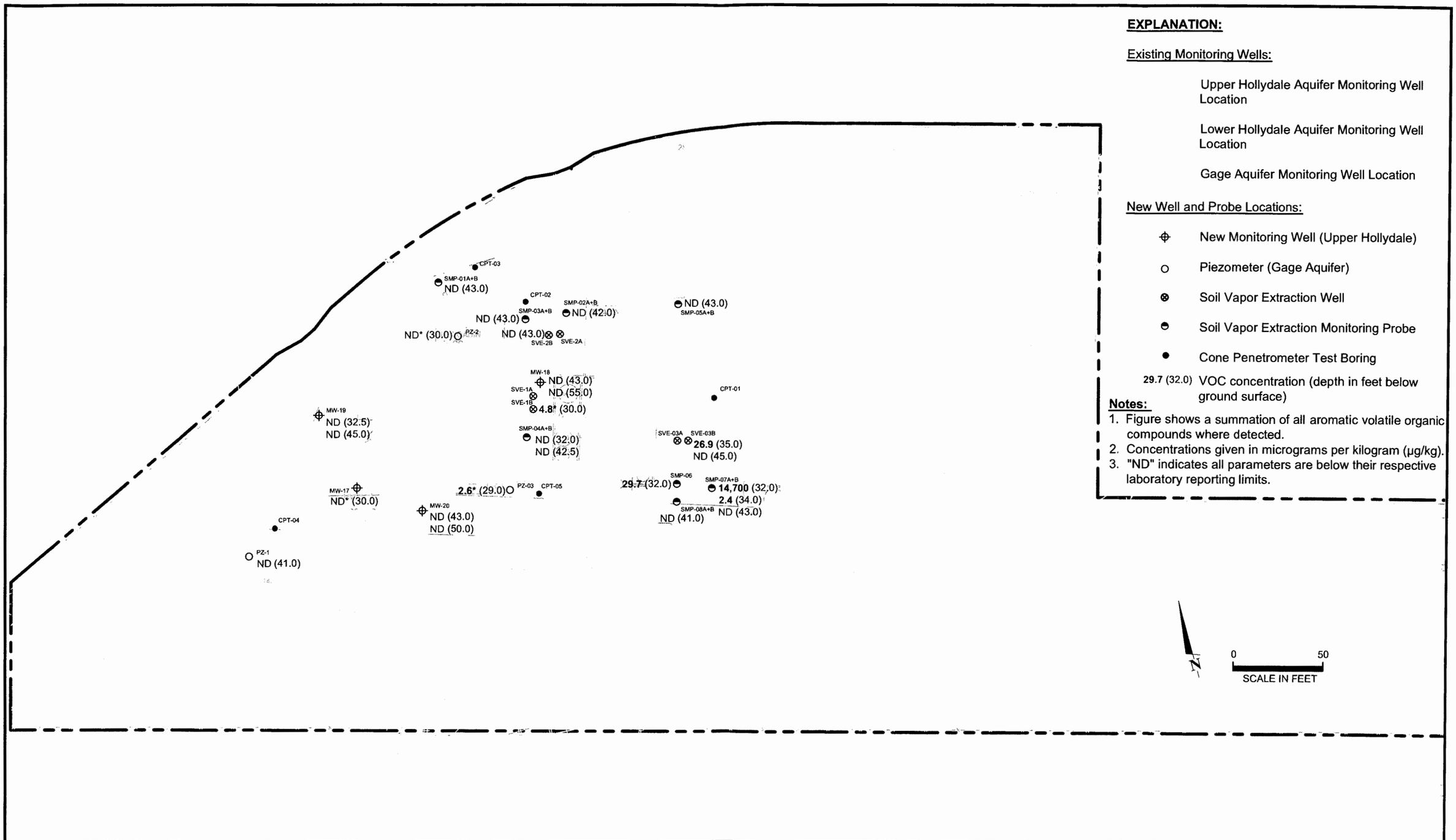

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

⌖ New Monitoring Well (Upper Hollydale)

○ Piezometer (Gage Aquifer)

⊗ Soil Vapor Extraction Well

◓ Soil Vapor Extraction Monitoring Probe

● Cone Penetrometer Test Boring

29.7 (32.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all aromatic volatile organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.

IRIS ENVIRONMENTAL
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Total Aromatic Volatile Organic Compounds in Soil 31-55 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
12

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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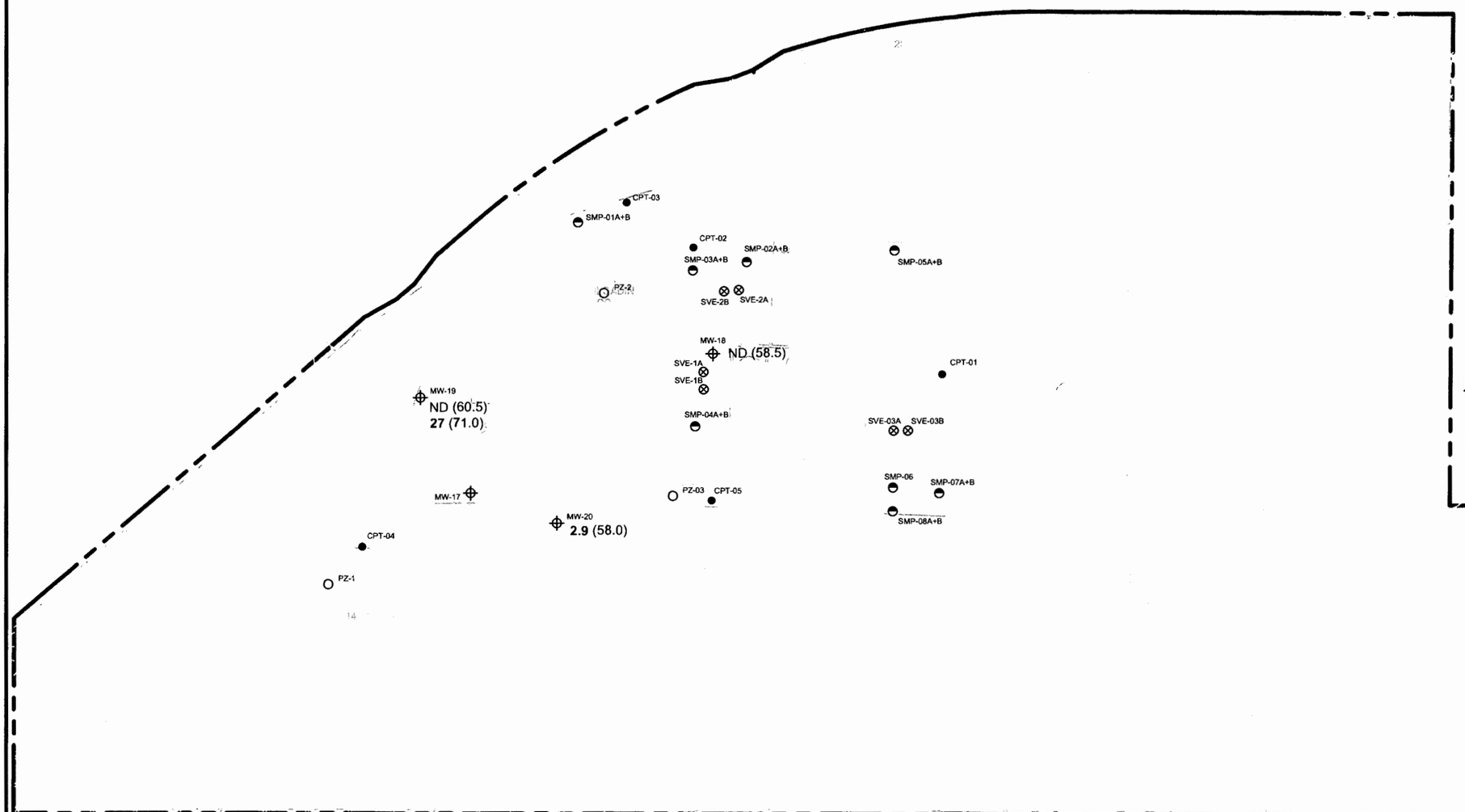

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- **29.7** (32.0) VOC concentration (depth in feet below ground surface)

Notes:

1. Figure shows a summation of all volatile aromatic organic compounds where detected.
2. Concentrations given in micrograms per kilogram (µg/kg).
3. "ND" indicates all parameters are below their respective laboratory reporting limits.

N

0 50
SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Total Aromatic Volatile Organic Compounds in Soil 55-75 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
13

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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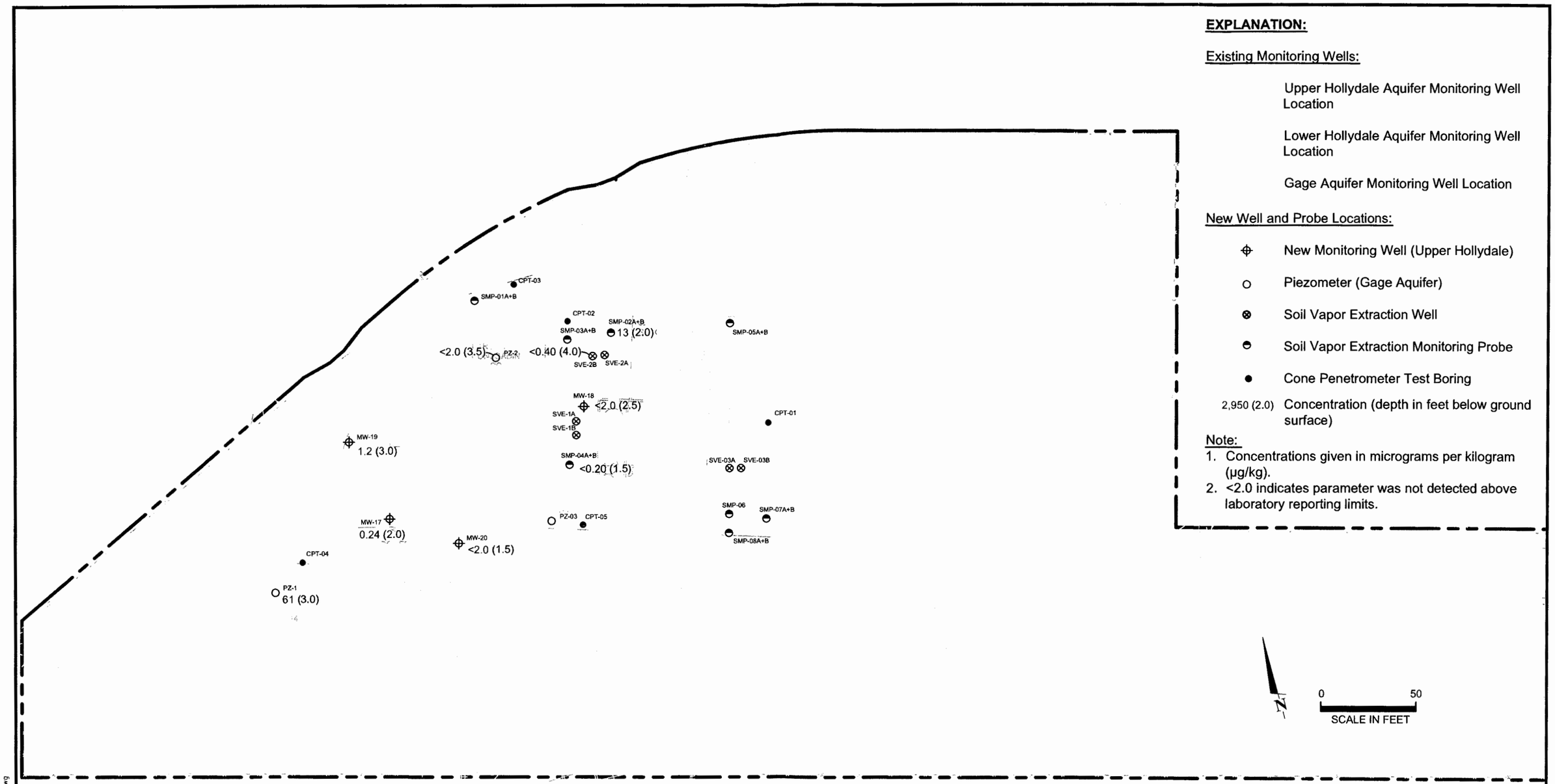

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- 2,950 (2.0) Concentration (depth in feet below ground surface)

Note:
1. Concentrations given in micrograms per kilogram (µg/kg).
2. <2.0 indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
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Hexavalent Chromium Detections in Soil 0-5 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
14

Drafter: EBH
Date: 8/14/07
Contract Number: 06-441-B

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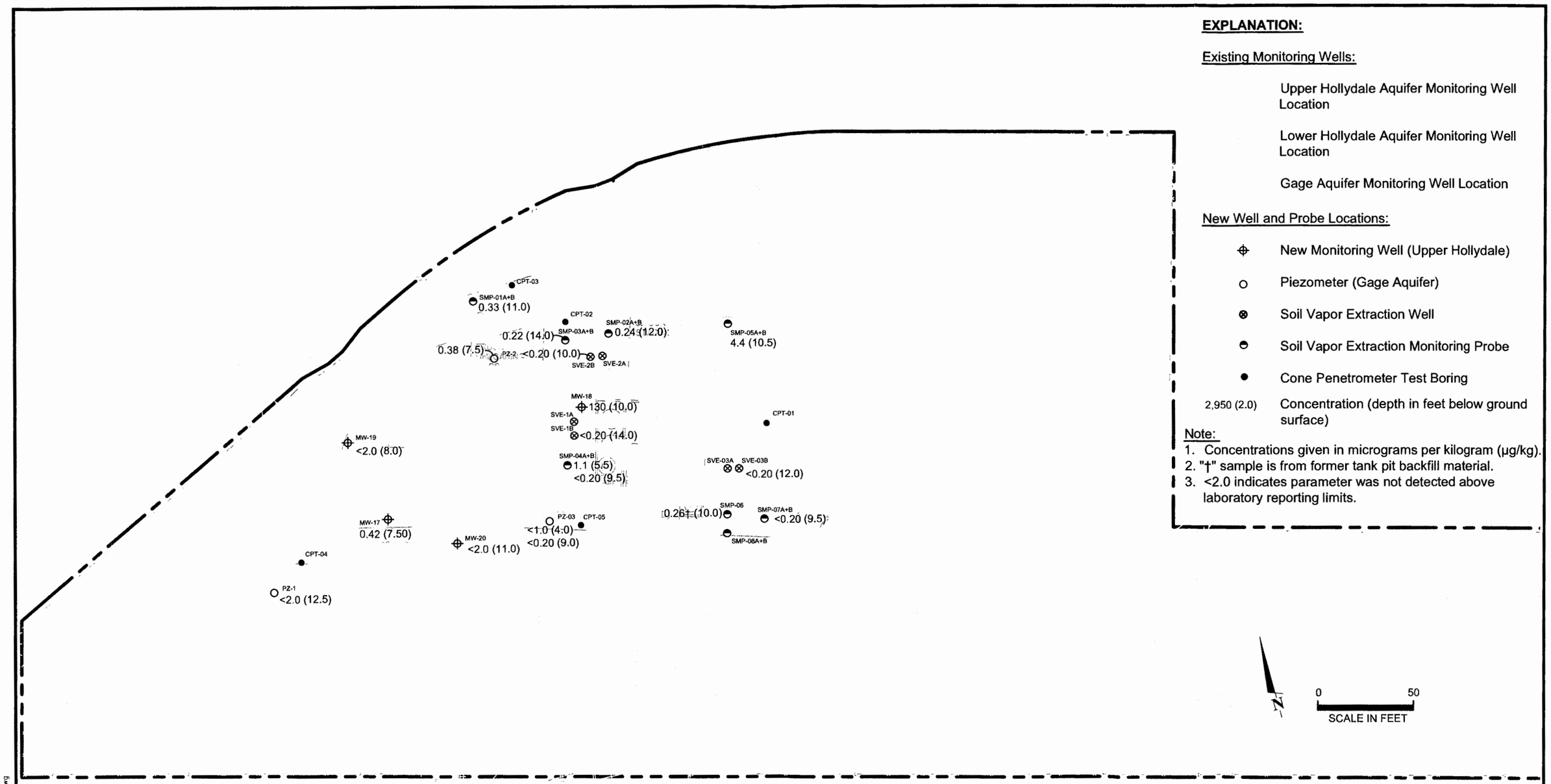

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- 2,950 (2.0) Concentration (depth in feet below ground surface)

Note:
1. Concentrations given in micrograms per kilogram (µg/kg).
2. "†" sample is from former tank pit backfill material.
3. <2.0 indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
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Hexavalent Chromium Detections in Soil 5-15 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
15

Drafter: EBH
Date: 8/14/07
Contract Number: 06-441-B

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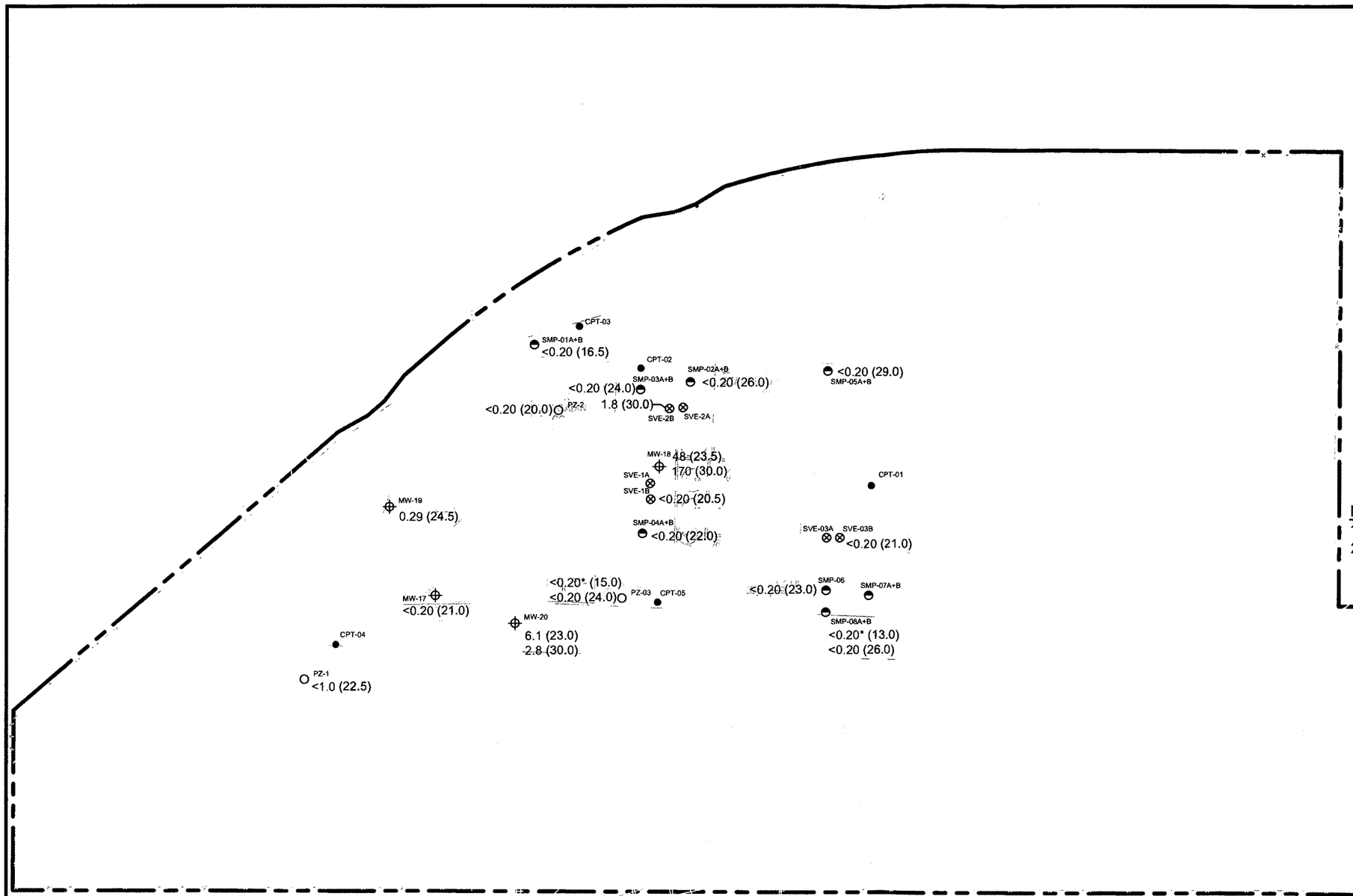

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- 2,950 (2.0) Concentration (depth in feet below ground surface)

Note:
1. Concentrations given in micrograms per kilogram (µg/kg).
2. <2.0 indicates parameter was not detected above laboratory reporting limits.

N

0 50
SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Hexavalent Chromium Detections in Soil 15-31 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
16

Drafter: EBH
Date: 8/14/07
Contract Number: 06-441-B

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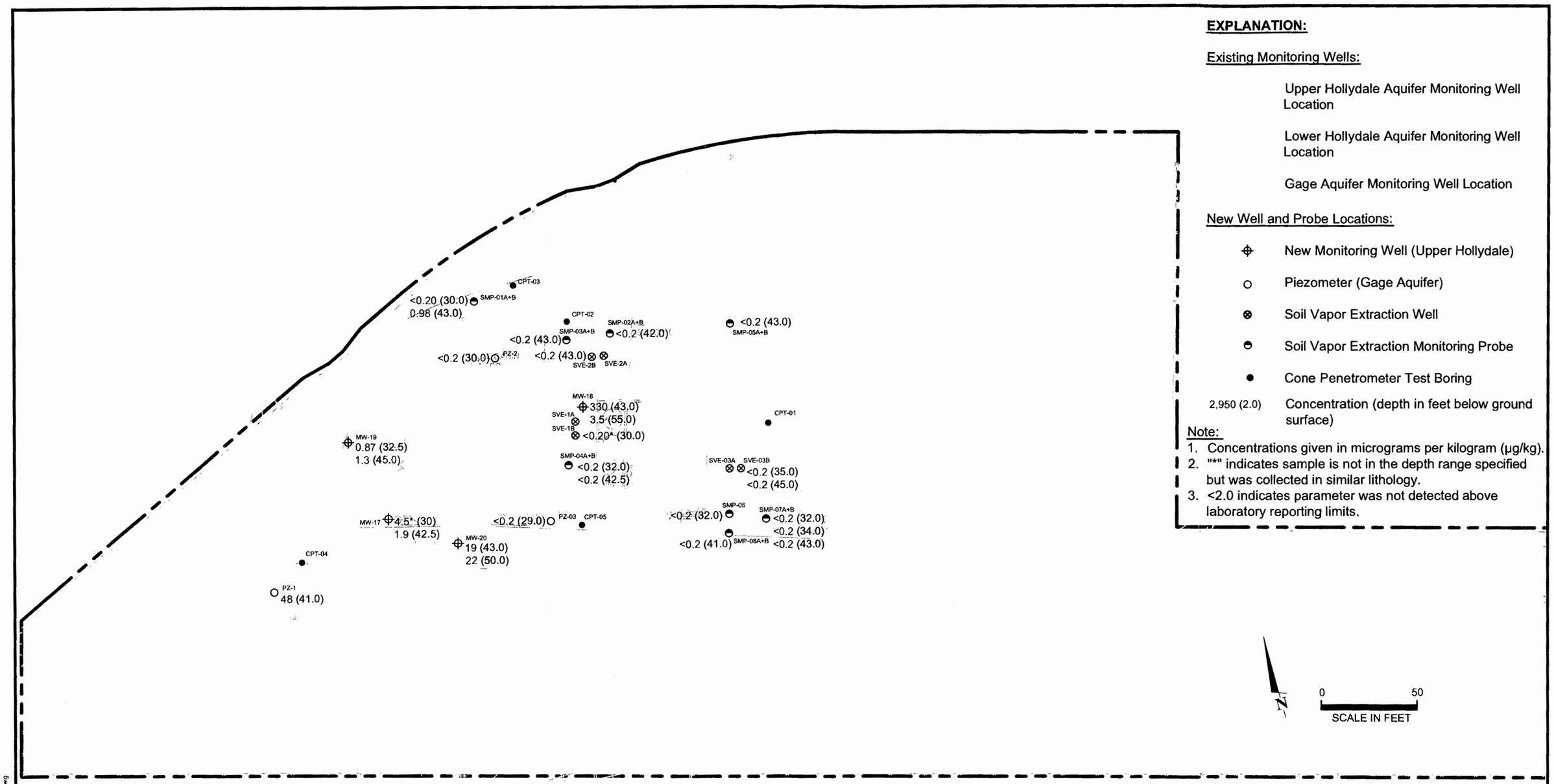

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- ⌖ New Monitoring Well (Upper Hollydale)
- ○ Piezometer (Gage Aquifer)
- ⊗ Soil Vapor Extraction Well
- ◓ Soil Vapor Extraction Monitoring Probe
- ● Cone Penetrometer Test Boring
- 2,950 (2.0) Concentration (depth in feet below ground surface)

Note:

1. Concentrations given in micrograms per kilogram (µg/kg).
2. "*" indicates sample is not in the depth range specified but was collected in similar lithology.
3. <2.0 indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Hexavalent Chromium Detections in Soil 31-55 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
17

Drafter: EBH
Date: 8/14/07
Contract Number: 06-441-B

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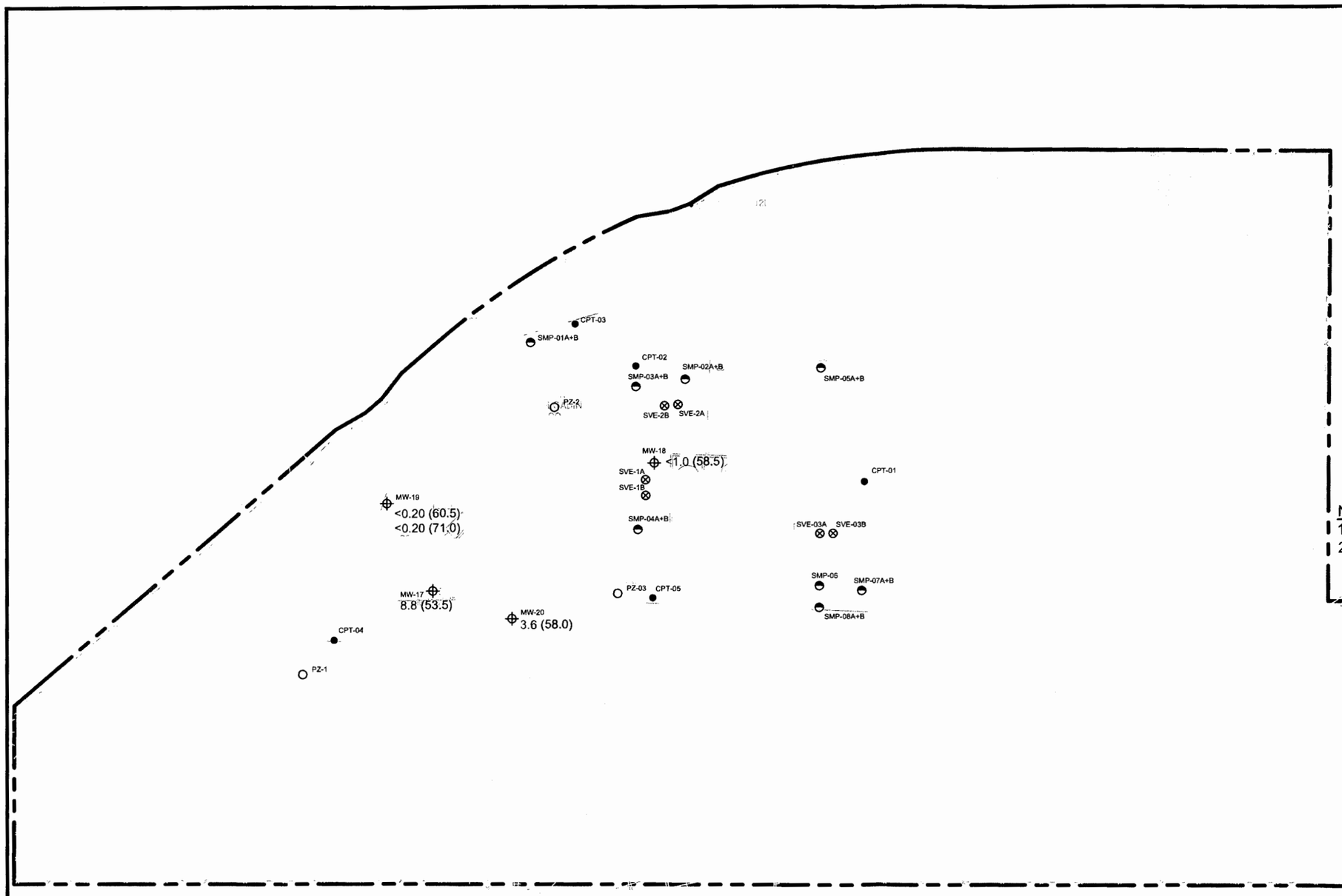

EXPLANATION:

Existing Monitoring Wells:

Upper Hollydale Aquifer Monitoring Well Location

Lower Hollydale Aquifer Monitoring Well Location

Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring
- 2,950 (2.0) Concentration (depth in feet below ground surface)

Note:
1. Concentrations given in micrograms per kilogram (µg/kg).
2. <2.0 indicates parameter was not detected above laboratory reporting limits.

N

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SCALE IN FEET

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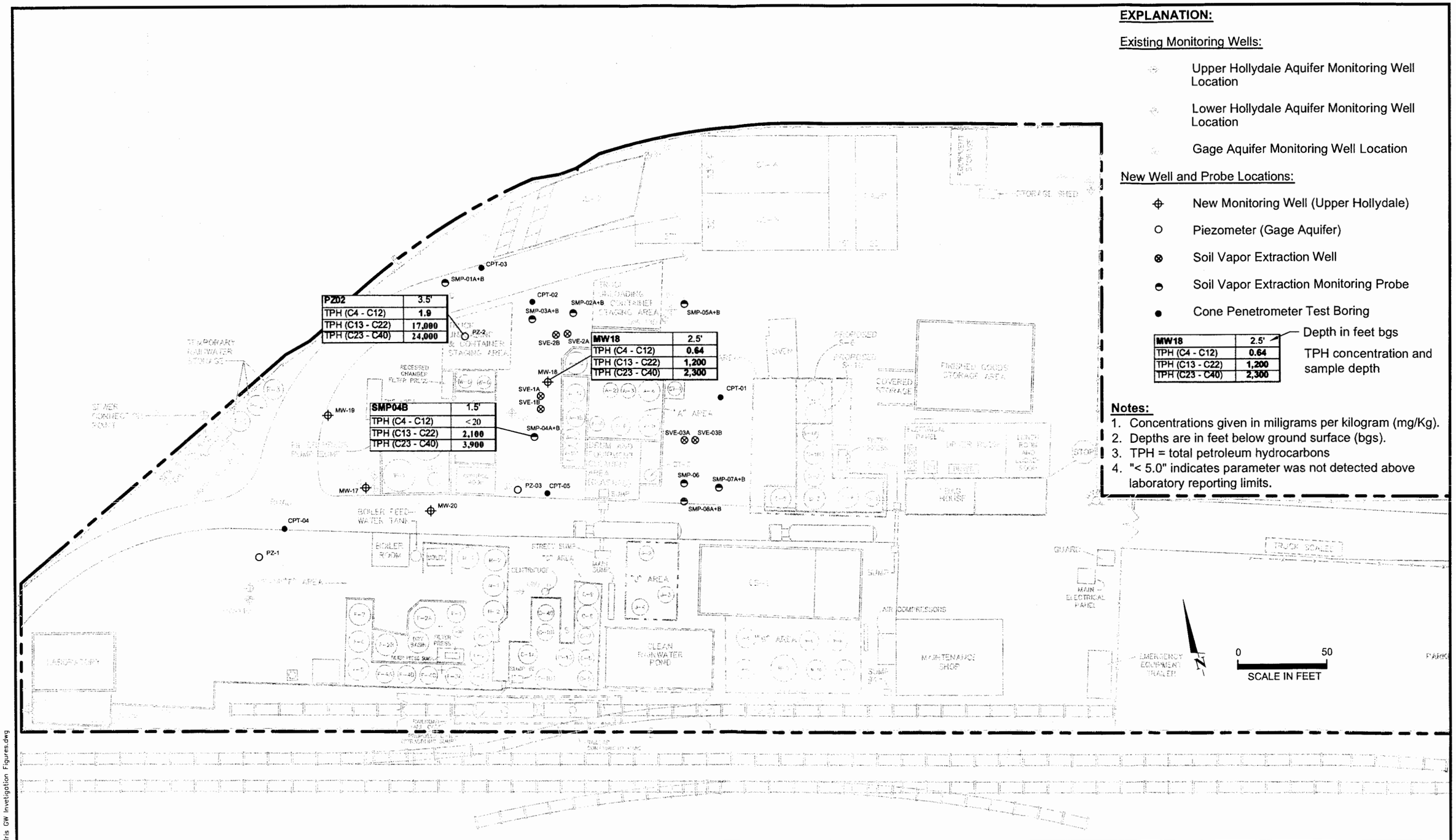
IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Hexavalent Chromium Detections in Soil 55-75 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
18

Drafter: EBH
Date: 8/14/07
Contract Number: 06-441-B



EXPLANATION:

Existing Monitoring Wells:

- Upper Hollydale Aquifer Monitoring Well Location
- Lower Hollydale Aquifer Monitoring Well Location
- Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

MW18	2.5'
TPH (C4 - C12)	0.64
TPH (C13 - C22)	1,200
TPH (C23 - C40)	2,300

Depth in feet bgs

TPH concentration and sample depth

Notes:

1. Concentrations given in miligrams per kilogram (mg/Kg).
2. Depths are in feet below ground surface (bgs).
3. TPH = total petroleum hydrocarbons
4. "< 5.0" indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Total Petroleum Hydrocarbon Detections in Soil 0-5 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
19

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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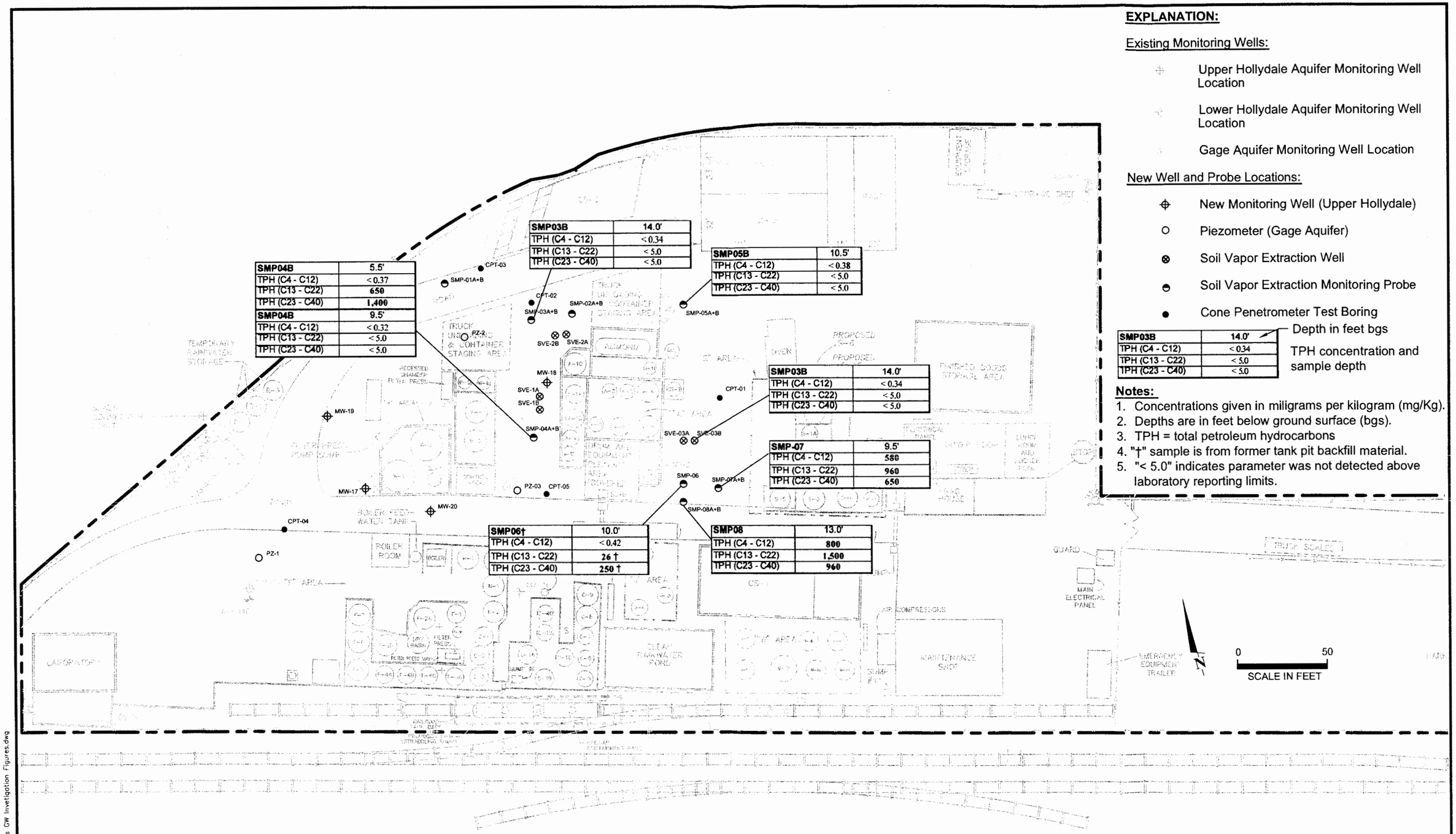

EXPLANATION:

Existing Monitoring Wells:

- Upper Hollydale Aquifer Monitoring Well Location
- Lower Hollydale Aquifer Monitoring Well Location
- Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

SMP03B	14.0'
TPH (C4 - C12)	< 0.34
TPH (C13 - C22)	< 5.0
TPH (C23 - C40)	< 5.0

Depth in feet bgs

TPH concentration and sample depth

Notes:

1. Concentrations given in miligrams per kilogram (mg/Kg).
2. Depths are in feet below ground surface (bgs).
3. TPH = total petroleum hydrocarbons
4. "†" sample is from former tank pit backfill material.
5. "< 5.0" indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Total Petroleum Hydrocarbon Detections in Soil 5-15 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure **20**

Drafter: EBH | Date: 8/13/07 | Contract Number: 06-441-B

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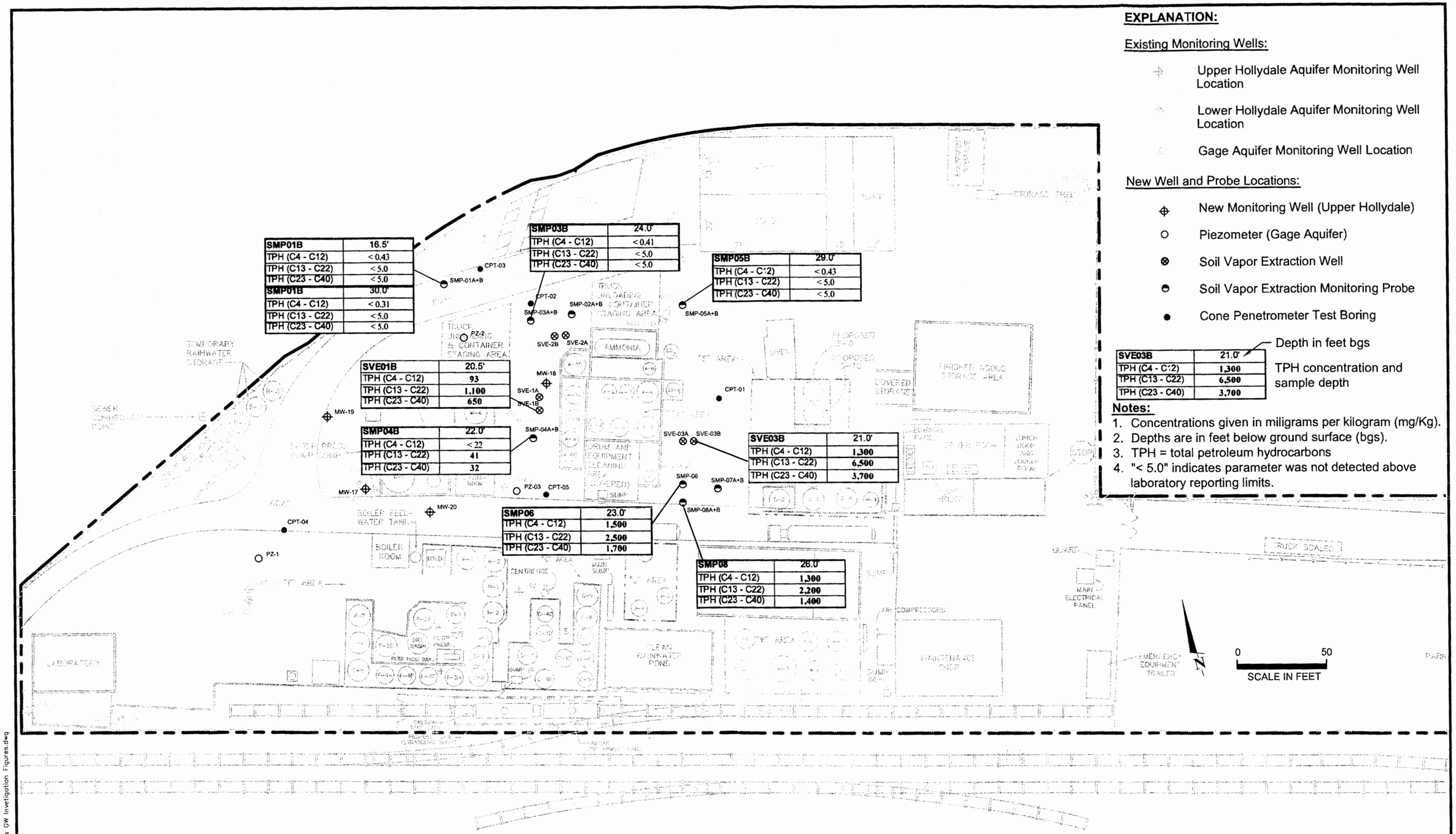

EXPLANATION:

Existing Monitoring Wells:

- Upper Hollydale Aquifer Monitoring Well Location
- Lower Hollydale Aquifer Monitoring Well Location
- Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

SVE03B	21.0'
TPH (C4 - C12)	1,300
TPH (C13 - C22)	6,500
TPH (C23 - C40)	3,700

Depth in feet bgs

TPH concentration and sample depth

Notes:

1. Concentrations given in miligrams per kilogram (mg/Kg).
2. Depths are in feet below ground surface (bgs).
3. TPH = total petroleum hydrocarbons
4. "< 5.0" indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
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Ph. (510) 834-4747 Fax: (510) 834-4199

Total Petroleum Hydrocarbon Detections in Soil 15-31 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure **21**

Drafter: EBH | Date: 8/13/07 | Contract Number: 06-441-B

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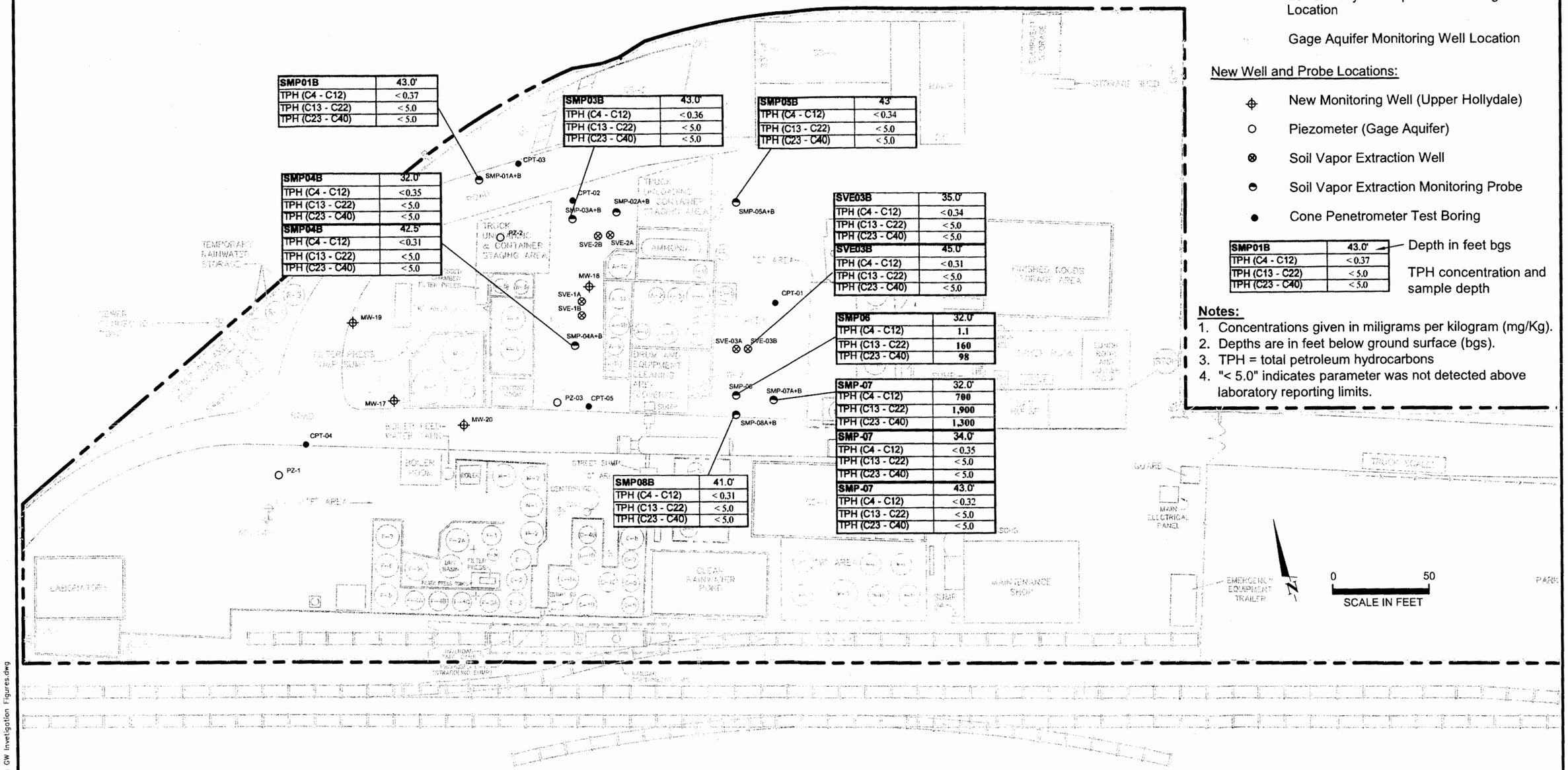

EXPLANATION:

Existing Monitoring Wells:

- Upper Hollydale Aquifer Monitoring Well Location
- Lower Hollydale Aquifer Monitoring Well Location
- Gage Aquifer Monitoring Well Location

New Well and Probe Locations:

- New Monitoring Well (Upper Hollydale)
- Piezometer (Gage Aquifer)
- Soil Vapor Extraction Well
- Soil Vapor Extraction Monitoring Probe
- Cone Penetrometer Test Boring

SMP01B	43.0'
TPH (C4 - C12)	< 0.37
TPH (C13 - C22)	< 5.0
TPH (C23 - C40)	< 5.0

Depth in feet bgs

TPH concentration and sample depth

Notes:

1. Concentrations given in miligrams per kilogram (mg/Kg).
2. Depths are in feet below ground surface (bgs).
3. TPH = total petroleum hydrocarbons
4. "< 5.0" indicates parameter was not detected above laboratory reporting limits.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Total Petroleum Hydrocarbon Detections in Soil 31-55 feet bgs
Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California

Figure
22

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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APPENDICES

APPENDIX A

Appendix A
CPT Report

FUGRO CONSULTANTS, INC.

13049 East Florence Avenue
Santa Fe Springs, California 90670
Tel: 562-903-0055
Fax: 562-903-9005

May 29, 2007
Report Number 0907-0031

Iris Environmental
1438 Webster Street
Suite 302
Oakland, CA 94612

Attention: Mr. Chris Alger

REPORT FOR
PIEZOCONE PENETRATION TESTING
AND RELATED SERVICES
SANTA FE SPRINGS, CALIFORNIA

Dear Mr. Alger:

Please find enclosed herewith the final results of the cone penetration tests conducted at the above referenced location.

For your information, the soil stratigraphy was identified using Campanella and Robertson's Simplified Soil Behavior Chart. Please note that because of the empirical nature of the soil behavior chart, the soil identification should be verified locally.

Fugro Consultants, Inc. appreciates the opportunity to be of service to your organization. If you should have any questions, or if we can be of further assistance, please do not hesitate to contact us. We look forward to working with you in the future.

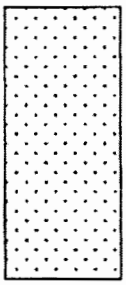
Very truly yours,
FUGRO CONSULTANTS, INC.

Recep Yilmaz
Senior Vice President

RY/jm

CD Enclosed

KEY TO O L .HAV'OR TYP'



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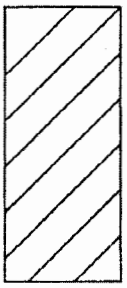

CLAY AND CLAY' 'Y O L

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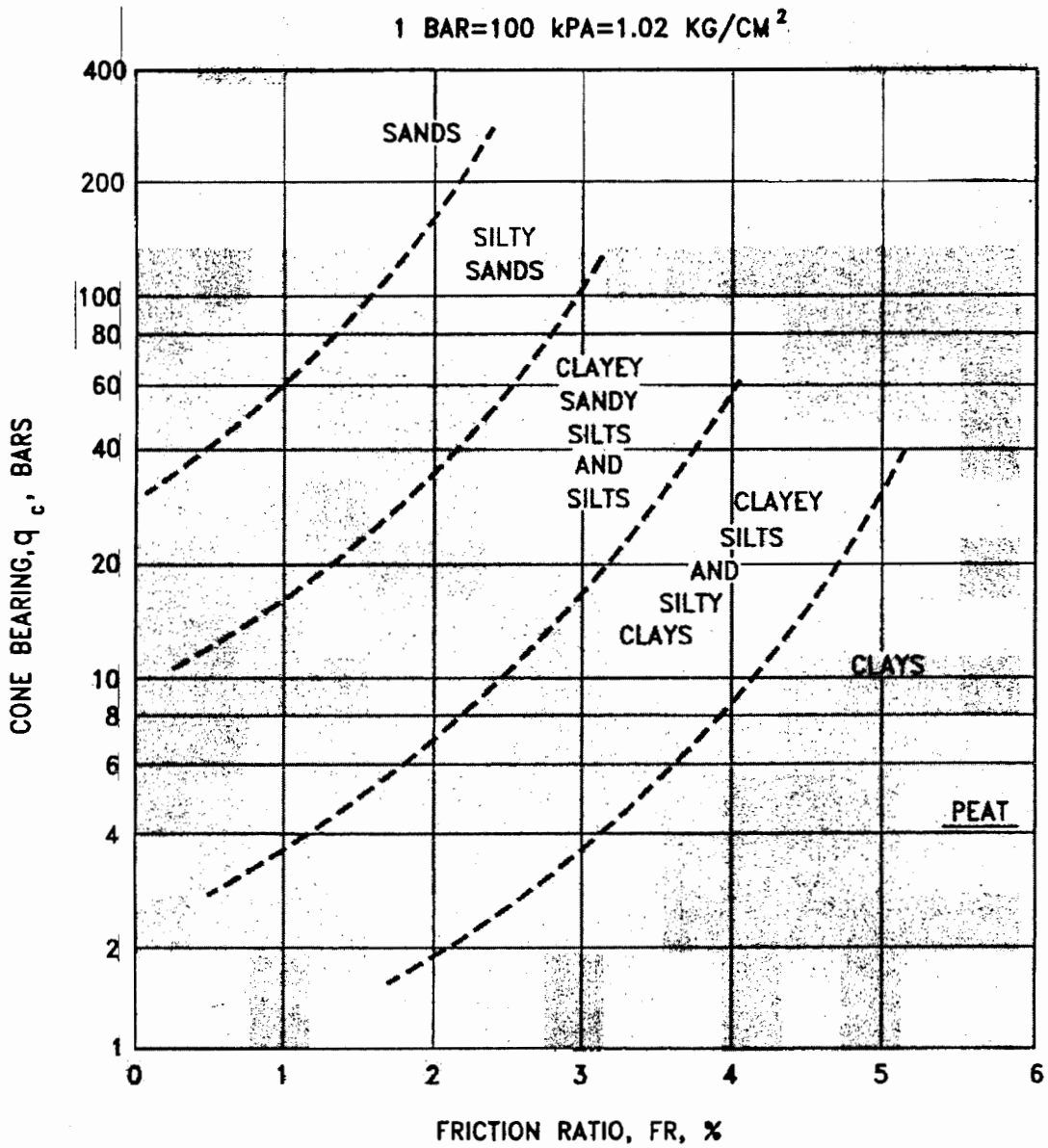
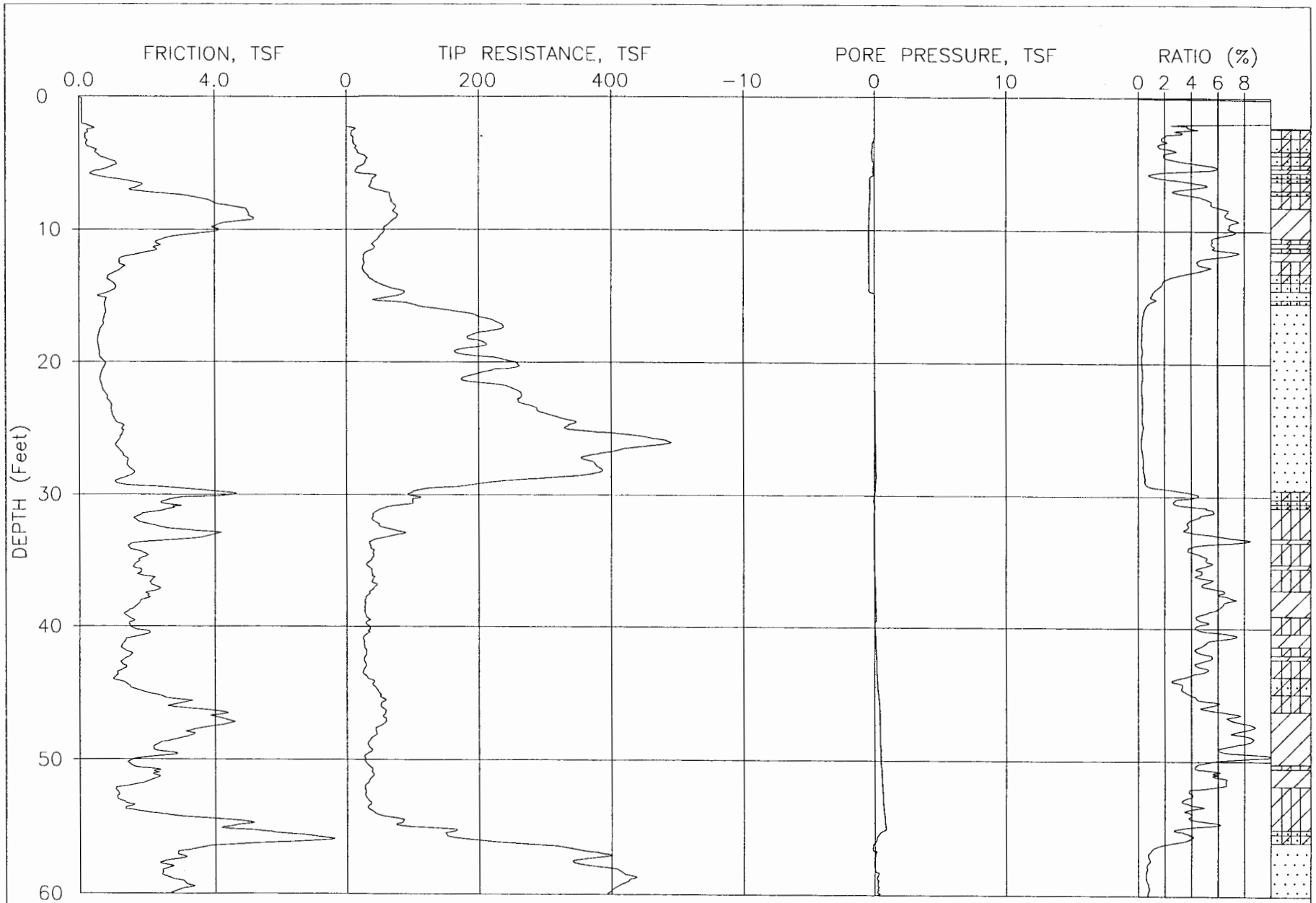


MODIFIED CAMPANELLA AND ROBERTSON SOIL BEHAVIOR CHART (1983)



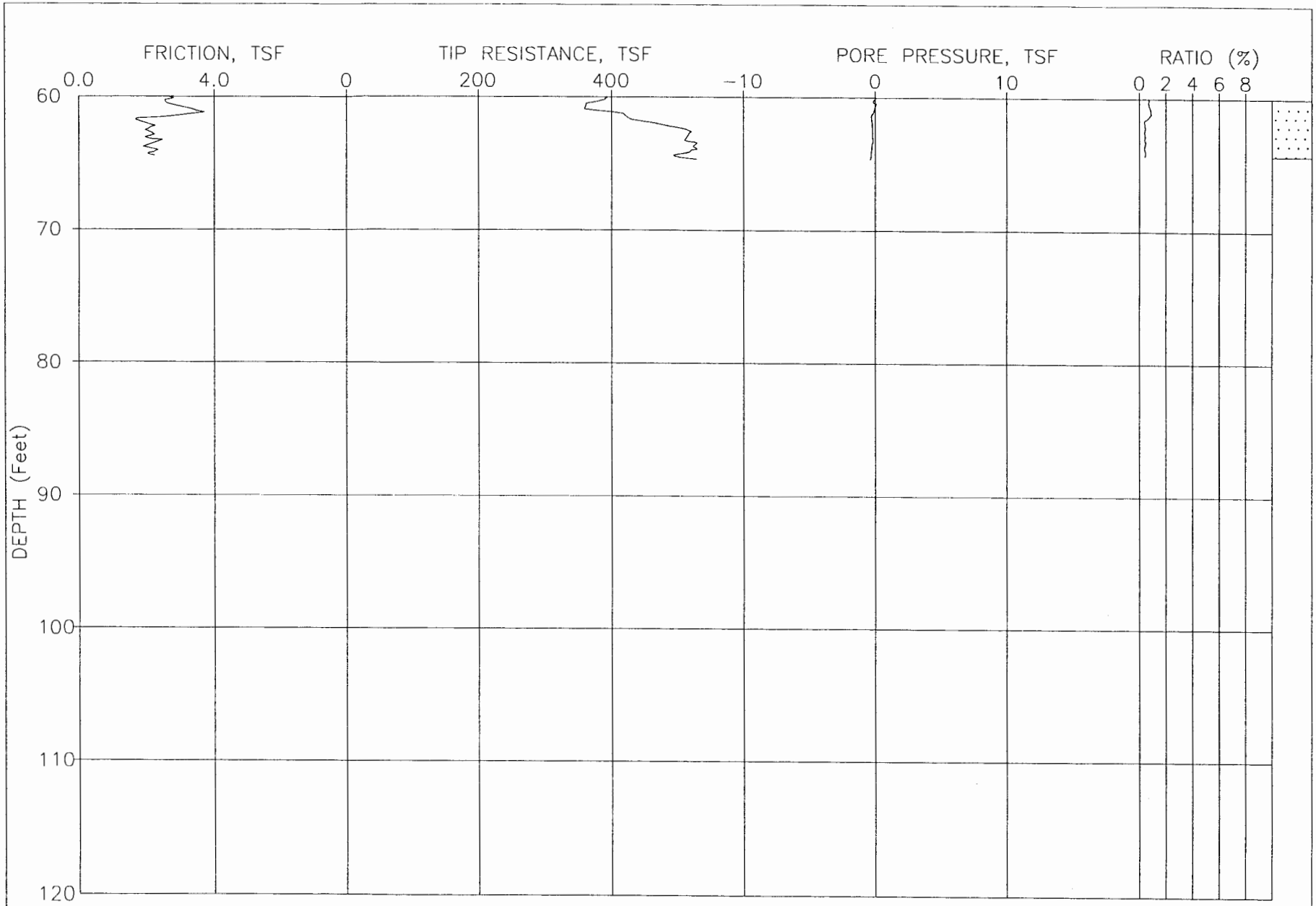
JOB NUMBER: 0907−0031
ELEVATION: 0.00

CPT NUMBER: C01
CONE NUMBER: F7.5CKEW1667

DATE: 05−16−2007

PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



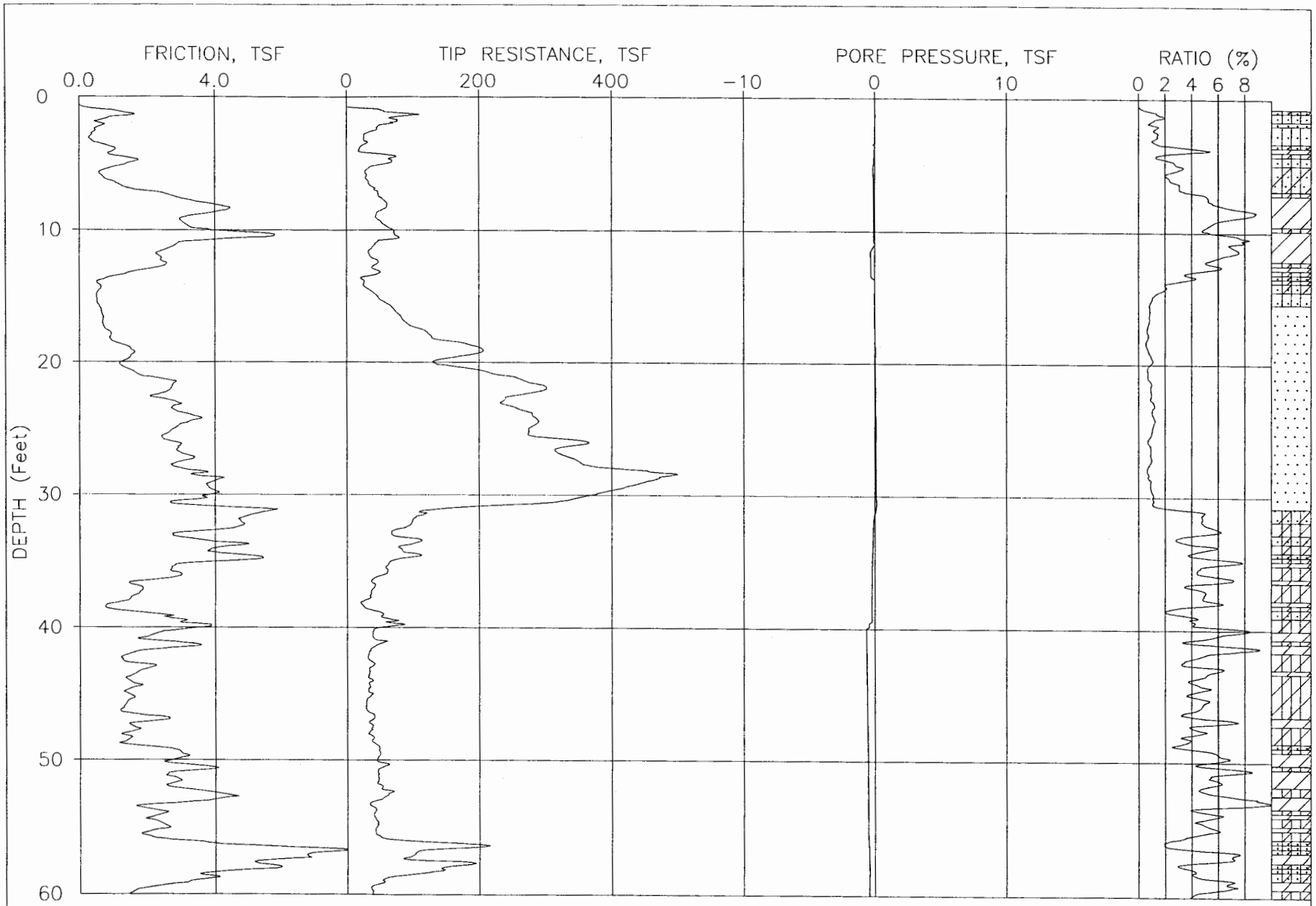
JOB NUMBER: 0907-0031
ELEVATION: 0.00

CPT NUMBER: C01
CONE NUMBER: F7.5CKEW1667

DATE: 05-16-2007

PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC



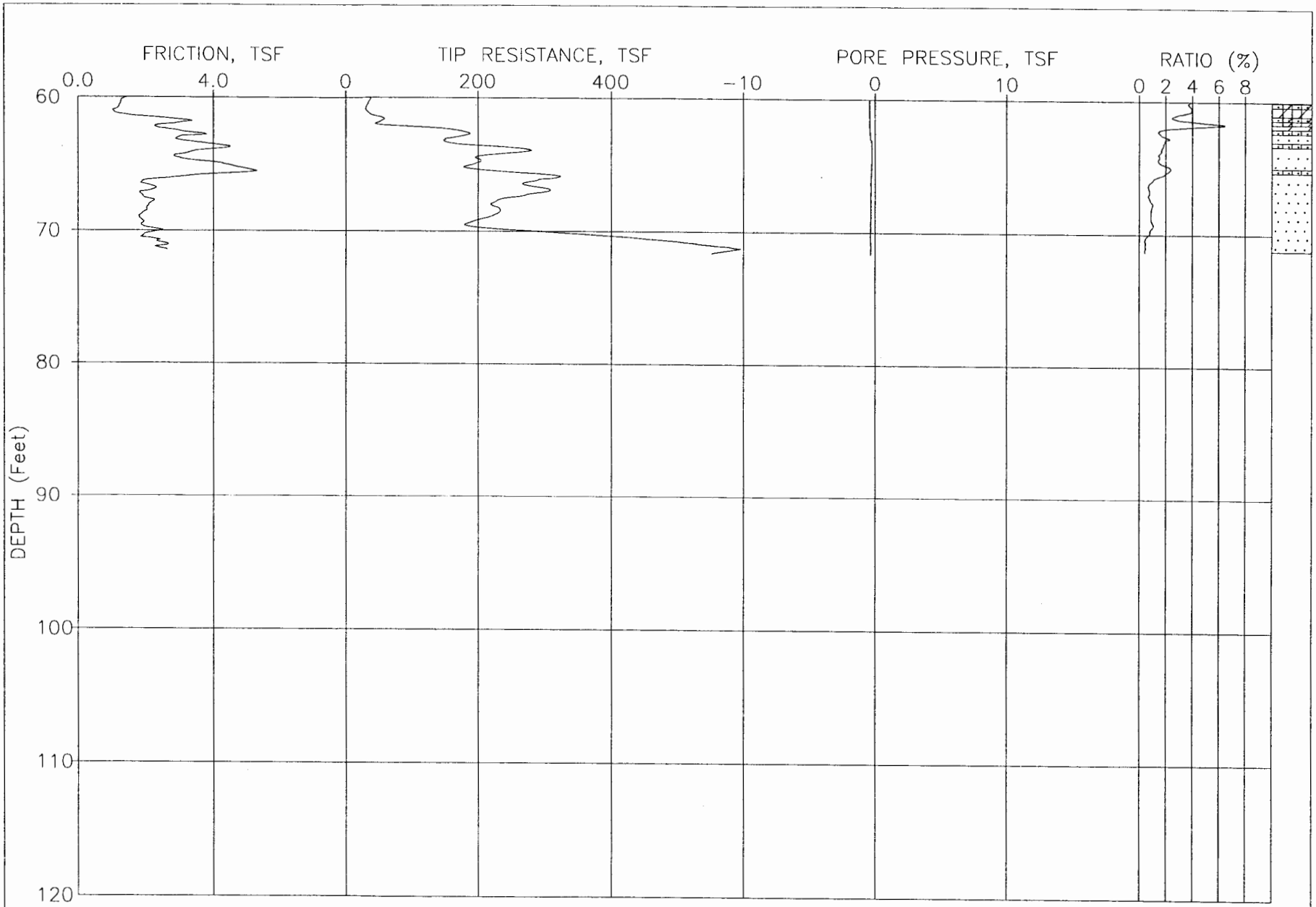
JOB NUMBER: 0907-0031
ELEVATION: 0.00

CPT NUMBER: C02
CONE NUMBER: F7.5CKEW1667

DATE: 05-16-2007

PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



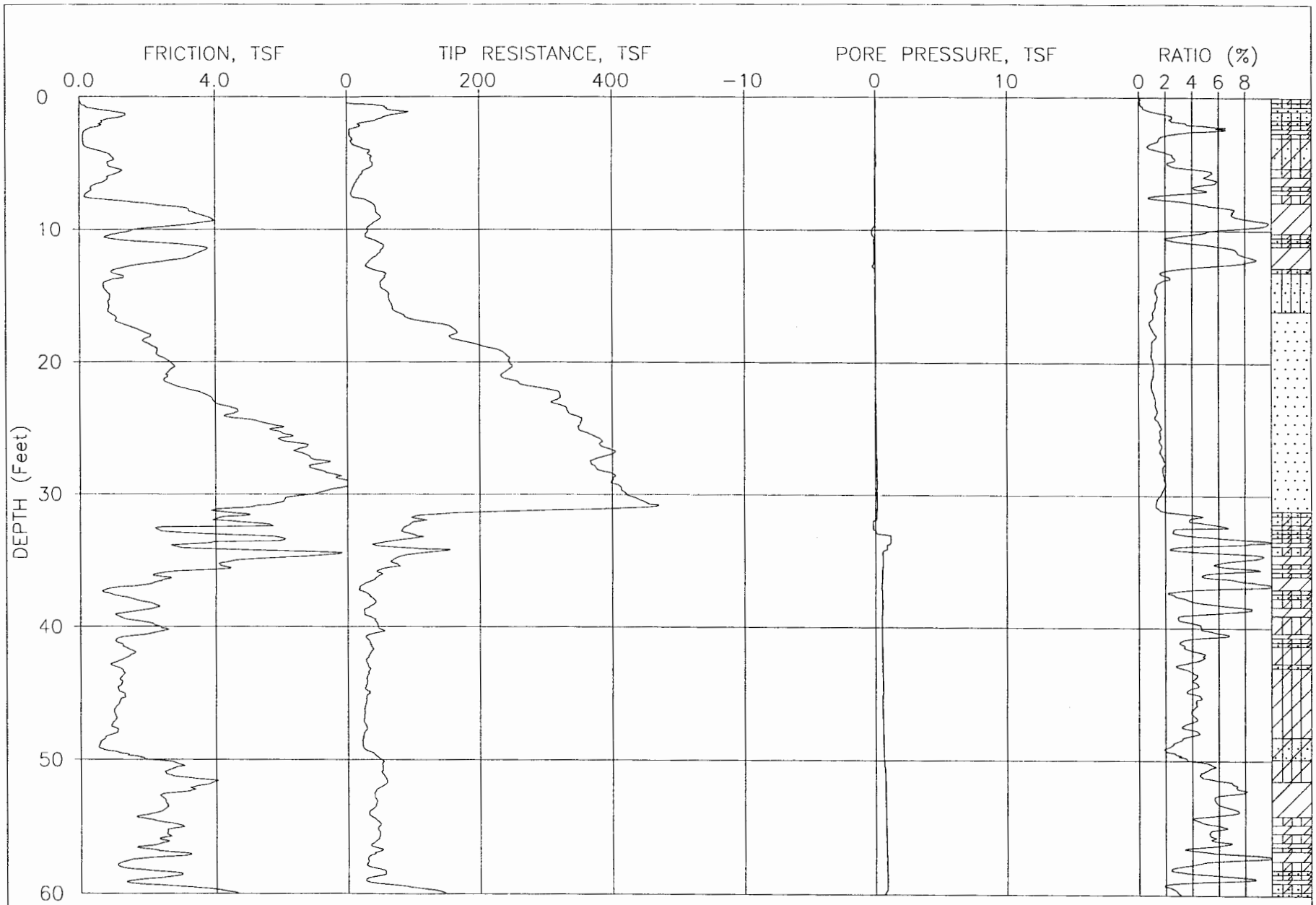
JOB NUMBER: 0907-0031
ELEVATION: 0.00

CPT NUMBER: C02
CONE NUMBER: F7.5CKEW1667

DATE: 05-16-2007

PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC



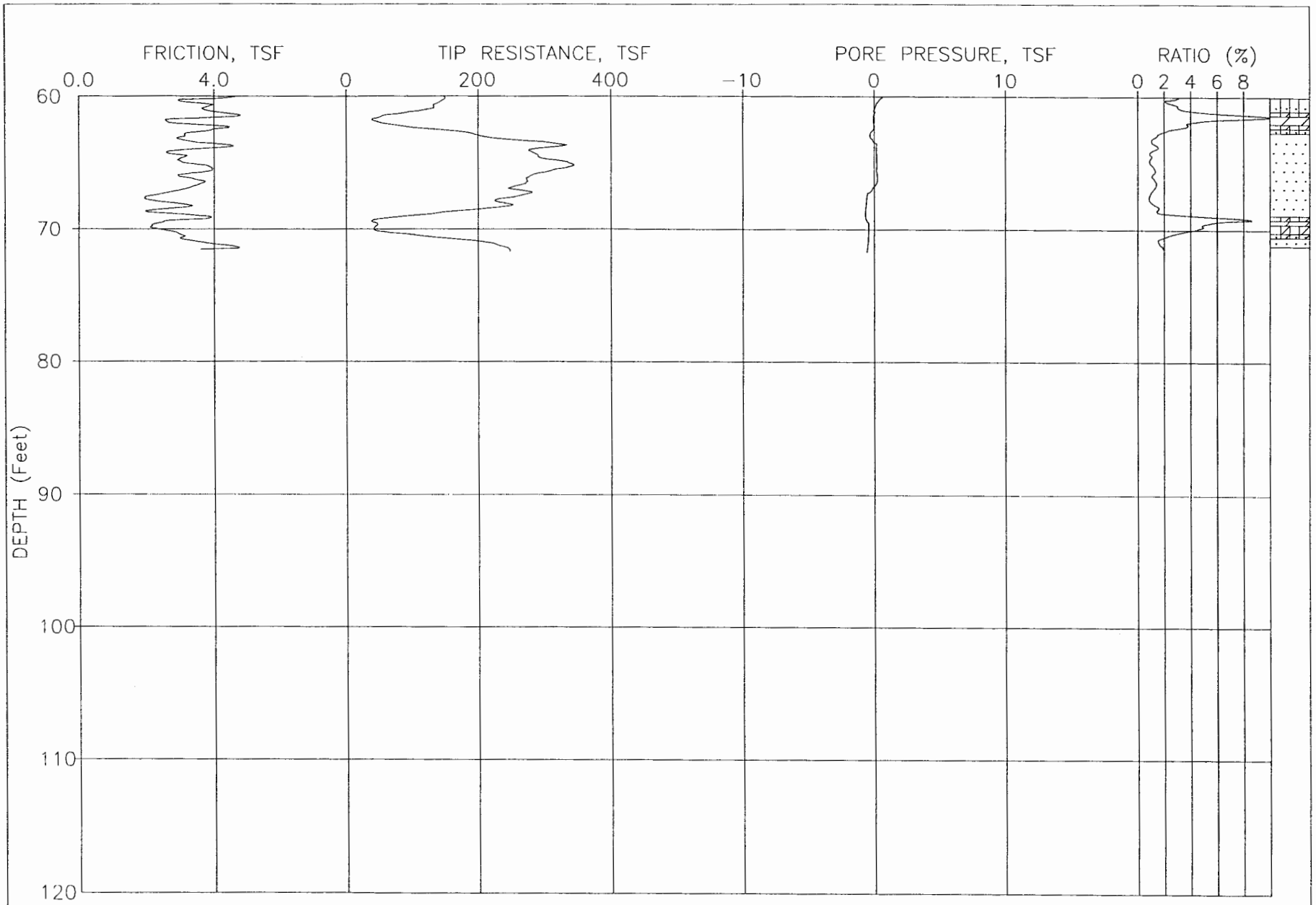
JOB NUMBER: 0907-0031
ELEVATION: 0.00

CPT NUMBER: C03
CONE NUMBER: F7.5CKEW1667

DATE: 05-16-2007

PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



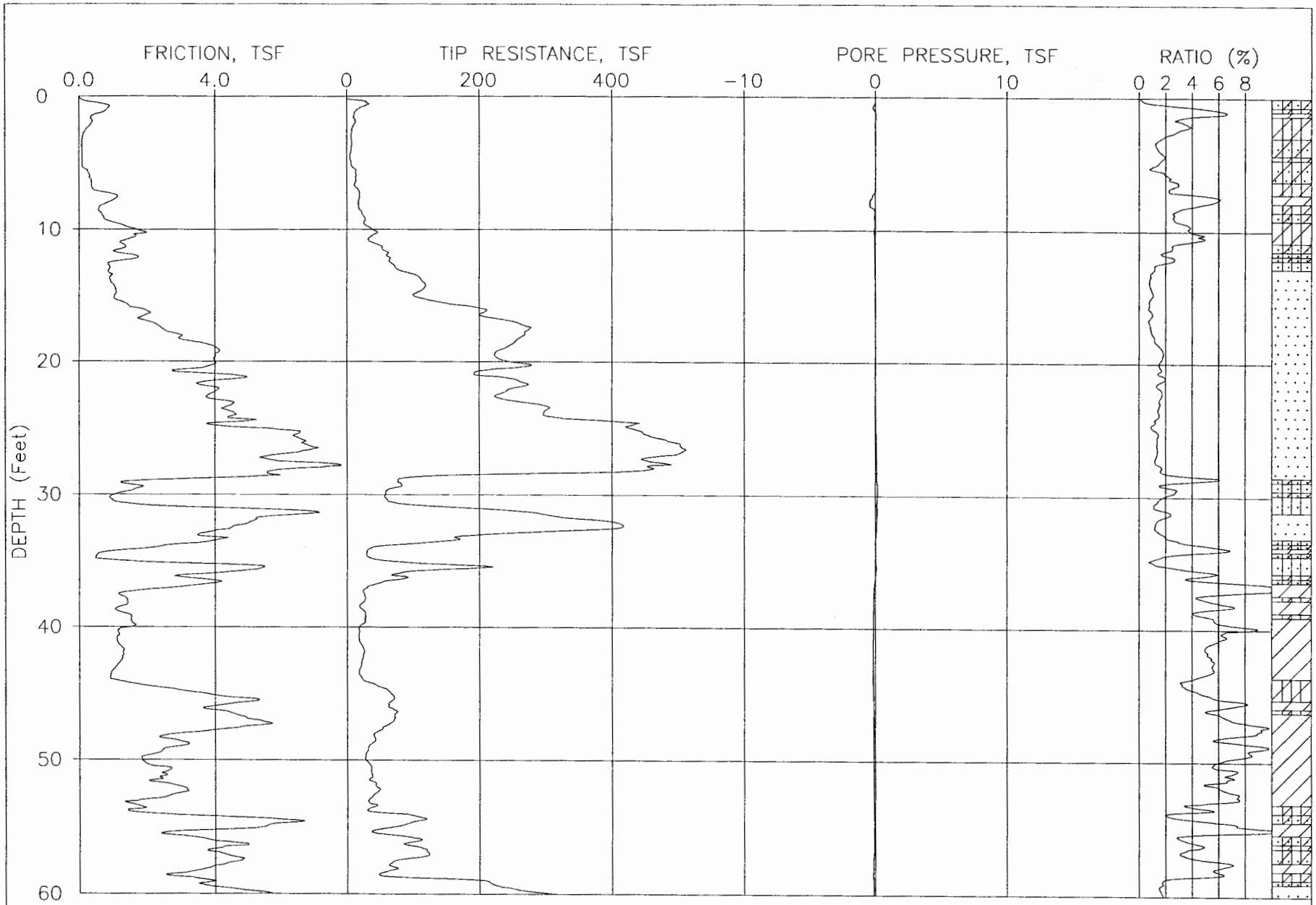
JOB NUMBER: 0907-0031
ELEVATION: 0.00

CPT NUMBER: C03
CONE NUMBER: F7.5CKEW1667

DATE: 05-16-2007

PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC



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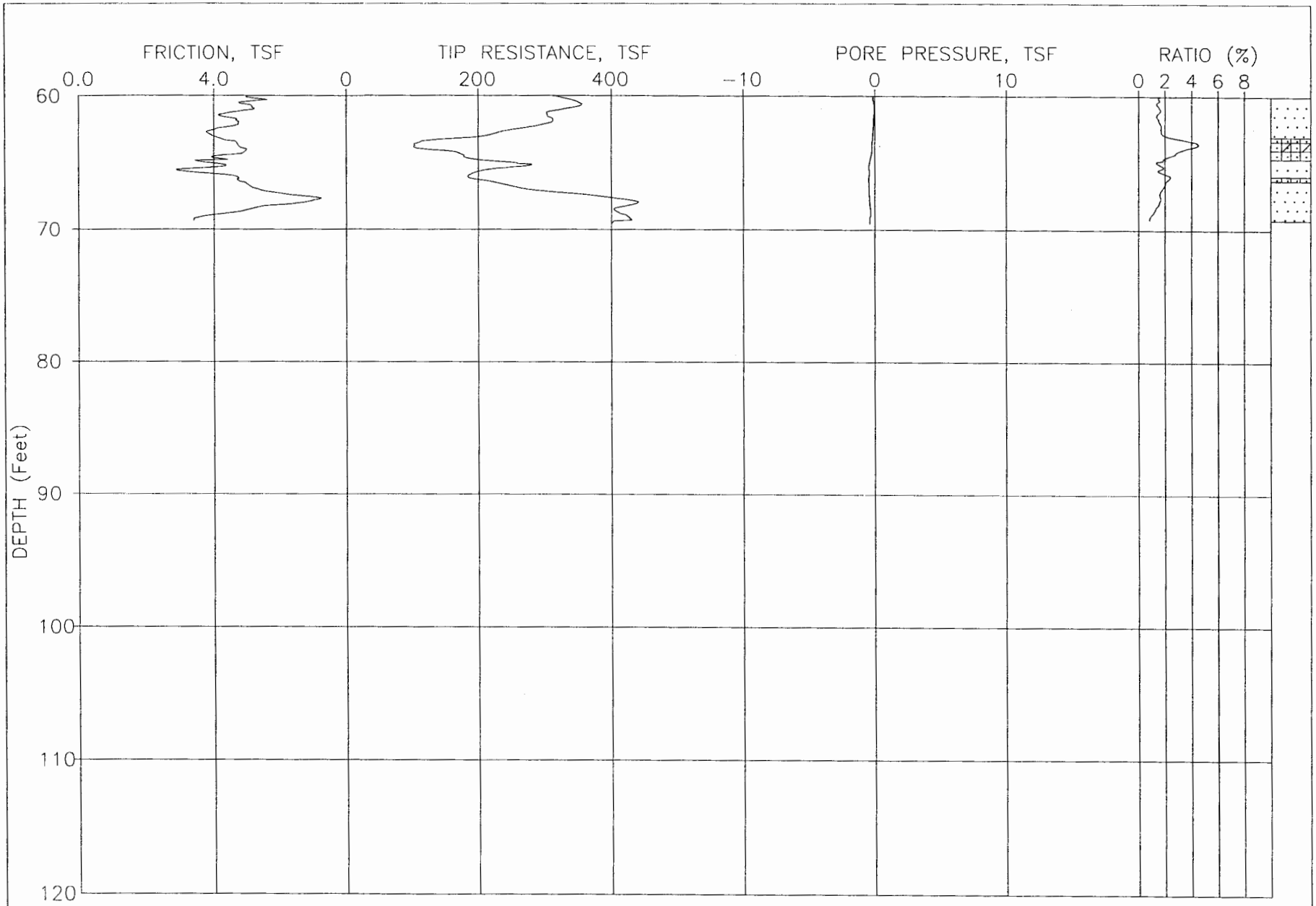
ELEVATION: 0.00

CPT NUMBER: C04
CONE NUMBER: F7.5CKEW1667

DATE: 05-17-2007

PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 0907-0031
ELEVATION: 0.00

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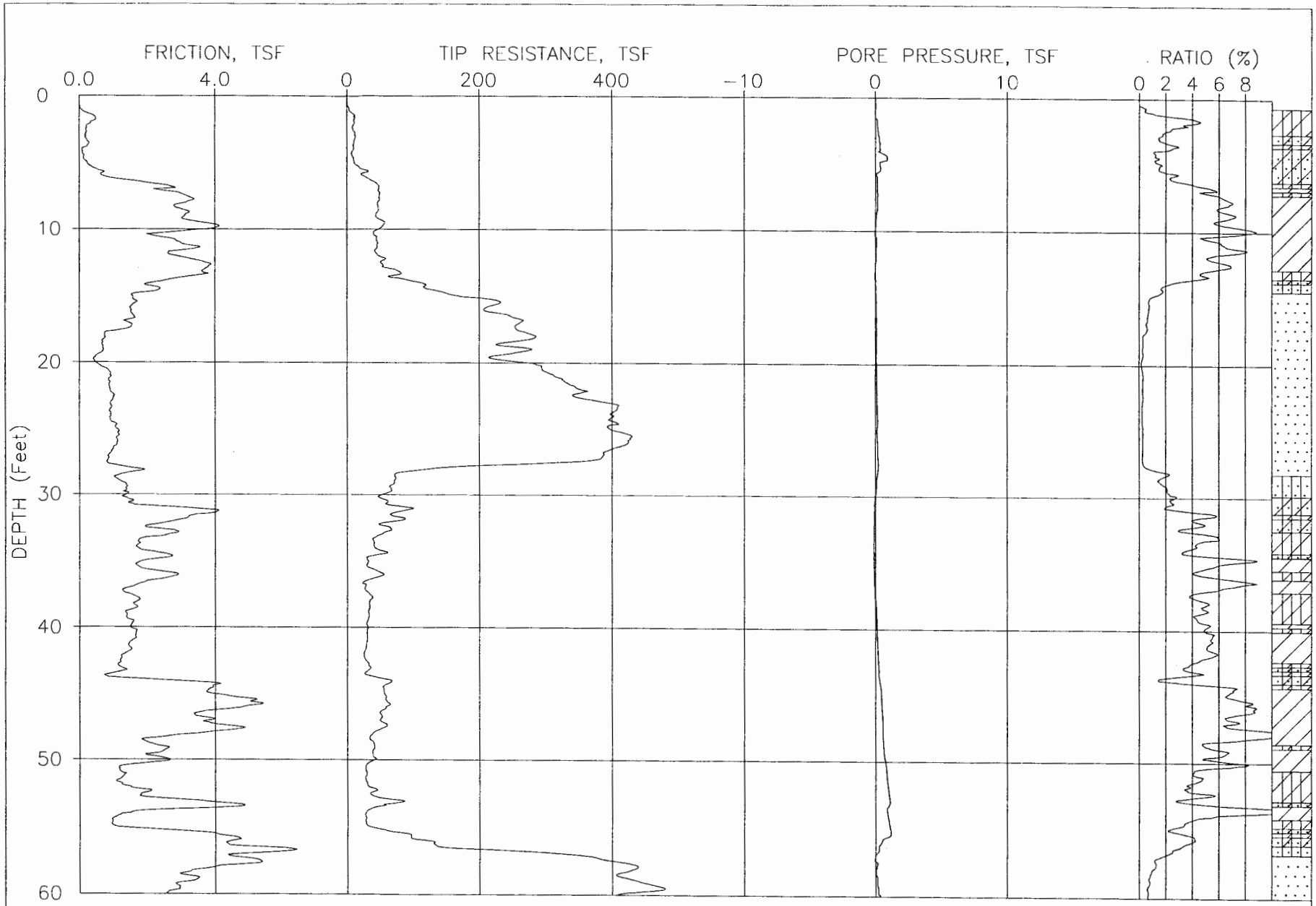
CONE NUMBER: F7.5CKEW1667

DATE: 05-17-2007

PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 0907-0031
ELEVATION: 0.00

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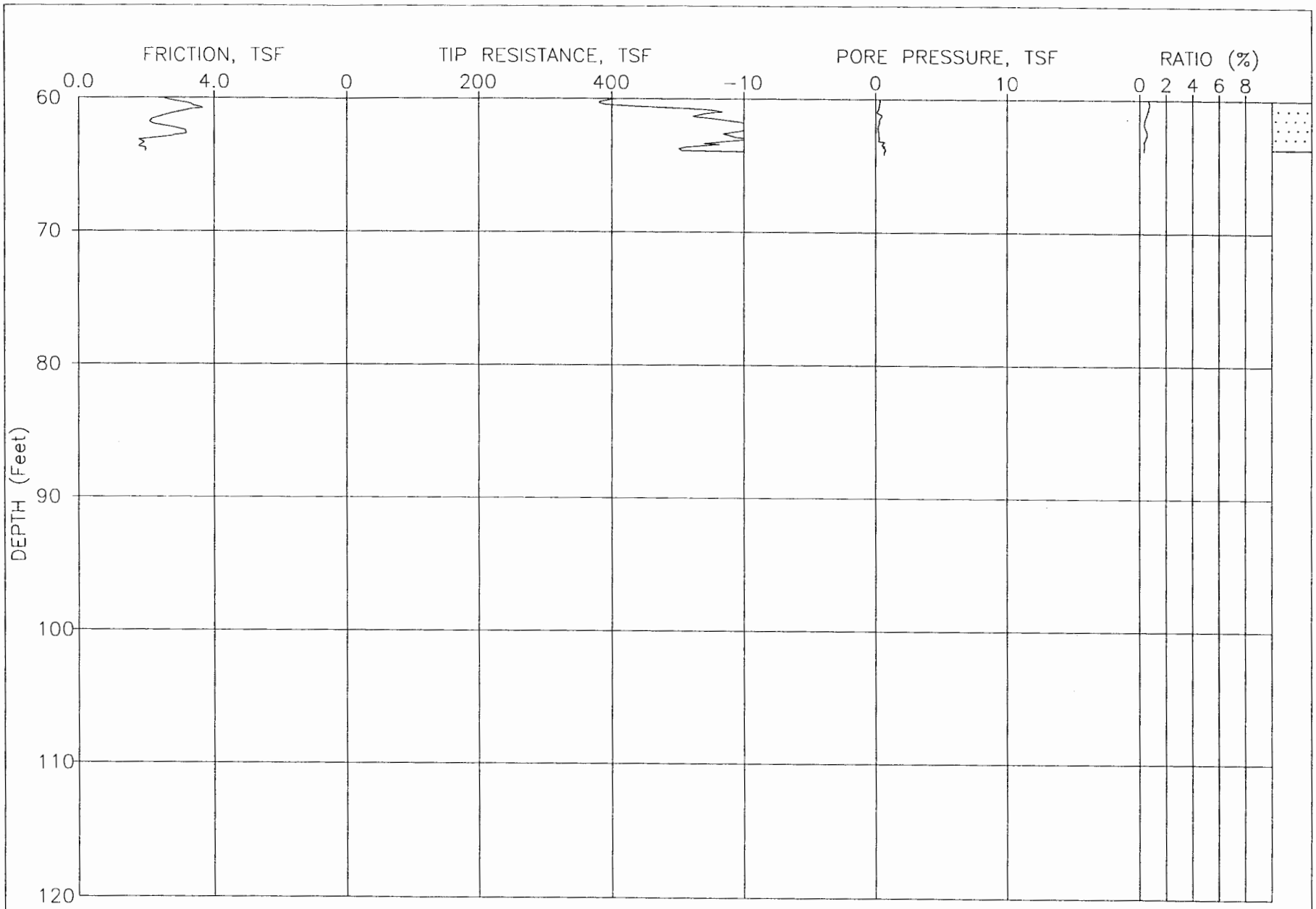
CONE NUMBER: F7.5CKEW1667

DATE: 05-17-2007

PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 0907-0031
ELEVATION: 0.00

CPT NUMBER: C05
CONE NUMBER: F7.5CKEW1667

DATE: 05-17-2007

PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC

APPENDIX B

Appendix B
Boring Logs and Well Completion Forms

Boring: MW-17

Hand Auger Start 6/19/07 1355

Sonic Start 6/19/07 1415 Finish 6/19/07 1920

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-74.5' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 4" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, some clay, strong odor (trace gravel, 60% sand, 40% fines) [fill]
		0.0	PTI-MW17-S-2.0 (CH)	S	2			
					3			
		0.0			4		SM/ ML	DARK BROWN SILTY SAND (7.5YR 3/4), dry, dense, fine sand (0, 50, 50)
Sonic	1413				5			
					6			
					7			
		0.0	PTI-MW17-S-7.5 (CH)	S	8		SM	DARK RED SILTY SAND (10YR 3/6), dry, loose, fine sand, poorly graded (0, 75, 25)
					9			► grain size increases with depth to medium sand
	1420				10		SP	LIGHT YELLOWISH BROWN SAND (2.5Y 6/4), dry, loose, medium sand with thin inter bedded lenses of coarse sand, trace gravel, poorly graded (trace, 95, 5)
					11			
					12			
					13			
		0.1			14			
					15			
	1425				16			
					17			
					18			
					19			
		0.8			20			(continued, next page)

Drilling Notes:

1. Boring terminated at 74.5 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater level 44.66 ft BGS on 7/3/07 after well completion.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-17
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW17

Drafter: EBH | Date: 8/6/07 | Contract Number: 06-441-B

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Boring: MW-17 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-74.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
			PTI-MW17-S-21.0 (CH)	s	21			
					22			
					23			
		0.1			24			gravel lens at contact up to 2" diameter
	1430							
			PTI-MW17-S-25.0 (CG)	s	25		SM	OLIVE BROWN SILTY SAND (2.5Y 4/4), dry, dense, fine sand (0, 70, 30)
					26			
	1440				27			
					28			
					29			
			PTI-MW17-S-30.0 (CH)	s	30			
					31			
					32			sand fraction decreases with depth (0, 60, 40); color change to GRAY (7.5YR 5/1)
					33			
					34			
		1.0			35			
	1500				36		CL	DARK YELLOWISH BROWN SANDY CLAY (10YR 4/4) with gray and brown mottling, dry, hard, fine sand, low to non-plastic (0, 50, 50)
					37			
		2.3			38			
					39			gypsum crystals from 38-40 ft BGS
					40			(continued, next page)

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Log of Boring MW-17 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW17

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Deep Logs.dwg

Boring: MW-17 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-74.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				40			
				41			
				42			
		PTI-MW17-S-42.5 (CH)	S	43			
	1.9			44			
				45			color changes to DARK REDDISH BROWN (5YR 3/3)
	1515	PTI-MW17-S-46.0 (CG)	S	46			sand fraction decreases with depth (0, 30, 70)
				47			
				48			
				49			
				50			
				51			
				52			color changes to DARK YELLOWISH BROWN (10YR 4/4)
	3.2			53			
		PTI-MW17-S-53.5 (CH)	S	54			
				55		SP	DARK YELLOWISH BROWN SAND (10YR 4/6), damp to wet, loose, medium sand, sand fraction increases with depth (0, 70, 30) from 56' BGS to bottom of hole
	1544			56			no recovery from 56 ft BGS to bottom of hole due to heaving of fine to coarse sand
				57			
				58			
				59			
				60			

(continued, next page)

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-17 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW17

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Deep Logs.dwg

Boring: MW-17 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-67.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				60			no recovery from 56 ft BGS to bottom of hole due to heaving of fine to coarse sand
				61			
				62			
				63			
				64			
				65			
				66			
				67			
				68			
				69			
				70			
				71			
				72			
				73			
				74			

TD = 74.5 (feet BGS)

IRIS ENVIRONMENTAL
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Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-17 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW17
page 4 of 4

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Deep Logs.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 6/19/07 TIME 13:55
WELL INSTALLATION BEGAN:
DATE 6/19/07 TIME 17:30
WELL COMPLETION FINISHED:
DATE 6/19/07 TIME 19:20
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE C-57: 694686
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 3 buckets (pellets)
☒ PELLETS, SIZE 3/18 inch 55 to 62.5 feet bgs
☒ CHIPS, SIZE From 53 to 55 feet bgs
☐
PRODUCT Pel Plug TR30 Coated Pellets
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED Formation water

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 5 X 100-lb bags
☒ SAND, SIZE 2/12
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

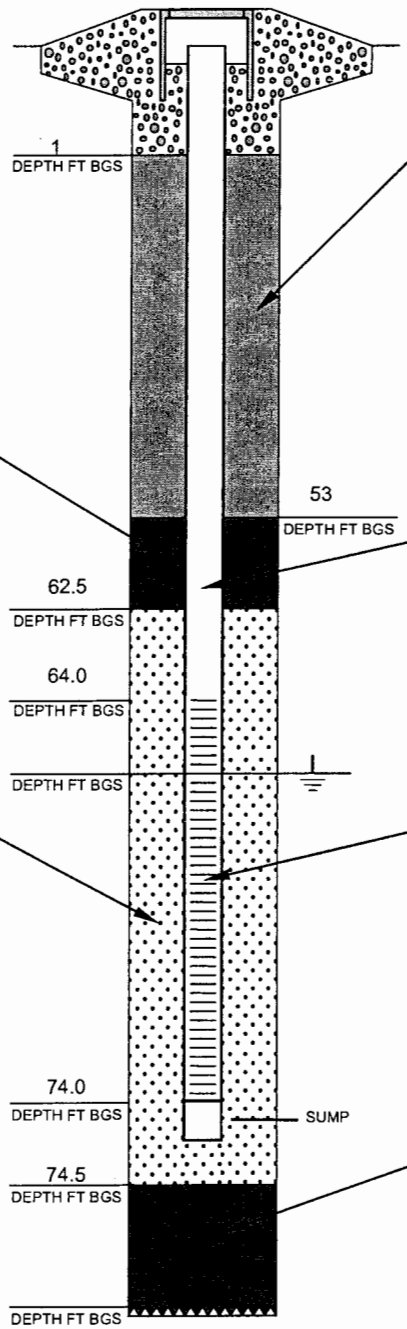
TOC ELEVATION 151.741
GROUND ELEVATION
LAT COORD. 33.9597727
LONG COORD. -118.0684001
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5000 psi concrete



MONITORING WELL

MONITORING WELL NO. MW-17S
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT 3 X 94-lb bags
BENTONITE 1/2 bag
WATER 90 gallons
☒ PREPARED MIX
PRODUCT Bentonite chips from 1-6 ft bgs
MFG. BY
METHOD INSTALLED
☐ POURED ☒ TREMIE - Hose

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 4 inch
APPROXIMATE LENGTH OF CASING 64 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 4 inch
SLOT SIZE 0.01 inch
LENGTH OF SCREEN 10 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED 0
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: MW-18

Hand Auger Start 6/13/07 0900

Sonic Start 6/13/07 1040 Finish 6/14/07 1630

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-67.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/ N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 8" concrete)
					1		SM/ ML	DARK REDDISH BROWN SANDY SILT WITH CLAY (5YR 2.5/2), well graded, slag fragments up to coarse gravel size (trace gravel, 50% sand, 50% fines) [fill]
		11.4			2			
	1035		PTI-MW18-S-2.5 (CH)	s	3		SM	STRONG BROWN SILTY SAND (7.5YR 4/6) dry, hard, fine to medium sand, trace clay (0, 70, 30)
					4			
	1045				5			► increasing silt fraction with depth
Sonic					6			
					7			► strong odor (0, 55, 45)
					8			► color change to GREENISH GRAY (Gley 1 5/1), small gypsum crystals, color mottled (0, 70, 30)
		582			9			
			PTI-MW18-S-10.0 (CH)	s	10			► color change to STRONG BROWN (7.5YR 4/6), dense
					11			
					12			
		365			13			dark brown silt material fills joints, green stained precipitate nodules
					14			
					15			
		50						
	1101				16		SP /SM	BROWN SAND (7.5YR 5/3), dry, loose, medium to coarse sand, with thin interbedded lenses of fine to coarse gravel, poorly graded, reddish staining in upper foot. Reddish brown nodule-like concretions (trace, 95, 5)
					17			
					18			
					19			
	1135	550			20			(continued, next page)

Drilling Notes:

1. Boring terminated at 67.5 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater level was 45.50 BGS on 7/3/07.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-18
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW18

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: MW-18 (cont.)

Hand Auger Start 6/13/07 0900

Sonic Start 6/13/07 1040 Finish 6/14/07 1630

Drill Method: Hand Auger (0-5' BGS); Sonic (5-67.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/ N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic			PTI-MW18-S-20.0 (BT)	s	20			
	1203			s	21			► Geotechnical grain size (gravel 0%, sand 81%, silt 16%, clay 3%)
			PTI-MW18-S-21.5 (CG)	s	22			
	1218				23			
		8.4	PTI-MW18-S-23.5 (CH)	s	24			
			PTI-MW18-S-24.0 (BT)	s				
					25			► 6" lens of DARK REDDISH BROWN GRAVEL (2.5YR 2.5/4), fine to coarse, with red staining and concretions
					26			► 4" lens of fine gravel and coarse sand with approximately 10% fine sand, dry
					27		ML /CL	LIGHT OLIVE BROWN SANDY SILT TO SANDY LEAN CLAY (2.5Y 5/3), dry, hard, fine sand, nonplastic (0, 45, 55)
					28			
					29			
	1230	12.7	PTI-MW18-S-30.0 (CH)	s	30			
					31			
	1301				32			
			PTI-MW18-S-32.0 (BT)	s	33			► increase in fine fraction, slightly plastic
	1315							
			PTI-MW18-S-33.5 (CG)	s	34			► Geotechnical grain size (gravel 0%, sand 6%, silt 65%, clay 29%)
			PTI-MW18-S-34.0 (BT)	s				
	1440				35			
					36			
					37			► green mottling and black precipitates in interstitial soil voids (0, 40, 60)
					38			
					39			
	1450	8.1			40			(continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-18 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure **MW18**

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: MW-18 (cont.)

Hand Auger Start 6/13/07 0900

Sonic Start 6/13/07 1040 Finish 6/14/07 1630

Drill Method: Hand Auger (0-5' BGS); Sonic (5-67.5' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson/ N. Matell

Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				40			
				41			
				42			occasional black mottling and veining
		PTI-MW18-S-43.0 (CH)	s	43			
				44			color change to YELLOWISH RED (5YR 4/6) and OLIVE GRAY (5Y 4/2)
				45			
	1540 5.9	PTI-MW18-S-46.0 (BT)	s	46			
				47			
		PTI-MW18-S-47.5 (CG)	s	48			Geotechnical grain size (gravel 0%, sand 37%, silt 48%, clay 14%)
		PTI-MW18-S-49.0 (BT)	s	49		SM	DARK YELLOWISH BROWN SILTY SAND (10YR 4/6), wet, medium dense, medium sand, brown and black mottling, occasional thin coarse sand lenses, green-yellow pore water when wetted (0, 85, 15)
	7.7			50			
				51			
				52			
				53			increased fines (0, 55, 45)
				54			
		PTI-MW18-S-55.0 (CH)	s	55			
	0749 5.3			56		SP	OLIVE BROWN SAND (2.5YR 4/6), wet, loose, fine sand, poorly graded, some silt, trace clay (0, 85, 15) Apparent top of Hollydale Aquifer
				57			
	1.1			58			medium sand, poorly graded (0, 95, 5)
		PTI-MW18-S-58.5 (CH)	s	59			
		PTI-MW18-S-59.0 (GG)	s	60			Geotechnical grain size (gravel 0%, sand 81%, silt 15%, clay 3%) (continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-18 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure **MW18**

Drafter: EBH Date: 8/6/07 Contract Number: 06-441-B

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Boring: MW-18 (cont.)

Hand Auger Start 6/13/07 0900

Sonic Start 6/13/07 1040 Finish 6/14/07 1630

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-67.5' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson/ N. Matell

Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic				60		sand becomes coarser to medium and coarse sand with some fine to coarse gravel, sand ~20% fine to medium, 80% coarse (10, 87, 3)
				61		
				62		6" lens of DARK GREENISH GRAY SAND WITH SILT (Gley 1 4/10Y) back to OLIVE BROWN (5Y 4/2) continues to coarsen with depth
				63		
	0.3			64		
		PTI-MW18-S-65.0 (BT)	s	65		
	0828			66		6" lense of fine sand medium sand
	1101	PTI-MW18-S-67.0 (BT)	s	67		

TD = 67.5 (feet BGS)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-18 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW18
page 4 of 4

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of MW-18.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/13/07 TIME 0900
WELL INSTALLATION BEGAN:
DATE 06/14/07 TIME 1240
WELL COMPLETION FINISHED:
DATE 06/14/07 TIME 1730
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE C-57: 694686
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID ____ OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED ____
AMOUNT USED ____
☒ PELLETS, SIZE 3/8 inch 46 to 54' 9"
☐ CHIPS, SIZE ____
☐ ____
PRODUCT Pel Plug TR30 Coated Pellets
MFG. BY ____
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED ____

FILTER PACK

AMOUNT CALCULATED ____
AMOUNT USED ____
☒ SAND, SIZE 2/12
☐ FORMATION COLLAPSE:
FROM ____ TO ____
PRODUCT ____
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

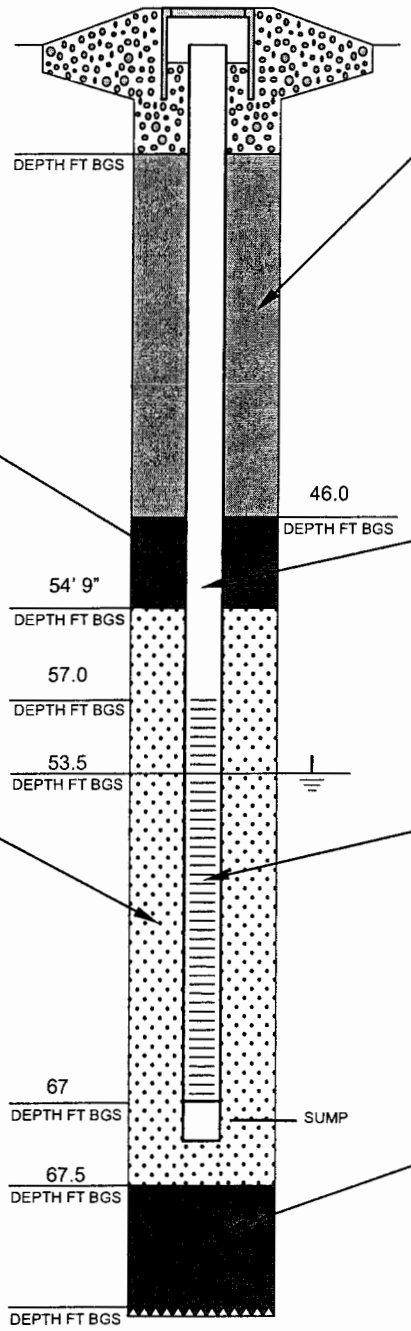
TOC ELEVATION 152.96
GROUND ELEVATION ____
LAT COORD. 33.9598774
LONG COORD. -118.0680342
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS: ____

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5000 psi concrete



MONITORING WELL

MONITORING WELL NO. MW-18S
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO. ____
WELL PERMIT NO. ____
TOC TO BOTTOM OF WELL ____

ANNULAR SEAL

AMOUNT CALCULATED ____
AMOUNT USED ____
☒ GROUT FORMULA
PORTLAND CEMENT 4 X 94-lb bags
BENTONITE 15 lbs hydrogel
WATER 90 gallons
☐ PREPARED MIX
PRODUCT ____
MFG. BY ____
METHOD INSTALLED
☐ POURED ☒ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐ ____
PRODUCT
MFG BY. ____
CASING DIAMETER:
ID ____ OD 4 inch
APPROXIMATE LENGTH OF CASING 57 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐ ____
PRODUCT ____
MFG. BY: ____
CASING DIAMETER:
ID ____ OD 4 inch
SLOT SIZE 0.02 inch
LENGTH OF SCREEN 10 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED ____
AMOUNT USED 0
☐ BENTONITE CHIPS, SIZE ____
☐ BENTONITE PELLETS, SIZE ____
☐ SLURRY ____
☐ FORMATION COLLAPSE
FROM ____ TO ____
PRODUCT ____
MFG. BY ____
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: MW-19

Hand Auger Start 6/18/07 1025

Sonic Start 6/18/07 1045 Finish 6/19/07 0945

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-75.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 6" concrete)
					1		SM	DARK BROWN SILTY SAND (7.5YR 3/2), dry, loose, some clay, strong odor, oily staining and tarry texture, slag fragments (0% gravel, 75% sand, 25% fines) [fill]
		1.6			2			
			PTI-MW19-S-3.0 (CH)	s	3			
					4		SM/ ML	DARK BROWN SILTY SAND (7.5YR 3/4), dry, dense, fine sand (0, 50, 50)
	1040				5			
Sonic					6			
					7			► sand fraction increases
		0.5			8			
			PTI-MW19-S-8.0 (CH)	s				
					9			► color changes to STRONG BROWN (7.5YR 4/6)
								► (0, 75, 25), grain size of sand fraction increases with depth
					10			
					11			
					12		SP /SM	LIGHT YELLOWISH BROWN SAND TO SILTY SAND (2.5Y 6/4), dry, loose, medium sand with thin interbedded lenses of coarse sand to fine gravel, fine sand at the top 2 ft, trace fine gravel, poorly graded (trace, 95, 5)
					13			
					14			
					15			
	1055				16			
					17			
					18			
					19			
					20			

(continued, next page)

Drilling Notes:

1. Boring terminated at 75.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater level 46.18 ft BGS on 7/3/07.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-19
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW19

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: MW-19 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-75.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
		1.1			21			
					22			
					23			
					24			
			PTI-MW19-S-24.5 (CH) (GG)	s	25			geotechnical grain size (gravel 0%, sand 78%, silt 18%, clay 4%)
					26			sand fraction coarsens downward to coarse sand
		0.8			27			
					28			
					29			
					30			
					31			1" fine gravel and coarse sand with black staining at contact
		0.6			32		ML/CL	OLIVE BROWN SANDY SILT TO SANDY LEAN CLAY (2.5Y 4/4), dry, dense, brown and black mottling, little clay, non-plastic (0, 45, 55)
			PTI-MW19-S-32.5 (CH)	s	33			
		1125			34			
		1345			35			(0, 65, 35)
			PTI-MW19-S-36.0 (CG)	s	36			sample appeared wet; geotechnical grain size (gravel 0%, sand 48%, silt 42%, clay 10%)
					37			gypsum crystals up to 1" diameter from 37.5-38.5 ft BGS
					38			color changes to DARK YELLOWISH GRAY (10YR 4/4); (trace, 50, 50), damp
					39			
		3.0			40			(continued, next page)

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1438 Webster Street, Suite 302
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Log of Boring MW-19 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW19

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: MW-19 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-75.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				40			
				41			
				42			
				43			color changes to DARK REDDISH BROWN (5YR 3/3), slightly plastic to moderately plastic (0, 60, 40)
				44			
		PTI-MW19-S-45.0 (CH)	S	45			
				46			
				47			
	2.3			48			
				49			
				50			
	1426			51			
				52			color changes to DARK YELLOWISH BROWN (10YR 4/4) (0, 60, 40)
				53			
				54			
				55			
	1511			56		SP	DARK YELLOWISH BROWN SAND (10YR 4/4), soft, wet, poorly graded, fine sand in top foot grades to medium sand, subangular to subrounded (0, 95, 5)
				57			
				58			
	1.2			59			
				60			(continued, next page)

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1438 Webster Street, Suite 302
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Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-19 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW19

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: MW-19 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-75.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				60		SP	
		PTI-MW19-S-60.5 (CH)	S	61			
	2.1			62			sand fraction changes from fine to medium (0, 85, 15)
				63			
				64			
	1550			65			
		PTI-MW19-S-66.0 (CG)	S	66			geotechnical grain size (gravel 0%, sand 81%, silt 16%, clay 3%)
				67			
				68			sand fraction coarsens and medium to coarse sand with some coarse gravel
				69			color changes to OLIVE BROWN (2.5Y 4/4)
				70			sand fraction becomes medium to coarse with intebedded lenses of silt and fine sand up to 1.5 ft thick
	7.2	PTI-MW19-S-71.0 (CH)	S	71			
				72			
				73			
				74			
				74			
	1647			75			

TD = 75.0 (feet BGS)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-19 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW19
page 4 of 4

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/18/07 TIME 1025
WELL INSTALLATION BEGAN:
DATE 06/18/07 TIME 1700
WELL COMPLETION FINISHED:
DATE 06/19/07 TIME 0945
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE C-57: 694686
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID ____ OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED ____
AMOUNT USED 3 buckets
☒ PELLETS, SIZE 3/8 inch (hydrated)
☐ CHIPS, SIZE ____
☐ ____
PRODUCT Pel Plug TR30 Coated Pellets
MFG. BY ____
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED Formation water

FILTER PACK

AMOUNT CALCULATED ____
AMOUNT USED ____
☒ SAND, SIZE 2/12
☒ FORMATION COLLAPSE:
FROM 75 feet bgs TO 73 feet bgs
PRODUCT ____
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

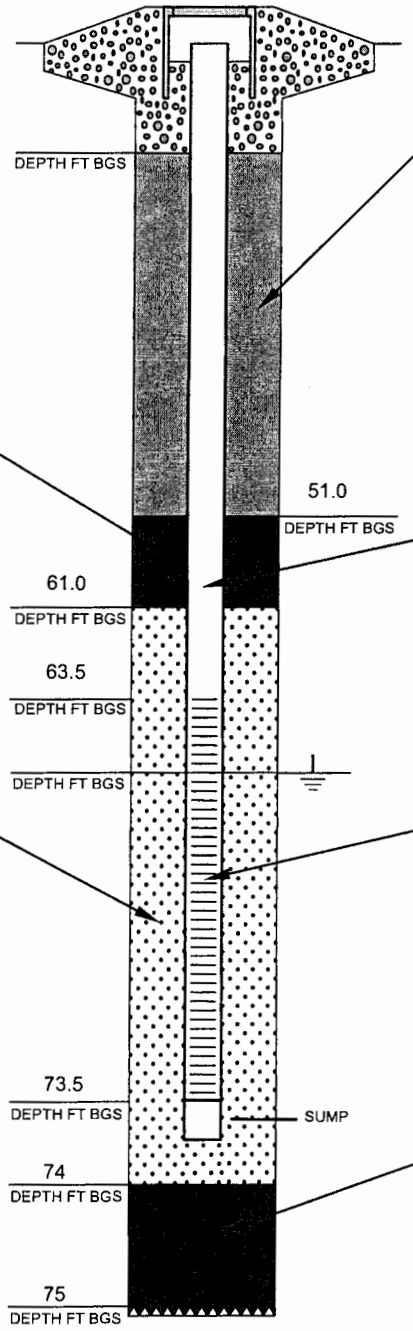
TOC ELEVATION 153.3
GROUND ELEVATION ____
LAT COORD. 33.9598929
LONG COORD. -118.0684426
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS: ____

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5000 psi concrete



MONITORING WELL

MONITORING WELL NO. MW-19S
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO. ____
WELL PERMIT NO. ____
TOC TO BOTTOM OF WELL ____

ANNULAR SEAL

AMOUNT CALCULATED ____
AMOUNT USED ____
☒ GROUT FORMULA
PORTLAND CEMENT 3 X 94-lb bags
BENTONITE ½ bag hydrogel
WATER 90 gallons
☐ PREPARED MIX
PRODUCT ____
MFG. BY ____
METHOD INSTALLED
☐ POURED ☒ TREMIE - Hose

CASING

☒ SCHEDULE 40 PVC
☐ ____
PRODUCT
MFG BY. ____
CASING DIAMETER:
ID ____ OD 4 inch
APPROXIMATE LENGTH OF CASING 63.5 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐ ____
PRODUCT ____
MFG. BY: ____
CASING DIAMETER:
ID ____ OD 4 inch
SLOT SIZE 0.01 inch
LENGTH OF SCREEN 10 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED ____
AMOUNT USED none
☐ BENTONITE CHIPS, SIZE ____
☐ BENTONITE PELLETS, SIZE ____
☐ SLURRY ____
☒ FORMATION COLLAPSE
FROM 75 feet bgs TO 74 feet bgs
PRODUCT ____
MFG. BY ____
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: MW-20

Hand Auger Start 6/15/07 0855

Sonic Start 6/15/07 0915 Finish 6/15/07 1930

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-74.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 6" concrete)
		1.8	PTI-MW20-S-1.5 (CH)	s	1		ML	BLACK SILT (10YR 5/1), some clay, strong odor (0% gravel, 10% sand, 90% fines) [fill]
					2		SM	VERY DARK BROWN SILTY SAND (10YR 2/2), dry, dense, odor (0, 75, 25)
					3			
					4		SM/ ML	DARK BROWN SILTY SAND (7.5YR 3/4), dry, dense, (0, 50, 50)
Sonic	0905				5			
					6			
					7			► becomes damp
					8			
					9		SM	DARK YELLOWISH BROWN SILTY SAND (10YR 4/4), fine to medium sand, sand fraction increasing downward, odor
		1.9			10			
			PTI-MW20-S-11.0 (CH)	s	11			
					12			
		1.9			13		SP	DARK YELLOWISH BROWN SAND (10YR 4/4), dry, loose, medium sand, poorly graded, lenses of coarse sand and fine gravel, no odor (0, 90, 10)
					14			
					15			
	0920				16			► increasing coarse sand and trace fine gravel (trace, 97, 3)
					17			► becomes damp
		4.1			18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 74.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater level 44.21 ft BGS on 7/3/07.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring MW-20
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW20

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Boring: MW-20 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-74.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic	1413				20			
					21			sand fraction coarsens downward to coarse sand and fine gravel
					22			
		8.2	PTI-MW20-S-23.0 (CH) (GG)	s	23			geotechnical grain size (gravel 2%, sand 93%, silt and clay 5%)
					24			
					25			6" lens of fine gravel and coarse sand
	0940				26			
								4" of fine to coarse gravel, subangular to subrounded, up to 3" diameter at base of sand
		3.4			27		ML /CL	DARK GRAYISH BROWN SANDY SILT TO SANDY LEAN CLAY (10YR 4/2), dry, dense, some brown mottling, non-plastic (0, 40, 60 to 0, 60, 40)
					28			
					29			
			PTI-MW20-S-30.0 (CH)	s	30			
					31			
					32			
		1.4			33			
					34			
					35			clay fraction increases downwards, moderately plastic
	1010				36			gypsum crystals
					37			
					38			
		4.3	PTI-MW20-S-39.0 (GG)	s	39			geotechnical grain size (gravel 0%, sand 3%, silt 72%, clay 25%)
					40			

(continued, next page)

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Oakland, California 94612
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Log of Boring MW-20 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW20

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: MW-20 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-74.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				40			
				41			
				42		ML CL	DARK REDDISH BROWN SANDY CLAYEY SILT TO SILTY CLAY (5YR 3/4), dry, very hard, fine to medium sand, slightly to modrately plastic (0, 20, 80)
	1.6	PTI-MW20-S-43.0 (CH)	s	43			
				44			
				45			
	1018			46		SM/ ML	DARK GRAYISH BROWN SANDY SILT/SILTY SAND (10YR 4/2), damp, firm, brown and black mottling, fine sand, non-plastic (0, 40, 60 to 0, 60, 40)
				47			
				48			
				49			
	3.1	PTI-MW20-S-50.0 (CH)	s	50			
				51			
				52			
				53			
				54			
	3.2			55		SP	OLIVE GRAY SAND (5Y 4/2), damp, loose, poorly graded, fine to medium sand (0, 85, 15)
	1126			56			► sand fraction increases downwards to medium sand (0, 100, trace)
				57			
		PTI-MW20-S-58.0 (CH) (GG)	s	58			► geotechnical grain size (gravel trace, sand 94%, silt and clay 6%)
				59			► fine to medium sand (0, 97, 3)
				60			(continued, next page)

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Log of Boring MW-20 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW20

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Deep Logs.dwg

Boring: MW-20 (cont.)

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-75.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic				60		SP	
				61			(5, 92, 3), medium sand
				62			(0, 97, 3), fine to medium sand
				63			(trace, 98, 2), medium to coarse sand
				64			
				65			
				66			
				67			
				68			
				69			
				70			6" lens of silty sand/sandy silt (0, 50, 50), fine sand medium to coarse sand
	1157			71			no recovery from 71 to 74 ft BGS due to heaving sands
				72			
				73			
				74			

TD = 74.0 (feet BGS)

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Log of Boring MW-20 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
MW20

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/15/07 TIME 0900
WELL INSTALLATION BEGAN:
DATE 06/15/07 TIME 1330
WELL COMPLETION FINISHED:
DATE 06/15/07 TIME 1930
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE C-57: 694686
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 3 buckets
☒ PELLETS, SIZE 3/8 inch 43 to 56 ft bgs
☐ CHIPS, SIZE
☐
PRODUCT Pel Plug TR30 Coated Pellets
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE 2/12
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

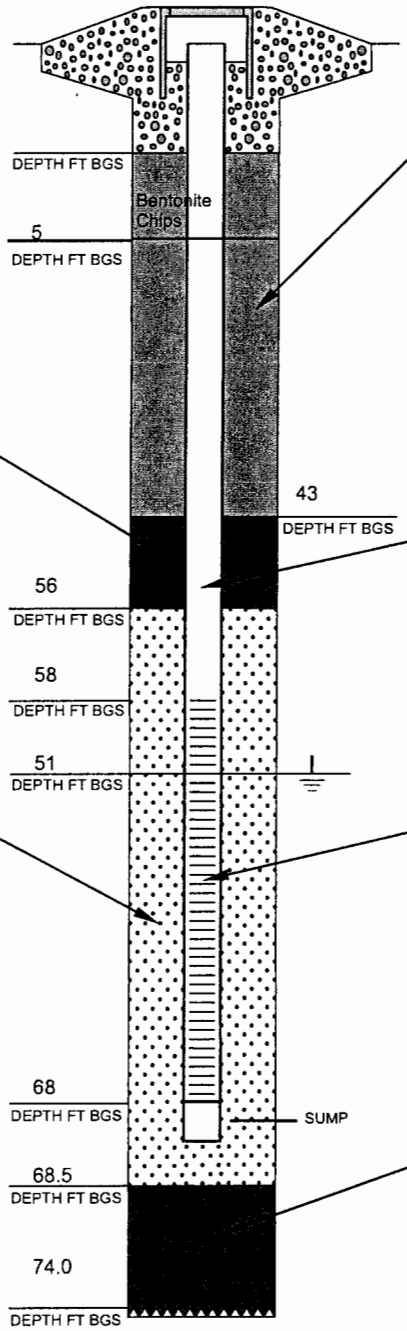
TOC ELEVATION 151.16
GROUND ELEVATION
LAT COORD. 33.9597192
LONG COORD. -118.0682913
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5000 psi concrete



MONITORING WELL

MONITORING WELL NO. MW-20S
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT 3 X 94-lb bags
BENTONITE 1/4 bag hydrogel
WATER ~75 gallons
☒ PREPARED MIX
PRODUCT Bentonite chips from 5 feet (3 bags)
MFG. BY
METHOD INSTALLED
☒ POURED – bentonite chips ☒ TREMIE – hose (grout)

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 4 inch
APPROXIMATE LENGTH OF CASING 58 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 4 inch
SLOT SIZE 0.01 inch
LENGTH OF SCREEN 10 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED Sand, 1x100 lb bag
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT 2/12 sand
MFG. BY
METHOD INSTALLED:
☒ POURED ☐ TREMIE

Boring: PZ-01

Start 6/14/07 1610 Finish 6/14/07 1815

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-41.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/ N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			2" asphalt
					1		SM	DARK BROWN GRAVELLY SAND (7.5YR 3/2), damp, loose, gravel mostly 1/2" diameter (30% gravel, 55% sand, 15% fines) [fill]
		46.4			2		ML	DARK BROWN SANDY SILT (7.5YR 3/3), damp, loose, trace gravel, strong odor, sticky (5, 40, 55) [fill]
	1625		PTI-PZ-01-S-3.0 (CH)	s	3			
		110			4			
Sonic					5			
					6		SM/ ML	DARK YELLOWISH BROWN SILTY SAND (10YR 3/4), dry, dense, trace clay (0, 60, 40)
		48			7			
					8			
					9			
					10			
					11			increasing sand fraction with depth
					12			
		1.5	PTI-PZ-01-S-12.5 (CH)	s	13			
					14			
					15		SP	VERY PALE BROWN SAND (10YR 7/3), damp, loose, medium sand, trace fines (0, 80, 20 to 0, 95, 5) sand size and fraction vary with depth
	1730				16			
					17			silt fraction decreases with depth
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 41.5 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
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Log of Boring PZ-01
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
PZ01

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Boring: PZ-01 (cont.)

Start 6/14/07 1610 Finish 6/14/07 1815

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-41.5' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/ N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
		0.9	PTI-PZ-01-S-22.5 (CH)	s	22			trace silt (0, 95, 5)
					23			
	1745				24			
					25			
					26			6" lens of sandy silt color change to BROWN (10YR 4/3), increased silt fraction (0, 85, 15)
					27			
					28			
					29			
					30			coarsens downward to 31 ft bgs
					31			6" lens of sandy gravel
					32			6" lens of sandy silt
					33			color change to VERY PALE BROWN SAND (10YR 7/3), medium sand
					34			
		2.7			35			18" lens of sandy silt
					36			
					37			sand size increasing downward to medium sand, coarse gravel up to 2.5" diameter
		1.5			38			color change to YELLOWISH BROWN (10YR 5/6)
					39			
					40			6" lens of coarse gravel at base of sand
		4.4					ML	YELLOWISH BROWN SANDY SILT (10YR 5/6), damp, hard, fine sand, non-plastic (0, 30, 70)
	1810		PTI-PZ-01-S-41.0 (CH)	s	41			

TD = 41.5 BGS

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Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring PZ-01 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
PZ01

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/14/07 TIME 1711
WELL INSTALLATION BEGAN:
DATE 06/14/07 TIME 1800
WELL COMPLETION FINISHED:
DATE 06/14/07 TIME 1830
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE Medium
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED 5 gals per 2 bags

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE 2/12
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

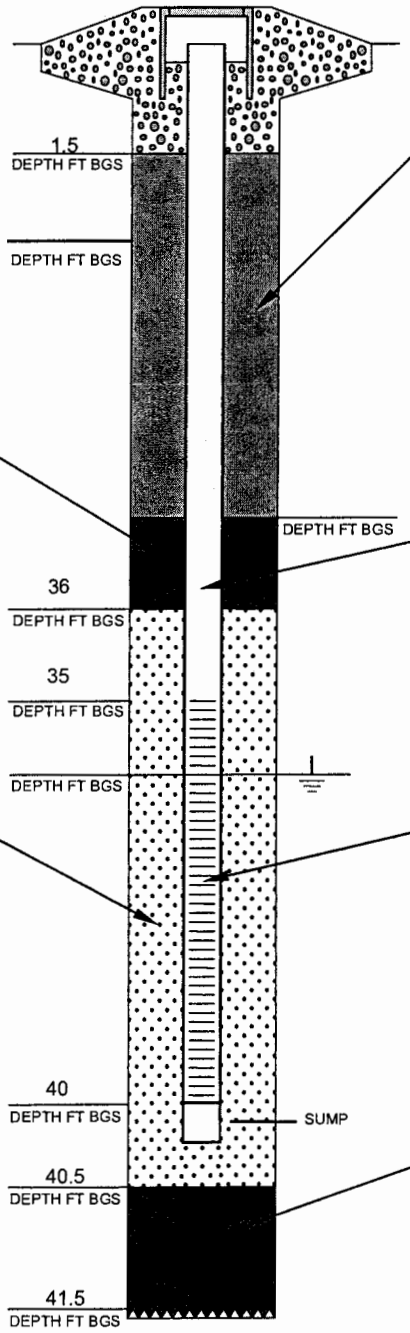
TOC ELEVATION 152.01
GROUND ELEVATION
LAT COORD. 33.9597013
LONG COORD. -118.0686182
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. PZ-01
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium hydrated chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 2 inch
APPROXIMATE LENGTH OF CASING 35 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 2 inch
SLOT SIZE 0.02 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☒ FORMATION COLLAPSE
FROM 41.5 TO 40.5
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: PZ-02

Start 6/12/07 0830 Finish 6/12/07 1145

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-32.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand auger					0			Pavement (2" asphalt, 8" concrete)
	0900	125			1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, with trace of clay, slag fragments from coarse sand to cobble size, wood fragments (5 % gravel, 75% sand, 20% fines) [fill]
					2			
					3		ML	BLACK SANDY SILT (10YR 2.5/1) dry, soft, fine sand, trace of clay, strong odor (0, 40, 60) [fill]
			PTI-PZ02-S-3.5 (CH)	s	4			
		72.8			5		SM	STRONG BROWN SILTY SAND (7.5YR 4/6) dry, dense, fine sand, trace clay (0, 70, 30)
Sonic					6			
					7			
		1.0	PTI-PZ02-S-7.5 (CH)	s	8			
					9			
	1040				10			
					11			
					12			
					13			
					14		SP	BROWN SAND (7.5YR 5/3), dry, loose, medium sand, poorly graded, subangular (0, 95, 5)
		3.2						
	1050				15			
					16			► color change to LIGHT OLIVE BROWN (2.5Y 5/4)
					17			
					18			
					19			► sand becomes coarse with trace fine gravel
	1119				20			(continued, next page)

Drilling Notes:

1. Boring terminated at 32.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
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Log of Boring PZ-02
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
PZ02
page 1 of 2

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Boring: PZ-02 (cont.)

Start 6/12/07 0830 Finish 6/12/07 1145

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-32.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic			PTI-PZ02-S-20.0 (CH)	s	20			
					21			
					22			
					23			
		3.9			24			
	1136							
					25			
					26			
					27			
					28			
		2.8						4" lens of gravel and sand at base of sand unit, well graded
					29		ML	LIGHT OLIVE BROWN SANDY SILT (2.5Y 5/3), dry, fine sand, non-plastic (0, 40, 60)
			PTI-PZ-02-S-30.0 (CH)	s	30			
					31			
	1148				32			

TD = 32.0 ft BGS

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Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring PZ-02 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
PZ02

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/12/07 TIME 0830
WELL INSTALLATION BEGAN:
DATE 06/12/07 TIME 1300
WELL COMPLETION FINISHED:
DATE 06/12/07 TIME 1430
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 2 bags
☐ PELLETS, SIZE
☒ CHIPS, SIZE Medium
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED 5 gals per 2 bags

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE 2/12
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

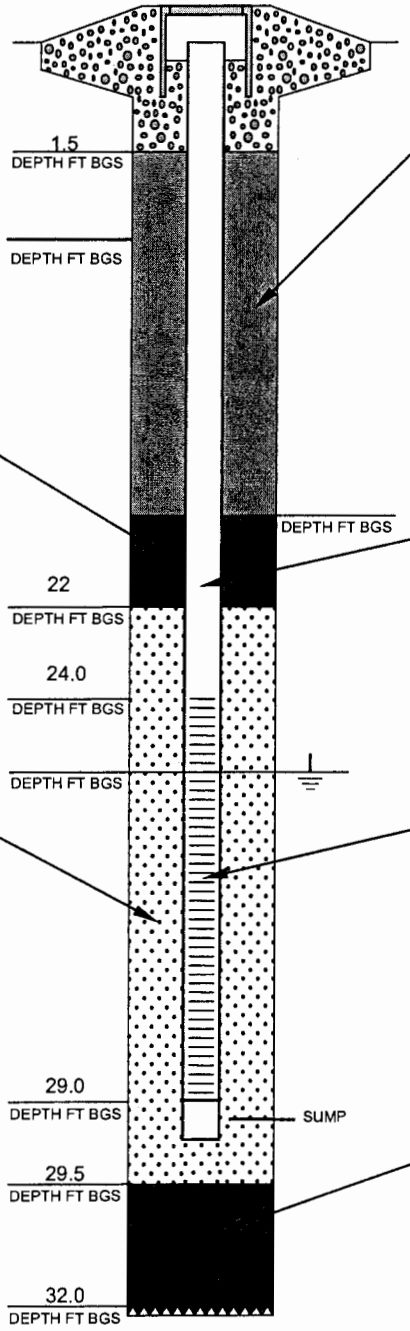
TOC ELEVATION 153.99
GROUND ELEVATION
LAT COORD. 33.9599710
LONG COORD. -118.0681662
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. PZ-02
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium hydrated chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 2 inch
APPROXIMATE LENGTH OF CASING 24 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 2 inch
SLOT SIZE 0.02 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM 32.0 TO 29.5
PRODUCT 2/12 sand
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

Boring: PZ-03

Start 6/12/07 1500 Finish 6/12/07 1700

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-31.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson/N. Matell
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand auger					0			Pavement (2" asphalt, 8" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, with trace of clay, slag fragments from coarse sand to cobble size, wood fragments (5 % gravel, 75% sand, 20% fines) [fill]
		0.0			2			
					3		SM/ ML	BROWN SILTY SAND (7.5YR 4/4) dry, dense, fine sand, trace of clay (0, 65, 35)
		8.1	PTI-PZ03-S-4.0 (CH)	s	4			
Sonic		8.2			5			
					6			
					7			► color changes to DARK GRAY (10YR 3/1)
					8			
		28.4	PTI-PZ03-S-9.0 (CH)	s	9			► increased sand fraction (0, 85, 15)
					10		SP	DARK OLIVE GRAY SAND (5Y 3/2), dry, loose, medium sand, subangular to subrounded, strong odor (trace, 90, 10)
					11			
					12			► 4" lens of SILTY SAND, fine sand (0, 80, 20)
					13			
					14			
		1,435	PTI-PZ03-S-15.0 (CH)	s	15			
					16			
					17			
					18			
		860			19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 31.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
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Oakland, California 94612
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Log of Boring PZ-03
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
PZ03

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Boring: PZ-03 (cont.)

Start 6/12/07 1500 Finish 6/12/07 1700

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-31.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			sand coarsens downward to contact (0, 95, 5)
			PTI-PZ03-S-24.0 (CH)	S	24			
					25			
					26			
		14.0			27			1" lens of gravel
							ML	OLIVE GRAY SANDY SILT (5Y 4/2), dry, hard, strong odor, non-plastic (0, 45, 55)
					28			
			PTI-PZ03-S-29.0 (CH)	S	29			
					30			
					31			

TD = 31.0 ft BGS

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1438 Webster Street, Suite 302
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Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring PZ-03 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
PZ03
page 2 of 2

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/12/07 TIME 1500
WELL INSTALLATION BEGAN:
DATE 06/12/07 TIME
WELL COMPLETION FINISHED:
DATE 06/12/07 TIME 1700
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED 5 gals per 2 bags

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE 2/12
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

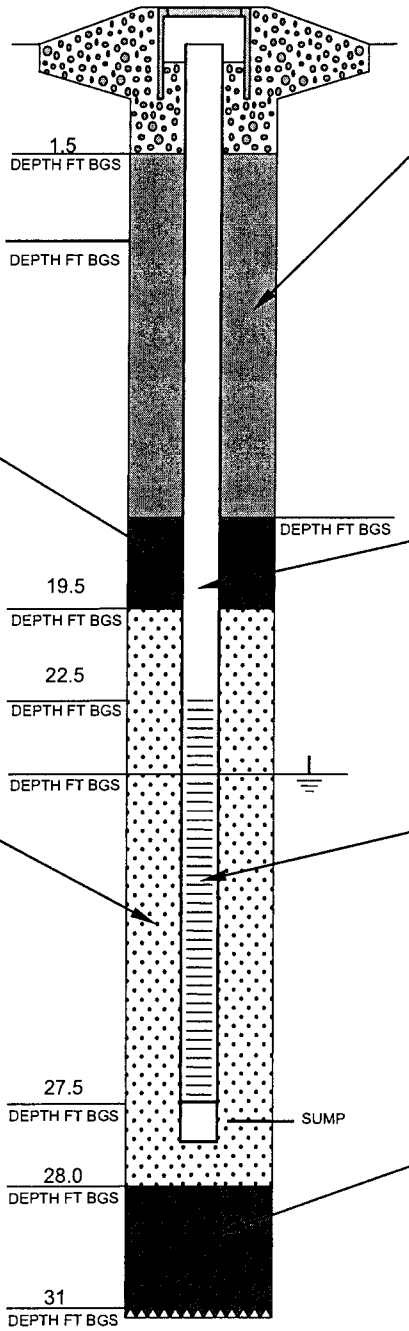
TOC ELEVATION 151.92
GROUND ELEVATION
LAT COORD. 33.9597244
LONG COORD. -118.0681272
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. PZ-03
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium hydrated chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 2 inch
APPROXIMATE LENGTH OF CASING 22.5 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 2 inch
SLOT SIZE 0.02 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM 31 TO 28
PRODUCT 2/12 sand
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

Boring: SMP01A+B

Start 6/22/07 0945 Finish 6/22/07 1249

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-47.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 8" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, medium sand, slag and wood fragments, green powder (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3		SM/ ML	REDDISH BROWN SANDY SILT (2.5YR 2.5/1), dry, dense (0, 50,50)
					4			
Sonic					5			
					6			
					7			
					8			
					9			
					10			
			PTI-SMP01-S-11.0 (CH)	s	11			
					12		SM	REDDISH BROWN SILTY SAND (2.5YR 4/4), dry, loose (0, 75, 25)
					13			
					14			
					15		SP	LIGHT YELLOWISH BROWN SAND (10YR 6/4), medium sand (0, 95, 5)
		0.3			16			
	1125		PTI-SMP01-S-16.5 (CH)	s	17			► no recovery from 17 to 28 ft BGS due to driller error
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 47.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP01A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP1

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Boring: SMP01A+B (cont.)

Start 6/22/07 0945 Finish 6/22/07 1249

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-47.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			
					24			
					25			
					26			
					27			
					28			no recovery from 17 to 28 ft BGS due to driller error
								medium to coarse sand
					29		ML	BROWN SANDY SILT (10YR 4/3), dry, fine sand, non to slightly plastic (0, 45, 55)
			PTI-SMP01-S-30.0 (CH)	s	30			
					31			
					32			
					33			gypsum crystals from 33 to 38 ft bgs
					34			
					35			
	1145				36			
					37			
					38			color change to DARK REDDISH BROWN (2.5YR 3/3)
					39			
					40			

(continued, next page)

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Log of Boring SMP01A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP1

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Boring: SMP01A+B (cont.)

Start 6/22/07 0945 Finish 6/22/07 1249

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-47.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					41			
					42			color change to DARK REDDISH BROWN (2.5YR 3/3), slightly plastic
			PTI-SMP01-S-43.0 (CH)	s	43			
					44			
					45			
					46			
	1155				47			

TD = 47.0 ft BGS

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1438 Webster Street, Suite 302
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Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP01A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP1
page 3 of 3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/22/07 TIME 1115
WELL INSTALLATION BEGAN:
DATE 06/22/07 TIME 1210
WELL COMPLETION FINISHED:
DATE 06/22/07 TIME 1249
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

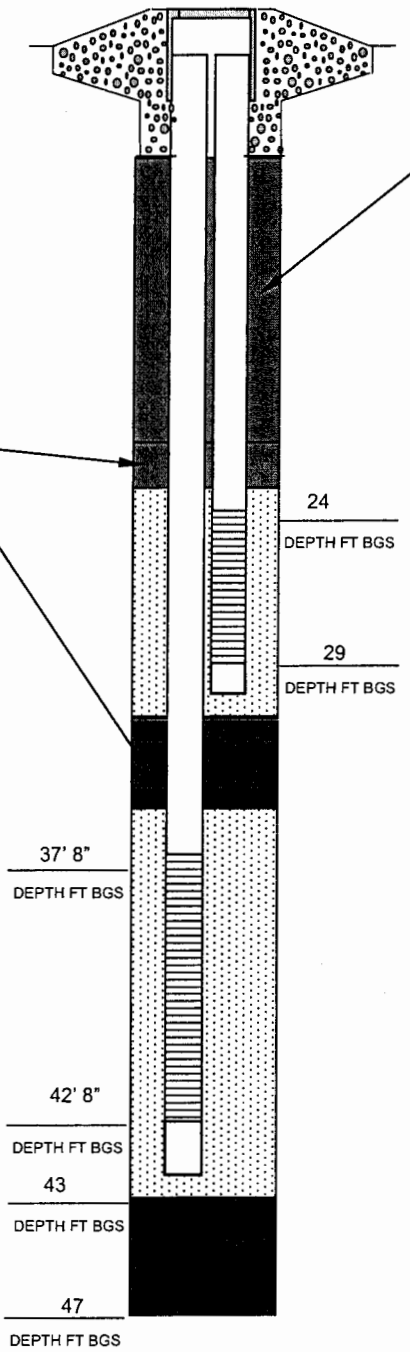
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9600575
LONG COORD. -118.0681824
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-01A+B
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 39 feet / 20 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☒ FORMATION COLLAPSE
FROM 47 TO 43
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SMP-02A+B

Start 6/21/07 1455 Finish 6/21/07 1600

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-45.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Soil Type	
Hand Augered					0		Pavement (2" asphalt, 8" concrete)
					1	SM	REDDISH BROWN SAND (2.5YR 4/4), medium sand, slag and wood fragments, red staining, mottled with GRAY CLAYEY SAND (7.5YR 5/1), brick, slag, and red rock fragments
		0.3	PTI-SMP02-S-2.0 (CH)	s	2		
					3	SM/ ML	STRONG BROWN SILTY SAND (7.5YR 4/6), (0, 50,50)
	1514				4		
Sonic					5		
					6		
					7		color change to REDDISH BROWN (5YR 4/4)
					8		
					9		
		3.8			10		
					11		color change to STRONG BROWN (7.5YR 4/6)
			PTI-SMP02-S-12.0 (CH)	s	12		
					13		
					14	SP	DARK OLIVE GRAY SAND (5Y 3/2), fine sand (0, 95, 5)
					15		
					16		
	1518	1.2			17		sand fraction coarsens downward to medium sand
					18		
					19		2" lens of silt sand fraction coarsens downward to medium and coarse sand
					20		(continued, next page)

Drilling Notes:
1. Boring terminated at 45.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-02A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP2

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Boring: SMP-02A+B (cont.)

Start 6/21/07 1455 Finish 6/21/07 1600 Drill Method: Hand Auger (0-5' BGS)
Sonic (5-45.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			
					24			2" lens of coarse sand to coarse gravel
					25			
			PTI-SMP02-S-26.0 (CH)	s	26			coarse sand, increased gravel fraction (10, 85, 5)
					27			
					28			6" lens of fine gravel at base of sand
					29		ML	STRONG BROWN SANDY SILT (7.5YR 4/2), dry, hard, non to slightly plastic (0, 45, 55)
		5.8			30			
					31			
					32			gypsum crystals from 32 to 35 ft BGS
					33			
					34			
					35			
	1535	5.8			36			
					37			
					38			
					39			
					40			

(continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-02A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP2

Drafter: EBH Date: 8/9/07 Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-02A+B.dwg

Boring: SMP-02A+B (cont.)

Start 6/21/07 1455 Finish 6/21/07 1600 Drill Method: Hand Auger (0-5' BGS)
Sonic (5-45.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic					40		
					41		color change to DARK REDDISH BROWN (2.5YR 3/3) very hard, gypsum crystals
			PTI-SMP02-S-42.0 (CH)	s	42		
		7.5			43		
					44		
	1550				45		

TD = 45.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-02A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP2
page 3 of 3

Drafter: EBH Date: 8/9/07 Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-02A+B.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/21/07 TIME 1455
WELL INSTALLATION BEGAN:
DATE 06/21/07 TIME 1600
WELL COMPLETION FINISHED:
DATE 06/21/07 TIME 1700
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 2 X 50 lb bags
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED Equal proportions

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

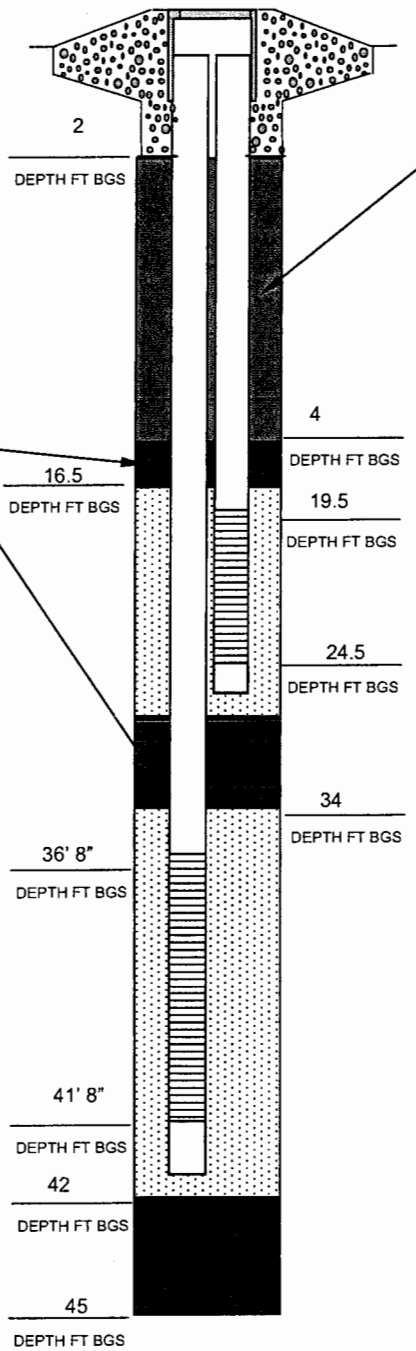
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9599738
LONG COORD. -118.0679634
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-02A+B
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 39 feet / 20 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☒ FORMATION COLLAPSE
FROM 42 TO 45
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SMP-03A+B

Start 6/22/07 0955 Finish 6/22/07 1104

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand auger					0			Pavement (2" asphalt, 6" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, medium sand, brick and wood fragments, strong odor (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3		SM/ ML	STRONG BROWN SANDY SILT (7.5YR 4/6), dry, hard (0, 50, 50)
					4			
Sonic					5			
					6			
					7			► color change to REDDISH BROWN (5YR 4/4)
					8			
					9			
					10			► color change to STRONG BROWN (7.5YR 4/6)
								► sand fraction increases with depth
					11			
					12			
					13			
			PTI-SMP03-S-14.0 (CH)	s	14		SP	STRONG BROWN SAND (7.5YR 4/6), fine sand, slightly loose (0, 95, 5)
					15			
					16			
		1.0			17			► color change to LIGHT YELLOWISH BROWN (2.5Y 6/4)
								► sand fraction coarsens downward to medium sand
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-03A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP3
page 1 of 3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-03A+B.dwg

Boring: SMP-03A+B (cont.)

Start 6/22/07 0955 Finish 6/22/07 1104

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			
			PTI-SMP03-S-24.0 (CH)	s	24			
		0.8			25			
	1008				26			lense of fine gravel
					27		ML	BROWN SANDY SILT (10YR 4/3), damp, very hard, slightly plastic (0, 45, 55)
					28			
					29			
					30			
					31			
					32			
					33			
					34			
					35			
					36			
					37			
					38			
					39			
					40			

(continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-03A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-03A+B.dwg

Boring: SMP-03A+B (cont.)

Start 6/22/07 0955 Finish 6/22/07 1104

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic					40		
					41		
					42		
			PTI-SMP03-S-43.0 (CH)	s	43		
					44		
					45		
	1046				46		

TD = 46.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-03A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP3
page 3 of 3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-03A+B.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/22/07 TIME 0955
WELL INSTALLATION BEGAN:
DATE 06/22/07 TIME 1055
WELL COMPLETION FINISHED:
DATE 06/22/07 TIME 1104
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

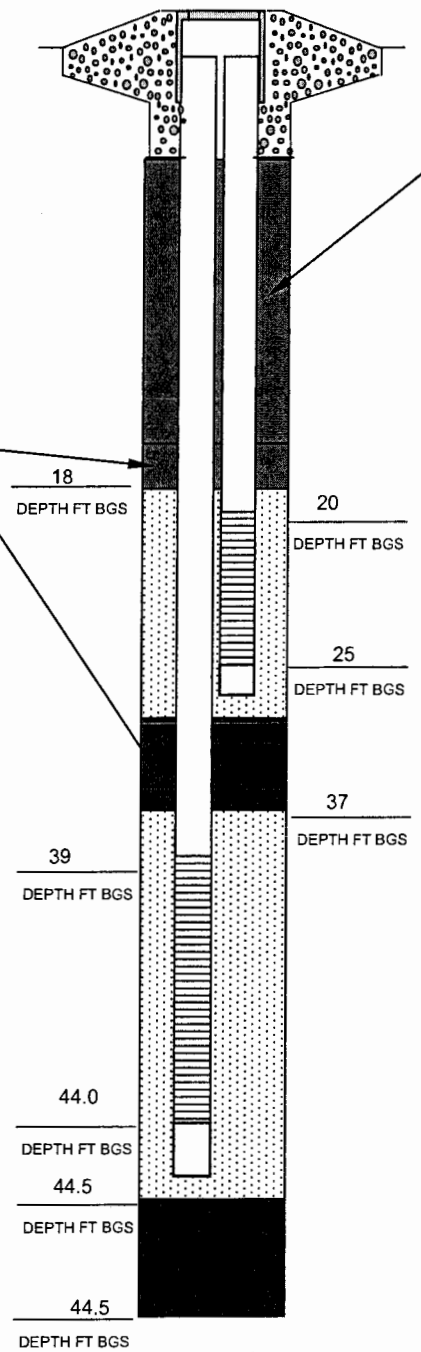
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9599767
LONG COORD. -118.0680392
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-03A+B
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 39 feet / 20 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SMP-04A+B

Start 6/20/07 1020 Finish 6/20/07 1230

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 6" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), with trace of clay, moist, loose, fine to medium sand, strong odor (5% gravel, 75% sand, 20% fines) [fill]
			PTI-SMP04-S-1.5 (CH)	s	2			
					3		SM	VERY DARK BROWN SILTY SAND (10YR 2/2), moist, loose, fine sand, strong odor (0, 65,35)
					4			
	1045				5			► wet, very strong odor from 4.5-7.5 ft bgs
Sonic		10.0	PTI-SMP04-S-5.5 (CH)	s	6			
					7			► color change to DARK BROWN (10YR 3/3), damp, black mottling (0, 75, 25), fine sand fraction increases downward
					8			
					9			
			PTI-SMP04-S-9.5 (CH)	s	10			
					11			
					12			
					13		SP /SM	VERY DARK GRAY SAND (10YR 3/1), moist, loose, fine to medium sand, poorly graded, strong odor (0, 95, 5)
		15.9			14			
					15			
	1053				16			► color change to GRAY(10YR 5/1)
					17			► grain size of sand fraction increases to medium sand with some lenses of coarse sand
		33			18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-04A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure **SMP4**

Drafter: EBH | Date: 8/13/07 | Contract Number: 06-441-B

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Boring: SMP-04A+B (cont.)

Start 6/20/07 1020 Finish 6/20/07 1230

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			sand fraction coarsens downwards to coarse sand
					21			
		102			22			
			PTI-SMP04-S-22.0 (CH)	s				
					23			2" lens of fine gravel with trace coarse gravel
					24			geotechnical grain size (gravel 1%, sand 94%, silt and clay 5%)
			PTI-SMP04-S-24.0 (GG)	s				
		1113			25			
					26		ML /CL	OLIVE GRAY SANDY SILT TO SANDY LEAN CLAY (5Y 4/4) dry, firm, fine sand, non-plastic (0, 50, 50)
		8.8			27			
					28			
					29			color change to BROWN (7.5YR 3/3)
					30			
					31			
			PTI-SMP04-S-32.0 (CH)	s	32			
		4.9			33			
					34			
					35			
		1217			36			color changes to YELLOWISH BROWN (10YR 5/4)
					37			
					38			
					39			
					40			

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-04A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP4

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: SMP-04A+B (cont.)

Start 6/20/07 1020 Finish 6/20/07 1230

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					40			gypsum crystals from 40-41 ft BGS
					41			
					42			color change to DARK YELLOWISH BROWN (10YR 4/4) with red mottling, slightly plastic
			PTI-SMP04-S-42.5 (CH) (GG)	s	43			geotechnical grain size (gravel 0%, sand 32%, silt 47%, clay 21%)
					44			
					45			
	1230				46			

TD = 46.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-04A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP4
page 3 of 3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-04A+B.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/20/07 TIME 1020
WELL INSTALLATION BEGAN:
DATE 006/20/07 TIME 1240
WELL COMPLETION FINISHED:
DATE 06/20/07 TIME 1600
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED
2/12 Sand + bentonite

HIGH YIELD CONCRETE

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

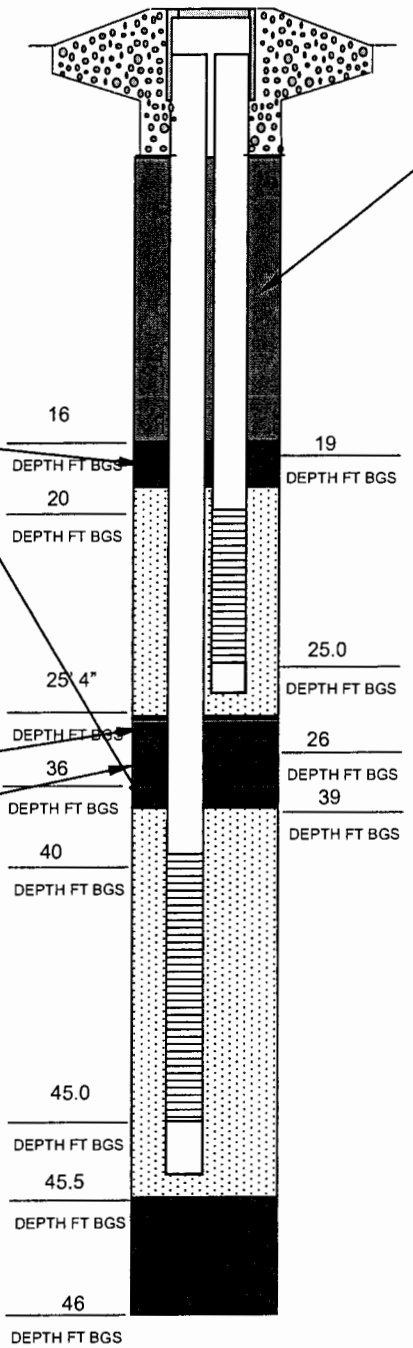
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9597987
LONG COORD. -118.0680779
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. **SMP-04A+B**
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 40 feet / 20 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☒ FORMATION COLLAPSE
FROM 46 feet bgs TO 45.5 feet bgs
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SMP-05A+B

Start 6/22/07 1130 Finish 6/22/07 1640

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-47.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 6" concrete)
					1		SM	MOTTLED BLACK SILTY SAND (10YR 2.5/1) AND PALE BROWN SILTY SAND (10YR 6/3), brick, slag and rock fragments, green powder (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3		SM/ ML	REDDISH BROWN SILTY SAND (5YR 4/4), dry, very dense (0, 50, 50)
					4			
Sonic	1130				5			
					6			
					7			
					8			
					9			
					10			
			PTI-SMP-05A+B-S-10.5 (CH)	s	11			color change to STRONG BROWN (7.5YR 4/6)
					12			
					13			sand fraction increases with depth
					14		SP	DARK OLIVE BROWN SAND (5Y 3/2), medium sand with fine sand at top of unit (0, 95, 5)
					15			
					16			
					17			
	1515				18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 47.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-05A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP5

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-05A+B.dwg

Boring: SMP-05A+B (cont.)

Start 6/22/07 1130 Finish 6/22/07 1640

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-47.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			lenses of dark stained material, some fine grained gravel
					21			
					22			
					23			
					24			
					25			
					26			
					27			
					28			
			PTI-SMP-05A+B-S-29.0	s	29			gravel at base of sand unit
			(CH)		30		ML	OLIVE GRAY SANDY SILT (5Y 3/2), hard, dry, non-plastic (0, 45, 55)
	1555							
					31			
					32			
					33			
		4.9						
					34			
					35			
					36			color change to STRONG BROWN (7.5YR 4/6)
					37			
					42			
					38			
					39			
					40			

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-05A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP5

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-05A+B.dwg

Boring: SMP-05A+B (cont.)

Start 6/22/07 1130 Finish 6/22/07 1640

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-47.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic					40		
					41		
					22		
			PTI-SMP-05A+B-S-43.0 (CH)	s	43		
					44		
					45		
					46		
	1605				47		

TD = 47.0 ft BGS

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-05A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP5
page 3 of 3

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-05A+B.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/22/07 TIME 1500
WELL INSTALLATION BEGAN:
DATE 06/22/07 TIME 1620
WELL COMPLETION FINISHED:
DATE 06/22/07 TIME 1640
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

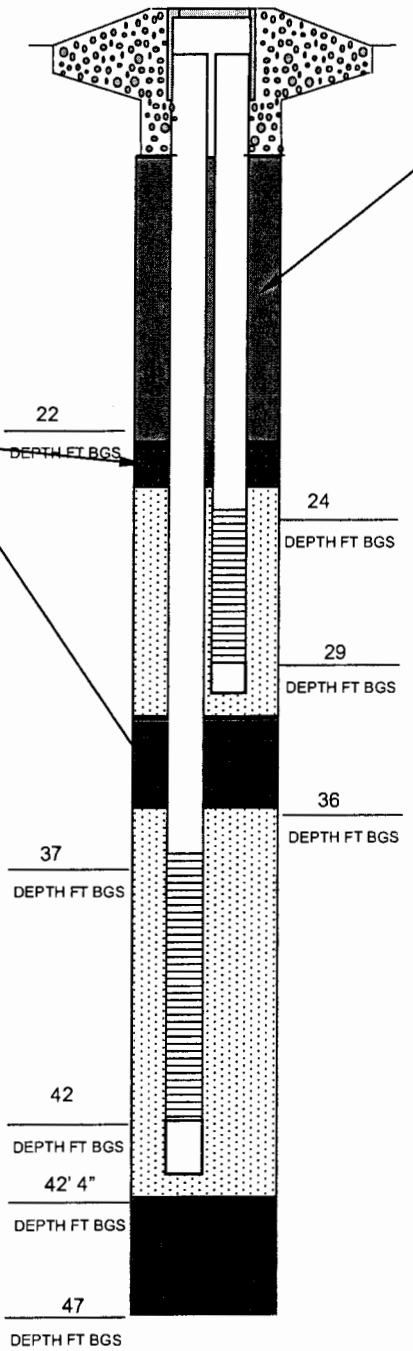
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9599542
LONG COORD. -118.0677593
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-05A+B
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 39 feet / 20 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☒ FORMATION COLLAPSE
FROM 47 feet TO 42 feet
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SMP-06

Start 6/23/07 1440 Finish 6/23/07 1600

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-36.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 6" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, brick and slag fragments, (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3			
					4		GW	GRAVEL, wet, well graded, angular (100, 0, 0) [fill]
Sonic					5			
					6			
					7			
					8			
					9			
			PTI-SMP06-S-10.0 (CH)	s	10			
					11			
					12		SM/ ML	STRONG BROWN SILTY SAND (7.5YR 4/6) (0, 50, 50)
					13		SP	STRONG BROWN SAND (7.5YR 4/6), dry, fine sand (0, 95, 5)
		1,007			14			
					15			► sand fraction coarsens to medium sand
					16			► color changes to DARK OLIVE GRAY (5Y 3/2), strong odor and oily staining
					17			
					18			► lenses of oily staining
		345			19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Perched groundwater encountered in gravel fill; groundwater measured at 25' BGS after drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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Oakland, California 94612
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Log of Boring SMP-06
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP6

Drafter: EBH | Date: 8/6/07 | Contract Number: 06-441-B

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Boring: SMP-06 (cont.)

Start 6/23/07 1440 Finish 6/23/07 1600

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-36.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
			PTI-SMP06-S-23.0 (CH)	s	23			
					24			
		450			25			
					26			sand fraction coarsens to coarse sand
					27		SM/ ML	DARK OLIVE GRAY SANDY SILT (5Y 3/2), dry, hard, non-plastic (0, 45,55)
					28			
					29			
		45			30			
					31			
			PTI-SMP06-S-32.0 (CH)	s	32			
		177			33			
					34			
					35			
					36			

TD = 36.0 ft BGS

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Log of Boring SMP-06 (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP6
page 2 of 2

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/23/07 TIME 1440
WELL INSTALLATION BEGAN:
DATE 06/23/07 TIME 1540
WELL COMPLETION FINISHED:
DATE 06/23/07 TIME 1600
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

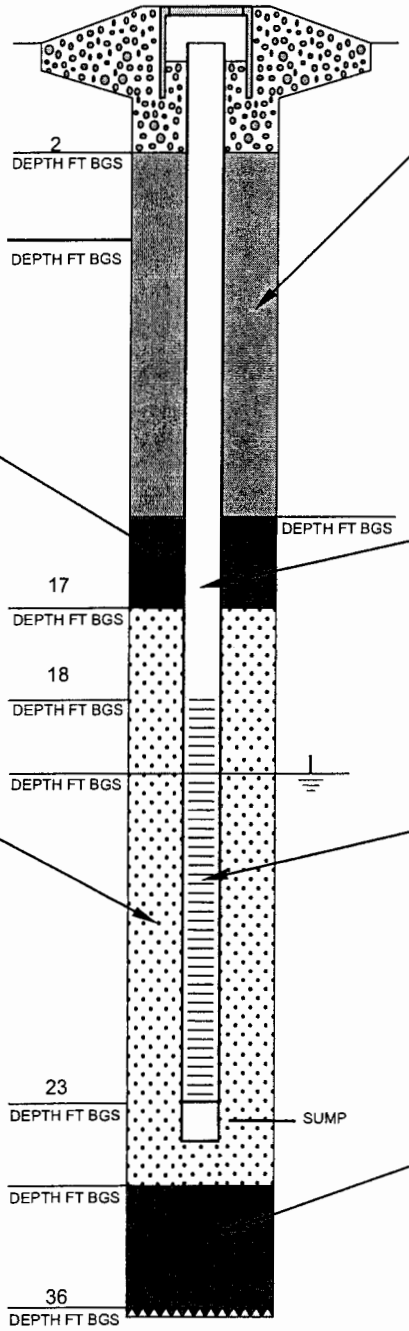
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9596845
LONG COORD. -118.0678250
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-06
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 18 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☒ BENTONITE CHIPS, SIZE Medium
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM 36 TO 23
PRODUCT
MFG. BY
METHOD INSTALLED:
☒ POURED ☐ TREMIE

Boring: SMP-07A+B

Start 6/23/07 0730 Finish 6/23/07 1000

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 5" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, medium sand, brick fragments, some yellow staining (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3			
		110			4		SM/ ML	STRONG BROWN SANDY SILT (7.5YR 4/6), moist, strong odor
Sonic					5			
					6			
					7			
		860			8			
					9			
			PTI-SMP07-S-10.0 (CH) s		10			
		915			11			
					12			► color changes to DARK OLIVE BROWN (5Y 3/2)
					13		SP	DARK OLIVE GRAY SAND (5Y 3/2), fine sand, strong odor, oily staining (0, 95, 5)
					14			
					15			► sand fraction coarsens to medium sand
					16			
					17			
					18			
		1,700			19			
					20			(continued, next page)

Drilling Notes:
1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-07A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP7

Drafter: EBH Date: 8/13/07 Contract Number: 06-441-B

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Boring: SMP-07A+B (cont.)

Start 6/23/07 0730 Finish 6/23/07 1000

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			
					24			
					25			
	0835	1,008			26			
					27		SM/ ML	BROWN SANDY SILT (10YR 4/3), with fine sand, dry, hard, non-plastic (0, 45, 55)
					28			
					29			
					30			
		155						
					31			
			PTI-SMP07-S-32.0 (CH)	S	32			
					33			
			PTI-SMP07-S-34.0 (CH)	S	34			
					35			
					36			
					37			
					38			
					39			
					40			

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Log of Boring SMP-07A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP7

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Boring: SMP-07A+B (cont.)

Start 6/23/07 0730 Finish 6/23/07 1000

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic					40		
					41		color changes to BROWN (7.5YR 5/3)
					42		
			PTI-SMP07-S-43.0 (CH)	S	43		
					44		
		0.08			45		
					46		

TD = 46.0 ft BGS

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Log of Boring SMP-07A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP7
page 3 of 3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/23/07 TIME 0825
WELL INSTALLATION BEGAN:
DATE 06/23/07 TIME 0930
WELL COMPLETION FINISHED:
DATE 06/23/07 TIME 1000
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 1 X 50 lb bag
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

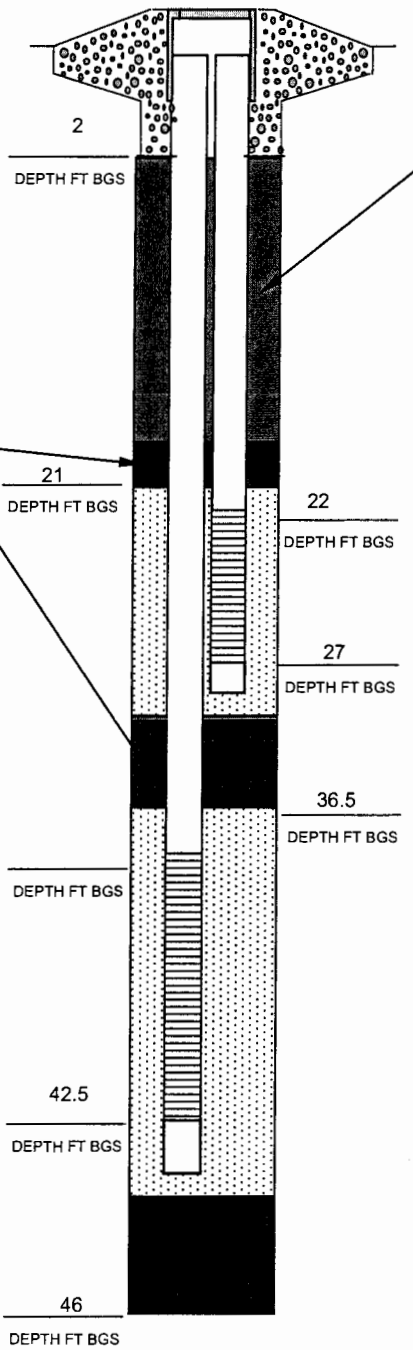
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9596678
LONG COORD. -118.0677638
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-07A+B
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 37.5 feet / 22 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SMP-08A+B

Start 6/23/07 0750 Finish 6/23/07 1700

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand auger					0			Pavement (2" asphalt, 4" concrete)
					1		SM	DARK BROWN SILTY SAND (7.5YR 3/2), dry, loose, brick and rock fragments (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3			
					4		SM/ ML	STRONG BROWN SANDY SILT (7.5YR 4/6), strong odor, oily staining
					5			
					6			
		7.0			7			
					8			
					9			
					10		SP	DARK OLIVE GRAY SAND (5Y 3/2), fine sand, strong odor, oily staining (0, 95,5)
					11			
					12			► sand fraction coarsens to medium sand
			PTI-SMP08-S-13.0 (CH)	s	13			
					14			
					15			
					16			
					17			
					18			
					19			
Sonic					20			(continued, next page)

Drilling Notes:
1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-08A+B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure **SMP8**

Drafter: EBH Date: 8/13/07 Contract Number: 06-441-B

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Boring: SMP-08A+B (cont.)

Start 6/23/07 0750 Finish 6/23/07 1700

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			
					24			
					25			
			PTI-SMP08-S-26.0 (GG)	s	26			
					27		ML	DARK OLIVE GRAY SANDY SILT (5Y 3/2), dry, hard, fine sand, strong odor, oily staining, non-plastic (0, 45, 55)
					28			
					29			
					30			
					31			
					32			
					33			
					34			
					35			
					36			
					37			
			PTI-SMP08-S-41.0 (GG)	s	38			
					39			
					40			

(continued, next page)

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Log of Boring SMP-08A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP8

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SMP-08A+B.dwg

Boring: SMP-08A+B (cont.)

Start 6/23/07 0750 Finish 6/23/07 1700

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic			PTI-SMP08-S-41.0 (GG)	s	40, 41, 42, 43, 44, 45, 46		

TD = 46.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SMP-08A+B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SMP8
page 2 of 3

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/23/07 TIME 1600
WELL INSTALLATION BEGAN:
DATE 06/23/07 TIME 1650
WELL COMPLETION FINISHED:
DATE 06/23/07 TIME 1700
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 (hydrated)
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

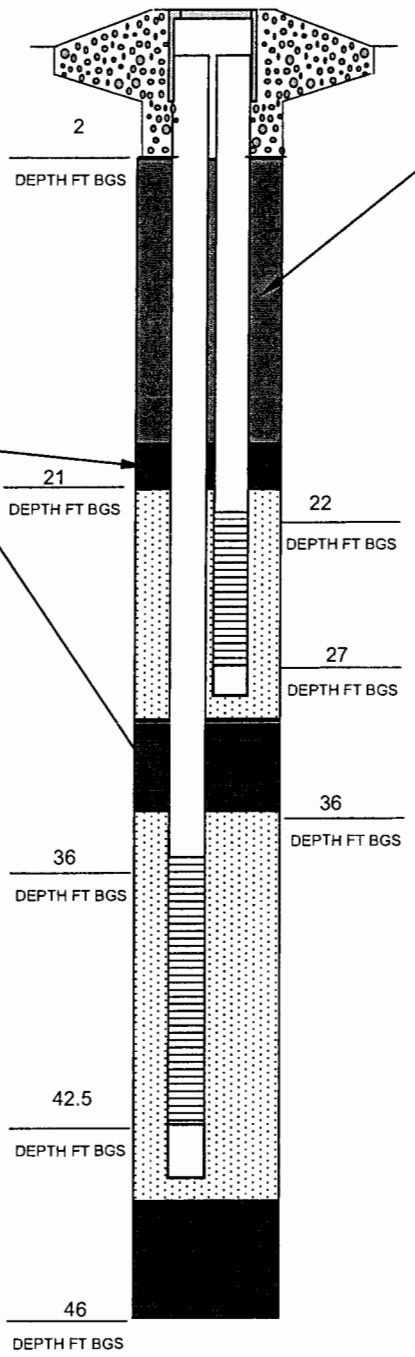
TOC ELEVATION
GROUND ELEVATION
LAT COORD. 33.9596575
LONG COORD. -118.0678317
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SMP-08A+B
PROJECT 06-441-F
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 1 inch
APPROXIMATE LENGTH OF CASING 37.5 feet / 22 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 1 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SVE-01A

Start 6/21/07 1740 Finish 6/22/07 0850

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-36.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 10" concrete)
					1		SM	DARK BROWN SILTY SAND (7.5YR 3/2), dry, loose, medium sand, brick and wood fragments, strong odor (trace gravel, 75% sand, 25 % fines) [fill]
					2			
					3			► becomes moist
					4		SM/ ML	STRONG BROWN SILTY SAND (7.5YR 4/6) (0, 50, 50), dry, dense, fine sand
Sonic	1740				5			
					6			
					7			
					8			
					9			
					10			
					11		SM	DARK OLIVE GRAY SILTY SAND (5Y 3/2), dry, loose, fine sand (0, 75, 25)
					12			
					13			
					14			
					15		SP	DARK OLIVE GRAY SAND (5Y 3/2), dry, loose, medium sand (0, 95, 5)
					16			
					17			
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 36.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-01A
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE1A
page 1 of 2

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Boring: SVE-01A (cont.)

Start 6/21/07 1740 Finish 6/22/07 0850

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-36.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			sand fraction coarsens downward
					21			
					22			
					23			
					24			
					25			becomes medium to coarse sand
					26			
					27			
					28			
					29			3" lens of gravelly sand
					30		SM/ ML	BROWN SILTY SAND TO SANDY SILT (10YR 4/3), dry dense, fine sand (0, 50, 50)
					31			
					32			
					33			
					34			
					35			
					36			

TD = 36.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-01A (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE1A
page 2 of 2

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-01A.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/22/07 TIME 0800
WELL INSTALLATION BEGAN:
DATE 06/22/07 TIME 0840
WELL COMPLETION FINISHED:
DATE 06/22/07 TIME 0850
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE 3 bags med, 1 bag No. 8
☐ Hydrated while pouring
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED
Hydrated while pouring

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Pea gravel
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

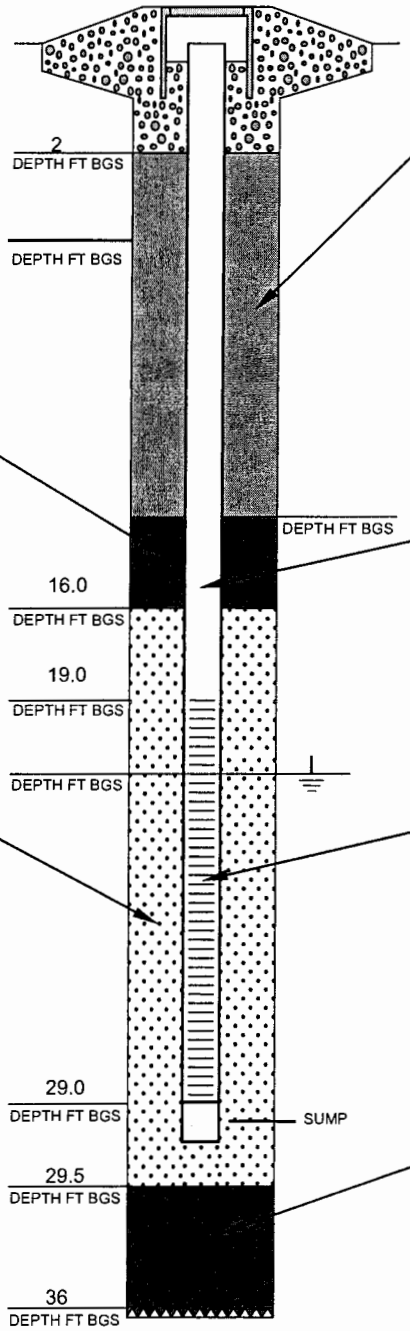
TOC ELEVATION 152.86
GROUND ELEVATION
LAT COORD. 33.9598587
LONG COORD. -118.0680520
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5 bags 5000 PSI



MONITORING WELL

MONITORING WELL NO. SVE-01A
PROJECT 06-441-B
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ GROUT FORMULA
PORTLAND CEMENT
BENTONITE See bentonite seal
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☐ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 4 inch
APPROXIMATE LENGTH OF CASING 19 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 4 inch
SLOT SIZE 0.125 inch
LENGTH OF SCREEN 10 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM 29.5 TO 36
PRODUCT Pea gravel
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SVE-01B

Start 6/21/07 1544 Finish 6/21/07 1907

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 10" concrete)
					1		SM	BLACK SILTY SAND (10YR 5/1), dry, loose, wood and slag fragments, strong odor (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3			► 2.5" lens of white ashy material
					4		SM/ ML	STRONG BROWN SILTY SAND (7.5YR 4/6) (0, 60, 40), dry, dense
Sonic	1715				5			
					6			
					7			
					8			
		180			9			
					10			► increasing sand with depth
					11		SM	DARK OLIVE GRAY SILTY SAND (5Y 3/2), moist, loose, fine sand (0, 75, 25)
					12			
		70			13			
			PTI-SVE01B-S-14.0 (CH)	s	14			
					15			
	1740				16			
					17		SP /SM	DARK OLIVE GRAY SAND TO SILTY SAND (5Y 3/2), moist, loose, medium sand, poorly graded (0, 85, 5)
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-01B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE1B
page 1 of 3

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-01B.dwg

Boring: SVE-01B (cont.)

Start 6/21/07 1544 Finish 6/21/07 1907

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
		532	PTI-SVE01B-S-20.5 (CH)	s	21			3" lens of silty sand with fine gravel
					22			
					23			
					24			
					25			
		16.0	PTI-SVE01B-S-26.0 (GG)	s	26			geotechnical grain size (gravel 0%, sand 84%, silt 13%, clay 3%)
					27			
					28			lens of coarse sand and fine gravel
					29		ML /CL	DARK OLIVE GRAY SANDY SILT TO SANDY LEAN CLAY (5Y 3/2), moist, dense, fine sand, non to slightly plastic (0, 45, 55)
			PTI-SVE01B-S-30.0 (CH)	s	30			
					31			
		23.0			32			
					33			
					34			
					35			
					36			color change to STRONG BROWN (7.5YR 4/6)
					37			
					38			
					39			
					40			

(continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-01B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE1B

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-01B.dwg

Boring: SVE-01B (cont.)

Start 6/21/07 1544 Finish 6/21/07 1907

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					40			
					41			
					42			
					43			increasing silt with depth
			PTI-SVE01B-S-44.0 (GG)	s	44			geotechnical grain size (gravel 0%, sand 44%, silt 37%, clay 19%)
					45			
					46			

TD = 46.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-01B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE1B
page 3 of 3

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-01B.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/21/07 TIME 1745
WELL INSTALLATION BEGAN:
DATE 06/21/07 TIME 1907
WELL COMPLETION FINISHED:
DATE 06/21/07 TIME
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 and medium
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED
Hydrated while pouring

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

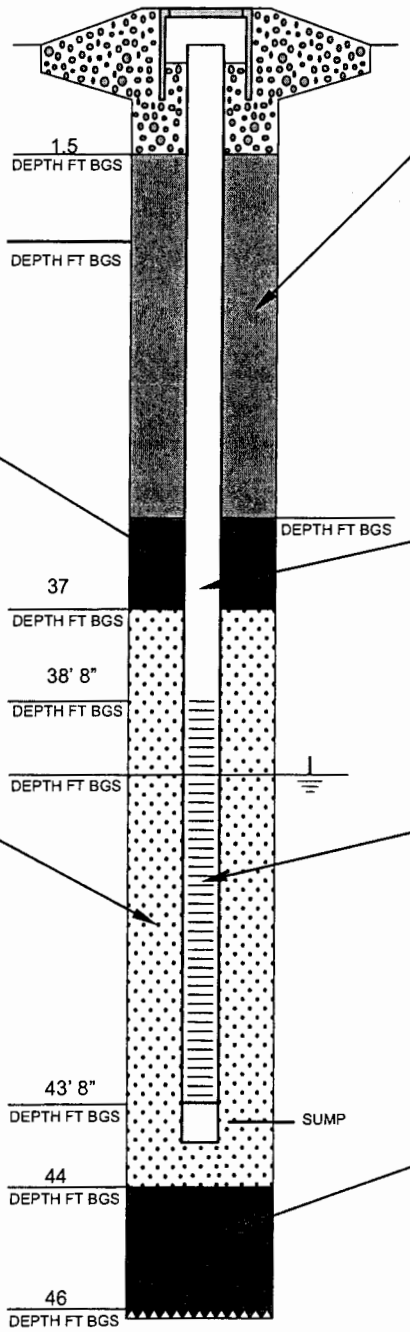
TOC ELEVATION 152.60
GROUND ELEVATION
LAT COORD. 33.9598389
LONG COORD. -118.0680564
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5000 PSI



MONITORING WELL

MONITORING WELL NO. SVE-01B
PROJECT 06-441-B
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE See bentonite seal
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☐ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 2 inch
APPROXIMATE LENGTH OF CASING 38.5 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 2 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☒ FORMATION COLLAPSE
FROM 46 TO 44
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SVE-02A

Start 6/21/07 0720 Finish 6/14/07 1100

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-31.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand Augered					0			Pavement (2" asphalt, 8" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), moist, fine sand, trace clay, slag fragments and plastic debris, strong odor (5% gravel, 75% sand, 20% fines) [fill]
					2			
					3			
					4		SM	VERY DARK BROWN SILTY SAND (10YR 2/2), dry, dense (0, 65, 35)
Sonic					5			
					6			
					7			
					8			
		1.4			9			
					10			
					11			
					12		SP	VERY DARK GRAY SAND (10YR 3/1), moist, loose, fine sand with increasing medium sand downwards, gypsum crystals (0, 95, 5)
					13			
		11.8			14			
					15			
	0755				16			
					17			
					18			color change to GREENISH GRAY (Gley 5 66/1), mostly medium sand
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 31.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-02A
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE2A
page 1 of 2

Drafter: EBH | Date: 8/6/07 | Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-02A.dwg

Boring: SVE-02A (cont.)

Start 6/21/07 0720 Finish 6/14/07 1100

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-31.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			medium to coarse sand
					21			
					22			
					23			
		3.4			24			12' lens of well graded coarse sand
					25			
		4.8			26			
					27			
					28			2" lens of gravel
					29		SM	YELLOWISH BROWN SANDY SILT (10YR 5/4) (0, 45, 55)
					30			
	0820				31			

TD = 31.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-02A (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE2A
page 2 of 2

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-02A.dwg

Boring: SVE-02B

Start 6/21/07 1200 Finish 6/21/07 1425

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand augered					0			Pavement (2" asphalt, 8" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, trace clay, wood and slag fragments (5% gravel, 75% sand, 20% fines) [fill]
					2			
					3		SM/ ML	DARK REDDISH BROWN SILTY SAND (5YR 2.5/1), moist, dense, fine sand (0, 50, 50)
			PTI-SVE02B-S-4.0 (CH)	s	4			
	1200				5			
Sonic					6			
					7			
		10.4			8			► color change to STRONG BROWN (7.5YR 4/6)
					9			
			PTI-SVE02B-S-10.0 (CH)	s	10			
					11			
					12			
					13			► color change to DARK BROWN (7.5YR 3/3) decreased fines (0, 70, 30)
					14			
					15			
	1320	68.1			16			
					17		SP	LIGHT OLIVE BROWN SAND (2.5Y 5/4), loose, medium sand with fine sand at top, red and brown mottling (0, 95, 5)
					18			► sand fraction coarsens with depth
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-02B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE02B

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-02B.dwg

Boring: SVE-02B (cont.)

Start 6/21/07 1200 Finish 6/21/07 1425

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
					21			
					22			
					23			
					24			
					25			
					26			lens of coarse sand
					27			
					28			
					29			
			PTI-SVE02B-S-30.0 (CH) (GG)	s	30			geothechnical grain size (gravel 1%, sand 93%, silt and clay 6%)
		5.1			31			
					32		SM/ ML	YELLOWISH BROWN SANDY SILT (10YR 5/4), damp, very hard, non-plasic (0, 50, 50)
					33			
					34			
					35			
	1335				36			color changes to DARK YELLOWISH BROWN (10YR 4/6)
					37			
					38			
		11.7			39			
					40			

(continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-02B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE02B

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-02B.dwg

Boring: SVE-02B (cont.)

Start 6/21/07 1200 Finish 6/21/07 1425

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type
Sonic					40		
					41		
					42		
			PTI-SVE02B-S-43.0 (CH) (GG)	s	43		geothechnical grain size (gravel 0%, sand 37%, silt 44%, clay 19%)
					44		
	1346	6.2			45		
					46		

TD = 46.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-02B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE02B

Drafter: EBH
Date: 8/13/07
Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-02B.dwg

Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/21/07 TIME 1310
WELL INSTALLATION BEGAN:
DATE 06/21/07 TIME 1340
WELL COMPLETION FINISHED:
DATE 06/21/07 TIME 1425
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 6 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 5 bags (No. 8) 2 bags (medium)
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8 and medium
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED
Hydrated while pouring

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 1 X 50 lb bags
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY Lonestar
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

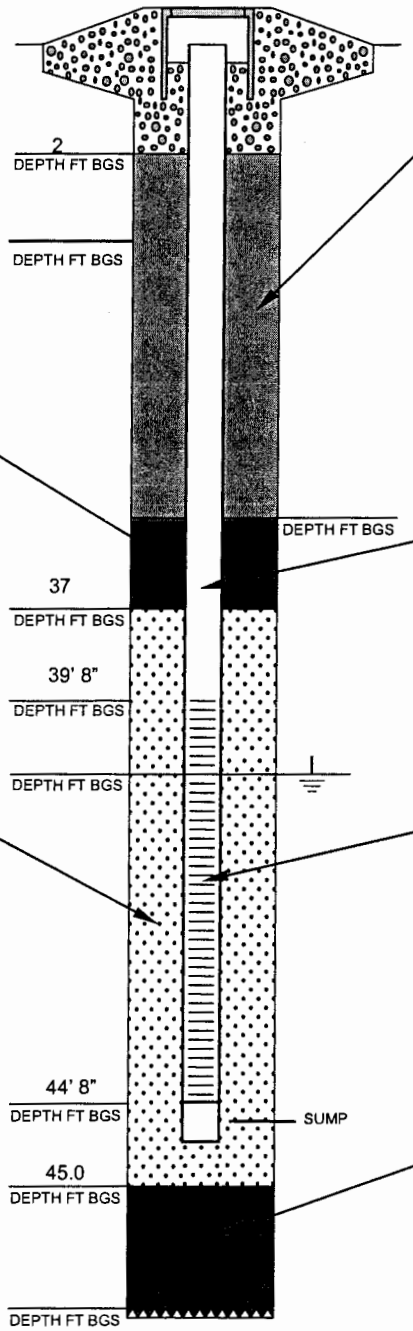
TOC ELEVATION 153.26
GROUND ELEVATION
LAT COORD. 33.9599461
LONG COORD. -118.0680020
DATE SURVEYED 6/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT
5000 PSI



MONITORING WELL

MONITORING WELL NO. SVE-02B
PROJECT 06-441-B
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE See bentonite seal
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 2 inch
APPROXIMATE LENGTH OF CASING 39.5 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 2 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SVE-03A

Start 6/23/07 0745 Finish 6/23/07 1400

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-33.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand Augered					0			Pavement (2" asphalt, 6" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/1), dry, loose, slag fragments, (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3		SM/ ML	STRONG BROWN SILTY SAND (7.5YR 4/6), strong odor, oily staining (0, 50, 50)
					4			
	0800				5			
Sonic		1,118			6			
					7			
					8			
					9			
		759			10			
					11		SP	DARK OLIVE GRAY SAND (5Y 3/2), fine sand, strong odor, oily staining (0, 95, 5)
					12			
					13			
					14			► sand fraction coarsens to medium sand, lenses of oily staining
					15			
					16			
	1315	1,100			17			
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 33.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-03A
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE3A
page 1 of 2

Drafter: EBH | Date: 8/6/07 | Contract Number: 06-441-B

I:\Phibro-Tech\Iris CAD\Log of SVE-03A.dwg

Boring: SVE-03A (cont.)

Start 6/23/07 0745 Finish 6/23/07 1400

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-33.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic		1,400			20			
					21			
					22			
					23			
					24			sand fraction coarsens to coarse sand
					25			
					26			
		26.0			27			
					28		SM /ML	DARK OLIVE GRAY SILTY SAND TO SANDY SILT (5Y 3/2), fine sand (0, 55, 45 to 0, 45, 55)
					29			
					30			
					31			
					32			
					33			

TD = 33.0 ft BGS

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Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-03A (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE3A

Drafter: EBH
Date: 8/6/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/23/07 TIME 1340
WELL INSTALLATION BEGAN:
DATE 06/23/07 TIME 1400
WELL COMPLETION FINISHED:
DATE 06/23/07 TIME
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 1 bag
☐ PELLETS, SIZE
☒ CHIPS, SIZE No.8
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Pea Gravel
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

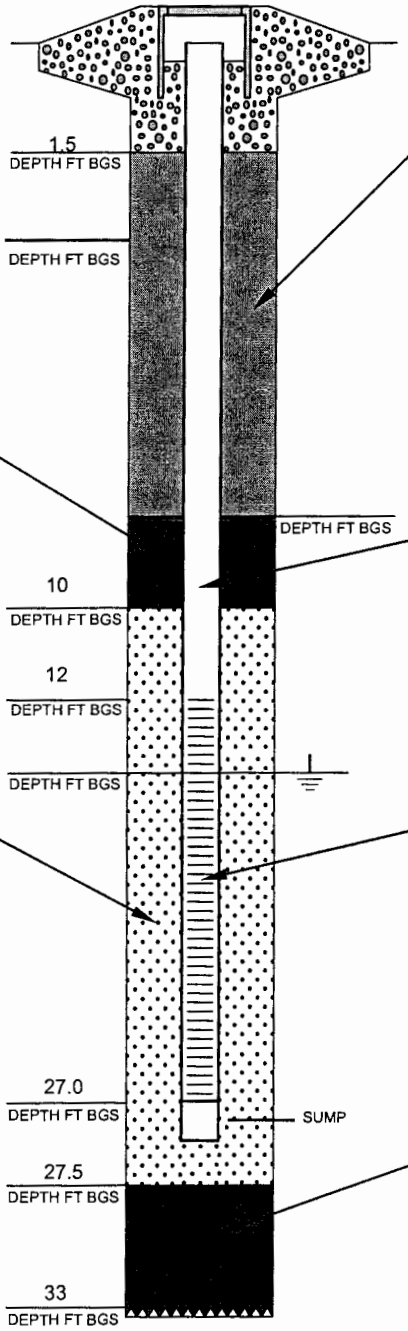
TOC ELEVATION 152.56
GROUND ELEVATION
LAT COORD. 33.9597460
LONG COORD. -118.0677896
DATE SURVEYED 06/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SVE-03A
PROJECT 06-441-B
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☐ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 4 inch
APPROXIMATE LENGTH OF CASING 13 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 4 inch
SLOT SIZE 0.125 inch
LENGTH OF SCREEN 15 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM 33 feet TO 27.5 feet
PRODUCT Sand / pea gravel
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

Boring: SVE-03B

Start 6/23/07 1020 Finish 6/23/07 1200

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)
Driller: Boart Longyear (Prosonic)
Logged by: C. Johnson
Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Hand auger					0			Pavement (2" asphalt, 6" concrete)
					1		SM	BLACK SILTY SAND (10YR 2.5/2), dry, loose, medium sand, brick and slag fragments, strong odor (trace gravel, 75% sand, 25% fines) [fill]
					2			
					3			becomes moist
					4		SM/ ML	STRONG BROWN SILTY SAND (7.5YR 4/6) (0, 50, 50), strong odor, oily staining
Sonic		863			5			
					6			
					7			
					8			
					9			
					10			
					11			
		1,600	PTI-SVE03B-S-12.0 (CH)	s	12			
					13		SP-SM	STRONG BROWN SAND TO SILTY SAND (7.5Y 4/6), fine sand, strong odor, oily staining (0, 95, 5)
					14			
					15			
					16			color change to DARK OLIVE GRAY (5Y 3/2), sand fraction coarsens to medium sand
					17			
					18			
					19			
					20			(continued, next page)

Drilling Notes:

1. Boring terminated at 46.0 feet below ground surface (BGS).
2. Field estimates of percent gravel, sand and fines are shown in parenthesis (gravel, sand, fines).
3. Boring log indicates subsurface conditions at the location and time the boring was drilled.
4. Groundwater was not encountered during drilling.
5. Key to Sample Type:
   (CH) - Chemical Analysis
   (BT) - Bench Scale Test
   (CG) - Core Geotechnical
   (GG) - Grab Geotechnical
   (refer to Table x).

See Figure __ for well construction details.

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-03B
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE3B

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: SVE-03B (cont.)

Start 6/23/07 1020 Finish 6/23/07 1200

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					20			
			PTI-SVE03B-S-21.0 (CH)	s	21			
					22			
	1100	1,100			23			
					24			
					25			► becomes medium to coarse sand
					26			
			PTI-SVE03B-S-27.0 (GG)	s	27			► geothechnical grain size (gravel 0%, sand 89%, silt and clay 11%)
					28			
					29		ML /CL	DARK OLIVE GRAY SANDY SILT TO SANDY LEAN CLAY (5Y 3/2), fine sand, non to slightly plastic (0, 45, 55)
		135			30			
					31			
					32			
					33			
					34			
			PTI-SVE03B-S-35.0 (CH)	s	35			
	1130				36			
					37			
		3.8			38			► color change to BROWN (7.5YR 4/3)
					39			
					40			

(continued, next page)

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-03B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE3B

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Boring: SVE-03B (cont.)

Start 6/23/07 1020 Finish 6/23/07 1200

Drill Method: Hand Auger (0-5' BGS)
Sonic (5-46.0' BGS)

Driller: Boart Longyear (Prosonic)

Logged by: C. Johnson

Reviewed by: C. Alger

Boring Method	Time	PID/FID (ppm)	Sample I.D.	Sample Collected	Depth (feet)	Sample recovery	Soil Type	
Sonic					40			
		3.8			41			color change to BROWN (7.5YR 4/3)
					42			
			PTI-SVE03B-S-43.0 (GG)	s	43			geothechnical grain size (gravel 0%, sand 40%, silt 42%, clay 18%)
					44			
		2.2	PTI-SVE03B-S-45.0 (CH)	s	45			
	1140				46			

TD = 46.0 ft BGS

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1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Log of Boring SVE-03B (continued)
Phibro-Tech, Inc.
Santa Fe Springs, California

Figure
SVE3B
page 3 of 3

Drafter: EBH
Date: 8/9/07
Contract Number: 06-441-B

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Iris Environmental

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 06/23/07 TIME 1050
WELL INSTALLATION BEGAN:
DATE 06/23/07 TIME 1150
WELL COMPLETION FINISHED:
DATE 06/23/07 TIME 1200
DRILLING CO. Boart Longyear (ProSonic)
DRILLER Rob Sawrey
LICENSE
DRILL RIG Sonic
DRILLING METHOD:
☐ HOLLOW STEM AUGER
☒ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID OD 8 inch

BENTONITE SEAL

AMOUNT CALCULATED
AMOUNT USED 1 bag
☐ PELLETS, SIZE
☒ CHIPS, SIZE No. 8
☐
PRODUCT
MFG. BY
METHOD INSTALLED
☒ POURED ☐ TREMIE
AMOUNT OF WATER USED
Hydrated as pouring

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED
☒ SAND, SIZE Medium Aquarium
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☒ POURED ☐ TREMIE

SURVEY INFORMATION

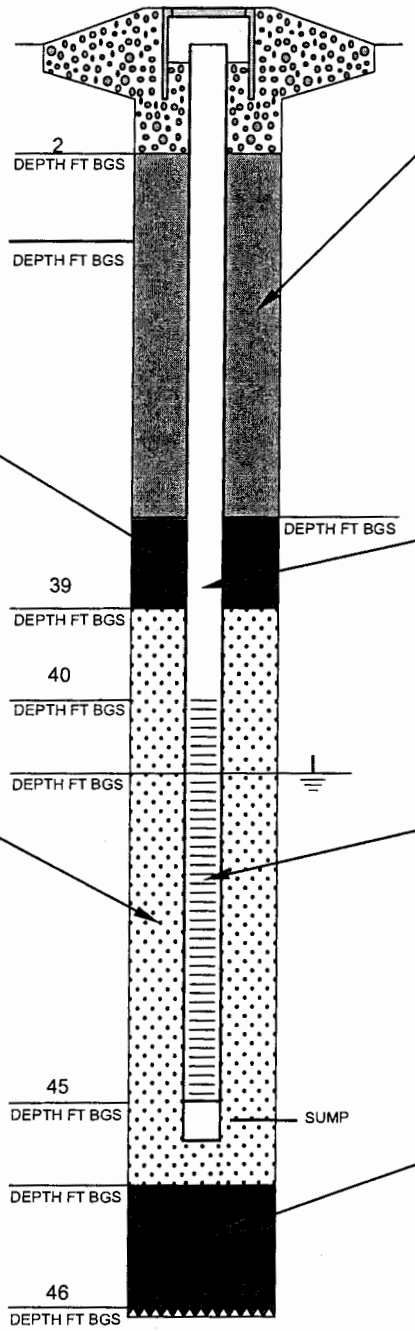
TOC ELEVATION 152.56
GROUND ELEVATION
LAT COORD. 33.9597460
LONG COORD. -118.0677896
DATE SURVEYED 06/26/07
SURVEY CO. KDM Meridian, Inc
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☒ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☒ FLUSH MOUNT
☐ ABOVE GROUND W/BUMPER POST
☒ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. SVE-03B
PROJECT 06-441-B
SITE Phibro-Tech
BOREHOLE NO.
WELL PERMIT NO.
TOC TO BOTTOM OF WELL

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED
☒ GROUT FORMULA
PORTLAND CEMENT
BENTONITE Medium chips
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☐ POURED ☐ TREMIE

CASING

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID OD 2 inch
APPROXIMATE LENGTH OF CASING 40 feet

WELL SCREEN

☒ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID OD 2 inch
SLOT SIZE 0.05 inch
LENGTH OF SCREEN 5 feet

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM 46 feet TO 45.5 feet
PRODUCT Sand
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

APPENDIX C

Appendix C
Field Forms

LOW FLOW WELL MONITORING DATA SHEET

Project #: 070613-St	Client: Iris
Sampler: St	Start Date: 6/13/07
Well I.D.: MW-4	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 69.86	Depth to Water 46.55
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
Sampling Method: Dedicated Tubing New Tubing (St) ~~Other Disposable Bailer~~

Flow Rate: 1/2 bpm Pump Depth: 60'

Start 0819 Time	Temp. (°C or °F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gal. or mL)	DTW
0822	22.90	6.24	9981	165	1.37	182.2	1.5	47.05
0825	22.93	6.29	10,043	61	1.66	177.6	3	47.05
0828	22.95	6.32	10,102	28	1.79	173.5	4.5	47.05
0831	22.98	6.34	10,173	22	1.73	169.6	6	47.05
0834	22.96	6.35	10,158	27	1.48	166.8	7.5	47.05
0837	23.04	6.37	9963	48	1.18	164.0	9	47.05
0840	23.06	6.40	9503	72	0.76	160.0	10.5	47.05
0843	23.14	6.41	9285	70	0.71	158.1	12	47.05
0846	23.23	6.42	9086	73	0.63	156.1	13.5	47.05
0849	23.33	6.44	8902	71	0.59	154.0	15	47.05
0852	23.60	6.45	8756	64	0.54	151.5	16.5	47.05

Did well dewater? Yes (No) Amount actually evacuated: 16.5

Sampling Time: 0855 Sampling Date: 6/13/07

Sample I.D.: MW-4 Laboratory:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 070613-St1	Client: Iris
Sampler: JL	Start Date: 6/13/07
Well I.D.: MW-9	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth: 75.05	Depth to Water 46.50
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556

Purge Method: 2" Grundfos (Pump) Peristaltic Pump Bladder Pump
Sampling Method: Dedicated (Tubing) New Tubing Other ____

Flow Rate: 1/3 gpm Pump Depth: 60'

Start 0938 Time	Temp. (°C or °F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed ((gals. or mL))	DTW
0941	22.43	6.80	2052	4	0.65	107.7	1	46.60
0944	23.00	6.79	2052	3	0.51	109.7	2	46.60
0947	23.12	6.80	2028	3	0.58	102.3	3	46.60
0950	23.18	6.81	2000	3	0.60	98.2	4	46.60
0953	23.25	6.82	1973	3	0.54	94.8	5	46.60

Did well dewater? Yes (No) Amount actually evacuated: 5

Sampling Time: 0955 Sampling Date: 6/13/07

Sample I.D.: MW-9 Laboratory:

Analyzed for: ~~TPH-G~~ BTEX MTBE TPH-D Other:

Equipment Blank I.D.: @ Time Duplicate I.D.:

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WELL DEVELOPMENT

WELL NO. MW-17

PROJECT NAME PTI

DATE 6/26/07

CONTRACT NO. 06-441-F

P.M./SAMPLER(S) J. Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL
HORIBA U-10.20	410042	6/26/07	22.5	

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	2
TOTAL DEPTH (TD) OF WELL (ft	74.6
DEPTH TO WATER (DTW) (ft)	44.4
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	19.7

DEVELOPMENT DATA

0745 - start at 10 gal/min DTW = 49 (B)

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	(%) Sal	OTHER DO.	
0750 / 50	Speed pump rate to 12 gal/min			DTW = 50.9	~~0.10~~	~~8.87~~	B/T
0810 / 290	21.9	6.99	2.12	108	0.10	8.87	T
0820 / 410	21.8	7.22	2.09	180	0.10	9.10	T
0837 / 614	22.3	7.31	2.06	68	0.09	9.76	T
0845 / 710	22.2	7.33	2.06	25	0.09	10.09	T
W 0850 / 770	22.1	7.31	2.05	103	0.09	10.17	B
2 0900 / 890	22.4	7.29	2.07	26	0.08	10.21	B
0910 / 1010	22.5	7.31	2.07	3	0.09	10.20	
0915 / 1070	22.3	7.32	2.08	20	0.09	10.67	
0923 / 1166	22.4	7.32	2.08	4	.08		

PURGING STOP TIME 09:23 CASING VOLUMES PURGED 60

GALLONS PURGED ~1170

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS B = pump placed at bottom 1/3 of well.
T = pump placed at top 1/3 of well

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WELL DEVELOPMENT

WELL NO. MW-18

PROJECT NAME PTI

DATE 6/25/07

CONTRACT NO. 06-441-F

P.M./SAMPLER(S) Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL
Horiba U-10.20	410042	6/25/07	22.0°C	

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	~~4"~~ 2"
TOTAL DEPTH (TD) OF WELL (ft	66.9
DEPTH TO WATER (DTW) (ft)	45.1
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	14.2

~~(5)(2)(.163)~~ =

DEVELOPMENT DATA

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER Salinity / D.O.	
~~08:50~~ 08:45	Start Pump					
09:00 / 22.5	25.8°C	7.09	1.57	142	0.007 / 8.07	B
09:18 / 49.5	25.9	7.08	1.56	~~163~~ 123	0.07 / ~~8.79~~	B
09:28 / 64.5	26.0	6.89	1.75	142	0.08 / 7.88	50.9
09:40 / 82.5	26.1	7.04	1.58	151	0.07 / 7.77	T
09:52 / 100.5	23.7	7.10	1.55	22	0.07 8.62	T
10:01 / 113	23.9	7.03	1.58	52	0.07 8.62	B
10:11 / 138	25.1	7.02	1.59	10	0.07 8.22	B
10:23 / 156	25.4	6.95	1.69	~~38~~ 32	0.07 8.21	T
10:33 / 171	25.5	7.05	1.60	12	0.07 8.28	T
10:42 / 184.5	25.7	7.05	1.59	8	0.07 8.36	

PURGING STOP TIME 10:45 CASING VOLUMES PURGED ~13

GALLONS PURGED ~185

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD on-site treatment system -

OBSERVATIONS/COMMENTS T= Pump located near top ~~of~~ 1/3 of the screen
B= Pump located near bottom 1/3 of the screen

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WELL DEVELOPMENT

WELL NO. MW-19

PROJECT NAME PTI

DATE 6/26/07

CONTRACT NO. 06-441-F

P.M./SAMPLER(S) J. Bell

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL
see MW-17				

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	2
TOTAL DEPTH (TD) OF WELL (ft	72.6
DEPTH TO WATER (DTW) (ft)	45.15
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	~~275~~ ~18

DEVELOPMENT DATA

Start pump at 11:20 @ 12-lower to 2.5 DTW = 45.9, 66, 63, 58

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	(%) OTHER Sal	D.O.	
1135 / ~~225~~ 30	26.4	7.09	2.65	211	0.11	8.90	B
1143 / ~~7~~ 42	25.4	7.08	2.87	~~36~~	0.14	8.95	B
~~1153 / 67~~ 1149	Stop pump to recharge.			→ 57 gallons			T
1153 / 57	Resume pumping at 1.25 gal/min						
1204 / ~~68~~ 76	27.3	7.15	2.53	100	0.12	8.66	T
1210 / 83.5	27.5	7.08	2.74	20	0.13	8.38	T
1220 / 96	28.1	7.08	2.90	5	0.14	8.53	

PURGING STOP TIME 1221 CASING VOLUMES PURGED ~~[illegible]~~ 5

GALLONS PURGED ~100

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WELL DEVELOPMENT

WELL NO. MW - 20

PROJECT NAME PTI

DATE 6/25/07

CONTRACT NO. 06-441-F

P.M./SAMPLER(S) Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL
see MW-18				

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	2"
TOTAL DEPTH (TD) OF WELL (ft	69.3
DEPTH TO WATER (DTW) (ft)	43.8
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	16.6

DEVELOPMENT DATA

Start Pump @ 13:03 - 2.5 gal/min

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	(%) OTHER Salinity	DO	
13:48 / 90	26.7	6.97	3.57	173	0.18	10.41	B
14:00 / 120	25.9	6.97	3.59	779	0.18	11.00	T
1415 / 157.5	25.7	6.99	3.52	128	0.17	10.84	T
1425 / 182.5	25.5	6.98	3.56	520	0.18	11.31	T
1440 / 207.5	25.6	6.98	3.54	138	0.18	10.75	T
1450 / 232.5	25.4	6.98	3.64	151	0.18	11.06	T
1500 / 257.5	27.0 ~~turn pump up to~~	6.95	3.65	240	0.18	9.86	T
1515 / 282.5	turn pump up to 6 gal/min		- DTW = 46.1				
1520 / 294.5		10 gal/min	- DTW = 48.6				
1525 / 339.5	23.8	6.99	3.57	324	0.18	11.32	B
1530 / 384.5	turn pump up to 11 gal/min. DTW=49.9						
1535 / 439.5	23.4	7.09	3.52	~~153~~ 133	0.17	11.02	B
1542 / 516.5	22.8	7.00	3.58	74	0.18	10.99	B
1549 / 593.5	22.7	7.01	3.48	60	0.17	10.97	
5 1559 / 703.5	22.7	7.06	3.44	35	0.17	11.03	

PURGING STOP TIME _____ CASING VOLUMES PURGED _____

GALLONS PURGED _____

EQUIPMENT CLEANING METHOD(S) _____

PURGE WATER DISPOSAL METHOD _____

OBSERVATIONS/COMMENTS _____

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WELL DEVELOPMENT

WELL NO. MW-20 (continued)

PROJECT NAME —

DATE —

CONTRACT NO. —

P.M./SAMPLER(S) —

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL
—				

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	
TOTAL DEPTH (TD) OF WELL (ft	
DEPTH TO WATER (DTW) (ft)	
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	

DEVELOPMENT DATA

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER % SAL	OTHER DO	
16:05 / 769.5	22.9	7.05	3.47	28	0.17	10.80	B
16:15 / 879.5	22.8	7.05	3.47	27	0.17	10.98	B
16:25 / 989.5	22.8	7.07	3.41	133	0.17	10.95	~~T~~
16:35 / 1099.5	22.8	7.02	3.48	~~20~~ 18	0.17	10.93	T
16:40 / 1154.5	22.6	7.05	3.46	20	0.17	10.75	
16:45	23.1	7.03	3.43	15	0.17	10.42	
16:50	22.5	7.03	3.45	17	0.17	10.72	

PURGING STOP TIME 16:55 CASING VOLUMES PURGED 71

GALLONS PURGED

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

Phibro-Tech
MONITORING WELL PURGING AND SAMPLING LOG

WELL NO.	MW-20	DATE / TIME:	07/03/07 0800
SAMPLER(S)	N. Mattell, Phibro Tech		

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

WELLHEAD GAS MONITORING

DATE / TIME	PID READING
07/03/07 0732	35.7

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	4" diam
TOTAL DEPTH (TD) OF WELL (ft	69.22 (drilled depth 68.5)
DEPTH TO WATER (DTW) (ft)	1 44.21 pre-pump 2 43.99 prepurge 3 ~~average:~~ end 44.01
~~CASING VOLUME (gal) = (TD-DTW) (CR)^2 (.163) =~~	Screen interval: 58-68 ft bgs
~~FILTER PACK VOLUME (gal) = (CR)^2 (Filter Pack bottom –Filter Pack top) (0.489)~~	Pump depth - 64 ft
~~VOLUME MINIMUM PURGE (gal) = CV +FPV~~	

PURGING/SAMPLING DATA

PURGING/SAMPLING METHOD Low flow

PURGING START TIME 0818 PURGING RATE (~~gpm~~ ml/min) 200 mL/min → 100ml/min

TIME/~~GALLONS~~ mL SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	DO mg/L	~~OTHER~~ ORP	Depth to water
0820 / 500	24.21	6.88	5290	42	2.60	-68.3	44.09'
0824 / 1000	24.37	6.83	5332	41	4.10	-63.1	44.04'
0827 / 1500	24.50	6.82	5382	43	4.33	-60.9	44.07'
0829 / 2000	24.34	6.81	5422	43	3.19	-61.6	44.03'
0831 / 2500	24.10	6.81	5468	38	2.65	-62.1	44.08'
0834 / 3000	24.13	6.81	5458	31	2.38	-61.6	44.02'
0837 / 3500	24.34	6.81	5429	29	2.24	-59.1	44.05'
0840 / 4000	24.62	6.81	5409	35	2.10	-56.9	44.02'
0844 / 4500	24.94	6.83	5376	23	2.01	-56.1	44.00'
0848 / 5000	25.46	6.84	5367	24	2.00	-63.2	44.02'

(Continue on back →)

PURGING STOP TIME 0930 ~~CASING VOLUMES PURGED~~

~~GALLONS~~ mL PURGED 9000 SAMPLING TIME 0930

EQUIPMENT CLEANING METHOD(S) steam clean

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS Turbidity didn't stop until turned down purge rate.

LABORATORY NAME SAMPLE I.D. PTI-MW-20-070307

Phibro-Tech
MONITORING WELL PURGING AND SAMPLING LOG

WELL NO.	MW-17	DATE / TIME:	07/03/07 0950
SAMPLER(S)	N. Matell, Blaine Tech		

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

WELLHEAD GAS MONITORING

DATE / TIME	PID READING
07/03/07 0736	42.2

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	4" diam
TOTAL DEPTH (TD) OF WELL (ft	74.40 (drilled depth 74.5)
DEPTH TO WATER (DTW) (ft)	1 44.66 2 Prepump 44.70 3 Prepurge 44.65 ~~average:~~ post purge 44.59
~~CASING VOLUME (gal) = (TD-DTW) (CR)^2 (.163) =~~	Screen interval: 64-74 ft bgs
~~FILTER PACK VOLUME~~ (gal) = (CR)^2 (Filter Pack bottom –Filter Pack top) ~~(0.489)~~	pump depth: 69 ft
~~VOLUME MINIMUM PURGE (gal) = CV + FPV~~	

PURGING/SAMPLING DATA

PURGING/SAMPLING METHOD low flow

PURGING START TIME ~~0935~~ ~~1000~~ 1010 / 1015 PURGING RATE (~~gpm~~ mL/min) ~~10~~ 150

TIME/~~GALLONS~~ mL SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	~~DT~~ mg/L DO	~~OTHER~~ ORP	DTW
1019 / 500	27.55	7.37	1982	16	2.95	-170.1	44.65'
1025 / 1000	27.23	7.39	1919	11	2.38	-222.0	44.63'
1029 / 1500	26.79	7.59	1825	15	2.24	-217.9	44.61'
1032 / 2000	26.75	7.46	1799	12	2.19	-175.8	44.60'
1035 / 2500	26.90	7.29	1783	11	1.99	-164.0	44.61
1039 / 3000	27.16	7.31	1771	11	1.79	-169.4	44.61
1043 / 3500	27.27	7.28	1762	11	1.75	-167.0	44.60
1047 / 4000	27.42	7.27	1758	10	1.61	-166.7	44.61
1050 / 4500	27.80	7.26	1749	10	1.54	-168.9	44.59'
1053 / 5000	Sample						

PURGING STOP TIME 1050 ~~CASING VOLUMES PURGED~~

~~GALLONS~~ mL PURGED 5000 SAMPLING TIME 1100

EQUIPMENT CLEANING METHOD(S) steam clean

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

LABORATORY NAME SAMPLE I.D. ~~MW~~ PTI-MW17-070307

Phibro-Tech
MONITORING WELL PURGING AND SAMPLING LOG

WELL NO.	MW-19	DATE / TIME:	07/03/07 1120
SAMPLER(S)	N. Martell, Blaine Tech		

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

WELLHEAD GAS MONITORING

DATE / TIME	PID READING
07/03/07 ~~[illegible]~~ 0740	~~[illegible]~~ 854

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	4" diam
TOTAL DEPTH (TD) OF WELL (ft	~~[illegible]~~ 73.68 (drilled depth 74.5)
DEPTH TO WATER (DTW) (ft)	1 46.18 2 ~~pre~~pump 46.16 3 ~~pre~~purge 46.40 ~~average:~~ post purge 46.55
~~CASING VOLUME (gal) = (TD-DTW) (CR)^2 (.163) =~~	screen interval: ~~[illegible]~~ 63.5-73.5 ft bgs
~~FILTER PACK VOLUME (gal) = (CR)^2 (Filter Pack bottom - Filter Pack top) (0.489)~~	pump depth: 69 ft bgs
~~VOLUME MINIMUM PURGE (gal) = CV + FPV~~	

PURGING/SAMPLING DATA

PURGING/SAMPLING METHOD low flow

PURGING START TIME 1140 PURGING RATE ~~(gpm)~~ mL/min 150

TIME/~~GALLONS~~ mL SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	mg/L DO	~~OTHER~~ ORP	DTW
1143/500	26.38	7.06	3412	7	1.26	-140.6	46.70'
1147/1000	26.15	7.06	3405	5	1.34	-139.5	46.65'
1150/1500	26.01	7.05	3385	5	1.30	-142.4	46.67'
1155/2000	sample						

PURGING STOP TIME 1150 ~~CASING VOLUMES PURGED~~

~~GALLONS~~ mL PURGED 2000 SAMPLING TIME 1158

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD steam clean

OBSERVATIONS/COMMENTS

LABORATORY NAME SAMPLE I.D. PTI-MW19-070307

Phibro-Tech
MONITORING WELL PURGING AND SAMPLING LOG

WELL NO.	MW-18	DATE / TIME:	07/03/07 1226
SAMPLER(S)	N. Mutell, Phibro Tech		

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

WELLHEAD GAS MONITORING

DATE / TIME	PID READING
07/03/07 0746	60.2

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	4" diam
TOTAL DEPTH (TD) OF WELL (ft	66.71 (drilled depth 67.5)
DEPTH TO WATER (DTW) (ft)	1 45.50 2 prepmp 45.48 3 prepurge 45.44 ~~average~~: post purge 45.45
~~CASING VOLUME (gal) = (TD-DTW) (CR)^2 (.163) =~~	screen interval: 57-67 ft bgs
~~FILTER PACK VOLUME (gal) = (CR)^2 (Filter Pack bottom –Filter Pack top)~~ (0.489)	pump depth: 61 ft bgs
~~VOLUME MINIMUM PURGE (gal) = CV + FPV~~	

PURGING/SAMPLING DATA

PURGING/SAMPLING METHOD low flow

PURGING START TIME 1230 PURGING RATE ~~(gpm)~~ ml/min 150

TIME/~~GALLONS~~ ml SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	DO	~~OTHER~~ ORP	DTW
1234 / 500	24.16	7.08	1524	5	0.91	-79.8	45.60'
1237 / 1000	24.78	7.08	1525	7	0.85	-81.0	45.55'
1240 / 1500	26.32	7.08	1530	7	0.52	-80.2	45.52'
1244 / 2000	26.79	7.09	1537	6	0.59	-80.5	45.51'
1247 / 2500	26.56	7.09	1538	5	0.61	-80.6	45.52'
1250 / 3000	26.29	7.08	1540	5	0.58	-80.2	45.51'
1255 / 3500	sample						

PURGING STOP TIME 1255 ~~CASING VOLUMES PURGED~~

~~GALLONS~~ ml PURGED 3500 SAMPLING TIME 1255

EQUIPMENT CLEANING METHOD(S) steam clean

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

LABORATORY NAME SAMPLE I.D. PTI-MW18-070307

IRIS ENVIRONMENTAL
FIELD INVESTIGATION DAILY REPORT

Project Name Phibro-Tech
Contract No. 06-441-C
Sheet 1 **of** 2
Date 7/24/07

Field Staff Joan Ball
Subcontractors Blaine Tech

Equipment Used PID.

Visitors to Site

Time	Activities			
07:30	PID (Break/High)	DTW	DTB	Notes
MW-01D	0.0 / 0.0	47.20	95.53	
MW-01S	0.0 / 0.0	47.05	61.78	
MW-12D	0.0 / 0.0	50.60	102.2	
MW-12S	0.0 / ~~407~~ 3.2	49.9	74.31	High reading in well, but not (0.0) in breathing space
MW-11	0.0 / ~~88.6~~ 9.4	51.2	76.38	" " stand upwind stand upwind.
MW-09	0.0 / ~~455.25~~	48.43	75.08	" "
MW-08	0.0 / ~~69.8~~ 3.1	45.84	69.7	" "
MW-16	0.0 / ~~34.9~~ 9.7	46.19	61.63	Breathing space 0.0 ppm
MW-18	0.0 / 0.3	46.68	66.71	
MW-20	0.0 / 1.7	45.25	69.16	Box filled w/ water.
MW-17	0.0 / 2.1	45.91	74.36	
MW-04A	0.0 / 0.4	47.64	107.5	
MW-04	0.0 / 1.1	48.43	69.85	
MW-19	0.0 / 2.0	46.91	73.56	
MW-03	0.0 / 7.8	50.79	75.47	
MW-05	0.0 / 0.0	50.08	73.00	
MW-15D	0.0 / 0.0	48.1	123.50	Well cap not on well, sitting next to well
MW-15S	0.0 / 0.0	47.66	71.16	need screws
MW-06D	0.0 / 1.2	46.02	90.2	
MW-06B	0.0 / 2.8	45.58	75.23	
MW-06A	0.0 / 0.6	DRY	28.72	covered in gravel / dirt
MW-07	0.0 / 5.7	45.73	69.75	
MW-10	0.0 / 0.0	49.68	76.05	
MW-13S	0.0 / 8.2	46.82	68.95	
MW-13D	0.0 / 3.6	46.97	93.18	
MW-14S	0.0 / 18.1	46.80	70.2	let vent, breathing space PID = 0.0ppm
MW-14D	0.0 / 0.1	46.92	103.54	
MW-02	0.0 / 3.0	46.85	69.55	box filled w/ dirt & trash.

Reviewed by **Date**

LOW FLOW WELL MONITORING DATA SHEET

Project #: 070724-SH	Client: Iris
Sampler: St	Start Date: 7/24/07
Well I.D.: MW-17	Well Diameter: 2 3 4 6 8 ____
Total Well Depth: 74.36	Depth to Water Pre: Tie Pump 46.08 / Pre purge 46.08 Post:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI 556

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
Sampling Method: Dedicated Tubing New Tubing Other_____

Flow Rate: 150 ml/min Pump Depth: 69

Start 1144 Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations
1147	26.98	7.19	1732	10	1.86	-163.3	450	46.11
1150	27.28	7.19	1763	8	1.33	-173.1	900	"
1153	27.49	7.17	1785	8	1.37	-163.0	1,350	"
1156	27.62	7.16	1812	7	1.56	-149.6	1,800	"
1159	27.93	7.16	1831	7	1.59	-161.8	2,250	"
1202	28.22	7.16	1840	7	1.54	-156.3	2,700	46.10

Did well dewater? Yes No	Amount actually evacuated: 2.7 L
Sampling Time:	Sampling Date: 7/26/07
Sample I.D.: MW-17	Laboratory:
Analyzed for: TPH-G BTEX MTBE TPH-D	Other:
Equipment Blank I.D.: @ Time	Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 070724-8+1	Client: Iris
Sampler: St	Start Date: 7/24/07
Well I.D.: MW-18	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth: 66.71	Depth to Water Pre: 46.68 (Pre-Pump) / 46.8 (Pre Purge) Post:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556

Purge Method: 2" (Grundfos) Pump Peristaltic Pump Bladder Pump

Sampling Method: (Dedicated) Tubing New Tubing Other_____

Flow Rate: 150 ml/min Pump Depth: 264'

Start 1017 Time	Temp. (°C or °F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or (mL))	DTW Observations
1029	24.72	7.43	1777	16	1.10	117.8	1,800	46.85
1033	24.78	7.50	1739	9	0.92	115.1	2,400	46.86
1037	24.74	7.42	1721	8	1.08	112.6	3,000	46.88
1041	24.82	7.36	1713	8	1.53	103.2	3,600	46.89
1045	24.93	7.33	1702	8	1.77	102.8	4,200	46.89
1049	25.06	7.33	1703	8	1.27	103.1	4,800	46.90
1053	25.06	7.21	1707	7	0.83	116.6	5,400	—
1104	25.5	6.85	1621	7	—	-15	7,050	46.92
1107	25.3	6.78	1626	7	—	-15	7,500	—
1110	25.4	6.78	1630	7	—	-14	7,950	46.92

Did well dewater? Yes (No)	Amount actually evacuated: 8,000 ML
Sampling Time: 11:11	Sampling Date: 7/24/07
Sample I.D.: MW-18	Laboratory:
Analyzed for: TPH-G BTEX MTBE TPH-D	Other: See Sow
Equipment Blank I.D.: @ Time	Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 070724 S1	Client: Iris
Sampler: SL	Start Date: 7/24/07
Well I.D.: MW-19	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth: 75.53	Depth to Water Pre: 47.40 Post: 47.87
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556

Purge Method: 2" (Grundfos) Pump Peristaltic Pump Bladder Pump

Sampling Method: (Dedicated) Tubing New Tubing Other_____

Flow Rate: 150 ml/min Pump Depth: 69'

Start 1054 Time	Temp. (°C or °F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or (mL))	DTW Observations	~~Dt~~
1057	26.10	6.88	4270	10	3.60	-117.0	~~1,500~~ 450 mL	48.0	
1100	26.07	6.88	4835	6	1.42	-144.7	~~3,000~~ 900	47.9	
1103	26.24	6.90	4999	5	1.70	-153.6	~~4,500~~ 1350	47.9	
1106	26.44	6.91	5064	6	1.92	-155.1	1,800	47.89	
1109	26.73	6.91	5071	6	2.06	-139.0	2,250	47.89	
1112	26.50	6.91	5147	7	2.18	-155.0	2,700	47.90	
1115	26.68	6.92	5148	6	2.14	-155.6	3,150	47.90	
1118	26.93	6.93	5156	5	2.08	-150.3	3,600	47.90	

Did well dewater? Yes (No) Amount actually evacuated: 3.6 L

Sampling Time: 1120 Sampling Date: 7/26/07

Sample I.D.: MW-19 Laboratory:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 010724-St1	Client: Iris
Sampler: St	Start Date: 7/24/07
Well I.D.: Mw-2P	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth: 69.16	Depth to Water Pre: 45.45/45.35 Post:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type:

Purge Method: 2" Grundfos (Pump) Peristaltic Pump Bladder Pump
Sampling Method: Dedicated (Tubing) New Tubing Other

Flow Rate: 150 ml/min Pump Depth: 64'

Start 1331 Time	Temp. (°C or °F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or (mL))	DTW Observations
1334	25.96	6.76	6320	23	3.80	-44.6	450	45.43
1337	26.77	6.74	6517	33	3.02	-39.2	900	45.44 pump slowed to 100 ml
1340	27.12	6.73	6660	47	3.00	-34.9	1,350	45.42
1343	27.98	6.72	6734	43	3.05	-32.4	1,800	45.42
1349	29.80	6.72	6787	35	3.14	-25.1	2,700	45.42
1355	30.99	6.72	6817	33	2.96	-18.5	3,800	45.42
1401	31.75	6.71	6828	24	2.81	-15.1	3,400	45.42
1407	31.45	6.70	6852	21	2.84	-15.8	4,400	"
1413	31.27	6.70	6793	22	2.68	-19.2	4,600	"
1419	30.16	6.69	6792	16	2.84	-20.1	5,200	"
1425	28.94	6.70	6718	15	2.63	-23.0	5,800	"

Did well dewater? Yes (No)	Amount actually evacuated:
Sampling Time:	Sampling Date: 7/26/07
Sample I.D.: Mw-20	Laboratory:
Analyzed for: TPH-G BTEX MTBE TPH-D	Other:
Equipment Blank I.D.: @ Time	Duplicate I.D.:

Low Flow

~~WELL DEVELOPMEN~~T DATA SHEET

Well I.D. MW-20	PAGE 2 OF 2
Project #: 070724-971	Client: Iris

TIME	TEMP (~~F~~) C	pH	Cond. (mS or (µS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS: DTW
1431	28.92	6.70	6711	12	6,000 ml	ORP -22.1 DO. 2.44 45.42
1437	28.92	6.71	6673	10	7,000	-218 2.27 45.42

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. Mw-02

PROJECT NAME Phibro-Tech

DATE 7/25/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	69.55
DEPTH TO WATER (DTW) (ft)	46.85
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	3.6

PURGING/SAMPLING DATA

Flow Rate = 0.5 gpm

TIME/GALLONS SINCE START		TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start	0906					
0910	2	21.8	6.83	2174	333	
0914	4	21.9	6.83	1945	108	
0918	6	21.9	6.84	1860	45	
0922	8	22.1	6.86	1785	12	
0926	10	22.2	6.93	1745	11	
0930	12	22.3	6.89	1717	6	

PURGING STOP TIME 0930 CASING VOLUMES PURGED 3

GALLONS PURGED 12

EQUIPMENT CLEANING METHOD(S) _____

PURGE WATER DISPOSAL METHOD _____

OBSERVATIONS/COMMENTS _____

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. Mw-05

PROJECT NAME Phibro-Tech

DATE 7/25/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	73.00
DEPTH TO WATER (DTW) (ft)	50.08
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	3.6

PURGING/SAMPLING DATA

Flow Rate 0.5 gpm

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start 1339					
1343 2	23.9	7.04	1319	12	
1347 4	23.6	7.00	1330	3	
1351 6	23.4	6.96	1342	1	
1355 8	23.2	6.82	1335	1	
1359 10	23.3	6.86	1329	1	
1401 11	23.0	6.83	1332	1	

PURGING STOP TIME 1401 CASING VOLUMES PURGED 3

GALLONS PURGED 12

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. MW-08

PROJECT NAME Phibro-Tech

DATE 7/26/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	69.70
DEPTH TO WATER (DTW) (ft)	45.84
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	3.8

PURGING/SAMPLING DATA

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
1337 Start					
1341 2	25.5	6.87	3306	59	
1345 4	24.0	6.84	2709	28	
1349 6	23.7	6.92	2389	13	
1352 8	23.2	6.92	2272	8	
1354 10	23.2	6.96	2167	7	
1357 12	23.1	6.97	2102	5	

PURGING STOP TIME 1357 CASING VOLUMES PURGED 3

GALLONS PURGED 12

EQUIPMENT CLEANING METHOD(S) _____

PURGE WATER DISPOSAL METHOD _____

OBSERVATIONS/COMMENTS _____

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. MW-12S

PROJECT NAME Phibro-Tech

DATE 7/21/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	74.31
DEPTH TO WATER (DTW) (ft)	49.90
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	3.9

PURGING/SAMPLING DATA

Flow Rate 0.5 GPM

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start 1513					
1517 2	22.9	7.04	1658	46	
1521 4	23.0	7.02	1595	20	
1525 6	22.9	7.04	1565	16	
1529 8	22.9	7.05	1560	14	
1533 10	22.8	7.03	1550	15	
1537 12	22.9	7.02	1560	15	

PURGING STOP TIME 1538 CASING VOLUMES PURGED 3

GALLONS PURGED 12

EQUIPMENT CLEANING METHOD(S) _____

PURGE WATER DISPOSAL METHOD _____

OBSERVATIONS/COMMENTS _____

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. mw-10

PROJECT NAME Phibro-Tech

DATE 7/27/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	76.05
DEPTH TO WATER (DTW) (ft)	49.63
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	4.2

PURGING/SAMPLING DATA

Flow Rate 0.5 gpm

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start 0821					
0825 2	22.5	6.77	2428	42	
0829 4	22.7	6.87	2245	19	
0833 6	22.8	6.92	2164	11	
0837 8	22.9	6.94	2121	8	
0841 10	23.1	6.95	2086	6	
0847 13	23.4	6.93	2059	6	

PURGING STOP TIME 0847 CASING VOLUMES PURGED 3

GALLONS PURGED 13

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. MW-12D

PROJECT NAME Phibro-Tech

DATE 7/24/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	102.20
DEPTH TO WATER (DTW) (ft)	50.60
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	8.2

PURGING/SAMPLING DATA

Flow Rate 1 lpm

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start 1424					
1428 4	22.5	7.26	1580	47	
1432 8	22.2	7.23	1579	19	
1436 12	22.1	7.22	1580	12	
1440 16	22.2	7.24	1585	10	
1444 20	22.0	7.19	1583	8	
1449 25	22.0	7.20	1579	8	

PURGING STOP TIME 1450 CASING VOLUMES PURGED 3

GALLONS PURGED 25

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. MW-13S

PROJECT NAME Phibro-Tech

DATE 7/24/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	68.95
DEPTH TO WATER (DTW) (ft)	46.82
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	3.5

PURGING/SAMPLING DATA

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start 1558 2					
1602 2	23.0	7.10	1760	306	
1606 4	22.8	7.08	1726	101	
1610 6	22.7	7.02	1701	30	
1614 8	22.6	7.04	1707	16	
1618 10	22.5	7.03	1696	12	
1622 12	22.6	7.07	1699	10	

PURGING STOP TIME 1422 CASING VOLUMES PURGED 3

GALLONS PURGED 12

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

PRELIMINARY FIELD DRAFT
REVIEW PENDING

IRIS ENVIRONMENTAL
WATER PURGING AND SAMPLING LOG

WELL NO. Mw-14D

PROJECT NAME Phibro-Tech

DATE 7/25/07

CONTRACT NO. 06-441-C

P.M./SAMPLER(S) Chris Alger/ Joan Ball

EQUIPMENT CALIBRATION INFORMATION

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (C°)	STANDARD/ACTUAL

CASING VOLUME CALCULATION

WELL CASING RADIUS (CR) (in)	1"
TOTAL DEPTH (TD) OF WELL (ft	103.54
DEPTH TO WATER (DTW) (ft)	46.92
CASING VOLUME (gal) = (TD-DTW) $(CR)^2$ (.163) =	9.0

PURGING/SAMPLING DATA

Flow Rate 1GPM

TIME/GALLONS SINCE START	TEMP (C°)	pH	CONDUCTIVITY (umhos/cm)	TURBIDITY (NTU)	OTHER
Start 1435					
1440 5	22.6	7.20	1522	59	
1445 10	22.6	7.32	1639	11	
1450 15	22.3	7.28	1522	7	
1455 20	22.4	7.28	1541	3	
1500 25	22.1	7.26	1531	3	
1502 27	22.1	7.27	1533	3	

PURGING STOP TIME 1502 CASING VOLUMES PURGED 3

GALLONS PURGED 27

EQUIPMENT CLEANING METHOD(S)

PURGE WATER DISPOSAL METHOD

OBSERVATIONS/COMMENTS

Appendix D
Geophysical Logs

NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-01D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-01D
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

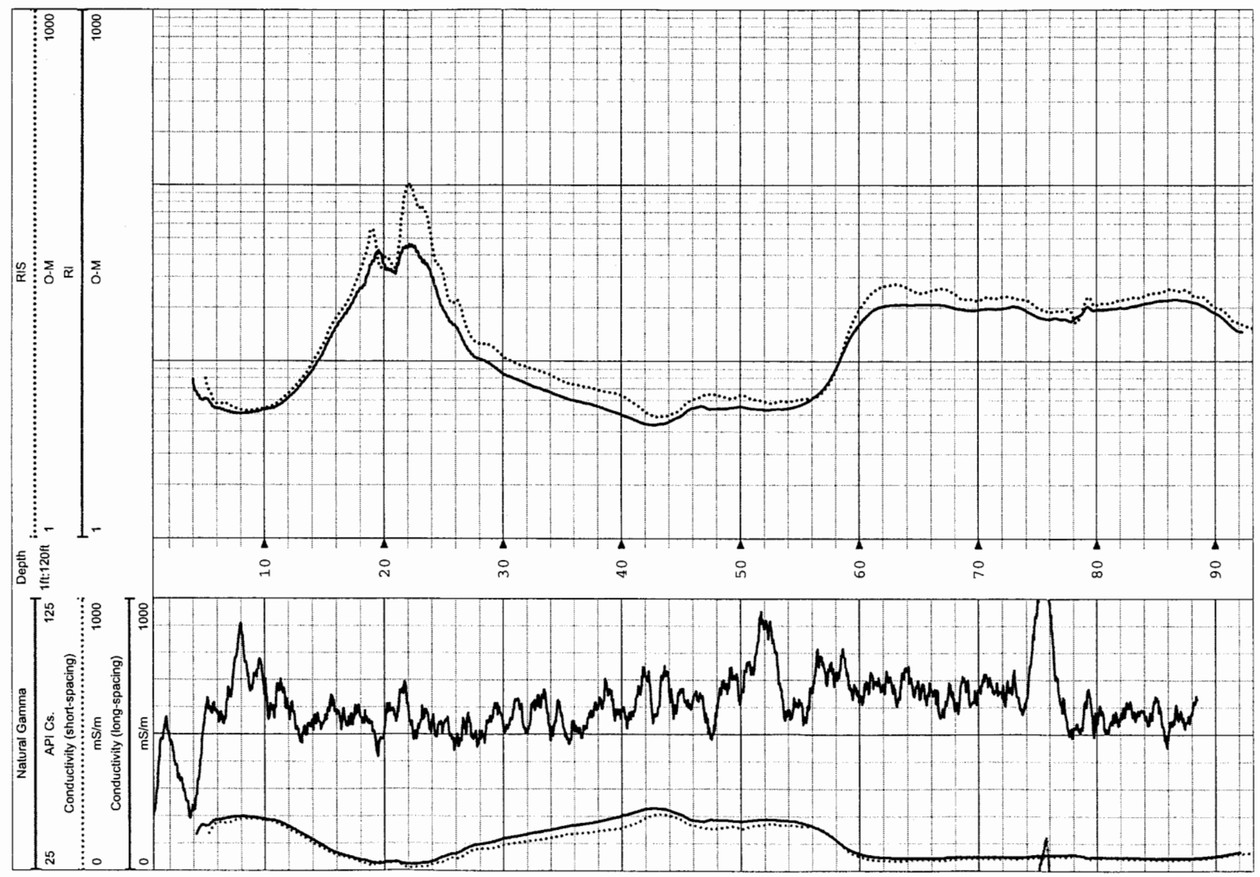
OTHER SERVICES

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	95	LEVEL	48
DEPTH-LOGGER	90	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	90		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	95	2	PVC	0	95

NOTES
OLD WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-03
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY	IRIS		
WELL ID	MW-03		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

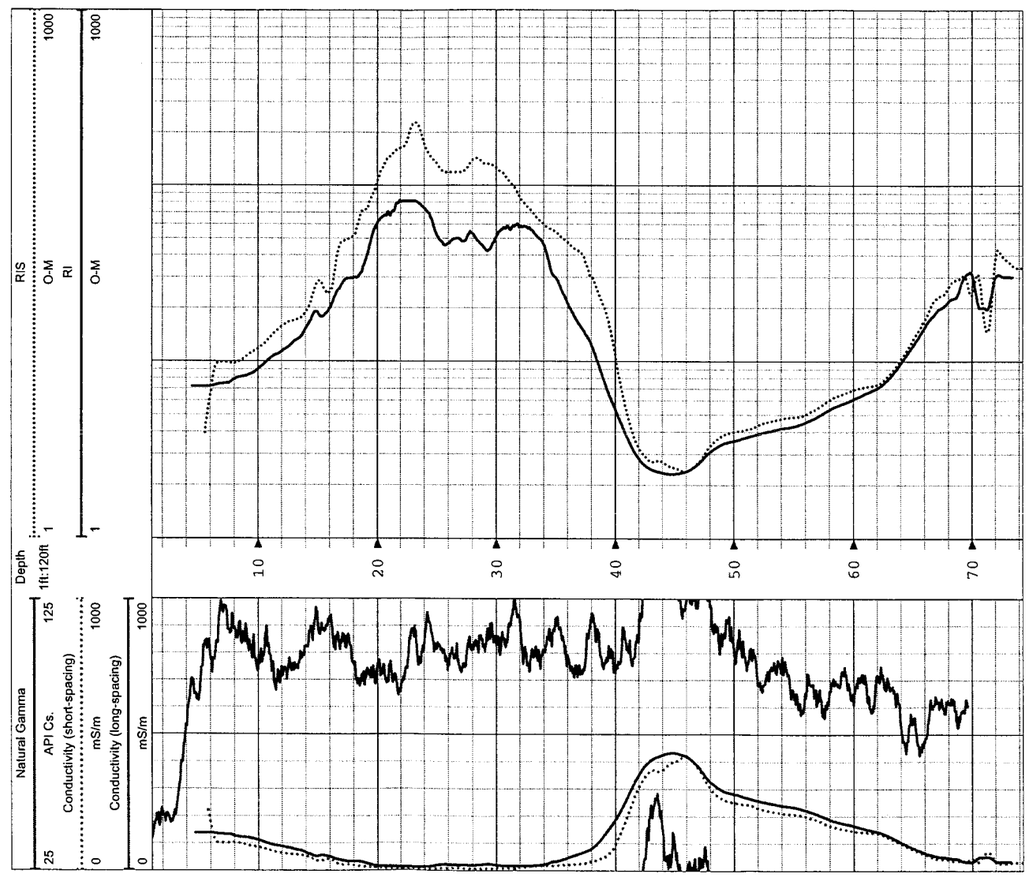
PERMANENT DATUM		ELEVATION	NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	75	LEVEL	48
DEPTH-LOGGER	75	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	75		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	75	6		0	75

NOTES

PURGED WATER FOR OPTV RUN



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-04A
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY	IRIS		
WELL ID	MW-04A		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

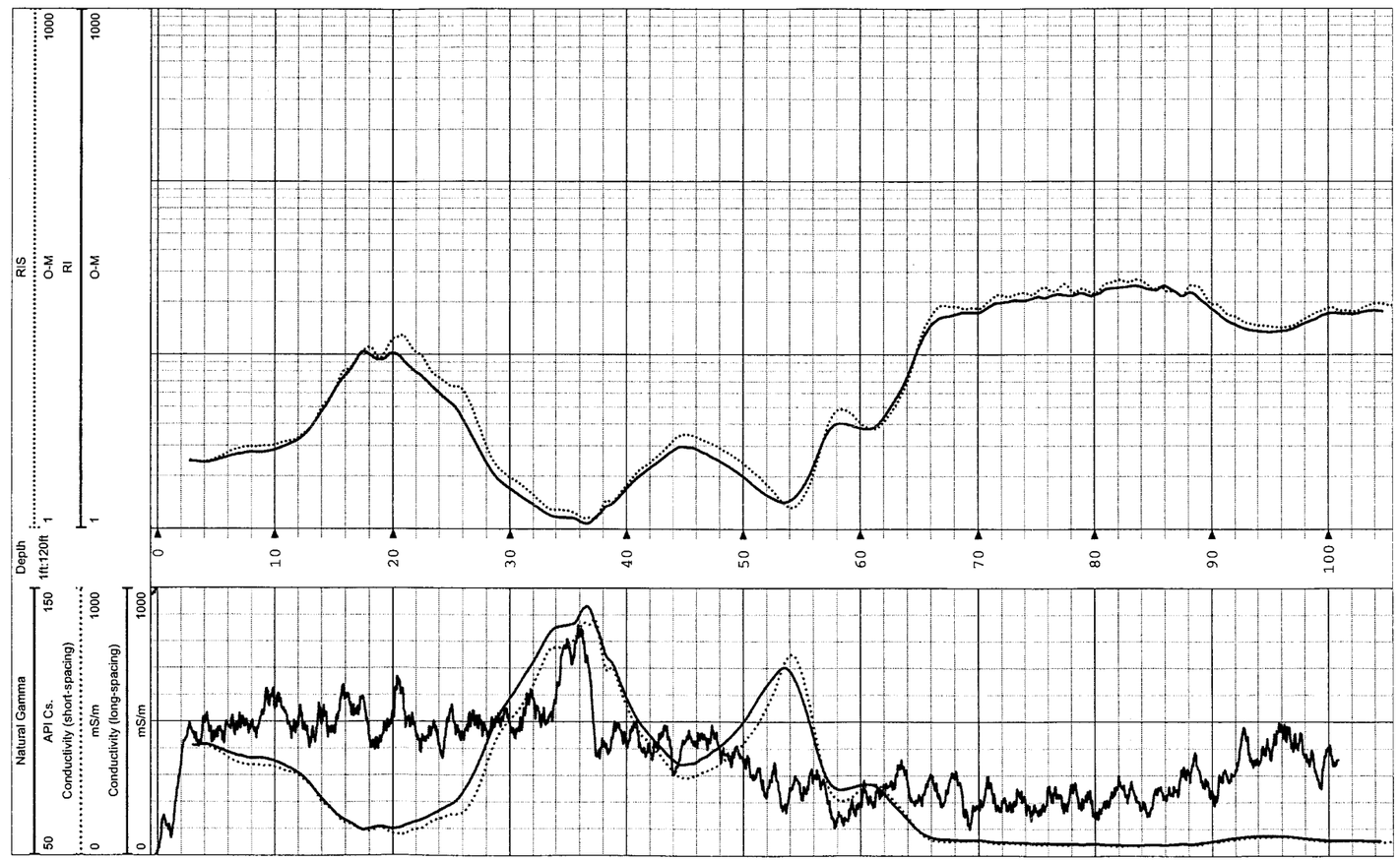
PERMANENT DATUM		ELEVATION	NA
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	
DRILLING MEAS. FROM	GROUND SURFACE		

K.B.
D.F.
G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	107	LEVEL	48
DEPTH-LOGGER	107	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	107		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	107	2	PVC	0	107

NOTES
OLD WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-06D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

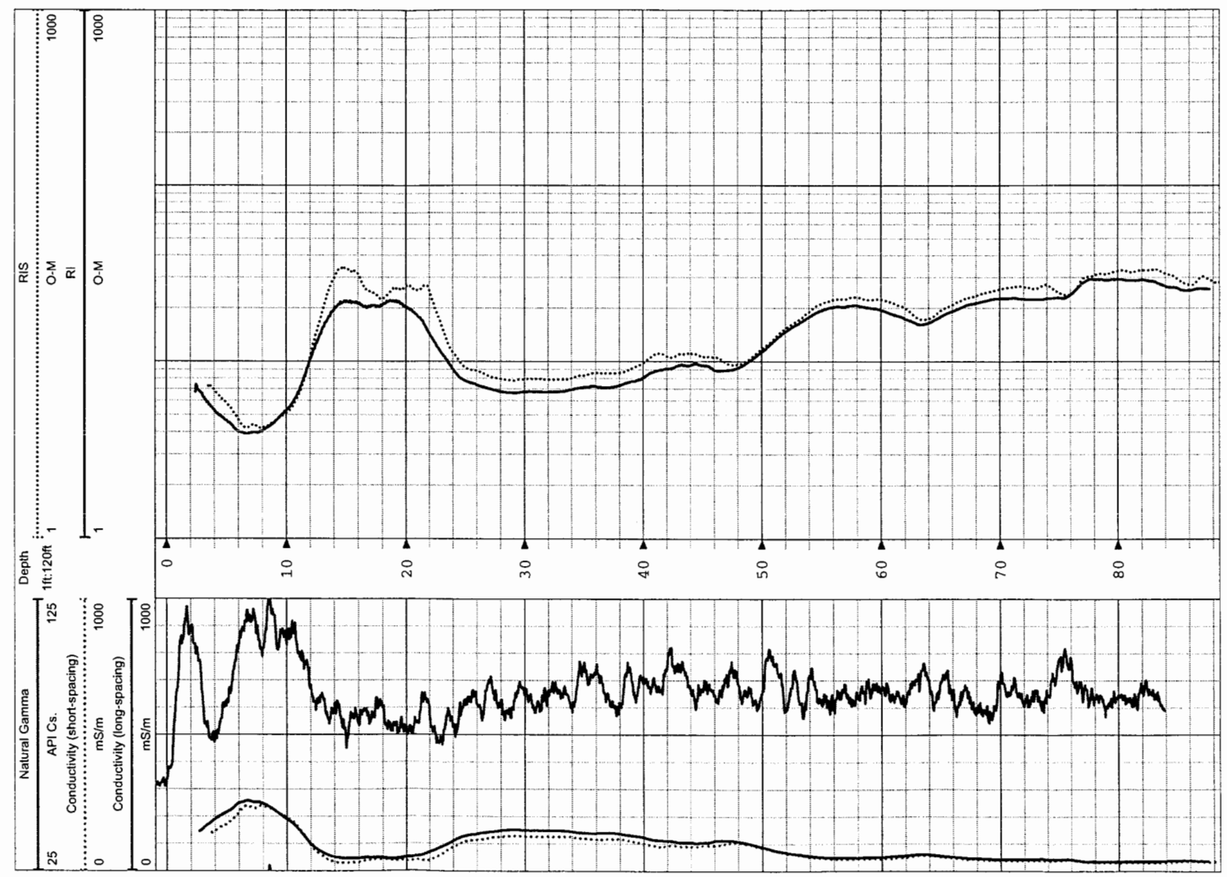
COMPANY	IRIS		
WELL ID	MW-06D		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	95.5	LEVEL	48
DEPTH-LOGGER	90.5	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	90.5		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	96	2	PVC	0	95.5

NOTES
OLD WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-07
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-07
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
OUTSIDE PLANT

SEC TWP RGE

OTHER SERVICES

PERMANENT DATUM ELEVATION NA K.B.

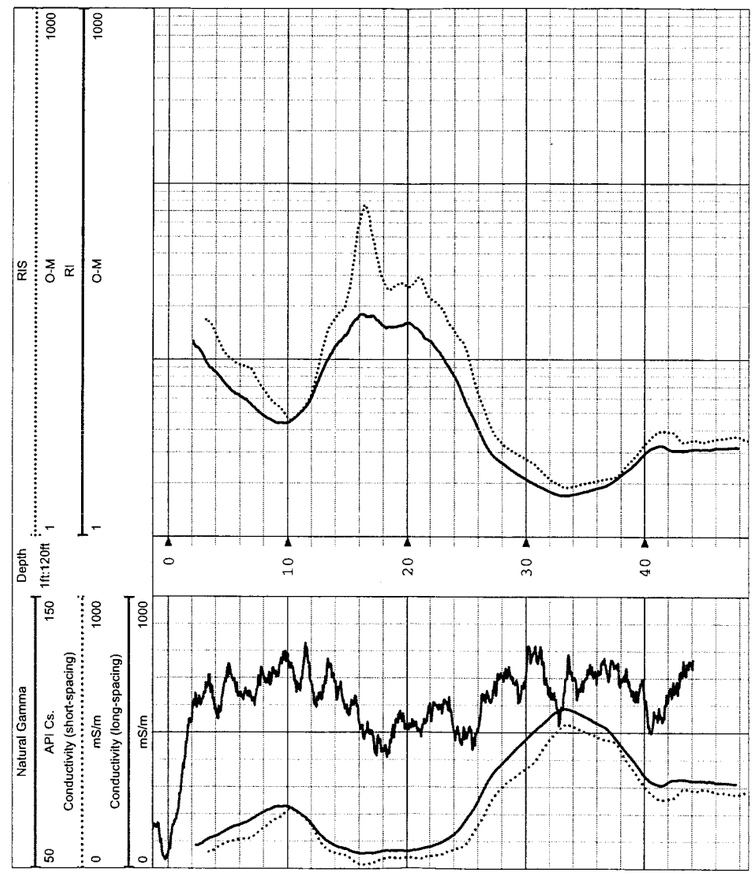
LOG MEAS. FROM GROUND SURFACE ABOVE PERM. DATUM D.F.

DRILLING MEAS. FROM GROUND SURFACE G.L.

DATE	22/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	75	LEVEL	48
DEPTH-LOGGER	50	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	50		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	75	2	PVC	0	75

NOTES
OBSTRUCTION AT 50 FEET BTOC



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-09
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

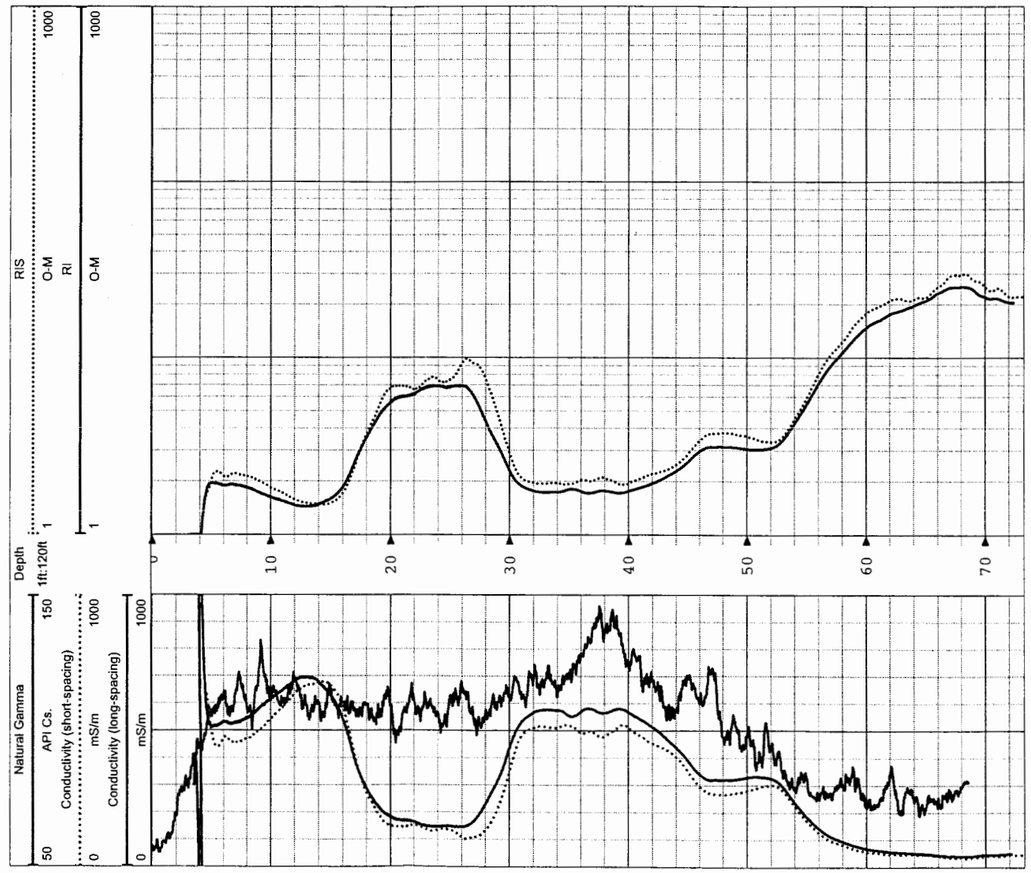
COMPANY	IRIS		
WELL ID	MD-09		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	22/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	75	LEVEL	48
DEPTH-LOGGER	75	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	75		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	75	2	PVC	0	75

NOTES
OLDER WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-10
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

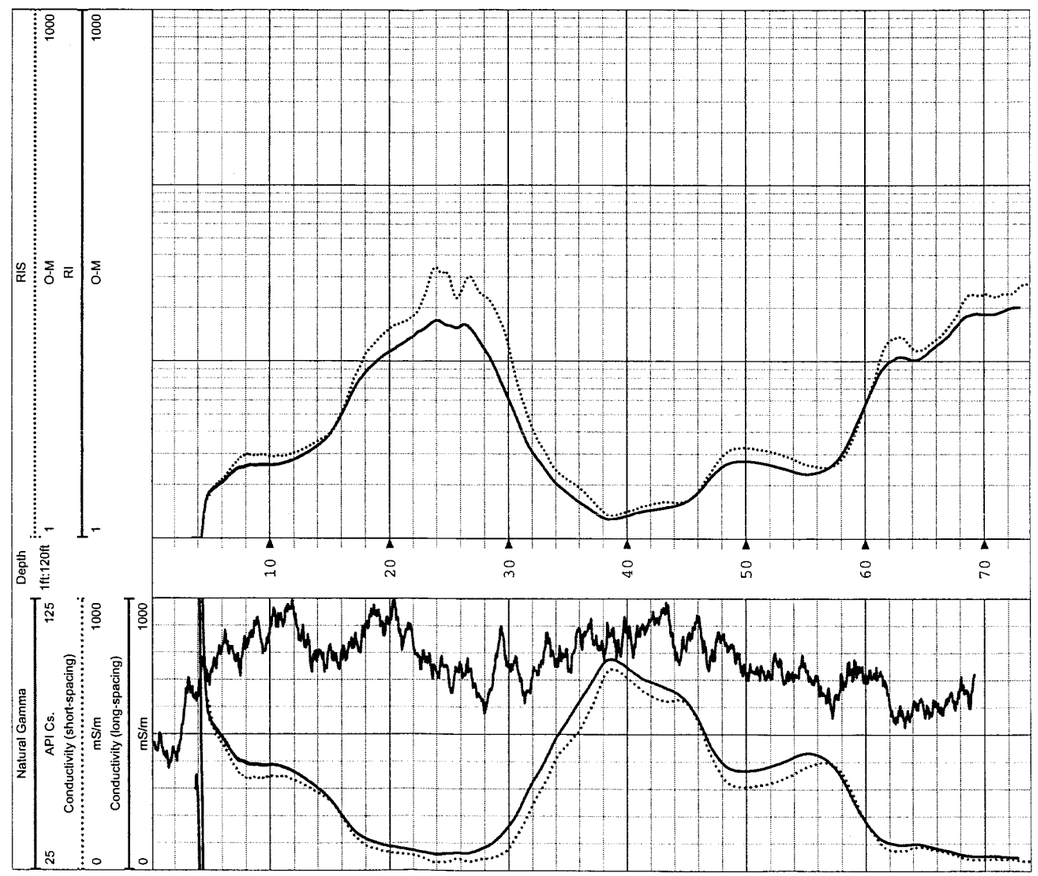
COMPANY	IRIS		
WELL ID	MW-10		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

PERMANENT DATUM		ELEVATION	NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM		D.F.
DRILLING MEAS. FROM	GROUND SURFACE			G.L.

DATE	22/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	75	LEVEL	48
DEPTH-LOGGER	75	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	75		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	75	2	PVC	0	75

NOTES
OLD WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-11
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

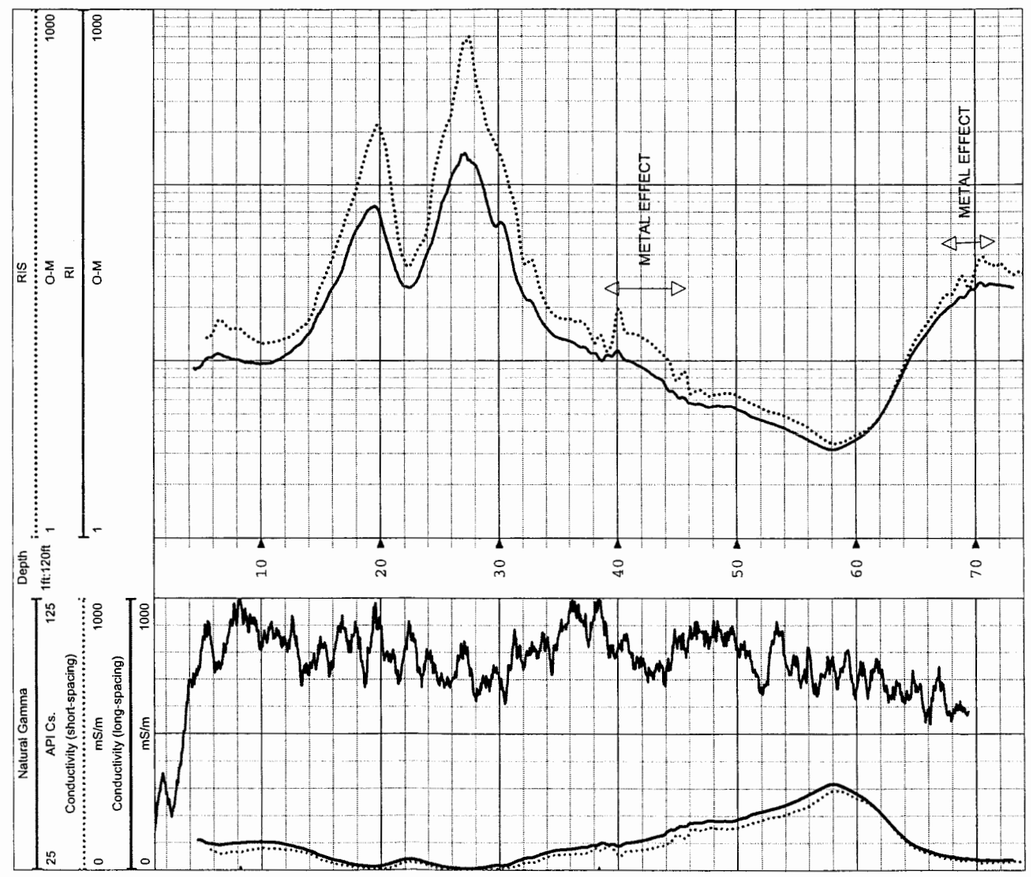
COMPANY	IRIS		
WELL ID	MW-11		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	75.5	LEVEL	48
DEPTH-LOGGER	75.5	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	75.5		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	75.5	2	PVC	0	75.5

NOTES
OLDER WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-12D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-12D
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

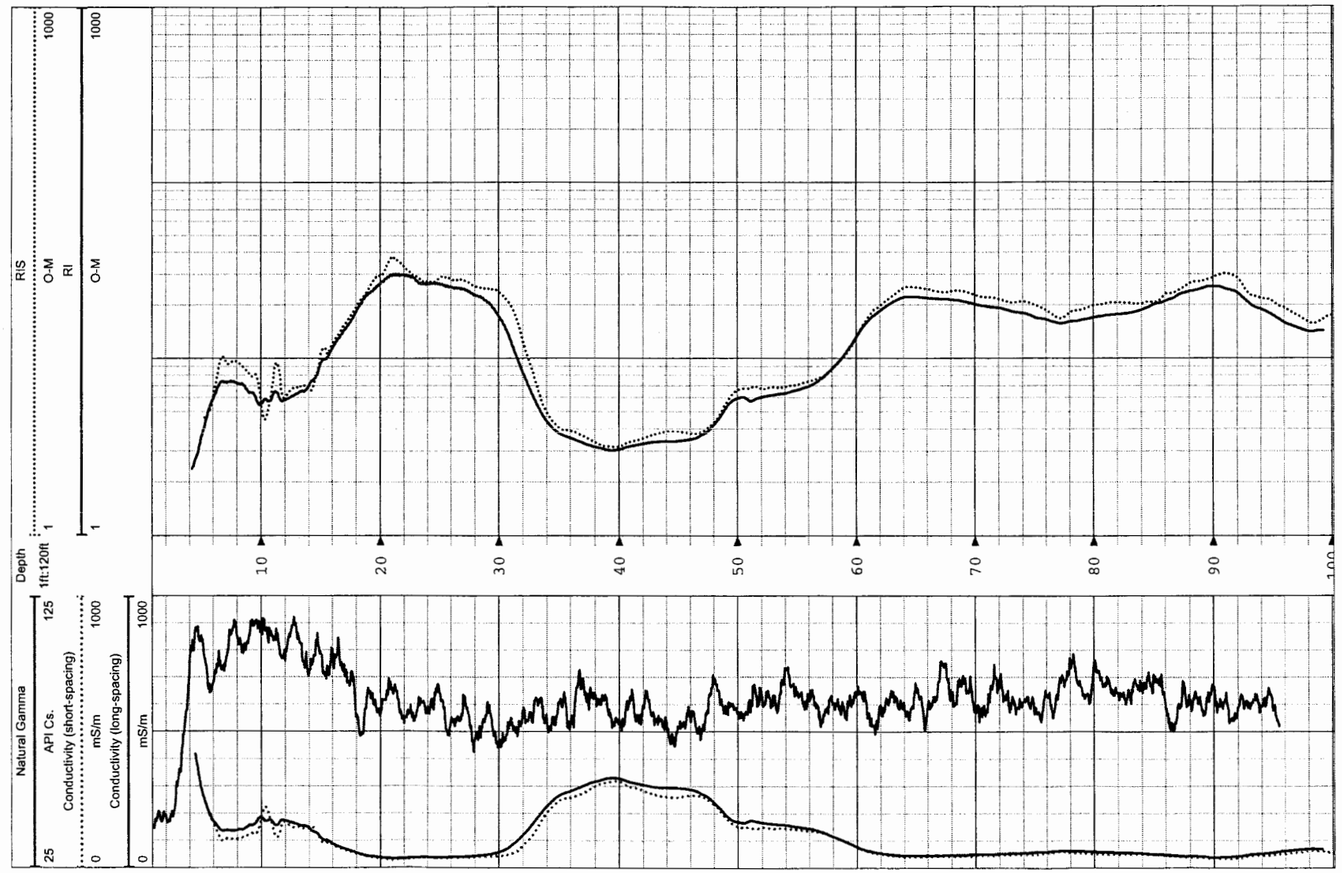
OTHER SERVICES

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	102	LEVEL	48
DEPTH-LOGGER	101	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	101		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	101	2		0	101

NOTES
OLDER WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-13D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-13D
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

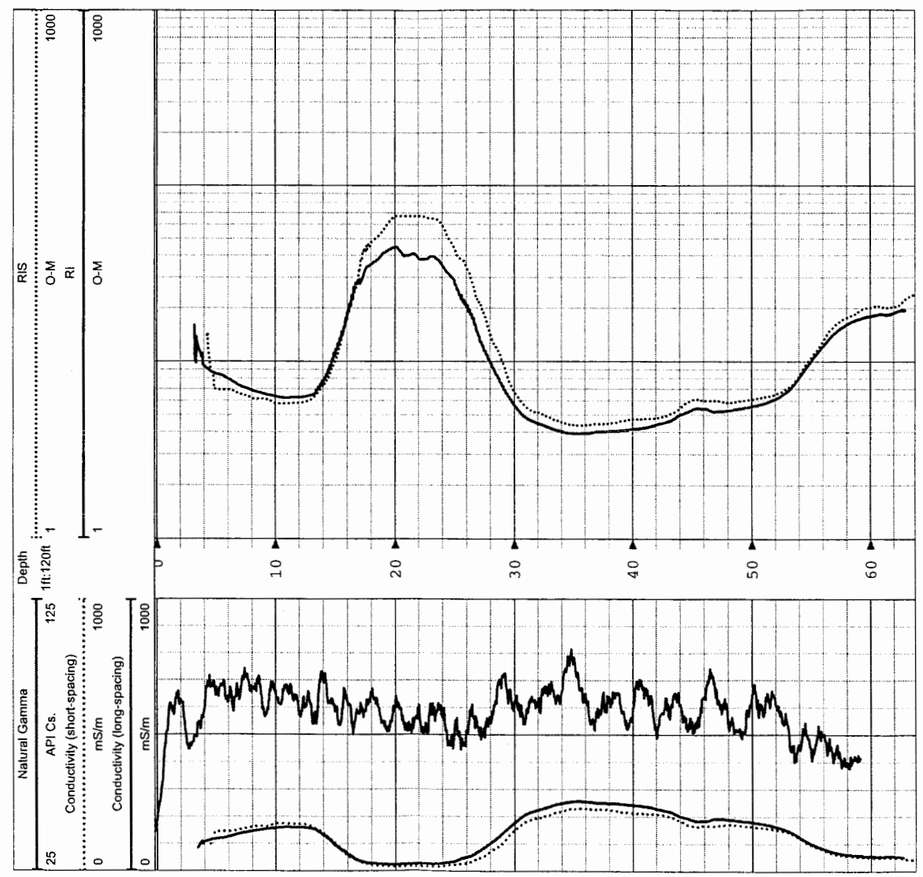
OTHER SERVICES

PERMANENT DATUM ELEVATION NA K.B.
LOG MEAS. FROM GROUND SURFACE ABOVE PERM. DATUM D.F.
DRILLING MEAS. FROM GROUND SURFACE G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	93	LEVEL	48
DEPTH-LOGGER	66	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	66		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	93	2	PVC	0	93

NOTES
OBSTRUCTION AT 66 FEET BTOC



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-14D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

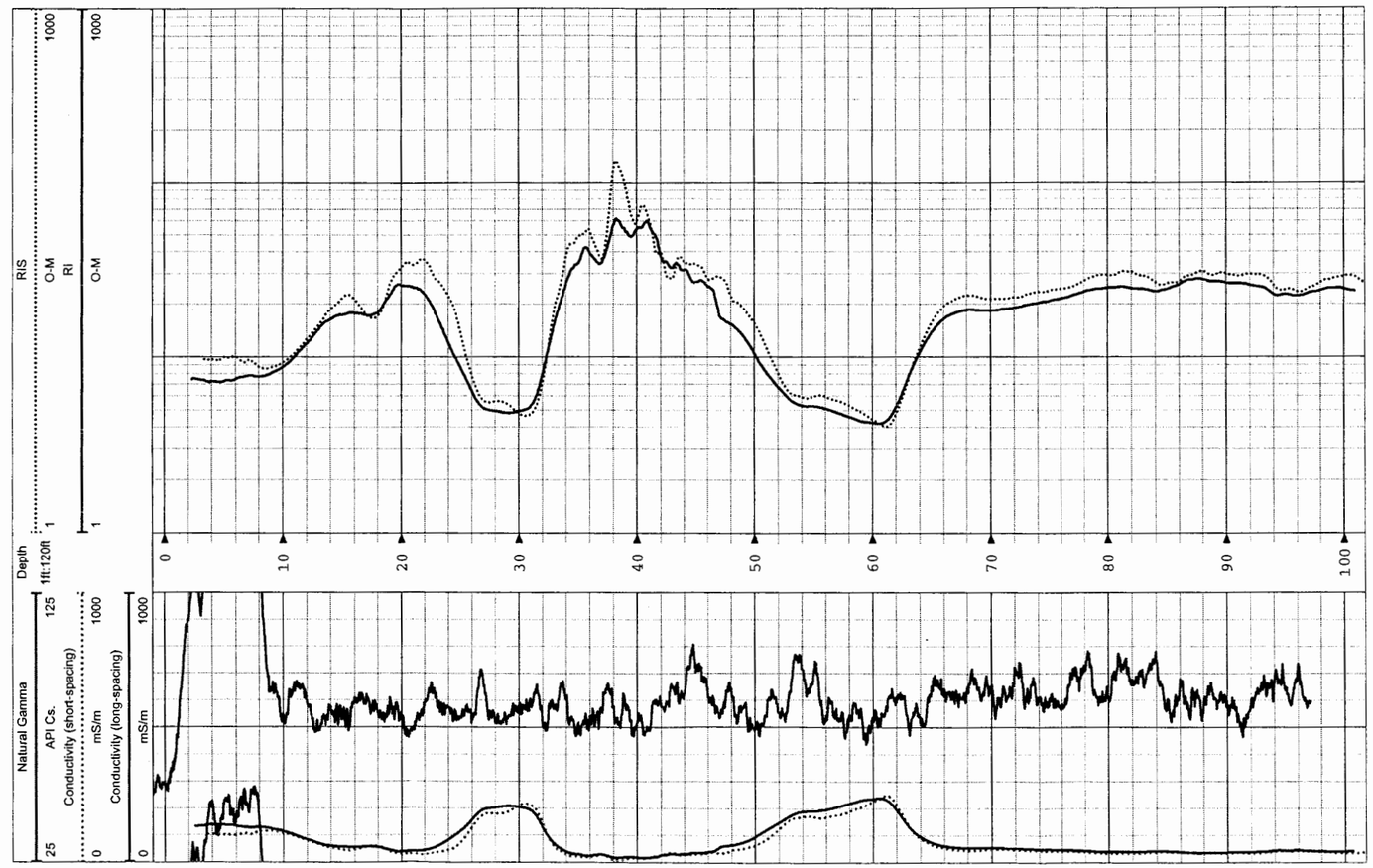
COMPANY	IRIS		
WELL ID	MW-14D		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA
LOCATION			OTHER SERVICES
PLANT			
SEC	TWP	RGE	

PERMANENT DATUM		ELEVATION	NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM		D.F.
DRILLING MEAS. FROM	GROUND SURFACE			G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	103	LEVEL	48
DEPTH-LOGGER	103	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	103		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	103	2		0	103

NOTES



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-15D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-15D
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

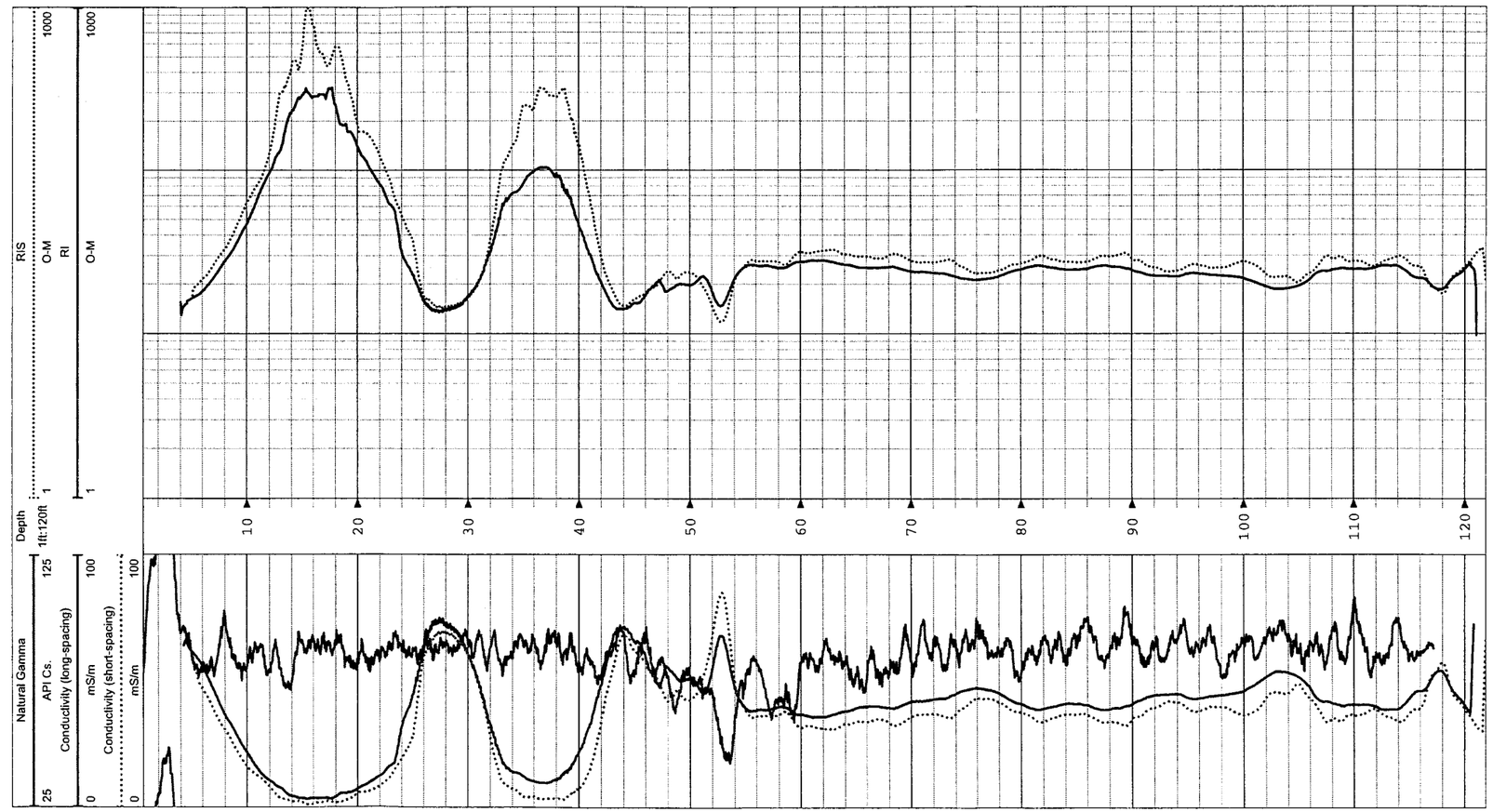
OTHER SERVICES

PERMANENT DATUM ELEVATION NA K.B.
LOG MEAS. FROM GROUND SURFACE ABOVE PERM. DATUM D.F.
DRILLING MEAS. FROM GROUND SURFACE G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	124	LEVEL	48
DEPTH-LOGGER	123	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	123		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	2.62	0	20	6		0	0

NOTES
PURGED WATER FOR OPTV RUN



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-16
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY	IRIS		
WELL ID	MW-16		
FIELD	PHILBRO-TEC		
COUNTRY	USA	STATE	CA

LOCATION
PLANT
SEC TWP RGE

OTHER SERVICES

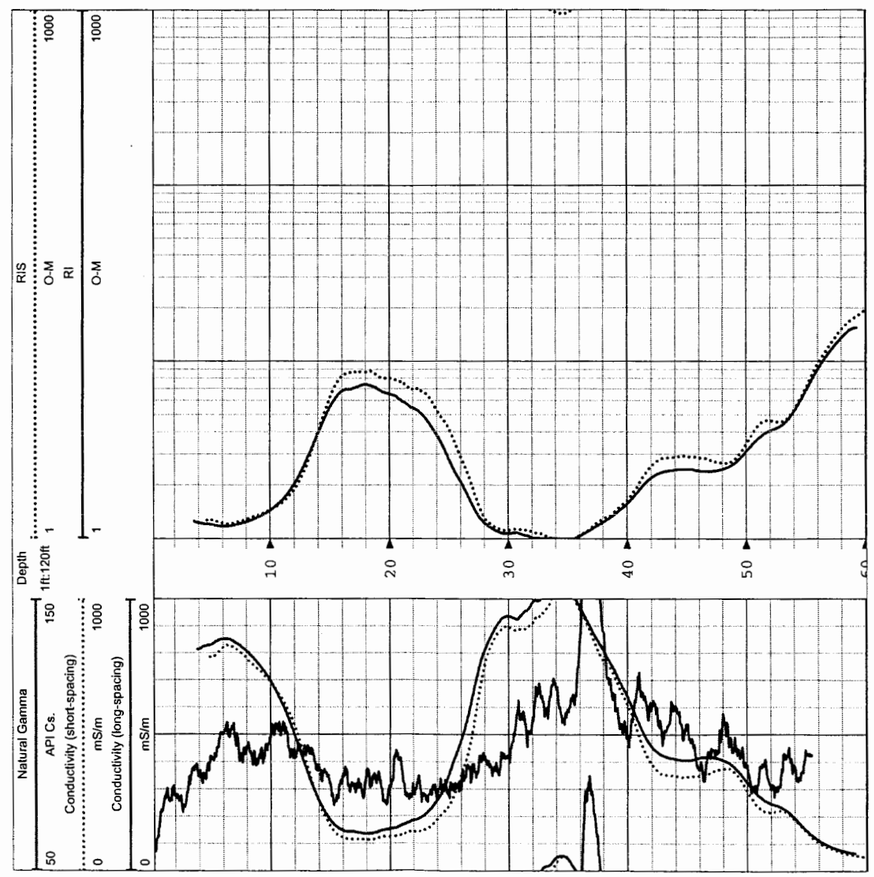
PERMANENT DATUM		ELEVATION	NA
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	
DRILLING MEAS. FROM	GROUND SURFACE		

K.B.
D.F.
G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	62.5	LEVEL	48
DEPTH-LOGGER	62	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	62		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	63	2	PVC	0	62.5

NOTES
OLDER WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-17
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-17
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

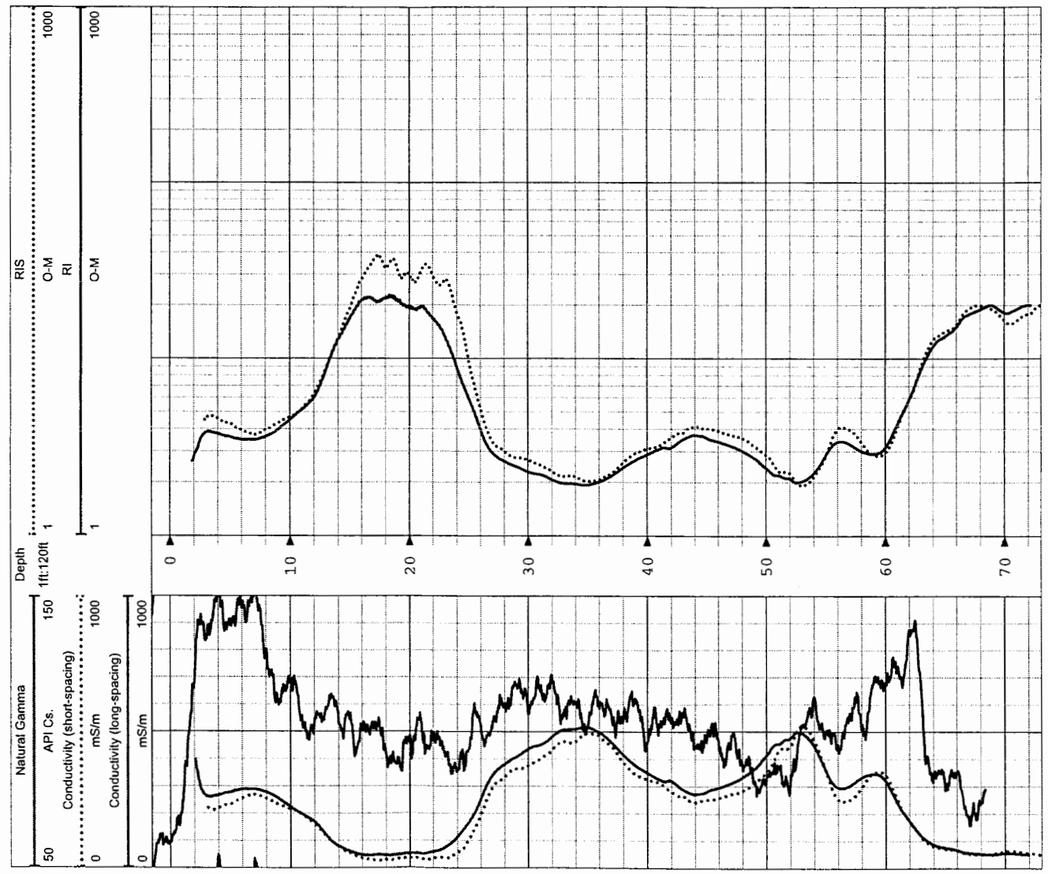
OTHER SERVICES

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	74	LEVEL	48
DEPTH-LOGGER	74	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	74		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	6	0	74	4	PVC	0	74

NOTES
NEW WELL



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-18
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-18
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

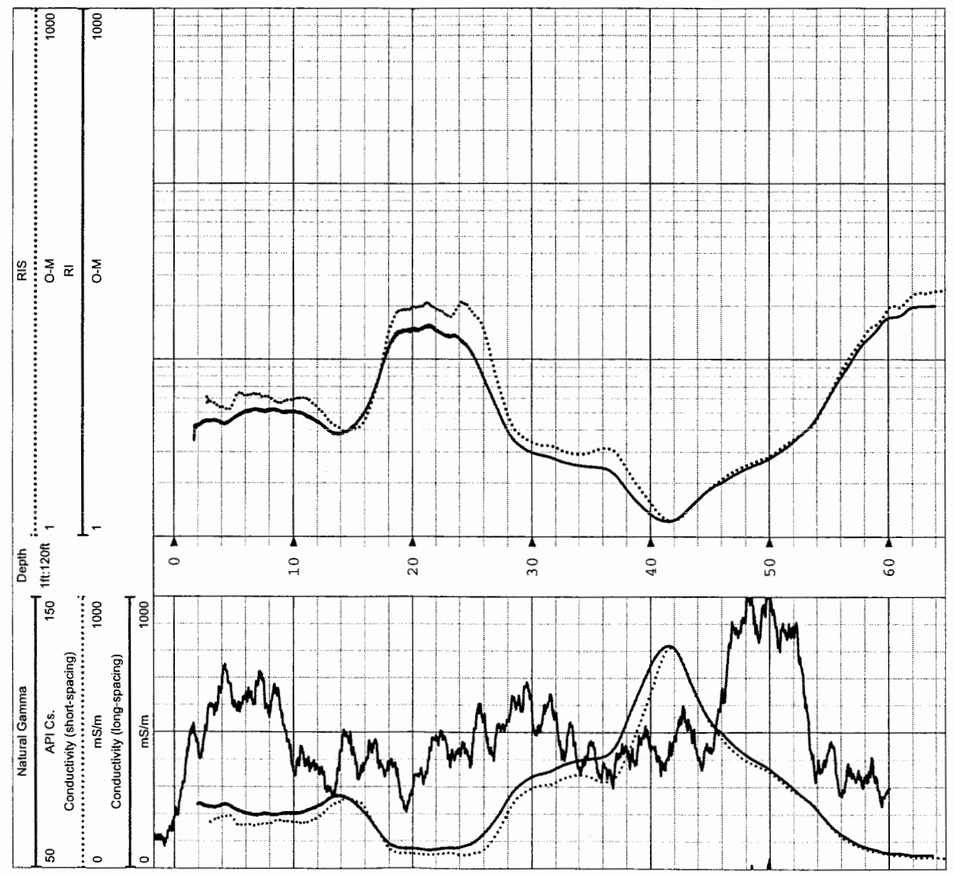
OTHER SERVICES

PERMANENT DATUM ELEVATION NA K.B.
LOG MEAS. FROM GROUND SURFACE ABOVE PERM. DATUM D.F.
DRILLING MEAS. FROM GROUND SURFACE G.L.

DATE	22/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	68	LEVEL	48
DEPTH-LOGGER	66	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	66		
TOP LOGGED INTERVAL	6		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	68	4	PVC	0	66

NOTES
NEW WELL 2007



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-19D
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-19D
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

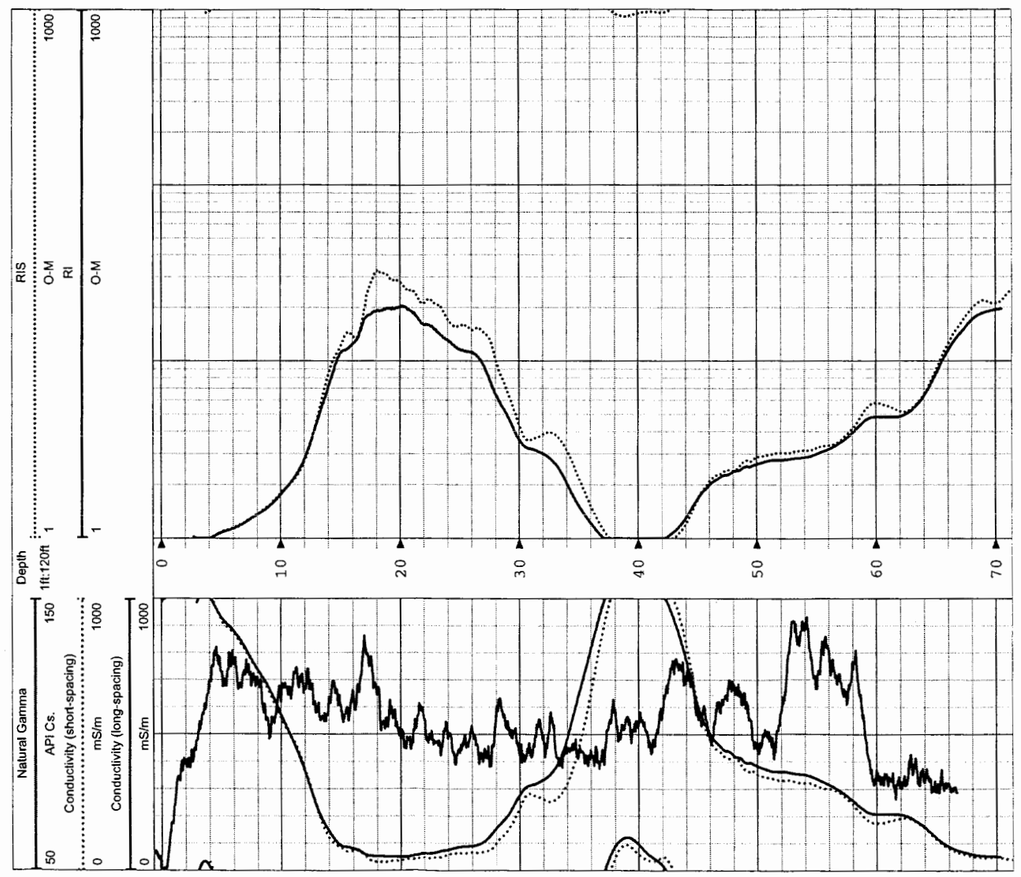
OTHER SERVICES

PERMANENT DATUM		ELEVATION NA	K.B.
LOG MEAS. FROM	GROUND SURFACE	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND SURFACE		G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	73	LEVEL	48
DEPTH-LOGGER	73	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	73		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	2 HOURS		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	73	4		0	73

NOTES
NEW WELL SONIC DRILLED



NORCAL

NORCAL GEOPHYSICAL CONSULTANTS, INC.

INDUCTION NATURAL GAMMA LOGS

CO LOS ANGELES
WELL MW-20
FLD PHILBRO-TEC
CTY SANTA FE SPRINGS
STE CALIFORNIA
FILING No

COMPANY IRIS
WELL ID MW-20
FIELD PHILBRO-TEC
COUNTRY USA STATE CA

LOCATION
PLANT
SEC TWP RGE

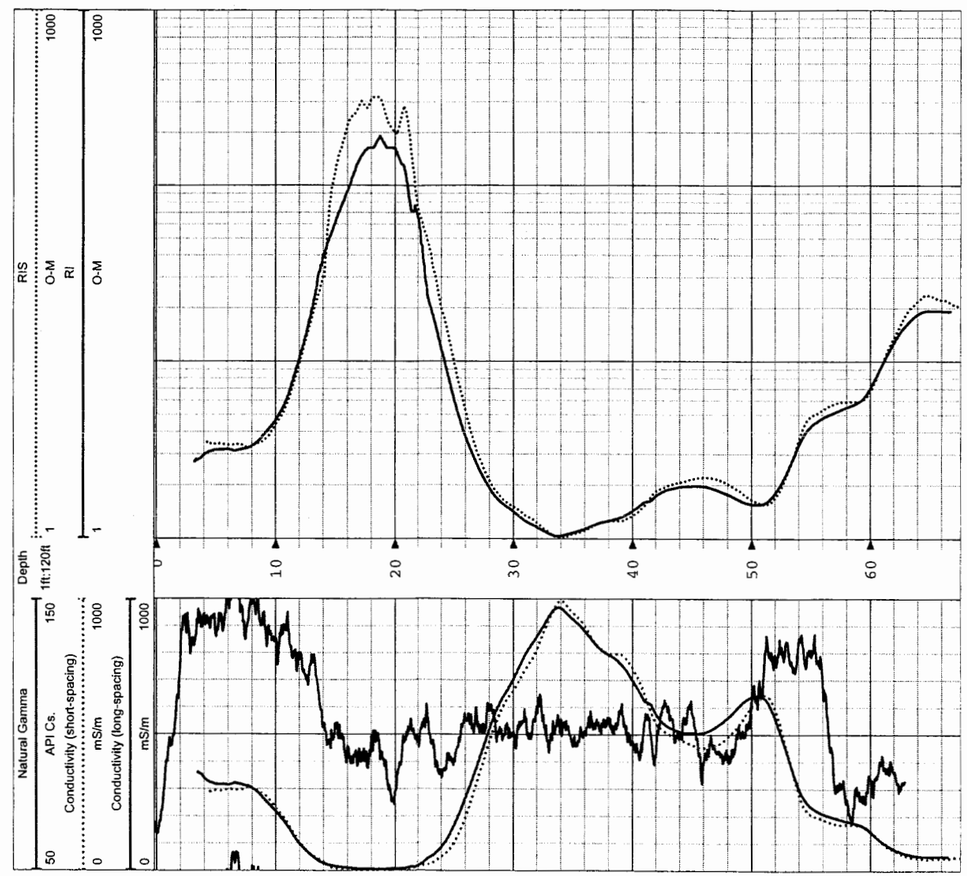
OTHER SERVICES

PERMANENT DATUM ELEVATION NA K.B.
LOG MEAS. FROM GROUND SURFACE ABOVE PERM. DATUM D.F.
DRILLING MEAS. FROM GROUND SURFACE G.L.

DATE	21/06/07	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	DUAL INDUCTION	DENSITY	
DEPTH-DRILLER	70	LEVEL	48
DEPTH-LOGGER	69	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	69		
TOP LOGGED INTERVAL	7		
OPERATING RIG TIME	1 HOUR		
RECORDED BY	W HENRICH		
WITNESSED BY	C JOHNSTON		

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8	0	70	4	PVC	0	70

NOTES
NEW WELL2007



Appendix E
Survey Report

IRIS ENVIRONMENTAL

KDM MERIDIAN

SURVEYING AND MAPPING

July 2, 2007 **KDMM #07-IRE-03**

Nora Matell
Iris Environmental
1438 Webster St. Suite 302
Oakland, CA 94612

Subject: **Monitoring Well Survey**
8851 Dice Rd. Santa Fe Springs, Ca

Dear Nora Matell:

KDM Meridian is pleased to provide **Iris Environmental** with this report of values surveyed for the six monitoring wells, three PZ wells, eight SMP wells, and the five SVE wells found at 8851 Dice Rd., Santa Fe Springs, Ca.

WELL	NORTHING	EASTING	CASING	RIM/GRND.
MW-11	1807880.63	6541019.23		
MW-17	1807749.63	6540924.55	151.74	152.22
MW-18	1807787.67	6541035.54	152.96	153.42
MW-19	1807793.38	6540911.70	153.30	153.79
MW-1S	1807845.31	6541356.00	154.08	154.52
MW-20	1807730.14	6540957.53	151.16	151.56
PZ-1	1807723.71	6540858.38	152.01	152.45
PZ-2	1807821.74	6540995.53	153.99	154.30
PZ-3	1807732.01	6541007.28	151.92	152.17
SMP-1	1807853.22	6540990.64		
SMP-2	1807822.72	6541057.03		
SMP-3	1807823.81	6541034.04		
SMP-4	1807759.04	6541022.25		
SMP-5	1807815.54	6541118.90		
SMP-6	1807717.41	6541098.92		
SMP-7	1807711.33	6541117.47		
SMP-8	1807707.59	6541096.88		
SVE-1A	1807780.85	6541030.12	152.86	153.21
SVE-1B	1807773.65	6541028.78	152.60	153.03
SVE-2A	1807811.92	6541051.52	153.25	153.83
SVE-2B	1807812.65	6541045.31	153.26	153.77
SVE-3	1807739.78	6541109.68	152.56	152.95

22541 Aspan Street, Suite C, Lake Forest, California 92630
Telephone: 949-768-0731 Facsimile: 949-768-3731
KDMMeridian.com

Horizontal Datum:

Coordinates shown are in U.S. Survey Feet in terms of the California Coordinate System of 1983, Zone V, (2002.0000 Epoch)

Vertical Datum:

Elevations shown are in U.S. Survey Feet and based on the National American Vertical Datum of 1988 (NAVD-88) LA County 2000 Adjustment.

Bench Mark:

Los Angeles County Surveyor's Bench Mark **6667** / Elevation: **155.298 feet**

Thank you for allowing **KDM Meridian, Inc.** to provide surveying services to **Iris Environmental**. Should you have questions concerning anything contained in this report, please feel free to contact me at (949) 768-0731.

Sincerely,

Richard C. Maher, CA PLS #7564
President
KDM Meridian, Inc.

PROFESSIONAL LAND SURVEYOR
RICHARD C. MAHER
No. 7564
Exp: 12/31/07
STATE OF CALIFORNIA

07-IRE-03 Final Report.doc

Appendix F
Laboratory Analytical Reports and Chain of Custody Forms

Appendix G
Laboratory Chromatograms for Total Petroleum Hydrocarbons

Software Version	: 6.2.1.0.106:0106	Date	: 6/20/2007 6:05:35 PM
Operator	: pesti	Sample Name	: IQF1071-01
Sample Number	: 7F14046	Study	: HC(13-40)FD
AutoSampler	: HP7673A	Rack/Vial	: 1/15
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 10.00
Data Acquisition Time	: 6/20/2007 2:36:56 PM	Cycle	: 16

Sample ID:
PTI-PZ02-S-3.5

Raw Data File : H:\DATA\GC12\20070620\F20a015.raw <Modified>
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Proc Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070620\F20a015C.rst [Editing in Progress]
Calib Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070620\F20a015C.rst [Editing in Progress]
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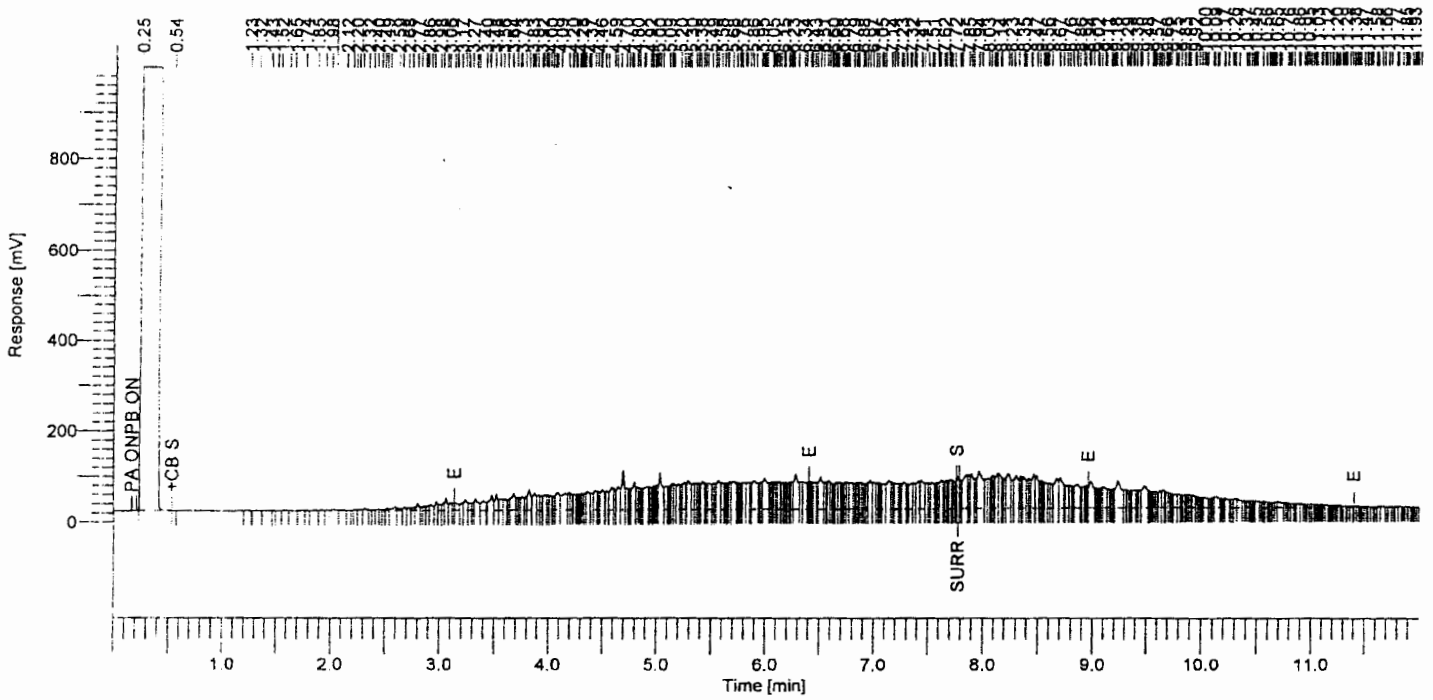
Sequence File : H:\DATA\GC12\20070620\F20.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.774	C13-C22	8266407.46	2572.0505	17147.0031		1.2860e+05	
	7.088	C23-C28	4510800.80	1403.5126	9356.7509		70175.6316	
	8.376	C29-C32	4129052.75	1284.7337	8564.8912		64236.6839	
	10.181	C33-C40	3025490.06	941.3658	6275.7719		47068.2892	
			19931751.07	6201.6626	41344.4171		3.1008e+05	

3629.6121 41000ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
232	7.779	SURR	99786.16	34.9028	232.6852		1745.1388	
			99786.16	34.9028	232.6852		1745.1388	

M.R 6/20/07

Report stored in ASCII file: H:\DATA\GC12\20070620\F20a015C.TX0

oil. out

Software Version	: 6.2.1.0.104:0104	Date	: 6/19/2007 8:13:31 AM
Operator	: pesti	Sample Name	: IQF1222-01
Sample Number	: 7F14046	Study	: 10ML/HC13
AutoSampler	: HP7673A	Rack/Vial	: 1/50
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/14/2007 11:32:12 PM	Cycle	: 7

Sample ID:
PTI-MW18-S-2.5

Raw Data File : H:\DATA\GC12\20070613\F13a050.raw <Modified>
Result File : H:\DATA\GC12\20070613\F13a050-20070619-081328.rst [Editing in Progress]
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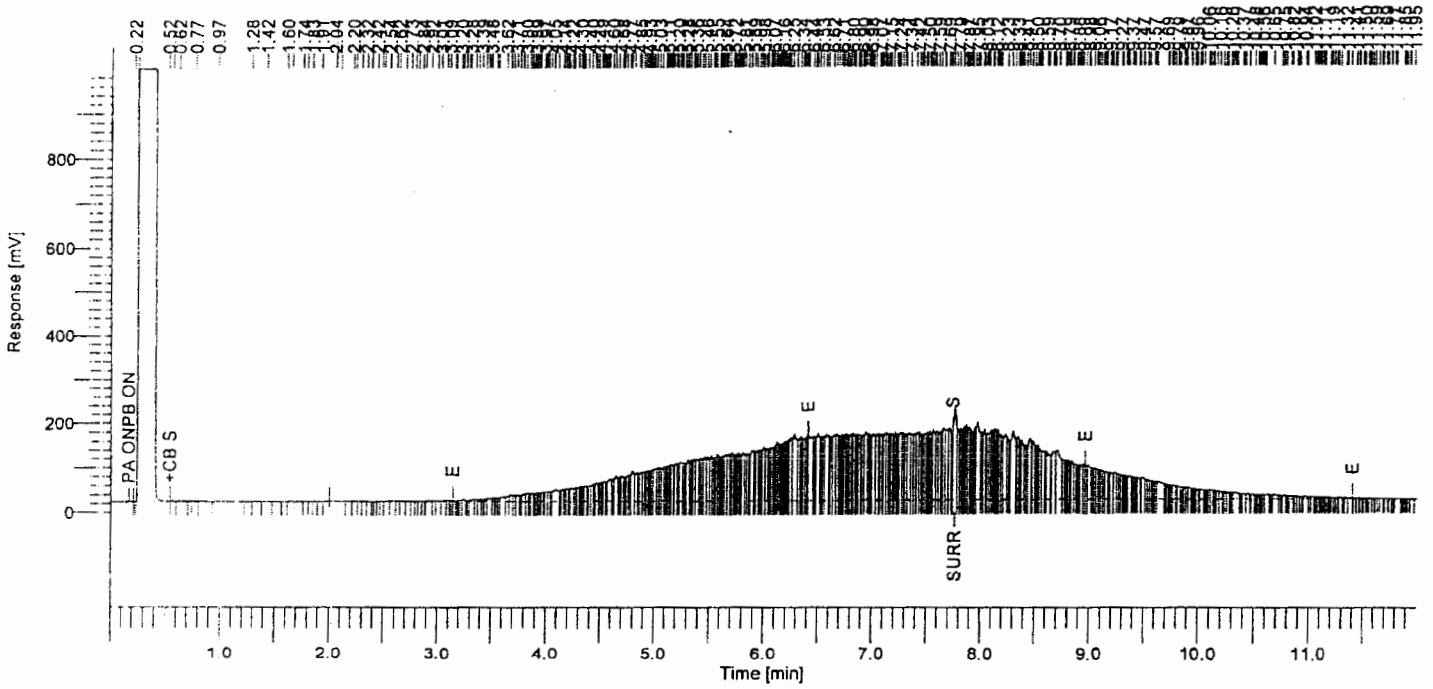


8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	11740432.88	3652.9757	1217.6586		18264.8787	
	7.075	C23-C28	10991121.58	3419.8314	1139.9438		17099.1568	
	8.365	C29-C32	8302506.34	2583.2824	861.0941		12916.4122	
	10.181	C33-C40	3171879.09	986.9140	328.9713		4934.5699	
			34205939.89	10643.0035	3547.6678		53215.0176	

✓ M.R 6/22/07

6990.0278 3500 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
261	7.760	SURR	430892.55	150.7157	50.2386		753.5787	oil out
			430892.55	150.7157	50.2386		753.5787	

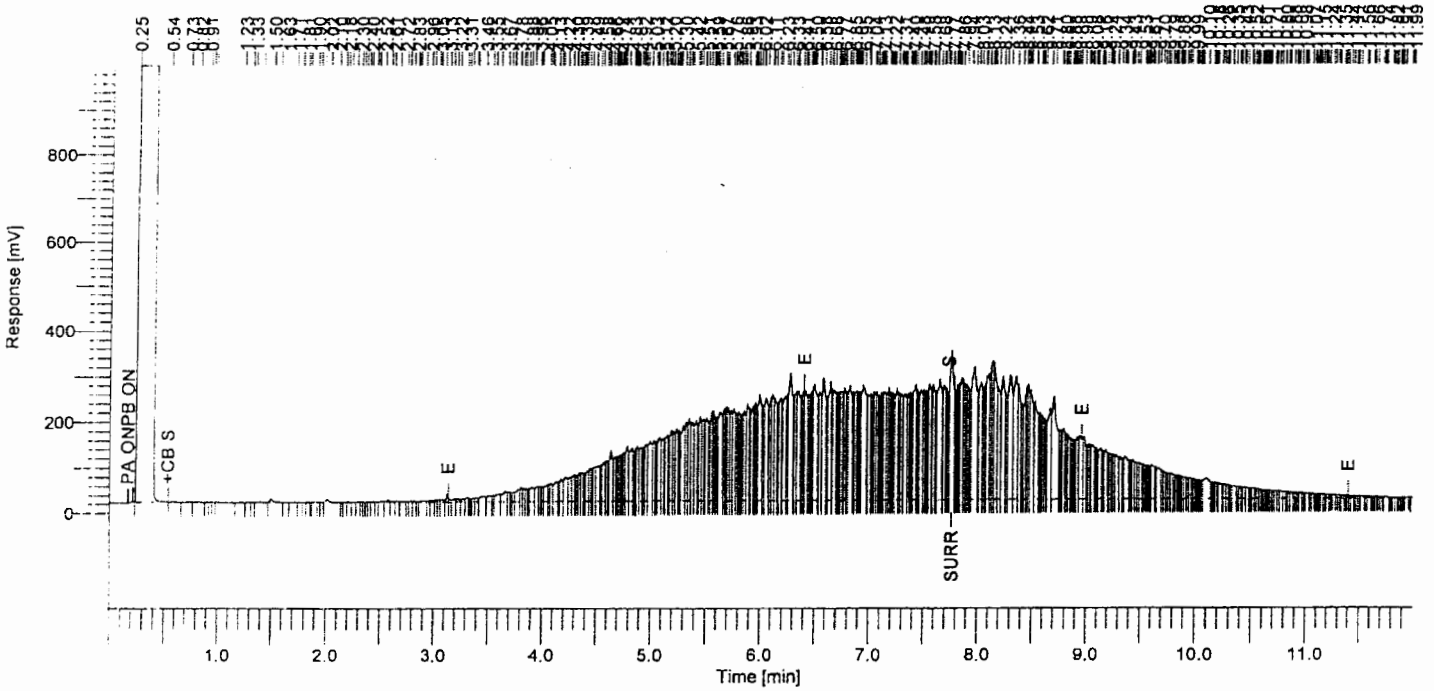
MT 6-19-07

Report stored in ASCII file: H:\DATA\GC12\20070613\F13a050-20070619-081328.TX0

Software Version	6.2.1.0.106:0106	Date	: 6/25/2007 7:16:44 PM
Operator	pesti	Sample Name	: IQF1901-01
Sample Number	7F22077	Study	: 5ML/15G/HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/20
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/23/2007 11:25:39 PM	Cycle	: 19

Sample ID:
PTI-SMP04B-S-1.5

Raw Data File : H:\DATA\GC12\20070622\F22A070.raw <Modified>
Result File : H:\DATA\GC12\20070622\F22A070C.rst [Editing in Progress]
Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070622\F22A070.raw
Proc Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A070C.rst [Editing in Progress]
Calib Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A070C.rst [Editing in Progress]
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070622\F22.seq



11806.1151

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	20686320.24	6436.4429	2145.4810		16091.1073	
	7.076	C23-C28	17873516.53	5561.2534	1853.7511		13903.1335	
	8.375	C29-C32	13996304.53	4354.8787	1451.6262		10887.1967	
	10.181	C33-C40	6074285.75	1889.9830	629.9943	3900 ppm	4724.9575	
			58630427.05	18242.5580	6080.8527		45606.3949	

6100 ppm

OP 6-25-07

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
247	7.766	SURR	778315.90	272.2360	90.7453		680.5900	
			778315.90	272.2360	90.7453		680.5900	

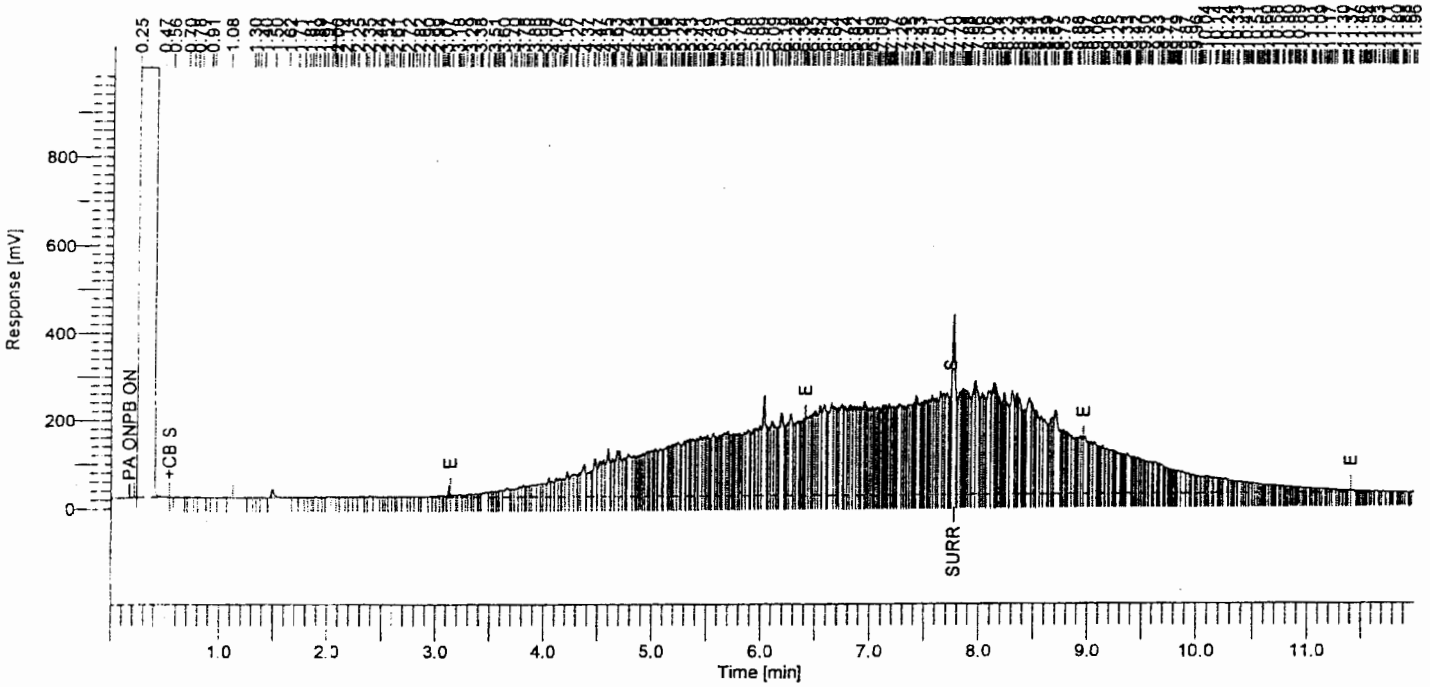
Dil out (23)

Report stored in ASCII file: H:\DATA\GC12\20070622\F22A070C.TX0

Software Version	: 6.2.1.0.106:0106	Date	: 6/25/2007 7:16:25 PM
Operator	: pesti	Sample Name	: IQF1901-02
Sample Number	: 7F22077	Study	: 2ML/15G/HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/18
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/23/2007 10:46:06 PM	Cycle	: 17

Sample ID:
PTI-SMP04B-S-5.5

Raw Data File : H:\DATA\GC12\20070622\F22A068.raw <Modified>
Result File : H:\DATA\GC12\20070622\F22A068C.rst [Editing in Progress]
Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070622\F22A068.raw
Proc Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A068C.rst [Editing in Progress]
Calib Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A068C.rst [Editing in Progress]
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070622\F22.seq



10509.1937 pr

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	15736466.49	4896.3212	652.8428		4896.3212	
	7.076	C23-C28	15148369.70	4713.3379	628.4450		4713.3379	
	8.375	C29-C32	12901932.61	4014.3704	535.2494		4014.3704	
	10.181	C33-C40	5725581.19	1781.4853	237.5314		1781.4853	
			49512349.99	15405.5149	2054.0686		15405.5149	

2100 ppm

CP 6/27/07

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
242	7.767	SURR	866683.48	303.1448	40.4193		303.1448	
			866683.48	303.1448	40.4193		303.1448	

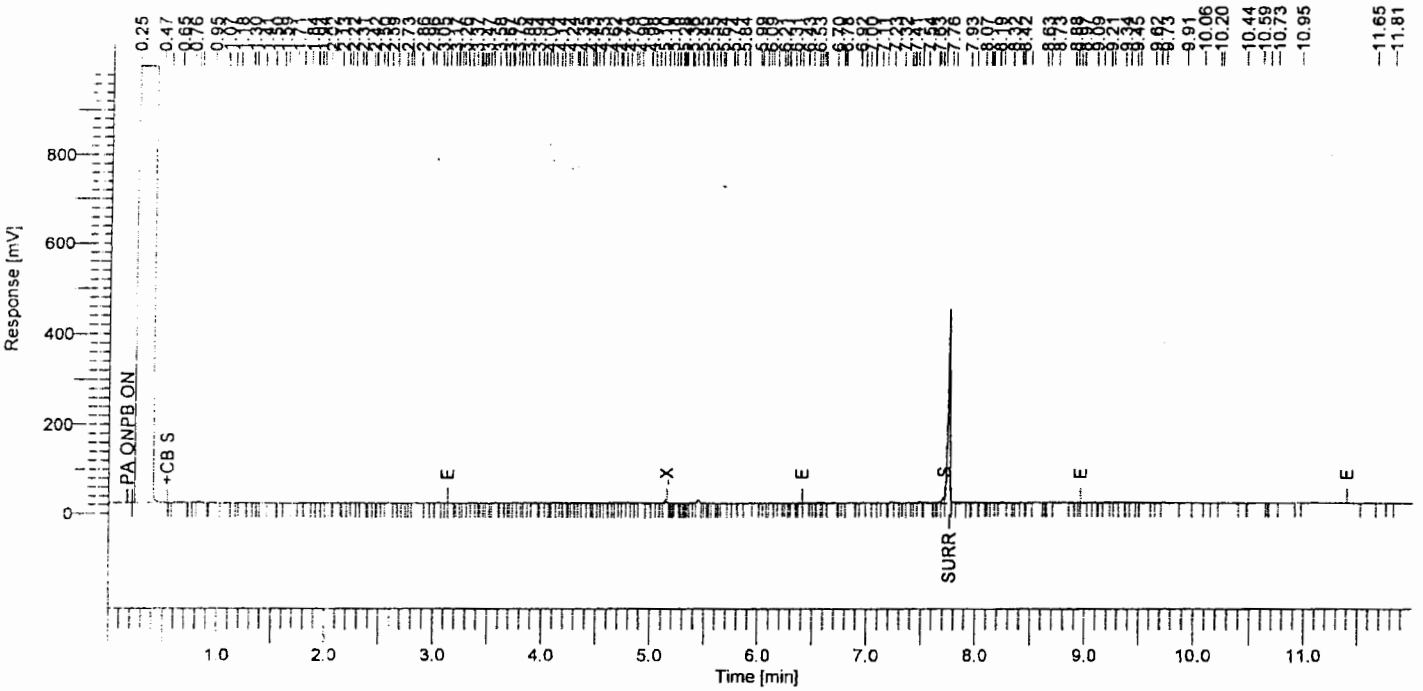
↑ due to mI (2x)

Report stored in ASCII file: H:\DATA\GC12\20070622\F22A068C.TX0

Software Version	: 6.2.1.0 106:0106	Date	: 6/25/2007 7:18:08 PM
Operator	: pesti	Sample Name	: IQF1901-03
Sample Number	: 7F22077	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/22
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/24/2007 12:05:21 AM	Cycle	: 21

Sample ID:
PTI-SMP04B-S-9.5

Raw Data File : H:\DATA\GC12\20070622\F22A072.raw <Modified>
Result File : H:\DATA\GC12\20070622\F22A072C.rst [Editing in Progress]
Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070622\F22A072.raw
Proc Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A072C.rst [Editing in Progress]
Calib Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A072C.rst [Editing in Progress]
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070622\F22.seq



88.5233 pr

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	285633.28	88.8733	2.9624		44.4367	
	7.063	C23-C28	123009.63	38.2738	1.2758		19.1369	
	8.369	C29-C32	94279.02	29.3344	0.9778		14.6672	
	10.181	C33-C40	67219.52	20.9150	0.6972		10.4575	
			570141.45	177.3966	5.9132		88.6983	

5.9 pr

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
161	7.760	SURR	565407.02	197.7656	6.5922		98.8828	
			565407.02	197.7656	6.5922		98.8828	

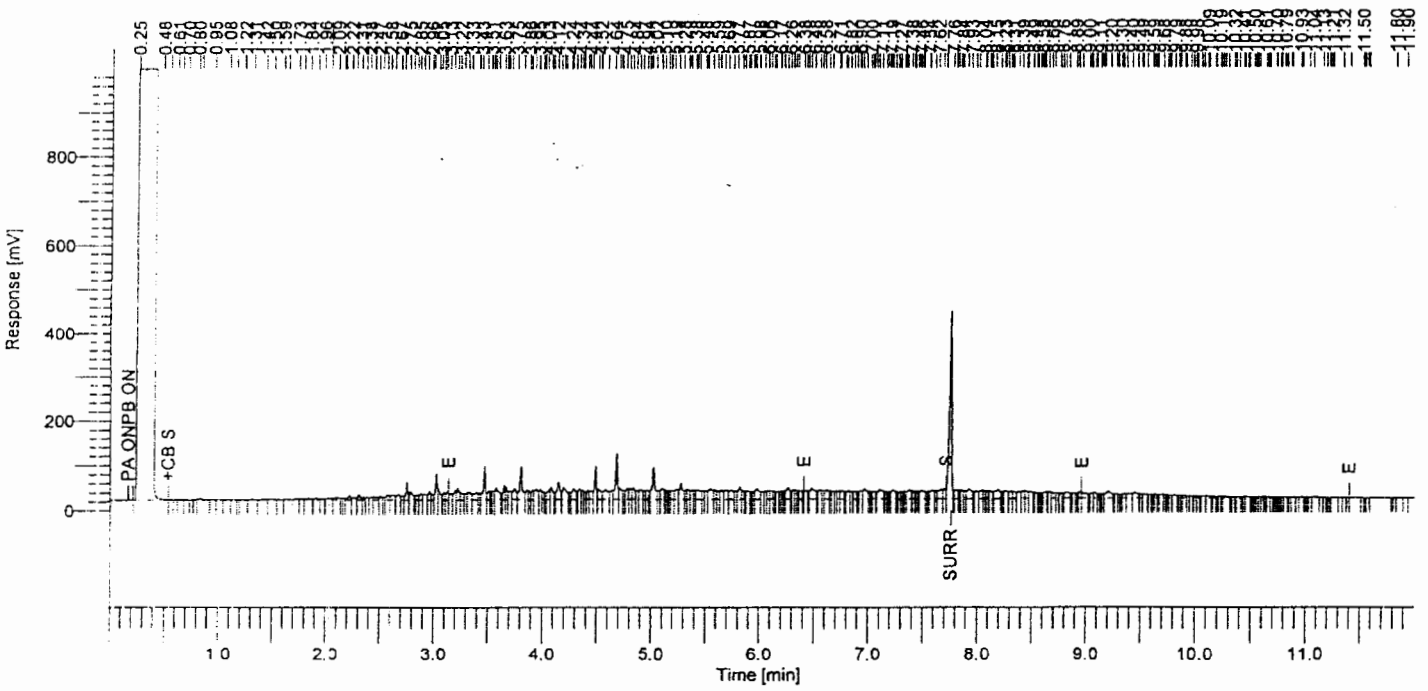
✓ op 6/25/07

Report stored in ASCII file: H:\DATA\GC12\20070622\F22A072C.TX0

Software Version	: 6.2.1.0.106:0106	Date	: 6/25/2007 7:18:26 PM
Operator	: pesti	Sample Name	: IQF1901-04
Sample Number	: 7F22077	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/23
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/24/2007 12:25:08 AM	Cycle	: 22

Sample ID:
PTI-SMP04B-S-22.0

Raw Data File : H:\DATA\GC12\20070622\F22A073.raw <Modified>
Result File : H:\DATA\GC12\20070622\F22A073C.rst [Editing in Progress]
Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070622\F22A073.raw
Proc Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A073C.rst [Editing in Progress]
Calib Method : h:\data\gc12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A073C.rst [Editing in Progress]
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070622\F22.seq



960.932

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	3961327.37	1232.5468	41.0849		616.2734	
	7.063	C23-C28	1352612.45	420.8585	14.0286		210.4292	
	8.369	C29-C32	1014551.32	315.6725	10.5224		157.8362	
	10.181	C33-C40	721210.90	224.4011	7.4800		112.2005	
			7049702.04	2193.4788	73.1160		1096.7394	

32 ppm

73 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
208	7.758	SURR	616149.67	215.5142	7.1838		107.7571	
			616149.67	215.5142	7.1838		107.7571	

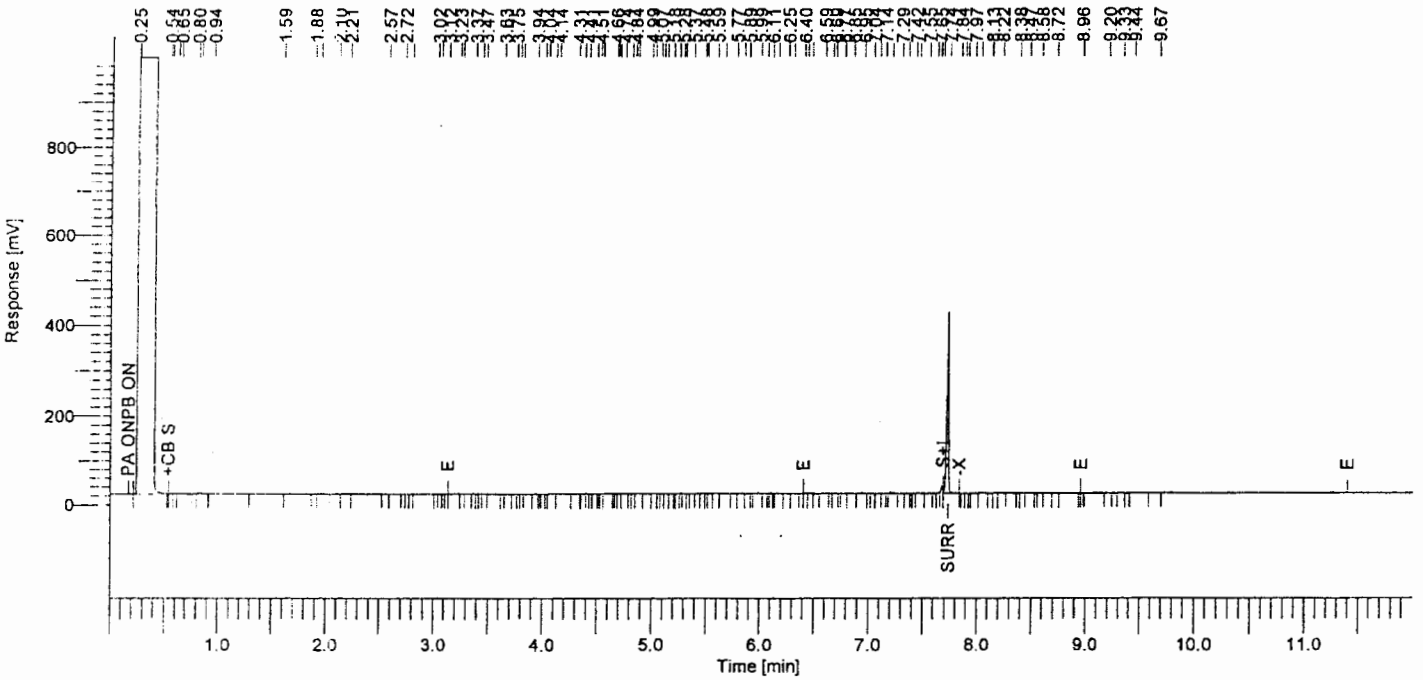
op 6/25/07

Report stored in ASCII file: H:\DATA\GC12\20070622\F22A073C.TX0

Software Version	: 6.2.1.0 106:0106	Date	: 6/25/2007 6:55:45 PM
Reprocess Number	: irv-pesti11: 31528		
Operator	: pesti	Sample Name	: IQF1901-05
Sample Number	: 7F22077	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/40
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/24/2007 5:57:20 AM	Cycle	: 38

Sample ID:
PTI-SMP04B-S-32.0

Raw Data File : h:\data\gc12\20070622\F22a090.raw <Modified>
Result File : h:\data\gc12\20070622\F22a090.rst
Inst Method : h:\data\gc12\shortdsl from h:\data\gc12\20070622\F22a090.raw
Proc Method : h:\data\gc12\C12AF01Q.mth from h:\data\gc12\20070622\F22a090.rst
Calib Method : h:\data\gc12\C12AF01Q.mth from h:\data\gc12\20070622\F22a090.rst
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070622\F22.seq



21.7856

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	65755.51	20.4595	0.6820		10.2297	
	7.050	C23-C28	52227.93	16.2505	0.5417		8.1252	
	8.400	C29-C32	12904.63	4.0152	0.1338		2.0076	
	10.181	C33-C40	3278.07	1.0200	0.0340		0.5100	
			134166.14	41.7451	1.3915	ND	20.8726	

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
91	7.737	SURR	525708.63	183.8801	6.1293		91.9401	
			525708.63	183.8801	6.1293		91.9401	

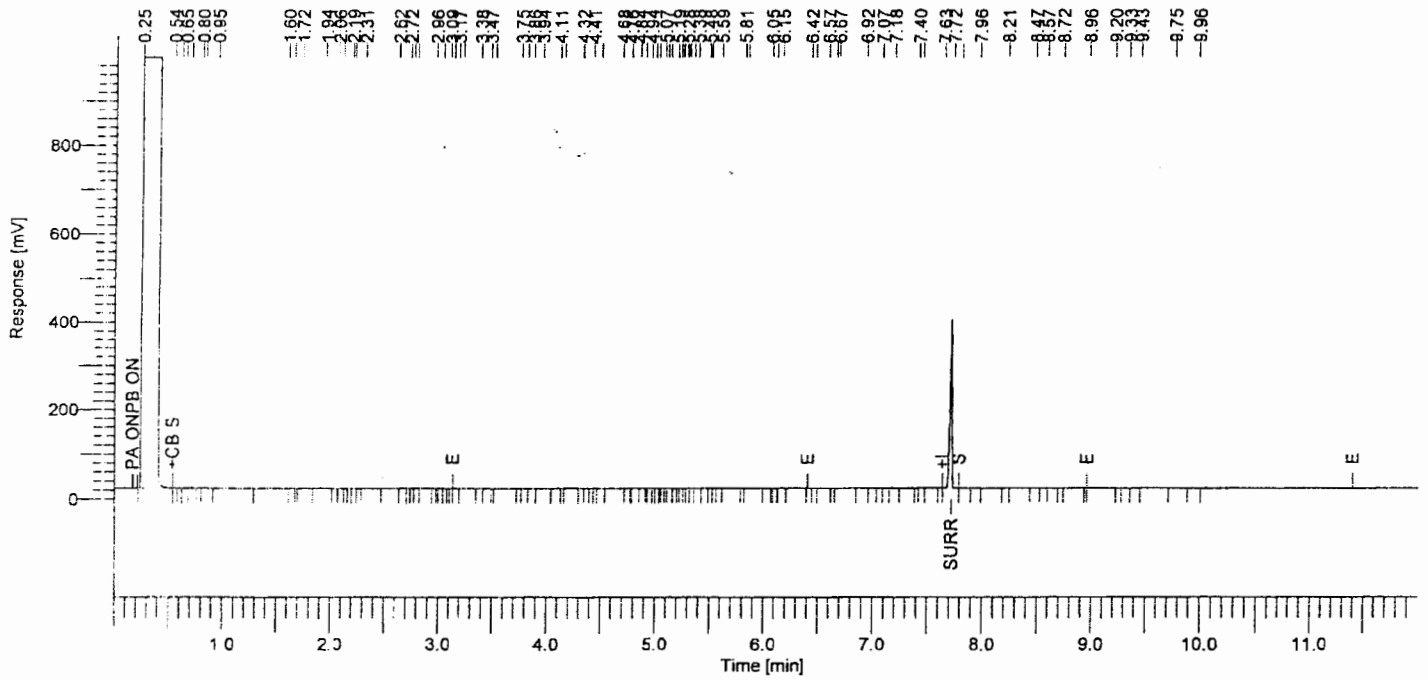
cp 6/25/07

Report stored in ASCII file: h:\data\gc12\20070622\F22a090.TX0

Software Version	: 6.2.1.0.106.0106	Date	: 6/25/2007 7:21:53 PM
Operator	: pesti	Sample Name	: IQF1901-06
Sample Number	: 7F22077	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/41
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 u	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/24/2007 6:16:55 AM	Cycle	: 40

Sample ID:
PTI-SMP04B-S-42.5

Raw Data File : H:\DATA\GC12\20070622\F22A091.raw <Modified>
Result File : H:\DATA\GC12\20070622\F22A091C.rst [Editing in Progress]
Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070622\F22A091.raw
Proc Method : H:\DATA\GC12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A091C.rst [Editing in Progress]
Calib Method : H:\DATA\GC12\C12AF01Q.mth from H:\DATA\GC12\20070622\F22A091C.rst [Editing in Progress]
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070622\F22.seq



7.9777 pp

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	49352.10	15.3557	0.5119		7.6778	
	7.025	C23-C28	15444.66	4.8055	0.1602		2.4028	
	8.375	C29-C32	4817.93	1.4991	0.0500		0.7495	
	10.181	C33-C40	5377.23	1.6731	0.0558		0.8365	
			74991.91	23.3334	0.7778	ND	11.6667	

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
76	7.722	SURR	542396.27	189.7170	6.3239		94.8585	
			542396.27	189.7170	6.3239		94.8585	

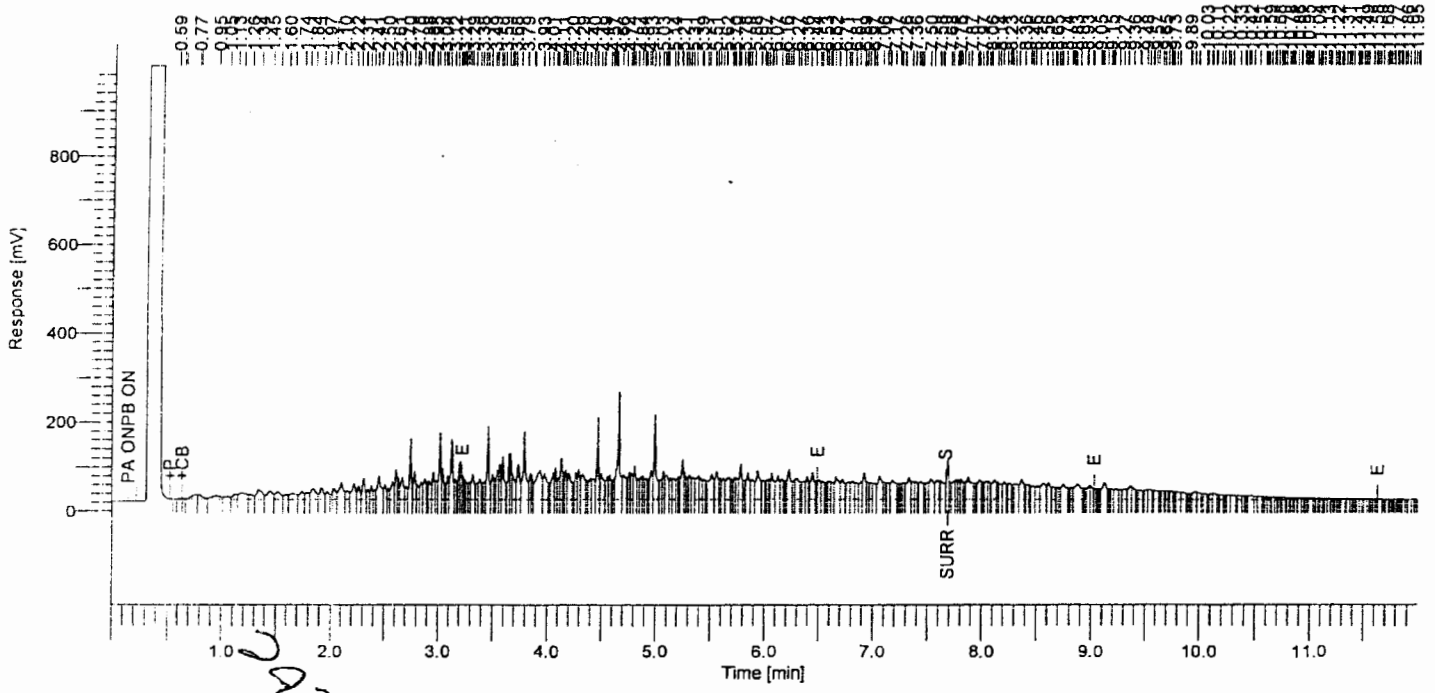
op 6/25/07

Report stored in ASCII file: H:\DATA\GC12\20070622\F22A091C.TX0

Software Version	: 6.2.1.0.106:0106	Date	: 6/28/2007 3:09:19 PM
Operator	: pesti	Sample Name	: IQF2213-01
Sample Number	: 7F25066	Study	: 4X/2ML/ HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/67
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 4.00
Data Acquisition Time	: 6/28/2007 12:50:50 PM	Cycle	: 2

Sample ID:
PTI-SMP-07-S-9.5

Raw Data File : H:\DATA\gc47\20070625\F25b067.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b067-20070628-150918.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b067.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b067-20070628-150918.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b067-20070628-150918.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



2437.0059

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	9996821.94	3582.6215	955.3657		14330.4860	
	7.074	C23-C28	2723535.77	976.0500	260.2800		3904.1999	
	8.358	C29-C32	2642674.88	947.0714	252.5524		3788.2855	
	10.325	C33-C40	1433925.23	513.8845	137.0359		2055.5378	
			16796957.83	6019.6273	1605.2339		24078.5092	

1600 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
202	7.682	SURR	118122.90	40.5410	10.8109		162.1641	
			118122.90	40.5410	10.8109		162.1641	

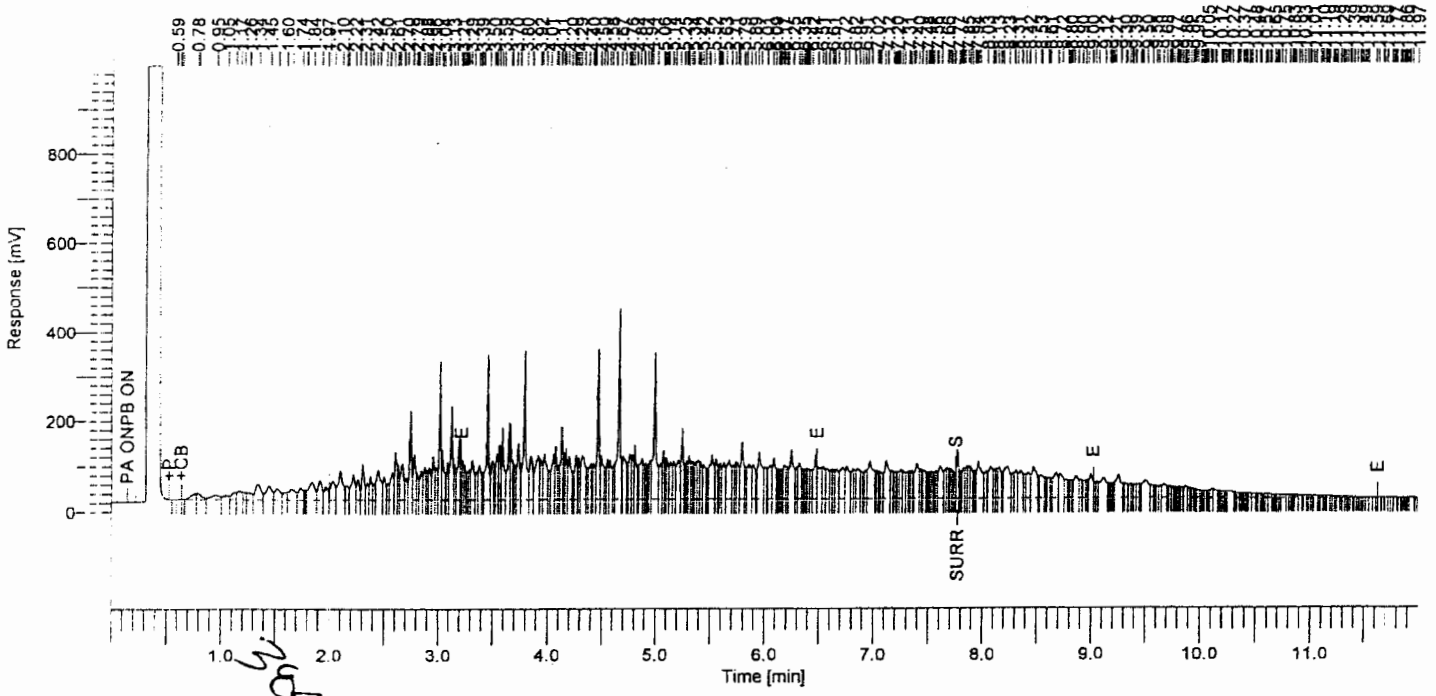
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b067-20070628-150918.TX0

UN 6-28-07
Surr dil out

Software Version	6.2.1.0.106:0106	Date	: 6/28/2007 3:08:07 PM
Operator	pesti	Sample Name	: IQF2213-02
Sample Number	7F25066	Study	: 5X/2ML/ HC 13-40
AutoSampler	HP7673A	Rack/Vial	: 1/66
Instrument Name	gc47	Channel	: B
Instrument Serial #	None	A/D mV Range	: 1024
Delay Time	0.00 min	End Time	: 12.00 min
Sampling Rate	20.0000 pts/s		
Sample Volume	1.000000 ul	Area Reject	: 0.000000
Sample Amount	1.0000	Dilution Factor	: 5.00
Data Acquisition Time	6/28/2007 12:31:28 PM	Cycle	: 2

Sample ID:
PTI-SMP-07-S-32.0

Raw Data File : H:\DATA\gc47\20070625\F25b066.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b066-20070628-150806.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b066.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b066-20070628-150806.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b066-20070628-150806.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



3847.1775

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	16110962.37	5773.7830	1924.5943		28868.9148	
	7.120	C23-C28	4576872.77	1640.2416	546.7472		8201.2078	
	8.402	C29-C32	3795085.63	1360.0678	453.3559		6800.3389	
	10.325	C33-C40	2363071.23	846.8681	282.2894		4234.3406	
			26845992.00	9620.9604	3206.9868		48104.8021	

3200ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
219	7.770	SURR	139392.57	47.8410	15.9470		239.2049	
			139392.57	47.8410	15.9470		239.2049	

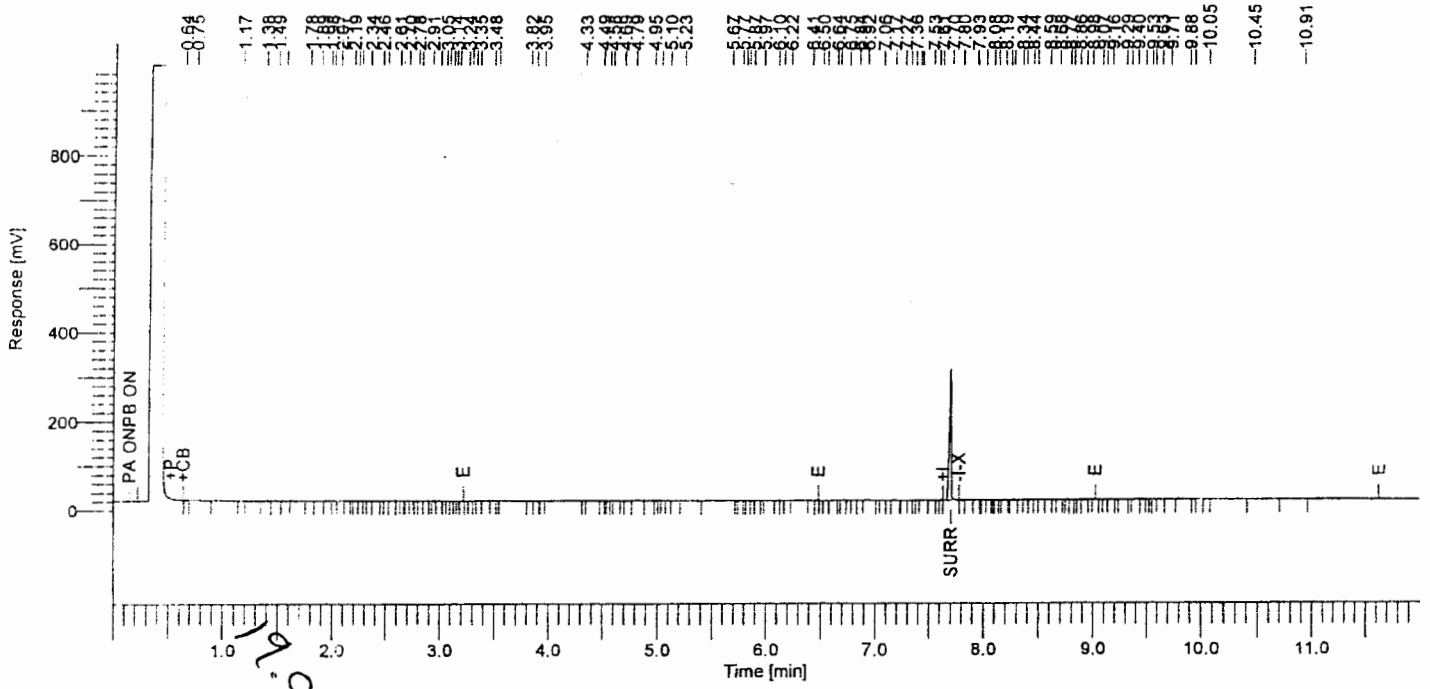
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b066-20070628-150806.TX0

ON 6-26-07
due to MI

Software Version	: 6.2.1.0.106 0106	Date	: 6/27/2007 1:37:22 PM
Operator	: pesti	Sample Name	: IQF2213-03
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/65
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 12:21:07 AM	Cycle	: 16

Sample ID:
PTI-SMP-07-S-34.0

Raw Data File : H:\DATA\gc47\20070625\F25b015.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b015-20070627-133720.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b015.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b015-20070627-133720.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b015-20070627-133720.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



19.0367

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	4550.12	1.6307	0.0544		0.8153	
	7.058	C23-C28	20463.63	7.3337	0.2445		3.6668	
	8.402	C29-C32	8684.06	3.1122	0.1037		1.5561	
	10.325	C33-C40	23971.50	8.5908	0.2864		4.2954	
			57669.30	20.6673	0.6889		10.3336	

ND

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
76	7.703	SURR	361337.47	124.0148	4.1338		62.0074	
			361337.47	124.0148	4.1338		62.0074	

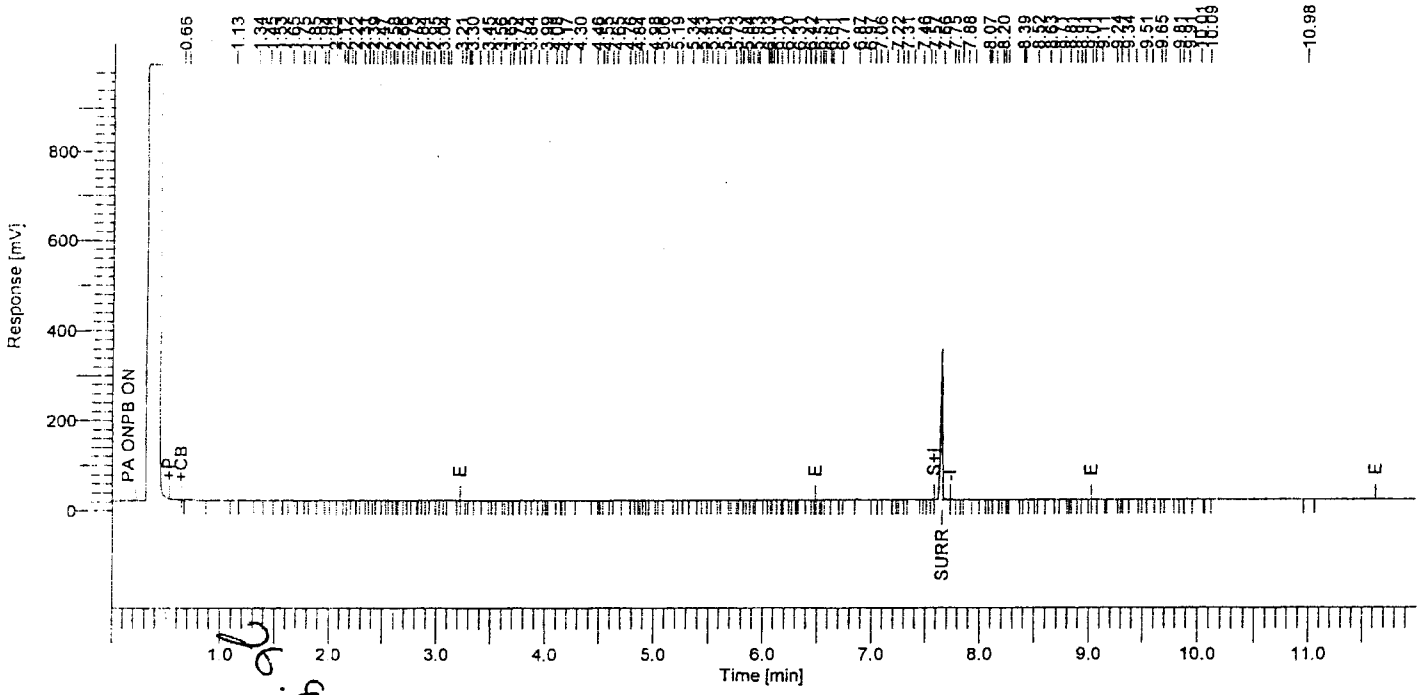
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b015-20070627-133720.TX0

VR 6-23-07

Software Version	: 6.2.1.0.106:0106	Date	: 6/29/2007 2:35:02 PM
Operator	: pesti	Sample Name	: IQF2213-04
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/96
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/29/2007 12:35:37 AM	Cycle	: 19

Sample ID:
PTI-SMP-07-S-43.0

Raw Data File : H:\DATA\gc47\20070625\F25b096.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b096-20070629-143501.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b096.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b096-20070629-143501.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b096-20070629-143501.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	29823.31	10.6880	0.3563		5.3440	
	7.033	C23-C28	40223.63	14.4152	0.4805		7.2076	
	8.377	C29-C32	14587.47	5.2278	0.1743		2.6139	
	10.325	C33-C40	20194.12	7.2371	0.2412		3.6185	
			104828.53	37.5680	1.2523		18.7840	

NO

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
115	7.655	SURR	448677.73	153.9909	5.1330		76.9954	
			448677.73	153.9909	5.1330		76.9954	

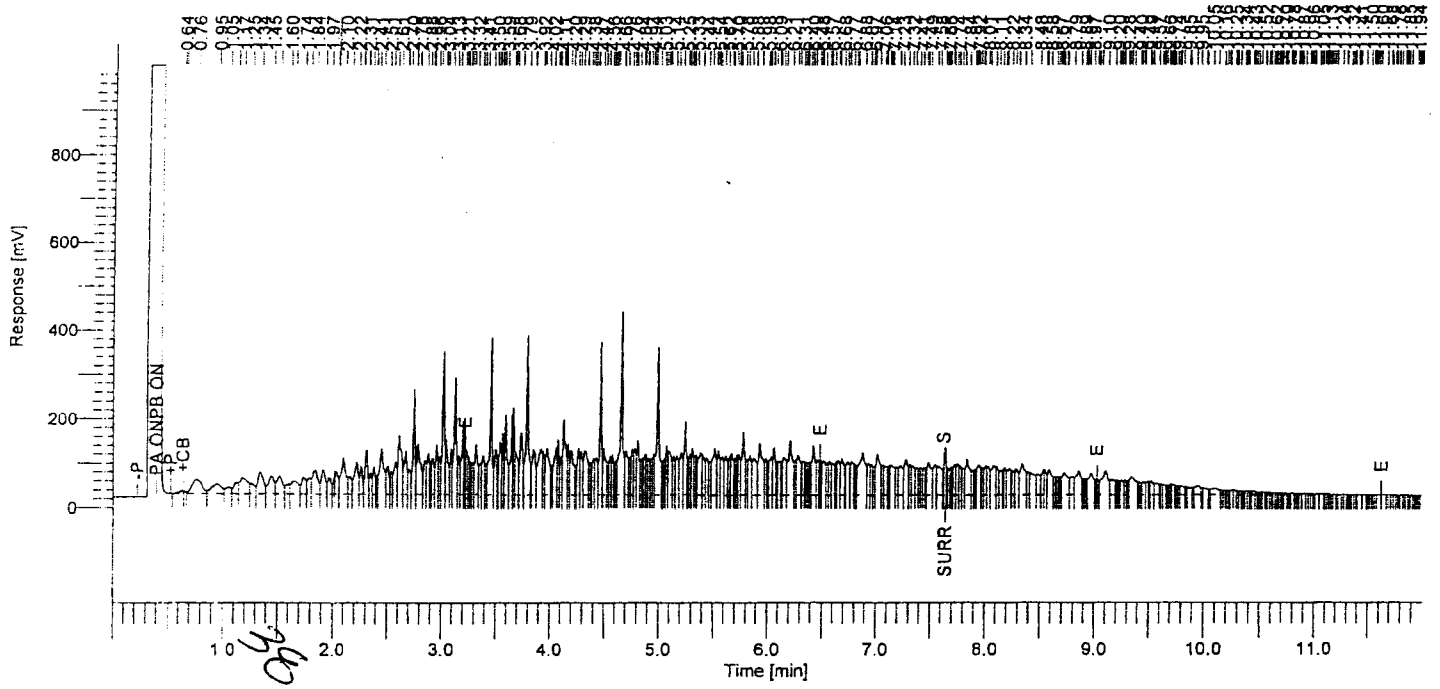
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b096-20070629-143501.TX0

Dr 6-29-07

Software Version	: 6.2.1.0 106:0106	Date	: 6/29/2007 2:22:30 PM
Operator	: pesti	Sample Name	: IQF2213-05
Sample Number	: 7F25066	Study	: 4X/2ML/ HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/80
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 4.00
Data Acquisition Time	: 6/28/2007 6:32:19 PM	Cycle	: 3

Sample ID:
PTI-SVE03B-S-12.0

Raw Data File : H:\DATA\gc47\20070625\F25b080.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b080-20070629-142227.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b080.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b080-20070629-142227.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b080-20070629-142227.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	17640231.68	6321.8365	1685.8231		25287.3458	
	7.056	C23-C28	4532484.03	1624.3337	433.1557		6497.3348	
	8.336	C29-C32	4114878.03	1474.6737	393.2463		5898.6948	
	10.325	C33-C40	2081588.11	745.9913	198.9310		2983.9652	
			28369181.85	10166.8352	2711.1560		40667.3407	

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
198	7.640	SURR	122802.27	42.1470	11.2392		168.5881	
			122802.27	42.1470	11.2392		168.5881	

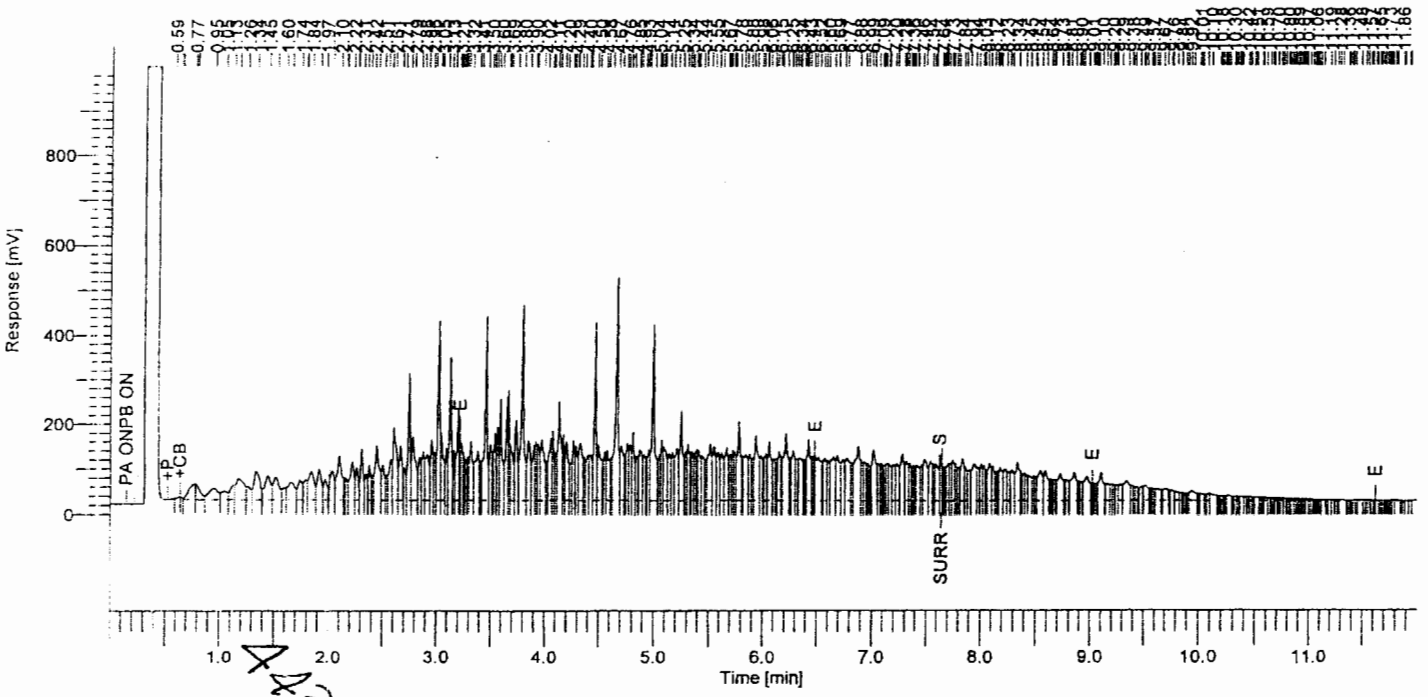
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b080-20070629-142227.TX0

06.29.07
sum dil out

Software Version	: 6.2.1.0 106:0106	Date	: 6/29/2007 2:22:50 PM
Operator	: pesti	Sample Name	: IQF2213-06
Sample Number	: 7F25066	Study	: 5X/5ML/HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/81
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 5.00
Data Acquisition Time	: 6/28/2007 6:51:46 PM	Cycle	: 4

Sample ID:
PTI-SVE03B-S-21.0

Raw Data File : H:\DATA\gc47\20070625\F25b081.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b081-20070629-142248.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b081.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b081-20070629-142248.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b081-20070629-142248.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



4421.9354

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	21889714.65	7844.7493	6537.2911		98059.3668	
	7.056	C23-C28	5420743.80	1942.6647	1618.8873		24283.3090	
	8.336	C29-C32	4811214.97	1724.2242	1436.8535		21552.8024	
	10.325	C33-C40	2134759.02	765.0465	637.5387		9563.0812	
			34256432.44	12276.6847	10230.5706		1.5346e+05	

10,000 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
194	7.641	SURR	117388.23	40.2889	33.5741		503.6108	
			117388.23	40.2889	33.5741		503.6108	

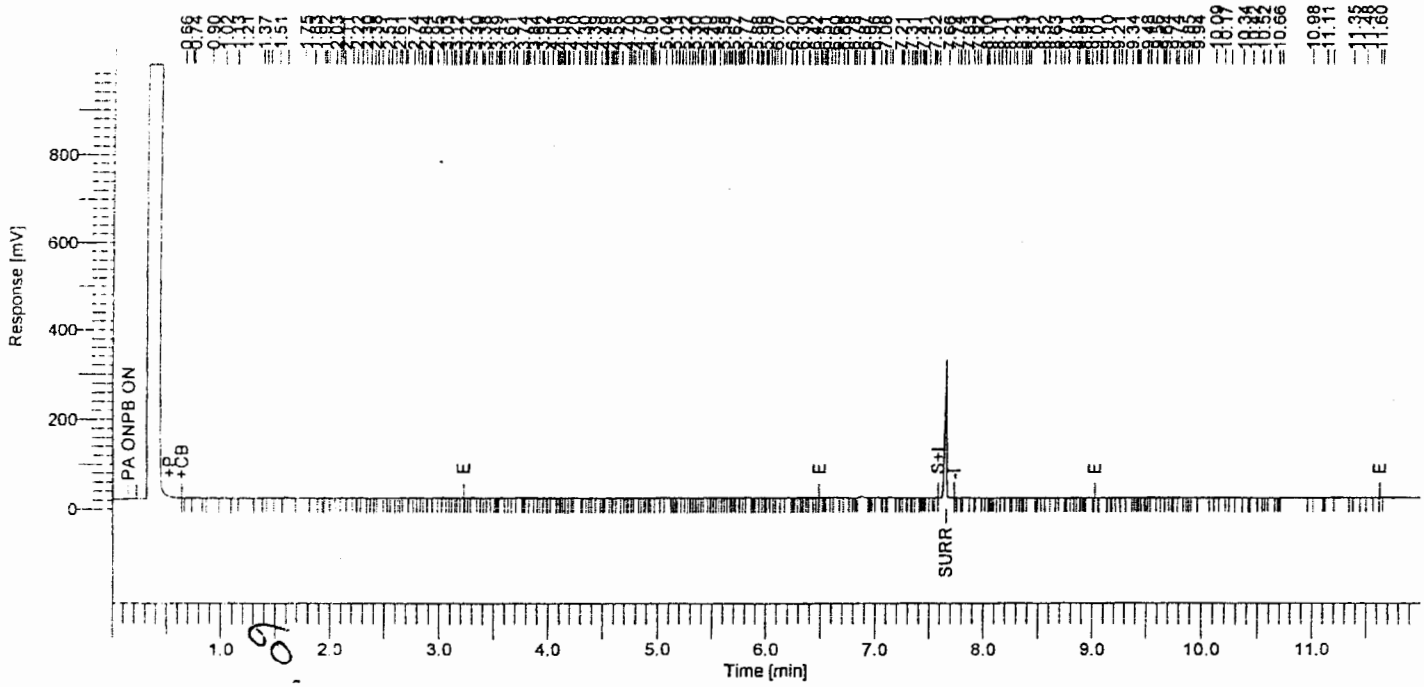
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b081-20070629-142248.TX0

OK 6-29-07
surr dil out

Software Version	: 6.2.1.0.106 0106	Date	: 6/29/2007 2:34:22 PM
Operator	: pesti	Sample Name	: IQF2213-07
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/93
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/28/2007 11:37:50 PM	Cycle	: 16

Sample ID:
PTI-SVE03B-S-35.0

Raw Data File : H:\DATA\gc47\20070625\F25b093.raw <Modified>
Result File H:\DATA\gc47\20070625\F25b093-20070629-143421.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b093.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b093-20070629-143421.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b093-20070629-143421.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	260411.07	93.3251	3.1108		46.6625	
	7.033	C23-C28	81146.40	29.0809	0.9694		14.5405	
	8.377	C29-C32	44972.86	16.1172	0.5372		8.0586	
	10.325	C33-C40	43186.80	15.4771	0.5159		7.7386	
			429717.13	154.0003	5.1333		77.0002	

5.1 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
198	7.657	SURR	418341.37	143.5791	4.7860		71.7896	
			418341.37	143.5791	4.7860		71.7896	

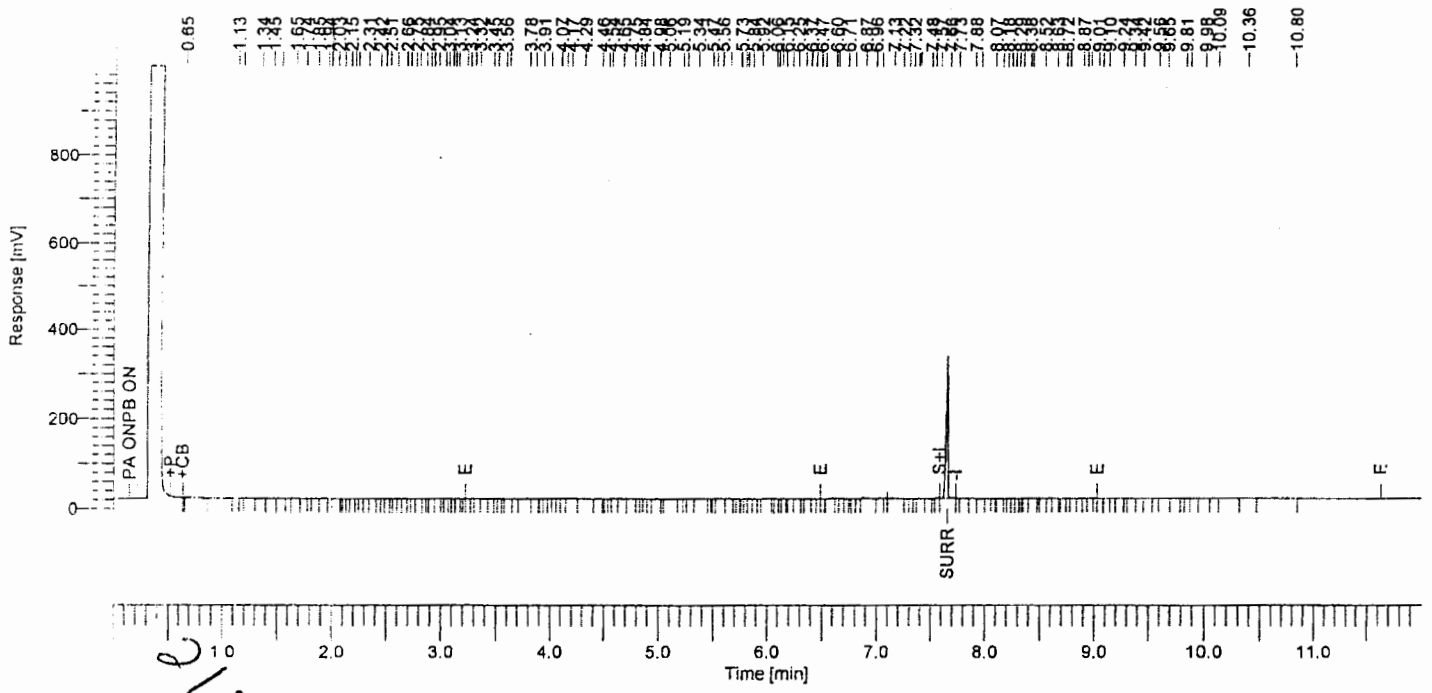
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b093-20070629-143421.TX0

DR 6-29-07

Software Version	: 6.2.1.0.106:0106	Date	: 6/29/2007 2:34:49 PM
Operator	: pesti	Sample Name	: IQF2213-08
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/95
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/29/2007 12:16:20 AM	Cycle	: 18

Sample ID:
PTI-SVE03B-S-45.0

Raw Data File : H:\DATA\gc47\20070625\F25b095.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b095-20070629-143448.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b095.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b095-20070629-143448.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b095-20070629-143448.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



21.802

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	22548.22	8.0807	0.2694		4.0404	
	7.033	C23-C28	33938.27	12.1609	0.4054		6.0804	
	8.377	C29-C32	18380.16	6.5870	0.2196		3.2935	
	10.325	C33-C40	8521.95	3.0541	0.1018		1.5270	
			83383.59	29.8827	0.9961		14.9413	

NO

Group Report For . SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
101	7.655	SURR	437915.89	150.2973	5.0099		75.1487	
			437915.89	150.2973	5.0099		75.1487	

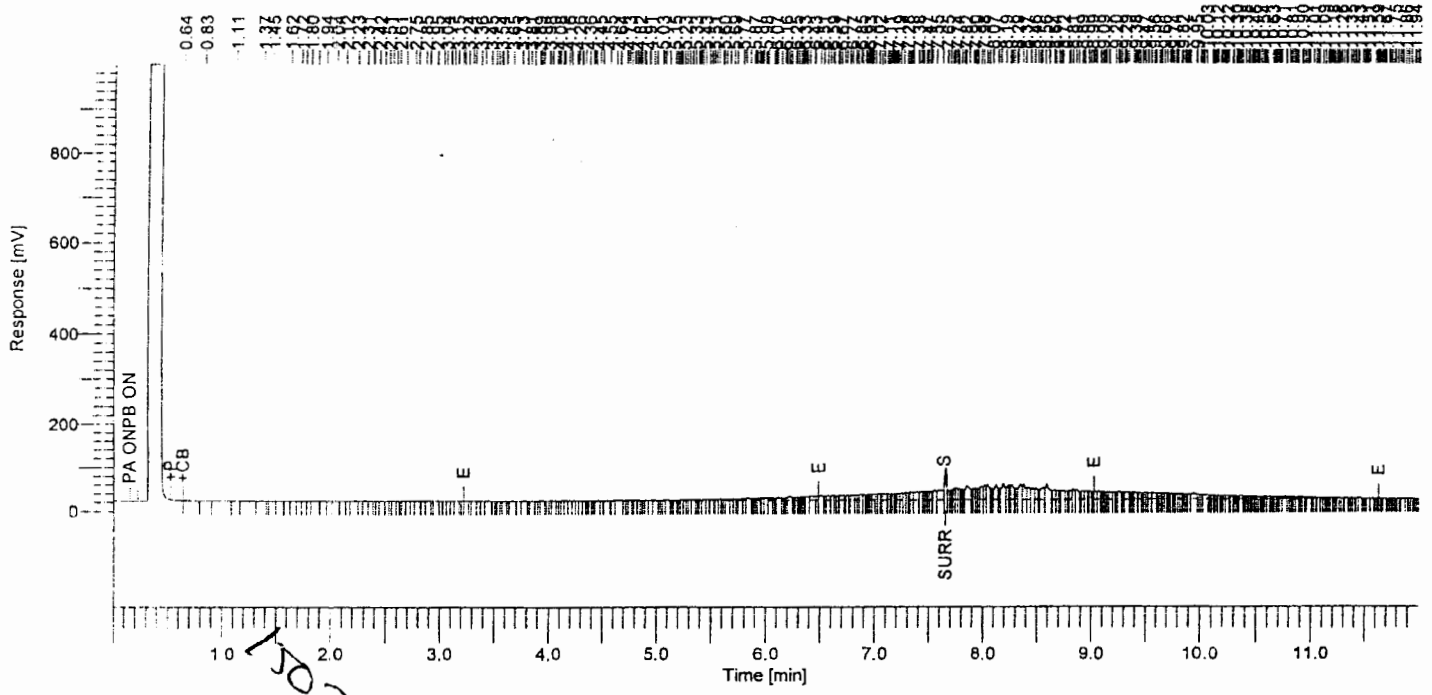
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b095-20070629-143448.TX0

OK 6-29-07

Software Version	6.2.1.0.106:0106	Date	6/29/2007 2:29:56 PM
Operator	pesti	Sample Name	IQF2213-09
Sample Number	7F25066	Study	5ML/5ML/HC 13-40
AutoSampler	HP7673A	Rack/Vial	1/91
Instrument Name	gc47	Channel	B
Instrument Serial #	None	A/D mV Range	1024
Delay Time	0.00 min	End Time	12.00 min
Sampling Rate	20.0000 pts/s		
Sample Volume	1.000000 ul	Area Reject	0.000000
Sample Amount	1.0000	Dilution Factor	1.00
Data Acquisition Time	6/28/2007 10:59:19 PM	Cycle	14

Sample ID:
PTI-SMP06-S-10.0

Raw Data File : H:\DATA\gc47\20070625\F25b091.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b091-20070629-142955.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b091.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b091-20070629-142955.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b091-20070629-142955.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



150306

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	427385.03	153.1646	25.5274		382.9114	
	7.061	C23-C28	974928.88	349.3912	58.2319		873.4779	
	8.345	C29-C32	1988555.32	712.6506	118.7751		1781.6265	
	10.325	C33-C40	1230660.35	441.0392	73.5065		1102.5980	
			4621529.57	1656.2455	276.0409		4140.6137	

280 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
196	7.652	SURR	86012.97	29.5206	4.9201		73.8014	
			86012.97	29.5206	4.9201		73.8014	

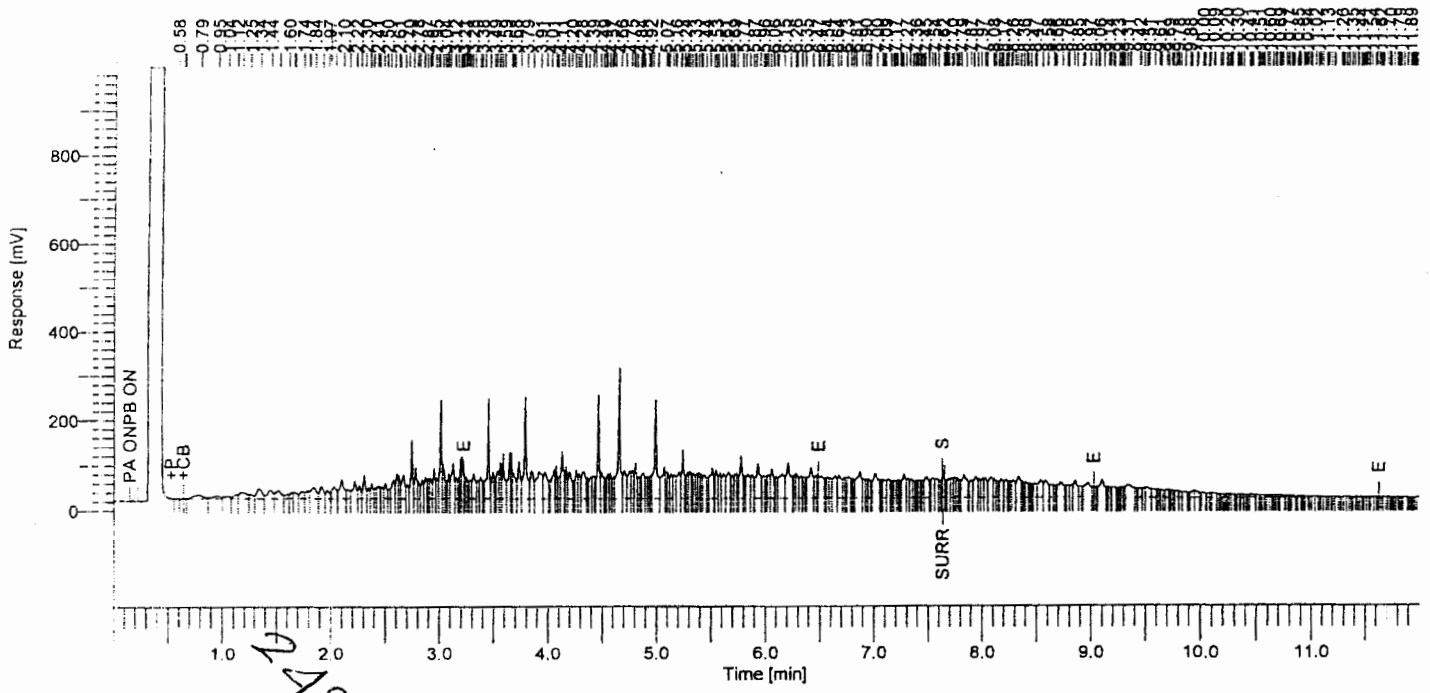
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b091-20070629-142955.TX0

OR 6-29-30

Software Version	: 6.2.1.0.105:0106	Date	: 6/29/2007 2:23:08 PM
Operator	: pesti	Sample Name	: IQF2213-10
Sample Number	: 7F25066	Study	: 10X/2ML/ HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/83
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 10.00
Data Acquisition Time	: 6/28/2007 7:30:34 PM	Cycle	: 6

Sample ID:
PTI-SMP06-S-23.0

Raw Data File : H:\DATA\gc47\20070625\F25b083.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b083-20070629-142306.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b083.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b083-20070629-142306.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b083-20070629-142306.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



12 467.0576

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	10533389.99	3774.9146	2516.6098		37749.1464	
	7.056	C23-C28	2768591.74	992.1970	661.4646		9921.9696	
	8.336	C29-C32	2777708.40	995.4641	663.6428		9954.6415	
	10.325	C33-C40	1393481.86	499.3905	332.9270		4993.9052	
			17473172.00	6261.9663	4174.6442		62619.6626	

4200 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
203	7.632	SURR	71081.88	24.3960	16.2640		243.9604	
			71081.88	24.3960	16.2640		243.9604	

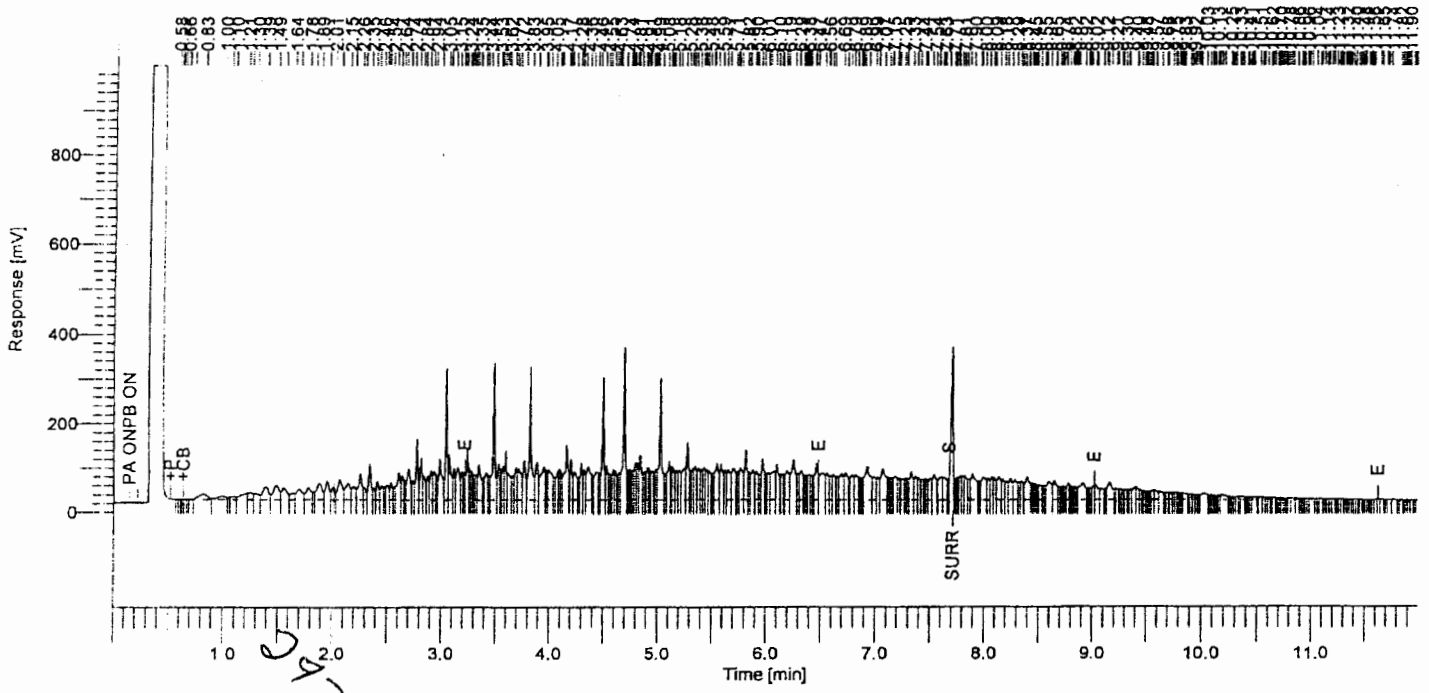
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b083-20070629-142306.TX0

DR 6-29-07
surrdil art

Software Version	: 6.2.1.0.106:0106	Date	: 6/27/2007 1:39:31 PM
Operator	: pesti	Sample Name	: IQF2213-11
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/60
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/25/2007 10:44:54 PM	Cycle	: 11

Sample ID:
PTI-SMP06-S-32.0

Raw Data File : H:\DATA\gc47\20070625\F25b010.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b010-20070627-133929.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b010.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b010-20070627-133929.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b010-20070627-133929.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



9430.0898

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	13393596.97	4799.9443	159.9981		2399.9722	
	7.083	C23-C28	3497631.19	1253.4672	41.7822		626.7336	
	8.373	C29-C32	3038466.03	1088.9134	36.2971		544.4567	
	10.325	C33-C40	1641597.37	588.3092	19.6103		294.1546	
			21571291.57	7730.6341	257.6878		3865.3171	

260 pm

Group Report For . SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
205	7.714	SURR	470188.51	161.3736	5.3791		80.6868	
			470188.51	161.3736	5.3791		80.6868	

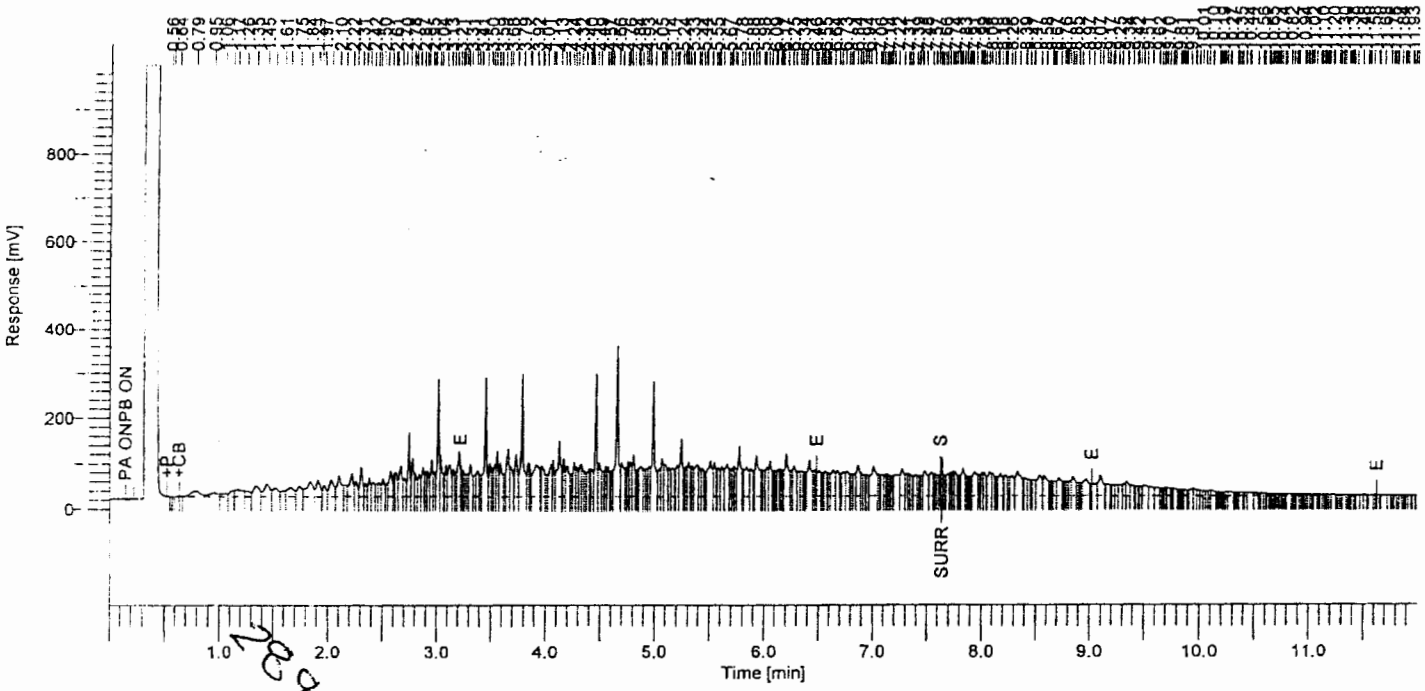
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b010-20070627-133929.TX0

06-27-07

Software Version	6.2.1.0.106:0106	Date	: 6/29/2007 2:23:35 PM
Operator	pesti	Sample Name	: IQF2213-12
Sample Number	7F25066	Study	: 5X/2ML/HC 13-40
AutoSampler	HP7673A	Rack/Vial	: 1/84
Instrument Name	gc47	Channel	: B
Instrument Serial #	None	A/D mV Range	: 1024
Delay Time	0.00 min	End Time	: 12.00 min
Sampling Rate	20.0000 pts/s		
Sample Volume	1.000000 ul	Area Reject	: 0.000000
Sample Amount	1.0000	Dilution Factor	: 5.00
Data Acquisition Time	6/28/2007 7:49:45 PM	Cycle	: 7

Sample ID:
PTI-SMP06-S-13.0

Raw Data File : H:\DATA\gc47\20070625\F25b084.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b084-20070629-142332.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b084.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b084-20070629-142332.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b084-20070629-142332.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



2893.43

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	12693046.16	4548.8837	1516.2946		22744.4184	
	7.056	C23-C28	3291587.24	1179.6260	393.2087		5898.1301	
	8.336	C29-C32	3234506.57	1159.1697	386.3899		5795.8484	
	10.325	C33-C40	1547632.24	554.6343	184.8781		2773.1716	
			20766772.22	7442.3137	2480.7712		37211.5684	

2500 ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
211	7.638	SURR	77668.27	26.6566	8.8855		133.2828	
			77668.27	26.6566	8.8855		133.2828	

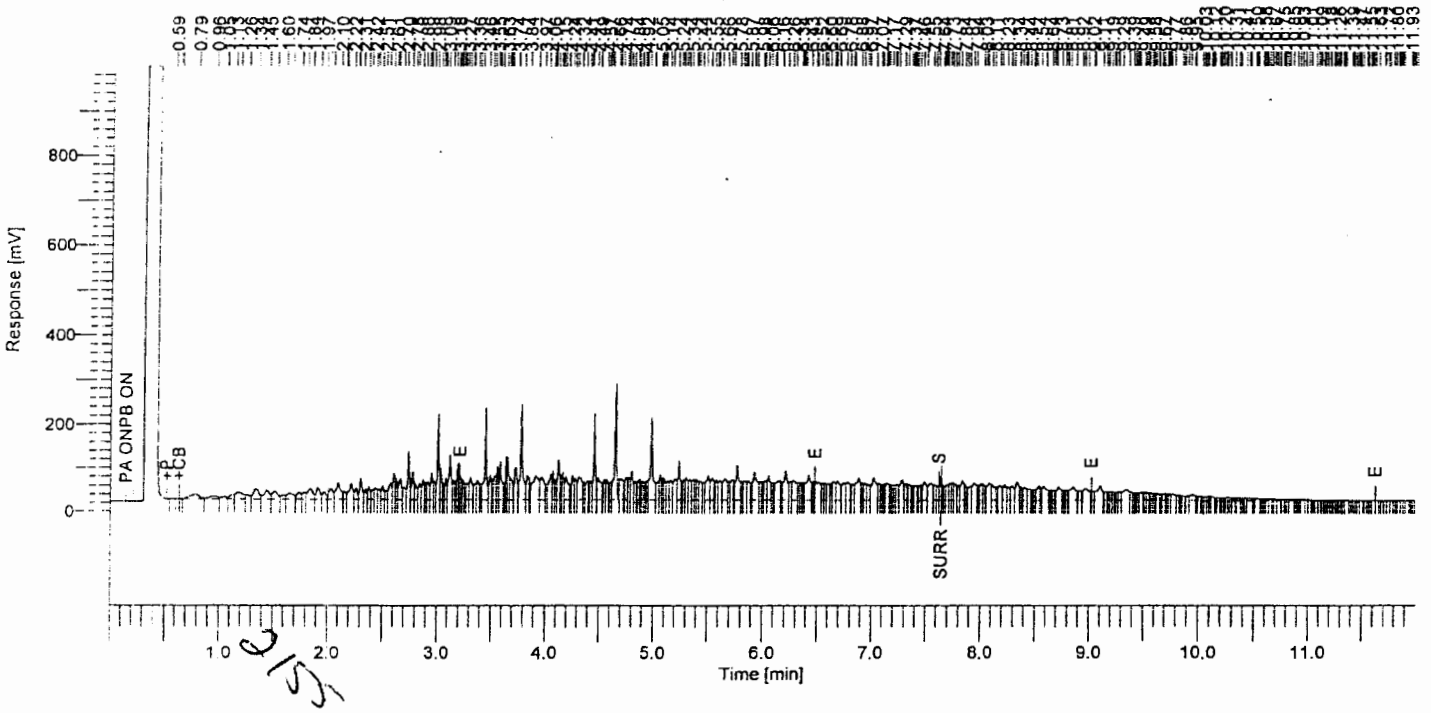
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b084-20070629-142332.TX0

Orig 29-07
Sum dil out

Software Version	6.2.1.0.106:0106	Date	: 6/29/2007 2:24:00 PM
Operator	pesti	Sample Name	: IQF2213-13
Sample Number	7F25066	Study	: 10X/2ML/HC 13-40
AutoSampler	HP7673A	Rack/Vial	: 1/90
Instrument Name	gc47	Channel	: B
Instrument Serial #	None	A/D mV Range	: 1024
Delay Time	0.00 min	End Time	: 12.00 min
Sampling Rate	20.0000 pts/s		
Sample Volume	1.000000 ul	Area Reject	: 0.000000
Sample Amount	1.0000	Dilution Factor	: 10.00
Data Acquisition Time	6/28/2007 10:39:55 PM	Cycle	: 13

Sample ID:
PTI-SMP06-S-26.0

Raw Data File : H:\DATA\gc47\20070625\F25b090.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b090-20070629-142359.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b090.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b090-20070629-142359.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b090-20070629-142359.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	9257167.79	3317.5472	2211.6981		33175.4717	
	7.056	C23-C28	2462145.14	882.3738	588.2492		8823.7384	
	8.336	C29-C32	2320465.70	831.5993	554.3995		8315.9932	
	10.325	C33-C40	1232213.15	441.5957	294.3971		4415.9568	
			15271991.79	5473.1160	3648.7440		54731.1600	

3600ppm

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
206	7.644	SURR	62077.31	21.3056	14.2037		213.0558	
			62077.31	21.3056	14.2037		213.0558	

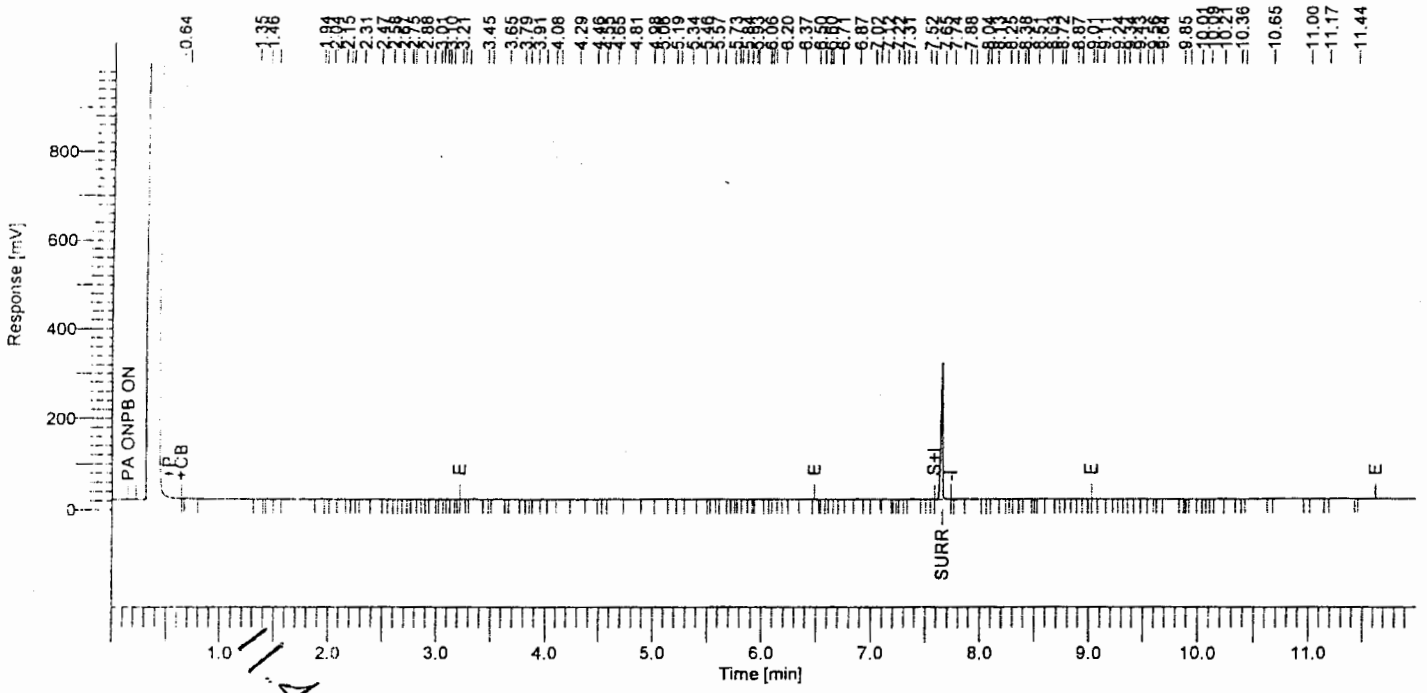
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b090-20070629-142359.TX0

JR 6.29.07
surrdil out

Software Version	: 6.2.1.0.106:0106	Date	: 6/29/2007 2:34:36 PM
Operator	: pesti	Sample Name	: IQF2213-14
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/94
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/28/2007 11:56:59 PM	Cycle	: 17

Sample ID:
PTI-SMP06-S-41.0

Raw Data File : H:\DATA\gc47\20070625\F25b094.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b094-20070629-143435.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b094.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b094-20070629-143435.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b094-20070629-143435.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



11.4469

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	16366.77	5.8655	0.1955		2.9327	
	7.033	C23-C28	14954.90	5.3595	0.1786		2.6797	
	8.377	C29-C32	11321.77	4.0575	0.1352		2.0287	
	10.325	C33-C40	5669.71	2.0319	0.0677		1.0159	
			48313.15	17.3143	0.5771		8.6571	

NO

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
77	7.653	SURR	388164.09	133.2220	4.4407		66.6110	
			388164.09	133.2220	4.4407		66.6110	

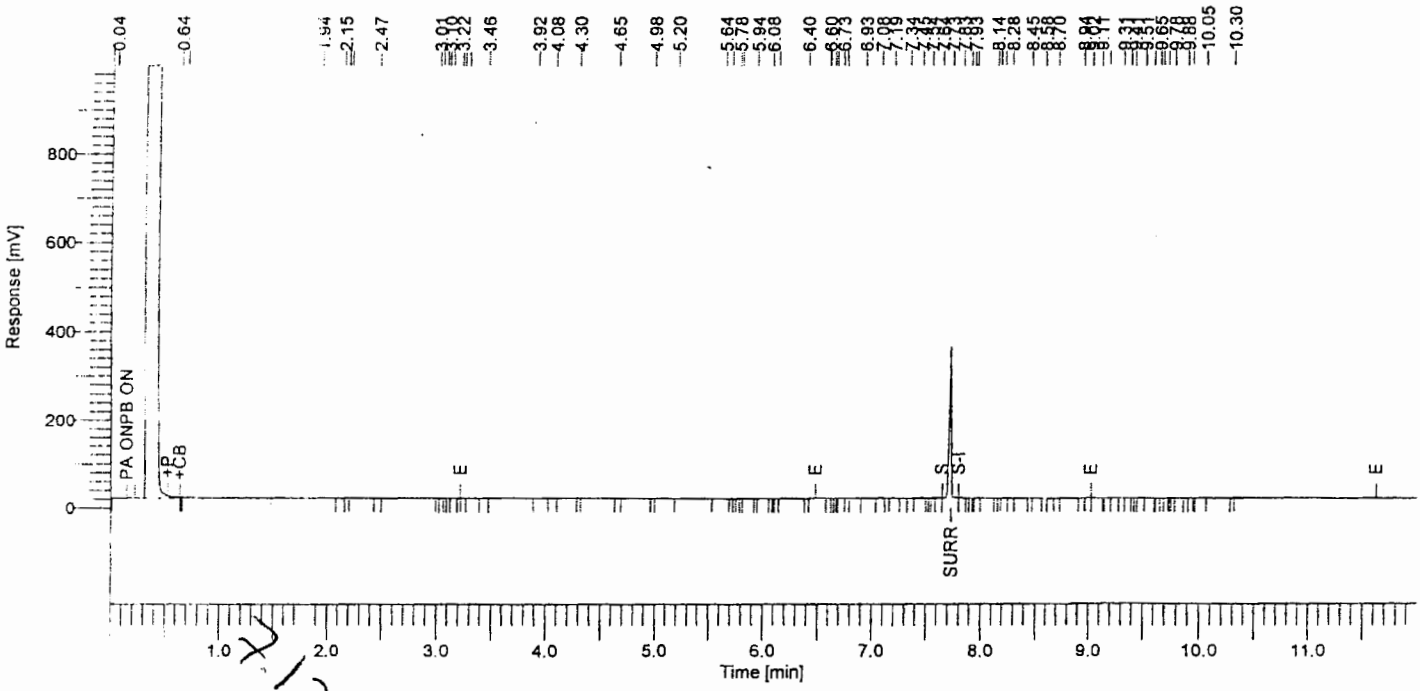
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b094-20070629-143435.TX0

OK 6-29-07

Software Version	6.2.1.0.106:0106	Date	: 6/29/2007 2:32:43 PM
Operator	pesti	Sample Name	: IQF2158-10
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	HP7673A	Rack/Vial	: 1/86
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/28/2007 9:23:02 PM	Cycle	: 9

Sample ID:
PTI-SMP01B-S-43.0

Raw Data File : H:\DATA\gc47\20070625\F25b086.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b086-20070629-143241.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b086.raw
Proc Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b086-20070629-143241.rst [Editing in Progress]
Calib Method : h:\data\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b086-20070629-143241.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



7132

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	11870.06	4.2539	0.1418		2.1270	
	7.067	C23-C28	9878.94	3.5404	0.1180		1.7702	
	8.412	C29-C32	7207.96	2.5832	0.0861		1.2916	
	10.325	C33-C40	2808.73	1.0066	0.0336		0.5033	
			31765.69	11.3841	0.3795		5.6920	

ND

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
44	7.731	SURR	444997.56	152.7278	5.0909		76.3639	
			444997.56	152.7278	5.0909		76.3639	

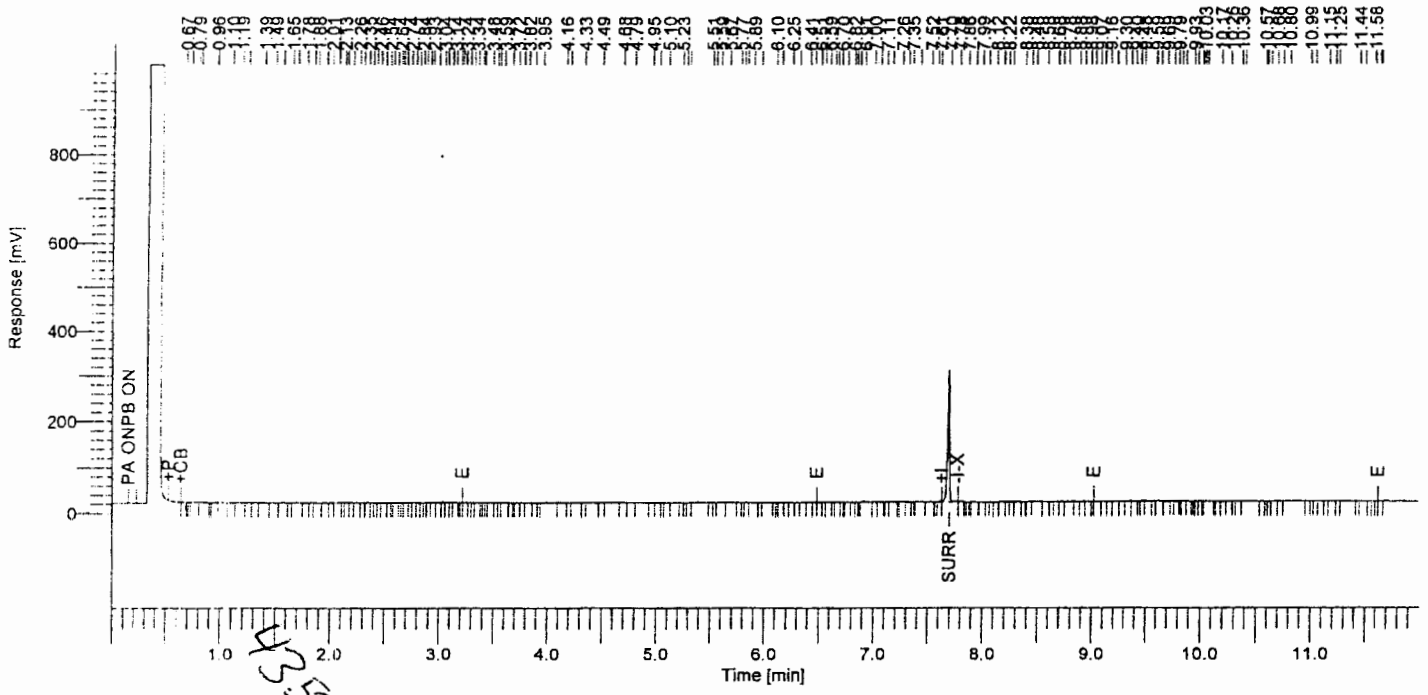
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b086-20070629-143241.TX0

06-29-07

Software Version	: 6.2.1.0.106 0106	Date	: 6/27/2007 1:37:35 PM
Operator	: pesti	Sample Name	: IQF2158-11
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/73
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 u	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 2:55:07 AM	Cycle	: 24

Sample ID:
PTI-SMP05B-S-10.5

Raw Data File : H:\DATA\gc47\20070625\F25b023.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25b023-20070627-133734.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b023.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b023-20070627-133734.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25b023-20070627-133734.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



35273

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	20552.05	7.3654	0.2455		3.6827	
	7.058	C23-C28	28203.03	10.1073	0.3369		5.0536	
	8.402	C29-C32	19635.39	7.0369	0.2346		3.5184	
	10.325	C33-C40	73618.55	26.3831	0.8794		13.1916	
			142009.01	50.8926	1.6964		25.4463	

NO

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
116	7.699	SURR	364220.64	125.0043	4.1668		62.5022	
			364220.64	125.0043	4.1668		62.5022	

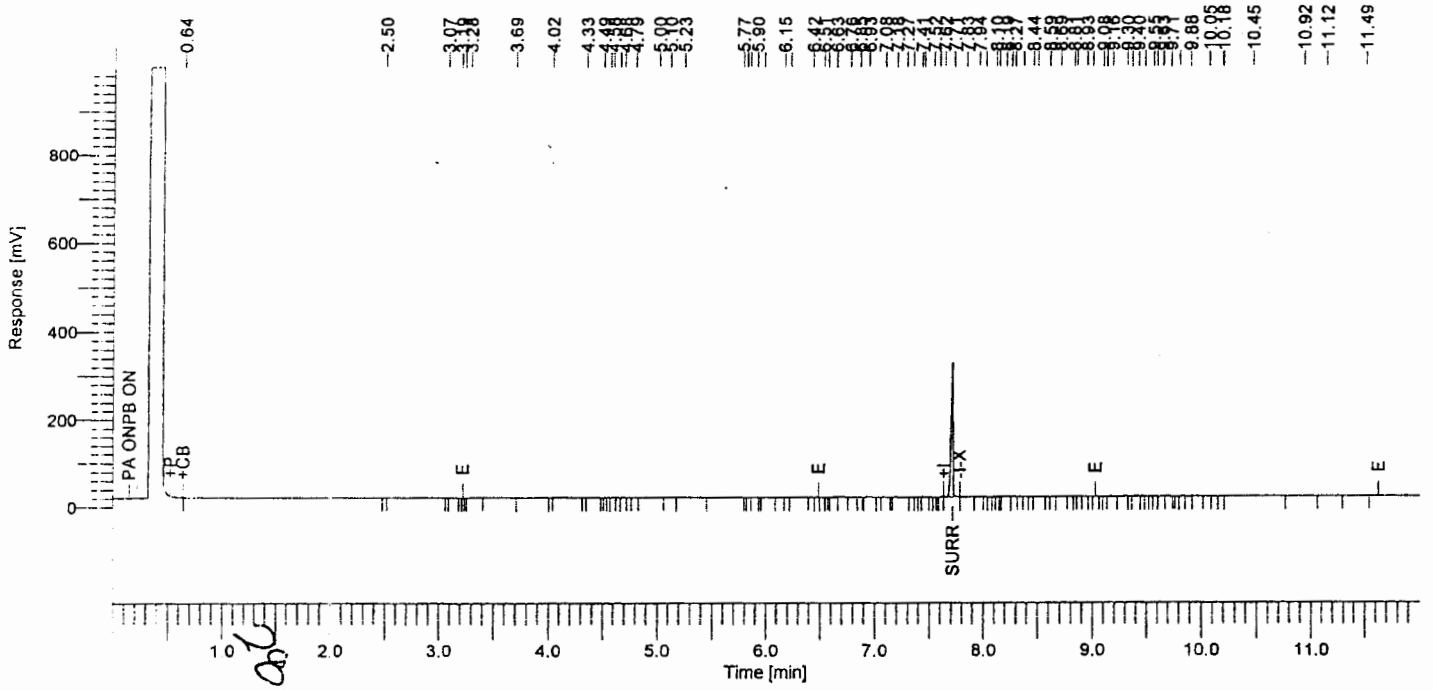
Report stored in ASCII file: H:\DATA\gc47\20070625\F25b023-20070627-133734.TX0

JKO 6.27.07

Software Version	6.2.1.0.106:0106	Date	: 6/27/2007 1:36:43 PM
Operator	pesti	Sample Name	: IQF2158-12
Sample Number	7F25066	Study	: DIESEL/ HC 13-40
AutoSampler	HP7673A	Rack/Vial	: 1/59
Instrument Name	gc47	Channel	: B
Instrument Serial #	None	A/D mV Range	: 1024
Delay Time	0.00 min	End Time	: 12.00 min
Sampling Rate	20.0000 pts/s		
Sample Volume	1.000000 ul	Area Reject	: 0.000000
Sample Amount	1.0000	Dilution Factor	: 1.00
Data Acquisition Time	6/25/2007 10:25:41 PM	Cycle	: 10

Sample ID:
PTI-SMP05B-S-29.0

Raw Data File : H:\DATA\gc47\20070625\F25b009.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25B009C.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b009.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25B009C.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25B009C.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



0.235

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	5835.16	2.0912	0.0697		1.0456	
	7.058	C23-C28	20487.42	7.3422	0.2447		3.6711	
	8.402	C29-C32	13864.61	4.9687	0.1656		2.4844	
	10.325	C33-C40	44429.80	15.9226	0.5308		7.9613	
			84616.99	30.3247	1.0108		15.1624	

NO

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
42	7.712	SURR	398960.61	136.9275	4.5642		68.4637	
			398960.61	136.9275	4.5642		68.4637	

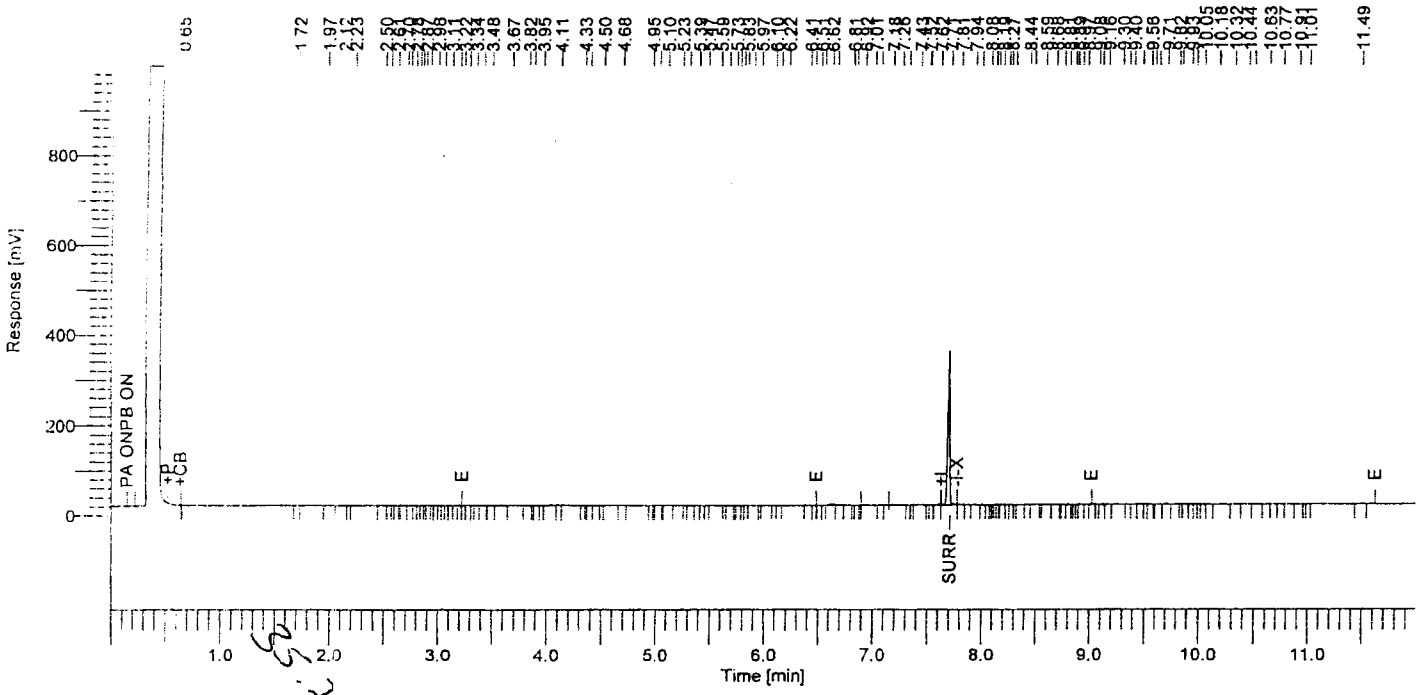
Report stored in ASCII file: H:\DATA\gc47\20070625\F25B009C.TX0

U2 6-27-07

Software Version	: 6.2.1.0.106:0106	Date	: 6/27/2007 1:37:07 PM
Operator	: pesti	Sample Name	: IQF2158-13
Sample Number	: 7F25066	Study	: HC 13-40
AutoSampler	: HP7673A	Rack/Vial	: 1/62
Instrument Name	: gc47	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/25/2007 11:23:30 PM	Cycle	: 13

Sample ID:
PTI-SMP05B-S-43.0

Raw Data File : H:\DATA\gc47\20070625\F25b012.raw <Modified>
Result File : H:\DATA\gc47\20070625\F25B012C.rst [Editing in Progress]
Inst Method : h:\data\gc47\diesel47 from H:\DATA\gc47\20070625\F25b012.raw
Proc Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25B012C.rst [Editing in Progress]
Calib Method : H:\DATA\gc47\C47BD18Q.mth from H:\DATA\gc47\20070625\F25B012C.rst [Editing in Progress]
Report Format File: h:\data\gc47\C47BD18Q.rpt
Sequence File : H:\DATA\gc47\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.852	C13-C22	10279.79	3.6840	0.1228		1.8420	
	7.058	C23-C28	33796.18	12.1117	0.4037		6.0559	
	8.402	C29-C32	13572.76	4.8642	0.1621		2.4321	
	10.325	C33-C40	52379.79	18.7717	0.6257		9.3858	
			110028.52	39.4316	1.3144		19.7158	

NO

Group Report For : SURROGATE

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
70	7.709	SURR	445449.93	152.8831	5.0961		76.4415	
			445449.93	152.8831	5.0961		76.4415	

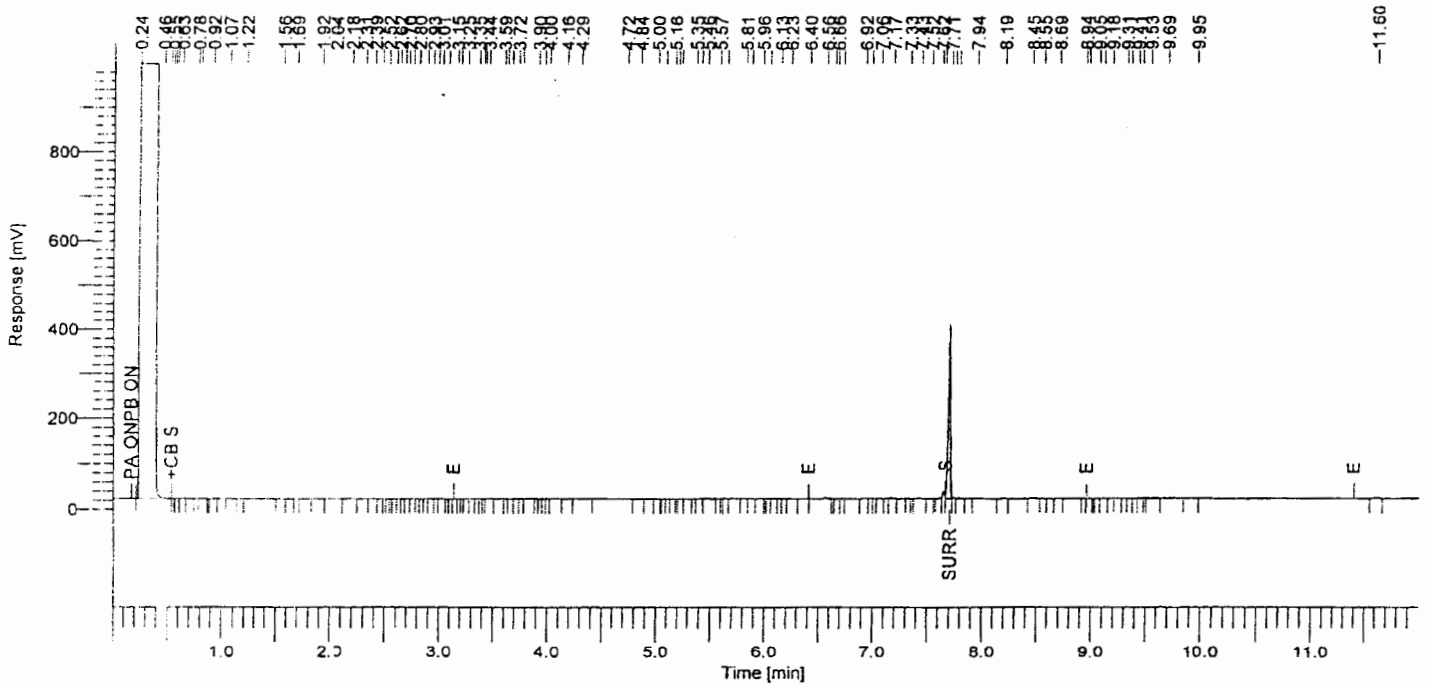
Report stored in ASCII file: H:\DATA\gc47\20070625\F25B012C.TX0

CN 6-27-07

Software Version	: 6.2.1.0 106:0106	Date	: 6/26/2007 11:13:45 AM
Operator	: pesti	Sample Name	: IQF2158-04
Sample Number	: 7F25095	Study	: DIESEL/HC13-40/HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/50
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/25/2007 11:42:14 PM	Cycle	: 7

Sample ID:
PTI-SMP03B-S-14.0

Raw Data File : H:\DATA\GC12\20070625\F25a050.raw <Modified>
Result File : H:\DATA\GC12\20070625\F25a050-20070626-111342.rst [Editing in Progress]
Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070625\F25a050.raw
Proc Method : H:\DATA\GC12\C12AF01Q.mth from H:\DATA\GC12\20070625\F25a050-20070626-111342.rst [Editing in Progress]
Calib Method : H:\DATA\GC12\C12AF01Q.mth from H:\DATA\GC12\20070625\F25a050-20070626-111342.rst [Editing in Progress]
Report Format File: h:\data\gc12\D12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	84140.94	26.1800	0.8727		13.0900	
	7.039	C23-C28	67966.96	21.1476	0.7049		10.5738	
	8.343	C29-C32	28459.74	8.8551	0.2952		4.4276	
	10.181	C33-C40	8925.40	2.7771	0.0926		1.3885	
			189493.05	58.9598	1.9653		29.4799	

30.0629 30.7798 NM CK 6/26/07

Software Version	: 6.2.1.0.106:0106	Date	: 6/26/2007 11:03:05 AM
Operator	: pesti	Sample Name	: IQF2158-05
Sample Number	: 7F25095	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/1
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 12:02:06 AM	Cycle	: 8

Sample ID:
PTI-SMP03B-S-24.0

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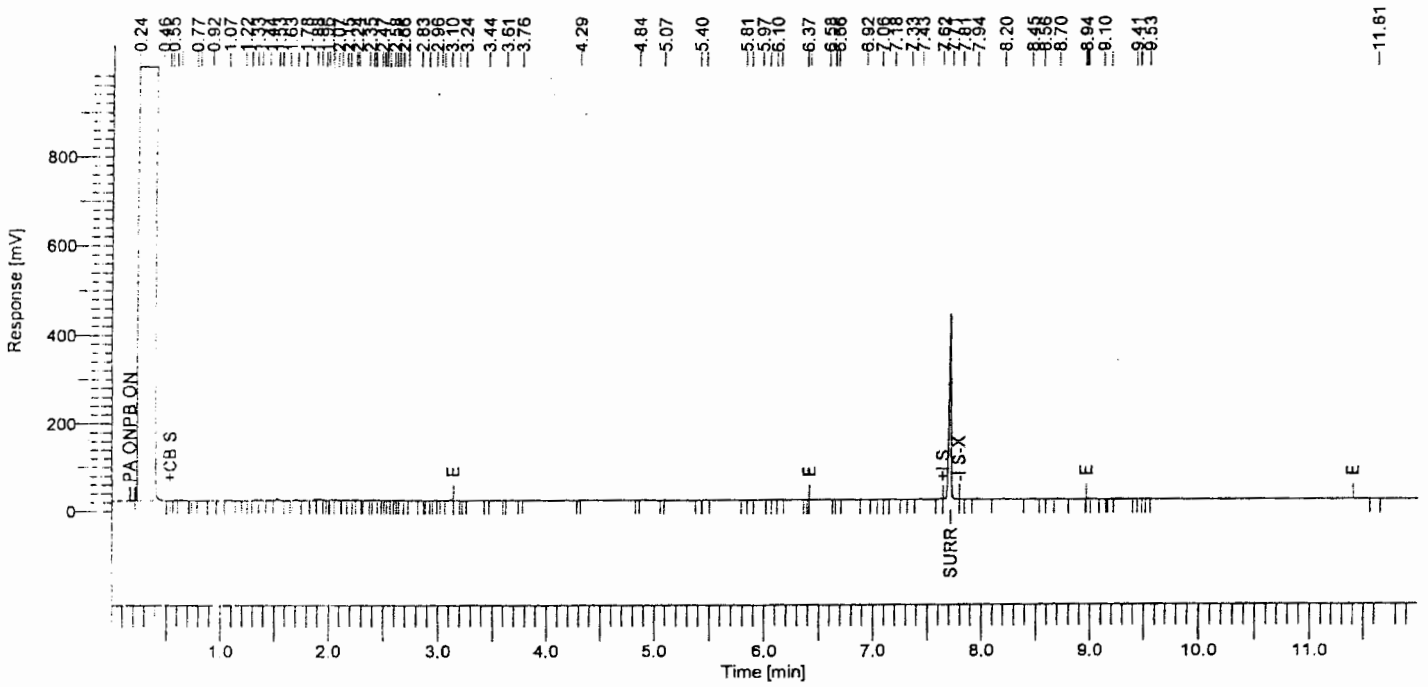

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	10362.11	3.2241	0.1075		1.6121	
	7.025	C23-C28	33065.53	10.2882	0.3429		5.1441	
	8.375	C29-C32	17979.68	5.5943	0.1865		2.7971	
	10.181	C33-C40	2971.65	0.9246	0.0308		0.4623	
			64378.97	20.0312	0.6677		10.0156	

16.807

NP

6/26/

Software Version	: 6.2.1 0.106:0106	Date	: 6/26/2007 11:14:22 AM
Operator	: pesti	Sample Name	: IQF2158-06
Sample Number	: 7F25095	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/2
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 12:21:53 AM	Cycle	: 9

Sample ID:
PTI-SMP03B-S-43.0

Raw Data File : H:\DATA\GC12\20070625\F25a052.raw <Modified>
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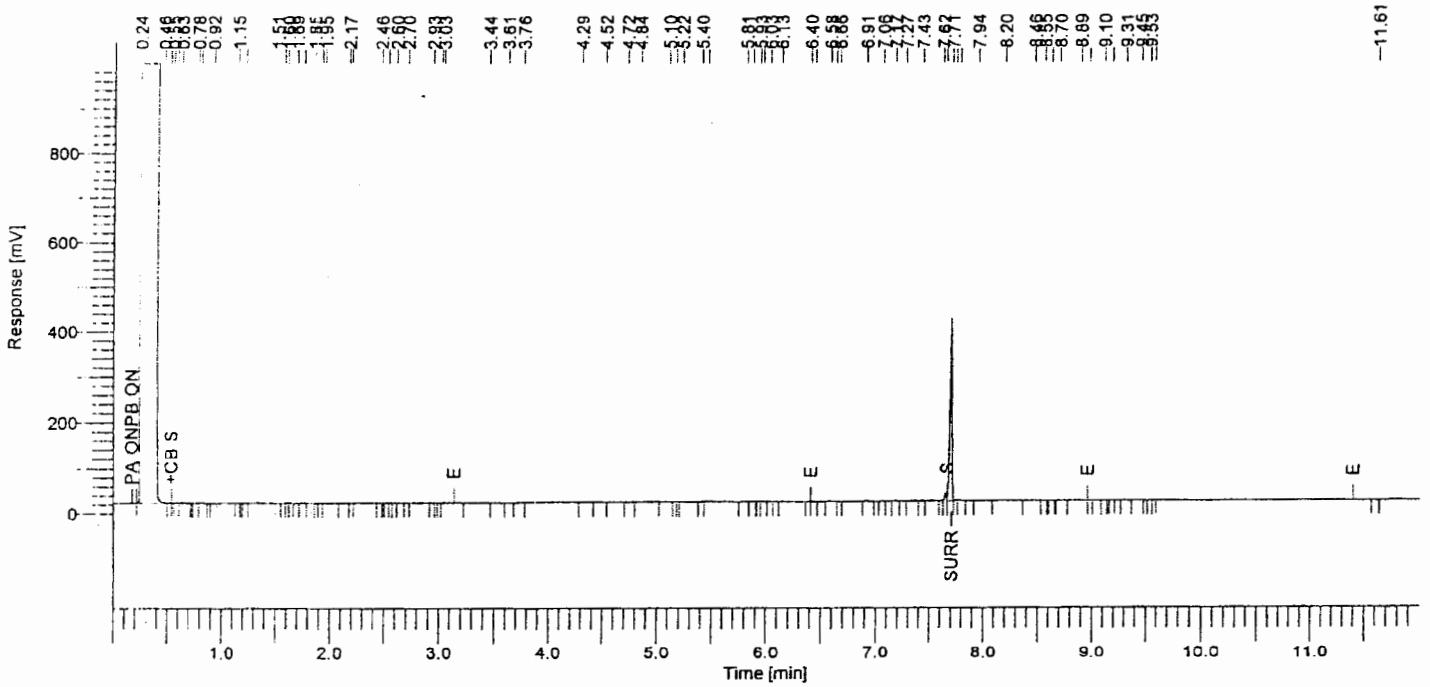

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	47814.98	14.8774	0.4959		7.4387	
	7.039	C23-C28	40779.41	12.6883	0.4229		6.3442	
	8.343	C29-C32	29518.01	9.1844	0.3061		4.5922	
	10.181	C33-C40	4002.72	1.2454	0.0415		0.6227	
			122115.12	37.9955	1.2665		18.9977	

23.1181

NP

MH
6/26/7

Software Version	: 6.2.1.0.106:0106	Date	: 6/26/2007 11:15:18 AM
Operator	: pesti	Sample Name	: IQF2158-07
Sample Number	: 7F25095	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/3
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 12:41:40 AM	Cycle	: 10

Sample ID:
PTI-SMP01B-S-11.0

Raw Data File : H:\DATA\GC12\20070625\F25a053.raw <Modified>
Result File : H:\DATA\GC12\20070625\F25a053-20070626-111515.rst [Editing in Progress]
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Proc Method : H:\DATA\GC12\C12AF01Q.mth from H:\DATA\GC12\20070625\F25a053-20070626-111515.rst [Editing in Progress]
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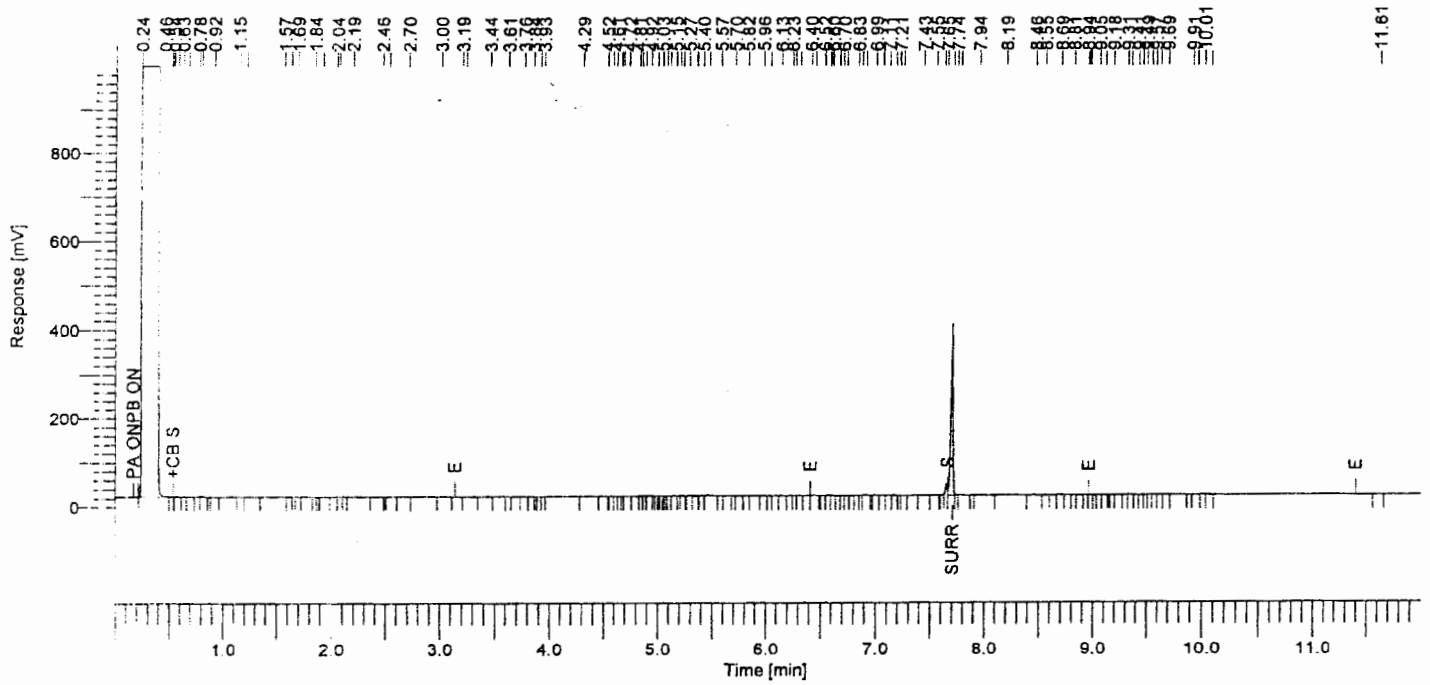
Report Format File: h:\data\gc12\C12AF01Q.rpt
Sequence File : H:\DATA\GC12\20070625\F25.seq



8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	57092.17	17.7639	0.5921		8.8820	
	7.036	C23-C28	86070.57	26.7804	0.8927		13.3902	
	8.343	C29-C32	34690.92	10.7939	0.3598		5.3970	
	10.181	C33-C40	26306.11	8.1850	0.2728		4.0925	
			204159.77	63.5233	2.1174		31.7616	

45.7594

NP
JM
6/26/07

Software Version	: 6.2.1.0.106:0106	Date	: 6/26/2007 11:15:38 AM
Operator	: pesti	Sample Name	: IQF2158-08
Sample Number	: 7F25095	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/4
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 1:01:26 AM	Cycle	: 11

Sample ID:
PTI-SMP01B-S-16.5

Raw Data File : H:\DATA\GC12\20070625\F25a054.raw <Modified>
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Calib Method : H:\DATA\GC12\C12AF01Q.mth from H:\DATA\GC12\20070625\F25a054-20070626-111535.rst [Editing in Progress]
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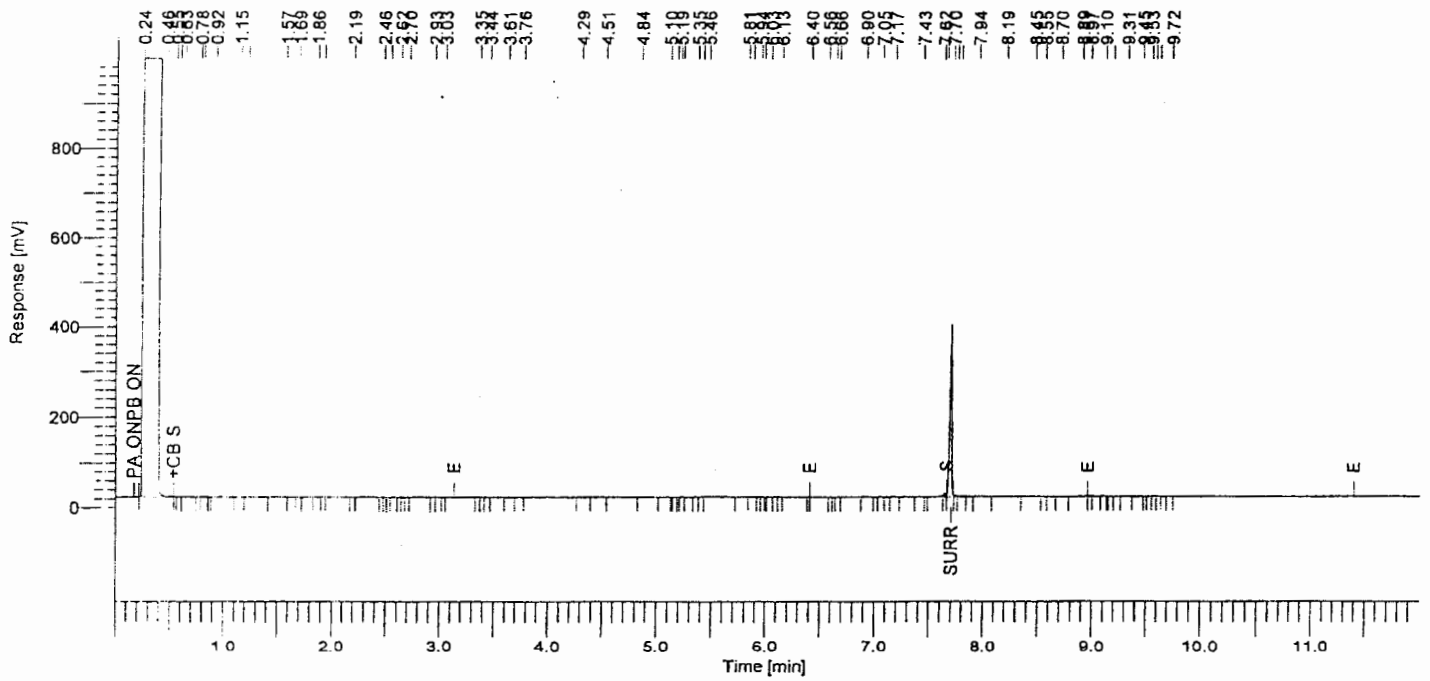

8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	55814.40	17.3664	0.5789		8.6832	
	7.036	C23-C28	30810.20	9.5864	0.3195		4.7932	
	8.343	C29-C32	34187.84	10.6374	0.3546		5.3187	
	10.181	C33-C40	7528.51	2.3425	0.0781		1.1712	
			128340.95	39.9326	1.3311		19.9663	

22.5662

MP

6/26/7

Software Version	: 6.2.1.0.106:0106	Date	: 6/26/2007 11:05:00 AM
Operator	: pesti	Sample Name	: IQF2158-09
Sample Number	: 7F25095	Study	: HC13-40FD
AutoSampler	: HP7673A	Rack/Vial	: 1/22
Instrument Name	: gc12	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1024
Delay Time	: 0.00 min	End Time	: 12.00 min
Sampling Rate	: 20.0000 pts/s		
Sample Volume	: 1.000000 ul	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/26/2007 6:56:05 AM	Cycle	: 29

Sample ID:
PTI-SMP01B-S-30.0

Raw Data File : H:\DATA\GC12\20070625\F25a072.raw <Modified>
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Inst Method : h:\data\gc12\shortdsl from H:\DATA\GC12\20070625\F25a072.raw
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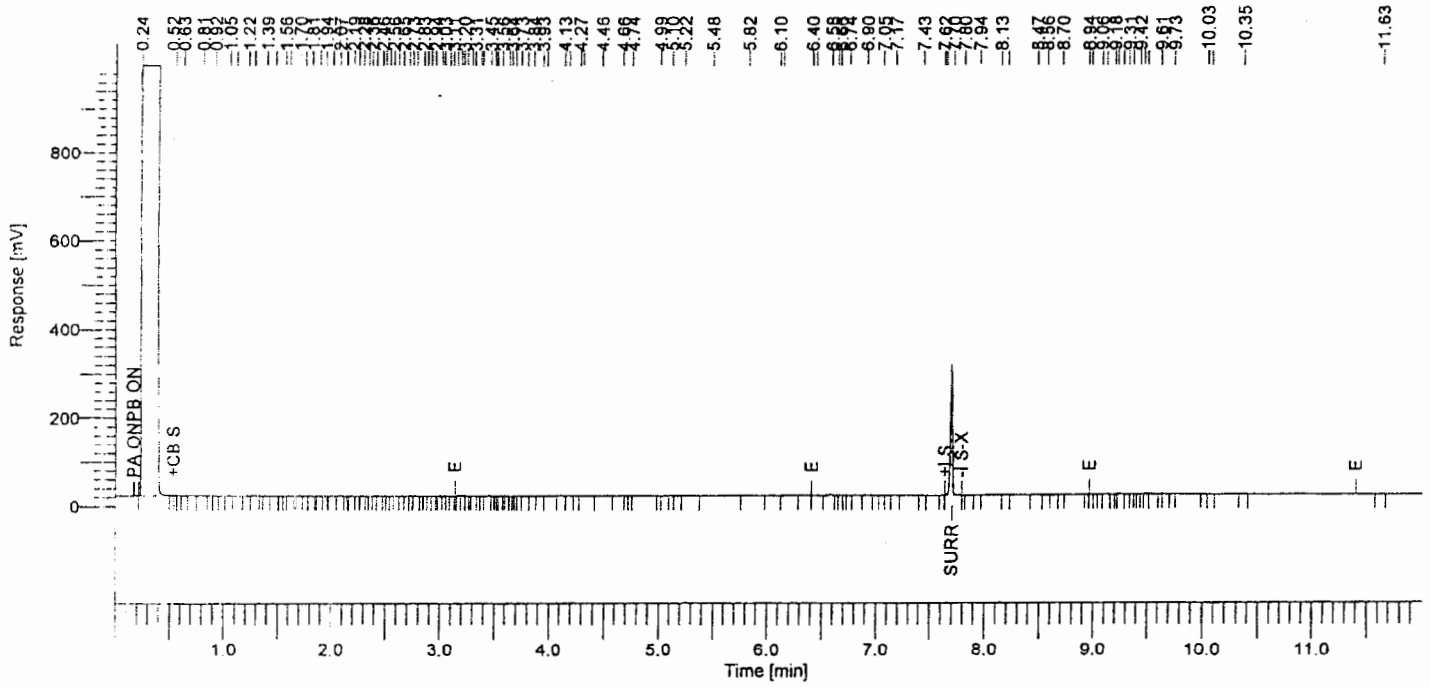


8015 mod Diesel

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Adjusted Amount	Cal. Range	SURR. % REC.	COMMENTS
	4.773	C13-C22	66281.98	20.6233	0.6874		10.3117	
	7.025	C23-C28	18479.05	5.7497	0.1917		2.8748	
	8.375	C29-C32	21042.98	6.5474	0.2182		3.2737	
	10.181	C33-C40	26682.19	8.3020	0.2767		4.1510	
			132486.20	41.2224	1.3741		20.6112	

20.5491

NP
6/26/07

Appendix H
Geotechnical Report

IRIS ENVIRONMENTAL

PTS File No: 37472
Client: Iris Environmental

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODOLOGY:	API RP40/ASTM D2216		API RP40		API RP40	API RP40		ASTM D425M	API RP40	WALKLEY-BLACK	
							POROSITY (2)				TOTAL		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	MOISTURE CONTENT, cm^3/cm^3	DENSITY DRY BULK, g/cm^3	DENSITY GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR FILLED, cm^3/cm^3	WATER FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	PORE FLUID (3) SATURATIONS, % Pv	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
PTI-MW18-S-21.5	21.5-23.0	V	5.8	0.079	1.36	2.66	0.489	0.410	0.079	0.403	16.1	430	4.30E-04
PTI-MW18-33.5	33.5-35.0	V	24.2	0.374	1.54	2.72	0.431	0.057	0.374	0.091	86.7	630	6.30E-04
PTI-MW18-47.5	47.5-49.0	V	16.2	0.292	1.80	2.69	0.331	0.039	0.292	0.062	88.2	2550	2.55E-03

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids, native sample; Effective = drainage porosity (3) Water = 0.9996 g/cc; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 37472
Client: Iris Environmental

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODOLOGY:	API RP40		API RP40 / ASTM D5084		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm^2
PTI-MW18-S-21.5	21.5-23.0	V	6332	17353	4771	4.74E-03	4.71E-08
PTI-MW18-33.5	33.5-35.0	V	125	4970	0.350	3.51E-07	3.45E-12
PTI-MW18-47.5	47.5-49.0	V	5.01	10514	0.164	1.64E-07	1.62E-12

(1) Sample Orientation: H = horizontal, V = vertical, R = remold (2) Native State = As received with pore fluids in place; (3) Specific = without moisture; (4) Permeability to water and conductivity measured at saturated conditions

PTS File No: 37472
Client: Iris Environmental

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

	METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
		ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA/SCS (2)
SAMPLE ID.	DEPTH, ft.	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME
PTI-MW18-S-21.5	21.5-23.0	15.7	NON-PLASTIC		NP	SM: Silty sand	Loamy sand
PTI-MW18-33.5	33.5-35.0	41.9	22.5	19.4	CL	CL: Lean clay	Silty clay loam
PTI-MW18-47.5	47.5-49.0	31.8	14.1	17.7	CL	CL: Sandy lean clay	Loam

USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples. (2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.

PTS Laboratories

PTS File No: 37472
Client: Iris Environmental

SOIL pH

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODS:	EPA 9045
SAMPLE ID.	DEPTH, ft.	MATRIX	SOIL pH
PTI-MW18-S-21.5	21.5-23.0	SOIL	5.61
PTI-MW18-33.5	33.5-35.0	SOIL	4.12
PTI-MW18-47.5	47.5-49.0	SOIL	6.91
PTI-MW18-59-60	59.0-60.0	SOIL	7.63

PTS File No: 37472
Client: Iris Environmental

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	API RP 40; ASTM D5084; EPA 910(	
									25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY BULK, g/cc	DENSITY GRAIN, g/cc	POROSITY, %Vb (2) TOTAL	POROSITY, %Vb (2) AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv	EFFECTIVE (4,5) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (4,5), cm/s
PTI-MW18-59-60	59.0-60.0	V	15.1	1.75	2.67	34.3	7.7	77.5	362	3.62E-04

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9996 g/cc (4) Native State or Effective = With as-received pore fluids in place (5) Permeability to water and hydraulic conductivity measured at saturated conditions; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 37472
Client: Iris Environmental

ORGANIC CARBON DATA - TOC

PROJECT NAME: PTI
PROJECT NO: 06-441-E

SAMPLE ID.	DEPTH, ft.	SAMPLE MATRIX	METHOD: WALKLEY-BLACK TOTAL ORGANIC CARBON, mg/kg
PTI-MW18-59-60	59.0-60.0	SOIL	830

PTS Laboratories, Inc.

Iris Environmental
PTS File No: 37472

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: PTI
PROJECT NO: 06-441-E

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
PTI-MW18-S-21.5	21.5-23.0	Fine sand	0.173	0.00	0.00	6.37	74.61	15.80	3.21	19.02
PTI-MW18-33.5	33.5-35.0	Silt	0.011	0.00	0.00	0.00	5.90	65.52	28.58	94.10
PTI-MW18-47.5	47.5-49.0	Fine sand	0.041	0.00	0.00	10.71	26.57	48.26	14.46	62.72
PTI-MW18-59-60	59.0.-60.0	Medium sand	0.496	0.00	0.00	56.88	24.43	15.42	3.27	18.69

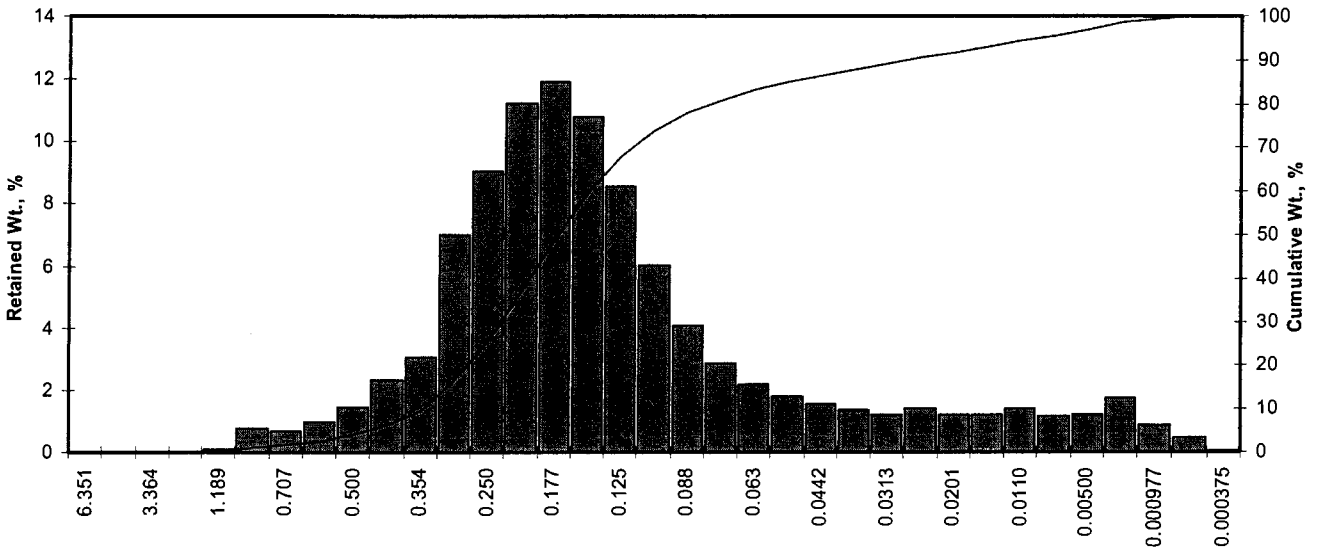
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Iris Environmental	**PTS File No:**	37472
Project:	PTI	**Sample ID:**	PTI-MW18-S-21.5
Project No:	06-441-E	**Depth, ft:**	21.5-23.0

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.12	0.12	0.12
0.0331	0.841	0.25	20	0.80	0.80	0.92
0.0278	0.707	0.50	25	0.69	0.69	1.61
0.0234	0.595	0.75	30	0.97	0.97	2.58
0.0197	0.500	1.00	35	1.47	1.47	4.05
0.0166	0.420	1.25	40	2.32	2.32	6.37
0.0139	0.354	1.50	45	3.07	3.07	9.45
0.0117	0.297	1.75	50	7.00	7.01	16.45
0.0098	0.250	2.00	60	9.02	9.03	25.48
0.0083	0.210	2.25	70	11.20	11.21	36.69
0.0070	0.177	2.50	80	11.90	11.91	48.60
0.0059	0.149	2.75	100	10.80	10.81	59.41
0.0049	0.125	3.00	120	8.53	8.54	67.94
0.0041	0.105	3.25	140	6.04	6.04	73.99
0.0035	0.088	3.50	170	4.10	4.10	78.09
0.0029	0.074	3.75	200	2.89	2.89	80.98
0.0025	0.063	4.00	230	2.21	2.21	83.19
0.0021	0.053	4.25	270	1.82	1.82	85.02
0.00174	0.0442	4.50	325	1.56	1.56	86.58
0.00146	0.0372	4.75	400	1.37	1.37	87.95
0.00123	0.0313	5.00	450	1.23	1.23	89.18
0.000986	0.0250	5.32	500	1.40	1.40	90.58
0.000790	0.0201	5.64	635	1.23	1.23	91.81
0.000615	0.0156	6.00		1.20	1.20	93.01
0.000435	0.0110	6.50		1.41	1.41	94.42
0.000308	0.00781	7.00		1.16	1.16	95.58
0.000197	0.00500	7.65		1.20	1.20	96.79
0.000077	0.00195	9.00		1.76	1.76	98.55
0.000038	0.000977	10.00		0.89	0.89	99.44
0.000019	0.000488	11.00		0.51	0.51	99.95
0.000015	0.000375	11.38		0.05	0.05	100.00
TOTALS				**99.90**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	1.10	0.0183	0.466
10	1.52	0.0137	0.349
16	1.73	0.0118	0.301
25	1.99	0.0099	0.252
40	2.32	0.0079	0.200
50	2.53	0.0068	0.173
60	2.77	0.0058	0.147
75	3.31	0.0040	0.101
84	4.11	0.0023	0.058
90	5.19	0.0011	0.027
95	6.75	0.0004	0.009

Measure	Trask	Inman	Folk-Ward
Median, phi	2.53	2.53	2.53
Median, in.	0.0068	0.0068	0.0068
Median, mm	0.173	0.173	0.173
Mean, phi	2.50	2.92	2.79
Mean, in.	0.0069	0.0052	0.0057
Mean, mm	0.177	0.132	0.144
Sorting	1.583	1.188	1.450
Skewness	0.922	0.328	0.411
Kurtosis	0.236	1.376	1.746
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

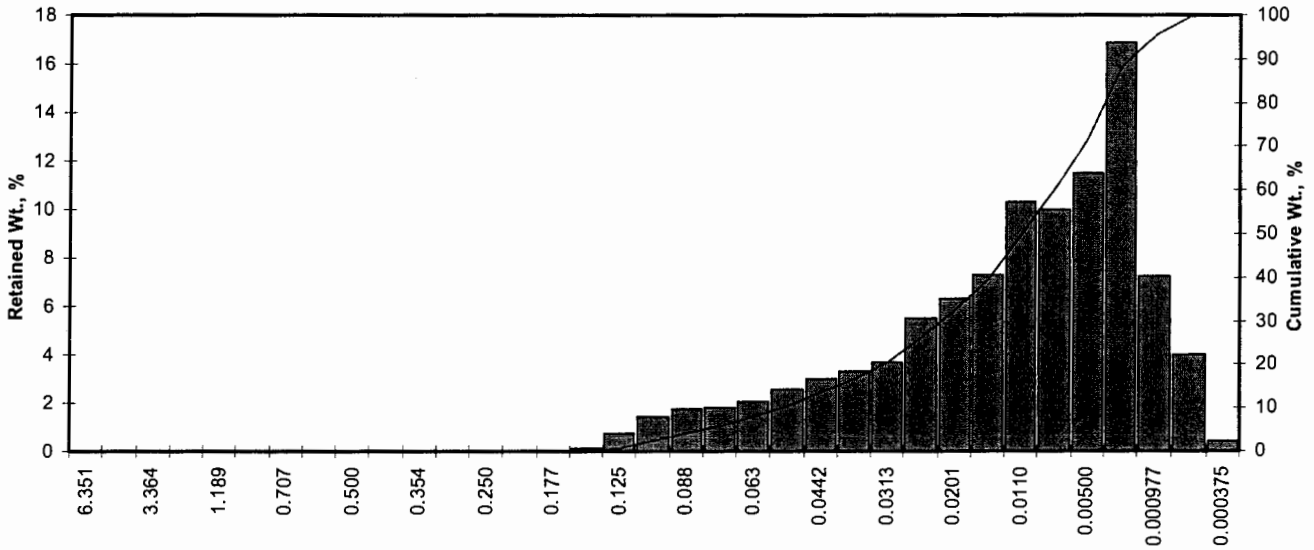
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	6.37
Fine Sand	200	74.61
Silt	>0.005 mm	15.80
Clay	<0.005 mm	3.21
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Iris Environmental	**PTS File No:**	37472
Project:	PTI	**Sample ID:**	PTI-MW18-33.5
Project No:	06-441-E	**Depth, ft:**	33.5-35.0

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.12	0.12	0.12
0.0049	0.125	3.00	120	0.74	0.74	0.86
0.0041	0.105	3.25	140	1.46	1.46	2.32
0.0035	0.088	3.50	170	1.75	1.75	4.07
0.0029	0.074	3.75	200	1.83	1.83	5.90
0.0025	0.063	4.00	230	2.09	2.09	7.99
0.0021	0.053	4.25	270	2.54	2.54	10.53
0.00174	0.0442	4.50	325	2.98	2.98	13.51
0.00146	0.0372	4.75	400	3.31	3.31	16.82
0.00123	0.0313	5.00	450	3.71	3.71	20.53
0.000986	0.0250	5.32	500	5.49	5.49	26.02
0.000790	0.0201	5.64	635	6.29	6.29	32.31
0.000615	0.0156	6.00		7.31	7.31	39.62
0.000435	0.0110	6.50		10.30	10.30	49.93
0.000308	0.00781	7.00		9.99	9.99	59.92
0.000197	0.00500	7.65		11.50	11.50	71.42
0.000077	0.00195	9.00		16.90	16.90	88.32
0.000038	0.000977	10.00		7.25	7.25	95.57
0.000019	0.000488	11.00		4.01	4.01	99.58
0.000015	0.000375	11.38		0.42	0.42	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	3.63	0.0032	0.081
10	4.20	0.0021	0.055
16	4.69	0.0015	0.039
25	5.26	0.0010	0.026
40	6.02	0.0006	0.015
50	6.50	0.0004	0.011
60	7.00	0.0003	0.008
75	7.93	0.0002	0.004
84	8.65	0.0001	0.002
90	9.23	0.0001	0.002
95	9.92	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	6.50	6.50	6.50
Median, in.	0.0004	0.0004	0.0004
Median, mm	0.011	0.011	0.011
Mean, phi	6.05	6.67	6.62
Mean, in.	0.0006	0.0004	0.0004
Mean, mm	0.015	0.010	0.010
Sorting	2.524	1.983	1.945
Skewness	0.938	0.084	0.085
Kurtosis	0.208	0.587	0.966
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

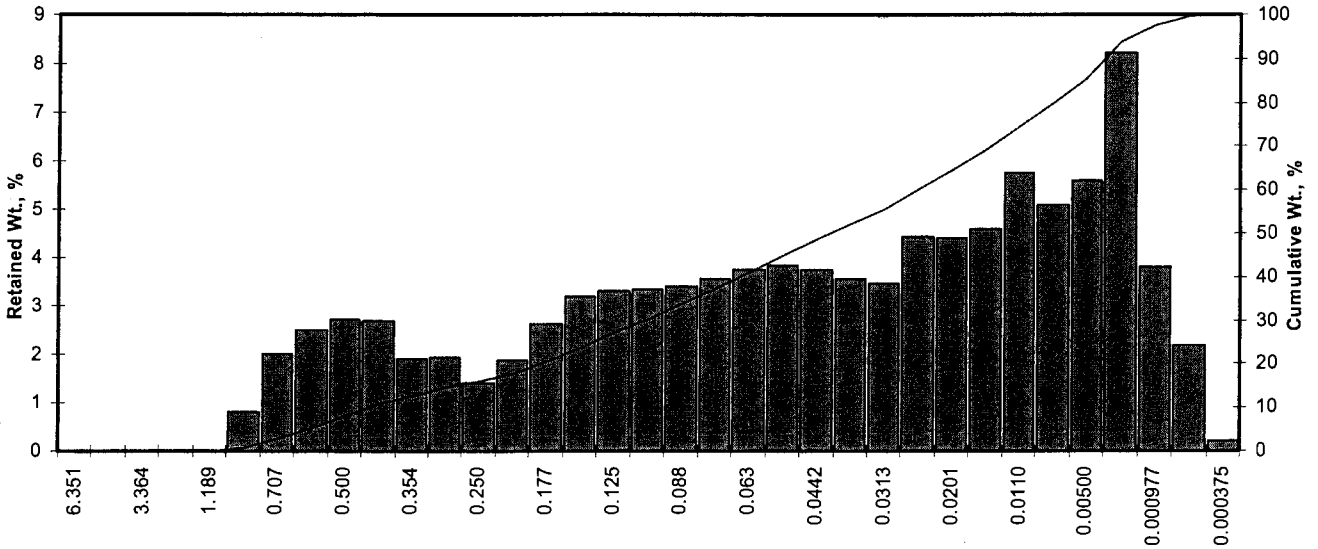
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	5.90
Silt	>0.005 mm	65.52
Clay	<0.005 mm	28.58
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Iris Environmental	**PTS File No:**	37472
Project:	PTI	**Sample ID:**	PTI-MW18-47.5
Project No:	06-441-E	**Depth, ft:**	47.5-49.0

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.81	0.81	0.81
0.0278	0.707	0.50	25	2.00	2.00	2.81
0.0234	0.595	0.75	30	2.51	2.51	5.32
0.0197	0.500	1.00	35	2.71	2.71	8.03
0.0166	0.420	1.25	40	2.68	2.68	10.71
0.0139	0.354	1.50	45	1.91	1.91	12.62
0.0117	0.297	1.75	50	1.94	1.94	14.56
0.0098	0.250	2.00	60	1.42	1.42	15.98
0.0083	0.210	2.25	70	1.87	1.87	17.85
0.0070	0.177	2.50	80	2.64	2.64	20.49
0.0059	0.149	2.75	100	3.19	3.19	23.68
0.0049	0.125	3.00	120	3.32	3.32	26.99
0.0041	0.105	3.25	140	3.34	3.34	30.33
0.0035	0.088	3.50	170	3.40	3.40	33.73
0.0029	0.074	3.75	200	3.55	3.55	37.28
0.0025	0.063	4.00	230	3.74	3.74	41.02
0.0021	0.053	4.25	270	3.83	3.83	44.85
0.00174	0.0442	4.50	325	3.76	3.76	48.61
0.00146	0.0372	4.75	400	3.57	3.57	52.18
0.00123	0.0313	5.00	450	3.47	3.47	55.65
0.000986	0.0250	5.32	500	4.44	4.44	60.09
0.000790	0.0201	5.64	635	4.41	4.41	64.50
0.000615	0.0156	6.00		4.59	4.59	69.09
0.000435	0.0110	6.50		5.74	5.74	74.83
0.000308	0.00781	7.00		5.11	5.11	79.93
0.000197	0.00500	7.65		5.61	5.61	85.54
0.000077	0.00195	9.00		8.23	8.23	93.77
0.000038	0.000977	10.00		3.80	3.80	97.57
0.000019	0.000488	11.00		2.20	2.20	99.77
0.000015	0.000375	11.38		0.23	0.23	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.72	0.0239	0.608
10	1.18	0.0173	0.440
16	2.00	0.0098	0.249
25	2.85	0.0055	0.139
40	3.93	0.0026	0.066
50	4.60	0.0016	0.041
60	5.31	0.0010	0.025
75	6.52	0.0004	0.011
84	7.47	0.0002	0.006
90	8.38	0.0001	0.003
95	9.32	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	4.60	4.60	4.60
Median, in.	0.0016	0.0016	0.0016
Median, mm	0.041	0.041	0.041
Mean, phi	3.74	4.74	4.69
Mean, in.	0.0029	0.0015	0.0015
Mean, mm	0.075	0.038	0.039
Sorting	3.564	2.732	2.670
Skewness	0.942	0.051	0.074
Kurtosis	0.146	0.575	0.962
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

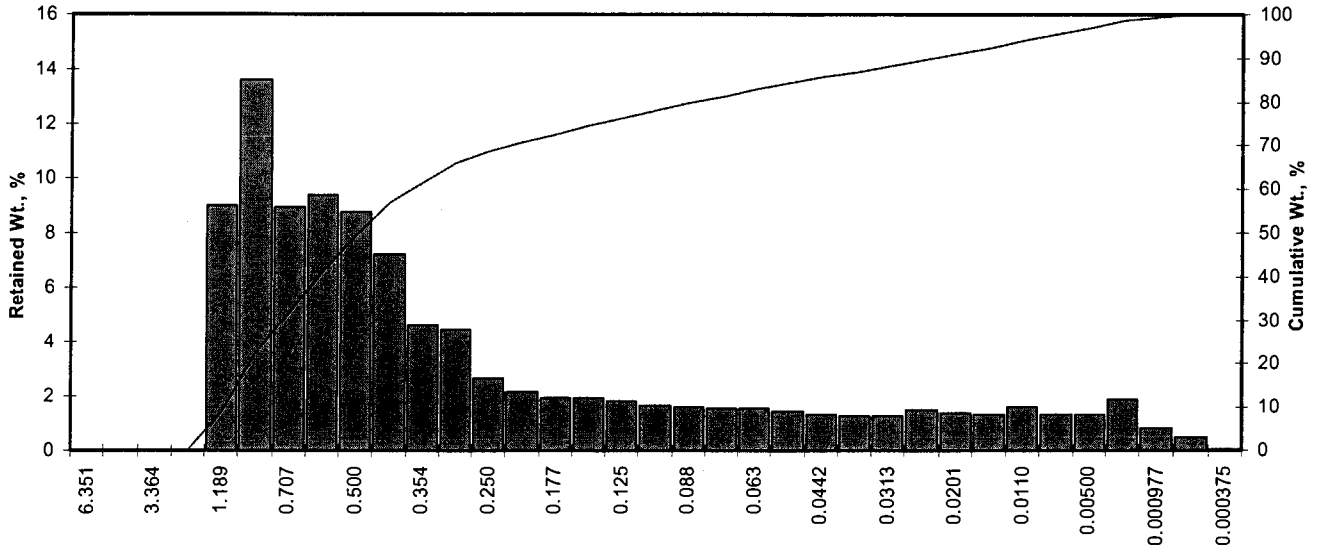
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	10.71
Fine Sand	200	26.57
Silt	>0.005 mm	48.26
Clay	<0.005 mm	14.46
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Iris Environmental	**PTS File No:**	37472
Project:	PTI	**Sample ID:**	PTI-MW18-59-60
Project No:	06-441-E	**Depth, ft:**	59.0-60.0

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	8.98	8.98	8.98
0.0331	0.841	0.25	20	13.60	13.61	22.59
0.0278	0.707	0.50	25	8.94	8.94	31.53
0.0234	0.595	0.75	30	9.38	9.38	40.92
0.0197	0.500	1.00	35	8.76	8.76	49.68
0.0166	0.420	1.25	40	7.20	7.20	56.88
0.0139	0.354	1.50	45	4.59	4.59	61.47
0.0117	0.297	1.75	50	4.45	4.45	65.92
0.0098	0.250	2.00	60	2.66	2.66	68.59
0.0083	0.210	2.25	70	2.14	2.14	70.73
0.0070	0.177	2.50	80	1.96	1.96	72.69
0.0059	0.149	2.75	100	1.92	1.92	74.61
0.0049	0.125	3.00	120	1.83	1.83	76.44
0.0041	0.105	3.25	140	1.69	1.69	78.13
0.0035	0.088	3.50	170	1.61	1.61	79.74
0.0029	0.074	3.75	200	1.57	1.57	81.31
0.0025	0.063	4.00	230	1.53	1.53	82.84
0.0021	0.053	4.25	270	1.44	1.44	84.28
0.00174	0.0442	4.50	325	1.36	1.36	85.64
0.00146	0.0372	4.75	400	1.30	1.30	86.94
0.00123	0.0313	5.00	450	1.25	1.25	88.19
0.000986	0.0250	5.32	500	1.51	1.51	89.70
0.000790	0.0201	5.64	635	1.38	1.38	91.08
0.000615	0.0156	6.00		1.35	1.35	92.43
0.000435	0.0110	6.50		1.60	1.60	94.03
0.000308	0.00781	7.00		1.33	1.33	95.37
0.000197	0.00500	7.65		1.36	1.36	96.73
0.000077	0.00195	9.00		1.87	1.87	98.60
0.000038	0.000977	10.00		0.85	0.85	99.45
0.000019	0.000488	11.00		0.50	0.50	99.95
0.000015	0.000375	11.38		0.05	0.05	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.58	0.0590	1.498
10	-0.21	0.0456	1.159
16	0.01	0.0392	0.995
25	0.32	0.0316	0.803
40	0.73	0.0238	0.605
50	1.01	0.0195	0.496
60	1.42	0.0147	0.374
75	2.80	0.0056	0.143
84	4.20	0.0021	0.054
90	5.39	0.0009	0.024
95	6.86	0.0003	0.009

Measure	Trask	Inman	Folk-Ward
Median, phi	1.01	1.01	1.01
Median, in.	0.0195	0.0195	0.0195
Median, mm	0.496	0.496	0.496
Mean, phi	1.08	2.10	1.74
Mean, in.	0.0186	0.0092	0.0118
Mean, mm	0.473	0.233	0.299
Sorting	2.367	2.097	2.176
Skewness	0.683	0.521	0.547
Kurtosis	0.290	0.776	1.227
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	56.88
Fine Sand	200	24.43
Silt	>0.005 mm	15.42
Clay	<0.005 mm	3.27
	Total	**100**

DATE PTS FILE# 37472 **CHAIN OF CUSTODY RECORD** PAGE 1 OF 1

COMPANY: IRIS ENVIRONMENTAL

ADDRESS: 1438 WEBSTER ST, ste 302 CITY: OAKLAND ZIP CODE: 94612

PROJECT MANAGER: CHRIS ALGER PHONE NUMBER: 510-834-4747 x21

PROJECT NAME: PTI

PROJECT NUMBER: 06-441-E FAX NUMBER: 510-834-4199

SITE LOCATION: SFS

SAMPLER SIGNATURE: Chris Alger

PO#

SPECIAL HANDLING: 24 HOURS / 72 HOURS / 5 DAYS / NORMAL / OTHER

SAMPLE CONDITIONS: RECEIVED ON ICE YES/NO; SEALED YES/NO; OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY (DRY), API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	POROSITY: EFFECTIVE, ASTM D425M	TCEQ/TNRCC PROPERTIES PACKAGE	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	VAPOR TRANSPORT PACKAGE	HYDRAULIC CONDUCTIVITY Package-Sat.				NUMBER OF SAMPLES	COMMENTS
PTI-MW18-S-21.5	6/13/07	12:20	21.5-23.0									X							X						3	Samples contain VOCs + Hex Chrome
PTI-MW18-33.5	6/13/07	14:45	33.5-35.0									X							X						3	
PTI-MW18-47.5	6/13/07	16:50	47.5-49.0									X							X						3	
PTI-MW18-52-60	6/14/07	10:45	52-60.0									X			X		X			X					2	

EDD to calger@irisenv.com

Call to return samples

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Chris Alger	[signature]		
COMPANY: IRIS ENV.	COMPANY: PTS LABORATORIES	COMPANY:	COMPANY:
DATE: 6.14.07 TIME: 1440	DATE: 6-14-07 TIME: 14:20	DATE: TIME:	DATE: TIME:

PTS File No: 37472
Client: Iris Environmental

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	API RP 40; ASTM D5084; EPA 910(25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY BULK, g/cc	DENSITY GRAIN, g/cc	POROSITY, %Vb (2) TOTAL	POROSITY, %Vb (2) AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv	EFFECTIVE (4,5) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (4,5), cm/s
PTI-MW20-S-58.0	58.0-59.5	V	15.8	1.67	2.65	37.0	10.5	71.5	1928	1.90E-03
PTI-MW19-S-66.0	66.0-67.5	V	20.4	1.60	2.68	40.1	7.4	81.5	259	2.56E-04

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9996 g/cc (4) Native State or Effective = With as-received pore fluids in place (5) Permeability to water and hydraulic conductivity measured at saturated conditions; Vb = Bulk Volume, cc; Pore Volume, cc; ND = Not Detecte(

PTS File No: 37508
Client: Iris Environmental

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODOLOGY:	API RP40/ASTM D2216		API RP40		API RP40	API RP40		ASTM D425M	API RP40	WALKLEY-BLACK	
							POROSITY (2)				TOTAL	TOTAL	FRACTION
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	MOISTURE CONTENT, cm^3/cm^3	DENSITY DRY BULK, g/cm^3	DENSITY GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR FILLED, cm^3/cm^3	WATER FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	PORE FLUID (3) SATURATIONS, % Pv	ORGANIC CARBON, mg/kg	ORGANIC CARBON, g/g
PTI-MW20-S-23.0	23.0-24.5	V	17.7	0.277	1.57	2.65	0.407	0.130	0.277	0.339	68.1	820	8.20E-04
PTI-MW20-S-39.0	39.0-40.5	V	31.7	0.437	1.38	2.72	0.494	0.057	0.437	0.131	88.4	1650	1.65E-03
PTI-MW19-S-24.5	24.5-26.0	V	8.3	0.129	1.56	2.68	0.420	0.292	0.129	0.362	30.6	1050	1.05E-03
PTI-MW19-S-36.0	36.0-37.5	V	20.3	0.324	1.60	2.71	0.411	0.087	0.324	0.277	78.7	1800	1.80E-03
PTI-MW17-S-25.0	25.0-26.5	V	14.7	0.260	1.77	2.67	0.338	0.078	0.260	0.248	76.8	660	6.60E-04
PTI-MW17-S-46.0	46.0-47.5	V	17.7	0.321	1.81	2.69	0.327	0.006	0.321	0.087	98.2	1250	1.25E-03
PTI-SMP04B-S-24.0	24.0-25.5	V	5.2	0.087	1.66	2.75	0.396	0.309	0.087	0.323	22.0	1050	1.05E-03
PTI-SMP04B-S-42.5	42.5-44.0	V	14.3	0.263	1.83	2.69	0.318	0.055	0.263	0.112	82.7	850	8.50E-04
PTI-SVE02B-S-30.0	30.0-40.5	V	10.3	0.158	1.53	2.65	0.422	0.264	0.158	0.344	37.5	3300	3.30E-03
PTI-SVE02B-S-43.0	43.0-44.5	V	15.2	0.274	1.80	2.69	0.331	0.056	0.274	0.110	82.9	1400	1.40E-03
PTI-SVE01B-S-26.0	26.0-27.5	V	6.5	0.101	1.55	2.65	0.414	0.313	0.101	0.352	24.4	1450	1.45E-03
PTI-SVE01B-S-44.0	44.0-45.5	V	14.7	0.277	1.88	2.69	0.300	0.023	0.277	0.051	92.4	1300	1.30E-03
PTI-SVE03B-S-27.0	27.0-28.5	V	15.7	0.242	1.54	2.65	0.419	0.177	0.242	0.323	57.6	1450	1.45E-03
PTI-SVE03B-S-43.0	43.0-44.5	V	13.3	0.227	1.71	2.70	0.365	0.138	0.227	0.131	62.2	1000	1.00E-03

PTS File No: 37508
Client: Iris Environmental

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODOLOGY:	API RP40/ASTM D2216		API RP40		API RP40	API RP40		ASTM D425M	API RP40	WALKLEY-BLACK	
							POROSITY (2)				TOTAL	TOTAL	FRACTION
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	MOISTURE CONTENT, cm^3/cm^3	DENSITY DRY BULK, g/cm^3	DENSITY GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR FILLED, cm^3/cm^3	WATER FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	PORE FLUID (3) SATURATIONS, % Pv	ORGANIC CARBON, mg/kg	ORGANIC CARBON, g/g

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids, native sample; Effective = drainage porosity (3) Water = 0.9996 g/cc; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detect

PTS File No: 37508
Client: Iris Environmental

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODOLOGY:	API RP40		API RP40 / ASTM D5084		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm^2
PTI-MW20-S-23.0	23.0-24.5	V	3030	28936	5054	4.93E-03	4.99E-08
PTI-MW20-S-39.0	39.0-40.5	V	0.309	8.47	0.627	6.06E-07	6.19E-12
PTI-MW19-S-24.5	24.5-26.0	V	9723	15320	468	4.54E-04	4.62E-09
PTI-MW19-S-36.0	36.0-37.5	V	13.1	175	10.6	1.03E-05	1.04E-10
PTI-MW17-S-25.0	25.0-26.5	V	8.70	77.9	16.7	1.63E-05	1.65E-10
PTI-MW17-S-46.0	46.0-47.5	V	0.709	27.6	0.899	8.76E-07	8.88E-12
PTI-SMP04B-S-24.0	24.0-25.5	V	24341	35664	5251	5.07E-03	5.18E-08
PTI-SMP04B-S-42.5	42.5-44.0	V	2.26	16.1	0.891	8.66E-07	8.80E-12
PTI-SVE02B-S-30.0	30.0-40.5	V	25229	27207	5305	5.14E-03	5.24E-08
PTI-SVE02B-S-43.0	43.0-44.5	V	0.569	74.4	0.950	9.20E-07	9.38E-12
PTI-SVE01B-S-26.0	26.0-27.5	V	14891	16129	601	5.82E-04	5.93E-09
PTI-SVE01B-S-44.0	44.0-45.5	V	6.41	10.9	0.620	6.07E-07	6.12E-12
PTI-SVE03B-S-27.0	27.0-28.5	V	6145	12200	1429	1.39E-03	1.41E-08
PTI-SVE03B-S-43.0	43.0-44.5	V	4.23	16.0	3.48	3.38E-06	3.43E-11

(1) Sample Orientation: H = horizontal, V = vertical, R = remold (2) Native State = As received with pore fluids in place; (3) Specific = without moisture; (4) Permeability to water and conductivity measured at saturated conditions

PTS File No: 37508
Client: Iris Environmental

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

	METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
		ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA/SCS (2)
SAMPLE ID.	DEPTH, ft.	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME
PTI-MW20-S-23.0	23.0-24.5	10.6	NON-PLASTIC		NP	SP: Poorly graded sand	sand
PTI-MW20-S-39.0	39.0-40.5	55.6	24.2	31.4	CH	CH: Fat clay	silt loam
PTI-MW19-S-24.5	24.5-26.0	12.4	NON-PLASTIC		NP	SM: Silty sand	loamy sand
PTI-MW19-S-36.0	36.0-37.5	24.6	12.3	12.3	CL	CL: Sandy lean clay	loam
PTI-MW17-S-25.0	25.0-26.5	9.0	NON-PLASTIC		NP	SM: Silty sand	sandy loam
PTI-MW17-S-46.0	46.0-47.5	28.9	17.4	11.5	CL	CL: Sandy lean clay	loam
PTI-SMP04B-S-24.0	24.0-25.5	7.6	NON-PLASTIC		NP	SP-SM: Poorly graded sand with silt	sand
PTI-SMP04B-S-42.5	42.5-44.0	23.7	14.1	9.6	CL	CL: Sandy lean clay	loam
PTI-SVE02B-S-30.0	30.0-40.5	14.9	NON-PLASTIC		NP	SP-SM: Poorly graded sand with silt	sand
PTI-SVE02B-S-43.0	43.0-44.5	25.4	15.8	9.6	CL	CL: Sandy lean clay	loam
PTI-SVE01B-S-26.0	26.0-27.5	12.9	NON-PLASTIC		NP	SM: Silty sand	loamy sand
PTI-SVE01B-S-44.0	44.0-45.5	35.5	16.5	19.0	CL	CL: Sandy lean clay	loam

PTS File No: 37508
Client: Iris Environmental

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: PTI
PROJECT NO: 06-441-E

	METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
		ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA/SCS (2)
SAMPLE ID.	DEPTH, ft.	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME
PTI-SVE03B-S-27.0	27.0-28.5	6.7	NON-PLASTIC		NP	SP-SM: Poorly graded sand with silt	sand
PTI-SVE03B-S-43.0	43.0-44.5	23.3	14.8	8.5	CL	CL: Sandy lean clay	loam

USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples. (2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.

PTS Laboratories

PTS File No: 37472
Client: Iris Environmental

SOIL pH

PROJECT NAME: PTI
PROJECT NO: 06-441-E

		METHODS:	EPA 9045
SAMPLE ID.	DEPTH, ft.	MATRIX	SOIL pH
PTI-MW20-S-23.0	23.0-24.5	Soil	7.57
PTI-MW20-S-39.0	39.0-40.5	Soil	6.95
PTI-MW20-S-58.0	58.0-59.5	Soil	7.58
PTI-MW19-S-24.5	24.5-26.0	Soil	7.84
PTI-MW19-S-36.0	36.0-37.5	Soil	7.45
PTI-MW19-S-66.0	66.0-67.5	Soil	7.54
PTI-MW17-S-25.0	25.0-26.5	Soil	7.84
PTI-MW17-S-46.0	46.0-47.5	Soil	7.21
PTI-SMP04B-S-24.0	24.0-25.5	Soil	7.39
PTI-SMP04B-S-42.5	42.5-44.0	Soil	7.27
PTI-SVE02B-S-30.0	30.0-40.5	Soil	6.68
PTI-SVE02B-S-43.0	43.0-44.5	Soil	7.36
PTI-SVE01B-S-26.0	26.0-27.5	Soil	7.05
PTI-SVE01B-S-44.0	44.0-45.5	Soil	7.21
PTI-SVE03B-S-27.0	27.0-28.5	Soil	7.95
PTI-SVE03B-S-43.0	43.0-44.5	Soil	7.64

PTS Laboratories, Inc.

IRIS Environmental
PTS File No: 37508

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: PTI
PROJECT NO: 06-441-E

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
PTI-MW20-S-23.0	23.0-24.5	Medium sand	0.499	2.60	1.45	58.55	32.50	(2)	(2)	4.90
PTI-MW20-S-39.0	39.0-40.5	Silt	0.012	0.00	0.00	0.00	2.61	72.38	25.00	97.39
PTI-MW20-S-58.0	58.0-59.5	Medium sand	0.422	0.03	0.17	50.00	44.19	(2)	(2)	5.61
PTI-MW19-S-24.5	24.5-26.0	Fine sand	0.257	0.00	0.00	21.89	56.07	18.37	3.68	22.04
PTI-MW19-S-36.0	36.0-37.5	Fine sand	0.065	0.00	0.00	17.81	29.63	41.65	10.92	52.56
PTI-MW19-S-66.0	66.0-67.5	Fine sand	0.213	0.00	0.00	17.31	64.16	15.74	2.80	18.54
PTI-MW17-S-25.0	25.0-26.5	Fine sand	0.382	0.00	0.00	45.74	30.67	16.58	7.01	23.59
PTI-MW17-S-46.0	46.0-47.5	Silt	0.032	0.00	0.00	2.94	29.47	46.52	21.07	67.59
PTI-SMP04B-S-24.0	24.0-25.5	Medium sand	0.482	0.71	2.38	56.79	35.08	(2)	(2)	5.03
PTI-SMP04B-S-42.5	42.5-44.0	Fine sand	0.041	0.00	0.00	10.50	30.90	40.14	18.46	58.60
PTI-SVE02B-S-30.0	30.0-40.5	Medium sand	0.613	0.62	6.26	65.09	22.36	(2)	(2)	5.67
PTI-SVE02B-S-43.0	43.0-44.5	Silt	0.034	0.00	0.00	5.40	31.14	44.25	19.21	63.46
PTI-SVE01B-S-26.0	26.0-27.5	Fine sand	0.402	0.00	0.00	47.98	35.76	12.98	3.28	16.26
PTI-SVE01B-S-44.0	44.0-45.5	Fine sand	0.054	0.00	0.00	7.35	36.48	37.07	19.10	56.17

(1) Based on Mean from Trask
(2) Mechancial sieve does not differentiate silt/clay fractions

PTS Laboratories, Inc.

IRIS Environmental
PTS File No: 37508

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: PTI
PROJECT NO: 06-441-E

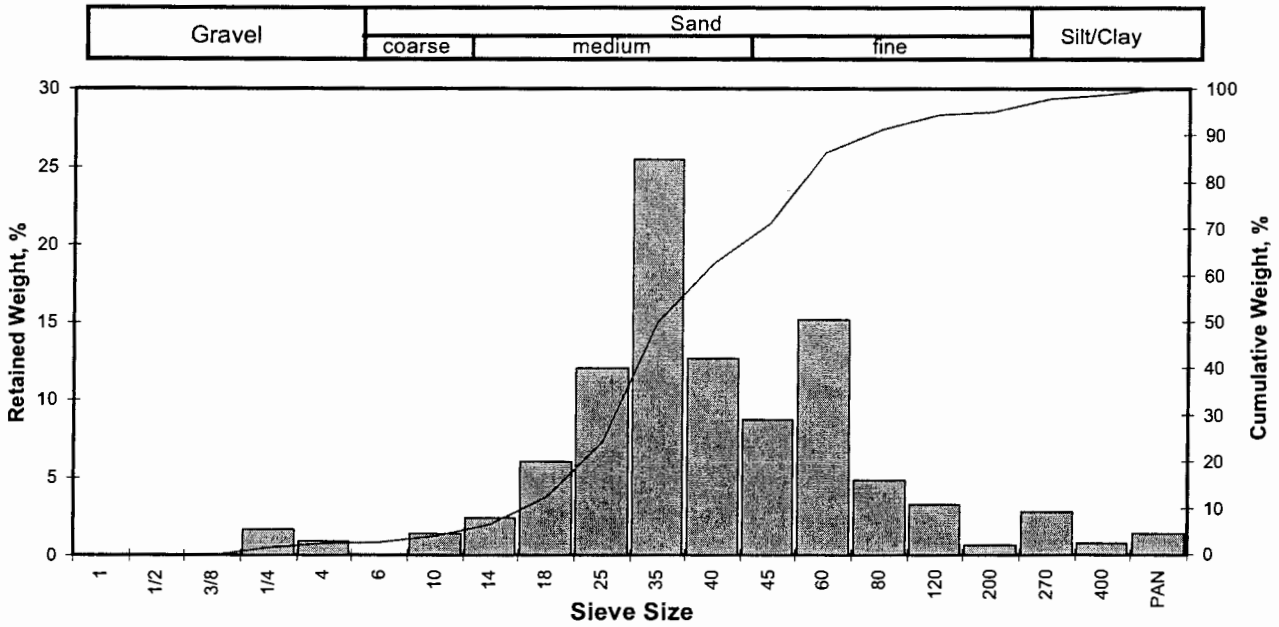
Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
PTI-SVE03B-S-27.0	27.0-28.5	Fine sand	0.323	0.00	0.23	31.18	57.20	(2)	(2)	11.38
PTI-SVE03B-S-43.0	43.0-44.5	Fine sand	0.037	0.00	0.00	8.42	31.83	41.71	18.04	59.75

(1) Based on Mean from Trask
(2) Mechancial sieve does not differentiate silt/clay fractions

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW20-S-23.0
Project No:	06-441-E	**Depth, ft:**	23.0-24.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.44	1.63	1.63
0.1873	4.757	-2.25	4	0.26	0.96	2.60
0.1324	3.364	-1.75	6	0.01	0.04	2.63
0.0787	2.000	-1.00	10	0.38	1.41	4.04
0.0557	1.414	-0.50	14	0.64	2.37	6.42
0.0394	1.000	0.00	18	1.61	5.97	12.39
0.0278	0.707	0.50	25	3.24	12.02	24.42
0.0197	0.500	1.00	35	6.86	25.45	49.87
0.0166	0.420	1.25	40	3.43	12.73	62.60
0.0139	0.354	1.50	45	2.34	8.68	71.28
0.0098	0.250	2.00	60	4.08	15.14	86.42
0.0070	0.177	2.50	80	1.29	4.79	91.21
0.0049	0.125	3.00	120	0.88	3.27	94.47
0.0029	0.074	3.75	200	0.17	0.63	95.10
0.0021	0.053	4.25	270	0.75	2.78	97.88
0.0015	0.037	4.75	400	0.20	0.74	98.63
			PAN	0.37	1.37	100.00
TOTALS				26.95	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.80	0.0685	1.740
10	-0.20	0.0452	1.149
16	0.15	0.0355	0.901
25	0.51	0.0276	0.702
40	0.81	0.0225	0.572
50	1.00	0.0197	0.499
60	1.20	0.0171	0.436
75	1.62	0.0128	0.325
84	1.92	0.0104	0.264
90	2.37	0.0076	0.193
95	3.63	0.0032	0.081

Measure	Trask	Inman	Folk-Ward
Median, phi	1.00	1.00	1.00
Median, in.	0.0197	0.0197	0.0197
Median, mm	0.499	0.499	0.499
Mean, phi	0.96	1.04	1.02
Mean, in.	0.0202	0.0192	0.0194
Mean, mm	0.513	0.488	0.492
Sorting	1.470	0.885	1.113
Skewness	0.956	0.037	0.111
Kurtosis	0.197	1.501	1.633

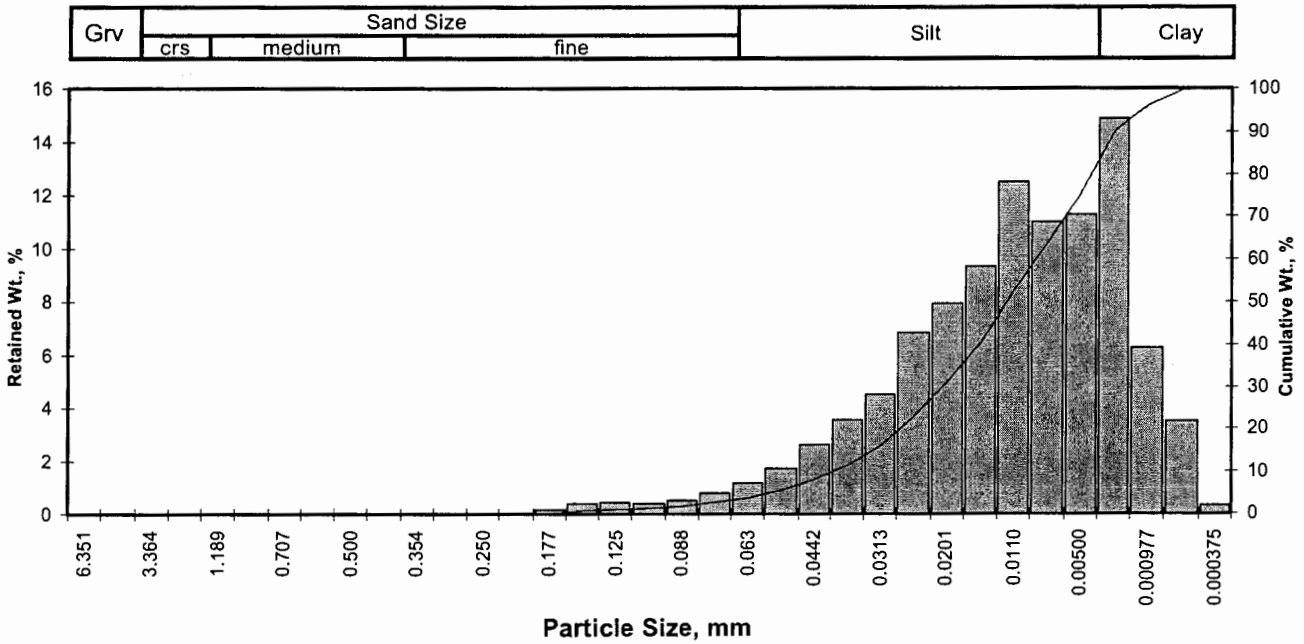
Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	2.60
Coarse Sand	10	1.45
Medium Sand	40	58.55
Fine Sand	200	32.50
Silt/Clay	<200	4.90
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW20-S-39.0
Project No:	06-441-E	**Depth, ft:**	39.0-40.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.01	0.01	0.01
0.0070	0.177	2.50	80	0.15	0.15	0.16
0.0059	0.149	2.75	100	0.40	0.40	0.56
0.0049	0.125	3.00	120	0.42	0.42	0.98
0.0041	0.105	3.25	140	0.37	0.37	1.35
0.0035	0.088	3.50	170	0.49	0.49	1.84
0.0029	0.074	3.75	200	0.77	0.77	2.61
0.0025	0.063	4.00	230	1.15	1.15	3.76
0.0021	0.053	4.25	270	1.70	1.70	5.46
0.00174	0.0442	4.50	325	2.59	2.59	8.05
0.00146	0.0372	4.75	400	3.58	3.58	11.63
0.00123	0.0313	5.00	450	4.49	4.49	16.11
0.000986	0.0250	5.32	500	6.83	6.83	22.94
0.000790	0.0201	5.64	635	7.94	7.93	30.87
0.000615	0.0156	6.00		9.35	9.34	40.22
0.000435	0.0110	6.50		12.50	12.49	52.71
0.000308	0.00781	7.00		11.00	10.99	63.70
0.000197	0.00500	7.65		11.30	11.29	75.00
0.000077	0.00195	9.00		14.90	14.89	89.89
0.000038	0.000977	10.00		6.28	6.28	96.16
0.000019	0.000488	11.00		3.48	3.48	99.64
0.000015	0.000375	11.38		0.36	0.36	100.00
TOTALS				**100.10**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	4.18	0.0022	0.055
10	4.64	0.0016	0.040
16	4.99	0.0012	0.031
25	5.40	0.0009	0.024
40	5.99	0.0006	0.016
50	6.39	0.0005	0.012
60	6.83	0.0003	0.009
75	7.65	0.0002	0.005
84	8.46	0.0001	0.003
90	9.02	0.0001	0.002
95	9.81	0.0000	0.001

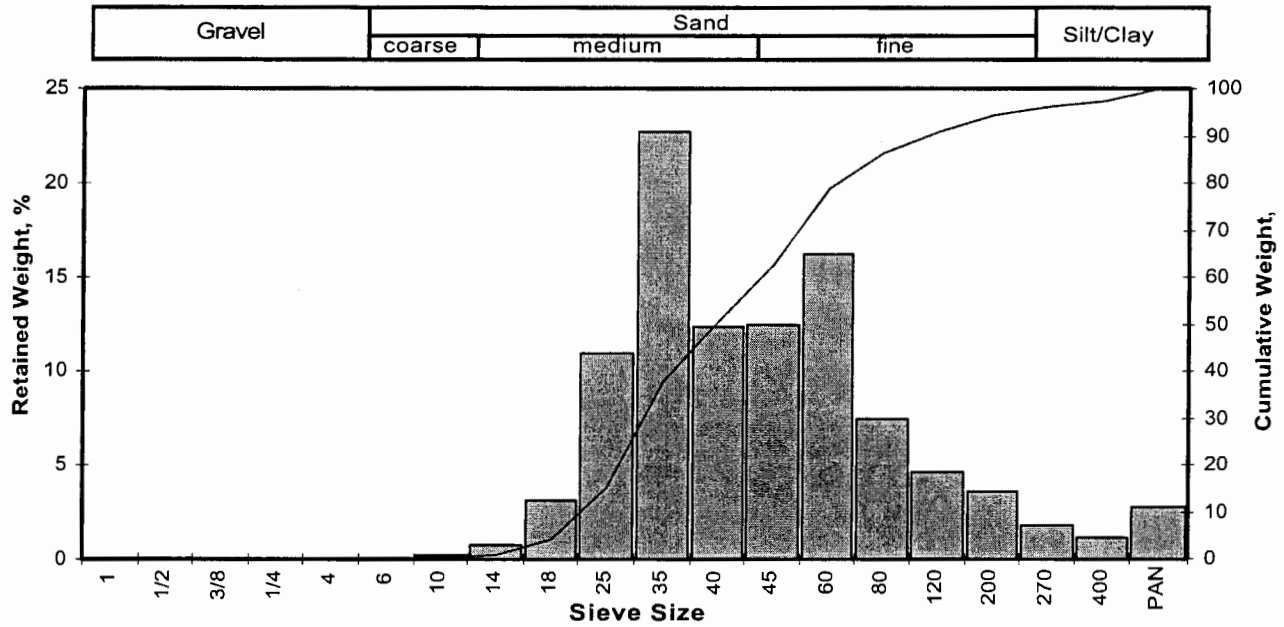
Measure	Trask	Inman	Folk-Ward
Median, phi	6.39	6.39	6.39
Median, in.	0.0005	0.0005	0.0005
Median, mm	0.012	0.012	0.012
Mean, phi	6.13	6.73	6.62
Mean, in.	0.0006	0.0004	0.0004
Mean, mm	0.014	0.009	0.010
Sorting	2.175	1.735	1.721
Skewness	0.912	0.194	0.205
Kurtosis	0.243	0.623	1.029
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	2.61
Silt	>0.005 mm	72.38
Clay	<0.005 mm	25.00
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW20-S-58.0
Project No:	06-441-E	**Depth, ft:**	58.0-59.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.01	0.03	0.03
0.1873	4.757	-2.25	4	0.00	0.00	0.03
0.1324	3.364	-1.75	6	0.00	0.00	0.03
0.0787	2.000	-1.00	10	0.06	0.17	0.20
0.0557	1.414	-0.50	14	0.25	0.72	0.92
0.0394	1.000	0.00	18	1.10	3.15	4.07
0.0278	0.707	0.50	25	3.83	10.97	15.03
0.0197	0.500	1.00	35	7.95	22.77	37.80
0.0166	0.420	1.25	40	4.33	12.40	50.20
0.0139	0.354	1.50	45	4.35	12.46	62.66
0.0098	0.250	2.00	60	5.65	16.18	78.84
0.0070	0.177	2.50	80	2.59	7.42	86.25
0.0049	0.125	3.00	120	1.60	4.58	90.84
0.0029	0.074	3.75	200	1.24	3.55	94.39
0.0021	0.053	4.25	270	0.62	1.78	96.16
0.0015	0.037	4.75	400	0.38	1.09	97.25
			PAN	0.96	2.75	100.00
TOTALS				34.92	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.04	0.0382	0.971
10	0.27	0.0326	0.829
16	0.52	0.0274	0.697
25	0.72	0.0239	0.608
40	1.04	0.0191	0.485
50	1.25	0.0166	0.422
60	1.45	0.0144	0.367
75	1.88	0.0107	0.271
84	2.35	0.0077	0.196
90	2.91	0.0052	0.133
95	3.92	0.0026	0.066

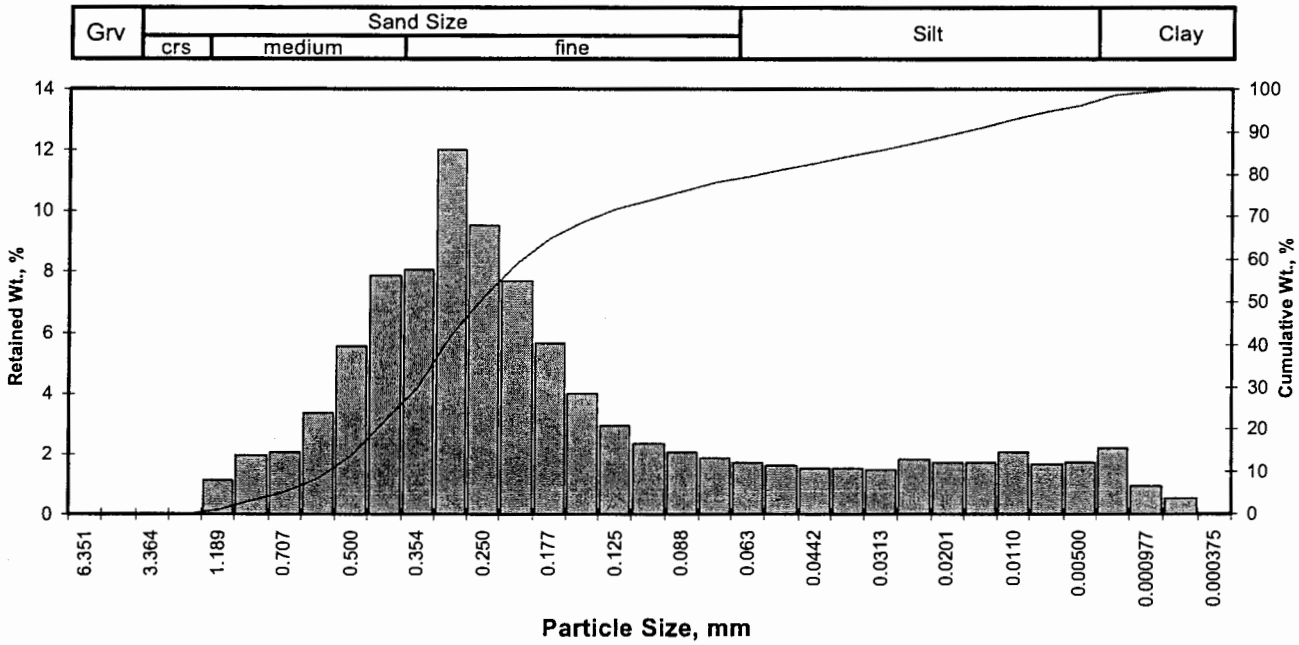
Measure	Trask	Inman	Folk-Ward
Median, phi	1.25	1.25	1.25
Median, in.	0.0166	0.0166	0.0166
Median, mm	0.422	0.422	0.422
Mean, phi	1.19	1.43	1.37
Mean, in.	0.0173	0.0146	0.0152
Mean, mm	0.439	0.370	0.386
Sorting	1.496	0.913	1.045
Skewness	0.963	0.207	0.293
Kurtosis	0.242	1.124	1.368
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.03
Coarse Sand	10	0.17
Medium Sand	40	50.00
Fine Sand	200	44.19
Silt/Clay	<200	5.61
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW19-S-24.5
Project No:	06-441-E	**Depth, ft:**	24.5-26.0



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.14	1.14	1.14
0.0331	0.841	0.25	20	1.96	1.96	3.10
0.0278	0.707	0.50	25	2.02	2.02	5.12
0.0234	0.595	0.75	30	3.35	3.35	8.47
0.0197	0.500	1.00	35	5.52	5.52	14.00
0.0166	0.420	1.25	40	7.89	7.89	21.89
0.0139	0.354	1.50	45	8.05	8.05	29.94
0.0117	0.297	1.75	50	12.00	12.00	41.95
0.0098	0.250	2.00	60	9.53	9.53	51.48
0.0083	0.210	2.25	70	7.70	7.70	59.18
0.0070	0.177	2.50	80	5.63	5.63	64.81
0.0059	0.149	2.75	100	3.97	3.97	68.78
0.0049	0.125	3.00	120	2.93	2.93	71.72
0.0041	0.105	3.25	140	2.34	2.34	74.06
0.0035	0.088	3.50	170	2.04	2.04	76.10
0.0029	0.074	3.75	200	1.86	1.86	77.96
0.0025	0.063	4.00	230	1.70	1.70	79.66
0.0021	0.053	4.25	270	1.58	1.58	81.24
0.00174	0.0442	4.50	325	1.53	1.53	82.77
0.00146	0.0372	4.75	400	1.51	1.51	84.28
0.00123	0.0313	5.00	450	1.48	1.48	85.76
0.000986	0.0250	5.32	500	1.81	1.81	87.57
0.000790	0.0201	5.64	635	1.68	1.68	89.25
0.000615	0.0156	6.00		1.69	1.69	90.94
0.000435	0.0110	6.50		2.03	2.03	92.97
0.000308	0.00781	7.00		1.67	1.67	94.64
0.000197	0.00500	7.65		1.68	1.68	96.32
0.000077	0.00195	9.00		2.17	2.17	98.50
0.000038	0.000977	10.00		0.93	0.93	99.43
0.000019	0.000488	11.00		0.52	0.52	99.95
0.000015	0.000375	11.38		0.05	0.05	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.48	0.0281	0.715
10	0.82	0.0223	0.567
16	1.06	0.0188	0.478
25	1.35	0.0155	0.393
40	1.71	0.0120	0.306
50	1.96	0.0101	0.257
60	2.29	0.0081	0.205
75	3.37	0.0038	0.097
84	4.70	0.0015	0.038
90	5.80	0.0007	0.018
95	7.14	0.0003	0.007

Measure	Trask	Inman	Folk-Ward
Median, phi	1.96	1.96	1.96
Median, in.	0.0101	0.0101	0.0101
Median, mm	0.257	0.257	0.257
Mean, phi	2.03	2.88	2.58
Mean, in.	0.0097	0.0053	0.0066
Mean, mm	0.245	0.136	0.168
Sorting	2.013	1.820	1.918
Skewness	0.761	0.507	0.531
Kurtosis	0.270	0.827	1.350
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

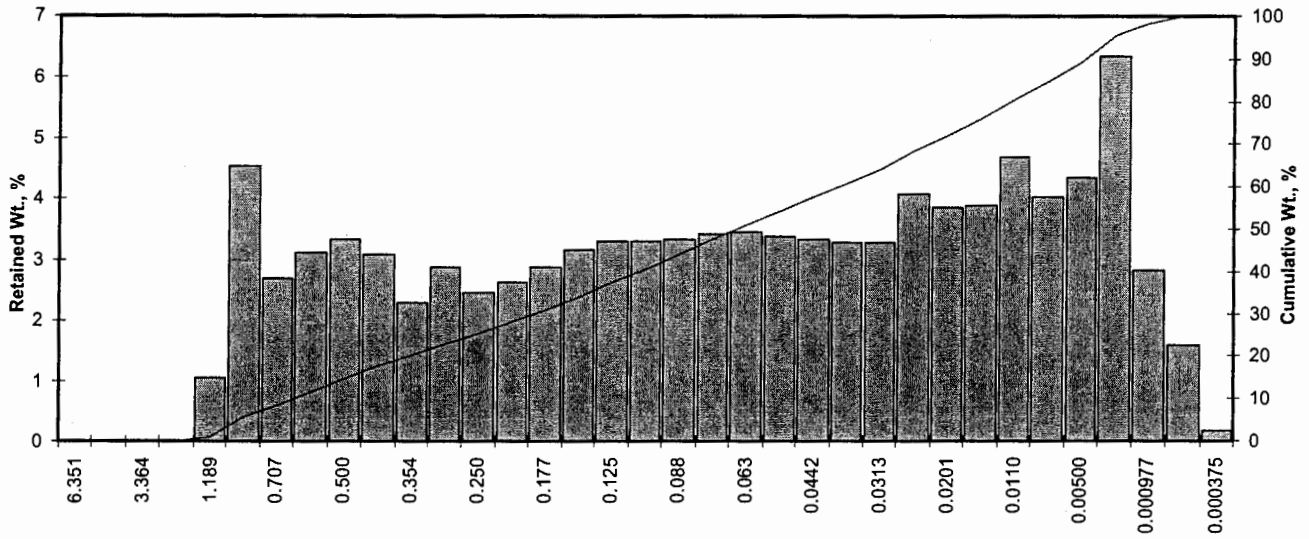
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	21.89
Fine Sand	200	56.07
Silt	>0.005 mm	18.37
Clay	<0.005 mm	3.68
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW19-S-36.0
Project No:	06-441-E	**Depth, ft:**	36.0-37.5

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.05	1.05	1.05
0.0331	0.841	0.25	20	4.54	4.54	5.59
0.0278	0.707	0.50	25	2.71	2.71	8.30
0.0234	0.595	0.75	30	3.11	3.11	11.41
0.0197	0.500	1.00	35	3.32	3.32	14.73
0.0166	0.420	1.25	40	3.08	3.08	17.81
0.0139	0.354	1.50	45	2.28	2.28	20.09
0.0117	0.297	1.75	50	2.88	2.88	22.97
0.0098	0.250	2.00	60	2.45	2.45	25.42
0.0083	0.210	2.25	70	2.62	2.62	28.04
0.0070	0.177	2.50	80	2.88	2.88	30.92
0.0059	0.149	2.75	100	3.17	3.17	34.09
0.0049	0.125	3.00	120	3.30	3.30	37.39
0.0041	0.105	3.25	140	3.30	3.30	40.69
0.0035	0.088	3.50	170	3.33	3.33	44.02
0.0029	0.074	3.75	200	3.42	3.42	47.44
0.0025	0.063	4.00	230	3.46	3.46	50.89
0.0021	0.053	4.25	270	3.39	3.39	54.28
0.00174	0.0442	4.50	325	3.32	3.32	57.60
0.00146	0.0372	4.75	400	3.28	3.28	60.88
0.00123	0.0313	5.00	450	3.27	3.27	64.15
0.000986	0.0250	5.32	500	4.09	4.09	68.24
0.000790	0.0201	5.64	635	3.86	3.86	72.10
0.000615	0.0156	6.00		3.89	3.89	75.99
0.000435	0.0110	6.50		4.70	4.70	80.69
0.000308	0.00781	7.00		4.04	4.04	84.73
0.000197	0.00500	7.65		4.35	4.35	89.08
0.000077	0.00195	9.00		6.34	6.34	95.42
0.000038	0.000977	10.00		2.83	2.83	98.25
0.000019	0.000488	11.00		1.58	1.58	99.83
0.000015	0.000375	11.38		0.17	0.17	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.19	0.0346	0.880
10	0.64	0.0253	0.643
16	1.10	0.0183	0.465
25	1.96	0.0101	0.257
40	3.20	0.0043	0.109
50	3.94	0.0026	0.065
60	4.68	0.0015	0.039
75	5.91	0.0007	0.017
84	6.91	0.0003	0.008
90	7.84	0.0002	0.004
95	8.91	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	3.94	3.94	3.94
Median, in.	0.0026	0.0026	0.0026
Median, mm	0.065	0.065	0.065
Mean, phi	2.87	4.01	3.98
Mean, in.	0.0054	0.0024	0.0025
Mean, mm	0.137	0.062	0.063
Sorting	3.932	2.903	2.774
Skewness	1.002	0.024	0.082
Kurtosis	0.189	0.503	0.905

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

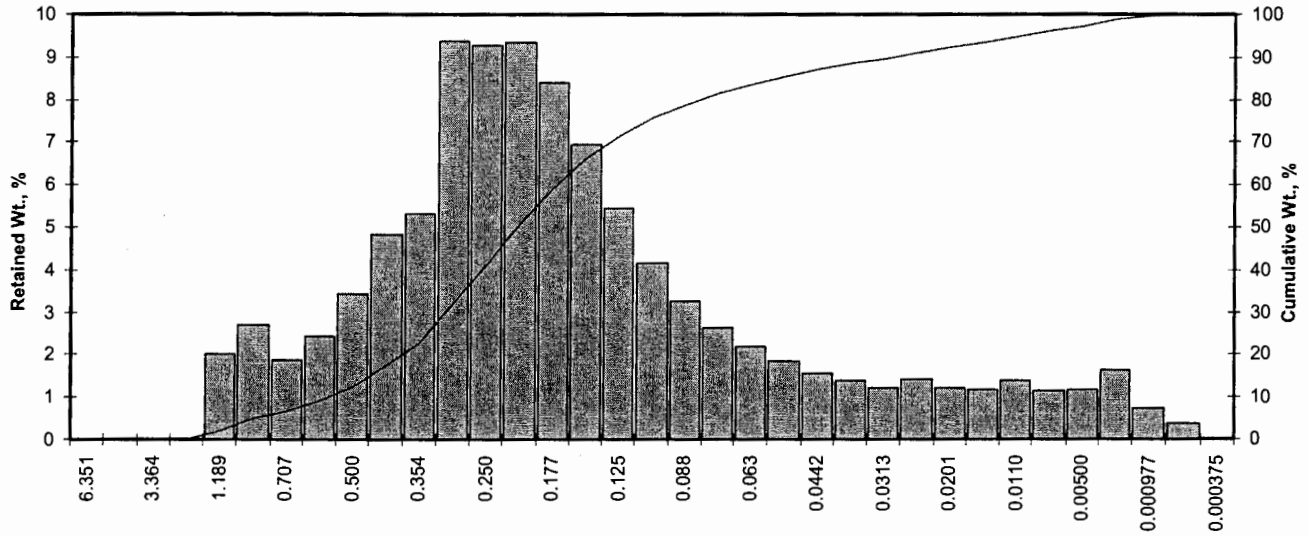
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	17.81
Fine Sand	200	29.63
Silt	>0.005 mm	41.65
Clay	<0.005 mm	10.92
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW19-S-66.0
Project No:	06-441-E	**Depth, ft:**	66.0-67.5

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	2.00	2.00	2.00
0.0331	0.841	0.25	20	2.71	2.71	4.71
0.0278	0.707	0.50	25	1.87	1.87	6.58
0.0234	0.595	0.75	30	2.44	2.44	9.02
0.0197	0.500	1.00	35	3.45	3.45	12.47
0.0166	0.420	1.25	40	4.84	4.84	17.31
0.0139	0.354	1.50	45	5.33	5.33	22.64
0.0117	0.297	1.75	50	9.38	9.38	32.01
0.0098	0.250	2.00	60	9.26	9.26	41.27
0.0083	0.210	2.25	70	9.34	9.34	50.61
0.0070	0.177	2.50	80	8.42	8.42	59.03
0.0059	0.149	2.75	100	6.95	6.95	65.98
0.0049	0.125	3.00	120	5.44	5.44	71.42
0.0041	0.105	3.25	140	4.17	4.17	75.59
0.0035	0.088	3.50	170	3.25	3.25	78.84
0.0029	0.074	3.75	200	2.63	2.63	81.46
0.0025	0.063	4.00	230	2.18	2.18	83.64
0.0021	0.053	4.25	270	1.84	1.84	85.48
0.00174	0.0442	4.50	325	1.58	1.58	87.06
0.00146	0.0372	4.75	400	1.38	1.38	88.44
0.00123	0.0313	5.00	450	1.23	1.23	89.67
0.000986	0.0250	5.32	500	1.41	1.41	91.08
0.000790	0.0201	5.64	635	1.23	1.23	92.31
0.000615	0.0156	6.00		1.19	1.19	93.50
0.000435	0.0110	6.50		1.38	1.38	94.88
0.000308	0.00781	7.00		1.14	1.14	96.02
0.000197	0.00500	7.65		1.18	1.18	97.20
0.000077	0.00195	9.00		1.64	1.64	98.84
0.000038	0.000977	10.00		0.73	0.73	99.57
0.000019	0.000488	11.00		0.39	0.39	99.96
0.000015	0.000375	11.38		0.04	0.04	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.29	0.0322	0.819
10	0.82	0.0223	0.566
16	1.18	0.0173	0.441
25	1.56	0.0133	0.338
40	1.97	0.0101	0.256
50	2.23	0.0084	0.213
60	2.53	0.0068	0.173
75	3.21	0.0042	0.108
84	4.05	0.0024	0.060
90	5.07	0.0012	0.030
95	6.55	0.0004	0.011

Measure	Trask	Inman	Folk-Ward
Median, phi	2.23	2.23	2.23
Median, in.	0.0084	0.0084	0.0084
Median, mm	0.213	0.213	0.213
Mean, phi	2.16	2.62	2.49
Mean, in.	0.0088	0.0064	0.0070
Mean, mm	0.223	0.163	0.178
Sorting	1.773	1.433	1.665
Skewness	0.898	0.266	0.323
Kurtosis	0.215	1.185	1.554

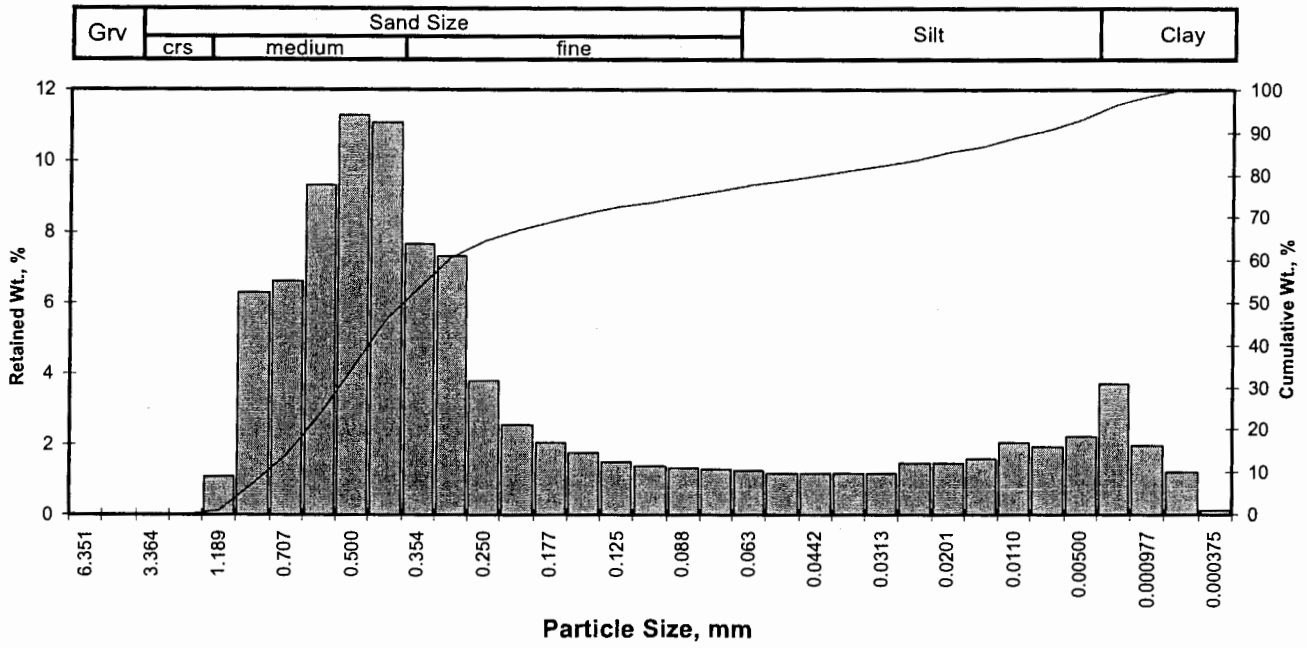
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	17.31
Fine Sand	200	64.16
Silt	>0.005 mm	15.74
Clay	<0.005 mm	2.80
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW17-S-25.0
Project No:	06-441-E	**Depth, ft:**	25.0-26.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.09	1.09	1.09
0.0331	0.841	0.25	20	6.31	6.31	7.40
0.0278	0.707	0.50	25	6.63	6.63	14.02
0.0234	0.595	0.75	30	9.33	9.33	23.35
0.0197	0.500	1.00	35	11.30	11.30	34.65
0.0166	0.420	1.25	40	11.10	11.10	45.74
0.0139	0.354	1.50	45	7.69	7.69	53.43
0.0117	0.297	1.75	50	7.34	7.34	60.77
0.0098	0.250	2.00	60	3.79	3.79	64.55
0.0083	0.210	2.25	70	2.55	2.55	67.10
0.0070	0.177	2.50	80	2.04	2.04	69.14
0.0059	0.149	2.75	100	1.76	1.76	70.90
0.0049	0.125	3.00	120	1.51	1.51	72.41
0.0041	0.105	3.25	140	1.36	1.36	73.77
0.0035	0.088	3.50	170	1.33	1.33	75.10
0.0029	0.074	3.75	200	1.31	1.31	76.41
0.0025	0.063	4.00	230	1.24	1.24	77.65
0.0021	0.053	4.25	270	1.17	1.17	78.82
0.00174	0.0442	4.50	325	1.17	1.17	79.99
0.00146	0.0372	4.75	400	1.18	1.18	81.17
0.00123	0.0313	5.00	450	1.18	1.18	82.35
0.000986	0.0250	5.32	500	1.47	1.47	83.82
0.000790	0.0201	5.64	635	1.46	1.46	85.28
0.000615	0.0156	6.00		1.57	1.57	86.85
0.000435	0.0110	6.50		2.03	2.03	88.87
0.000308	0.00781	7.00		1.90	1.90	90.77
0.000197	0.00500	7.65		2.22	2.22	92.99
0.000077	0.00195	9.00		3.71	3.71	96.70
0.000038	0.000977	10.00		1.96	1.96	98.66
0.000019	0.000488	11.00		1.21	1.21	99.87
0.000015	0.000375	11.38		0.13	0.13	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.06	0.0378	0.959
10	0.35	0.0309	0.786
16	0.55	0.0268	0.682
25	0.79	0.0228	0.580
40	1.12	0.0181	0.460
50	1.39	0.0150	0.382
60	1.72	0.0119	0.303
75	3.48	0.0035	0.090
84	5.36	0.0010	0.024
90	6.80	0.0004	0.009
95	8.38	0.0001	0.003

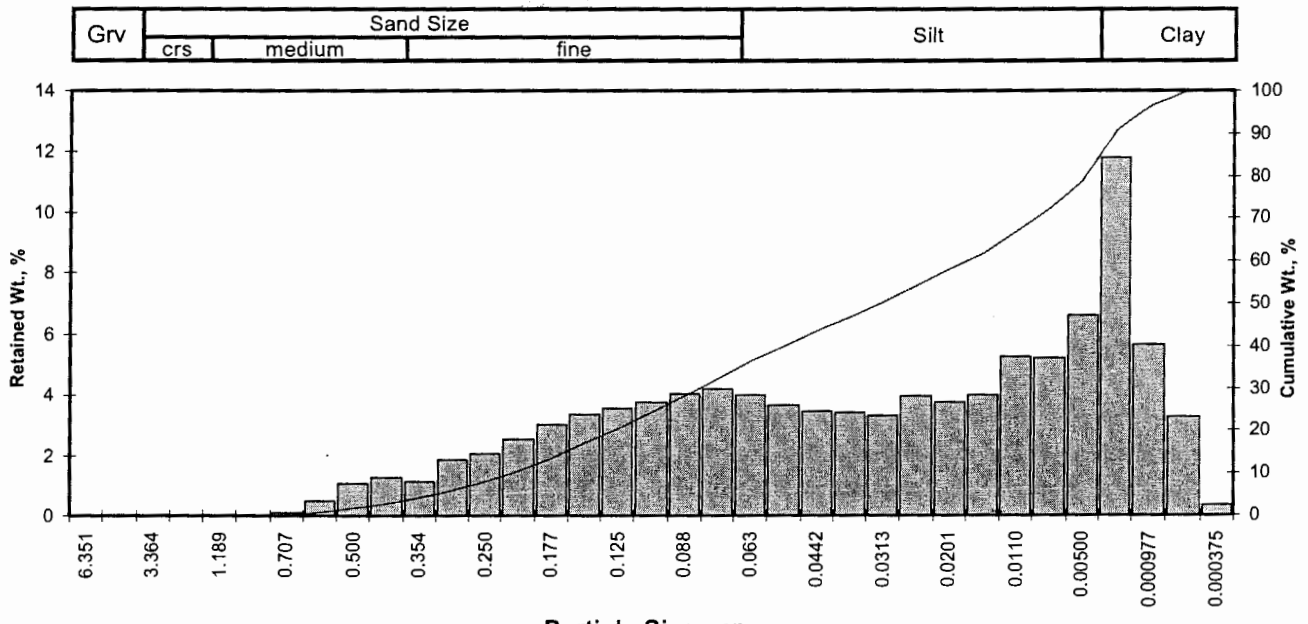
Measure	Trask	Inman	Folk-Ward
Median, phi	1.39	1.39	1.39
Median, in.	0.0150	0.0150	0.0150
Median, mm	0.382	0.382	0.382
Mean, phi	1.58	2.96	2.43
Mean, in.	0.0132	0.0051	0.0073
Mean, mm	0.335	0.129	0.185
Sorting	2.544	2.404	2.462
Skewness	0.597	0.652	0.666
Kurtosis	0.316	0.730	1.265
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	45.74
Fine Sand	200	30.67
Silt	>0.005 mm	16.58
Clay	<0.005 mm	7.01
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-MW17-S-46.0
Project No:	06-441-E	**Depth, ft:**	46.0-47.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.09	0.09	0.10
0.0234	0.595	0.75	30	0.51	0.51	0.61
0.0197	0.500	1.00	35	1.06	1.06	1.67
0.0166	0.420	1.25	40	1.28	1.28	2.94
0.0139	0.354	1.50	45	1.14	1.14	4.08
0.0117	0.297	1.75	50	1.86	1.86	5.94
0.0098	0.250	2.00	60	2.05	2.05	7.99
0.0083	0.210	2.25	70	2.55	2.55	10.54
0.0070	0.177	2.50	80	3.00	3.00	13.54
0.0059	0.149	2.75	100	3.35	3.35	16.89
0.0049	0.125	3.00	120	3.53	3.53	20.42
0.0041	0.105	3.25	140	3.74	3.74	24.16
0.0035	0.088	3.50	170	4.05	4.05	28.21
0.0029	0.074	3.75	200	4.20	4.20	32.41
0.0025	0.063	4.00	230	4.00	4.00	36.41
0.0021	0.053	4.25	270	3.64	3.64	40.05
0.00174	0.0442	4.50	325	3.47	3.47	43.52
0.00146	0.0372	4.75	400	3.41	3.41	46.93
0.00123	0.0313	5.00	450	3.29	3.29	50.22
0.000986	0.0250	5.32	500	3.92	3.92	54.14
0.000790	0.0201	5.64	635	3.73	3.73	57.87
0.000615	0.0156	6.00		3.98	3.98	61.85
0.000435	0.0110	6.50		5.25	5.25	67.10
0.000308	0.00781	7.00		5.22	5.22	72.31
0.000197	0.00500	7.65		6.62	6.62	78.93
0.000077	0.00195	9.00		11.80	11.80	90.73
0.000038	0.000977	10.00		5.63	5.63	96.36
0.000019	0.000488	11.00		3.28	3.28	99.64
0.000015	0.000375	11.38		0.36	0.36	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	1.62	0.0128	0.325
10	2.20	0.0086	0.218
16	2.68	0.0061	0.156
25	3.30	0.0040	0.101
40	4.25	0.0021	0.053
50	4.98	0.0012	0.032
60	5.83	0.0007	0.018
75	7.26	0.0003	0.007
84	8.23	0.0001	0.003
90	8.92	0.0001	0.002
95	9.76	0.0000	0.001

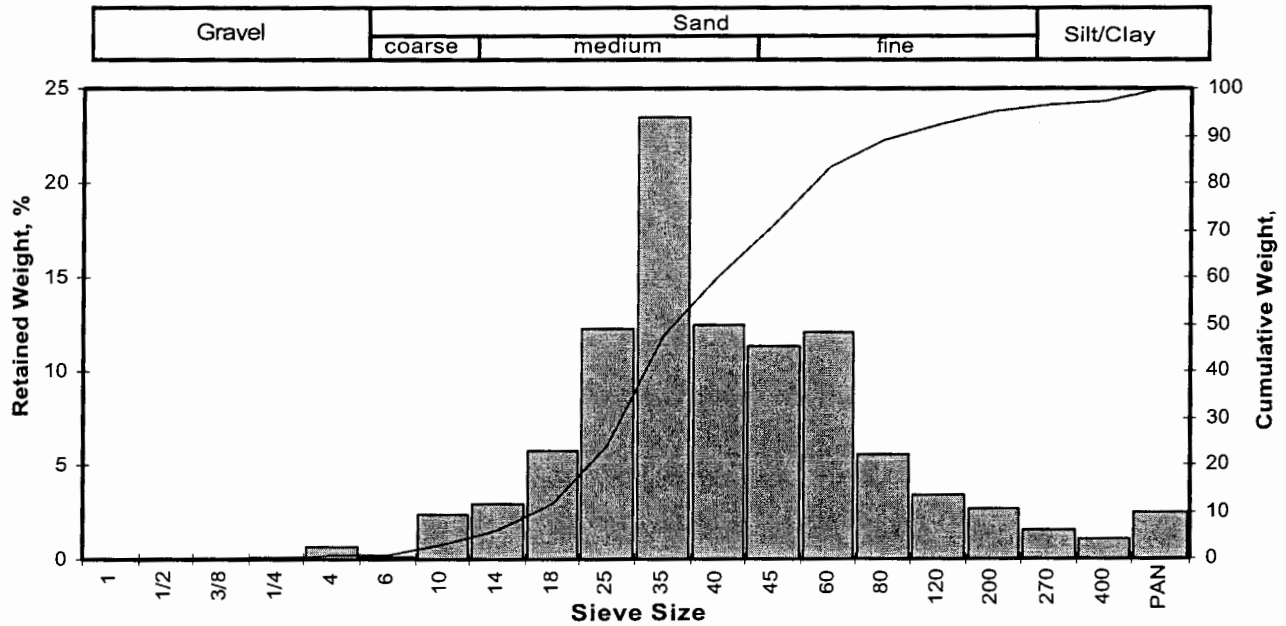
Measure	Trask	Inman	Folk-Ward
Median, phi	4.98	4.98	4.98
Median, in.	0.0012	0.0012	0.0012
Median, mm	0.032	0.032	0.032
Mean, phi	4.21	5.46	5.30
Mean, in.	0.0021	0.0009	0.0010
Mean, mm	0.054	0.023	0.025
Sorting	3.945	2.772	2.619
Skewness	0.813	0.170	0.172
Kurtosis	0.220	0.468	0.842
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	2.94
Fine Sand	200	29.47
Silt	>0.005 mm	46.52
Clay	<0.005 mm	21.07
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-SMP04B-S-24.0
Project No:	06-441-E	**Depth, ft:**	24.0-25.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.02	0.06	0.06
0.1873	4.757	-2.25	4	0.21	0.65	0.71
0.1324	3.364	-1.75	6	0.02	0.06	0.77
0.0787	2.000	-1.00	10	0.75	2.32	3.09
0.0557	1.414	-0.50	14	0.95	2.93	6.02
0.0394	1.000	0.00	18	1.85	5.71	11.74
0.0278	0.707	0.50	25	3.96	12.23	23.97
0.0197	0.500	1.00	35	7.60	23.47	47.44
0.0166	0.420	1.25	40	4.03	12.45	59.88
0.0139	0.354	1.50	45	3.68	11.37	71.25
0.0098	0.250	2.00	60	3.92	12.11	83.35
0.0070	0.177	2.50	80	1.80	5.56	88.91
0.0049	0.125	3.00	120	1.09	3.37	92.28
0.0029	0.074	3.75	200	0.87	2.69	94.97
0.0021	0.053	4.25	270	0.50	1.54	96.51
0.0015	0.037	4.75	400	0.33	1.02	97.53
			PAN	0.80	2.47	100.00
TOTALS				32.38	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.67	0.0628	1.596
10	-0.15	0.0437	1.111
16	0.17	0.0349	0.886
25	0.52	0.0274	0.696
40	0.84	0.0220	0.558
50	1.05	0.0190	0.482
60	1.25	0.0165	0.420
75	1.65	0.0125	0.318
84	2.06	0.0095	0.240
90	2.66	0.0062	0.158
95	3.76	0.0029	0.074

Measure	Trask	Inman	Folk-Ward
Median, phi	1.05	1.05	1.05
Median, in.	0.0190	0.0190	0.0190
Median, mm	0.482	0.482	0.482
Mean, phi	0.98	1.12	1.09
Mean, in.	0.0200	0.0182	0.0184
Mean, mm	0.507	0.461	0.468
Sorting	1.481	0.942	1.143
Skewness	0.975	0.069	0.145
Kurtosis	0.199	1.354	1.604

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.71
Coarse Sand	10	2.38
Medium Sand	40	56.79
Fine Sand	200	35.08
Silt/Clay	<200	5.03
	Total	100

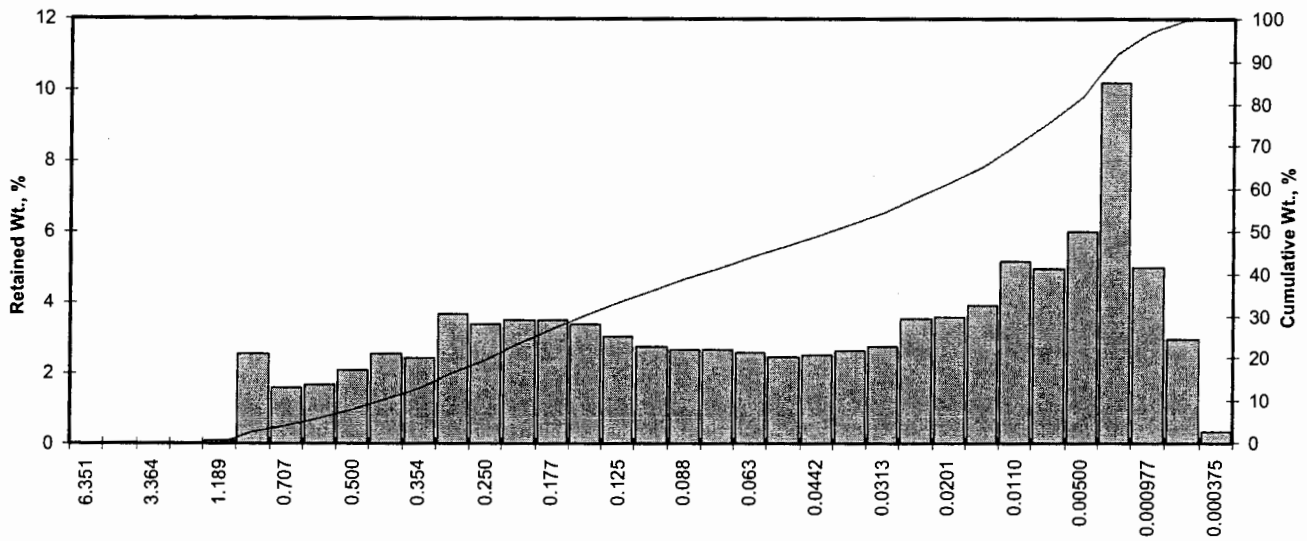
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: IRIS Environmental
Project: PTI
Project No: 06-441-E

PTS File No: 37508
Sample ID: PTI-SMP04B-S-42.5
Depth, ft: 42.5-44.0

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.08	0.08	0.08
0.0331	0.841	0.25	20	2.53	2.53	2.61
0.0278	0.707	0.50	25	1.59	1.59	4.20
0.0234	0.595	0.75	30	1.66	1.66	5.86
0.0197	0.500	1.00	35	2.09	2.09	7.95
0.0166	0.420	1.25	40	2.55	2.55	10.50
0.0139	0.354	1.50	45	2.41	2.41	12.91
0.0117	0.297	1.75	50	3.67	3.67	16.57
0.0098	0.250	2.00	60	3.38	3.38	19.95
0.0083	0.210	2.25	70	3.49	3.49	23.44
0.0070	0.177	2.50	80	3.49	3.49	26.93
0.0059	0.149	2.75	100	3.36	3.36	30.29
0.0049	0.125	3.00	120	3.04	3.04	33.32
0.0041	0.105	3.25	140	2.75	2.75	36.07
0.0035	0.088	3.50	170	2.66	2.66	38.73
0.0029	0.074	3.75	200	2.67	2.67	41.40
0.0025	0.063	4.00	230	2.59	2.59	43.99
0.0021	0.053	4.25	270	2.47	2.47	46.46
0.00174	0.0442	4.50	325	2.50	2.50	48.96
0.00146	0.0372	4.75	400	2.64	2.64	51.60
0.00123	0.0313	5.00	450	2.76	2.76	54.35
0.000986	0.0250	5.32	500	3.56	3.56	57.91
0.000790	0.0201	5.64	635	3.58	3.58	61.49
0.000615	0.0156	6.00		3.91	3.91	65.40
0.000435	0.0110	6.50		5.18	5.18	70.58
0.000308	0.00781	7.00		4.98	4.98	75.55
0.000197	0.00500	7.65		5.99	5.99	81.54
0.000077	0.00195	9.00		10.20	10.19	91.73
0.000038	0.000977	10.00		5.00	5.00	96.73
0.000019	0.000488	11.00		2.95	2.95	99.68
0.000015	0.000375	11.38		0.32	0.32	100.00
TOTALS				**100.10**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.62	0.0256	0.650
10	1.20	0.0171	0.435
16	1.71	0.0120	0.305
25	2.36	0.0077	0.195
40	3.62	0.0032	0.081
50	4.60	0.0016	0.041
60	5.51	0.0009	0.022
75	6.94	0.0003	0.008
84	7.97	0.0002	0.004
90	8.77	0.0001	0.002
95	9.65	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	4.60	4.60	4.60
Median, in.	0.0016	0.0016	0.0016
Median, mm	0.041	0.041	0.041
Mean, phi	3.30	4.84	4.76
Mean, in.	0.0040	0.0014	0.0015
Mean, mm	0.101	0.035	0.037
Sorting	4.895	3.131	2.934
Skewness	0.963	0.077	0.098
Kurtosis	0.215	0.443	0.808

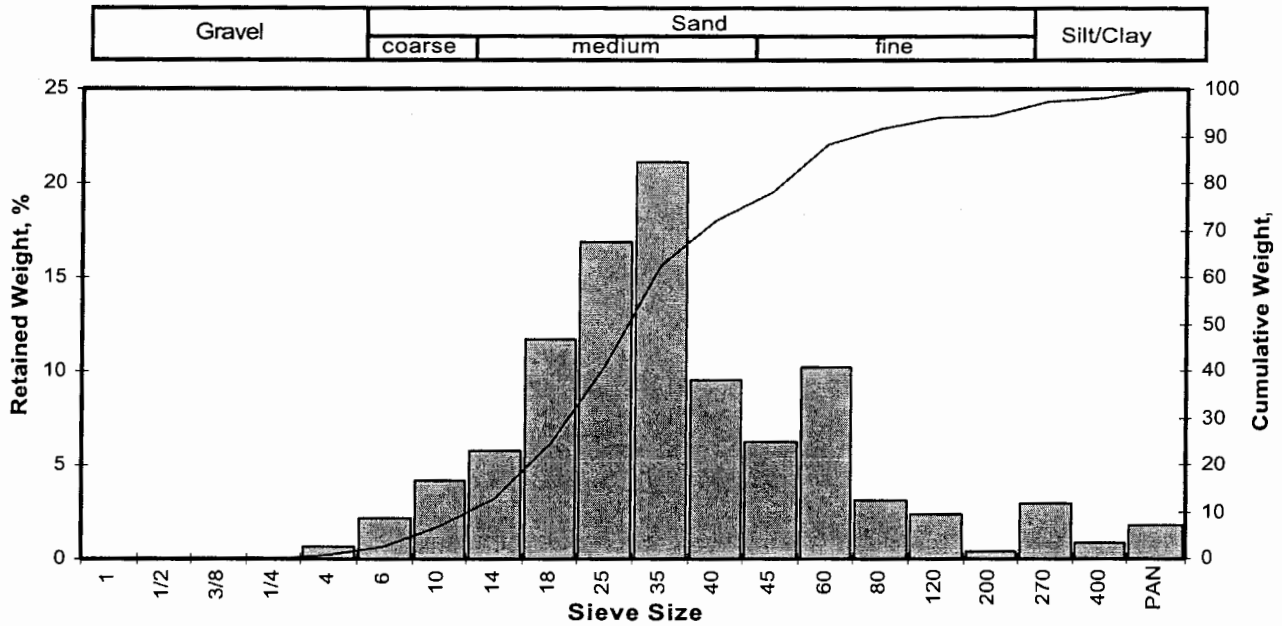
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	10.50
Fine Sand	200	30.90
Silt	>0.005 mm	40.14
Clay	<0.005 mm	18.46
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-SVE02B-S-30.0
Project No:	06-441-E	**Depth, ft:**	30.0-40.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.21	0.62	0.62
0.1324	3.364	-1.75	6	0.72	2.13	2.75
0.0787	2.000	-1.00	10	1.40	4.13	6.88
0.0557	1.414	-0.50	14	1.96	5.79	12.67
0.0394	1.000	0.00	18	3.97	11.72	24.39
0.0278	0.707	0.50	25	5.72	16.89	41.29
0.0197	0.500	1.00	35	7.17	21.18	62.46
0.0166	0.420	1.25	40	3.22	9.51	71.97
0.0139	0.354	1.50	45	2.11	6.23	78.20
0.0098	0.250	2.00	60	3.44	10.16	88.36
0.0070	0.177	2.50	80	1.07	3.16	91.52
0.0049	0.125	3.00	120	0.81	2.39	93.92
0.0029	0.074	3.75	200	0.14	0.41	94.33
0.0021	0.053	4.25	270	1.00	2.95	97.28
0.0015	0.037	4.75	400	0.30	0.89	98.17
			PAN	0.62	1.83	100.00
TOTALS				33.86	100.00	100.00

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-1.34	0.0998	2.534
10	-0.73	0.0653	1.659
16	-0.36	0.0505	1.282
25	0.02	0.0389	0.988
40	0.46	0.0286	0.726
50	0.71	0.0241	0.613
60	0.94	0.0205	0.521
75	1.37	0.0152	0.387
84	1.79	0.0114	0.290
90	2.26	0.0082	0.209
95	3.86	0.0027	0.069

Measure	Trask	Inman	Folk-Ward
Median, phi	0.71	0.71	0.71
Median, in.	0.0241	0.0241	0.0241
Median, mm	0.613	0.613	0.613
Mean, phi	0.54	0.71	0.71
Mean, in.	0.0271	0.0240	0.0241
Mean, mm	0.687	0.610	0.611
Sorting	1.599	1.072	1.324
Skewness	1.008	0.007	0.110
Kurtosis	0.207	1.428	1.576

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.62
Coarse Sand	10	6.26
Medium Sand	40	65.09
Fine Sand	200	22.36
Silt/Clay	<200	5.67
	Total	100

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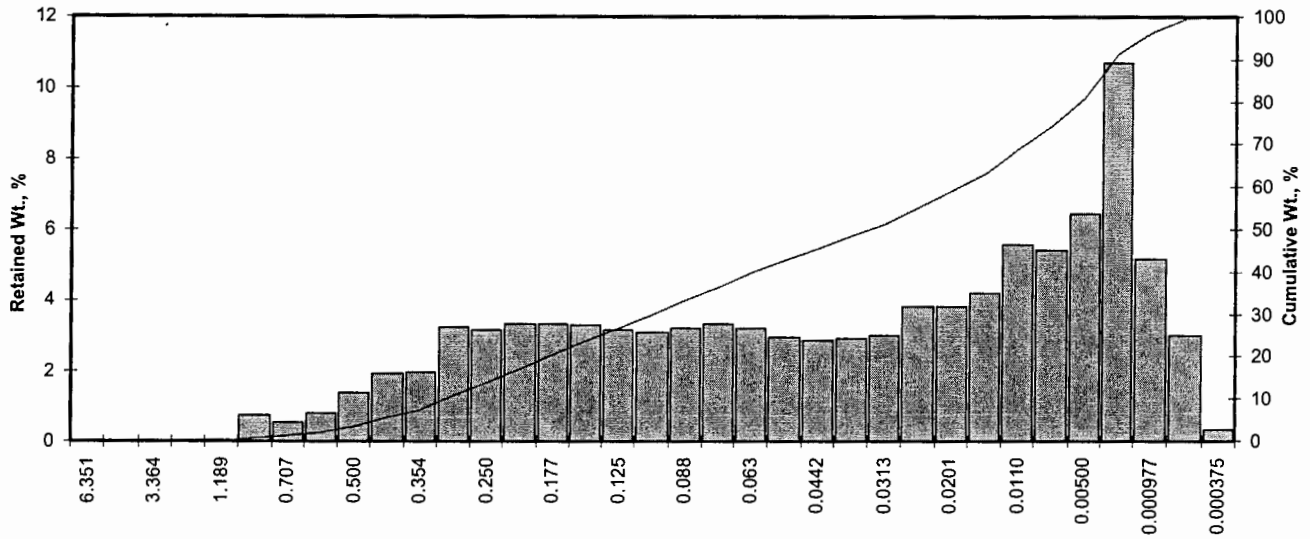
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: IRIS Environmental
Project: PTI
Project No: 06-441-E

PTS File No: 37508
Sample ID: PTI-SVE02B-S-43.0
Depth, ft: 43.0-44.5

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.02	0.02	0.02
0.0331	0.841	0.25	20	0.76	0.76	0.78
0.0278	0.707	0.50	25	0.54	0.54	1.32
0.0234	0.595	0.75	30	0.80	0.80	2.12
0.0197	0.500	1.00	35	1.37	1.37	3.49
0.0166	0.420	1.25	40	1.91	1.91	5.40
0.0139	0.354	1.50	45	1.95	1.95	7.35
0.0117	0.297	1.75	50	3.25	3.25	10.60
0.0098	0.250	2.00	60	3.18	3.18	13.78
0.0083	0.210	2.25	70	3.34	3.34	17.12
0.0070	0.177	2.50	80	3.34	3.34	20.46
0.0059	0.149	2.75	100	3.28	3.28	23.74
0.0049	0.125	3.00	120	3.15	3.15	26.89
0.0041	0.105	3.25	140	3.10	3.10	29.99
0.0035	0.088	3.50	170	3.22	3.22	33.21
0.0029	0.074	3.75	200	3.33	3.33	36.54
0.0025	0.063	4.00	230	3.22	3.22	39.76
0.0021	0.053	4.25	270	2.97	2.97	42.73
0.00174	0.0442	4.50	325	2.86	2.86	45.59
0.00146	0.0372	4.75	400	2.91	2.91	48.50
0.00123	0.0313	5.00	450	2.98	2.98	51.48
0.000986	0.0250	5.32	500	3.83	3.83	55.31
0.000790	0.0201	5.64	635	3.85	3.85	59.16
0.000615	0.0156	6.00		4.19	4.19	63.35
0.000435	0.0110	6.50		5.58	5.58	68.93
0.000308	0.00781	7.00		5.40	5.40	74.33
0.000197	0.00500	7.65		6.46	6.46	80.79
0.000077	0.00195	9.00		10.70	10.70	91.49
0.000038	0.000977	10.00		5.16	5.16	96.65
0.000019	0.000488	11.00		3.02	3.02	99.67
0.000015	0.000375	11.38		0.33	0.33	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	1.20	0.0172	0.436
10	1.70	0.0121	0.307
16	2.17	0.0088	0.223
25	2.85	0.0055	0.139
40	4.02	0.0024	0.062
50	4.88	0.0013	0.034
60	5.71	0.0008	0.019
75	7.07	0.0003	0.007
84	8.05	0.0001	0.004
90	8.81	0.0001	0.002
95	9.68	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	4.88	4.88	4.88
Median, in.	0.0013	0.0013	0.0013
Median, mm	0.034	0.034	0.034
Mean, phi	3.77	5.11	5.03
Mean, in.	0.0029	0.0011	0.0012
Mean, mm	0.073	0.029	0.031
Sorting	4.312	2.943	2.757
Skewness	0.944	0.079	0.106
Kurtosis	0.215	0.441	0.824
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	5.40
Fine Sand	200	31.14
Silt	>0.005 mm	44.25
Clay	<0.005 mm	19.21
	Total	**100**

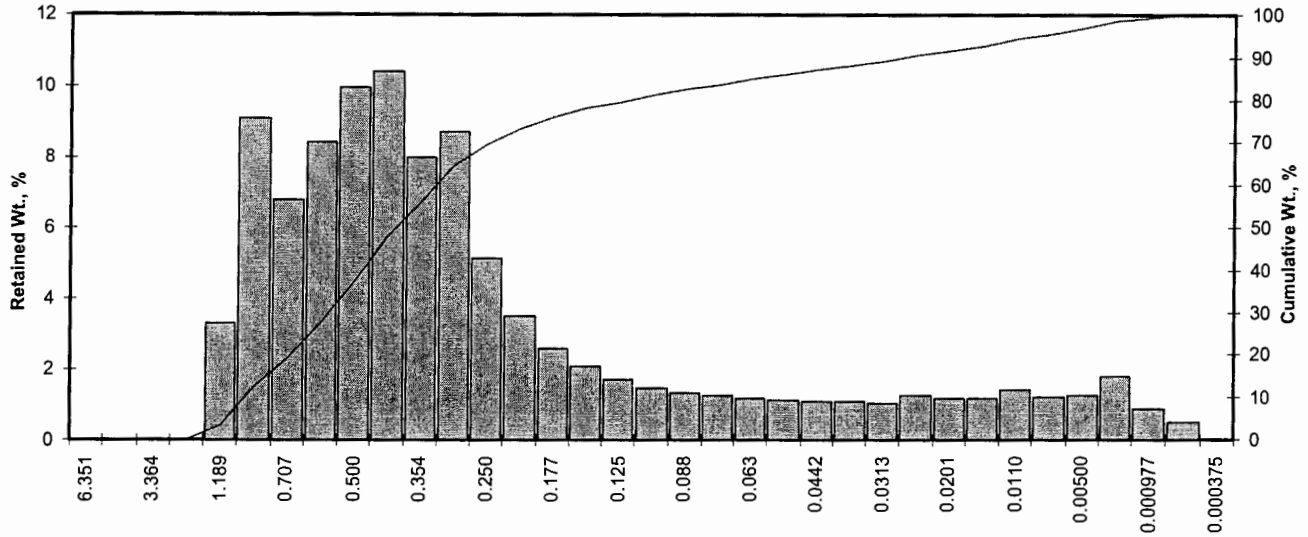
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: IRIS Environmental
Project: PTI
Project No: 06-441-E

PTS File No: 37508
Sample ID: PTI-SVE01B-S-26.0
Depth, ft: 26.0-27.5

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	3.31	3.31	3.31
0.0331	0.841	0.25	20	9.10	9.10	12.41
0.0278	0.707	0.50	25	6.78	6.78	19.20
0.0234	0.595	0.75	30	8.40	8.40	27.60
0.0197	0.500	1.00	35	9.97	9.97	37.57
0.0166	0.420	1.25	40	10.40	10.40	47.98
0.0139	0.354	1.50	45	7.98	7.98	55.96
0.0117	0.297	1.75	50	8.71	8.71	64.67
0.0098	0.250	2.00	60	5.12	5.12	69.80
0.0083	0.210	2.25	70	3.51	3.51	73.31
0.0070	0.177	2.50	80	2.58	2.58	75.89
0.0059	0.149	2.75	100	2.07	2.07	77.96
0.0049	0.125	3.00	120	1.71	1.71	79.67
0.0041	0.105	3.25	140	1.47	1.47	81.14
0.0035	0.088	3.50	170	1.34	1.34	82.48
0.0029	0.074	3.75	200	1.26	1.26	83.74
0.0025	0.063	4.00	230	1.18	1.18	84.92
0.0021	0.053	4.25	270	1.11	1.11	86.03
0.00174	0.0442	4.50	325	1.09	1.09	87.12
0.00146	0.0372	4.75	400	1.07	1.07	88.19
0.00123	0.0313	5.00	450	1.04	1.04	89.23
0.000986	0.0250	5.32	500	1.26	1.26	90.49
0.000790	0.0201	5.64	635	1.17	1.17	91.66
0.000615	0.0156	6.00		1.18	1.18	92.84
0.000435	0.0110	6.50		1.43	1.43	94.27
0.000308	0.00781	7.00		1.20	1.20	95.47
0.000197	0.00500	7.65		1.25	1.25	96.72
0.000077	0.00195	9.00		1.81	1.81	98.54
0.000038	0.000977	10.00		0.89	0.89	99.43
0.000019	0.000488	11.00		0.52	0.52	99.95
0.000015	0.000375	11.38		0.05	0.05	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.16	0.0439	1.115
10	0.12	0.0363	0.922
16	0.38	0.0302	0.767
25	0.67	0.0247	0.627
40	1.06	0.0189	0.480
50	1.31	0.0158	0.402
60	1.62	0.0128	0.326
75	2.41	0.0074	0.188
84	3.81	0.0028	0.072
90	5.19	0.0011	0.027
95	6.80	0.0004	0.009

Measure	Trask	Inman	Folk-Ward
Median, phi	1.31	1.31	1.31
Median, in.	0.0158	0.0158	0.0158
Median, mm	0.402	0.402	0.402
Mean, phi	1.30	2.09	1.83
Mean, in.	0.0160	0.0092	0.0110
Mean, mm	0.407	0.234	0.281
Sorting	1.829	1.711	1.910
Skewness	0.853	0.456	0.517
Kurtosis	0.246	1.033	1.638
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	47.98
Fine Sand	200	35.76
Silt	>0.005 mm	12.98
Clay	<0.005 mm	3.28
	Total	**100**

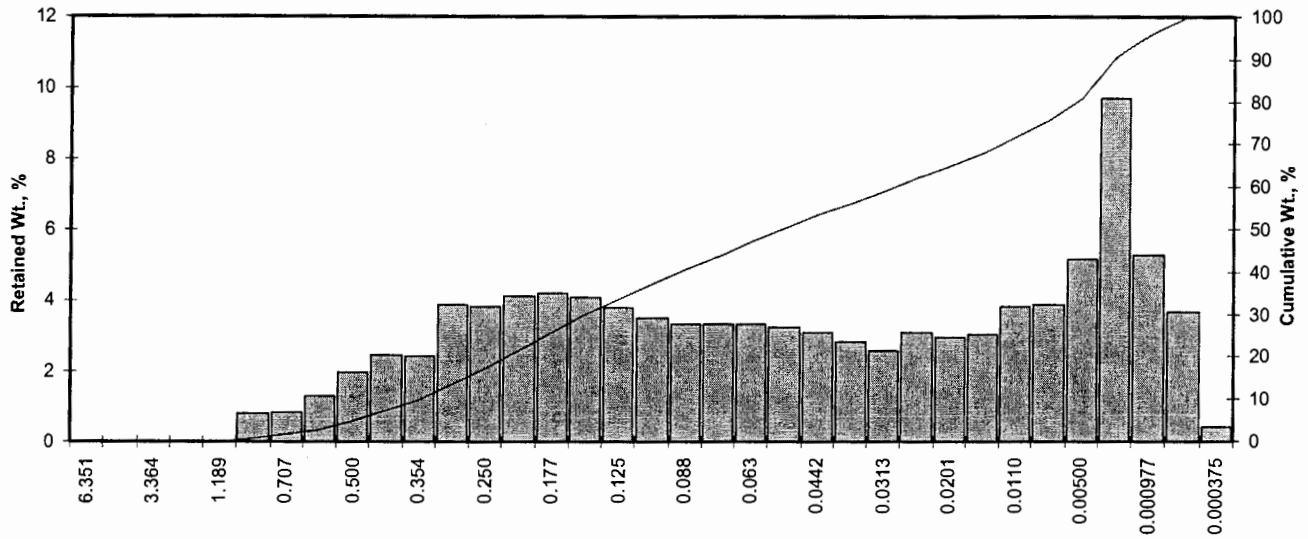
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: IRIS Environmental
Project: PTI
Project No: 06-441-E

PTS File No: 37508
Sample ID: PTI-SVE01B-S-44.0
Depth, ft: 44.0-45.5

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.02	0.02	0.02
0.0331	0.841	0.25	20	0.78	0.78	0.80
0.0278	0.707	0.50	25	0.84	0.84	1.64
0.0234	0.595	0.75	30	1.31	1.31	2.95
0.0197	0.500	1.00	35	1.94	1.94	4.89
0.0166	0.420	1.25	40	2.46	2.46	7.35
0.0139	0.354	1.50	45	2.40	2.40	9.75
0.0117	0.297	1.75	50	3.88	3.88	13.63
0.0098	0.250	2.00	60	3.82	3.82	17.45
0.0083	0.210	2.25	70	4.12	4.12	21.57
0.0070	0.177	2.50	80	4.19	4.19	25.76
0.0059	0.149	2.75	100	4.07	4.07	29.83
0.0049	0.125	3.00	120	3.81	3.81	33.64
0.0041	0.105	3.25	140	3.52	3.52	37.16
0.0035	0.088	3.50	170	3.35	3.35	40.51
0.0029	0.074	3.75	200	3.32	3.32	43.83
0.0025	0.063	4.00	230	3.33	3.33	47.16
0.0021	0.053	4.25	270	3.27	3.27	50.43
0.00174	0.0442	4.50	325	3.10	3.10	53.53
0.00146	0.0372	4.75	400	2.83	2.83	56.36
0.00123	0.0313	5.00	450	2.58	2.58	58.94
0.000986	0.0250	5.32	500	3.08	3.08	62.02
0.000790	0.0201	5.64	635	2.95	2.95	64.97
0.000615	0.0156	6.00		3.04	3.04	68.01
0.000435	0.0110	6.50		3.85	3.85	71.86
0.000308	0.00781	7.00		3.89	3.89	75.75
0.000197	0.00500	7.65		5.15	5.15	80.90
0.000077	0.00195	9.00		9.71	9.71	90.61
0.000038	0.000977	10.00		5.28	5.28	95.89
0.000019	0.000488	11.00		3.68	3.68	99.57
0.000015	0.000375	11.38		0.43	0.43	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	1.01	0.0195	0.496
10	1.52	0.0138	0.350
16	1.91	0.0105	0.267
25	2.45	0.0072	0.182
40	3.46	0.0036	0.091
50	4.22	0.0021	0.054
60	5.11	0.0011	0.029
75	6.90	0.0003	0.008
84	8.08	0.0001	0.004
90	8.91	0.0001	0.002
95	9.83	0.0000	0.001

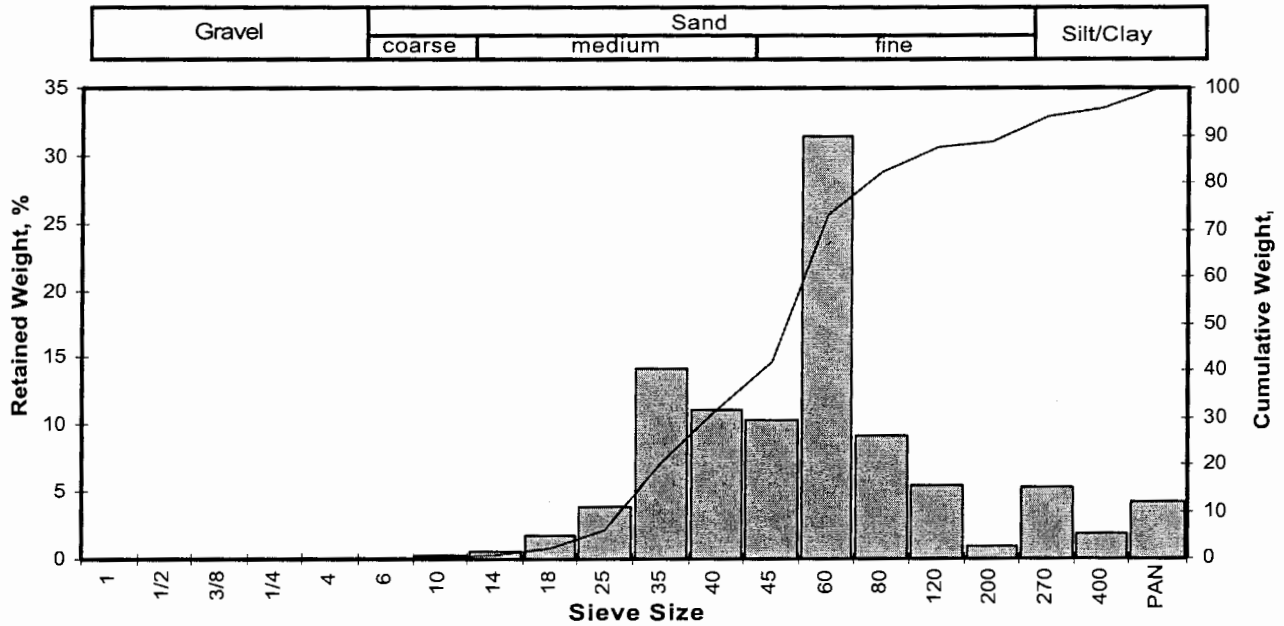
Measure	Trask	Inman	Folk-Ward
Median, phi	4.22	4.22	4.22
Median, in.	0.0021	0.0021	0.0021
Median, mm	0.054	0.054	0.054
Mean, phi	3.39	4.99	4.73
Mean, in.	0.0038	0.0012	0.0015
Mean, mm	0.095	0.031	0.038
Sorting	4.673	3.086	2.880
Skewness	0.726	0.251	0.262
Kurtosis	0.250	0.429	0.813
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	7.35
Fine Sand	200	36.48
Silt	>0.005 mm	37.07
Clay	<0.005 mm	19.10
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-SVE03B-S-27.0
Project No:	06-441-E	**Depth, ft:**	27.0-28.5



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.08	0.23	0.23
0.0557	1.414	-0.50	14	0.18	0.52	0.75
0.0394	1.000	0.00	18	0.58	1.67	2.42
0.0278	0.707	0.50	25	1.32	3.80	6.22
0.0197	0.500	1.00	35	4.89	14.09	20.32
0.0166	0.420	1.25	40	3.85	11.10	31.41
0.0139	0.354	1.50	45	3.57	10.29	41.70
0.0098	0.250	2.00	60	10.89	31.38	73.08
0.0070	0.177	2.50	80	3.17	9.14	82.22
0.0049	0.125	3.00	120	1.89	5.45	87.67
0.0029	0.074	3.75	200	0.33	0.95	88.62
0.0021	0.053	4.25	270	1.85	5.33	93.95
0.0015	0.037	4.75	400	0.63	1.82	95.76
			PAN	1.47	4.24	100.00
TOTALS				34.70	100.00	100.00

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.34	0.0311	0.791
10	0.63	0.0254	0.644
16	0.85	0.0219	0.556
25	1.11	0.0183	0.465
40	1.46	0.0143	0.364
50	1.63	0.0127	0.323
60	1.79	0.0114	0.289
75	2.10	0.0092	0.232
84	2.66	0.0062	0.158
90	3.88	0.0027	0.068
95	4.54	0.0017	0.043

Measure	Trask	Inman	Folk-Ward
Median, phi	1.63	1.63	1.63
Median, in.	0.0127	0.0127	0.0127
Median, mm	0.323	0.323	0.323
Mean, phi	1.52	1.76	1.71
Mean, in.	0.0137	0.0117	0.0120
Mean, mm	0.349	0.296	0.305
Sorting	1.414	0.908	1.091
Skewness	1.019	0.135	0.260
Kurtosis	0.201	1.312	1.723

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

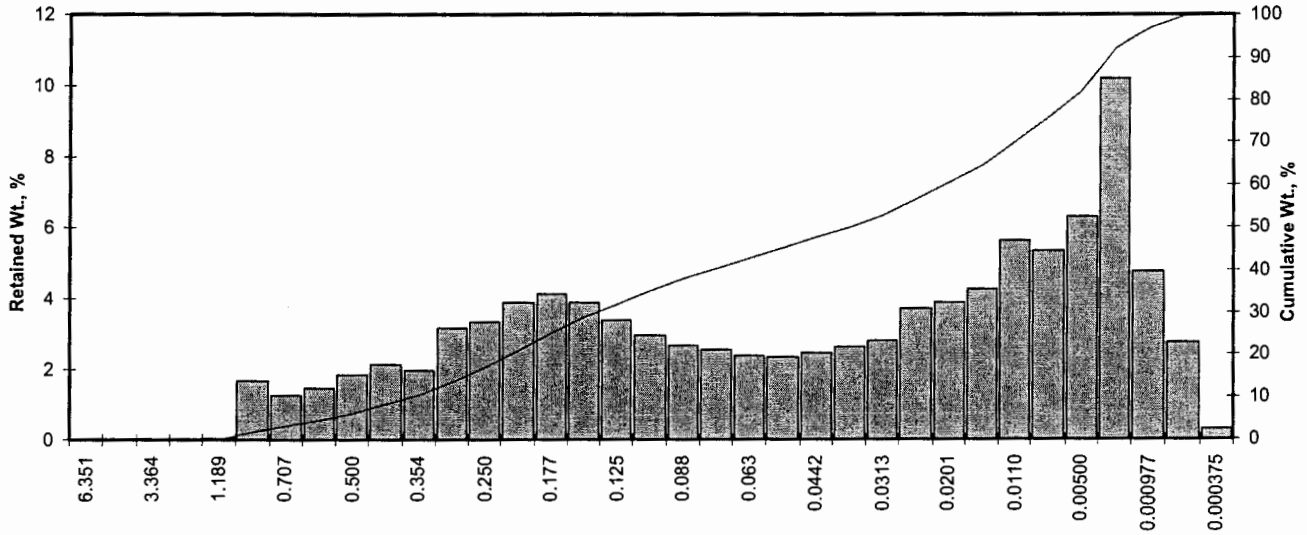
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.23
Medium Sand	40	31.18
Fine Sand	200	57.20
Silt/Clay	<200	11.38
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	IRIS Environmental	**PTS File No:**	37508
Project:	PTI	**Sample ID:**	PTI-SVE03B-S-43.0
Project No:	06-441-E	**Depth, ft:**	43.0-44.5

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.05	0.05	0.05
0.0331	0.841	0.25	20	1.68	1.68	1.73
0.0278	0.707	0.50	25	1.26	1.26	2.99
0.0234	0.595	0.75	30	1.45	1.45	4.44
0.0197	0.500	1.00	35	1.84	1.84	6.28
0.0166	0.420	1.25	40	2.14	2.14	8.42
0.0139	0.354	1.50	45	1.96	1.96	10.38
0.0117	0.297	1.75	50	3.16	3.16	13.53
0.0098	0.250	2.00	60	3.33	3.33	16.86
0.0083	0.210	2.25	70	3.89	3.89	20.75
0.0070	0.177	2.50	80	4.11	4.11	24.86
0.0059	0.149	2.75	100	3.87	3.87	28.73
0.0049	0.125	3.00	120	3.37	3.37	32.10
0.0041	0.105	3.25	140	2.94	2.94	35.04
0.0035	0.088	3.50	170	2.68	2.68	37.72
0.0029	0.074	3.75	200	2.53	2.53	40.25
0.0025	0.063	4.00	230	2.39	2.39	42.64
0.0021	0.053	4.25	270	2.34	2.34	44.98
0.00174	0.0442	4.50	325	2.45	2.45	47.43
0.00146	0.0372	4.75	400	2.62	2.62	50.05
0.00123	0.0313	5.00	450	2.78	2.78	52.83
0.000986	0.0250	5.32	500	3.71	3.71	56.54
0.000790	0.0201	5.64	635	3.87	3.87	60.41
0.000615	0.0156	6.00		4.26	4.26	64.67
0.000435	0.0110	6.50		5.64	5.64	70.31
0.000308	0.00781	7.00		5.35	5.35	75.65
0.000197	0.00500	7.65		6.31	6.31	81.96
0.000077	0.00195	9.00		10.20	10.20	92.16
0.000038	0.000977	10.00		4.77	4.77	96.93
0.000019	0.000488	11.00		2.77	2.77	99.70
0.000015	0.000375	11.38		0.30	0.30	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.83	0.0222	0.564
10	1.45	0.0144	0.365
16	1.94	0.0103	0.262
25	2.51	0.0069	0.176
40	3.73	0.0030	0.076
50	4.75	0.0015	0.037
60	5.61	0.0008	0.021
75	6.94	0.0003	0.008
84	7.92	0.0002	0.004
90	8.71	0.0001	0.002
95	9.60	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	4.75	4.75	4.75
Median, in.	0.0015	0.0015	0.0015
Median, mm	0.037	0.037	0.037
Mean, phi	3.44	4.93	4.87
Mean, in.	0.0036	0.0013	0.0014
Mean, mm	0.092	0.033	0.034
Sorting	4.643	2.990	2.824
Skewness	1.015	0.060	0.083
Kurtosis	0.231	0.466	0.811
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	8.42
Fine Sand	200	31.83
Silt	>0.005 mm	41.71
Clay	<0.005 mm	18.04
	Total	**100**

DATE PTS FILE# 57508 **CHAIN OF CUSTODY RECORD** PAGE 1 OF 2

COMPANY: IRIS ENVIRONMENTAL

ADDRESS: 1438 WEBSTER ST., ste 302 CITY: OAKLAND ZIP CODE: 94612

PROJECT MANAGER: CHRIS ALGER PHONE NUMBER: 510-834-4747 x21

PROJECT NAME: PTI

PROJECT NUMBER: 06-441-E FAX NUMBER: 510-834-4199

SITE LOCATION: SFS

SAMPLER SIGNATURE:

PO#:

SPECIAL HANDLING: 24 HOURS / 72 HOURS / 5 DAYS / NORMAL / OTHER

SAMPLE CONDITIONS: RECEIVED ON ICE YES/NO; SEALED YES/NO; OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY (DRY), API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	POROSITY: EFFECTIVE, ASTM D425M	TCEQ/TNRCC PROPERTIES PACKAGE	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	VADOZ TRANSPORT PACKAGE	HYDRAULIC CONDUCTIVITY SAT. PKG.				NUMBER OF SAMPLES	COMMENTS: SAMPLES Contain
PTI-MW20-S-23.0 BULK	6/15/07	09:55	23.0-24.5									X								X					3	VOCs + Hex Chrome
PTI-MW20-S-39.0 BULK	6/15/07	10:30	39.0-40.5									X								X					3	
PTI-MW20-S-58.0 BULK	6/15/07	12:15	58.0-59.5									X			X					NO	X				3	
PTI-MW19-S ~~32.5~~ 24.5 BULK	6/18/07	11:20	24.5-26.0									X								X					3	
PTI-MW19-S-36.0	6/18/07	14:10	36.0-37.5									X								X					3	
PTI-MW19-S-66.0	6/18/07	16:30	66.0-67.5									X			X						X				3	
PTI-MW17-S-25.0	6/19/07	14:45	25.0-26.5									X								X					3	CALL TO RETURN
PTI-MW17-S-46.0	6/19/07	15:35	46.0-47.5									X								X					3	SAMPLES
PTI-SMP04B-S-24.0 BULK	6/20/07	11:30	24.0-25.5									X								X					3	EDD to:
PTI-SMP04B-S-42.5 BULK	6/20/07	12:40	42.5-44.0									X								X					3	calger@irisenv.com
PTI-SVE02B-S-30.0 BULK	6/21/07	14:00	30.0-40.5									X								X					3	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
[signature]	[signature]		
COMPANY: IRIS ENVIRONMENTAL	COMPANY: PTS Laboratories	COMPANY:	COMPANY:
DATE: 6/26/07 TIME: 10:25	DATE: 6-26-07 TIME: 10:30	DATE: TIME:	DATE: TIME:

DATE PTS FILE# 37508 **CHAIN OF CUSTODY RECORD** PAGE 2 OF 2

COMPANY: IRIS ENVIRONMENTAL

ADDRESS: 1438 WEBSTER ST, ste 302 CITY: OAKLAND ZIP CODE: 94612

PROJECT MANAGER: CHRIS ALGER 510-834-4747 x21

PROJECT NAME: PTI PHONE NUMBER:

PROJECT NUMBER: 06-441-E FAX NUMBER: 510-834-4199

SITE LOCATION: SFS

SAMPLER SIGNATURE: [signature]

PO#:

SPECIAL HANDLING: 24 HOURS / 72 HOURS / 5 DAYS / NORMAL / OTHER

SAMPLE CONDITIONS: RECEIVED ON ICE YES/NO; SEALED YES/NO; OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY (DRY), API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	POROSITY: EFFECTIVE, ASTM D425M	TCEQ/TNRCC PROPERTIES PACKAGE	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	VAPOR TRANSPORT PACKAGE					NUMBER OF SAMPLES	COMMENTS
PTI-SVE02B-S-43.0 BULK	6/21/07	14:10	43.0-44.5									X								X					3	Samples contain VOCs + Hex Chrome
PTI-SVE01B-S-26.0 BULK	6/21/07	18:40	26.0-27.5									X								X					3	
PTI-SVE01B-S-44.0 BULK	6/21/07	18:50	44.0-45.5									X								X					3	
PTI-SVE03B-S-27.0 BULK	6/23/07	13:21	27.0-28.5									X								X					3	
PTI-SVE03B-S-43.0 BULK	6/23/07	13:29	43.0-44.5									X								X					3	

CALL TO RETURN SAMPLES

EDD to: calger@irisenv.com

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
John E Ball	[signature]		
COMPANY: IRIS ENVIRONMENTAL	COMPANY: PTS Laboratories	COMPANY	COMPANY
DATE: 6/26/07 TIME: 10:25	DATE: 6-26-07 TIME: 10:30	DATE TIME	DATE TIME