Site Assessment Report of Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant
Hanson Aggregates Mission Valley Rock Facility
7999 Athenour Way
Sunol, Alameda County, California

April 10, 2007
001-09480-02

Prepared for
Hanson Aggregates Northern California
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April 10, 2007

Mr. Jerry Wickham
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: **Site Assessment Report of Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant, Hanson Aggregates Mission Valley Rock Facility, 7999 Athenour Way, Sunol, Alameda County, California**

Dear Mr. Wickham:

This "Site Assessment Report of Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant" was prepared by LFR Inc. (LFR) on behalf of Hanson Aggregates Northern California for the Asphalt Plant at the former Mission Valley Rock Company facility, located at 7999 Athenour Way in Sunol, Alameda County, California ("the Site"). The additional investigation work and evaluation of potential remediation options were conducted in accordance with the "Work Plan to Conduct Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant" submitted to you on October 10, 2006 ("the Work Plan"), and in accordance with technical comments you provided in a letter dated November 3, 2006, entitled "Fuel Leak Case No. RO0000207, Mission Valley Rock and Asphalt, 7999 Athenour Way, Sunol, CA – Work Plan Approval."

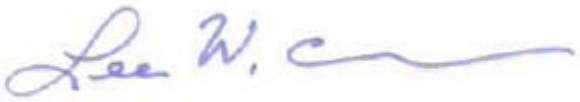
The additional investigation was conducted during February 26 through March 2, 2007, and consisted of advancing eight temporary soil borings to further characterize the lateral and vertical extent of petroleum hydrocarbons and associated compounds detected in groundwater beneath the Asphalt Plant. The Membrane Interface Probe (MIP) technology was used to screen for the presence of petroleum hydrocarbons while soil borings were advanced. Depth-discrete grab groundwater samples were collected to confirm the results of the MIP investigation and to obtain quantitative analytical results from the deeper soil borings. Based on the results of these investigations, the extent of petroleum hydrocarbons in groundwater beneath the Site has been sufficiently characterized both laterally and vertically.

In addition, groundwater samples were collected from three existing groundwater monitoring wells (MW-5D, MW7D, and MW-12D) for specific inorganic compounds that are indicators of existing and/or potential microbial activity and degradation of petroleum hydrocarbons. These results were used to evaluate potential remediation alternatives for the Site. The indicator parameters indicate that biodegradation of hydrocarbons likely is occurring in groundwater beneath the Site, and that the primary mechanism of biodegradation is anaerobic respiration in an oxygen-depleted environment. It is anticipated that the addition of oxygen into the groundwater system likely would accelerate the current rates of biodegradation. The proposed remedial alternative is enhanced biodegradation through the injection of gas-phase oxygen. The next step before implementing this remedial approach would be the completion of a pilot study to test whether air sparging could be an effective means of delivering oxygen to the affected groundwater.

As requested, this Site Assessment Report will be submitted electronically via the Alameda County Environmental Cleanup Oversight Program FTP website, and via the Regional Water Quality Control Board's GeoTracker electronic submittal system.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report are true and correct to the best of my knowledge. If you have any questions or comments concerning this Work Plan, please call me at (925) 426-4170 or Bill Carson of LFR at (510) 652-4500.

Sincerely,



Lee W. Cover
Environmental Manager
Hanson Aggregates Northern California

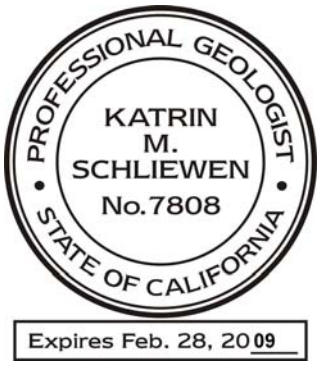
Attachment

CONTENTS

APPENDICES

CERTIFICATION

LFR Inc. has prepared this site assessment report for additional subsurface investigation work conducted at the Asphalt Plant area of the Hanson Aggregates Mission Valley Rock Facility in Sunol, California, on behalf of Hanson Aggregates Northern California in a manner consistent with the level of care and skill ordinarily exercised by professional geologists and environmental scientists. This investigation work plan was prepared under the technical direction of the undersigned California Professional Geologist.



April 10, 2007

Katrin M. Schliewen, P.G. Date
Senior Hydrogeologist
California Professional Geologist No. 7808

* A registered geologist's or registered environmental assessor's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.

1.0 INTRODUCTION

LFR Inc. (LFR) has prepared this "Site Assessment Report of Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant" on behalf of Hanson Aggregates Northern California ("Hanson") for the facility located at 7999 Athenour Way in Sunol, Alameda County, California ("the Site"; Figure 1). The purpose of the additional investigation was to further assess the lateral and vertical extent of petroleum hydrocarbon-affected groundwater in the vicinity of the Asphalt Plant, and to collect additional groundwater samples to help evaluate potential remediation alternatives at the Site.

This report summarizes field activities performed in accordance with the "Work Plan to Conduct Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant" ("the Work Plan"), dated October 10, 2006 (LFR 2006c). Field investigation activities consisted of advancing eight temporary soil borings to assess the presence of petroleum hydrocarbons (where possible) and collecting grab groundwater samples. Additional field activities consisted of sampling three existing groundwater monitoring wells for parameters that are indicators of microbial activity and/or the potential for natural or enhanced degradation of petroleum hydrocarbons. The Work Plan was approved by Alameda County Environmental Health (ACEH) in a letter dated November 3, 2006 and entitled "Fuel Leak Case No. RO0000207, Mission Valley Rock and Asphalt, 7999 Athenour Way, Sunol, CA – Work Plan Approval." Specific technical comments provided in the November 3, 2006 letter are addressed in this report.

This report is organized as follows: Section 2.0 presents a site description and history of potential environmental impacts, a summary of investigations conducted at the Site to date, and a summary of the ACEH requirements and LFR investigation objectives. Section 3.0 describes the investigation methodology, including the advancement of temporary soil borings, field screening and logging methods, and groundwater sampling and analysis methods. Section 4.0 presents and discusses the results of the additional lateral and vertical characterization work, including results from the field screening during drilling, and analytical results from grab groundwater samples. Section 5.0 presents and discusses the analytical results from the groundwater sampling conducted to help determine whether microbial activity and/or subsurface conditions are conducive for natural attenuation and/or enhanced in situ biodegradation to occur. Section 6.0 presents a discussion of potential remedial alternatives, an evaluation of the different alternatives with respect to the analytical results discussed in Section 5.0, field conditions, the extent of contamination, and relative cost and ease of use considerations. Section 7.0 provides a brief discussion of the purpose of the surface depressions located at the Site. Conclusions and recommendations are summarized in Section 8.0.

2.0 HISTORY OF POTENTIAL ENVIRONMENTAL IMPACTS AND PREVIOUS INVESTIGATIONS

2.1 Site Description

The Asphalt Plant is located near the center of the approximately 588-acre property owned and operated by Hanson since early 2005 (Hanson Aggregates Mission Valley Rock Facility ["the Hanson-Sunol facility"]). The property previously was owned and operated by Mission Valley Rock Company ("Mission Valley") since the 1950s. The Hanson-Sunol facility is operated as a sand and gravel quarry with an asphalt manufacturing facility and ready mix concrete plant. Additionally, various areas throughout the property are leased for industrial, agricultural, and storage purposes.

2.2 Site Geology and Hydrogeology

The regional and local geology and hydrogeology are described in more detail in the Site Conceptual Model (SCM) included in Appendix A of this report. In summary, the geology beneath the Site consists of approximately 10 to 20 feet of relatively less permeable silts, clays, and clayey gravels overlying approximately 20 to 30 feet of relatively more permeable fine- to coarse-grained gravels considered to be the main water-bearing stratum. The Livermore Formation, which underlies the main water-bearing stratum, appears to be somewhat less permeable compared to the overlying strata due to increased fines content encountered at approximately 30 to 35 feet below ground surface (bgs).

Groundwater flow conditions in the vicinity of the Site likely have been, and continue to be, influenced by low permeability barriers such as the former gravel pits previously used as de-silting basins and now filled with relatively less permeable finer-grained sediment. The depth to groundwater beneath the Site typically ranges from 2 to 6 feet bgs. The local flow direction generally has been to the south, southeast, and east, as measured in site groundwater monitoring wells since approximately 1998. During the early period of underground storage tank (UST) operations (1979 to 1990), groundwater in the vicinity of the USTs likely flowed to the west toward the open gravel pit. Historically, the groundwater table likely rose and fell significantly as nearby aggregate mining pits were advanced, dewatered, and later filled with water and silt.

2.3 History of Potential Environmental Impacts

The Asphalt Plant has been in operation since approximately 1980. Operation from 1980 to 1996 included the use of two 10,000-gallon diesel fuel USTs and one 2,000-gallon gasoline UST with fuel dispenser used to fuel company vehicles. During the removal of these three USTs in June 1996 by Tank Protect Engineering (TPE 1996), an impact to soil and groundwater was found. The USTs were found to be in good

condition with no holes evident, although a ¼-inch-diameter hole was observed in one of the fuel lines. Several subsurface investigations have been completed by LFR and other consultants from 1996 through the present in the vicinity of the Asphalt Plant.

A fourth 10,000-gallon diesel tank (designated "D-4") was located approximately in the southeastern portion of the Site and apparently was a partially buried tank. D-4 reportedly was abandoned and removed and is not believed to have released significant quantities of petroleum hydrocarbons to the environment.

According to a longtime employee at the facility who is familiar with the history of the Site, a fifth diesel UST, estimated to have been approximately 8,000 to 10,000 gallons in size, was located in the southern portion of the Site, approximately beneath the two existing 25,000-gallon asphalt cement aboveground storage tanks (ASTs). This fifth diesel UST reportedly was used for a few years before being abandoned in place (likely filled with cement) during the 1970s and prior to the Asphalt Plant being built. No other USTs or ASTs are reported to have existed at the Site since approximately 1970. The existing 25,000-gallon ASTs contain asphalt cement and therefore are not considered a potential source of fuel hydrocarbons detected in the subsurface. The approximate locations of all known current and former USTs or ASTs are shown on Figure 2.

Another potential source of petroleum hydrocarbons to groundwater may be the former diesel spray area located approximately 300 feet to the west of the Site (Figure 2). This area reportedly was used to spray down the beds of the trucks with diesel prior to asphalt loading to prevent the materials from sticking in the truck beds. Diesel spray may have reached the ground surface, potentially infiltrating and affecting the subsurface. The area currently is comprised of an elevated platform located approximately in the center of the main north-south road west of the Site. This area continues to be used for spraying down the beds of trucks, although soapy water is now used. The former diesel spray area is located approximately upgradient from the Site, given the groundwater flow gradient observed since approximately 1998. If the former diesel spray area has contributed to the petroleum hydrocarbon compounds detected in soil and groundwater at the Site, it likely would be diesel-range hydrocarbons because no gasoline usage is reported for the former diesel spray area. The location of the former diesel spray rack area is indicated on Figure 2.

2.4 Previous Environmental Site Investigations

Several investigations have been completed in the vicinity of the Site by other consultants since the three USTs were removed. In 1998, TPE installed three single-completion groundwater monitoring wells (MW-1 through MW-3). TPE performed routine quarterly groundwater monitoring at the Site until mid-2000. Tait Environmental Management, Inc. (Tait) assumed the routine quarterly groundwater monitoring and reporting (QMR) activities in June 2000 and, except for a period during

2003 to 2004, has continued to conduct routine groundwater monitoring of existing wells at the Site.

In December 2002, Tait conducted a site assessment that included advancing eight temporary soil borings (TB-1 through TB-8) and collecting soil and grab groundwater samples from those borings. In January 2005, Tait advanced eight additional soil borings, six of which were converted to single-, double-, and triple-completion groundwater monitoring wells, for a total of 12 new wells. Existing well MW-2 was abandoned. The 12 new groundwater monitoring wells were identified as shallow (S), mid (M), and deep (D) completions depending on well screen depths, and include wells MW-2S/M/D, MW-4S/D, MW-5S/D, MW-6S/D, MW-7S/D, and MW-8. Tait resumed routine QMR activities in early 2005.

On November 3, 2005, ACEH issued a letter requesting that additional groundwater monitoring wells be installed to further characterize the extent of petroleum hydrocarbons in groundwater beneath the Site. ACEH also requested that an SCM be developed to better understand the site conditions, and the fate and transport of the petroleum hydrocarbons and associated methyl tertiary-butyl ether (MtBE) detected in groundwater beneath the Site. LFR submitted an initial SCM as an appendix to a January 17, 2006 work plan prepared in response to the ACEH November 3, 2005 comment letter.

In April and May 2006, LFR installed and conducted the initial sampling of 12 new single-completion groundwater monitoring wells located in four well clusters approximately to the north, east, south, and west of the Site (well clusters MW-9 through MW-12, respectively). Each of the four well clusters includes one deeper groundwater monitoring well installed into the top of what is presumed to be the Livermore Formation. These 12 groundwater monitoring wells were completed to depths designated as shallow (“S”, screened approximately from 5 to 10 feet bgs), deep (“D”, screened approximately from 15 to 20 feet bgs), and Livermore Formation (“LF”, screened approximately from 35 to 40 feet bgs and believed to be approximately within the top 5 to 10 feet of the Livermore Formation). The locations of temporary soil borings and abandoned and existing groundwater monitoring wells advanced or installed since investigations began at the Site are shown on Figure 2.

LFR prepared a summary report entitled “Additional Investigation at the Asphalt Plant,” describing the drilling and well installation work for the 12 additional groundwater monitoring wells installed in April 2006. This summary report, submitted to ACEH on July 10, 2006, also presented analytical results from the first sampling event conducted in May 2006. LFR used the findings of the well installation work to update the SCM. A summary of historical analytical soil and groundwater results is provided in each QMR report prepared by Tait, the most recent of which was submitted on January 30, 2007 for the fourth quarter 2006 routine quarterly groundwater monitoring event.

2.5 Known Impacts to Groundwater

Results of previous investigations and groundwater monitoring events have revealed that groundwater beneath the Site is affected by elevated concentrations of petroleum hydrocarbon compounds. The primary constituents of concern (COCs) in groundwater beneath the Site include total petroleum hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), the fuel oxygenate MtBE, and benzene.

Occurrence of free product at this Site has been limited to sporadic measurements of limited thicknesses, primarily in former groundwater monitoring well MW-2. Free product was detected in former well MW-2 almost quarterly approximately from June 1998 through June 2002, at thicknesses up to approximately 0.5 foot (with the exception of two measurements recorded as 0.9 foot in March 2002 and 4 feet in January 1999; these results are anomalous and may be a result of measurement error). Free product also was noted during the drilling of wells MW-9D and MW-11D, although free product has not been measured in these wells during subsequent routine groundwater monitoring. No other instances of free product have been noted at this Site. The rapid rising and falling of the groundwater table may have spread released petroleum products across the local area. Pockets of free products likely remain in the vadose zone, and within the aquifer in locations where lenses of product can be trapped beneath low-permeability soil lenses.

Elevated TPHg and TPHd concentrations (up to 7,000 micrograms per liter [μg/L] and 610,000 μg/L, respectively, during 2001) have been detected in groundwater samples collected from former monitoring well MW-2. The highest concentrations of hydrocarbons detected in this well generally correlate with observations of free product. More recently, the highest TPHg and/or TPHd concentrations have been detected in monitoring wells MW-7D (1,300,000 μg/L TPHg and 150,000 μg/L TPHd in December 2005), MW-9D (210,000 μg/L TPHg and 4,500 μg/L TPHg in February 2007), and MW-11D (6,500 μg/L TPHg and 18,000 μg/L TPHd in June 2006). MtBE historically has been detected in every monitoring well except MW-4 and MW-8. Since additional groundwater monitoring wells were installed in 2005 and 2006, MtBE has been detected primarily in monitoring wells in the southern portion of the Site, including wells MW-2S/D/M, MW-3, MW-5S/D, MW-6S/D, and MW-11S/D/LF.

Prior to conducting the additional investigations summarized in this report, the extent of petroleum hydrocarbon contamination generally was characterized laterally to the east and west, but not to the north or south. The extent of petroleum hydrocarbon in groundwater beneath the Site also was not sufficiently characterized vertically. During fourth quarter 2006, elevated TPHg concentrations up to 170,000 μg/L were detected in well MW-9D (the northernmost monitoring well), and elevated TPHd concentrations up to 190,000 μg/L were detected in well MW-11D (the southernmost monitoring well). TPHg and TPHd also have been detected in the deepest monitoring wells at the Site (MW-9LF and MW-11LF).

2.6 Source of Impacts and Migration in Groundwater

The historical presence of several USTs containing diesel fuel and located in the vicinity of the Site helps explain the presence of relatively elevated TPHd concentrations detected in groundwater beneath the northern and southern portions of the Site. The northern portion of the Site may have been affected by TPHd from the two former diesel USTs, while the southern portion of the Site may have been affected by TPHd from the old diesel UST abandoned in place (now beneath the two 25,000-gallon ASTs) during the early 1970s.

In contrast, only one known potential source of TPHg, benzene, and MtBE has been identified, namely the former gasoline-containing UST in use approximately from 1980 to 1996. The relative distribution of TPHg and MtBE (TPHg is detected primarily in the northern portion of the Site and MtBE has been detected primarily in the southern portion of the Site) raises the question of whether more than one source of gasoline fuel may have existed. If mobile gasoline dispensing trucks were in use in the vicinity of the Site prior to the active use of the gasoline UST, incidental releases, including spills and/or leaks, could provide secondary sources of TPHg. However, according to facility personnel, mobile gasoline dispensing trucks were never in use at the Site.

The addition of MtBE as a fuel oxygenate to gasoline was not typical before approximately the early 1990s. Therefore, the TPHg detected in groundwater in the northern portion of the Site may be pre-1990 and/or of a different source than the TPHg and related MtBE detected in the center and southern portions of the Site. Assuming that the former gasoline UST (and associated piping and incidental releases of gasoline) is the primary source of TPHg in soil and groundwater beneath the Site, TPHg may have migrated in a northerly direction when released prior to the addition of MtBE, while TPHg and MtBE may have migrated to the south after the addition of MtBE. As discussed in more detail in the SCM previously submitted, the COCs likely were carried in a number of directions by the changing groundwater gradients across the Site over time, a result of the historical operations in open gravel pits, which likely shifted gradients over time. This leads to residual free product (source material) left in the subsurface, which likely is trapped in isolated pockets. For example, during the 1980s, while the USTs were still in operation and there was an open gravel pit to the west, there would likely have been a groundwater gradient to the west as groundwater was diverted into the open gravel pit. Later, after the gravel pit to the west was closed and mining operations began to the east, the direction of groundwater flow would likely have shifted to the east.

2.7 Agency Requirements

The lead agency overseeing the site cleanup is ACEH (Fuel Leak Case No. RO0000207). ACEH reviewed the July 10, 2006 summary report by LFR and the July 27, 2006 QMR report by Tait and provided comments to both reports in its August

3, 2006 letter. In that letter, ACEH requested that a work plan be submitted for additional subsurface investigations and to propose interim remedial measures.

2.8 Investigation Objectives

LFR prepared the October 10, 2006 Work Plan to meet the requirements of ACEH as outlined in its August 3, 2006 letter, namely to conduct the following specific tasks:

1. More completely characterize the lateral extent of fuel hydrocarbons to the north of well cluster MW-9,
2. More completely characterize the lateral extent of fuel hydrocarbons to the south of well cluster MW-11,
3. Define the vertical extent of fuel hydrocarbon contamination deeper than the interval(s) screened by wells MW-9LF and MW-11LF,
4. Identify other potential sources of fuel hydrocarbons in addition to the known USTs and piping at the Site (information addressing this comment was provided in the Work Plan and is incorporated into Section 2.0 above), and
5. Propose pilot testing and additional site characterization to select and implement interim remedial alternatives for the Site.

The primary objective of the investigation proposed in the Work Plan was to further characterize the lateral extent of fuel hydrocarbons and associated compounds in groundwater to the north of well MW-9D and to the south of well MW-11D, and the vertical extent of these compounds in groundwater in the vicinity of wells MW-9LF and MW-11LF. As presented in Sections 3.0 and 4.0 below, this objective was met through the advancement of new temporary soil borings at locations to the north of well MW-9D, to the south of well MW-9D, and vertically deeper in the vicinity of well clusters MW-9 and MW-11. Where possible, LFR used a Membrane Interface Probe (MIP) tool to screen the soils during drilling and obtain a real-time vertical profile of petroleum hydrocarbons and related compounds, including MtBE. Grab groundwater samples were collected at discrete depths for laboratory analyses.

The second objective was to collect groundwater samples from three existing groundwater monitoring wells selected to represent a range of historical petroleum hydrocarbon concentrations, for laboratory analyses of metals and major ions used as indicators of existing and/or potential biodegradation of petroleum hydrocarbons. The results of these samples were used to help evaluate potential remediation alternatives for the Site. The methods used and results of the recent investigations are described in more detail in the following sections.

In its November 3, 2006, ACEH also requested that an exploratory temporary soil boring be advanced in the vicinity of the former diesel spray area. Based on observations made during a site visit by ACEH, ACEH requested that additional information be provided regarding the nature and purpose of two surface depressions

located in the northern and southeastern portions of the Site. These two additional topics are further discussed below.

3.0 INVESTIGATION METHODOLOGY

3.1 Pre-Field Activities

3.1.1 Permitting

LFR acquired the appropriate soil boring drilling permits from the Alameda County Zone 7 Water Agency. Based on the locations of the proposed soil borings, the procurement of encroachment permits with the City of Sunol was not required.

3.1.2 Subsurface Utility Clearance

Prior to intrusive fieldwork, subsurface utility clearance was obtained by utilizing a private utility locator, Underground Service Alert (USA), and historical utility records. LFR notified USA the required 72 hours prior to commencing drilling to identify public underground utilities located in the vicinity of the proposed soil boring locations. LFR also subcontracted C. Cruz Subsurface Locators Inc. of Milpitas, California, to perform subsurface utility locating at the Site to identify possible subsurface obstructions and utilities. All proposed utility locations were cleared. A copy of the applicable clearance forms were maintained in the field during the investigation activities.

All proposed soil boring locations were reviewed and coordinated with facility personnel prior to commencing drilling activities in order not to significantly interfere with plant operations.

3.1.3 Health and Safety Plan

A Health and Safety Plan (HSP) previously was prepared for the well installation work conducted by LFR in April 2006. The HSP documents the potential hazards to worker health and safety at the Site during the proposed field activities and specifies the appropriate means to mitigate or control these hazards. The HSP addresses the potential for exposure to hazardous constituents and describes general safety procedures. The existing HSP was amended to incorporate the most recent groundwater monitoring data, and to address health and safety concerns specific to the new field procedures and activities.

A health and safety meeting was conducted by LFR prior to commencing fieldwork. All fieldwork activities were completed according to the HSP to ensure that appropriate health and safety procedures were followed. In addition, LFR and its subcontractors

attended the on-site health and safety training conducted by facility personnel as required by Hanson.

3.2 Soil Borings Advanced for Lateral and Vertical Characterization

The proposed soil boring locations were selected to further characterize the lateral extent of petroleum hydrocarbons to the north and south of the Site, and the vertical extent of contamination beneath the Site. All investigation activities were done in accordance with LFR's October 10, 2006 Work Plan (LFR 2006c), which was approved by ACEH in its November 3, 2006, letter.

3.2.1 Soil Boring Locations and Depths

Drilling of temporary soil borings and field screening methods were chosen to provide real-time data that could be used to select successive sample locations in a step-out fashion. As such, the total number of successive sample locations and maximum depths of each soil boring were determined based on field conditions and preliminary analytical results. A total of six direct-push soil borings and two sonic grab groundwater borings were advanced in locations shown on Figure 2.

Based on LFR's previous investigation activities, target depths were controlled largely by subsurface conditions and limitation of the drilling methods. As discussed in the following section, LFR used direct-push and sonic drilling techniques to further characterize the lateral extent of fuel hydrocarbons and associated compounds in soil and groundwater to the north of well MW-9D and to the south of well MW-11D, and the vertical extent of these compounds in groundwater in the vicinity of wells MW-9LF and MW-11LF.

Lateral Characterization

Both MIP and cone penetration testing (CPT) data were obtained to characterize the lateral extent of fuel hydrocarbons and associated volatile organic compounds (VOCs) in soil and groundwater to the north of well MW-9D and to the south of well MW-11D. MIP technology was used as a field screening tool to help delineate the extent of petroleum hydrocarbons. CPT technology was used as an electronic soil logging tool to identify relative changes in lithology with depth.

Six MIP locations (MIP-1 through MIP-6) were advanced between February 26 and February 28, 2007, as shown on Figure 2. The MIP and CPT borings were advanced using Gregg Drilling and Testing's direct-push drill rig in cooperation with Vironex Environmental Field Services, both California licensed drilling contractors, under the direct supervision of LFR personnel.

One boring, MIP-1, was advanced north of MW-9 to a total depth of approximately 49 feet bgs. One boring, MIP-2, was advanced east of MW-11 to a total depth of

approximately 30 feet bgs. One boring, MIP-4, was advanced adjacent to the former diesel spray area to a total depth of approximately 25 feet bgs. Three borings, MIP-3, MIP5, and MIP-6, were advanced to the south and southeast of MW-11 to total depths ranging from approximately 36 to 47 feet bgs. Both MIP-3 and MIP-5 were advanced approximately 10 additional feet because the surrounding grade was elevated relative to the rest of the investigation area. Depth-discrete grab groundwater samples were collected from each boring location except MIP-4.

Vertical Characterization

LFR advanced two deeper grab groundwater borings for vertical characterization of groundwater in the vicinity of existing wells MW-9LF and MW-11LF (screened between approximately 35 and 40 feet bgs, likely in the uppermost portion of the Livermore Formation, based on the increased content of relatively finer-grained sediment). Soils below approximately 35 feet bgs were logged and field screened by an LFR field geologist using a photoionization detector (PID; soils above approximately 35 feet bgs were retained or logged because nearby soil borings for wells MW-9LF and MW-11LF had recently been logged and field screened).

Two temporary soil borings (B-1 and B-2) were advanced during March 1 and 2, 2007 (Figure 2). The two deep soil borings were advanced using a sonic drill rig operated by RSI Drilling of Woodland, California, a California licensed drilling contractor, under the direct supervision of LFR personnel.

Soil boring B-1 was advanced adjacent to MW-11LF to a total depth of approximately 67 feet bgs. Soil boring B-2 was advanced adjacent to MW-9LF to a total depth of approximately 60 bgs. Depth-discrete grab groundwater samples were collected from each soil boring location.

3.2.2 Soil Boring Advancement

Lateral Characterization

MIP borings (MIP-1 through MIP-6) were advanced using a 30-ton direct-push (CPT-type) drill rig to evaluate real-time soil and groundwater concentrations. Total depths ranged from approximately 25 to 49 feet bgs, depending upon their purpose, location, and achievable depths. This investigation strategy involves the simultaneous collection of both lithologic information and indications of petroleum hydrocarbon concentrations by gas chromatograph detector to further characterize the lateral extent of petroleum-affected soil and groundwater at the Site.

The MIP tool was added to the CPT rod “string” to provide vertical definition of the fuel hydrocarbon compounds. The MIP utilizes a small heat pad to volatilize organic compounds, including petroleum hydrocarbons, from soils and groundwater as the tool is pushed into the subsurface. Organic vapors are drawn through a ceramic filter port at

the center of the heat pad, and carried to the surface via tubing with an inert carrier gas to be analyzed on site by field instruments located in the MIP instrumentation vehicle. The MIP tool can detect the presence of organic compounds using three detectors, namely:

- The electron capture detector (ECD), best suited to detect chlorinated compounds
- The PID, best suited to detect aromatic hydrocarbons
- The flame ionization detector (FID), best suited to detect straight-chained hydrocarbons

Continuous MIP measurements and CPT logging were recorded electronically at each boring location. The real-time investigation results were evaluated by an LFR field geologist and used to determine successive boring locations, as well as target depths for the depth-discrete grab groundwater sampling. To confirm the MIP results and to obtain quantitative analytical data, depth-discrete grab groundwater samples were collected from selected temporary soil borings at specific depth intervals (described in Section 3.2.3).

Vertical Characterization

A sonic drill rig was used to achieve the target depths that could not be attained by direct-push drilling. Depth-discrete grab groundwater samples were collected in undisturbed soil approximately from the bottom of soil borings B-1 and B-2.

A sonic drill rig uses high-frequency, resonant energy to advance a core barrel or casing into subsurface formations. The drill rig uses a combination of the mechanically generated vibrations and limited rotary power to penetrate the soil. Resonance occurs when the frequency of the vibrations equals the natural frequency of the drill pipe. The frequency of vibration (generally between 50 and 120 cycles per second) of the drill bit or core barrel can be varied to attain maximum drilling productivity.

A dual string assembly allows advancement of a continuous soil sampler casing within the outer casing drill pipe. Small amounts of air and water can be used to remove the material between the inner and outer casing. When a drill bit is used, most of the cuttings are forced into the borehole wall, reducing the amount of cuttings requiring disposal. The outer casing also serves as a conductor to minimize cross contamination and to hold the borehole open for the collection of grab groundwater sampling.

Conventional visual lithologic logging was conducted at both grab groundwater boring locations from approximately 35 feet to a total depth of approximately 65 feet bgs (B-1) and 60 feet bgs (B-2). An LFR field geologist classified the soil samples using American Society for Testing and Materials D 2488-93, which is based on the Unified Soil Classification System. Lithologic descriptions were recorded on field boring logs and later reviewed, edited, and signed by a California Professional Geologist.

3.2.3 Grab Groundwater Sampling

Following the collection of the MIP data, a Hydropunch sampler was advanced to collect grab groundwater samples from MIP-1, MIP-2, MIP-3, MIP-5, and MIP-6. The groundwater samples were collected using a hydraulically driven temporary piezometer consisting of a hollow-rod assembly with a 5-foot-long stainless steel screen attached at the leading end of the assembly (Hydropunch). The temporary piezometer was advanced to the desired depth interval based upon the CPT-derived lithology and the MIP's PID results. At the selected depths, the rod assembly was retracted to raise the outer piezometer sleeve, exposing the screen and allowing groundwater to pass through the screen into the piezometer. Each groundwater sample was collected by lowering a stainless steel bailer through the hollow-push rods into the piezometer screen. The groundwater samples were transferred into appropriate laboratory-provided sample bottles, stored in an ice-chilled cooler, and transported under chain-of-custody protocol.

Two grab groundwater samples were collected approximately in the uppermost portion of the Livermore Formation from temporary soil borings B-1 and B-2, which were advanced adjacent to existing groundwater monitoring wells MW-9LF and MW-11LF. These deeper borings were advanced for additional vertical characterization sonic drilling technology. Depth-discrete grab groundwater samples were collected by lowering a stainless steel bailer through the hollow-push rods into the piezometer screen. Grab groundwater samples were transferred into preserved laboratory-provided bottles, stored in an ice-chilled cooler, and transported under chain-of-custody protocol

Grab groundwater samples analyzed by a static lab for concentrations of TPHd and TPHg; benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds); and fuel oxygenates including MtBE.

3.2.4 Equipment Decontamination Procedures

Drilling and sampling equipment were properly decontaminated before each use and between each location. Down-hole drilling equipment, including drill rods and bits, were decontaminated by steam cleaning at a designated wash pad or within a portable containment unit. Soil sampling equipment and down-well development equipment were decontaminated by washing in nonphosphate detergent solution, deionized water rinse, and final deionized water rinse before each use. Groundwater samples were collected using either dedicated or single-use disposable sampling devices such as bailers or tubing.

3.2.5 Soil Boring Abandonment

After field screening and soil logging were completed, and after the appropriate grab groundwater samples were collected, soil borings were properly abandoned by filling the borings from the bottom to ground surface with neat cement grout.

3.3 Groundwater Monitoring Well Sampling Methodology

LFR collected groundwater samples from three existing monitoring wells (MW-5D, MW-7D, and MW-12D) for additional site characterization and to help evaluate appropriate remediation alternatives. Groundwater samples from MW-5D, MW-7D, and MW-12D represent a range of petroleum hydrocarbon-affected groundwater. Groundwater samples collected from MW-7D represent an area with some of the highest petroleum hydrocarbon impact. Groundwater samples collected from MW-12D represent an area with no petroleum hydrocarbon impact. Groundwater samples collected from MW-5D represent an area in which petroleum hydrocarbons historically have been detected at relatively low concentrations even though it is downgradient from the suspected source area (as indicated by elevated petroleum hydrocarbon concentrations detected in wells MW-7D and MW-9D), and approximately cross gradient from nearby well MW-6D in which relatively higher petroleum hydrocarbon concentrations have been detected historically. These three wells were sampled in order from clean to dirty to minimize cross contamination between the wells during sampling.

Groundwater samples collected from these three wells were analyzed for compounds that are indicators of microbial activity and/or of existing or potential degradation of petroleum hydrocarbons. Groundwater samples were screened in the field for temperature, conductivity, pH, turbidity, dissolved oxygen (DO) and oxidation-reduction potential (ORP), and were analyzed in the field for ferrous iron (Fe^{2+}), sulfide, and nitrite concentrations. Groundwater samples were collected for laboratory analyses for petroleum hydrocarbons (TPHd and TPHg), major ions (methane, nitrate, sulfate, and bromide), chemical oxygen demand (COD), biological oxygen demand (BOD), and selected metals, including dissolved total and hexavalent chromium.

3.3.1 Low-Flow Purging Methods

To optimize representative groundwater sampling, monitoring wells MW-5D, MW-7D, and MW-12D were purged before sampling using the “low-flow” (also termed “micro-purge”) technique. The wells were purged using a low-flow peristaltic pump and dedicated polyethylene tubing for each well. The pump intake hose was placed approximately in the middle of the screened interval. The wells were purged at a rate that minimized the drawdown of the water column to approximately less than 0.5 foot.

Purged water was pumped through a YSI™ flow-through cell, equipped with ports to measure real-time general water-quality field parameters. In accordance with U.S. Environmental Protection Agency (EPA) accepted low-flow purging and sampling protocol, groundwater samples were collected after the field parameters stabilized for at least three successive readings to within the following value ranges:

- Temperature: +/- 0.5 degrees Celsius
- pH: +/- 0.1 standard units (SU)

- Conductivity: +/- 3%
- DO: +/- 10%
- ORP: +/- 10 milliVolts (mV)

Excess purge water and water used to decontaminate the equipment between wells was placed in a labeled 55-gallon drum and stored on site until disposal to an off-site disposal facility.

3.3.2 Field Parameter Measurements and Analyses Methods

During low-flow purging of each well, the following general water-quality field parameters were measured and recorded approximately every five minutes, and immediately before sample collection:

- temperature, pH, and conductivity
- DO
- ORP

Temperature, pH, conductivity, DO, and ORP were measured directly from probes set in the flow-through cell, and values were recorded on field data sheets, copies of which are included in Appendix B. The range of field parameters values recorded between the beginning and end of purging are included in Table 2 for reference.

In addition to the general water-quality field parameters, the analyses of several inorganic parameters (sulfide, nitrite, and ferrous iron) were completed in the field using a spectrophotometer. Sulfide, nitrite, and ferrous iron concentrations determined using the field analysis further described below were recorded on field data sheets, copies of which are included in Appendix B.

In accordance with manufacturers' specifications, the wavelengths corresponding to sulfide, nitrite, and ferrous iron were entered into the spectrophotometer before groundwater sampling began. During the collection of groundwater samples for laboratory analyses, an additional groundwater sample from each well was poured into clean 150-milliliter beakers. An AcuVac™ ampule, containing a reagent corresponding to the parameter being measured, was placed at the bottom of each beaker and the tip was broken off under the groundwater sample, allowing the groundwater to enter the ampule with minimal air contact. The sample then reacted with the reagent in the ampule to form a color in proportion to the parameter's concentration. After sample reaction with the reagent, the ampule was placed into the spectrophotometer to measure the concentration of the individual parameters, which then were recorded on field sheets, copies of which are included in Appendix B.

3.3.3 Low-Flow Sampling Methods and Laboratory Analyses

Following low-flow purging, groundwater samples were collected by diverting discharged groundwater into the flow-through cell for sample collections. Groundwater samples collected for laboratory analyses were placed into appropriate laboratory-supplied containers, properly labeled, and transported in ice-chilled coolers under standard chain-of-custody protocols to a state-certified laboratory for analyses.

Groundwater samples collected from each of the three wells were analyzed for the following compounds:

- TPHd by EPA Method 8015M
- TPHd by EPA Method 8015
- VOCs (BTEX and oxygenates) by EPA Method 8260B
- Anions (sulfate as SO_4, bromide, and nitrate as NO_3) by EPA Method 300.0
- Methane by Method RSK-175
- BOD by EPA Method 405.1
- COD by EPA Method 410.4
- Dissolved total chromium by EPA Method 6010B
- Dissolved hexavalent chromium by EPA Method 7196A (MW-12D) or EPA Method 7199 (MW-5D and MW-7D; field filtered)

3.4 Waste Characterization, Handling, and Disposal

The investigative derived waste (IDW) that was generated during the field activities included soil cuttings, purge water, equipment decontamination rinse water, and used personal protective equipment (PPE). Soil cuttings from drilling operations were placed in a clean Department of Transportation- (DOT-) approved 55-gallon drum. Purge water and decontamination rinse water also were placed in DOT-approved 55-gallon drums. Soil and groundwater sample results will be used to characterize the IDW to evaluate appropriate disposal methods. Used PPE and disposable sampling equipment were placed in double plastic bags and disposed of in an industrial disposal bin located on site. Each DOT-approved 55-gallon drum was properly labeled with the following information: waste type, location where the IDW was generated, and date of waste generation. The containers storing the generated wastes are temporarily stored at a centralized location on site until the waste characterization results are approved and disposal is arranged.

3.5 Field Documentation

Field activities were appropriately documented using the following forms as appropriate: health and safety tailgate meeting attendance log, field log of temporary soil borings (B-1 and B-2), electronic logs from the CPT logging and MIP screening tools, well purging form, groundwater sampling form, and chain-of-custody forms. These forms will be kept on file at LFR and will be available upon request.

4.0 LATERAL AND VERTICAL CHARACTERIZATION RESULTS

4.1 Results of the MIP/CPT Field Investigation

Logs of CPT and MIP detector responses are presented in Appendix C. The CPT logs generally are consistent with results from previous investigations. According to the CPT logs, silts and clays interbedded with sand were encountered to approximately 10 to 15 feet bgs, and are underlain by sands and silty sands, likely equivalent to the gravels described by field geologists during previous subsurface investigations.

As discussed in Section 3.0, the MIP field screening tools can detect those compounds that have the capability to migrate through the membrane of the probe. The ECD detector typically will detect chlorinated compounds (i.e., solvents). The PID detector typically will detect aromatic and double-bonded compounds, (i.e., petroleum hydrocarbons). The FID detector typically will detect straight-chained hydrocarbons (i.e., methane and, to a lesser extent, petroleum hydrocarbons). All MIP detector responses are measured in microvolts (μV) and are 'relative' detections with both an upper and lower reporting limit (i.e., PID responses range from 0.0 to 3.5 x10^5 μV and FID responses range from 0.0 to 3.0 x10^6 μV). The MIP responses are best evaluated as qualitative within individual soil borings rather than quantitative values; the responses do not correspond to concentrations.

The six MIP soil borings were advanced during February 26 through 28, 2007 in locations to the north (MIP-1), south (MIP-3 and MIP-5), east (MIP-2), and southeast (MIP-6) of the Site (Figure 2). Boring MIP-4 was advanced in the vicinity of the former diesel spray area and is discussed separately below. The MIP borings were advanced to a minimum target depth of approximately 30 feet bgs. Borings MIP-3 and MIP-5 were located in an area south of the Site where the ground surface is approximately 10 feet higher than at the Site; these borings therefore were advanced to depths corresponding with total depths of borings and existing wells located at the Site.

In general, no significant responses were recorded by the ECD detector in any of the temporary soil borings. The lack of ECD response is expected, considering that VOCs such as solvents are not expected to be present at the Site. With the exception of the MIP-4 locations, the PID detector responses were minor, while spikes were observed in the FID responses. The MIP results are discussed further below.

Soil boring MIP-1 was located approximately 100 feet north of well cluster MW-9. A total depth of approximately 50 feet bgs was reached before refusal. The MIP-1 boring was advanced deeper than the target depth for the lateral characterization investigation in order to test the capability of the direct-push drilling technology with MIP screening at the Site, in view of using this technique for the vertical characterization. The refusal at 50 feet bgs confirmed that drilling to deeper depths required a different drilling technology such as the sonic drilling methods. At the MIP-1 location, the lack of a significant PID response and slight FID responses indicated that no further investigation to the north of the Site and well cluster MW-9 was needed. A grab groundwater confirmation sample was collected at a depth of approximately 20 to 22 feet bgs to confirm the MIP results.

Soil boring MIP-2 was located approximately 100 feet east of well cluster MW-11 and was advanced to a total depth of approximately 30 feet bgs. No significant PID response was observed, and only slight FID responses were detected. The MIP detections were not significant enough to warrant an additional step-out boring location farther to the east or southeast of the Site. A grab groundwater confirmation sample was collected at approximately 23 to 26 feet bgs to confirm the MIP results.

Soil boring MIP-3 was located approximately 150 feet south of well cluster MW-11 and was advanced to a total depth of approximately 45 feet bgs. No significant PID response was observed, although several spikes in the FID responses were apparent at approximately 25 and 36 feet bgs. To confirm that these FID responses were not representative of elevated petroleum hydrocarbon concentrations, a grab groundwater sample was collected from approximately 32 to 39 feet bgs, approximately equivalent to the depths of the highest spikes in the FID response.

Soil boring MIP-5 was located approximately 100 feet south of soil boring MIP-3 and was advanced to a total depth of 37 feet bgs. A minor PID response was observed at approximately 17 feet bgs, coinciding with one of several spikes in the FID detector response (approximately between 27 and 30 feet bgs). To ensure that the two intervals of apparent PID and FID responses do not represent the presence of petroleum hydrocarbons, two grab groundwater samples were collected from approximately 17 to 20 feet bgs and approximately 27 to 30 feet bgs to confirm the MIP results.

Soil boring MIP-6 was located approximately 100 feet east of MIP-3 and was advanced to a total depth of approximately 35 feet bgs. No significant PID responses were observed, although several spikes in the FID response were noted at approximately 18 and 29 feet bgs. A confirmation grab groundwater sample was collected from approximately 18 to 21 feet bgs, approximately equivalent to the most predominant FID response.

The spikes in the FID responses were not indicative of the presence of petroleum hydrocarbons. In general, the results of the MIP investigation (low to no PID responses and sporadic spikes in the FID responses) indicated that the lateral extent of petroleum hydrocarbons to the north and south of well clusters MW-9 and MW-11, respectively,

were limited to the Site. The extent of petroleum hydrocarbon-affected groundwater appears to be limited laterally north by the MIP-1 location, and southeast and south by the MIP-2 and MIP-3 locations, respectively. Analytical results from the confirmation grab groundwater samples are discussed in more detail in Section 4.2.

4.2 Former Diesel Spray Area MIP Investigation

Soil boring MIP-4 was located approximately in the vicinity of the former diesel spray area (near the northeastern corner of the existing platform) and was advanced to the target depth of approximately 25 feet bgs. Soil boring MIP-4 was advanced at the request of ACEH to investigate whether petroleum hydrocarbons attributed to historical activities at the former diesel spray area have affected the subsurface. The MIP field screening results show a significant response in the PID detector between approximately 5 and 25 feet bgs, with the response peaking at approximately 15 feet bgs. Spikes in the FID response were observed at approximately 7 and 14 feet bgs. The results of the MIP screening indicate the likely presence of petroleum hydrocarbons in groundwater in the vicinity of the former diesel spray area. The vertical extent of contamination cannot accurately be determined with the MIP results from this single soil boring. No confirmation grab groundwater samples were collected from the MIP-4 location. Additional subsurface investigations would be required to better characterize the extent of petroleum hydrocarbons in the vicinity of the former diesel spray area.

4.3 Analytical Results of Grab Groundwater Sampling

Eight grab groundwater samples were collected from seven of the temporary soil borings advanced (B-1, B-2, MIP-1, -2, -3, -5, and -6) during February 27 through March 2, 2007. All grab groundwater samples were analyzed for TPHg, TPHd, and selected VOCs, namely BTEX compounds, and five common fuel oxygenates (di-isopropyl ether [DIPE], ethyl tert-butyl ether [EtBE], MtBE, tert-amyl methyl ether [TAME], and tert-butyl alcohol [TBA]). Analytical results are summarized in Table 1 and presented on Figure 3, based on values reported in the laboratory-certified analytical report included in Appendix D. Analytical results were compared to Regional Water Quality Control Board Environmental Screening Levels (ESLs) for groundwater for soil beneath industrial/commercial and/or residential areas where groundwater is a current or potential source of drinking water (Table 1). For reference, the Maximum Contaminant Level (MCL) for each compound is also included in Table 1.

Below is a discussion of analytical results from the grab groundwater sampling conducted to further characterize the extent of petroleum hydrocarbons beneath the Asphalt Plant area. These analytical results also are evaluated in the context of analytical results from groundwater samples recently collected from existing groundwater monitoring wells MW-1 through MW-12, for the routine first quarter 2007 groundwater monitoring event. All analytical results are summarized in Table 1 (grab groundwater sampling) and Table 4 (quarterly monitoring), and presented on Figures 3 and 4.

4.3.1 Total Petroleum Hydrocarbons

TPHd and TPHg were not detected in any of the grab groundwater samples collected, above their respective analytical detection limits. It should be noted that the laboratory reporting limits for TPHd were elevated (500 μg/L) and were above the ESL (100 μg/L).

The analytical results from the grab groundwater sampling conducted by LFR were evaluated in conjunction with analytical results from groundwater samples collected by Tait and LFR from the existing groundwater monitoring wells during first quarter 2007. All current TPHd and TPHg data are presented on Figure 3. Analytical results from samples collected from the existing groundwater monitoring wells generally are consistent with historical concentrations. Elevated TPHd and TPHg concentrations were detected primarily in samples collected from wells located approximately along the north-south axis of the center of the Site. The highest TPHd and TPHg concentrations continue to be detected in the relatively clean gravel soil interval encountered between approximately 20 and 30 feet bgs (the "D" zone). In addition, the TPHg concentration detected in the sample from well MW-9D (210,000 μg/L) is indicative of the presence of free product in the vicinity of well cluster MW-9.

The highest TPHd concentration was detected in a sample collected from the southernmost well (MW-11D), and the highest TPHg concentration was detected in a sample collected from the northernmost well (MW-9D), consistent with spatial concentration trends observed in the past.

A review of the results from the February-March 2007 grab groundwater investigation shows that the lateral extent of TPHd and TPHg generally has been characterized to the north and south of the Site. The grab groundwater samples collected from temporary soil boring MIP-1, located north of well cluster MW-9, did not contain any TPHd and TPHg above their respective laboratory reporting limits. The lack of petroleum hydrocarbon compounds in the vicinity of the MIP-1 location also was supported by the MIP results discussed above. The grab groundwater samples collected from three temporary soil borings advanced to the south and east of well cluster MW-11 (MIP-3, MIP-5, and MIP-6) also did not contain TPHd or TPHg above the laboratory reporting limits. These results are supported by the field screening conducted using the MIP technology. Based on these results, the lateral extent of TPHd and TPHg to the north and south of the Site is sufficiently characterized.

Elevated TPHg continued to be detected in the groundwater samples collected from well MW-9LF. Historically, elevated TPHd and TPHg concentrations were detected in wells MW-9LF and MW-11LF. The grab groundwater samples collected from temporary soil borings B-1 and B-2 show that the vertical extent of TPHd and TPHg in the vicinity of well clusters MW-9 and MW-11 is sufficiently characterized.

Analytical results for the grab groundwater samples collected from the temporary soil borings were used to help characterize the lateral and vertical extent of TPHd and

TPHg in groundwater beneath the Site. The lateral extent of TPHd and TPHg is approximately 300 feet in the north-south direction, and approximately 100 feet in an east-west direction. The vertical extent of TPHd and TPHg beneath the Site in the vicinity of the highest TPH concentrations detected historically is approximately 50 feet bgs. These results, in conjunction with the analytical results from existing groundwater monitoring wells, indicate that the extent of TPHd and TPHg in groundwater has been adequately characterized to the north, east, south, and west of the Asphalt Plant.

4.3.2 BTEX Compounds

BTEX compounds were detected above laboratory reporting limits at low concentrations in only two grab groundwater samples, namely the two deepest samples collected from temporary soil borings B-1 and B-2 (Table 1). In all cases, the reported BTEX concentrations are below the ESLs for BTEX compounds (1, 40, 30, and 20 μg/l, respectively). These results indicate that the extent of BTEX in groundwater has been adequately characterized in the vicinity of the Site.

4.3.3 Fuel Oxygenates

Only one fuel oxygenate was detected in grab groundwater samples, namely MtBE. MtBE was detected in three grab groundwater samples collected from MIP-2 and MIP-5, located south of the Site, and in the sample collected from B-1, located adjacent to well cluster MW-11. The detected concentrations exceeded the ESL of 5 μg/l only in the grab groundwater samples collected from soil borings MIP-2 and B-1. The detected MtBE concentration in the sample collected from soil boring MIP-2 (15 μg/L) was slightly above the drinking water MCL of 13 μg/L. No other oxygenates were detected in the grab groundwater samples. These results indicate that the extent of MtBE in groundwater generally has been adequately characterized in the vicinity of the Site.

5.0 CHEMICAL ANALYSES RESULTS FOR GROUNDWATER SAMPLES COLLECTED FROM MONITORING WELLS

5.1 Petroleum Hydrocarbons

As described previously, groundwater samples were collected from all existing groundwater monitoring wells during February 26 through March 2, 2007. LFR purged and sampled wells MW-5D, MW-7D, and MW-12D using low-flow sampling techniques, while the rest of the Site wells were purged and sampled by Tait as part of the routine quarterly groundwater monitoring program. Analytical data for all wells are summarized in Table 2 and presented on Figure 4. The three wells sampled by LFR were sampled for the routine quarterly parameters, but also were sampled for parameters typically used as indicators of existing and/or potential degradation of

petroleum hydrocarbons (described in Section 3.3 above). In general, the analytical results from the groundwater sampling indicate the following:

- The distribution and range of petroleum hydrocarbon concentrations detected are consistent with previous results; no significant changes in concentrations or trends were observed, with one possible exception. The TPHg concentration reported for well MW-9D is the highest at the present; TPHg concentrations may be increasing in this well.
- Elevated concentrations of the BTEX compounds appear limited primarily to wells MW-9D and MW-7D.
- The highest concentrations of TPHg and BTEX compounds were detected in the sample collected from well MW-9D. In contrast, TPHg and BTEX concentrations in nearby well MW-7D, which historically were the highest, appear to be decreasing and were significantly lower in February 2007 than during previous sampling events.
- MtBE concentrations continue to be limited primarily to wells in the southern (downgradient) portion of the Site, and approximately downgradient from the former 2,000-gallon gasoline UST. As discussed above, the MtBE distribution may represent a detached mass of MtBE from the former gasoline UST.

5.2 Inorganic Groundwater Quality

Inorganic groundwater-quality data collected during this investigation indicate that aerobic and anaerobic respiration of hydrocarbons (biodegradation) is occurring in groundwater beneath the Site. This biodegradation likely has contributed to limiting the lateral extent of hydrocarbon-affected groundwater and to the reduction of hydrocarbon concentrations in groundwater in the vicinity of some monitoring wells. These inorganic groundwater-quality data also indicate that the primary mechanism of biodegradation is anaerobic respiration in an oxygen-depleted environment.

As a result, and as discussed in Section 6.0 below, it is anticipated that the addition of oxygen into the groundwater system likely would accelerate the current rates of biodegradation. Adding oxygen to the subsurface beneath the Site represents a potentially effective remedial approach to degreasing petroleum hydrocarbons in the subsurface. These findings are presented in more detail below.

5.2.1 Inorganic Water-Quality Chemical Analysis Results

As described in Section 3.3, inorganic water-quality data were collected from the following three wells: MW-5D, MW-7D, and MW-12D. These three wells were selected to represent groundwater with the following conditions:

- groundwater with historically elevated concentrations of petroleum hydrocarbons (MW-7D);

- groundwater with historically low concentrations of petroleum hydrocarbons downgradient from and in close proximity to a potential source area (MW-5D); and
- groundwater with generally non-detect to low concentrations of petroleum hydrocarbons and upgradient or cross gradient from known source areas (MW-12D).

Inorganic groundwater-quality data collected from these wells during this investigation are summarized in Table 2. Laboratory data sheets for these analyses are included in Appendix D.

Data summarized in Table 2 indicate that microorganisms in the groundwater system are degrading petroleum hydrocarbons through primarily anaerobic pathways in an oxygen depleted environment. Relatively depleted concentrations of DO (less than 1 milligram per liter [mg/L]) were measured in each of the three wells, although slightly higher DO concentrations were measured in well MW-12D at the start of well purging. Consistent with these data, high negative ORP values were recorded for each of the wells[1], with the most negative ORP measured in well MW-7D (elevated petroleum hydrocarbon-affected well).

Reaction By-Products of Anaerobic Respiration. Reaction by-products of anaerobic respiration, including methane, ferrous iron, and sulfide, are present in each of the three wells. The highest concentration of methane (3.51 mg/L) was detected in the well with the highest concentrations of hydrocarbons (MW-7D), with progressively lower concentrations of methane detected in the sample from well MW-5D (0.426 μg/L; located downgradient from a source area) and well MW-12D (0.004 μg/L; located upgradient from known source areas). Similarly, elevated concentrations of ferrous iron, a reaction by-product of anaerobic respiration, were detected in wells MW-7D and MW-5D (2.12 and 3.30 mg/L, respectively), with much lower concentrations of that compound in well MW-12D (0.02 μg/L). Slightly higher concentrations of the reaction products sulfide (0.15 mg/L, from reduction of sulfate) and nitrate (0.14 mg/L, from reduction of nitrate) also were detected in hydrocarbon-affected well MW-7D. The increased concentrations of reaction by-products in wells located within and immediately downgradient from hydrocarbon source areas indicate the presence of anaerobic respiration of petroleum hydrocarbons.

Electron Acceptors for Anaerobic Respiration. Data collected during this investigation indicate that sulfate is being used as an electron acceptor for the anaerobic respiration of hydrocarbons beneath the Site. Sulfate appears most depleted at well

[1] Field data sheets indicate that the ORP for MW-12D was 13X (positive). This positive value for ORP is somewhat inconsistent with the low concentration of DO in that well, and it is possible that the actual ORP value is -132, and was recorded incorrectly. In either case, the highest ORP (i.e., least anaerobic) for the three wells in this discussion is MW-12.

MW-7D (hydrocarbon impact well; 12.5 μg/L) with relatively less sulfate depletion at wells MW-5D (33.80 μg/L) and MW-12D (71.80 μg/L).

It appears that biodegradation of petroleum hydrocarbons may have contributed to the overall reduction in the lateral extent of hydrocarbon-affected groundwater beneath the Site. For example, historical water quality for well MW-3, located downgradient from the former UST area, exhibits a decreasing trend in the concentration of diesel-range and gasoline-range hydrocarbons, such that hydrocarbons were not detected in that well during the majority of 2005 and 2006, with only minor detections of TPHg (56 µg/L) during this most recent sampling event (Table 3). Similarly, water-quality data for MW-5S and MW-5D are virtually non-detect for petroleum hydrocarbons, in spite of their downgradient location and close proximity to the UST source area.

6.0 EVALUATION OF POTENTIAL REMEDIATION ALTERNATIVES

ACEH has stated that soil and groundwater remediation will be necessary to address fuel hydrocarbons detected in the subsurface beneath the Site, and requested that a pilot test be conducted to select an appropriate interim remedial alternative for the Site. LFR completed an evaluation of available remedial technologies and has selected an approach to develop a remedy for the Site that begins with the completion of a field pilot test.

As described above, data collected during this investigation indicate that biodegradation is occurring in groundwater beneath the Site, and that this biodegradation has likely contributed to limiting the lateral extent of hydrocarbon-affected groundwater, and the reduction of hydrocarbon concentrations in groundwater in the vicinity of some monitoring wells. The conceptual approach for the selected remedy is to enhance and increase the rate of biodegradation beneath the Site through the addition of oxygen. The proposed next step to implement this remedial approach is completion of a pilot test of air sparging.

6.1 Evaluation of Potential Remedial Technologies

As described in the Work Plan, LFR considered the following technologies for pilot testing at the Site. Each category of remedial technology is presented, followed by a brief presentation of the evaluation of that technology for this Site.

Technologies that Rely on Biodegradation:

Passive Bioremediation

Monitored Natural Attenuation (MNA)

Bioventing

Although strong evidence of intrinsic biodegradation was collected during this investigation (see Section 5.0), passive bioremediation approaches were not considered applicable for this Site based on the relatively elevated concentrations of hydrocarbons remaining beneath the Site, the long expected time frame for this remedy, and previous correspondence from the regulatory agency.

Enhanced Bioremediation

Dissolved oxygen injection (Iso-Gen)

Oxygen Release Compound (ORC)

Injection (sparging) of 95 to 99% Pure Oxygen from Zeolite Filter

Injection of Peroxygen

This technology class was considered as potentially effective, and LFR has developed a field pilot test to further develop a design to implement this approach for the Site. Based on the current evidence of biodegradation beneath the Site under anaerobic conditions, it is anticipated that the addition of oxygen into the groundwater system would likely accelerate the current rates of biodegradation.

Bioaugmentation

Enzyme augmentation (DO-IT)

Microorganism augmentation (PM-1)

Bioactive surfactant injection

Reactive Barrier Design

Current evidence of intrinsic biodegradation indicates that bioaugmentation will likely not be required at this Site. However, results of pilot testing for oxygen addition, or performance data from implementing an oxygen addition remedy may indicate that bioaugmentation is required to meet site objectives.

Technologies that Rely on Chemical Oxidation, including:

In Situ Submerged Oxygen Curtain (iSOC)

Injection of Hydrogen Peroxide

Injection of Fenton's Reagent

Injection of Sodium Persulfate

Injection of Ozone

Reactive Barrier for Oxidation

Electro-Chemical Geo-Oxidation (ECGO)

No data were collected during this investigation that directly counter-indicates these technologies for this Site. However, oxygen addition represents a more potentially cost-effective approach to these higher cost alternatives. As a result, these approaches will be reconsidered, as necessary, pending the results of pilot testing and/or early stages of implementation of an oxygen addition approach.

Mass Removal Technologies

Heating and Soil-Vapor Extraction with Steam Injection and Six-Phase Heating

High-Vacuum, Dual-Phase Extraction

Given the large footprint of petroleum-affected groundwater, these very expensive alternatives are not considered potentially cost-effective.

6.2 Selection of Remedial Approach

Based on the results of this investigation, enhanced biodegradation through the addition of oxygen has been selected as the preferred remedial alternative for this Site. Given the lithology of this Site (gravels with intervals of silty sandy material), it appears that injection of gas-phase oxygen is feasible. To confirm this hypothesis, an air injection (sparging) pilot test is proposed.

The objective for the proposed pilot test is to confirm that injection of gas-phase oxygen is feasible at this Site, as measured by an effective "radius of influence" (ROI) for an injection well. This objective would be achieved by installing an injection well, injecting atmospheric air at varying pressures and flow rates, and measuring the response in monitoring wells located at various distances from the injection well. Water quality in the monitoring well will be monitored for indications of influence from the injection well, including DO and other inorganic parameters, groundwater elevations, and concentrations of petroleum hydrocarbons. The anticipated duration of the pilot test would be approximately three months.

Pending agency approval of this approach, LFR will develop a detailed Work Plan to conduct this pilot test that will include the location and construction of the pilot test well and a detailed sampling plan.

7.0 SURFACE DEPRESSIONS WITHIN THE SITE

There are three surface-water catch basins located near the Site. As shown on the air photo included in Appendix E, the two catch basins located in the northern and southeastern corners of the Site serve to collect storm-water runoff in the immediate vicinity of the Site, and aggregate stockpile process wash water drainage. The surface water draining to the catch basins is collected into an underground culvert and flows

east to a sump. The water enters a lift pump sump and is pumped to the reclaimed water pond located directly east of the Site. The reclaimed water is used as part of the aggregate processing.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The additional investigations were conducted during February 26 through March 2, 2007, and consisted of advancing eight temporary soil borings to further characterize the extent of petroleum hydrocarbons and associated compounds detected in groundwater beneath the Asphalt Plant. The lateral extent of petroleum hydrocarbons to the north and south of the Site and of well clusters MW-9 and MW-11, respectively, were investigated by stepping out laterally and collecting real-time screening data using the MIP technology advanced during direct-push drilling. Depth-discrete grab groundwater samples were collected to confirm the MIP results. The vertical extent of petroleum hydrocarbons was investigated using sonic drilling techniques to reach the target depths of approximately 60 feet bgs, approximately 15 feet deeper than the deepest groundwater monitoring wells that historically have been shown to contain elevated concentrations of TPHg and/or TPHd. Based on the results of these investigations, the extent of petroleum hydrocarbons in groundwater beneath the Site has been sufficiently characterized both laterally and vertically.

Groundwater samples were collected from three existing groundwater monitoring wells (MW-5D, MW7D, and MW-12D) and analyzed both in the field and by a laboratory for specific inorganic compounds that are indicators of existing and/or potential microbial activity and degradation of petroleum hydrocarbons. A review of these analytical results indicates that biodegradation of hydrocarbons likely is occurring in groundwater beneath the Site, and that the primary mechanism of biodegradation is anaerobic respiration in an oxygen-depleted environment. These results were used to evaluate potential remediation alternatives for the Site.

LFR completed an evaluation of potential remediation options in several categories of remedial technologies. Based on the analytical results of the indicator parameters, the site lithology, and the history of petroleum hydrocarbon concentrations detected in groundwater monitoring wells, it is anticipated that the addition of oxygen into the groundwater system likely would accelerate the current rates of biodegradation. The proposed remedial alternative is enhanced biodegradation through the injection of gas-phase oxygen. The next step before implementing this remedial approach would be the completion of a pilot test to confirm that injection of gas-phase oxygen is feasible at this Site, as measured by an effective ROI for an injection well. The pilot test would consist of installing an injection well, injecting atmospheric air at varying pressures and flow rates, and measuring the response in monitoring wells located at various distances from the injection well. Water quality in nearby monitoring wells would be monitored for indications of influence from the injection well. The anticipated duration of the pilot test would be approximately three months.

9.0 REFERENCES

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Table 1
Analytical Results, Grab Groundwater Samples (February 28 to March 2, 2007)
Hanson Aggregates Mission Valley Rock Facility
7999 Athenour Way, Sunol, California

Sample ID	Sample Depth (feet bgs)	Date Sampled	Sample Type	TPHg (μg/l)	TPHd (μg/l)	Benzene (μg/l)	Toluene (μg/l)	Ethylbenzene (μg/l)	m,p-Xylene (μg/l)	o-Xylene (μg/l)	MTBE (μg/l)	TBA (μg/l)	TAME (μg/l)	DIPE (μg/l)	ETBE (μg/l)
MIP-1(20-22)	20 - 22	2/27/07	GGW	<50	<98	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<10	<2.0	<2.0	<2.0
MIP-2(23-26)	23 - 26	2/28/07	GGW	<50	<98	<0.5	<0.5	<0.5	<1.0	<0.5	**15**	<10	<2.0	<2.0	<2.0
MIP-3(32-39)	32 - 39	2/28/07	GGW	<50	<98	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<10	<2.0	<2.0	<2.0
MIP-5(17-20)	17 - 20	2/28/07	GGW	<50	<98	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<10	<2.0	<2.0	<2.0
MIP-5(27-30)	27 - 30	2/28/07	GGW	<50	<98	<0.5	<0.5	<0.5	<1.0	<0.5	**3.4**	<10	<2.0	<2.0	<2.0
MIP-6(18-21)	18 - 21	2/28/07	GGW	<50	<98	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<10	<2.0	<2.0	<2.0
B-1(60-65)	60 - 65	3/1/07	GGW	<50	<98	**0.75**	**0.59**	<0.50	<1.0	<1.0	**7.6**	<10	<2.0	<2.0	<2.0
B-2(55-60)	55 - 60	3/2/07	GGW	<50	<98	<0.50	**1.3**	**0.77**	**2.9**	**1.2**	<1.0	<10	<2.0	<2.0	<2.0
ESLs		-	-	*100*	*100*	*1.0*	*40*	*30*	*20*	*20*	*5*	*12*	-	-	-
MCLs		-	-	-	-	*1.0*	*150*	*300*	*1,750*	*1,750*	*13*	*12 **	-	-	-

Notes:

All other compounds were not detected above the laboratory reporting limit(s).

ID = identification; monitoring well identification number

μg/l = micrograms per liter; parts per billion (ppb)

GGW = grab groundwater

"<" = analyte not detected at or above the noted laboratory reporting limit

Bold = analyte detected at or above the laboratory reporting limit

Concentrations above the ESLs are shown in boxes.

TPHg = total petroleum hydrocarbons as gasoline

TPHd = total petroleum hydrocarbons as diesel

MTBE = methyl tert-butyl ether

TBA = tert-butyl alcohol

TAME = tert-amyl methyl ether

DIPE = di-isopropyl ether

ETBE = ethyl tert-butyl ether

ESLs = Environmental Screening Levels by San Francisco Bay Regional Water Quality Control Board, February 2005, for Shallow or Deep Soils where Groundwater is a Current or Potential Source of Drinking Water beneath Residential and/or Industrial/Commercial Land Use Areas.

MCLs = Maximum Contaminant Level by California Department of Health Services (DHS), California Code of Regulations Title 22, September 12, 2003. MCLs are health-protective drinking water standards to be met by public water systems.

* No MCL exists for TBA; DHS instead has published a Notification Level (health-based advisory level for unregulated contaminants in drinking water).

Table 2
Analytical Results, Groundwater Monitoring Well Samples (February 28, 2007)
Hanson Aggregates Mission Valley Rock Facility
7999 Athenour Way, Sunol, California

Monitoring Well ID		MW-5D	MW-7D	MW-12D	*ESLs*	*MCLs*
Date Sampled		2/28/2007	2/28/2007	2/28/2007	-	-
Sample Type		Water	Water	Water	-	-
	Units	**Laboratory Analysis Organic Compounds**				
TPHg	(µg/l)	<50	**6,800**	**51**	*100*	-
TPHd	(µg/l)	<98	**790** [1]	<98	*100*	-
Benzene	(µg/l)	<0.50	**29**	<0.50	*1.0*	*1.0*
Toluene	(µg/l)	<0.50	**51**	<0.50	*40*	*150*
Ethylbenzene	(µg/l)	<0.50	**460**	<0.50	*30*	*300*
m,p-Xylene	(µg/l)	<1.0	**440**	<1.0	*20*	*1,750*
o-Xylene	(µg/l)	<0.50	**51**	<0.50	*20*	*1,750*
MTBE	(µg/l)	**1.6**	<1.0	<1.0	*5.0*	*13*
TBA	(µg/l)	<10	<10	<10	*12*	*12 **
TAME	(µg/l)	<2.0	<2.0	<2.0	-	-
DIPE	(µg/l)	<2.0	<2.0	<2.0	-	-
ETBE	(µg/l)	<2.0	<2.0	<2.0	-	-
	Units	**Laboratory Analysis Inorganic Compounds**				
Chromium	(mg/l)	<0.050	<0.050	<0.050	*0.05*	*0.05*
Chromium VI	(mg/l)	<0.0010	<0.0010	<0.025	*0.011*	-
Sulfate as SO4	(mg/l)	**33.80**	**12.50**	**71.80**	-	-
Bromide	(mg/l)	**30.90**	<0.500	<0.500	-	-
Nitrate as NO3	(mg/l)	<0.500	<0.500	<0.500	-	*45*
Methane	(mg/l)	**0.426**	**3.510**	**0.004**	-	-
BOD	(mg/l)	**2.20**	**5.40**	<2.0	-	-
COD	(mg/l)	**51**	**35**	<2.0	-	-
	Units	**Field Analysis Inorganic Compounds**				
Ferrous Iron	(mg/l)	**3.30****	**2.12**	**0.02**	-	-
Sulfide	(mg/l)	**0.02**	**0.15**	**0.02**	-	-
Nitrite	(mg/l)	**0.006**	**0.140**	**0.017**	-	*1*
		Field Parameters and Observations				
	Units	Range given indicate measurements recorded at the beginning and the end of purging				
Temperature	(ºC)	16.9 to 17.2	15.2 to 15.2	16.1 to 16.2	-	-
Conductivity	(µS/cm)	3,970 to 4,019	1,727 to 1,732	1,466 to 1,473	-	-
pH	(SU)	6.84 to 6.86	6.95 to 6.96	6.76 to 6.75	-	-
Turbidity (qualitative)		clear	clear	cloudy	-	-
Dissolved Oxygen (mg/l)	(mg/l)	0.65 to 0.23	0.69 to 0.42	1.06 to 0.43	-	-
ORP	(mV)	-183.7 to -197.3	-226.7 to -241.4	136.8 to 145.9	-	-
General field observations		-	sheen, strong hydrocarbon odor	-	-	-

Notes:

TPHg = total petroleum hydrocarbons as gasoline

TPHd = total petroleum hydrocarbons as diesel

MTBE = methyl tert-butyl ether

TBA = tert-butyl alcohol

TAME = tert-amyl methyl ether

DIPE = di-isopropyl ether

ETBE = ethyl tert-butyl ether

BOD = biochemical oxygen demand

Table 2
Analytical Results, Groundwater Monitoring Well Samples (February 28, 2007)
Hanson Aggregates Mission Valley Rock Facility
7999 Athenour Way, Sunol, California

Notes (continued):

COD = chemical oxygen demand

ORP = oxidation reduction potential

ID = identification; monitoring well identification number

μg/l = micrograms per liter; parts per billion (ppb)

mg/l = milligrams per liter; parts per million (ppm)

µS/cm = micro Siemens per centimeter

SU = standard units

"<" = analyte not detected at or above the noted laboratory reporting limit

Bold = analyte detected at or above the laboratory reporting limit

Concentrations above the ESLs are shown in boxes.

[1] Results in the diesel organics range are primarily due to overlap from a gasoline-range product.

ESLs = Environmental Screening Levels by San Francisco Bay Regional Water Quality Control Board, February 2005, for Shallow or Deep Soils where Groundwater is a Current or Potential Source of Drinking Water beneath Residential and/or Industrial/Commercial Land Use Areas.

MCLs = Maximum Contaminant Level by California Department of Health Services (DHS), California Code of Regulations Title 22, September 12, 2003. MCLs are health-protective drinking water standards to be met by public water systems.

* No MCL exists for TBA; DHS has published a Notification Level (health-based advisory level for unregulated contaminants in drinking water).

* *= Concentration above limit of hatch kit colorometer

Table 3
Analytical Results, Quarterly Groundwater Monitoring Event (February 28 to March 2, 2007)
Hanson Aggregates Mission Valley Rock Facility
7999 Athenour Way, Sunol, California

Monitoring Well ID	Date Sampled	TPHd (µg/l)	TPHg (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	TBA (µg/l)	m,p-Xylene (µg/l)	o-Xylene (µg/l)	MTBE (µg/l)
MW-1	2/27/07	<98	**430**	**1.1**	<0.50	**7.9**	<10	<1.0	<0.50	<1.0
MW-2S	2/28/07	**6,600**	**140**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**33**
MW-2D	2/27/07	**1,100**	**140**	<0.50	<0.50	**0.63**	<10	**1.1**	<0.50	**25**
MW-2M	2/27/07	<98	**310**	<0.50	<0.50	**0.65**	<10	<1.0	<0.50	**25**
MW-3	2/27/07	<98	**56**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**43**
MW-4S	2/26/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-4D	2/26/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-5S	2/26/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**3.2**
MW-5D *	2/28/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**1.6**
MW-6S	2/27/07	**3,000**	**1,100**	**0.79**	<0.50	**1.1**	<10	<1.0	<0.50	**54**
MW-6D	2/27/07	<98	**150**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**48**
MW-7S	2/26/07	<98	**55**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-7D *	2/28/07	**790** [1]	**6,800**	**29**	**51**	**460**	<10	**440**	**51**	<1.0
MW-8	2/26/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-9S	2/27/07	<98	**130**	**0.79**	**0.58**	**8.4**	<10	**1.0**	<0.50	<1.0
MW-9D	2/28/07	**4,500**	**210,000**	**1,900**	**6,200**	**2,400**	<10	**6,900**	**2,100**	<1.0
MW-9LF	2/27/07	<98	**530**	**39**	**5.0**	**31**	<10	**19**	**6.4**	<1.0
MW-10S	2/26/07	<98	**54**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-10D	2/27/07	<98	**850**	**2.7**	**0.90**	**28**	<10	**2.3**	<0.50	<1.0
MW-10LF	2/27/07	<98	**580**	**1.0**	**1.1**	**0.51**	<10	**3.6**	<0.50	<1.0
MW-11S	2/27/07	**540**	**300**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**4.3**
MW-11D	2/28/07	**13,000**	**7,400**	**8.4**	**16**	**17**	<10	**30**	**24**	**18**
MW 11LF	2/27/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	**110**
MW-12S	2/27/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-12D *	2/28/07	<98	**51**	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
MW-12LF	2/26/07	<98	<50	<0.50	<0.50	<0.50	<10	<1.0	<0.50	<1.0
ESLs	-	*100*	*100*	*1.0*	*40*	*30*	*12*	*20*	*20*	*5*
MCLs	-	-	-	*1.0*	*150*	*300*	-	*1,750*	*1,750*	*13*

Notes:

ID = identification; monitoring well identification number

µg/l = micrograms per liter; parts per billion (ppb)

TPHd = total petroleum hydrocarbons as diesel

TPHg = total petroleum hydrocarbons as gasoline

TBA = tert-butyl alcohol

MTBE = methyl tert-butyl ether

"<" = analyte not detected at or above the noted laboratory reporting limit

Bold = analyte detected at or above the laboratory reporting limit

* Monitoring wells MW-5D, MW-7D, and MW-12D were purged and sampled for indicator parameters by LFR Inc. using low-flow methods (analytical results are presented in Table 2); all other monitoring wells were purged and sampled by Tait using a submersible electrical pump (methods will be presented in Tait's quarterly monitoring report).

[1] Results in the diesel organics range are primarily due to overlap from a gasoline-range product.

ESLs = Environmental Screening Levels by San Francisco Bay Regional Water Quality Control Board, February 2005, for Shallow or Deep Soils where Groundwater is a Current or Potential Source of Drinking Water beneath Residential and/or Industrial/Commercial Land Use Areas.

MCLs = Maximum Contaminant Level by California Department of Health Services (DHS), California Code of Regulations Title 22, September 12, 2003. MCLs are health-protective drinking water standards to be met by public water systems.

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Site Location Map

Hanson Aggregates, 7999 Athenour Way, Sunol, CA

LFR

Figure 1

EXPLANATION:

- MW-9 — Groundwater monitoring well (Single completion; nested and well cluster)
- MIP-3 — MIP boring / grab groundwater
- B-1 — Sonic boring / grab groundwater
- Geologic cross-section location

Approximate Soil Boring Locations

Hanson Aggregates, Sunole, California

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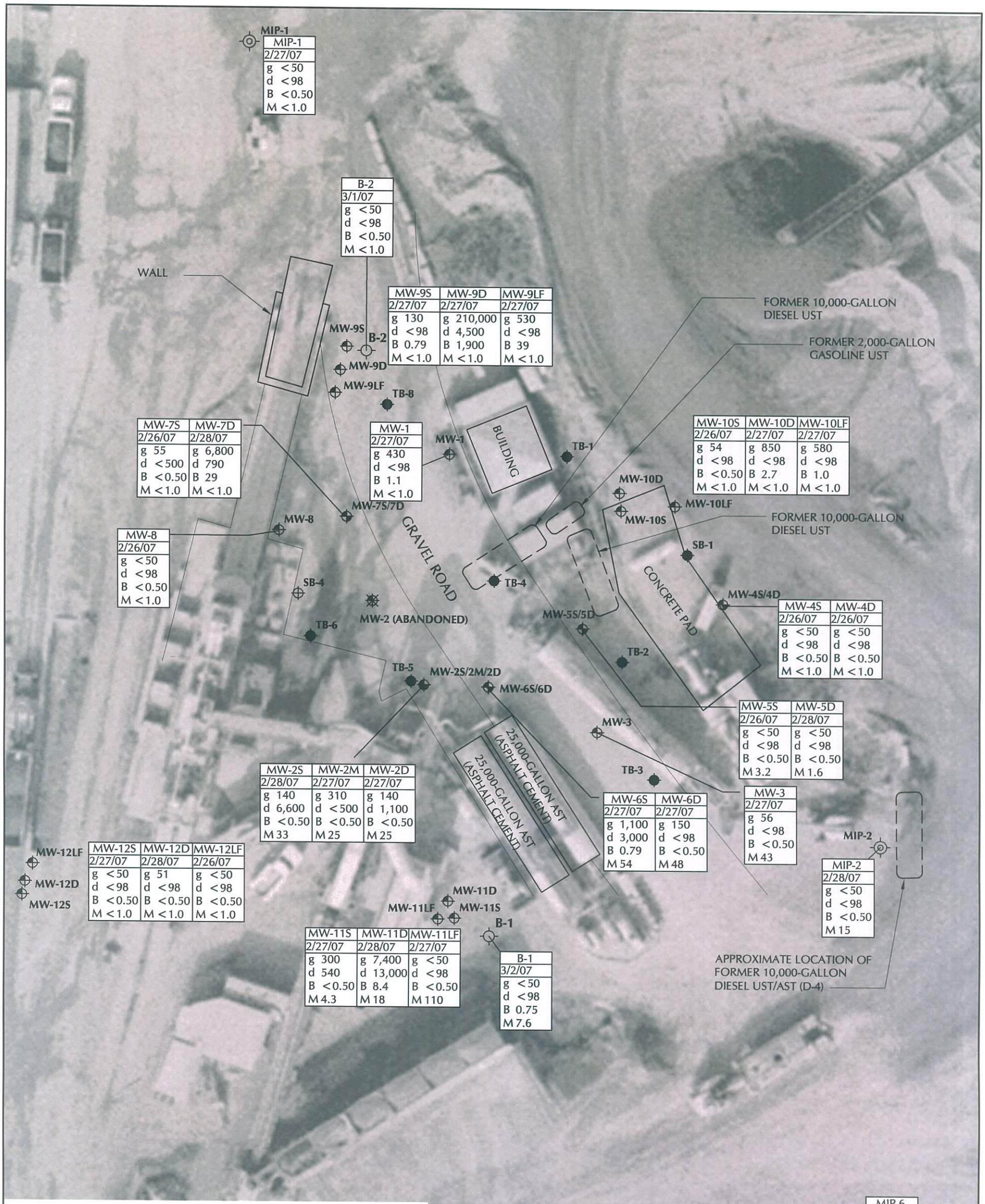
Figure 2

I:\Design\001\09480\02\000\DWG\Site Plan.dwg Apr 10,2007-1:07pm



EXPLANATION:

- MW-9S — Groundwater monitoring well by LFR Inc. (single completion)
- MW-1 — Groundwater monitoring well by Tait (single completion)
- MW-7S/7D — Existing groundwater monitoring well by Tait (dual nested)
- MW-2S/SM/2D — Existing groundwater monitoring well by Tait (triple nested)
- MW-2 — Abandoned groundwater monitoring well
- TB-1 — Grab groundwater sample location
- SB-1 — Temporary soil boring location
- B-1 — Sonic boring / grab groundwater
- MIP 3 — MIP boring / grab groundwater
- AST = Aboveground storage tank
- UST = Underground storage tank
- MIP = Membrane Interface Probe

MIP-6	
2/28/07	— Date sampled
g <50	Concentration in micrograms per liter (µg/L)
d <98	
B <0.50	
M <1.0	

— Sample identification

— — — Constituent

- g — Total petroleum hydrocarbons as gasoline
- d — Total petroleum hydrocarbons as diesel
- B — Benzene
- M — Methyl tert-butyl ether

Groundwater Analytical Results (February - March 2007)

Hanson Aggregates, Sunol, California

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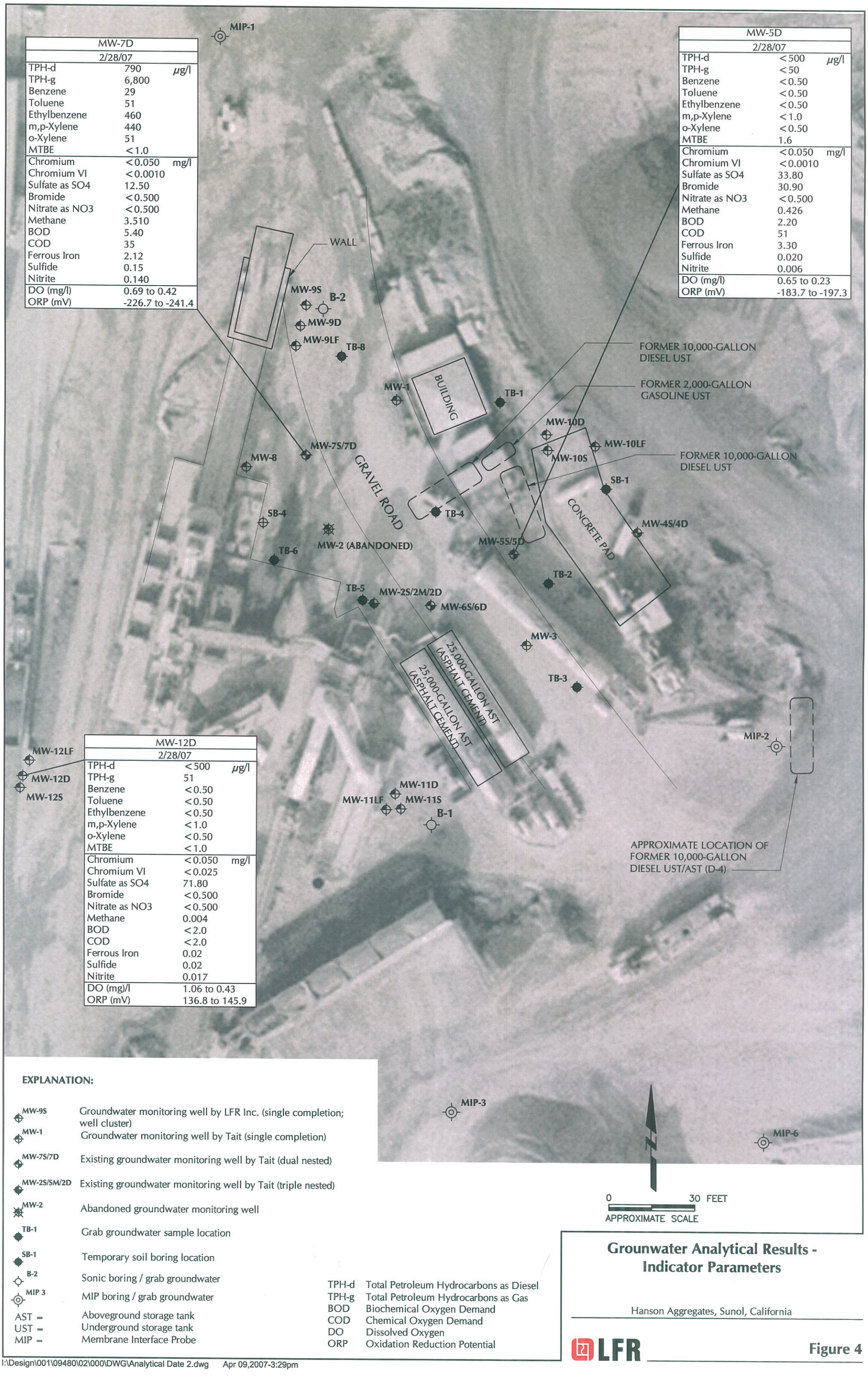
Figure 3

I:\Design\001\09480\02\000\DWG\Analytical Date.dwg Apr 09,2007-3:21pm



MW-7D		
2/28/07		
TPH-d	790	µg/l
TPH-g	6,800	
Benzene	29	
Toluene	51	
Ethylbenzene	460	
m,p-Xylene	440	
o-Xylene	51	
MTBE	<1.0	
Chromium	<0.050	mg/l
Chromium VI	<0.0010	
Sulfate as SO4	12.50	
Bromide	<0.500	
Nitrate as NO3	<0.500	
Methane	3.510	
BOD	5.40	
COD	35	
Ferrous Iron	2.12	
Sulfide	0.15	
Nitrite	0.140	
DO (mg/l)	0.69 to 0.42	
ORP (mV)	-226.7 to -241.4	

MW-5D		
2/28/07		
TPH-d	<500	µg/l
TPH-g	<50	
Benzene	<0.50	
Toluene	<0.50	
Ethylbenzene	<0.50	
m,p-Xylene	<1.0	
o-Xylene	<0.50	
MTBE	1.6	
Chromium	<0.050	mg/l
Chromium VI	<0.0010	
Sulfate as SO4	33.80	
Bromide	30.90	
Nitrate as NO3	<0.500	
Methane	0.426	
BOD	2.20	
COD	51	
Ferrous Iron	3.30	
Sulfide	0.020	
Nitrite	0.006	
DO (mg/l)	0.65 to 0.23	
ORP (mV)	-183.7 to -197.3	

MW-12D		
2/28/07		
TPH-d	<500	µg/l
TPH-g	51	
Benzene	<0.50	
Toluene	<0.50	
Ethylbenzene	<0.50	
m,p-Xylene	<1.0	
o-Xylene	<0.50	
MTBE	<1.0	
Chromium	<0.050	mg/l
Chromium VI	<0.025	
Sulfate as SO4	71.80	
Bromide	<0.500	
Nitrate as NO3	<0.500	
Methane	0.004	
BOD	<2.0	
COD	<2.0	
Ferrous Iron	0.02	
Sulfide	0.02	
Nitrite	0.017	
DO (mg)/l	1.06 to 0.43	
ORP (mV)	136.8 to 145.9	

EXPLANATION:

MW-9S	Groundwater monitoring well by LFR Inc. (single completion; well cluster)
MW-1	Groundwater monitoring well by Tait (single completion)
MW-7S/7D	Existing groundwater monitoring well by Tait (dual nested)
MW-2S/SM/2D	Existing groundwater monitoring well by Tait (triple nested)
MW-2	Abandoned groundwater monitoring well
TB-1	Grab groundwater sample location
SB-1	Temporary soil boring location
B-2	Sonic boring / grab groundwater
MIP 3	MIP boring / grab groundwater
AST =	Aboveground storage tank
UST =	Underground storage tank
MIP =	Membrane Interface Probe

TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-g	Total Petroleum Hydrocarbons as Gas
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
ORP	Oxidation Reduction Potential

Grounwater Analytical Results - Indicator Parameters

Hanson Aggregates, Sunol, California

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Figure 4

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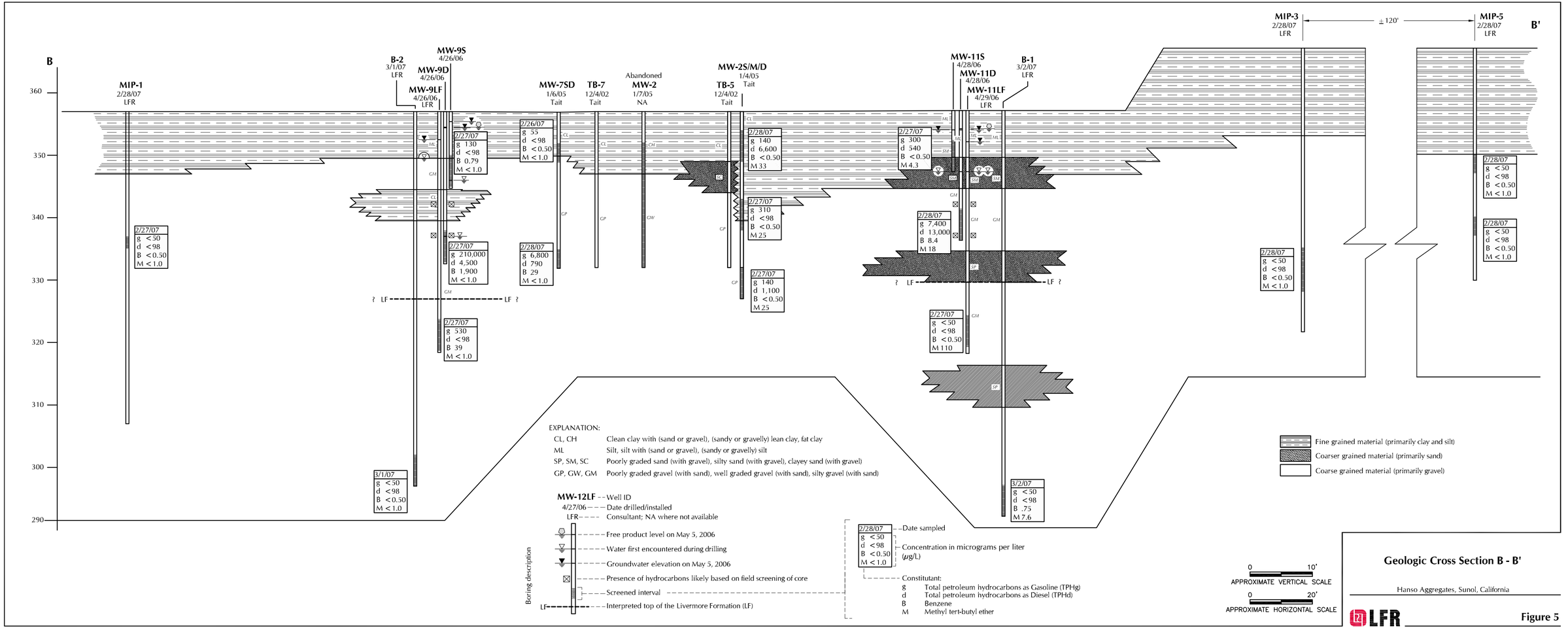

Geologic Cross Section B - B'

Hanso Aggregates, Sunol, California

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Figure 5

APPENDIX A

Updated Site Conceptual Model

CONTENTS

FIGURES

1.0 INTRODUCTION

This Appendix contains a site conceptual model (SCM) for the former fuel dispensing facility located at the Asphalt Plant ("the Site") of the Hanson Aggregates Northern California gravel quarry ("the Facility"). An SCM initially was developed at the request of Alameda County Environmental Health. The purpose of the SCM is to provide a framework for understanding site conditions with respect to the fate and transport of chemicals of potential concern (COPCs). The SCM is a working hypothetical model of the Site that reflects what is known about the site geology (including the potential presence of preferential pathways), the site hydrogeology, the release history at the Site, the time history of concentration of COPCs in the site groundwater and soils, potential attenuation mechanisms, and the transport mechanisms, which can impact the movement of chemicals released to the subsurface at the Site. The SCM can be used to evaluate the potential for various ecological or human receptors to be affected by site releases and to estimate the impact of these releases on potential receptors. The SCM provides a mechanism to determine if additional data are required to further refine the SCM (to fill data gaps) and to assure that any additional data to be gathered are required for making a remedial decision.

The SCM has been updated in this report to incorporate the findings of the recent investigation conducted to further characterize the lateral and vertical extent of petroleum hydrocarbons in groundwater beneath the Site.

2.0 HISTORY OF QUARRY OPERATIONS

Operations at the Facility began in the early 1950s (Saia 2006). A series of gravel pits were dug across the Facility along a north-south axis parallel to Alameda Creek. Many of these pits were subsequently used as desilting basins and in this process were filled with silt. The active pit at the time the underground storage tanks (USTs) were first installed was located west of the former UST location. The pit directly north of (and almost adjacent to) the USTs had been filled with silt by the time the USTs were installed. The asphalt plant began operations on a portion of the Facility approximately in the early 1980s. During the late 1980s or early 1990s, gravel mining operations in the active pit west of the USTs and the Asphalt Plant were ended and the pit was converted to a holding pond for wash water. Operations were then begun in a gravel pit located east of the former UST location.

3.0 GEOLOGY

Based on the borings installed at the former UST site and the Asphalt Plant by Tait Environmental Management, Inc. (Tait), and more recently by LFR Inc. (LFR), the subsurface in the vicinity of the former USTs consists of approximately 10 to 20 feet of

relatively less pervious silts, clays, and clayey gravels overlying approximately 20 to 30 feet of relatively more permeable fine- to coarse-grained gravels considered to be the main water-bearing stratum. The Livermore Formation, which underlies the main water-bearing stratum, may be somewhat less pervious compared to the overlying strata due to increased fines content encountered approximately at 30 to 35 feet below ground surface (bgs). Previous investigations concluded that the transition to the Livermore Formation occurs approximately 40 feet bgs (Saia 2006). The 40-foot depth of the bottom of the water-bearing formation was based on observation of leakage into the active gravel pits that have existed on all sides of the former UST location. Water was observed to infiltrate from the top 40 feet of the pits, but not from deeper strata. The relative lack of water below 40 feet was supported by the deep borings installed by Treadwell & Rollo (1991) as part of the North Quarry project. Treadwell & Rollo found that the alluvium overlying the Livermore Formation was much more permeable than the Livermore Formation. Perched groundwater was locally present in the Livermore Formation, but generally the soils are described as moist or dry on the boring logs.

4.0 HYDROGEOLOGY

4.1 Regional Hydrogeology

Regional groundwater flow in the vicinity of the former USTs is to the north-northwest paralleling Alameda Creek (DWR 1980). The majority of groundwater transport takes place in the alluvium overlying the Livermore Formation (Treadwell & Rollo 1991).

4.2 Local Hydrogeology

4.2.1 Impact of Quarry Operations on Groundwater Flow

Local groundwater transport in the vicinity of the former USTs is affected by past quarry operations. The area beneath the Site has not been mined, although this area is surrounded on all four sides by former gravel pits. The gravel pits were excavated deeply into the Livermore Formation, far below the bottom of the main water-bearing unit beneath the Facility. Subsequently, the pits directly north and east of the former USTs were used as desilting basins and are now filled with silt. These silts are likely characterized as having a hydraulic conductivity orders of magnitude lower than the gravel of the main water-bearing formation. Hence, the former gravel pits north and east of the former USTs effectively act as groundwater flow barriers. The northern pit had been filled with silt by the time the USTs were installed in 1980. The eastern pit was filled during the 1990s.

According to a review of aerial photographs (included as Attachment 1 to the initial SCM [Appendix B of the Work Plan]), the pit located directly to the west of the former

USTs (currently the wash water pit) was excavated between 1982 and 1993. During the operation of the pit, the groundwater gradient in the vicinity of the USTs was likely to the west, controlled primarily by dewatering at the pit. By 1993, this pit was being used to store wash water and would no longer have drawn groundwater to it. The surface of the wash water pond is thought to represent the current groundwater surface (Saia 2006) and likely is not a significant groundwater recharge source.

The former gravel pit located directly north of the former UST location is probably causing a groundwater mound to form along its entire western and southern boundary. The mounding is likely caused by a combination of surface water flowing off of the relatively impervious surface of the former pits and into the relatively more pervious native soils and also by the damming effect of the silt-filled pits on groundwater flow. The vertically downward hydraulic gradients generally observed in the well clusters and nested well pairs support the hypothesis that the upper alluvium is recharging the water-bearing formation beneath it.

4.2.2 Groundwater Flow Directions

Recent groundwater monitoring reports have shown a shift in groundwater flow direction from easterly to southeasterly. The apparent change in groundwater flow direction is probably an artifact caused by contouring water elevation data from wells screened in the main water-bearing formation with wells screened in the upper 20 feet of the Site (for example monitoring well MW-1).

Initial water elevation data from the newly installed groundwater monitoring wells indicate that the groundwater flow direction is approximately toward the east-southeast, with a more easterly flow direction in the shallower wells compared to a more southeasterly direction in the wells assumed to be completed in the top of the Livermore Formation. Water elevations from both the shallow and deep wells indicate an easterly groundwater flow direction.

4.2.3 Change in Groundwater Table Elevation

The groundwater table elevation has varied over the history of the Site, sometimes with great rapidity (the groundwater table rose 5.2 feet between September and December 2001 at MW-1). When the excavation for the UST removal was first opened, the groundwater table was located at approximately 10 feet bgs (Tank Protect Engineering [TPE] 1996). Water levels measured during recent quarterly groundwater monitoring events show that the groundwater table generally ranges between approximately 4 and 7 feet bgs (Tait 2007). Observed fluctuations in the groundwater table likely are seasonal, resulting from rainfall infiltration.

4.2.4 Probable Groundwater Flow Directions during the 1980s and 1990s

Groundwater flow directions during the period prior to the installation of groundwater monitoring wells at the Site cannot be precisely determined. During the early 1980s and 1990s, while the USTs were still in operation and there was an open gravel pit to the west, there would likely have been a groundwater gradient to the west as groundwater was diverted into the open gravel pit. Later, after the gravel pit to the west was closed and new mining operations began to the east, the direction of groundwater flow would likely have shifted to the east (where it is today).

4.2.5 Summary of Local Hydrogeology

In summary, groundwater flow conditions in the vicinity of the former USTs are likely controlled by low permeability barriers (former gravel pits that have been used as desilting basins). Groundwater mounds against the former pits in the overlying, more clayey, formation between the surface and approximately 20 feet bgs. Groundwater then percolates into the main water-bearing formation and moves in an easterly direction from the former UST location toward Alameda Creek. Eventually, the groundwater joins the main aquifer flow along the course of Alameda Creek to the north. A review of groundwater elevations measured since January 2005 when the first nested wells were installed shows that vertical hydraulic gradients at the Site typically are downward, regardless of seasonal groundwater table fluctuations.

During the early period of UST operations (1979 to 1990), groundwater in the vicinity of the USTs likely flowed to the west toward the open gravel pit.

The rapid rising and falling of the groundwater table may have spread released petroleum products across the local area. Pockets of free products likely remain in the vadose zone, and within the aquifer in locations where lenses of product can be trapped beneath low-permeability soil lenses.

5.0 HISTORY OF UST OPERATIONS

5.1 Installation

Four USTs were installed at the Site (Groundwater Resource Consultants [GRC] 1986). Their approximate locations are shown on Figure 2 of the Work Plan. The first 10,000-gallon diesel UST (UST D4) was installed at the Site in 1973. Two additional 10,000-gallon USTs were installed in 1979 and 1980. A 2,000-gallon gasoline UST was installed in 1980. These last three tanks are the source of the petroleum hydrocarbons currently being investigated at the Site. At the time of GRC's site investigation in 1985, the four tanks were reported to be in good condition with no evidence of releases.

Tank D-4, a half aboveground, half below ground 10,000-gallon diesel tank, was removed from the Site in 1995. The tank had formerly been used in plant operations, not for fueling vehicles. Hence, the number of incidental petroleum releases from this tank would have been limited. Exploratory trenches were dug across the former tank location. The diesel-range organic compound concentrations detected in soil samples collected from the trench ranged from non-detect to 58 parts per million (ppm; TPE 1997).

5.2 Condition at Closure

At the time of tank closure in June 1996, the three USTs removed from the asphalt plant area were found to be in good condition with no holes (TPE 1996). A hole one-quarter inch in diameter was detected in a fuel line. UST D4 had been removed from nearby, southeast of the Site, at an earlier date and is not thought to have released significant quantities of diesel fuel to the environment.

5.3 Expected Types of Releases

Based on the report by TPE at the time of the tank closure, it appears that the main sources of petroleum products released to the site vadose zone likely were incidental spills during fueling operations and tank refilling. It is unknown when the hole in the fuel line occurred. While significant quantities of petroleum hydrocarbons could have been released through the hole, the releases would have occurred only during fueling operations and would not have resulted in the release of the entire tank contents.

Figure A-1 shows a graphical representation of the release SCM and the transport mechanisms that could be affecting the movement of the released petroleum products at the Site.

6.0 CURRENT UNDERSTANDING OF THE NATURE AND EXTENT OF CONTAMINATION

6.1 Nature

Incidental releases of diesel fuel and gasoline (including gasoline containing methyl tertiary-butyl ether [MtBE]) occurred at the Site. These products were likely carried in a number of directions by the changing groundwater gradients across the Site. Any residual free product (source material) left in the site subsurface is likely trapped in isolated pockets.

6.2 Horizontal Extent

The highest concentrations of petroleum products, almost entirely gasoline-range hydrocarbons, continue to be detected in groundwater samples collected from groundwater monitoring wells MW-7D and MW-9D. Wells MW-7D and MW-9D are located approximately 40 to 70 feet west and northwest of the former USTs, respectively. The petroleum hydrocarbons in the gasoline range (TPHg) detected in groundwater samples collected from wells MW-7D and MW-9D likely migrated to this area during gravel mining operations in the current wash water pond when the groundwater gradient would have been strongly to the west from the former UST location. An indication of the relative age of this TPHg is that essentially no MtBE has been detected in groundwater samples collected from wells located in the northern portion of the Site. The location and type of contamination detected in groundwater samples collected from wells MW-7D and MW-9D are consistent with a past groundwater gradient to the west.

The recent Membrane Interface Probe (MIP) and grab groundwater sampling conducted at the Site help characterize the extent to petroleum hydrocarbon-related compounds to the north and south of the Site. The relatively elevated TPHg concentrations detected in samples from wells MW-7D and MW-9D appear to represent a pocket of residual petroleum products in the vicinity of these two wells. The extent of the local elevated TPHg concentrations is bounded to the west by MW-8, to the south by MW-2D, to the east by MW-5D and MW-1, and to the north by the grab groundwater sample collected from soil boring MIP-1. No petroleum hydrocarbon-related compounds were detected in the grab groundwater sample collected from MIP-1. Elevated TPHd concentrations have been detected regularly in samples collected from well MW-11D and in wells located approximately in the center of the Site. The lateral extent of TPHd is bounded to the west by well cluster MW-12, to the north by well cluster MW-9 and soil boring MIP-1, to the east by the grab groundwater sample collected from soil boring MIP-2, and to the south by grab groundwater samples collected from soil borings MIP-3 and MIP-6.

The lateral extent of MtBE in the site groundwater appears to be localized in the southern half of the Site, based on MtBE concentrations detected in nested wells MW-2S/M/D, MW-3, MW-6S/D, and wells cluster MW-11S/D/LF. The extent of MtBE in the site groundwater is bounded to the north, east, and west by results from groundwater monitoring wells, and to the south by analytical results from soil borings MIP-3 and MIP-6.

6.3 Vertical Extent

The deepest groundwater monitoring wells are screened approximately between 35 and 40 feet bgs and approximately into the top of the Livermore Formation and have been shown to contain elevated concentrations of TPHd and/or MtBE. The recent grab groundwater samples collected from temporary soil borings B-1 and B-2, located

adjacent to wells MW-11LF and MW-9LF, respectively, help characterize the vertical extent of petroleum hydrocarbons in groundwater. The grab groundwater samples were collected from approximately between 55 and 65 feet bgs; no significant petroleum hydrocarbon-related compounds were detected. The vertical extent of petroleum hydrocarbons has been adequately characterized beneath the Site.

6.4 Time History of Petroleum Hydrocarbon Concentrations

Diesel-range total petroleum hydrocarbon (TPHd) concentrations were once as high as 480 ppm, but are now only being detected sporadically in groundwater samples collected at the Site. The only significant TPHd concentrations currently being detected are in groundwater samples collected from monitoring well MW-7S (0.66 ppm).

TPHg concentrations are more elevated and more persistent. In wells installed in 1998, TPHg concentrations detected in samples of groundwater have fallen from a maximum of 29 ppm to 0.41 ppm in MW-1; 24 ppm to 0.012 ppm in MW-2; and 0.59 ppm to undetected (less than 0.05 ppm) in MW-3. However, in wells installed in 2005 and recently in 2006, TPHg concentrations up to 1,300 ppm have been detected (sample collected from MW-7D in December 2005). Two primary areas of elevated TPHg have been identified, namely in the vicinity of wells MW-7S/D and MW-9S/D/LF, and in the vicinity of wells MW-11S/D/LF. These results are consistent with a widely scattered, discontinuous distribution of petroleum products remaining from releases that took place in the early 1990s rather than a single significant pool of hydrocarbons steadily discharging to site groundwater.

In 2006, groundwater samples also were sampled for the presence of lead scavengers, 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB), which were additives of leaded gasoline until the late 1980s. Neither 1,2-DCA nor EDB was detected in any of the groundwater samples collected on May 5, 2006. The absence of lead scavengers in groundwater indicates that the TPHg release to groundwater likely occurred after leaded gasoline was phased out.

Samples recently were collected from wells MW-5D, MW-7D, and MW-12D, and analyzed for specific inorganic compounds that are indicators of existing and/or potential microbial activity and degradation of petroleum hydrocarbons. A review of the analytical results indicates that biodegradation of hydrocarbons likely is occurring in groundwater beneath the Site, and that the primary mechanism of biodegradation is anaerobic respiration in an oxygen-depleted environment. Evidence of limited degradation of TPHd and TPHg is apparent, for example in the historical analytical results for well MW-3 that show generally decreasing TPHd and TPHg concentrations since approximately 1998.

7.0 RECEPTORS/PATHWAYS

Figure A-2 is a schematic showing the complete exposure pathways due to the petroleum releases at the Site. A complete exposure pathway includes a source, a media through which the contamination is moved, and a receptor that comes into contact with the media. For this Site, the source is believed to be incidental releases of petroleum products (including MtBE) and the affected media are soil, groundwater, air, and, potentially, surface water. Potential receptors are site workers and site visitors and, potentially, if the site use were to change, the public through consumption of affected groundwater or surface water.

It is not clear if a complete pathway exists between the site release and surface water. It is not clear if there are sufficient quantities of petroleum products in the groundwater that they could migrate to a groundwater receptor.

8.0 TRANSPORT MECHANISMS

The primary mechanisms affecting the petroleum hydrocarbons in site groundwater are probably dilution and attenuation. A typical hydraulic conductivity for clean gravels is 10 centimeters per second (Holtz and Kovacs 1981, page 210). A typical effective porosity for gravels is 19 percent (U.S. EPA 1989, pages 3-11). The average hydraulic gradient in the main water-bearing formation in the second and third quarters of 2005 was approximately 0.005 foot per foot to the east. Hence, the average groundwater velocity was approximately 750 feet per day. If the Site is 200 feet wide and 20 feet deep, approximately 1.5 billion gallons of water flow through the Site every year.

While some biological activity is likely taking place at the Site, the rapid dilution that takes place downgradient from the former USTs likely dilutes the petroleum products to a level far below where biological activity can take place. Biological activity in the upper 20 feet of the subsurface is probably more pronounced and may account for the disappearance of TPHd-range hydrocarbons from the Site.

A water line is shown crossing the Site in past reports. This water line could be providing a preferential pathway for petroleum migration at the Site. The boring log for MW-2, which contained free product upon installation, indicates that the boring may have intersected utility trench backfill material.

9.0 DATA GAPS

As described in this report, the results of the MIP/cone penetration testing (CPT) and grab groundwater investigation completed during February-March 2007 provided data that filled previously identified data gaps. The lateral extent of TPHg in groundwater to the north of well cluster MW-9S/D/LF has been characterized by the results from the

MIP-1 location. The lateral extent of TPHg and MtBE in groundwater to the south of well cluster MW-11S/D/LF has been characterized by the results from the MIP-3, MIP-5, and MIP-6 locations. The vertical extent of TPHg and MtBE has been characterized in the vicinity of well clusters MW-9 and MW-11 by the deep soil borings advanced at the B-1 and B-2 locations.

The capacity of the site aquifer to retard petroleum transport and degrade petroleum hydrocarbons has been evaluated using the analytical data from groundwater samples collected from wells MW-5D, MW-7D, and MW-12D. These results are presented and discussed in the report.

10.0 REFERENCES

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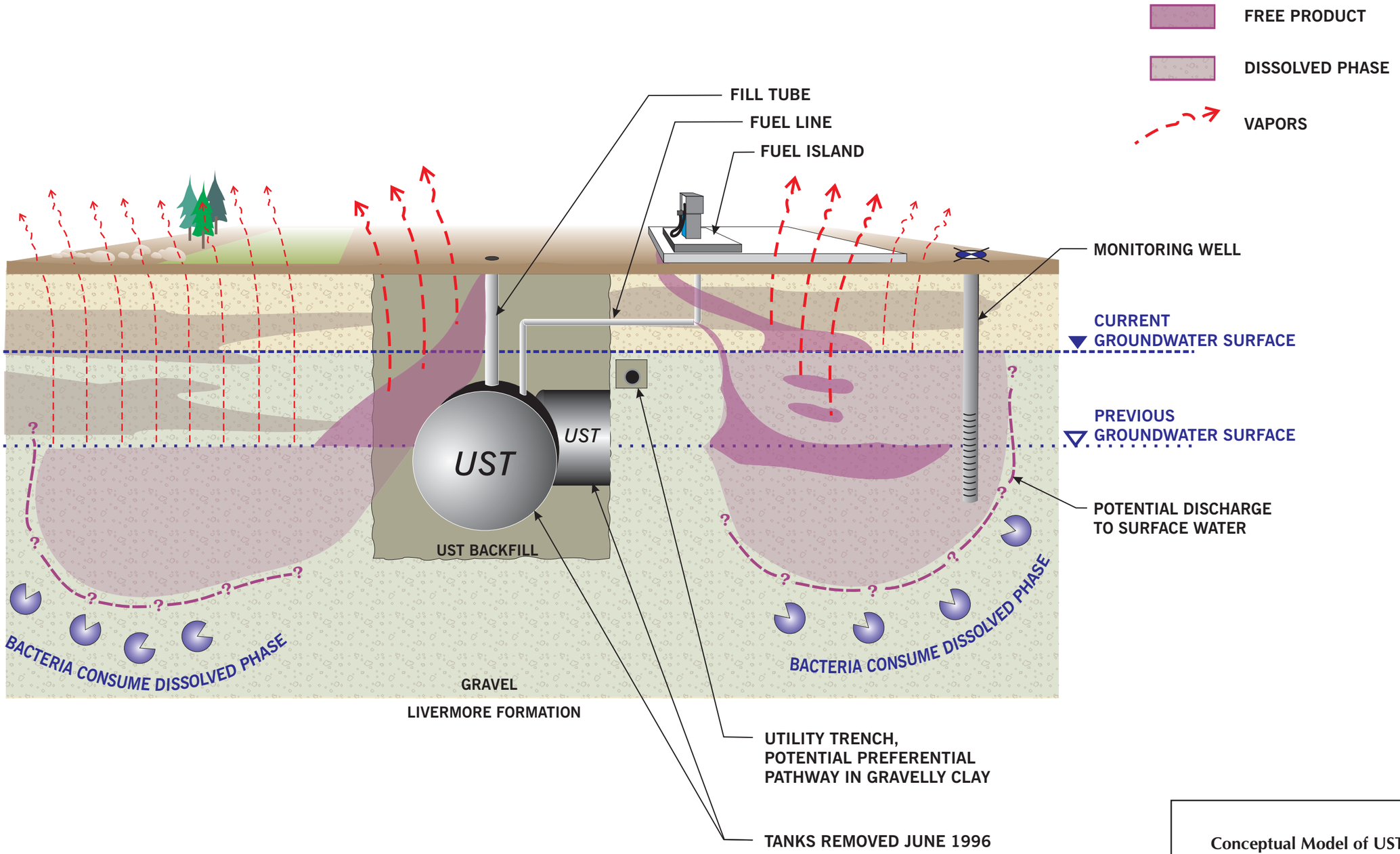

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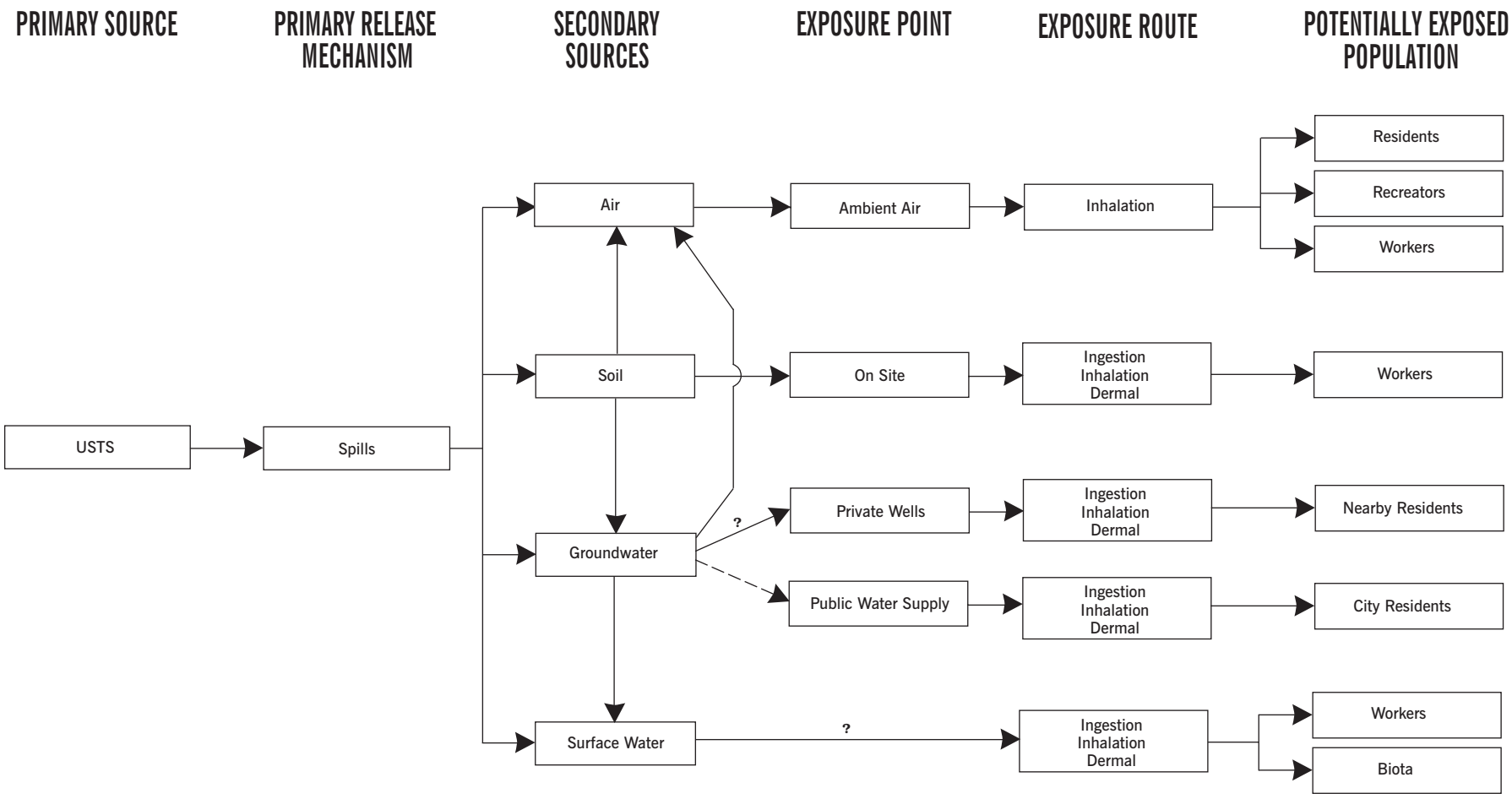
Conceptual Model of UST Fuel Leakage

Hanson Aggregates, Sunol, California

LFR

Figure A-1



Legend

Complete pathway

Incomplete pathway

? Potentially complete

DRAFT PRIVILEGED AND CONFIDENTIAL
ATTORNEY - CLIENT WORK PRODUCT

Conceptual Site Model for Complete Exposure Pathways

Hanson Aggregates, Sunol, California

LFR

Figure A-2

DESIGN\001\09480\00\09480_Conceptual Site Model.ai

APPENDIX B

Field Forms

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Micropurge Water Quality Parameters

Project #: 001-09480-02 **Date:** 2/28/07 **Well #:** MW-7D

Project Name: Hanson Aggregates **Sample ID:** MW-7D

Location: Sunol, Ca **DTW:** 3.02 **Inlet:** ≈ 20.0' bgs

Sampling Plan: KMS **Purge Method:** Low Flow, Peristaltic Pump

Field Staff: JAG

Laboratory: Sun Star Labs

Delivery: Courier Pick up

Analysis: TPHg, TPHd, BTEX, Oxygenates (MTBE/ ETBE/DIPE/TBA/TAME), Sulfate, Nitrate, Methane, Bromide, COD, BOD, Total Chromium, Hexavalent Chromium

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1507	3.07	-	-	-	-	-	-	Start	purge
1517	3.43	≈0.5 gal	15.13	1.727	0.69	-226.7	clear	6.95	Hydrocarbon odor
1522	3.45	≈0.75 gal	15.14	1.731	0.83	-230.1	clear	6.95	" "
1527	3.46	≈1.0 gal	15.14	1.732	0.52	-233.9	"	6.95	Strong odor
1532	3.47	≈1.25 gal	15.14	1.735	0.44	-238.0	"	6.95	" "
1537	3.48	≈1.5 gal	15.16	1.738	0.42	-241.4	"	6.96	" "
1545	3.48	—	—	—	—		—	Sample	

Notes: * Product in water, Strong Hydrocarbon odor & Sheen on water

Flow Rate ≈ 110 ml/min

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Micropurge Water Quality Parameters

Project # 801-09480-02

Well #: MW-7D

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

Additional Field Parameters

	Time	Result (mg/L)						
Ferrous Iron	1600	2.12						
Sulfide	1610	0.15						
Nitrite	1555	0.014						

Notes:

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Micropurge Water Quality Parameters

Project #: 001-09480-02 **Date:** 2/28/07 **Well #:** MW-5D

Project Name: Hanson Aggregates **Sample ID:** MW-5D

Location: Sunol, Ca **DTW:** 3.38 **Inlet:** ~ 21.0 ft bgs

Sampling Plan: KMS **Purge Method:** Low Flow, Peristaltic Pump

Field Staff: JAG

Laboratory: Sun Star Labs

Delivery: Courier Pick up

Analysis: TPHg, TPHd, BTEX, Oxygenates (MTBE/ ETBE/DIPE/TBA/TAME), Sulfate, Nitrate, Methane, Bromide, COD, BOD, Total Chromium, Hexavalent Chromium

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1307	3.38	—	—	—	—	—	—	—	Start Purge
1317	3.57	~0.5 gal	16.90	3.970	0.65	-183.7	clear	6.84	—
1322	3.59	~0.75 gal	17.13	4.012	0.50	-186.7	clear	6.84	—
1327	3.60	~1.0 gal	17.01	4.002	0.35	-191.5	clear	6.85	—
1332	3.60	~1.25 gal	17.08	4.013	0.26	-192.8	clear	6.85	—
1337	3.60	~1.5 gal	17.17	4.018	0.25	-196.2	clear	6.87	
1342	3.60	~1.75 gal	17.19	4.019	0.23	-197.3	clear	6.86	—
1350	3.60	—	—	—	—		—	—	Sample

Notes:

LFR

Micropurge Water Quality Parameters

Project # 001-09480-02

Well #: MW-5D ~~MW-12D~~

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

Additional Field Parameters

	Time	Result (mg/L)	Notes:						
Ferrous Iron	1405	3.30	Colorimeter display reading limit						
Sulfide	1420	0.02							
Nitrite	1400	0.006							

Ferrous Iron 1410 3.30 mg/L Note: "Limit on display"

Notes:

LFR
IRVINE • FRICKE

Micropurge Water Quality Parameters

Project #: 001-09480-02 **Date:** 2/28/07 **Well #:** MW-12D

Project Name: Hanson Aggregates **Sample ID:** MW-12D

Location: Sunol, Ca **DTW:** 5.88 **Inlet:** ~~≈20~~ ≈19.0 bgs

Sampling Plan: KMS **Purge Method:** Low Flow, Peristaltic Pump

Field Staff: JAG

Laboratory: Sun Star Labs

Delivery: Courier Pick up

Analysis: TPHg, TPHd, BTEX, Oxygenates (MTBE/ ETBE/DIPE/TBA/TAME), Sulfate, Nitrate, Methane, Bromide, COD, BOD, Total Chromium, Hexavalent Chromium

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	
1045	5.88	—	—	—	—	-	—	—	Start Purge
1055	5.92	≈0.5 gal	16.09	1.466	1.06	136.8	cloudy	6.76	—
1100	5.93	≈0.75 gal	16.11	1.467	0.55	~~136~~ 140.5	cloudy	6.76	—
1105	5.93	≈1.0 gal	16.12	1.468	0.46	142.4	" "	6.76	—
1110	5.93	≈1.25 gal	16.13	1.469	0.49	146.4	" "	6.76	—
1115	5.93	≈1.5 gal	16.23	1.473	0.43	145.9	" "	6.75	
1125	5.93	—	—	—	—	—	—	—	Sample
				~~JAG~~					

Flow Rate ≈ 175 ml/min

Notes:

LFR
LEVINE-FRICKE

Micropurge Water Quality Parameters

Project # 001-09480-02

Well #: MW-12D

TIME	DTW	VOLUME	TEMP (C)	COND (ms/cm)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	pH	COMMENTS
Stabilization if 3 successive parameters are within				+\-3%	+\-10%	+\- 10 mv	+\-10%	(+/- 0.1)	

Additional Field Parameters

	Time	Result (mg/L)						
Ferrous Iron	~~1210~~ 1215	0.02						
Sulfide	1220	0.02						
Nitrite	1210	0.017						

Notes:

IWM, Inc.

INTEGRATED WASTESTREAM MANAGEMENT, INC.
1945 CONCOURSE DRIVE, SAN JOSE, CA 95131
PHONE: 408.433.1990 FAX: 408.433.9521

CERTIFICATE OF DISPOSAL

Generator Name:	Mission Valley Rock	Facility Name:	Mission Valley Rock Co.
Address:	7999 Athenour Way	Address:	7999 Athenour Way
	Sunol, CA		Sunol, CA
Contact:	Mort Calvert	Facility Contact:	Mike Schenone, TAIT Environmental
Phone:	925-862-2257	Phone:	916-858-1090

IWM Job #:	96717-DE
Description of Waste:	5 Drums of Non-Hazardous Water
Removal Date:	3/12/07
Ticket #:	SP120307-MISC

Transporter Information

Name:	IWM, Inc.
Address:	950 Ames Avenue
	Milpitas, CA 95035
Phone:	(408)942-8940

Disposal Facility Information

Name:	Seaport Refining & Environmental
Address:	700 Seaport Blvd
	Redwood City, CA 94063
Phone:	(650) 364-1024

IWM, INC. CERTIFIES THAT THE ABOVE LISTED NON-HAZARDOUS WASTE WILL BE TREATED AND DISPOSED AT THE DESIGNATED FACILITY IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

William T. DeLon William T. DeLon — 3/12/07

Authorized Representative (Print Name and Signature) — Date

APPENDIX C

CPT/MIP Results Reports

MIP Report

Membrane Interface Probe Services

7999 Anthenour Way, Sunol, CA

February 26, 2007



"Bringing Chemistry and Contaminants Together"

For the Consulting Community

"Expect Performance"

TABLE OF CONTENTS

Client: LFR
Jason Triolo / jason.triolo@lfr.com
1900 Powell Street 12th Floor
Emeryville, CA 94608

Start Date: 2/26/2007
Completed Date: 2/28/2006

Site Address: 7999 Anthenour Way
Project Name Sunol, CA

Project Scope: Collected Membrane Interface Probe logs from 6 boring locations from approximately surface to as deep as 49 feet to determine if the MIP could provide a better definition of subsurface contaminant distribution over traditional soil and groundwater sampling in addition to identify a possible submersed petroleum source BTEX and Diesel source zone.

Project Information:	
MIP-1	Refusal at TD.
MIP-2	Pre-auger drill to 5'.
MIP-3	Pre-augered to 6'.
MIP-4	Pre-augered to 6'. Attenuation change on ECD at 0.05' bgs. Disregard anomalie.
MIP-5	Pre-augered to 10' bgs. Refusal at 40' bgs.
MIP-6	Pre-augered to 7'. Each of the FID hits at 29' and 34.5' were observed when the probe had been stopped to wait for lag time of nitrogen.

MIP Boring and Confirmation Sampling Summary

Date Sampled	Time Sampled	Boring Name	Total Depth	Confirmation Samples Soil	Confirmation Samples Groundwater
Feb 26 2007	11:58	MIP-1	49.8	Not Provided	Not Provided
Feb 26 2007	16:24	MIP-2	29.75	Not Provided	Not Provided
Feb 27 2007	10:38	MIP-3	45.45	Not Provided	Not Provided
Feb 27 2007	14:52	MIP-4	27.8	Not Provided	Not Provided
Feb 28 2007	10:39	MIP-5	37.2	Not Provided	Not Provided
Feb 28 2007	14:22	MIP-6	35.35	Not Provided	Not Provided

1225 East McFadden Avenue ● Santa Ana ● CA 92705 ● USA ● Phone 714-647-6290 ● Fax 714-647-6291
San Francisco CA Los Angeles Washington DC Fredericksburg VA Raleigh NC Wilmington DE

Quality Control: Vironex utilizes a response test* prior to each MIP boring. A solution containing water, Trichloroethene & Toluene are mixed and transferred into a galvanized test pipe. The MIP is then lowered into the test pipe for 45 seconds and then extracted. The trip time** is then noted and entered into the FC5000 MIP computer.

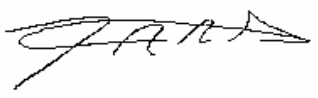
**Response Test - A test that ensures that the MIP system is working correctly.*
***Trip Time - Time it takes for the standard to enter the MIP probe, at the probe membrane, till the time a significant response is noticed on the FC5000 Computer*

MIP Components Used:
- Gregg Drilling 30 Ton CPT Unit
- FC 5000 MIP Computer
- Flow Control Box
- HP Gas Chromatograph
- ECD (Electron Capture Detector)
- PID (Photo Ionization Detector)
- FID (Flame Ionization Detector)
- 150' Trunk Line
- 1.75" MIP Probe
- 1.5" Drive Rods

Soil Confirmation No confirmation data was provided to Vironex.

Qualitative Analysis (Identification): The MIP system will detect most VOC's (Volatile Organic Compounds) which have the capability of migrating through the membrane. The ECD (Electron Capture Detector) will typically detect chlorinated compounds. The PID will typically detect aromatic and double bonded compounds, typical of gasoline components and some solvents. At high concentrations the ECD, PID and FID may detect other compounds not normally associated with the detector. Physical soil samples which are prepared by EPA Method 5035, and analyzed by EPA Method 8260, may be semi correlated with the MIP responses. The MIP responses are semi-correlated with most detected compounds, even those which are not reported nor detected by EPA Method 8260.

Lithology: The conductivity of soils is different for each type of media. Finer grained sediments, such as silts or clays, will have a higher EC signal. While coarser grained sediments, sands and gravel, will have a lower EC signal. Lithology should be correlated with a physical soil sample.



Frank Stolfi
National Director of MIP Services

1225 East McFadden Avenue ● Santa Ana ● CA 92705 ● USA ● Phone 714-647-6290 ● Fax 714-647-6291
San Francisco CA Los Angeles Washington DC Fredericksburg VA Raleigh NC Wilmington DE

Client: LFR
1900 Powell Street 12th Floor
Emeryville, CA 94608

Start Date: 2/26/2007
Completed Date: 2/28/2006

Site Address: 7999 Anthenour Way
Project Name: Sunol, CA

MIP Quality Control

Standard Summary

Boring Name	Date	Time	Standard	PID Response	ECD Response	Pressure (PSI)	Response Time (s)
QA QC 1	Feb 26 2007	11:51	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.64	55
MIP-1	Feb 26 2007	11:58				17.29	55
QA QC 2	Feb 26 2007	15:32	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.16	85
MIP-2	Feb 26 2007	16:24				16.64	85
QA QC 3	Feb 27 2007	10:28	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.01	100
MIP-3	Feb 27 2007	10:38				16.87	100
QA QC 4	Feb 27 2007	13:14	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.12	85
MIP-4	Feb 27 2007	14:52				17.52	85
QA QC 5	Feb 28 2007	10:14	5 ppm TCE & 1.5 ppm Toluene	Yes	Yes	17.06	92
MIP-5	Feb 28 2007	10:39				16.82	92
QA QC 6	Feb 28 2007	14:10	5 ppm TCE & 1.5 ppm Toluene	Yes	Yes	16.71	105
MIP-6	Feb 28 2007	14:22				16.51	105

End of Day QA QC Summary

Boring Name	Date	Time	Standard	PID Response	ECD Response	Pressure (PSI)	Response Time (s)
End of Day 1	Feb 26 2007	17:43	5 ppm TCE & 1 ppm Toluene	Yes	Yes	16.34	95
End of Day 2	Feb 27 2007	16:28	5 ppm TCE & 2 ppm Toluene	Yes	Yes	13.45	80
End of Day 3	Feb 28 2007		No end of day due to damaged membrane.				

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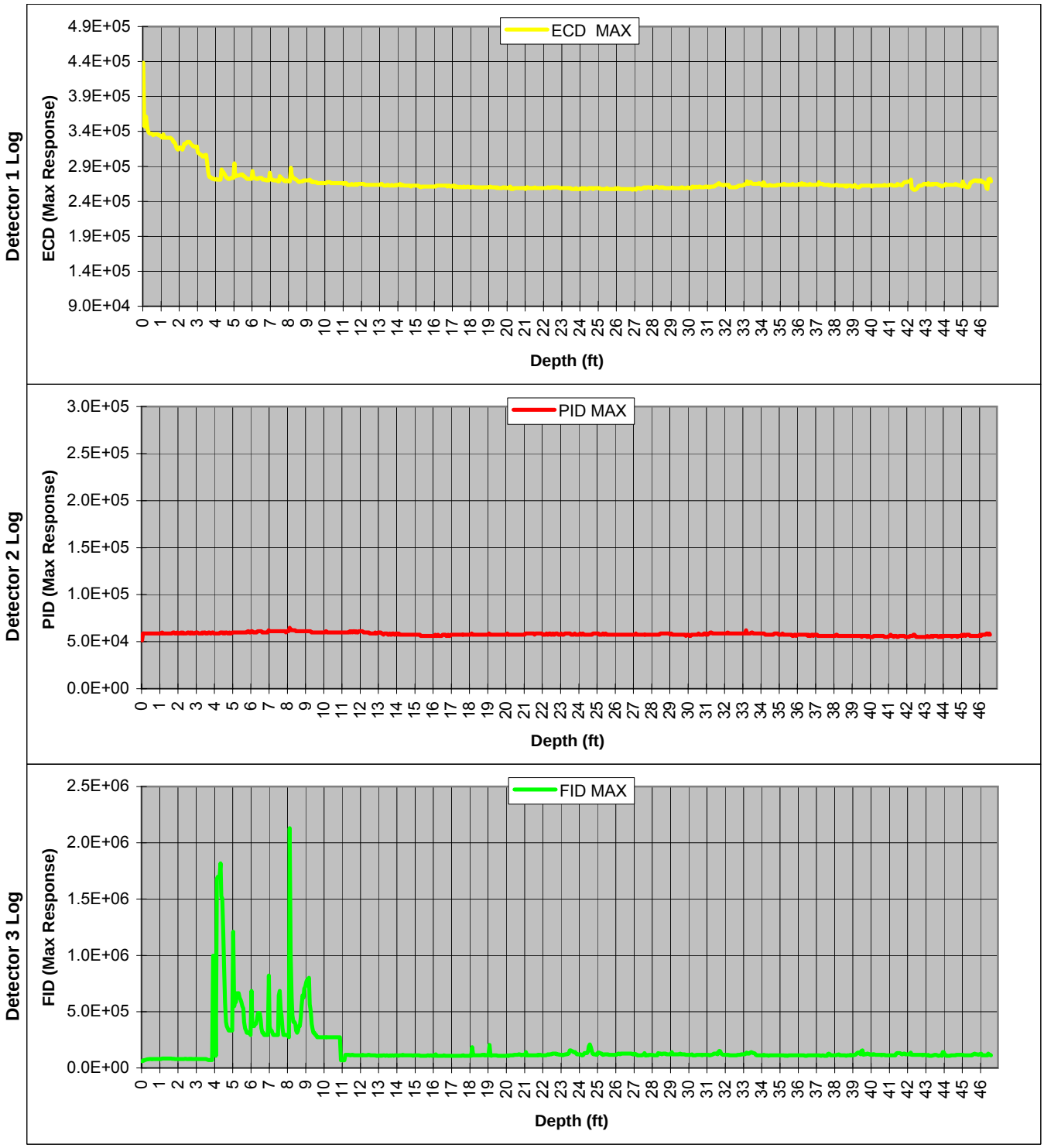
No Map Provided

MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

Boring I.D.: MIP-1
Date: Feb 26 2007
Time: 11:58

Detector 1 : Electron Capture (ECD)
Detector 2 : Photo Ionization (PID)
Detector 3 : Flame Ionization (FID)

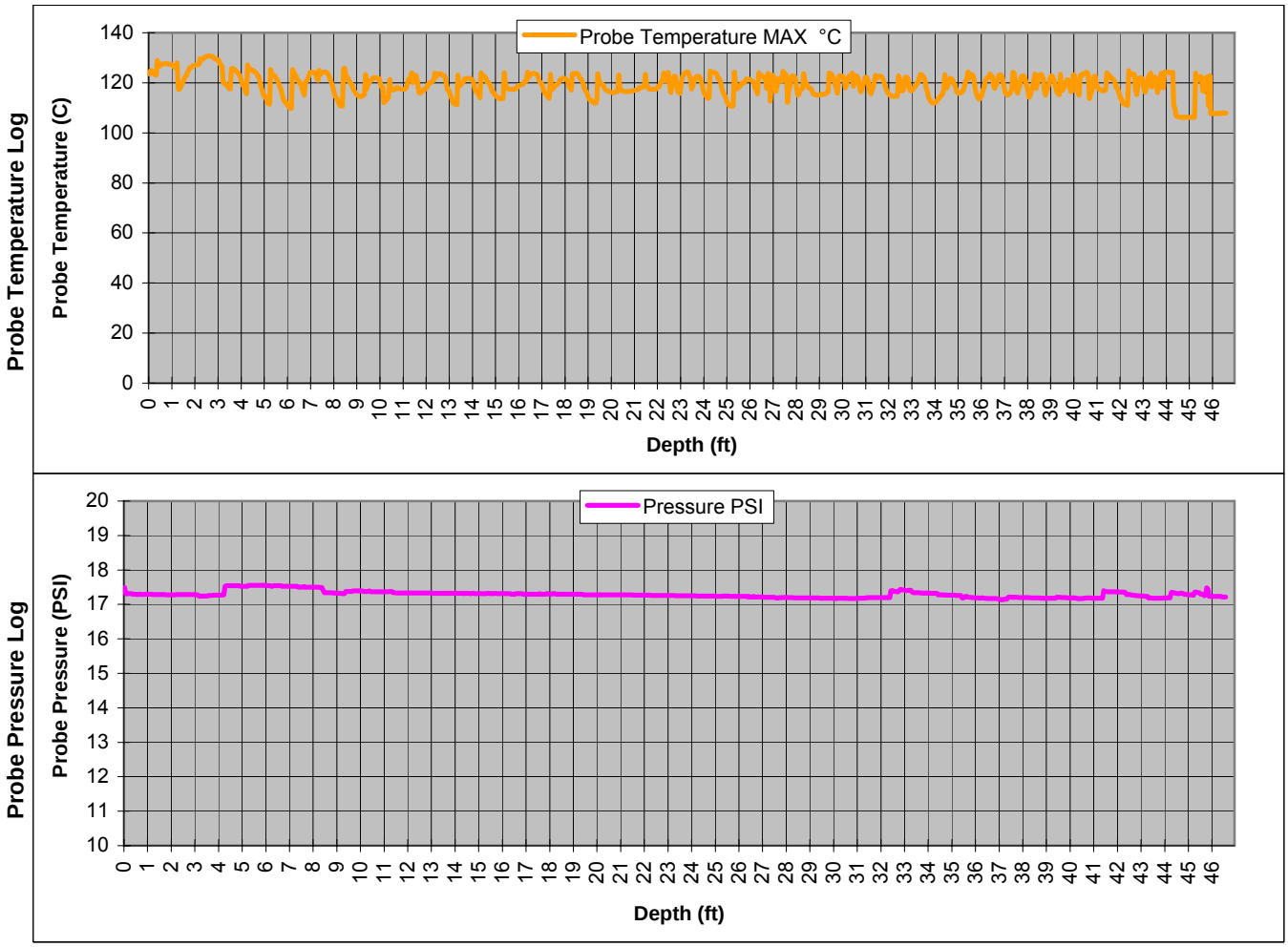


MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

Boring I.D.: MIP-1
Date: Feb 26 2007
Time: 11:58

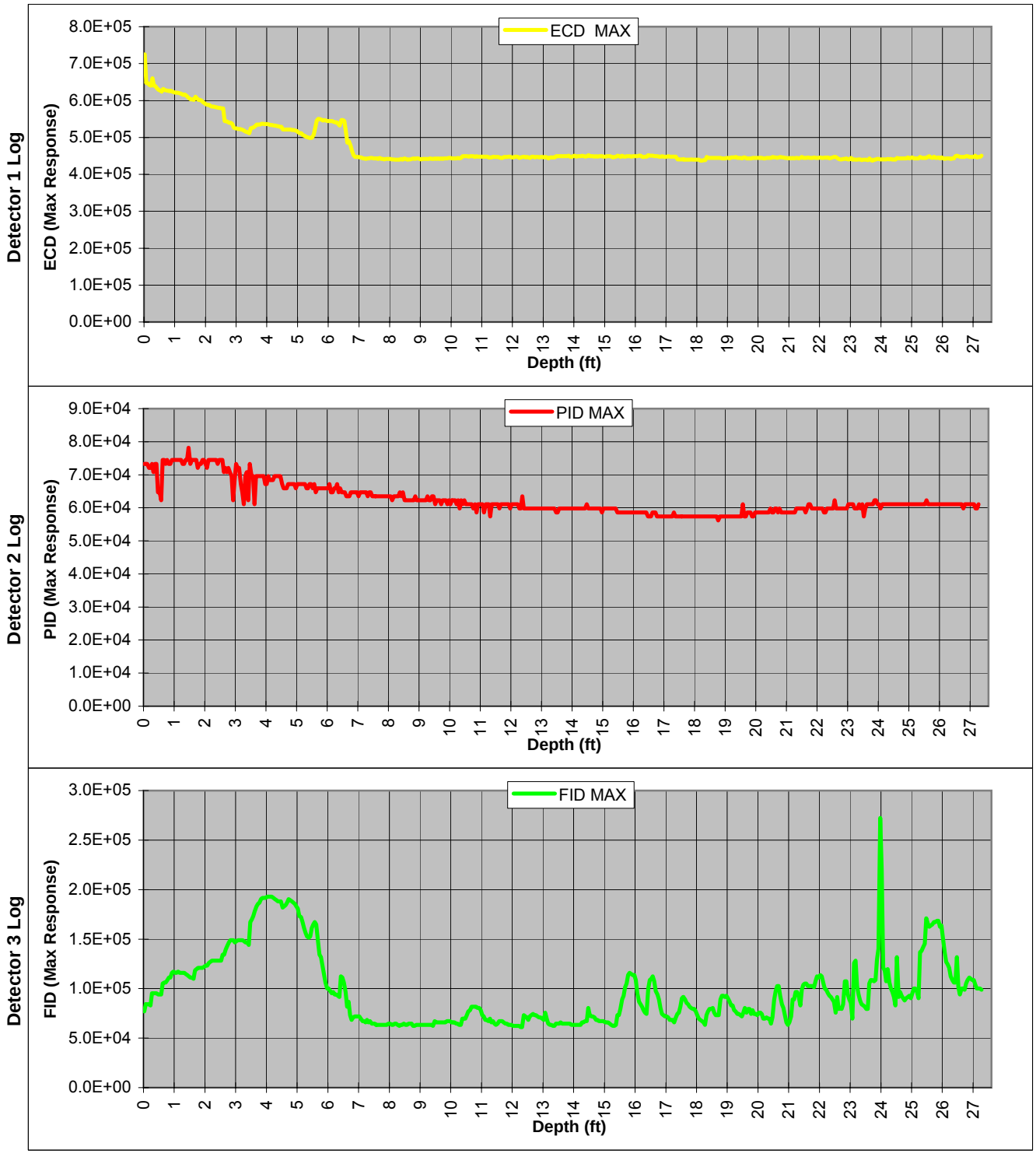
Graph 1 : Probe Temperature (C)
Graph 2 : Probe Pressure (PSI)



Explanation: Refusal at TD.

MIP Log Results by Boring - Detector Reading vs. Depth

Client:	LFR	Boring I.D.:	MIP-2	Detector 1 :	Electron Capture (EC
		Date:	Feb 26 2007	Detector 2 :	Photo Ionization (PID
		Time:	16:24	Detector 3 :	Flame Ionization (FID

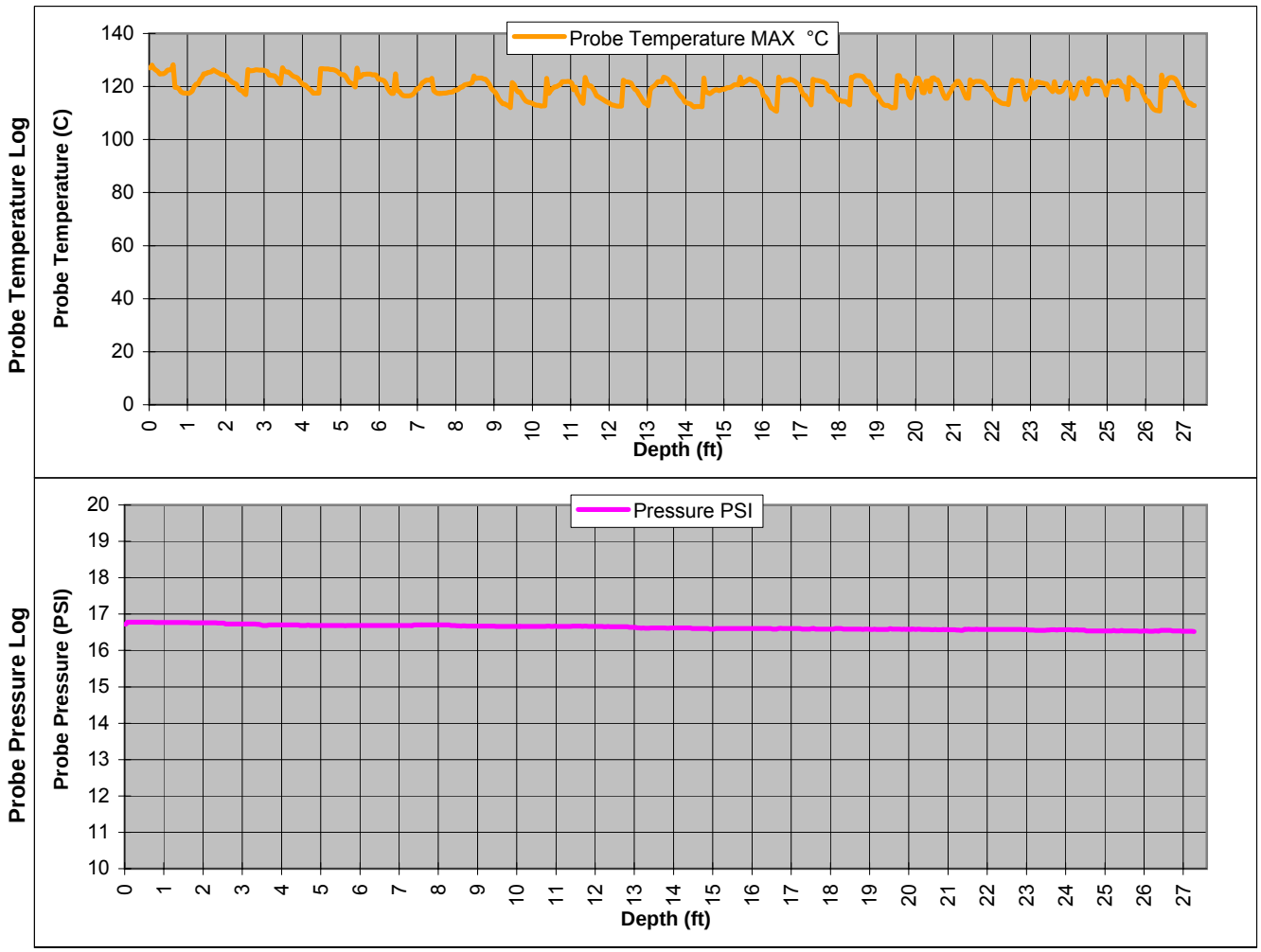


MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

Boring I.D.: MIP-2
Date: Feb 26 2007
Time: 16:24

Graph 1 : Probe Temperature (
Graph 2 : Probe Pressure (PSI



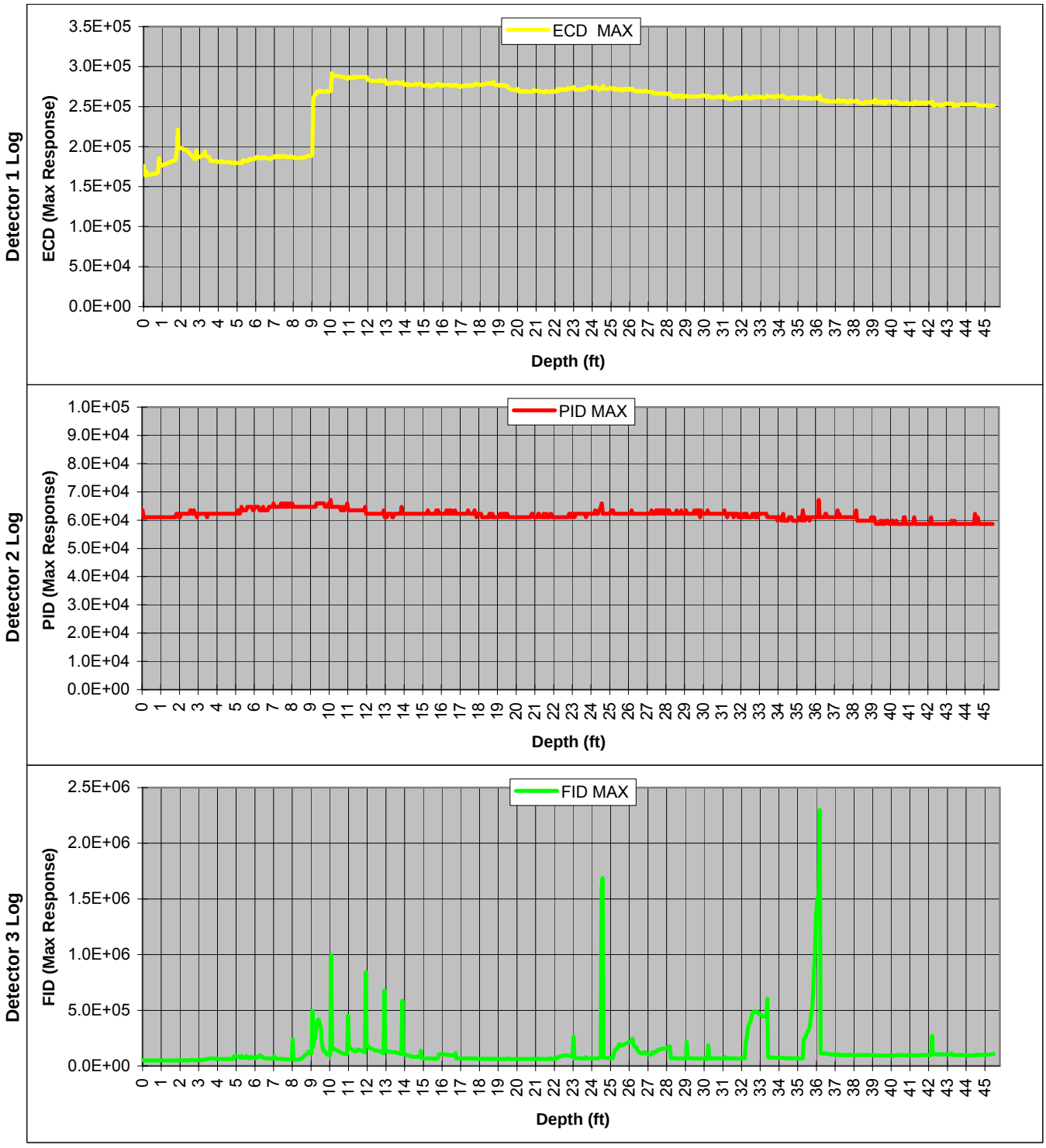
Explanation: Pre-auger drill to 5'.

MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

Boring I.D.: MIP-3
Date: Feb 27 2007
Time: 10:38

Detector 1 : Electron Capture (ECD)
Detector 2 : Photo Ionization (PID)
Detector 3 : Flame Ionization (FID)

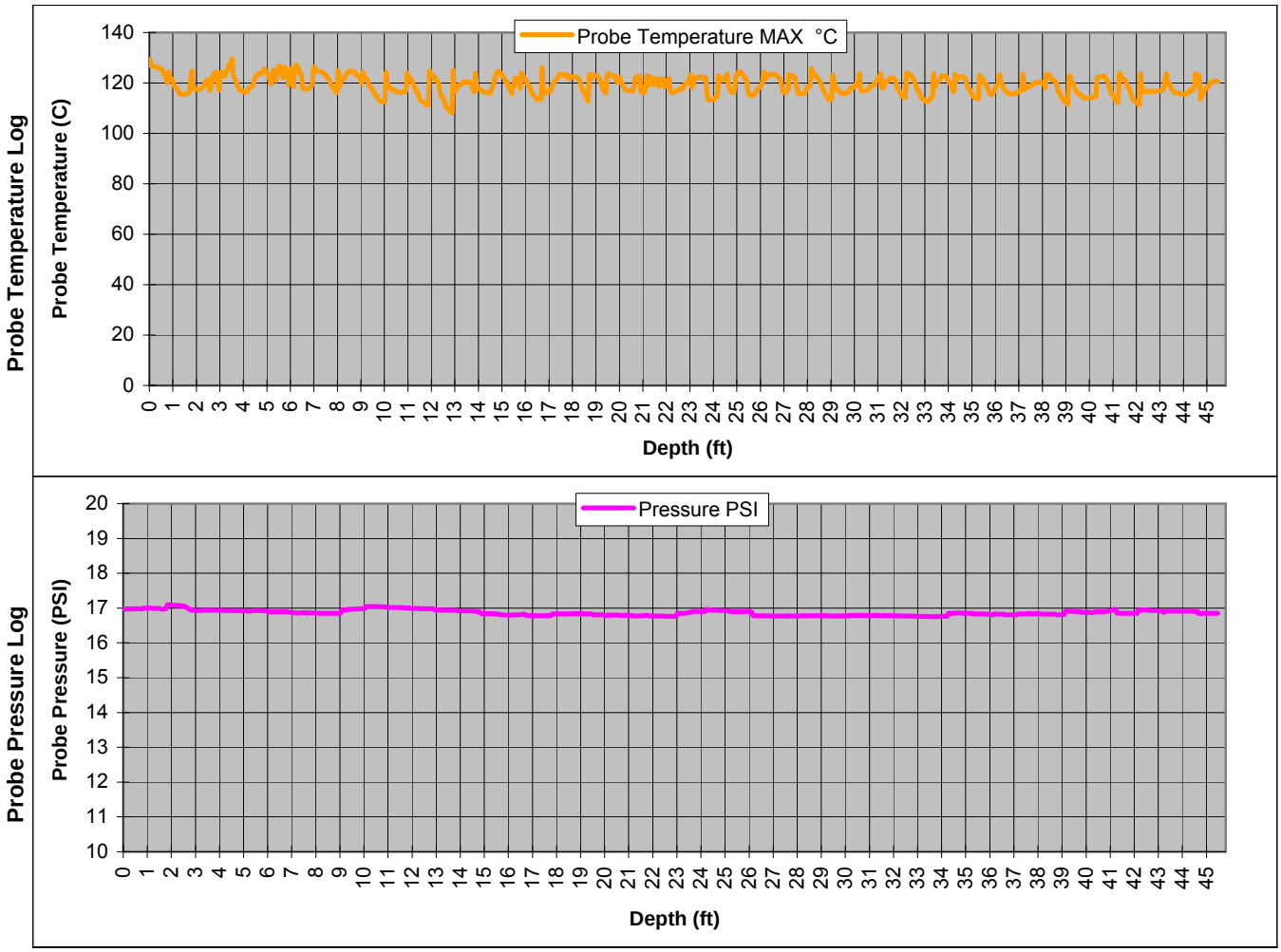


MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

Boring I.D.: MIP-3
Date: Feb 27 2007
Time: 10:38

Graph 1 : Probe Temperature (C)
Graph 2 : Probe Pressure (PSI)



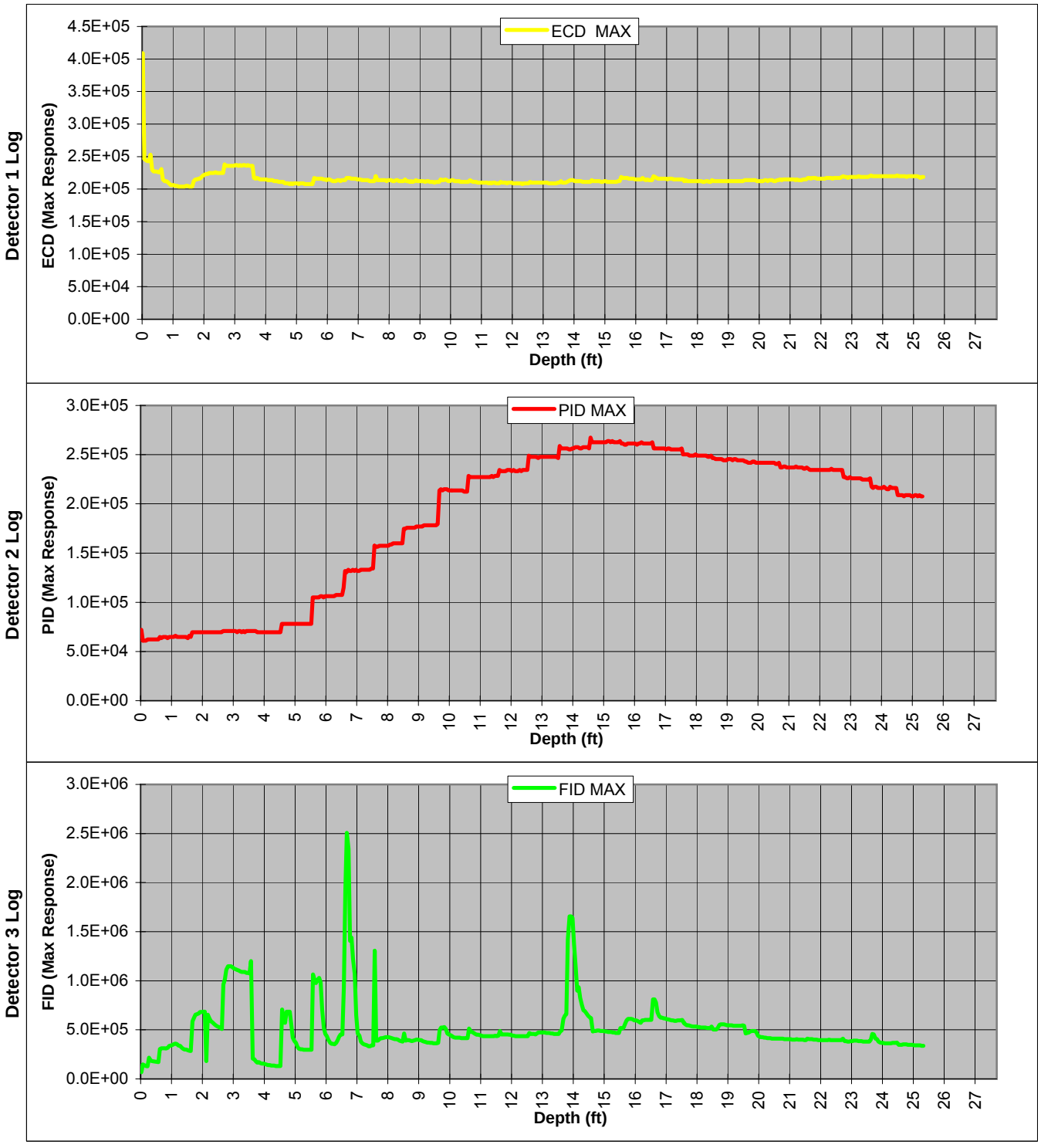
Explanation: Pre-augered to 6'.

MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

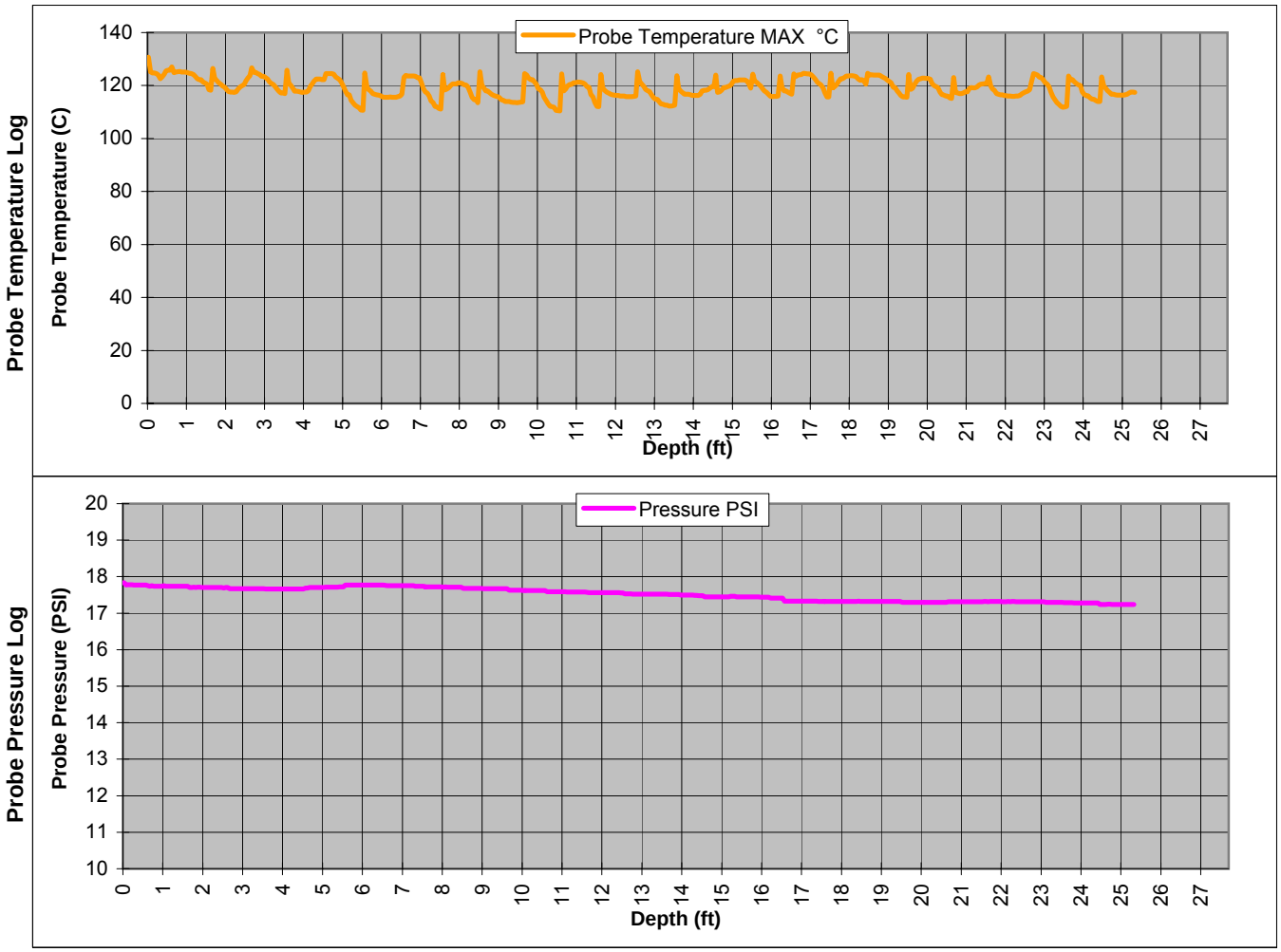
Boring I.D.: MIP-4
Date: Feb 27 2007
Time: 14:52

Detector 1 : Electron Capture (ECD)
Detector 2 : Photo Ionization (PID)
Detector 3 : Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

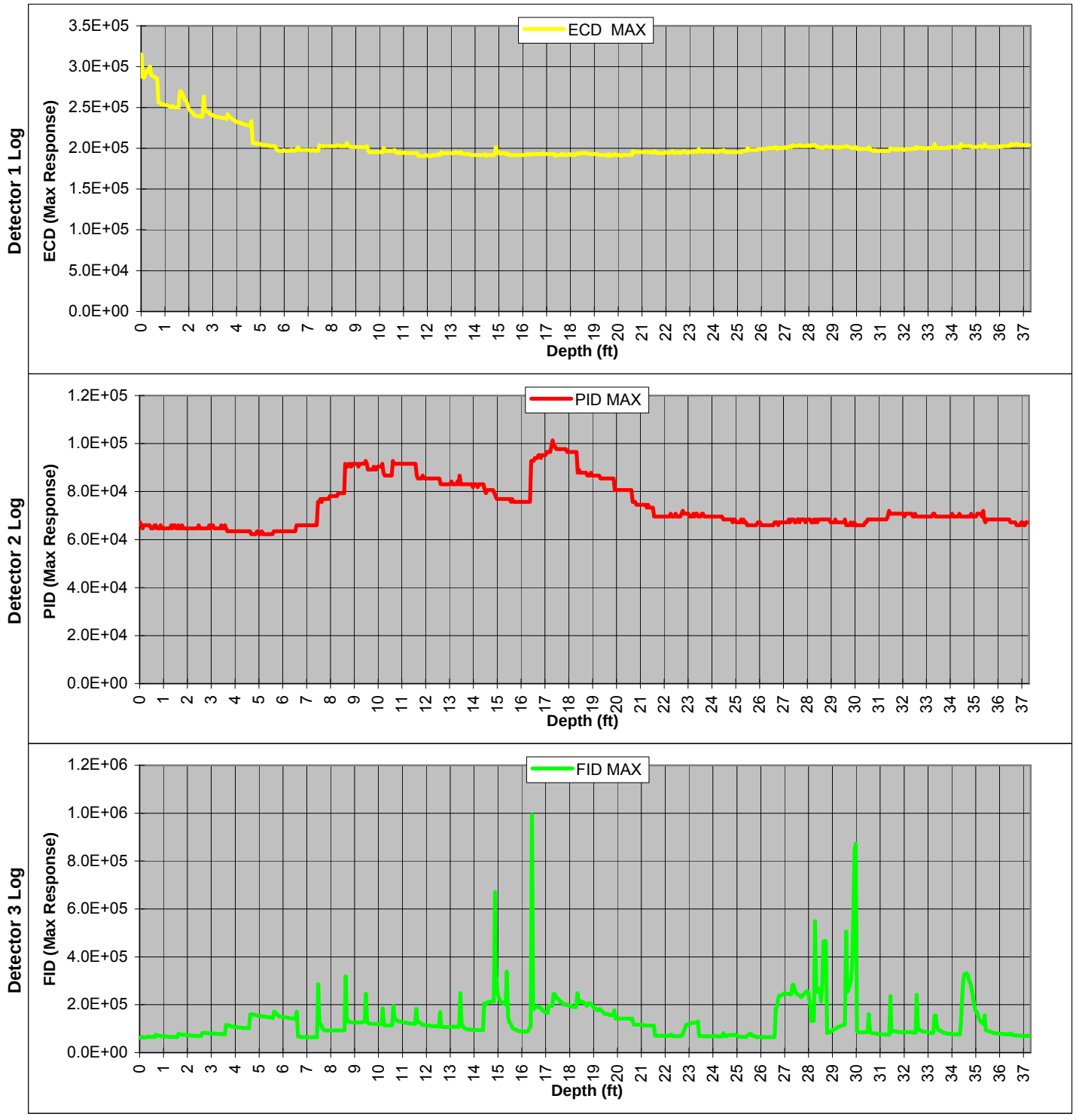
Client:	LFR	Boring I.D.:	MIP-4	Graph 1 :	Probe Temperature (C)
		Date:	Feb 27 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	14:52		



Explanation: Pre-augered to 6'. Attenuation change on ECD at 0.05' bgs. Disregard anomalie.

MIP Log Results by Boring - Detector Reading vs. Depth

Client:	LFR	Boring I.D.:	MIP-5	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 28 2007	Detector 2 :	Photo Ionization (PID)
		Time:	10:39	Detector 3 :	Flame Ionization (FID)

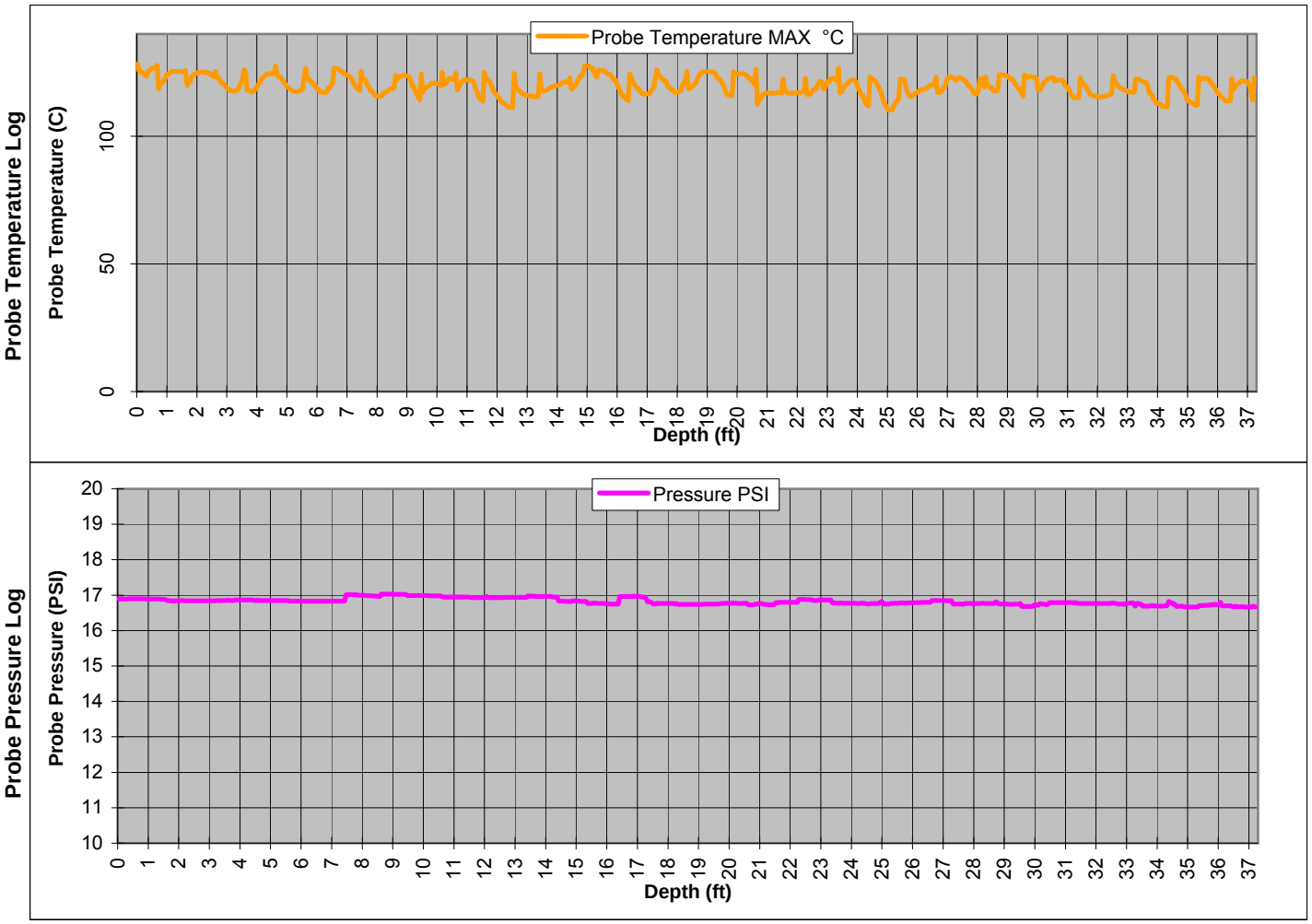


MIP Log Results by Boring - Detector Reading vs. Depth

Client: LFR

Boring I.D.: MIP-5
Date: Feb 28 2007
Time: 10:39

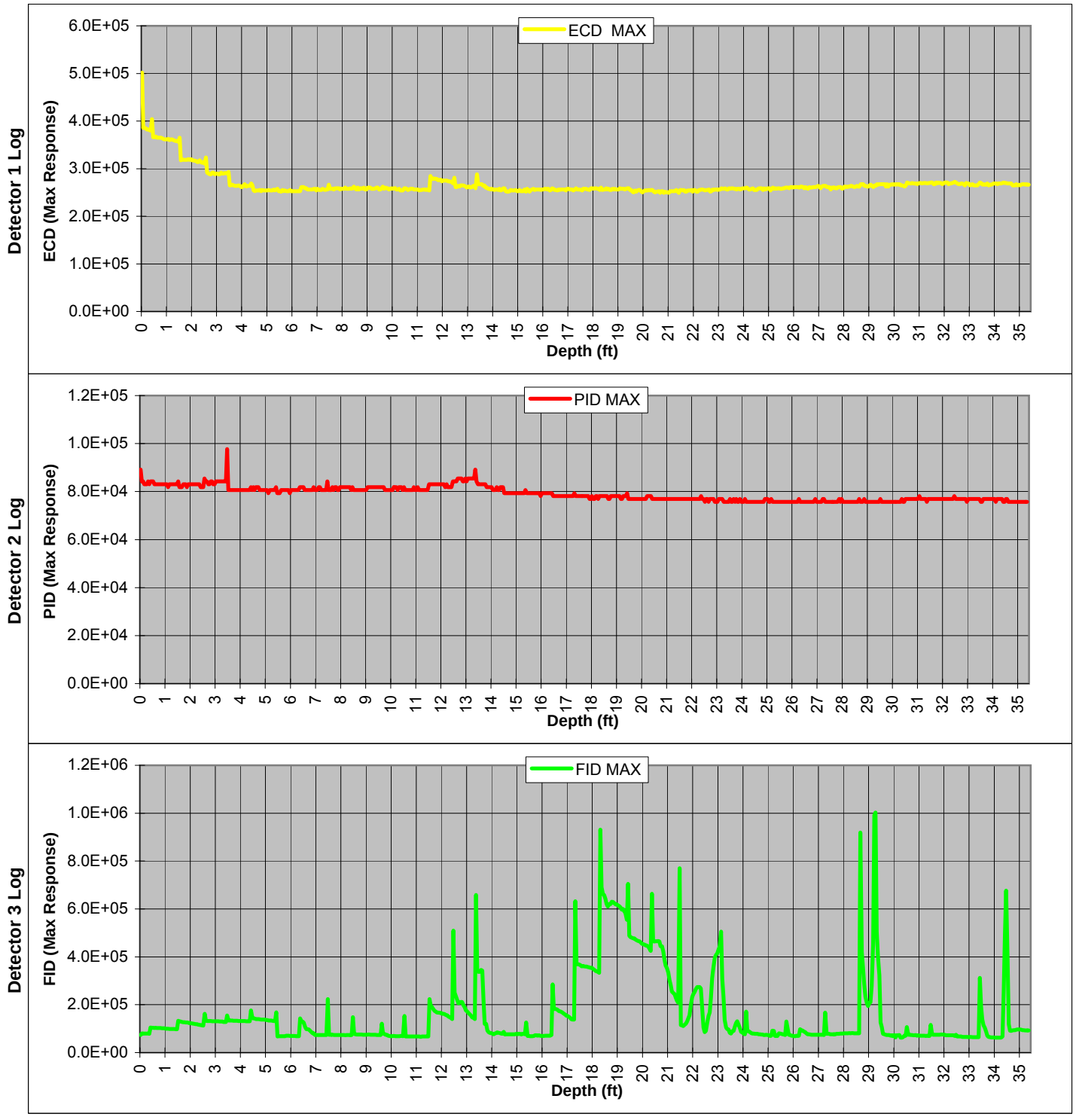
Graph 1 : Probe Temperature (C)
Graph 2 : Probe Pressure (PSI)



Explanation: Pre-augered to 10' bgs. Refusal at 40' bgs.

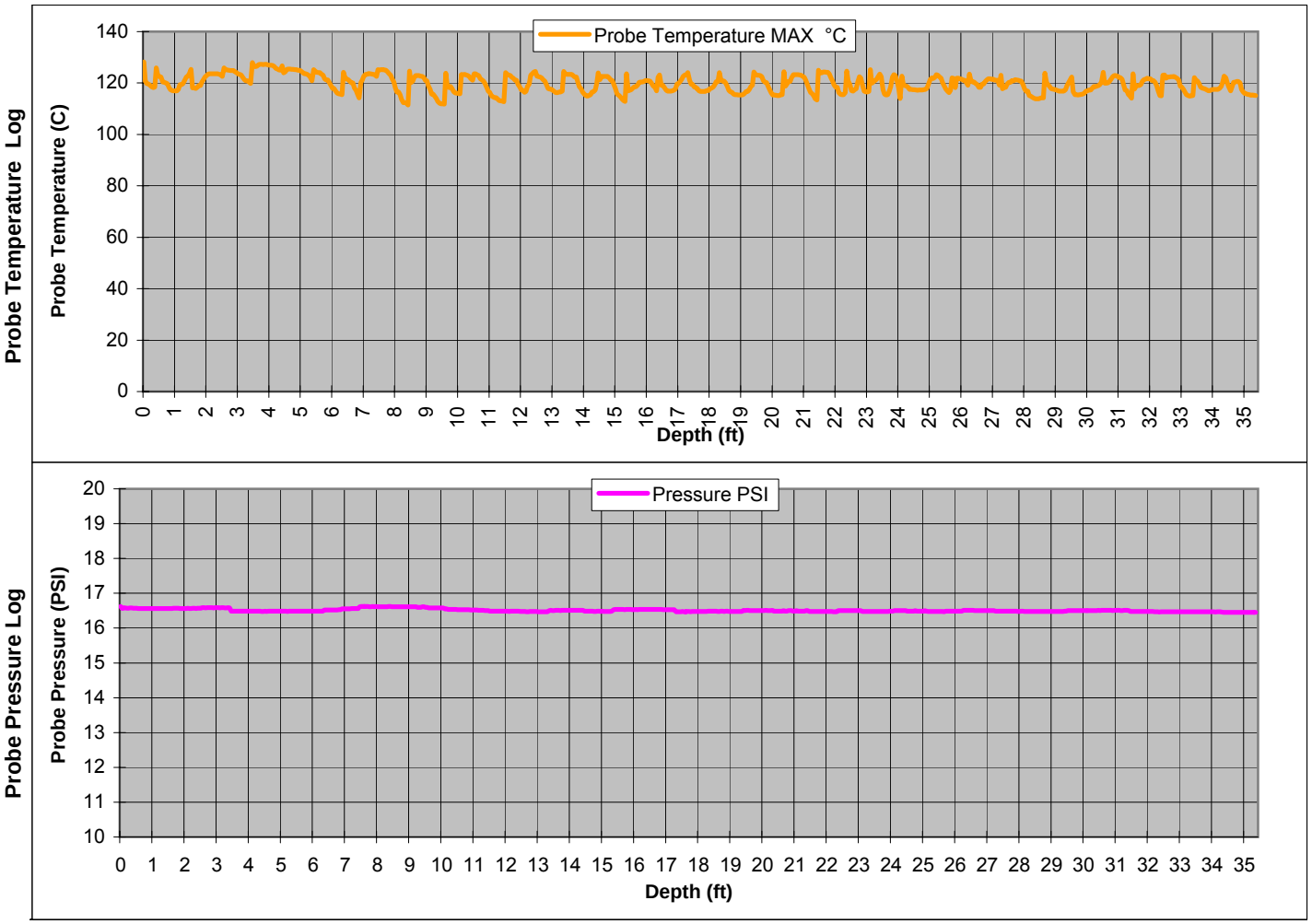
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	LFR	Boring I.D.:	MIP-6	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 28 2007	Detector 2 :	Photo Ionization (PID)
		Time:	14:22	Detector 3 :	Flame Ionization (FID)



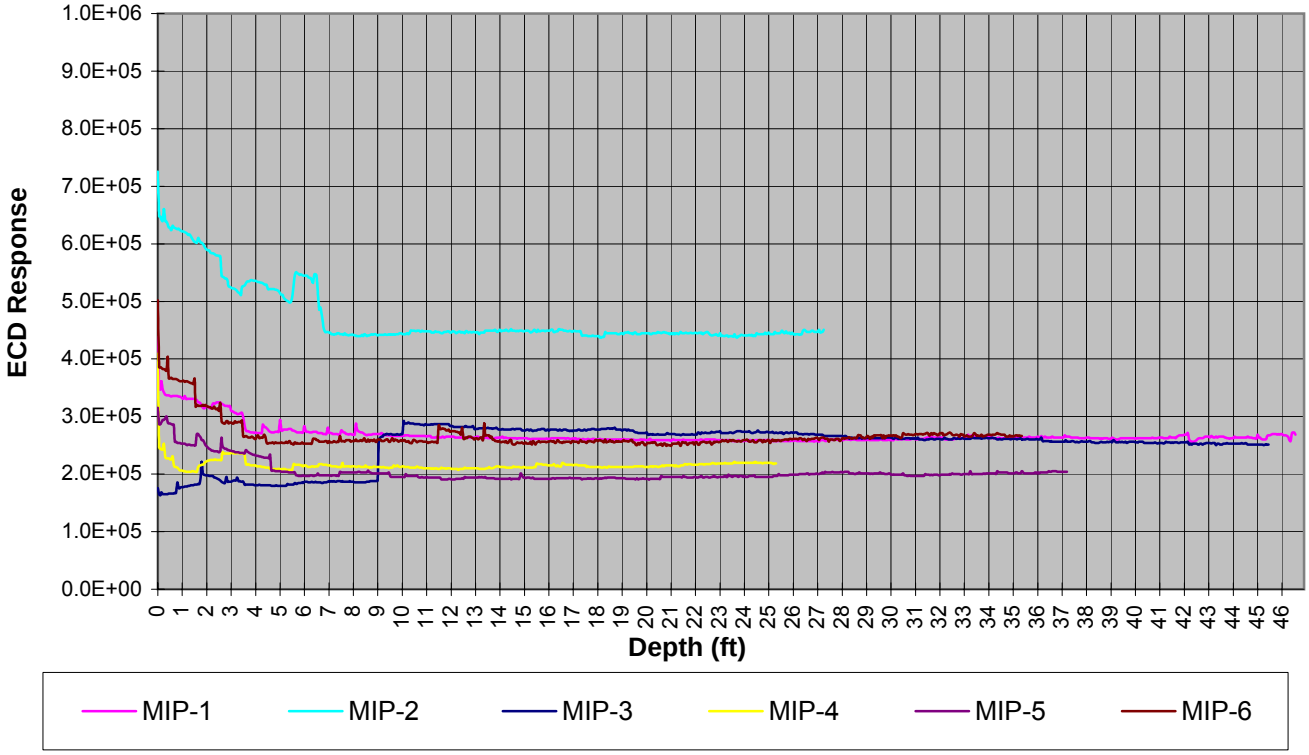
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	LFR	Boring I.D.:	MIP-6	Graph 1 :	Probe Temperature (C)
		Date:	Feb 28 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	14:22		

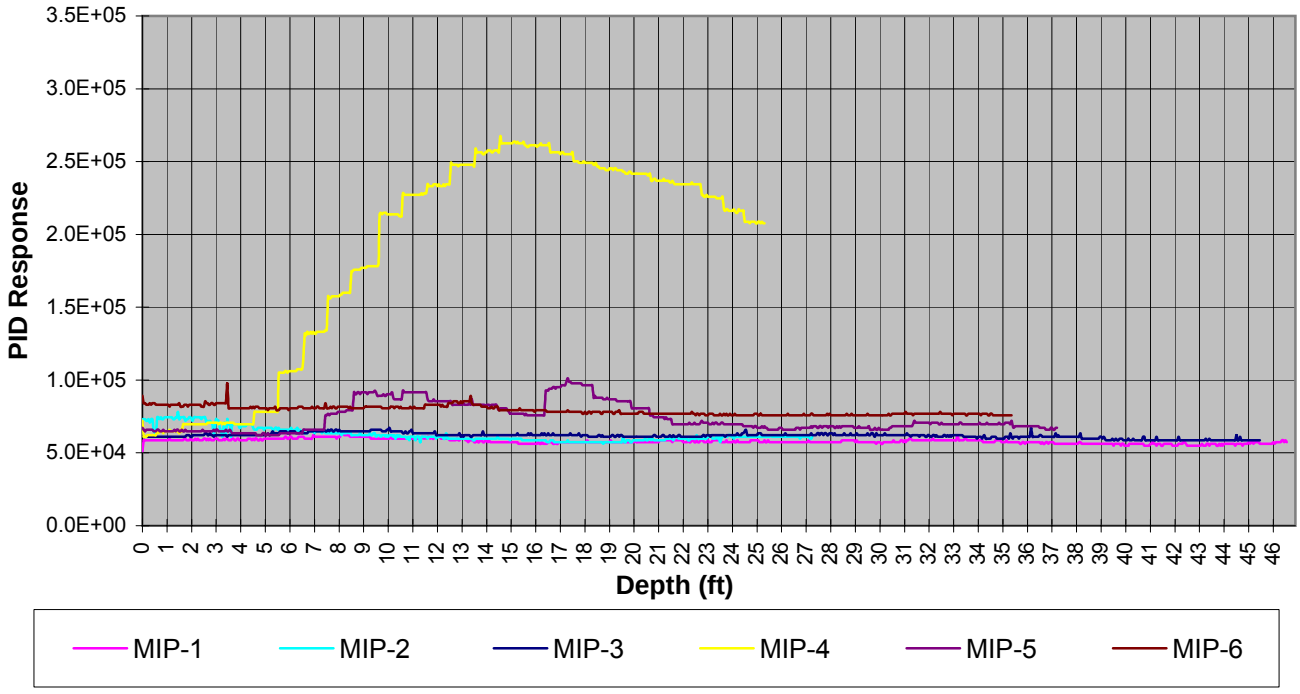


Explanation: Pre-augered to 7'. Each of the FID hits at 29' and 34.5' were observed when the probe had been stopped to wait for lag time of nitrogen.

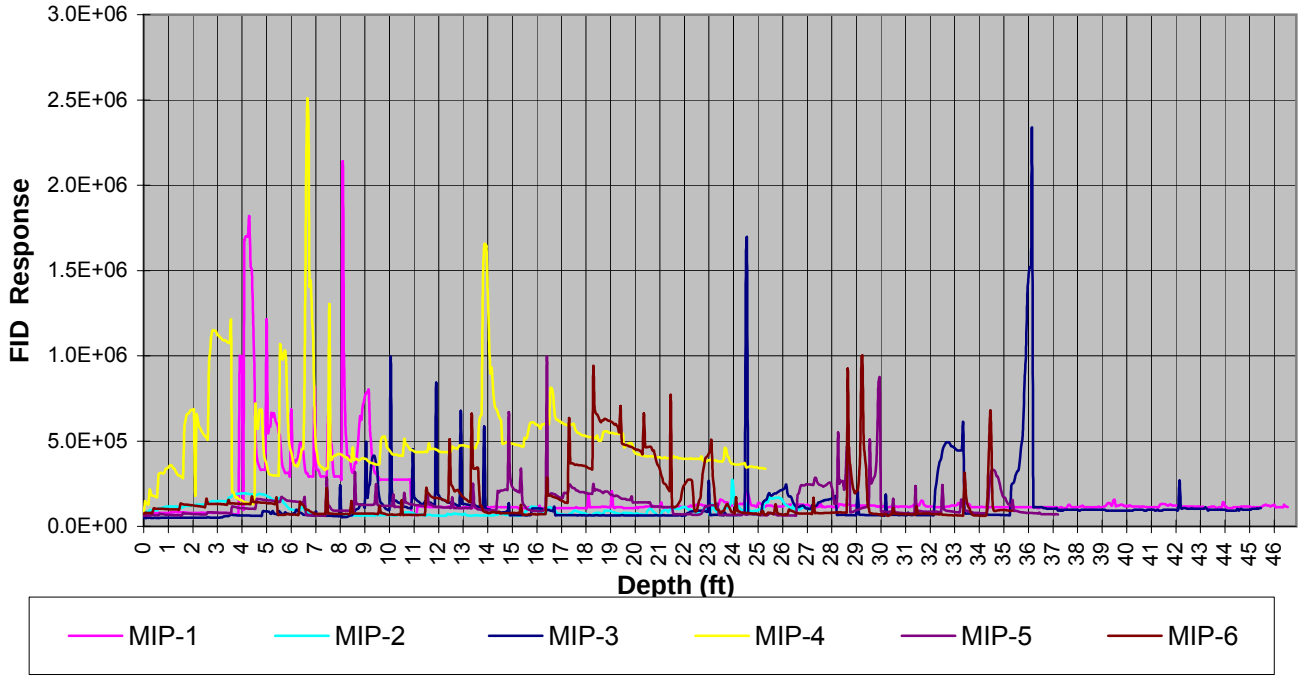
Maximum ECD Response Same Scale



Maximum PID Response Same Scale



Maximum FID Response Same Scale



Summary:
Data was collected at 7999 Anthenour Way, Sunol, CA using the MIP (Membrane Interface Probe) and Gregg Drillings 30Ton CPT unit at 6 sampling locations, collecting data from the surface to as deep as 49' bgs. An ECD (Electron Capture Detector), PID (Photo Ionization Detector) and a FID (Flame Ionization Detector) were used with a Hewlett Packard 5890 Gas Chromatograph.

The purpose of this MIP project was to determine if the MIP could provide a better definition of subsurface contaminant distribution over traditional soil and groundwater sampling in addition to identify a possible submersed petroleum source (BTEX and diesel) source zone.

Contaminant Mass:
No significant ECD detections were noted. ECD responses from the surface to as deep as 6' bgs were due to the boring being cleared by a hand auger. While MIP is exposed to ambient conditions the membrane allows more oxygen to diffuse through the membrane which will increase ECD baseline. ECD detections are an indication of halogenated compounds.

PID detections were noted at MIP-4 and MIP-5. PID detections were primarily located between as shallow as 4' bgs to and as deep as 25' bgs. The highest PID detection 2.6E+5 was noted at MIP-4 which was noted approximately 15' bgs to 16' bgs. PID detections are an indication of double bonded compounds.

FID detections were noted at all MIP boring exception. FID detections were located as shallow as 1' bgs and as deep as 36' bgs. FID detections are an indication of combustible hydrocarbons.

Besides PID detections at MIP-4 and MIP-5 which are believed to be petroleum based compounds, FID detections were noted all MIP borings, but did not correlate with any PID responses. Due to the quick FID peaks it is believed that the FID detections are a result of combustible gases (i.e. Methane, H2S, etc.)

Soil Conductivity:
Lithology was collected by Gregg Drillings CPT system.

Confirmation Samples:
No confirmation data was provided to Vironex by LFR.

Cone Penetration Test Data & Interpretation

Soil behavior type and stratigraphic interpretation is based on relationships between cone bearing (q_c), sleeve friction (f_s), and pore water pressure (u_2). The friction ratio (R_f) is a calculated parameter defined by $100 f_s/q_c$ and is used to infer soil behavior type. Generally:

Cohesive soils (clays)

- High friction ratio (R_f) due to small cone bearing (q_c)
- Generate large excess pore water pressures (u_2)

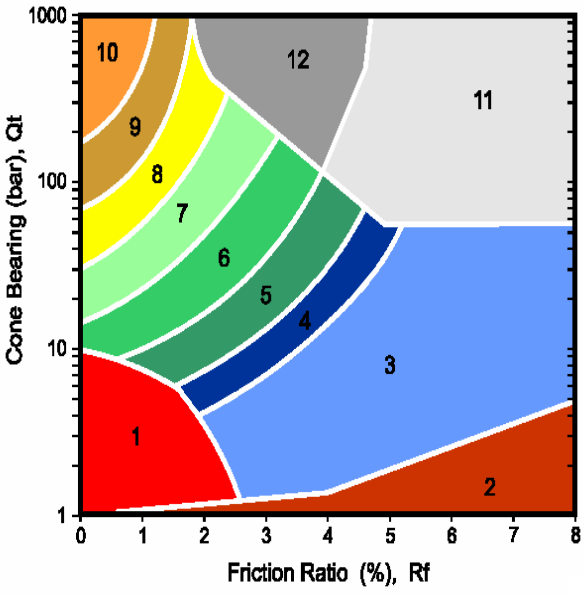
Cohesionless soils (sands)

- Low friction ratio (R_f) due to large cone bearing (q_c)
- Generate very little excess pore water pressures (u_2)

A complete set of baseline readings are taken prior to and at the completion of each sounding to determine temperature shifts and any zero load offsets. Corrections for temperature shifts and zero load offsets can be extremely important, especially when the recorded loads are relatively small. In sandy soils, however, these corrections are generally negligible.

The cone penetration test data collected from your site is presented in graphical form in Appendix CPT. The data includes CPT logs of measured soil parameters, computer calculations of interpreted soil behavior types (SBT), and additional geotechnical parameters. A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Soil interpretation for this project was conducted using recent correlations developed by Robertson et al, 1990, *Figure SBT*. Note that it is not always possible to clearly identify a soil type based solely on q_c, f_s, and u_2. In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type.



ZONE	Qt/N	SBT
1	2	Sensitive, fine grained
2	1	Organic materials
3	1	Clay
4	1.5	Silty clay to clay
5	2	Clayey silt to silty clay
6	2.5	Sandy silt to clayey silt
7	3	Silty sand to sandy silt
8	4	Sand to silty sand
9	5	Sand
10	6	Gravely sand to sand
11	1	Very stiff fine grained*
12	2	Sand to clayey sand*

*over consolidated or cemented

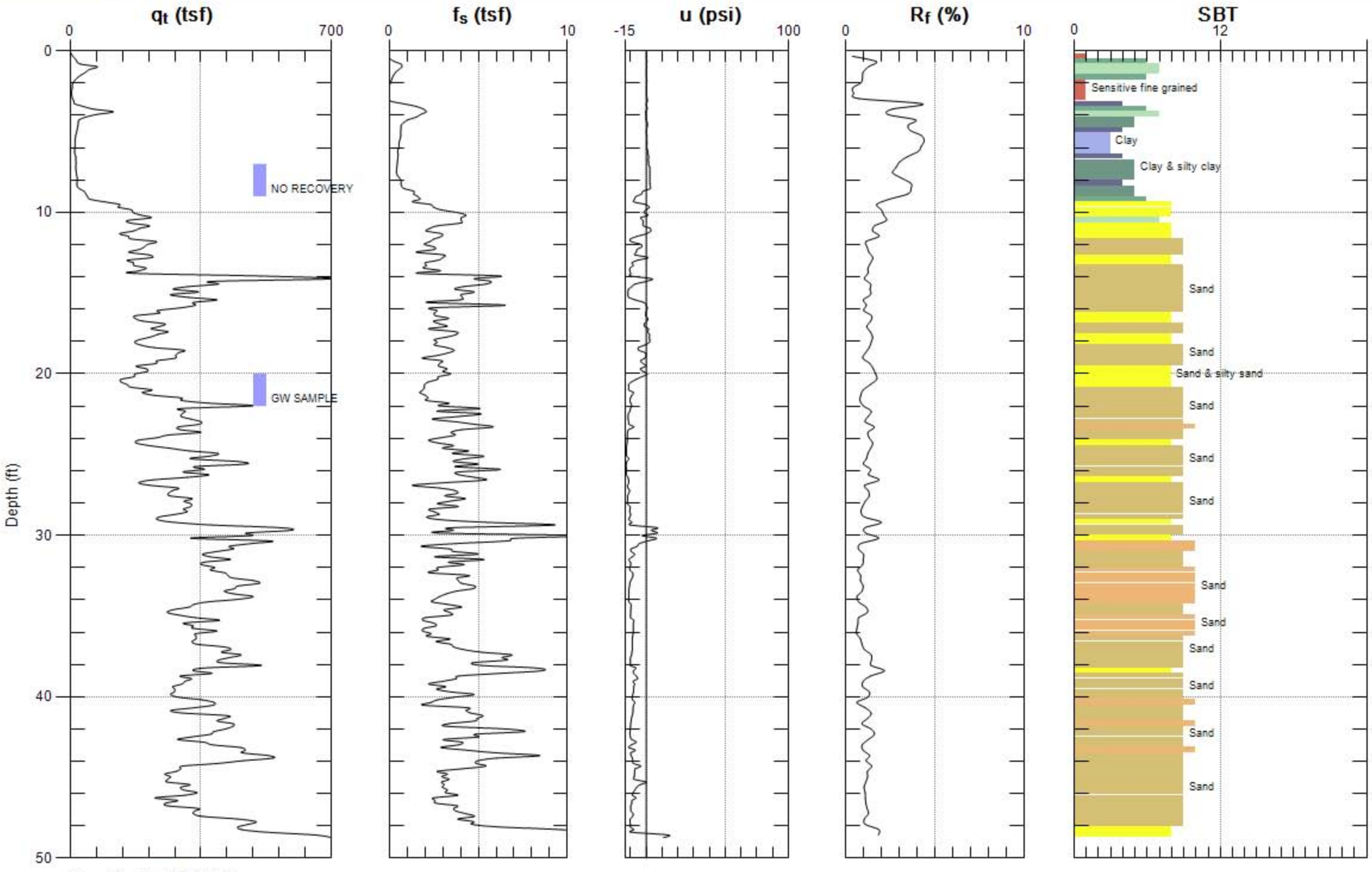
Figure SBT

GREGG

LFR

Site: HANSEON AGGREGATES Engineer: J.TRIOLO

Sounding: CPT-01 Date: 2/26/2007 11:28



Max. Depth: 48.720 (ft)
Avg. Interval: 0.328 (ft)

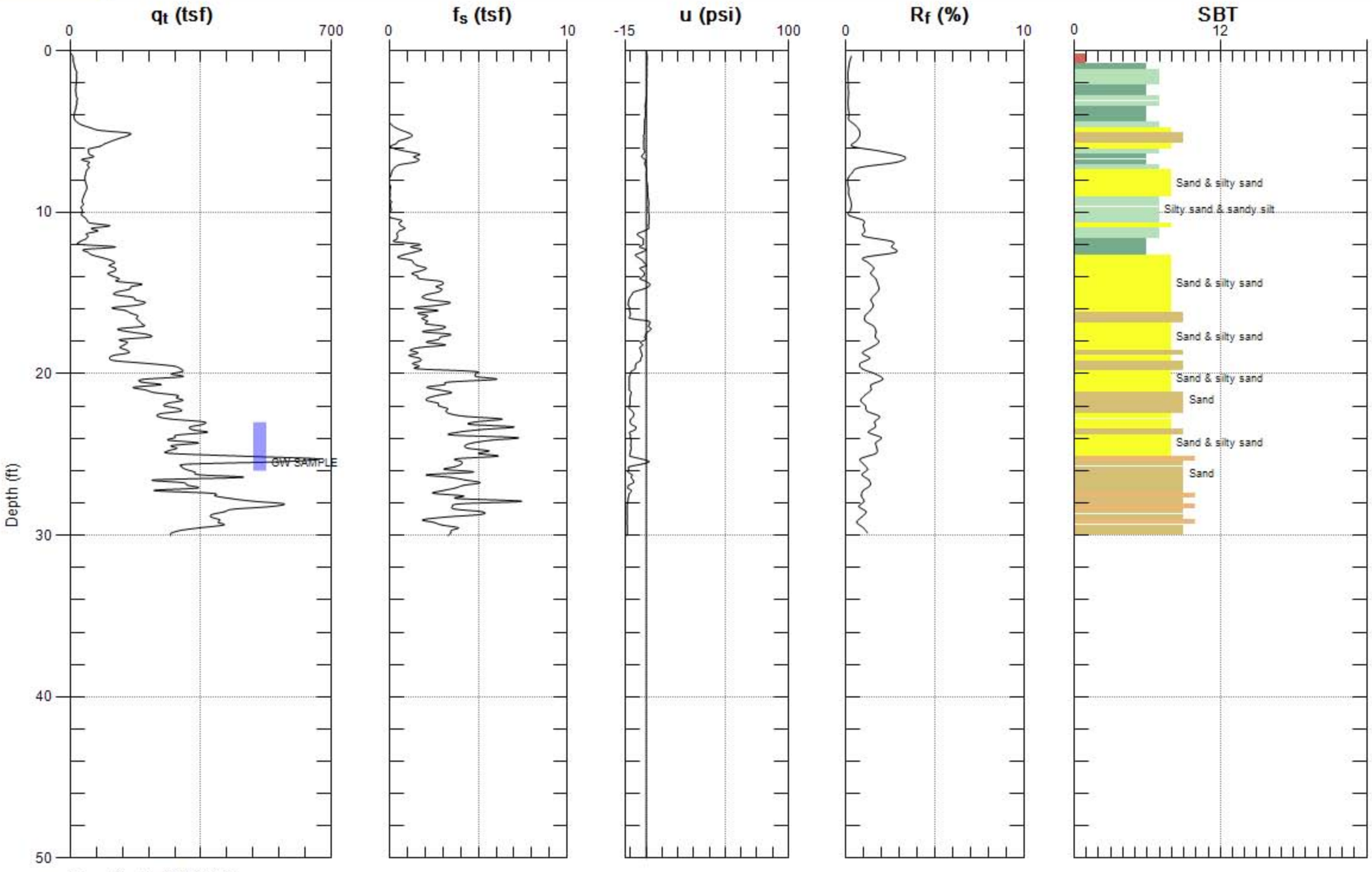
SBT: Soil Behavior Type (Robertson 1990)

GREGG

LFR

Site: HANSEON AGGREGATES Engineer: J.TRIOLO

Sounding: CPT-02 Date: 2/26/2007 03:32



Max. Depth: 30.020 (ft)
Avg. Interval: 0.328 (ft)

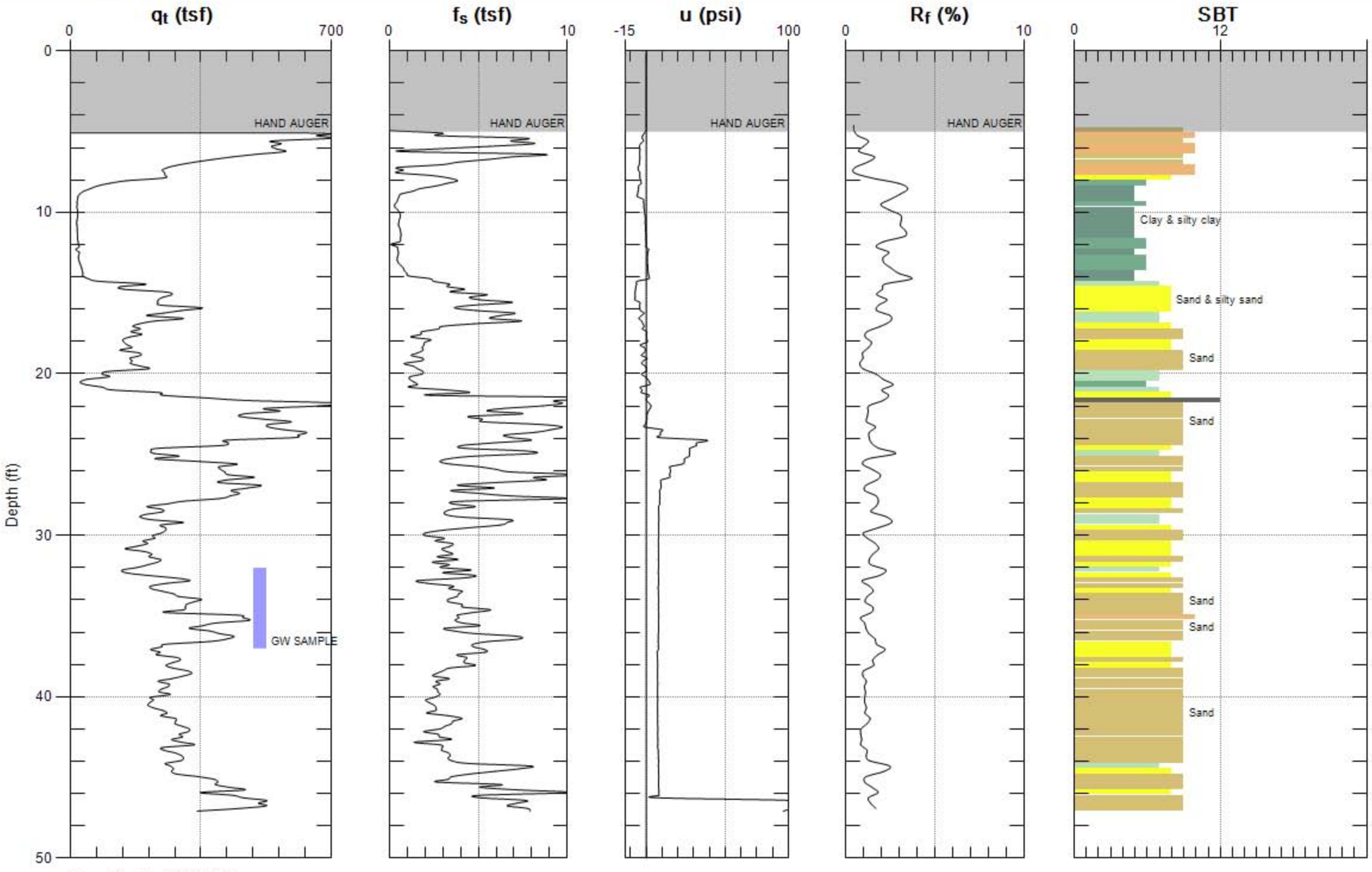
SBT: Soil Behavior Type (Robertson 1990)

GREGG

LFR

Site: HANSEON AGGREGATES Engineer: J.TRIOLO

Sounding: CPT-03 Date: 2/27/2007 09:51



Max. Depth: 47.080 (ft)
Avg. Interval: 0.328 (ft)

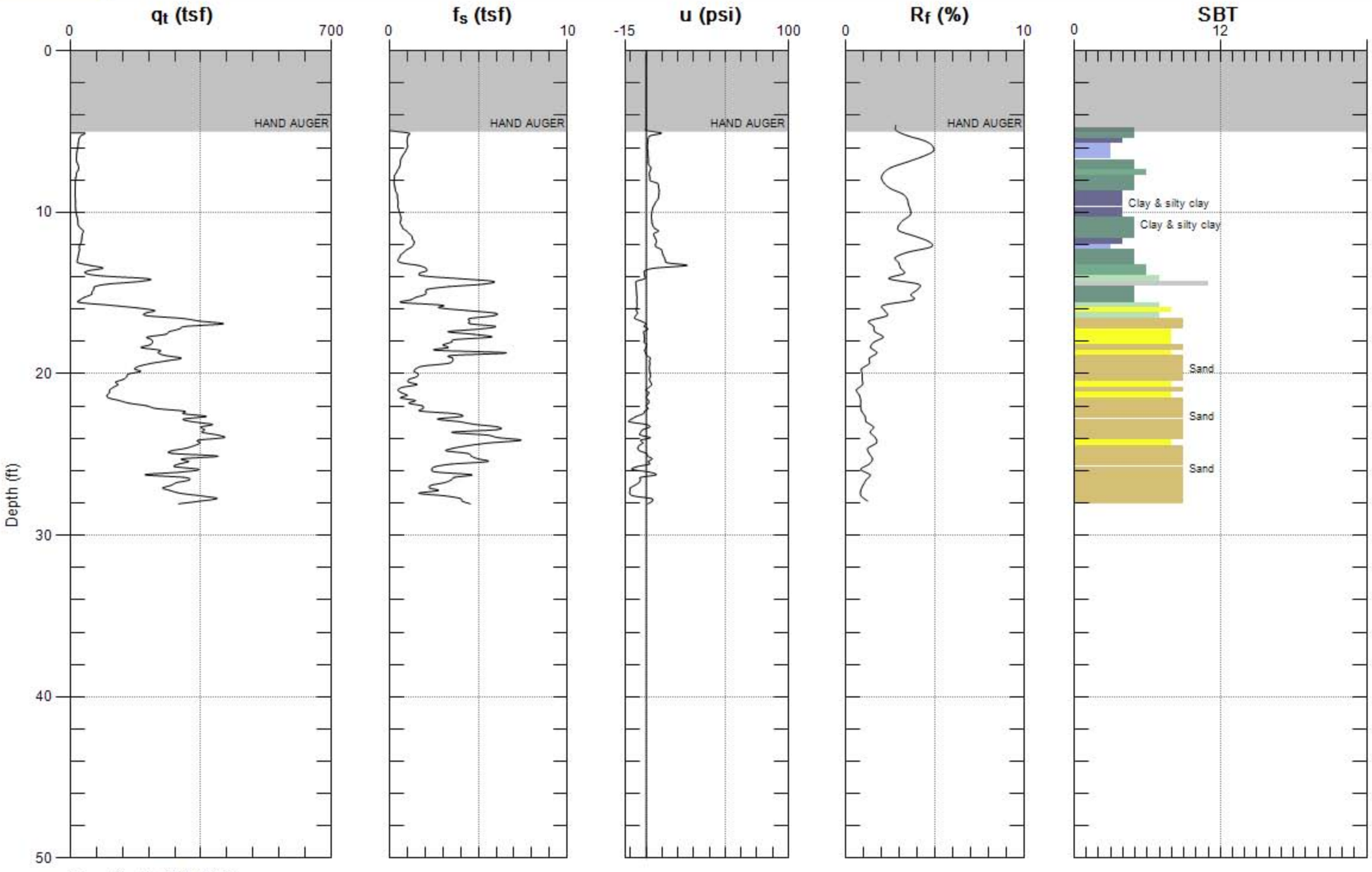
SBT: Soil Behavior Type (Robertson 1990)

GREGG

LFR

Site: HANSEON AGGREGATES Engineer: J.TRIOLO

Sounding: CPT-04 Date: 2/27/2007 02:02



Max. Depth: 28.050 (ft)
Avg. Interval: 0.328 (ft)

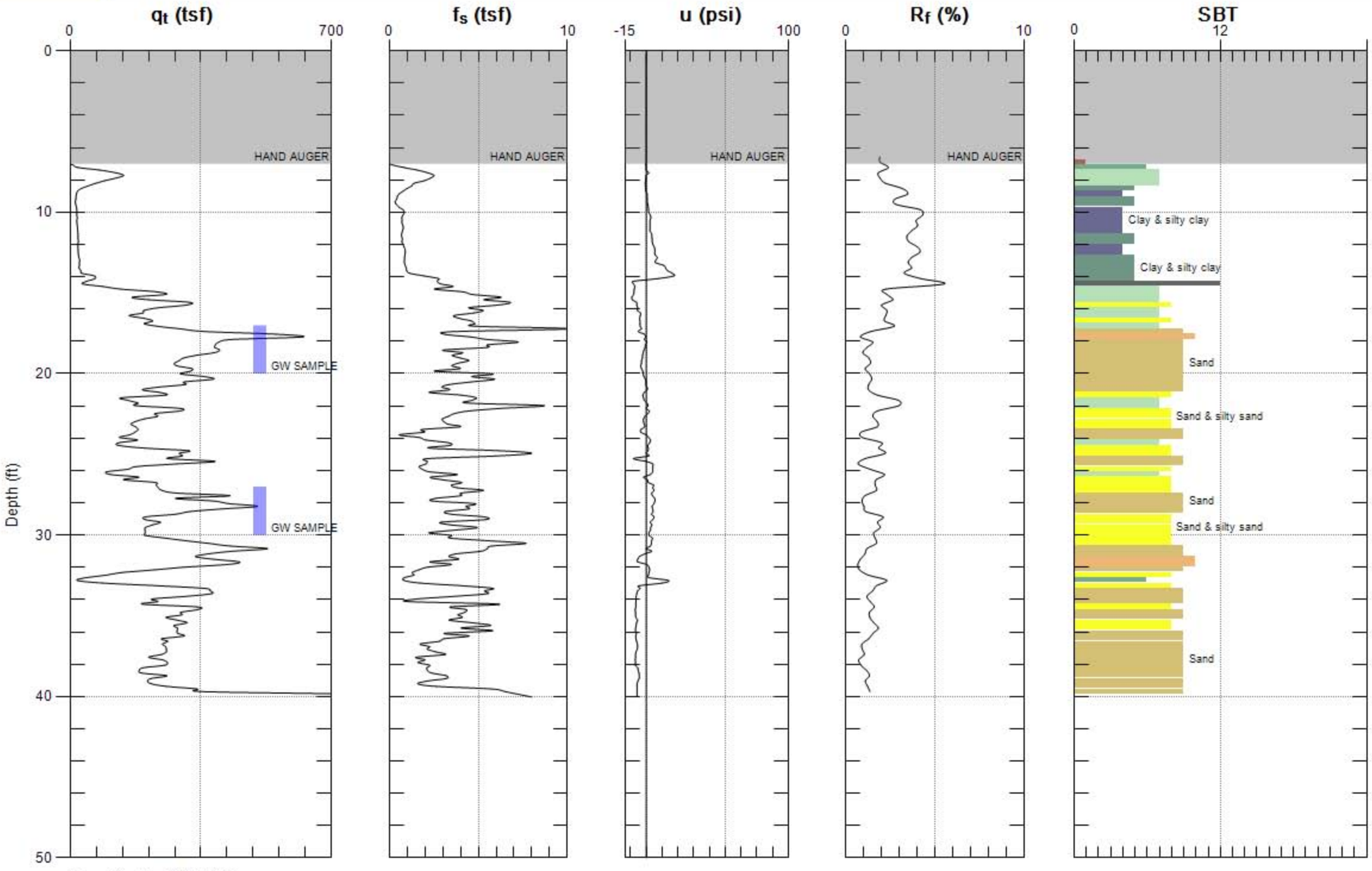
SBT: Soil Behavior Type (Robertson 1990)

GREGG

LFR

Site: HANSEON AGGREGATES Engineer: J.TRIOLO

Sounding: CPT-05 Date: 2/28/2007 09:48



Max. Depth: 40.030 (ft)
Avg. Interval: 0.328 (ft)

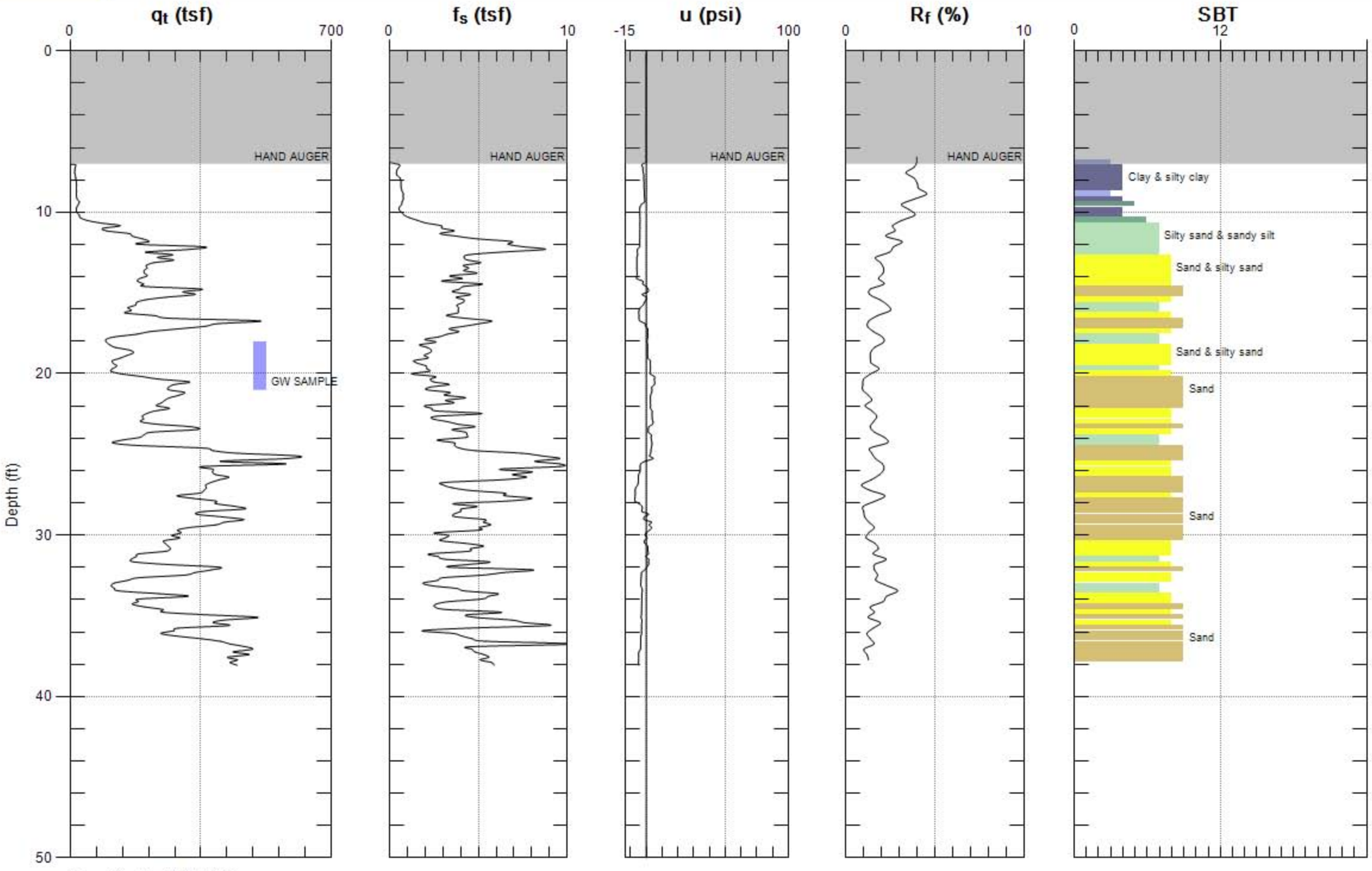
SBT: Soil Behavior Type (Robertson 1990)

GREGG

LFR

Site: HANSEON AGGREGATES Engineer: J.TRIOLO

Sounding: CPT-06 Date: 2/28/2007 01:31



Max. Depth: 38.060 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX D

Certified Analytical Reports

SunStar Laboratories, Inc.

04 April 2007

Katrin Schliewen
LFR Inc. -- Emeryville
1900 Powell Street, 12th Floor
Emeryville, CA 94608-1827

RE: Hanson, Sunol

Enclosed are the results of analyses for samples received by the laboratory on 03/01/07 08:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Maria Bonifacio
Project Coordinator

3002 Dow Avenue, Suite 212, Tustin, CA 92780 Phone (714) 505-4010 Fax (714) 505-4028

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson, Sunol Project Number: 001-09480-00 Project Manager: Katrin Schliewen	**Reported:** 04/04/07 11:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MIP - 1 (20-22)	T700247-01	Water	02/27/07 16:30	03/01/07 08:45
MIP - 2 (23-26)	T700247-02	Water	02/28/07 16:30	03/01/07 08:45
MIP - 3 (32-37)	T700247-03	Water	02/28/07 12:00	03/01/07 08:45
MIP - 6 (18-21)	T700247-04	Water	02/28/07 15:40	03/01/07 08:45

SunStar Laboratories, Inc.

Maria Bonifacio, Project Coordinator

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

MIP - 1 (20-22)

T700247-01(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030108	03/01/07	03/01/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*104 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030107	03/01/07	03/02/07	EPA 8015m	
Surrogate: p-Terphenyl			*103 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*97.8 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*96.1 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*82.4 %*	*78.6-135*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson, Sunol Project Number: 001-09480-00 Project Manager: Katrin Schliewen	**Reported:** 04/04/07 11:23

MIP - 2 (23-26)

T700247-02(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030108	03/01/07	03/01/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*91.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030107	03/01/07	03/02/07	EPA 8015m	
Surrogate: p-Terphenyl			*117 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethyl tert-butyl ether	ND		2.0	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**15**		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*80.2 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*98.1 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*98.0 %*	*88.8-117*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson, Sunol Project Number: 001-09480-00 Project Manager: Katrin Schliewen	**Reported:** 04/04/07 11:23

MIP - 3 (32-37)

T700247-03(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030502	03/05/07	03/06/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*99.6 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030231	03/02/07	03/05/07	EPA 8015m	
Surrogate: p-Terphenyl			*104 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		2.0	ug/l	2	7030233	03/02/07	03/05/07	EPA 8260B	
Toluene	ND		1.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		20	"	"	"	"	"	"	
o-Xylene	ND		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	ND		1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		4.0	"	"	"	"	"	"	
Benzene	ND		1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		4.0	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		4.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*108 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*116 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*107 %*	*83.5-119*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson, Sunol Project Number: 001-09480-00 Project Manager: Katrin Schliewen	**Reported:** 04/04/07 11:23

MIP - 6 (18-21)
T700247-04(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030108	03/01/07	03/01/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*95.0 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030107	03/01/07	03/02/07	EPA 8015m	
Surrogate: p-Terphenyl			*108 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethylbenzene	ND		0.50	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*83.2 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*98.5 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*103 %*	*88.8-117*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson, Sunol Project Number: 001-09480-00 Project Manager: Katrin Schliewen	**Reported:** 04/04/07 11:23

Purgeable Petroleum Hydrocarbons by EPA 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030108 - EPA 5030 GC											
Blank (7030108-BLK1)					Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*46.5*			*ug/l*	*50.0*		*93.0*	*65-135*			
C6-C12 (GRO)	ND		50	"							
LCS (7030108-BS1)					Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*46.8*			*ug/l*	*50.0*		*93.6*	*65-135*			
C6-C12 (GRO)	5320		50	"	5500		96.7	75-125			
Matrix Spike (7030108-MS1)		**Source: T700250-01**			Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*44.0*			*ug/l*	*50.0*		*88.0*	*65-135*			
C6-C12 (GRO)	5760		50	"	5500	ND	105	65-135			
Matrix Spike Dup (7030108-MSD1)		**Source: T700250-01**			Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*45.0*			*ug/l*	*50.0*		*90.0*	*65-135*			
C6-C12 (GRO)	5800		50	"	5500	ND	105	65-135	0.692	20	
Batch 7030502 - EPA 5030 GC											
Blank (7030502-BLK1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: 4-Bromofluorobenzene	*37.4*			*ug/l*	*50.0*		*74.8*	*65-135*			
C6-C12 (GRO)	ND		50	"							
LCS (7030502-BS1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: 4-Bromofluorobenzene	*43.1*			*ug/l*	*50.0*		*86.2*	*65-135*			
C6-C12 (GRO)	5600		50	"	5500		102	75-125			
LCS Dup (7030502-BSD1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: 4-Bromofluorobenzene	*44.3*			*ug/l*	*50.0*		*88.6*	*65-135*			
C6-C12 (GRO)	5560		50	"	5500		101	75-125	0.717	20	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

Extractable Petroleum Hydrocarbons by 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030107 - EPA 3510C GC											
Blank (7030107-BLK1)					Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*3.63*			*mg/l*	*4.00*		*90.8*	*65-135*			
Diesel Range Hydrocarbons	ND	0.098	0.50	"							
LCS (7030107-BS1)					Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*4.63*			*mg/l*	*4.00*		*116*	*65-135*			
Diesel Range Hydrocarbons	16.8	0.098	0.50	"	20.0		84.0	75-125			
Matrix Spike (7030107-MS1)		**Source: T700248-03**			Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*4.56*			*mg/l*	*4.00*		*114*	*65-135*			
Diesel Range Hydrocarbons	18.0	0.098	0.50	"	20.0	0.79	86.0	75-125			
Matrix Spike Dup (7030107-MSD1)		**Source: T700248-03**			Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*4.80*			*mg/l*	*4.00*		*120*	*65-135*			
Diesel Range Hydrocarbons	18.2	0.098	0.50	"	20.0	0.79	87.0	75-125	1.10	20	
Batch 7030231 - EPA 3510C GC											
Blank (7030231-BLK1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: p-Terphenyl	*3.62*			*mg/l*	*4.00*		*90.5*	*65-135*			
Diesel Range Hydrocarbons	ND	0.098	0.50	"							
LCS (7030231-BS1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: p-Terphenyl	*4.12*			*mg/l*	*4.00*		*103*	*65-135*			
Diesel Range Hydrocarbons	16.5	0.098	0.50	"	20.0		82.5	75-125			
LCS Dup (7030231-BSD1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: p-Terphenyl	*4.13*			*mg/l*	*4.00*		*103*	*65-135*			
Diesel Range Hydrocarbons	16.3	0.098	0.50	"	20.0		81.5	75-125	1.22	20	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030106 - EPA 5030 GCMS											
Blank (7030106-BLK1)					Prepared: 03/01/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.79*			*ug/l*	*8.00*		*97.4*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.60*			"	*8.00*		*95.0*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.48*			"	*8.00*		*81.0*	*78.6-135*			
Benzene	ND		0.50	"							
Toluene	ND		0.50	"							
Ethylbenzene	ND		0.50	"							
m,p-Xylene	ND		1.0	"							
o-Xylene	ND		0.50	"							
Tert-amyl methyl ether	ND		2.0	"							
Tert-butyl alcohol	ND		10	"							
Di-isopropyl ether	ND		2.0	"							
Ethyl tert-butyl ether	ND		2.0	"							
Methyl tert-butyl ether	ND		1.0	"							
LCS (7030106-BS1)					Prepared: 03/01/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.77*			*ug/l*	*8.00*		*97.1*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.53*			"	*8.00*		*94.1*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.59*			"	*8.00*		*82.4*	*78.6-135*			
Benzene	17.4		0.50	"	20.0		87.0	75-125			
Toluene	16.6		0.50	"	20.0		83.0	75-125			
Matrix Spike (7030106-MS1)		**Source: T700246-04**			Prepared: 03/01/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.84*			*ug/l*	*8.00*		*98.0*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.38*			"	*8.00*		*92.2*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.15*			"	*8.00*		*76.9*	*78.6-135*			*S-GC*
Benzene	18.6		0.50	"	20.0	ND	93.0	75-125			
Toluene	19.3		0.50	"	20.0	ND	96.5	75-125			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030106 - EPA 5030 GCMS											
Matrix Spike Dup (7030106-MSD1)	**Source: T700246-04**			Prepared: 03/01/07 Analyzed: 03/03/07							
Surrogate: Toluene-d8	*7.76*			*ug/l*	*8.00*		*97.0*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.30*			"	*8.00*		*91.2*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.63*			"	*8.00*		*82.9*	*78.6-135*			
Benzene	19.0		0.50	"	20.0	ND	95.0	75-125	2.13	20	
Toluene	17.7		0.50	"	20.0	ND	88.5	75-125	8.65	20	
Batch 7030233 - EPA 5030 GCMS											
Blank (7030233-BLK1)				Prepared: 03/02/07 Analyzed: 03/05/07							
Surrogate: Toluene-d8	*8.62*			*ug/l*	*8.00*		*108*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*9.21*			"	*8.00*		*115*	*83.5-119*			
Surrogate: Dibromofluoromethane	*8.81*			"	*8.00*		*110*	*78.6-135*			
Benzene	ND		0.50	"							
Toluene	ND		0.50	"							
Ethylbenzene	ND		0.50	"							
m,p-Xylene	ND		1.0	"							
o-Xylene	ND		0.50	"							
Tert-amyl methyl ether	ND		2.0	"							
Tert-butyl alcohol	ND		10	"							
Di-isopropyl ether	ND		2.0	"							
Ethyl tert-butyl ether	ND		2.0	"							
Methyl tert-butyl ether	ND		1.0	"							
LCS (7030233-BS1)				Prepared: 03/02/07 Analyzed: 03/05/07							
Surrogate: Toluene-d8	*8.50*			*ug/l*	*8.00*		*106*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*8.96*			"	*8.00*		*112*	*83.5-119*			
Surrogate: Dibromofluoromethane	*8.78*			"	*8.00*		*110*	*78.6-135*			
Benzene	21.7		0.50	"	20.0		108	75-125			
Toluene	23.0		0.50	"	20.0		115	75-125			

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030233 - EPA 5030 GCMS											
LCS Dup (7030233-BSD1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: Toluene-d8	*8.49*			*ug/l*	*8.00*		*106*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*8.81*			*"*	*8.00*		*110*	*83.5-119*			
Surrogate: Dibromofluoromethane	*8.73*			*"*	*8.00*		*109*	*78.6-135*			
Benzene	21.0		0.50	"	20.0		105	75-125	3.28	20	
Toluene	22.3		0.50	"	20.0		112	75-125	3.09	20	

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

SunStar Laboratories, Inc.

04 April 2007

James Gonzales
LFR Inc. -- Emeryville
1900 Powell Street, 12th Floor
Emeryville, CA 94608-1827
RE: Hanson Aggregates

Enclosed are the results of analyses for samples received by the laboratory on 03/01/07 08:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Maria Bonifacio
Project Coordinator

3002 Dow Avenue, Suite 212, Tustin, CA 92780 Phone (714) 505-4010 Fax (714) 505-4028

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson Aggregates Project Number: 001-09480-02 Project Manager: James Gonzales	**Reported:** 04/04/07 11:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-12D	T700248-01	Water	02/28/07 11:25	03/01/07 08:45
MW-5D	T700248-02	Water	02/28/07 13:50	03/01/07 08:45
MW-7D	T700248-03	Water	02/28/07 15:45	03/01/07 08:45

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson Aggregates Project Number: 001-09480-02 Project Manager: James Gonzales	**Reported:** 04/04/07 11:24

MW-12D

T700248-01(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030107	03/01/07	03/02/07	EPA 8015m	
Surrogate: p-Terphenyl			*127 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
o-Xylene	ND		0.50	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*97.4 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*80.6 %*	*78.6-135*		"	"	"	"	
Conventional Chemistry Parameters by APHA/EPA Methods										
Hexavalent Chromium	ND		0.025	mg/l	1	7030105	03/01/07	03/01/07	EPA 7196A	
Anions by EPA Method 300.0										
Bromide	ND		0.500	mg/l	1	7030118	03/01/07	03/05/07	EPA 300.0	
Sulfate as SO4	**71.8**		0.500	"	"	"	"	"	"	
Nitrate as NO3	ND		0.500	"	"	"	"	"	"	
RSK-175										
Methane	**3.6**		1.0	ug/l	1	7030504	03/05/07	03/06/07	RSK-175	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson Aggregates Project Number: 001-09480-02 Project Manager: James Gonzales	**Reported:** 04/04/07 11:24

MW-12D

T700248-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				TestAmerica - Irvine, CA						
INORGANICS										
Biochemical Oxygen Demand	ND		2.0	mg/l	1	7C01074	03/01/07	03/06/07	EPA 405.1	
Chemical Oxygen Demand	ND		20	"	"	7C06120	03/06/07	03/07/07	EPA 410.4	
				SunStar Laboratories, Inc.						
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**51**		50	ug/l	1	7030108	03/01/07	03/01/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*96.4 %*	*65-135*		"	"	"	"	
Metals by EPA 6000/7000 Series Methods										
Chromium	ND		50	ug/l	1	7030117	03/01/07	03/06/07	EPA 6010B	
Volatile Organic Compounds by EPA Method 8260B										
Benzene	ND		0.50	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Surrogate: 4-Bromofluorobenzene			*97.5 %*	*83.5-119*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

MW-5D

T700248-02(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SunStar Laboratories, Inc.										
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030108	03/01/07	03/01/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*82.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030107	03/01/07	03/02/07	EPA 8015m	
Surrogate: p-Terphenyl			*107 %*	*65-135*		"	"	"	"	
Metals by EPA 6000/7000 Series Methods										
Chromium	ND		50	ug/l	1	7030117	03/01/07	03/06/07	EPA 6010B	
Volatile Organic Compounds by EPA Method 8260B										
Ethyl tert-butyl ether	ND		2.0	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**1.6**		1.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*83.6 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*100 %*	*83.5-119*		"	"	"	"	
Anions by EPA Method 300.0										
Bromide	**3.09**		0.500	mg/l	1	7030118	03/01/07	03/05/07	EPA 300.0	
Sulfate as SO4	**33.8**		0.500	"	"	"	"	"	"	
Nitrate as NO3	ND		0.500	"	"	"	"	"	"	
TestAmerica - Irvine, CA										
INORGANICS										
Chromium VI	ND		0.0010	mg/l	1	7C01049	03/01/07	03/01/07	EPA 7199	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

MW-5D

T700248-02(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				SunStar Laboratories, Inc.						
Volatile Organic Compounds by EPA Method 8260B										
Ethylbenzene	ND		0.50	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
				TestAmerica - Irvine, CA						
INORGANICS										
Biochemical Oxygen Demand	**2.2**		2.0	mg/l	1	7C01074	03/01/07	03/06/07	EPA 405.1	
Chemical Oxygen Demand	**51**		20	"	"	7C06120	03/06/07	03/07/07	EPA 410.4	
				SunStar Laboratories, Inc.						
Volatile Organic Compounds by EPA Method 8260B										
Toluene	ND		0.50	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8			*95.0 %*	*88.8-117*		"	"	"	"	
RSK-175										
Methane	**426**		1.0	ug/l	1	7030504	03/05/07	03/06/07	RSK-175	

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson Aggregates Project Number: 001-09480-02 Project Manager: James Gonzales	**Reported:** 04/04/07 11:24

MW-7D

T700248-03(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				SunStar Laboratories, Inc.						
Volatile Organic Compounds by EPA Method 8260B										
Toluene	**51**		0.50	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
m,p-Xylene	**440**		5.0	"	5	"	"	03/05/07	"	
				TestAmerica - Irvine, CA						
INORGANICS										
Chromium VI	ND		0.0010	mg/l	1	7C01049	03/01/07	03/01/07	EPA 7199	
				SunStar Laboratories, Inc.						
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
o-Xylene	**51**		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Ethylbenzene	**460**		2.5	"	5	"	"	03/05/07	"	
Surrogate: Toluene-d8			*95.8 %*	*88.8-117*		"	"	*03/03/07*	"	
Surrogate: 4-Bromofluorobenzene			*106 %*	*83.5-119*		"	"	"	"	
				TestAmerica - Irvine, CA						
INORGANICS										
Biochemical Oxygen Demand	**5.4**		2.0	mg/l	1	7C01074	03/01/07	03/06/07	EPA 405.1	
				SunStar Laboratories, Inc.						
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**6800**		50	ug/l	1	7030108	03/01/07	03/01/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*99.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**0.79**	0.098	0.50	mg/l	1	7030107	03/01/07	03/02/07	EPA 8015m	D-08
Surrogate: p-Terphenyl			*114 %*	*65-135*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

MW-7D

T700248-03(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
				SunStar Laboratories, Inc.						
Metals by EPA 6000/7000 Series Methods										
Chromium	ND		50	ug/l	1	7030117	03/01/07	03/06/07	EPA 6010B	
Volatile Organic Compounds by EPA Method 8260B										
Tert-amyl methyl ether	ND		2.0	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	**29**		0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*103 %*	*78.6-135*		"	"	*03/05/07*	"	
Anions by EPA Method 300.0										
Sulfate as SO4	**12.5**		0.500	mg/l	1	7030118	03/01/07	03/05/07	EPA 300.0	
Bromide	ND		0.500	"	"	"	"	"	"	
Nitrate as NO3	ND		0.500	"	"	"	"	"	"	
RSK-175										
Methane	**3510**		6.0	ug/l	6	7030504	03/05/07	03/06/07	RSK-175	
				TestAmerica - Irvine, CA						
INORGANICS										
Chemical Oxygen Demand	**35**		20	mg/l	1	7C06120	03/06/07	03/07/07	EPA 410.4	
				SunStar Laboratories, Inc.						
Volatile Organic Compounds by EPA Method 8260B										
Di-isopropyl ether	ND		2.0	ug/l	1	7030106	03/01/07	03/03/07	EPA 8260B	

Purgeable Petroleum Hydrocarbons by EPA 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030108 - EPA 5030 GC											
Blank (7030108-BLK1)					Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*46.5*			*ug/l*	*50.0*		*93.0*	*65-135*			
C6-C12 (GRO)	ND		50	"							
LCS (7030108-BS1)					Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*46.8*			*ug/l*	*50.0*		*93.6*	*65-135*			
C6-C12 (GRO)	5320		50	"	5500		96.7	75-125			
Matrix Spike (7030108-MS1)		**Source: T700250-01**			Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*44.0*			*ug/l*	*50.0*		*88.0*	*65-135*			
C6-C12 (GRO)	5760		50	"	5500	ND	105	65-135			
Matrix Spike Dup (7030108-MSD1)		**Source: T700250-01**			Prepared & Analyzed: 03/01/07						
Surrogate: 4-Bromofluorobenzene	*45.0*			*ug/l*	*50.0*		*90.0*	*65-135*			
C6-C12 (GRO)	5800		50	"	5500	ND	105	65-135	0.692	20	

Extractable Petroleum Hydrocarbons by 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030107 - EPA 3510C GC											
Blank (7030107-BLK1)					Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*3.63*			*mg/l*	*4.00*		*90.8*	*65-135*			
Diesel Range Hydrocarbons	ND	0.098	0.50	"							
LCS (7030107-BS1)					Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*4.63*			*mg/l*	*4.00*		*116*	*65-135*			
Diesel Range Hydrocarbons	16.8	0.098	0.50	"	20.0		84.0	75-125			
Matrix Spike (7030107-MS1)		**Source: T700248-03**			Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*4.56*			*mg/l*	*4.00*		*114*	*65-135*			
Diesel Range Hydrocarbons	18.0	0.098	0.50	"	20.0	0.79	86.0	75-125			
Matrix Spike Dup (7030107-MSD1)		**Source: T700248-03**			Prepared: 03/01/07 Analyzed: 03/02/07						
Surrogate: p-Terphenyl	*4.80*			*mg/l*	*4.00*		*120*	*65-135*			
Diesel Range Hydrocarbons	18.2	0.098	0.50	"	20.0	0.79	87.0	75-125	1.10	20	

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Metals by EPA 6000/7000 Series Methods - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030117 - EPA 3010A											
Blank (7030117-BLK1)					Prepared: 03/01/07 Analyzed: 03/06/07						
Chromium	ND		50	ug/l							
LCS (7030117-BS1)					Prepared: 03/01/07 Analyzed: 03/06/07						
Chromium	834		50	ug/l	1050		79.4	75-125			
Matrix Spike (7030117-MS1)		**Source: T700248-01**			Prepared: 03/01/07 Analyzed: 03/06/07						
Chromium	946		50	ug/l	1050	ND	90.1	75-125			
Matrix Spike Dup (7030117-MSD1)		**Source: T700248-01**			Prepared: 03/01/07 Analyzed: 03/06/07						
Chromium	929		50	ug/l	1050	ND	88.5	75-125	1.81	20	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030106 - EPA 5030 GCMS											
Blank (7030106-BLK1)					Prepared: 03/01/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.79*			*ug/l*	*8.00*		*97.4*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.60*			"	*8.00*		*95.0*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.48*			"	*8.00*		*81.0*	*78.6-135*			
Benzene	ND		0.50	"							
Toluene	ND		0.50	"							
Ethylbenzene	ND		0.50	"							
m,p-Xylene	ND		1.0	"							
o-Xylene	ND		0.50	"							
Tert-amyl methyl ether	ND		2.0	"							
Tert-butyl alcohol	ND		10	"							
Di-isopropyl ether	ND		2.0	"							
Ethyl tert-butyl ether	ND		2.0	"							
Methyl tert-butyl ether	ND		1.0	"							
LCS (7030106-BS1)					Prepared: 03/01/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.77*			*ug/l*	*8.00*		*97.1*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.53*			"	*8.00*		*94.1*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.59*			"	*8.00*		*82.4*	*78.6-135*			
Benzene	17.4		0.50	"	20.0		87.0	75-125			
Toluene	16.6		0.50	"	20.0		83.0	75-125			
Matrix Spike (7030106-MS1)		**Source: T700246-04**			Prepared: 03/01/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.84*			*ug/l*	*8.00*		*98.0*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.38*			"	*8.00*		*92.2*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.15*			"	*8.00*		*76.9*	*78.6-135*			*S-GC*
Benzene	18.6		0.50	"	20.0	ND	93.0	75-125			
Toluene	19.3		0.50	"	20.0	ND	96.5	75-125			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030106 - EPA 5030 GCMS											
Matrix Spike Dup (7030106-MSD1)	**Source: T700246-04**			Prepared: 03/01/07 Analyzed: 03/03/07							
Surrogate: Toluene-d8	*7.76*			*ug/l*	*8.00*		*97.0*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.30*			"	*8.00*		*91.2*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.63*			"	*8.00*		*82.9*	*78.6-135*			
Benzene	19.0		0.50	"	20.0	ND	95.0	75-125	2.13	20	
Toluene	17.7		0.50	"	20.0	ND	88.5	75-125	8.65	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030105 - General Preparation											
Blank (7030105-BLK1)					Prepared & Analyzed: 03/01/07						
Hexavalent Chromium	ND		0.025	mg/l							
LCS (7030105-BS1)					Prepared & Analyzed: 03/01/07						
Hexavalent Chromium	0.218		0.025	mg/l	0.200		109	85-115			
Matrix Spike (7030105-MS1)		**Source: T700248-01**			Prepared & Analyzed: 03/01/07						
Hexavalent Chromium	0.218		0.025	mg/l	0.200	ND	109	85-115			
Matrix Spike Dup (7030105-MSD1)		**Source: T700248-01**			Prepared & Analyzed: 03/01/07						
Hexavalent Chromium	0.238		0.025	mg/l	0.200	ND	119	85-115	8.77	20	QM-07

Anions by EPA Method 300.0 - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030118 - General Preparation											
Blank (7030118-BLK1)					Prepared: 03/01/07 Analyzed: 03/05/07						
Sulfate as SO4	ND		0.500	mg/l							
Bromide	ND		0.500	"							
Nitrate as NO3	ND		0.500	"							
LCS (7030118-BS1)					Prepared: 03/01/07 Analyzed: 03/05/07						
Sulfate as SO4	108		0.500	mg/l	100		108	80-120			
Nitrate as NO3	107		0.500	"	100		107	80-120			
Matrix Spike (7030118-MS1)		**Source: T700248-01**			Prepared: 03/01/07 Analyzed: 03/05/07						
Sulfate as SO4	177		0.500	mg/l	100	71.8	105	80-120			
Nitrate as NO3	109		0.500	"	100	ND	109	80-120			
Matrix Spike Dup (7030118-MSD1)		**Source: T700248-01**			Prepared: 03/01/07 Analyzed: 03/05/07						
Sulfate as SO4	176		0.500	mg/l	100	71.8	104	80-120	0.567	20	
Nitrate as NO3	96.2		0.500	"	100	ND	96.2	80-120	12.5	20	

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson Aggregates Project Number: 001-09480-02 Project Manager: James Gonzales	**Reported:** 04/04/07 11:24

RSK-175 - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030504 - EPA 3810m Headspace											
Blank (7030504-BLK1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Methane	ND		1.0	ug/l							
LCS (7030504-BS1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Methane	104			ug/l	120		86.7	75-125			
LCS Dup (7030504-BSD1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Methane	103			ug/l	120		85.8	75-125	0.966	20	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

INORGANICS - Quality Control

TestAmerica - Irvine, CA

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7C01049 - General Prep											
Blank (7C01049-BLK1)					Prepared & Analyzed: 03/01/07						
Chromium VI	ND		0.0010	mg/l							
LCS (7C01049-BS1)					Prepared & Analyzed: 03/01/07						
Chromium VI	0.0498		0.0010	mg/l	0.0500		100	90-110			
Matrix Spike (7C01049-MS1)		**Source: IQB3127-05**			Prepared & Analyzed: 03/01/07						
Chromium VI	0.583		0.010	mg/l	0.500	0.11	95	80-115			
Matrix Spike Dup (7C01049-MSD1)		**Source: IQB3127-05**			Prepared & Analyzed: 03/01/07						
Chromium VI	0.584		0.010	mg/l	0.500	0.11	95	80-115	0.2	15	
Batch 7C01074 - General Prep											
Blank (7C01074-BLK1)					Prepared: 03/01/07 Analyzed: 03/06/07						
Biochemical Oxygen Demand	ND		2.0	mg/l							
LCS (7C01074-BS1)					Prepared: 03/01/07 Analyzed: 03/06/07						
Biochemical Oxygen Demand	191		100	mg/l	198		96	85-115			
LCS Dup (7C01074-BSD1)					Prepared: 03/01/07 Analyzed: 03/06/07						
Biochemical Oxygen Demand	192		100	mg/l	198		97	85-115	0.5	20	
Batch 7C06120 - General Prep											
Blank (7C06120-BLK1)					Prepared: 03/06/07 Analyzed: 03/07/07						
Chemical Oxygen Demand	ND		20	mg/l							

INORGANICS - Quality Control

TestAmerica - Irvine, CA

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7C06120 - General Prep											
LCS (7C06120-BS1)					Prepared: 03/06/07 Analyzed: 03/07/07						
Chemical Oxygen Demand	500		20	mg/l	500		100	90-110			
Matrix Spike (7C06120-MS1)		**Source: IQC0151-01**			Prepared: 03/06/07 Analyzed: 03/07/07						
Chemical Oxygen Demand	514		20	mg/l	500	ND	103	70-120			
Matrix Spike Dup (7C06120-MSD1)		**Source: IQC0151-01**			Prepared: 03/06/07 Analyzed: 03/07/07						
Chemical Oxygen Demand	505		20	mg/l	500	ND	101	70-120	2	15	

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Maria Bonifacio, Project Coordinator

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QM-07	The spike recovery and or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
D-08	Results in the diesel organics range are primarily due to overlap from a gasoline range product.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

SunStar Laboratories, Inc.

04 April 2007

Katrin Schliewen
LFR Inc. -- Emeryville
1900 Powell Street, 12th Floor
Emeryville, CA 94608-1827

RE: Hanson, Sunol

Enclosed are the results of analyses for samples received by the laboratory on 03/03/07 14:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Maria Bonifacio
Project Coordinator

LFR Inc. -- Emeryville	Project: Hanson, Sunol	
1900 Powell Street, 12th Floor	Project Number: 001-09480-00	**Reported:**
Emeryville CA, 94608-1827	Project Manager: Katrin Schliewen	04/04/07 11:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-2 (55-60)	T700273-01	Water	03/02/07 09:45	03/03/07 14:30
B-1 (60-65)	T700273-02	Water	03/01/07 14:00	03/03/07 14:30
MIP-5 (17-20)	T700273-03	Water	02/28/07 17:00	03/03/07 14:30
MIP-5 (27-30)	T700273-04	Water	02/28/07 17:20	03/03/07 14:30

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville	Project: Hanson, Sunol	
1900 Powell Street, 12th Floor	Project Number: 001-09480-00	**Reported:**
Emeryville CA, 94608-1827	Project Manager: Katrin Schliewen	04/04/07 11:29

B-2 (55-60)

T700273-01(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030502	03/05/07	03/06/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*100 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030503	03/05/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*85.0 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030501	03/05/07	03/08/07	EPA 8260B	
Toluene	**1.3**		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	**1.2**		0.50	"	"	"	"	"	"	
m,p-Xylene	**2.9**		1.0	"	"	"	"	"	"	
Ethylbenzene	**0.77**		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*101 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*95.6 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*104 %*	*78.6-135*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville 1900 Powell Street, 12th Floor Emeryville CA, 94608-1827	Project: Hanson, Sunol Project Number: 001-09480-00 Project Manager: Katrin Schliewen	**Reported:** 04/04/07 11:29

B-1 (60-65)

T700273-02(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030502	03/05/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*92.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030503	03/05/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*98.5 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethyl tert-butyl ether	ND		2.0	ug/l	1	7030501	03/05/07	03/08/07	EPA 8260B	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**7.6**		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	**0.75**		0.50	"	"	"	"	"	"	
Toluene	**0.59**		0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*86.1 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*88.4 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*97.2 %*	*88.8-117*		"	"	"	"	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Maria Bonifacio, Project Coordinator

MIP-5 (17-20)

T700273-03(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030502	03/05/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*101 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030503	03/05/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*86.2 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030501	03/05/07	03/08/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*96.5 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*86.8 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*88.0 %*	*83.5-119*		"	"	"	"	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Maria Bonifacio, Project Coordinator

LFR Inc. -- Emeryville	Project: Hanson, Sunol	
1900 Powell Street, 12th Floor	Project Number: 001-09480-00	**Reported:**
Emeryville CA, 94608-1827	Project Manager: Katrin Schliewen	04/04/07 11:29

MIP-5 (27-30)

T700273-04(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030502	03/05/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*103 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030503	03/05/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*96.5 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethylbenzene	ND		0.50	ug/l	1	7030501	03/05/07	03/08/07	EPA 8260B	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**3.4**		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*87.2 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*87.6 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*96.2 %*	*88.8-117*		"	"	"	"	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

Purgeable Petroleum Hydrocarbons by EPA 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030502 - EPA 5030 GC											
Blank (7030502-BLK1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: 4-Bromofluorobenzene	*37.4*			*ug/l*	*50.0*		*74.8*	*65-135*			
C6-C12 (GRO)	ND		50	"							
LCS (7030502-BS1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: 4-Bromofluorobenzene	*43.1*			*ug/l*	*50.0*		*86.2*	*65-135*			
C6-C12 (GRO)	5600		50	"	5500		102	75-125			
LCS Dup (7030502-BSD1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: 4-Bromofluorobenzene	*44.3*			*ug/l*	*50.0*		*88.6*	*65-135*			
C6-C12 (GRO)	5560		50	"	5500		101	75-125	0.717	20	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

Extractable Petroleum Hydrocarbons by 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030503 - EPA 3510C GC											
Blank (7030503-BLK1)					Prepared & Analyzed: 03/05/07						
Surrogate: p-Terphenyl	*3.40*			*mg/l*	*4.00*		*85.0*	*65-135*			
Diesel Range Hydrocarbons	ND	0.098	0.50	"							
LCS (7030503-BS1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: p-Terphenyl	*3.44*			*mg/l*	*4.00*		*86.0*	*65-135*			
Diesel Range Hydrocarbons	23.3	0.098	0.50	"	20.0		116	75-125			
LCS Dup (7030503-BSD1)					Prepared: 03/05/07 Analyzed: 03/06/07						
Surrogate: p-Terphenyl	*3.63*			*mg/l*	*4.00*		*90.8*	*65-135*			
Diesel Range Hydrocarbons	22.4	0.098	0.50	"	20.0		112	75-125	3.94	20	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030501 - EPA 5030 GCMS											
Blank (7030501-BLK1)					Prepared: 03/05/07 Analyzed: 03/07/07						
Surrogate: Toluene-d8	*7.87*			*ug/l*	*8.00*		*98.4*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*8.51*			"	*8.00*		*106*	*83.5-119*			
Surrogate: Dibromofluoromethane	*8.06*			"	*8.00*		*101*	*78.6-135*			
Benzene	ND		0.50	"							
Toluene	ND		0.50	"							
Ethylbenzene	ND		0.50	"							
m,p-Xylene	ND		1.0	"							
o-Xylene	ND		0.50	"							
Tert-amyl methyl ether	ND		2.0	"							
Tert-butyl alcohol	ND		10	"							
Di-isopropyl ether	ND		2.0	"							
Ethyl tert-butyl ether	ND		2.0	"							
Methyl tert-butyl ether	ND		1.0	"							
LCS (7030501-BS1)					Prepared: 03/05/07 Analyzed: 03/08/07						
Surrogate: Toluene-d8	*8.14*			*ug/l*	*8.00*		*102*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.81*			"	*8.00*		*97.6*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.82*			"	*8.00*		*85.2*	*78.6-135*			
Benzene	18.4		0.50	"	20.0		92.0	75-125			
Toluene	21.6		0.50	"	20.0		108	75-125			
LCS Dup (7030501-BSD1)					Prepared: 03/05/07 Analyzed: 03/08/07						
Surrogate: Toluene-d8	*8.03*			*ug/l*	*8.00*		*100*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.76*			"	*8.00*		*97.0*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.48*			"	*8.00*		*81.0*	*78.6-135*			
Benzene	17.3		0.50	"	20.0		86.5	75-125	6.16	20	
Toluene	18.1		0.50	"	20.0		90.5	75-125	17.6	20	

SunStar Laboratories, Inc.

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Maria Bonifacio, Project Coordinator

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

05 April 2007

Michael Schenone
Tait Environmental -- Rancho Cordova
11280 Trade Center Drive
Rancho Cordova, CA 95742

RE: Mission Valley Rock

Enclosed are the results of analyses for samples received by the laboratory on 03/02/07 09:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Albert Vargas For Maria Bonifacio
Project Coordinator

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-4S	T700258-01	Water	02/26/07 11:35	03/02/07 09:00
MW-4D	T700258-02	Water	02/26/07 12:20	03/02/07 09:00
MW-7S	T700258-03	Water	02/26/07 12:55	03/02/07 09:00
MW-8	T700258-04	Water	02/26/07 13:24	03/02/07 09:00
MW-10S	T700258-05	Water	02/26/07 14:34	03/02/07 09:00
MW-12LF	T700258-06	Water	02/26/07 15:20	03/02/07 09:00
MW-5S	T700258-07	Water	02/26/07 16:08	03/02/07 09:00
EQ BLANK 1	T700258-08	Water	02/26/07 00:00	03/02/07 09:00
MW-11LF	T700258-09	Water	02/27/07 08:58	03/02/07 09:00
MW-3	T700258-10	Water	02/27/07 09:45	03/02/07 09:00
MW-12S	T700258-11	Water	02/27/07 10:25	03/02/07 09:00
MW-9S	T700258-12	Water	02/27/07 10:43	03/02/07 09:00
MW-9LF	T700258-13	Water	02/27/07 11:33	03/02/07 09:00
MW-10LF	T700258-14	Water	02/27/07 12:15	03/02/07 09:00
MW-1	T700258-15	Water	02/27/07 12:45	03/02/07 09:00
MW-10D	T700258-16	Water	02/27/07 13:19	03/02/07 09:00
MW-6D	T700258-17	Water	02/27/07 14:18	03/02/07 09:00
MW-11S	T700258-18	Water	02/27/07 14:50	03/02/07 09:00
MW-2D	T700258-19	Water	02/27/07 15:30	03/02/07 09:00
MW-6S	T700258-20	Water	02/27/07 16:12	03/02/07 09:00
MW-2M	T700258-21	Water	02/27/07 16:45	03/02/07 09:00
EQ BLANK 2	T700258-22	Water	02/27/07 00:00	03/02/07 09:00
MW-2S	T700258-23	Water	02/28/07 10:13	03/02/07 09:00
MW-9D	T700258-24	Water	02/28/07 11:05	03/02/07 09:00
MW-11D	T700258-25	Water	02/28/07 11:40	03/02/07 09:00
EQ BLANK 3	T700258-26	Water	02/28/07 00:00	03/02/07 09:00

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-4S

T700258-01(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*85.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/05/07	EPA 8015m	
Surrogate: p-Terphenyl			*104 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*103 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*84.9 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*96.4 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-4D

T700258-02(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*84.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*115 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Benzene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*96.1 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*81.9 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*98.9 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-7S

T700258-03(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**55**		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*87.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/05/07	EPA 8015m	
Surrogate: p-Terphenyl			*102 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethylbenzene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*101 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*97.6 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*80.2 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-8

T700258-04(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*89.0 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/05/07	EPA 8015m	
Surrogate: p-Terphenyl			*108 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethyl tert-butyl ether	ND		2.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*95.1 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*82.6 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*96.4 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-10S

T700258-05(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**54**		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*88.0 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*108 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
m,p-Xylene	ND		1.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*97.1 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*84.6 %*	*78.6-135*		"	"	"	"	
Surrogate: Toluene-d8			*95.9 %*	*88.8-117*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-12LF

T700258-06(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*89.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*83.5 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Tert-butyl alcohol	ND		10	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*80.0 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*97.8 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*96.2 %*	*88.8-117*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-5S

T700258-07(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*80.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**0.36**	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	J
Surrogate: p-Terphenyl			*86.8 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Toluene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**3.2**		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Surrogate: Toluene-d8			*99.2 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*97.8 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*86.6 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

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T700258-08(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*86.6 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*125 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethylbenzene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8			*106 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*83.0 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*95.9 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-11LF

T700258-09(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*89.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*108 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Tert-butyl alcohol	ND		10	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**110**		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*97.1 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*99.6 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*85.9 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-3

T700258-10(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**56**		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*91.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*86.5 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Toluene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**43**		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*98.2 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*96.9 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*83.4 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-12S

T700258-11(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SunStar Laboratories, Inc.										
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*86.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*111 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethylbenzene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*97.2 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*86.0 %*	*78.6-135*		"	"	"	"	
Surrogate: Toluene-d8			*102 %*	*88.8-117*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-9S

T700258-12(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**130**		50	ug/l	1	7030216	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*92.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*104 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
m,p-Xylene	**1.0**		1.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
Toluene	**0.58**		0.50	"	"	"	"	"	"	
Ethylbenzene	**8.4**		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	**0.79**		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*97.6 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*91.5 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*94.9 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-9LF

T700258-13(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**530**		50	ug/l	1	7030216	03/02/07	03/02/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*95.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*86.2 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	**6.4**		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
m,p-Xylene	**19**		1.0	"	"	"	"	"	"	
Ethylbenzene	**31**		0.50	"	"	"	"	"	"	
Benzene	**39**		0.50	"	"	"	"	"	"	
Toluene	**5.0**		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*86.9 %*	*78.6-135*		"	"	"	"	
Surrogate: Toluene-d8			*97.2 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*102 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-10LF

T700258-14(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**580**		50	ug/l	1	7030216	03/02/07	03/03/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*91.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*110 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Ethyl tert-butyl ether	ND		2.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Ethylbenzene	**0.51**		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
m,p-Xylene	**3.6**		1.0	"	"	"	"	"	"	
Toluene	**1.1**		0.50	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Benzene	**1.0**		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*101 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*95.0 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*99.0 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-1

T700258-15(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**430**		50	ug/l	1	7030216	03/02/07	03/03/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*84.6 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*114 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
o-Xylene	ND		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	**1.1**		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	**7.9**		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*99.6 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*93.1 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*83.0 %*	*78.6-135*		"	"	"	"	

SunStar Laboratories, Inc.

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Albert Vargas

Albert Vargas For Maria Bonifacio, Project Coordinator

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-10D

T700258-16(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**850**		50	ug/l	1	7030216	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*94.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**0.20**	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	J
Surrogate: p-Terphenyl			*110 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Benzene	**2.7**		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	**0.90**		0.50	"	"	"	"	"	"	
m,p-Xylene	**2.3**		1.0	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	**28**		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*94.4 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*103 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*101 %*	*88.8-117*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
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MW-6D

T700258-17(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**150**		50	ug/l	1	7030216	03/02/07	03/06/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*95.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**0.47**	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	J
Surrogate: p-Terphenyl			*93.8 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
m,p-Xylene	ND		1.0	ug/l	1	7030214	03/02/07	03/03/07	EPA 8260B	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**48**		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*101 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*82.9 %*	*78.6-135*		"	"	"	"	
Surrogate: Toluene-d8			*99.2 %*	*88.8-117*		"	"	"	"	

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11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-11S

T700258-18(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**300**		50	ug/l	1	7030216	03/02/07	03/03/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*92.0 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**0.54**	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*107 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Tert-amyl methyl ether	ND		2.0	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**4.3**		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8			*98.0 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*106 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*85.8 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-2D

T700258-19(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**140**		50	ug/l	1	7030216	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*94.8 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**1.1**	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*103 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
m,p-Xylene	**1.1**		1.0	ug/l	1	7030214	03/02/07	03/03/07	EPA 8260B	
Methyl tert-butyl ether	**25**		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Ethylbenzene	**0.63**		0.50	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8			*100 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*86.8 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*100 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-6S

T700258-20(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**1100**		50	ug/l	1	7030216	03/02/07	03/03/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*91.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**3.0**	0.098	0.50	mg/l	1	7030208	03/02/07	03/07/07	EPA 8015m	
Surrogate: p-Terphenyl			*109 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Benzene	**0.79**		0.50	ug/l	1	7030214	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	**1.1**		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**54**		1.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*105 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*90.8 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*114 %*	*83.5-119*		"	"	"	"	

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Albert Vargas

Albert Vargas For Maria Bonifacio, Project Coordinator

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-2M

T700258-21(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**310**		50	ug/l	1	7030217	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*101 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030209	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*108 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Tert-butyl alcohol	ND		10	ug/l	1	7030215	03/02/07	03/06/07	EPA 8260B	
Benzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Toluene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	**0.65**		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**25**		1.0	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane			*103 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*106 %*	*83.5-119*		"	"	"	"	
Surrogate: Toluene-d8			*107 %*	*88.8-117*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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T700258-22(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	ND		50	ug/l	1	7030217	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*106 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030209	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*115 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030215	03/02/07	03/06/07	EPA 8260B	
Toluene	ND		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*106 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*98.6 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*102 %*	*83.5-119*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-2S

T700258-23(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**140**		50	ug/l	1	7030217	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*94.4 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**6.6**	0.098	0.50	mg/l	1	7030209	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*100 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Toluene	ND		0.50	ug/l	1	7030215	03/02/07	03/06/07	EPA 8260B	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	ND		0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**33**		1.0	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	ND		0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
m,p-Xylene	ND		1.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*106 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*108 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*104 %*	*83.5-119*		"	"	"	"	

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Albert Vargas

Albert Vargas For Maria Bonifacio, Project Coordinator

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11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

MW-9D

T700258-24(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**210000**		5000	ug/l	100	7030217	03/02/07	03/06/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*113 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**4.5**	0.098	0.50	mg/l	1	7030209	03/02/07	03/06/07	EPA 8015m	D-08
Surrogate: p-Terphenyl			*77.8 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Tert-amyl methyl ether	ND		2.0	ug/l	1	7030215	03/02/07	03/06/07	EPA 8260B	
Toluene	**6200**		50	"	100	"	"	03/07/07	"	
Methyl tert-butyl ether	ND		1.0	"	1	"	"	03/06/07	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	**2100**		12	"	25	"	"	03/07/07	"	
Benzene	**1900**		12	"	"	"	"	"	"	
m,p-Xylene	**6900**		100	"	100	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	1	"	"	03/06/07	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	**2400**		12	"	25	"	"	03/07/07	"	
Surrogate: Toluene-d8			*103 %*	*88.8-117*		"	"	*03/06/07*	"	
Surrogate: 4-Bromofluorobenzene			*99.4 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*90.4 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
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MW-11D

T700258-25(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**7400**		50	ug/l	1	7030217	03/02/07	03/05/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*135 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	**13**	0.098	0.50	mg/l	1	7030209	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*107 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Di-isopropyl ether	ND		2.0	ug/l	1	7030215	03/02/07	03/06/07	EPA 8260B	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Ethylbenzene	**17**		0.50	"	"	"	"	"	"	
m,p-Xylene	**30**		1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**18**		1.0	"	"	"	"	"	"	
o-Xylene	**24**		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	**8.4**		0.50	"	"	"	"	"	"	
Toluene	**16**		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
Surrogate: Toluene-d8			*108 %*	*88.8-117*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*119 %*	*83.5-119*		"	"	"	"	
Surrogate: Dibromofluoromethane			*100 %*	*78.6-135*		"	"	"	"	

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

EQ BLANK 3

T700258-26(Water)

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Purgeable Petroleum Hydrocarbons by EPA 8015m										
C6-C12 (GRO)	**94**		50	ug/l	1	7030217	03/02/07	03/06/07	EPA 8015m	
Surrogate: 4-Bromofluorobenzene			*103 %*	*65-135*		"	"	"	"	
Extractable Petroleum Hydrocarbons by 8015m										
Diesel Range Hydrocarbons	ND	0.098	0.50	mg/l	1	7030209	03/02/07	03/06/07	EPA 8015m	
Surrogate: p-Terphenyl			*134 %*	*65-135*		"	"	"	"	
Volatile Organic Compounds by EPA Method 8260B										
Methyl tert-butyl ether	ND		1.0	ug/l	1	7030215	03/02/07	03/06/07	EPA 8260B	
Toluene	**1.3**		0.50	"	"	"	"	"	"	
Tert-butyl alcohol	ND		10	"	"	"	"	"	"	
o-Xylene	**0.91**		0.50	"	"	"	"	"	"	
m,p-Xylene	**2.8**		1.0	"	"	"	"	"	"	
Ethylbenzene	**1.1**		0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND		2.0	"	"	"	"	"	"	
Di-isopropyl ether	ND		2.0	"	"	"	"	"	"	
Benzene	ND		0.50	"	"	"	"	"	"	
Tert-amyl methyl ether	ND		2.0	"	"	"	"	"	"	
Surrogate: Toluene-d8			*109 %*	*88.8-117*		"	"	"	"	
Surrogate: Dibromofluoromethane			*96.4 %*	*78.6-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene			*104 %*	*83.5-119*		"	"	"	"	

Purgeable Petroleum Hydrocarbons by EPA 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030216 - EPA 5030 GC											
Blank (7030216-BLK1)					Prepared & Analyzed: 03/02/07						
Surrogate: 4-Bromofluorobenzene	*36.9*			*ug/l*	*50.0*		*73.8*	*65-135*			
C6-C12 (GRO)	ND		50	"							
LCS (7030216-BS1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: 4-Bromofluorobenzene	*44.4*			*ug/l*	*50.0*		*88.8*	*65-135*			
C6-C12 (GRO)	5410		50	"	5500		98.4	75-125			
Matrix Spike (7030216-MS1)		**Source: T700258-20**			Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: 4-Bromofluorobenzene	*54.0*			*ug/l*	*50.0*		*108*	*65-135*			
C6-C12 (GRO)	6500		50	"	5500	1100	98.2	65-135			
Matrix Spike Dup (7030216-MSD1)		**Source: T700258-20**			Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: 4-Bromofluorobenzene	*54.9*			*ug/l*	*50.0*		*110*	*65-135*			
C6-C12 (GRO)	6600		50	"	5500	1100	100	65-135	1.53	20	
Batch 7030217 - EPA 5030 GC											
Blank (7030217-BLK1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: 4-Bromofluorobenzene	*40.3*			*ug/l*	*50.0*		*80.6*	*65-135*			
C6-C12 (GRO)	ND		50	"							
LCS (7030217-BS1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: 4-Bromofluorobenzene	*46.9*			*ug/l*	*50.0*		*93.8*	*65-135*			
C6-C12 (GRO)	5270		50	"	5500		95.8	75-125			
Matrix Spike (7030217-MS1)		**Source: T700258-26**			Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: 4-Bromofluorobenzene	*52.3*			*ug/l*	*50.0*		*105*	*65-135*			
C6-C12 (GRO)	5270		50	"	5500	94	94.1	65-135			

Purgeable Petroleum Hydrocarbons by EPA 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030217 - EPA 5030 GC											
Matrix Spike Dup (7030217-MSD1)		**Source: T700258-26**			Prepared: 03/02/07		Analyzed: 03/05/07				
Surrogate: 4-Bromofluorobenzene	*53.7*			*ug/l*	*50.0*		*107*	*65-135*			
C6-C12 (GRO)	5480		50	"	5500	94	97.9	65-135	3.91	20	

Extractable Petroleum Hydrocarbons by 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030208 - EPA 3510C GC											
Blank (7030208-BLK1)					Prepared: 03/02/07 Analyzed: 03/05/07						
Surrogate: p-Terphenyl	*3.47*			*mg/l*	*4.00*		*86.8*	*65-135*			
Diesel Range Hydrocarbons	ND	0.098	0.50	"							
LCS (7030208-BS1)					Prepared: 03/02/07 Analyzed: 03/07/07						
Surrogate: p-Terphenyl	*4.86*			*mg/l*	*4.00*		*122*	*65-135*			
Diesel Range Hydrocarbons	19.9	0.098	0.50	"	20.0		99.5	75-125			
Matrix Spike (7030208-MS1)		**Source: T700258-01**			Prepared: 03/02/07 Analyzed: 03/07/07						
Surrogate: p-Terphenyl	*4.65*			*mg/l*	*4.00*		*116*	*65-135*			
Diesel Range Hydrocarbons	19.0	0.098	0.50	"	20.0	ND	95.0	75-125			
Matrix Spike Dup (7030208-MSD1)		**Source: T700258-01**			Prepared: 03/02/07 Analyzed: 03/07/07						
Surrogate: p-Terphenyl	*3.89*			*mg/l*	*4.00*		*97.2*	*65-135*			
Diesel Range Hydrocarbons	17.9	0.098	0.50	"	20.0	ND	89.5	75-125	5.96	20	
Batch 7030209 - EPA 3510C GC											
Blank (7030209-BLK1)					Prepared: 03/02/07 Analyzed: 03/06/07						
Surrogate: p-Terphenyl	*4.69*			*mg/l*	*4.00*		*117*	*65-135*			
Diesel Range Hydrocarbons	ND	0.098	0.50	"							
LCS (7030209-BS1)					Prepared: 03/02/07 Analyzed: 03/06/07						
Surrogate: p-Terphenyl	*2.68*			*mg/l*	*4.00*		*67.0*	*65-135*			
Diesel Range Hydrocarbons	16.1	0.098	0.50	"	20.0		80.5	75-125			
Matrix Spike (7030209-MS1)		**Source: T700258-21**			Prepared: 03/02/07 Analyzed: 03/06/07						
Surrogate: p-Terphenyl	*4.48*			*mg/l*	*4.00*		*112*	*65-135*			
Diesel Range Hydrocarbons	25.7	0.098	0.50	"	20.0	ND	128	75-125			QM-07

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

Extractable Petroleum Hydrocarbons by 8015m - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030209 - EPA 3510C GC											
Matrix Spike Dup (7030209-MSD1)		**Source: T700258-21**			Prepared: 03/02/07		Analyzed: 03/06/07				
Surrogate: p-Terphenyl	*4.85*			*mg/l*	*4.00*		*121*	*65-135*			
Diesel Range Hydrocarbons	19.2	0.098	0.50	"	20.0	ND	96.0	75-125	29.0	20	QM-07

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030214 - EPA 5030 GCMS											
Blank (7030214-BLK1)					Prepared: 03/02/07 Analyzed: 03/06/07						
Surrogate: Toluene-d8	*7.63*			*ug/l*	*8.00*		*95.4*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.88*			*"*	*8.00*		*98.5*	*83.5-119*			
Surrogate: Dibromofluoromethane	*6.78*			*"*	*8.00*		*84.8*	*78.6-135*			
Benzene	ND		0.50	"							
Toluene	ND		0.50	"							
Ethylbenzene	ND		0.50	"							
m,p-Xylene	ND		1.0	"							
o-Xylene	ND		0.50	"							
Tert-amyl methyl ether	ND		2.0	"							
Tert-butyl alcohol	ND		10	"							
Di-isopropyl ether	ND		2.0	"							
Ethyl tert-butyl ether	ND		2.0	"							
Methyl tert-butyl ether	ND		1.0	"							
LCS (7030214-BS1)					Prepared: 03/02/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.97*			*ug/l*	*8.00*		*99.6*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.36*			*"*	*8.00*		*92.0*	*83.5-119*			
Surrogate: Dibromofluoromethane	*7.92*			*"*	*8.00*		*99.0*	*78.6-135*			
Benzene	17.3		0.50	"	20.0		86.5	75-125			
Toluene	17.0		0.50	"	20.0		85.0	75-125			
Matrix Spike (7030214-MS1)		**Source: T700258-07**			Prepared: 03/02/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.99*			*ug/l*	*8.00*		*99.9*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.48*			*"*	*8.00*		*93.5*	*83.5-119*			
Surrogate: Dibromofluoromethane	*7.44*			*"*	*8.00*		*93.0*	*78.6-135*			
Benzene	17.3		0.50	"	20.0	ND	86.5	75-125			
Toluene	17.4		0.50	"	20.0	ND	87.0	75-125			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030214 - EPA 5030 GCMS											
Matrix Spike Dup (7030214-MSD1)		**Source: T700258-07**			Prepared: 03/02/07 Analyzed: 03/03/07						
Surrogate: Toluene-d8	*7.66*			*ug/l*	*8.00*		*95.8*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.52*			*"*	*8.00*		*94.0*	*83.5-119*			
Surrogate: Dibromofluoromethane	*7.76*			*"*	*8.00*		*97.0*	*78.6-135*			
Benzene	17.4		0.50	"	20.0	ND	87.0	75-125	0.576	20	
Toluene	17.2		0.50	"	20.0	ND	86.0	75-125	1.16	20	
Batch 7030215 - EPA 5030 GCMS											
Blank (7030215-BLK1)					Prepared: 03/02/07 Analyzed: 03/06/07						
Surrogate: Toluene-d8	*8.67*			*ug/l*	*8.00*		*108*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*8.53*			*"*	*8.00*		*107*	*83.5-119*			
Surrogate: Dibromofluoromethane	*9.68*			*"*	*8.00*		*121*	*78.6-135*			
Benzene	ND		0.50	"							
Toluene	ND		0.50	"							
Ethylbenzene	ND		0.50	"							
m,p-Xylene	ND		1.0	"							
o-Xylene	ND		0.50	"							
Tert-amyl methyl ether	ND		2.0	"							
Tert-butyl alcohol	ND		10	"							
Di-isopropyl ether	ND		2.0	"							
Ethyl tert-butyl ether	ND		2.0	"							
Methyl tert-butyl ether	ND		1.0	"							
LCS (7030215-BS1)					Prepared: 03/02/07 Analyzed: 03/07/07						
Surrogate: Toluene-d8	*8.20*			*ug/l*	*8.00*		*102*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.65*			*"*	*8.00*		*95.6*	*83.5-119*			
Surrogate: Dibromofluoromethane	*7.07*			*"*	*8.00*		*88.4*	*78.6-135*			
Benzene	20.4		0.50	"	20.0		102	75-125			
Toluene	22.4		0.50	"	20.0		112	75-125			

Tait Environmental -- Rancho Cordova	Project: Mission Valley Rock	
11280 Trade Center Drive	Project Number: EM5009C	**Reported:**
Rancho Cordova CA, 95742	Project Manager: Michael Schenone	04/05/07 10:42

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030215 - EPA 5030 GCMS											
Matrix Spike (7030215-MS1)		**Source: T700258-22**			Prepared: 03/02/07		Analyzed: 03/07/07				
Surrogate: Toluene-d8	*8.16*			*ug/l*	*8.00*		*102*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*7.88*			*"*	*8.00*		*98.5*	*83.5-119*			
Surrogate: Dibromofluoromethane	*7.72*			*"*	*8.00*		*96.5*	*78.6-135*			
Benzene	20.0		0.50	"	20.0	ND	100	75-125			
Toluene	19.8		0.50	"	20.0	0.15	98.2	75-125			
Matrix Spike Dup (7030215-MSD1)		**Source: T700258-22**			Prepared: 03/02/07		Analyzed: 03/06/07				
Surrogate: Toluene-d8	*8.71*			*ug/l*	*8.00*		*109*	*88.8-117*			
Surrogate: 4-Bromofluorobenzene	*8.58*			*"*	*8.00*		*107*	*83.5-119*			
Surrogate: Dibromofluoromethane	*7.44*			*"*	*8.00*		*93.0*	*78.6-135*			
Benzene	20.4		0.50	"	20.0	ND	102	75-125	1.98	20	
Toluene	22.4		0.50	"	20.0	0.15	111	75-125	12.3	20	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Albert Vargas

Albert Vargas For Maria Bonifacio, Project Coordinator

Notes and Definitions

QM-07	The spike recovery and or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
J	Detected but below the Standard Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
D-08	Results in the diesel organics range are primarily due to overlap from a gasoline range product.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

APPENDIX E

Surface-Water Depressions Near Asphalt Plant

SOURCE: GOOGLE EARTH 2007

GRAVITY LINE

PRESSURE LINE

CB CATCH BASIN

FLOW ARROW

N

0 150 FEET

Surface Depressions Near Asphalt Plant

Hanson Aggregates, Sunol, California

LFR

Appendix E

I:\Design\001\09480\02\000\DWG\Surface Depressions - Gravity Line.dwg Apr 10,2007-10:25am