

April 26, 2007

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

RECEIVED

1:14 pm, Aug 29, 2007

Alameda County
Environmental Health

Re: Additional Subsurface Assessment and Oxygen Injection Test Report

Delta Project No. C10-4186-161
76 Service Station No. 4186
1771 First Street
Livermore, California



Dear Mr. Wickham:

This report has been prepared by Delta Environmental Consultants, Inc. (Delta) on behalf of ConocoPhillips Company (COP) to present the findings of the advancement of three soil borings, and the results of the oxygen injection test performed, at the above referenced site. Figure 1 shows the location and vicinity of the site. The purpose of the advancement of the soil borings was to: (1) further assess the vertical extent of the petroleum hydrocarbon impact to the groundwater to the base of the lowermost sand and gravel unit, (2) assess the presence of the petroleum hydrocarbon impact to the groundwater down-gradient of the site in the lowermost sand and gravel unit, and (3) investigate the presence of a clay layer underlying the lowermost coarse-grained soils which may represent a regional aquitard. The oxygen injection test was performed to evaluate the radius of influence (ROI) of the existing sparge wells at the site, and to evaluate the effectiveness of the existing ozone injection system and possible improvements. The work was conducted in general accordance with Delta's *Work Plan - Additional Subsurface Assessment* dated November 3, 2006, and subsequently approved by the Alameda County Health Services Agency Staff in a letter dated November 20, 2006. Figure 2 shows site facility details and locations of the soil borings.

SITE DESCRIPTION

The subject site is an operating service station located on the southwest corner of First Street and N Street in Livermore, California (Figure 2). The site is bounded to the north by First Street, to the east by N Street, and to the south and west by

commercial buildings. The immediate site vicinity is a mix of commercial properties including restaurants, automobile repair shops, and shopping facilities. The site is located at an elevation of 480 feet above mean sea level (MSL).

Current aboveground site facilities consist of four dispenser islands, a canopy and a station building. Two 10,000-gallon gasoline USTs are located in a common pit on the east side of the site.

SITE BACKGROUND AND ACTIVITY

During dispenser and piping replacement activities in June 1996, six soil samples were collected from beneath the fuel dispensers and along the product delivery piping. Analytical data indicated that total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethyl-benzene and total xylenes (BTEX) were below the laboratories indicated reporting limits in each sample collected from beneath the dispenser islands and product delivery piping.

A soil gas survey was conducted on September 10, 1997, as part of a baseline site evaluation associated with the property transfer from Unocal Corporation to Tosco. Six soil gas probes were advanced and samples collected at 3 or 15 feet bgs in the vicinity of the UST pit, dispenser islands, and product lines. Analytical data from the soil gas samples ranged from 41 to 4,500 parts per billion by volume (ppb-v) TPH-G, below the laboratories indicated reporting limit to 110 ppb-v benzene, and below the laboratories indicated reporting limit to 8,000 ppb-v methyl tertiary butyl ether (MTBE). The area of highest soil vapor concentration was localized around the USTs.

On June 16, 1998, three two-inch diameter groundwater monitor wells (U-1 through U-3) were installed at the site. The monitoring wells were installed to depths of 34 feet bgs. Analytical data from the soil samples collected from the three monitoring well boreholes were reported as below the laboratories indicated reporting limits for TPH-G, benzene, and MTBE.

A site conceptual model (SCM) was completed for the site in May 2000. A groundwater flow velocity was calculated to estimate plume travel time to the nearest down-gradient receptor. Groundwater velocity was calculated to be 46 feet per year. It was concluded that hydrocarbon impact to groundwater appears to fluctuate with the rise and fall of the groundwater surface beneath the site.

Two additional two-inch diameter groundwater monitor wells (U-4 and U-5) were installed off-site on February 21, 2001, at the locations shown on Figure 2. The monitoring wells were installed to depths of 45 feet (U-4) and 47 feet (U-5). Analytical data from soil samples collected during the installation of these monitoring wells indicated that TPH-G, BTEX, and MTBE were below the laboratories indicated reporting limits. TPH-G and benzene were below the laboratories indicated reporting limits in groundwater samples collected from monitoring wells U-4 and U-5. MTBE was reported in the groundwater samples from both wells U-4 and U-5 at concentrations of 38.2 and 55.4 micrograms per liter ($\mu\text{g/L}$), respectively.

Monitoring and sampling of the monitoring wells at the site was initiated in July 1998, and has continued on a quarterly basis to the present. Historically, groundwater flow

directions have varied from north to southwest. Depth to groundwater has varied from 21.62 feet bgs (U-3) to 46.31 feet bgs (U-5).

On December 5 through 7, 2001, two monitor wells (U-6 and U-7) and eight ozone sparge wells (SP-1 through SP-4, SP-5/5S, SP-6S, SP-7S, and SP-8/8S) were installed at the site (Figure 2). The monitor wells were installed to 45 feet bgs using 8-inch diameter hollow stem augers. The sparge wells consisted of 2-inch diameter by 30-inch long, microporous plastic sparge points attached to ¾-inch diameter blank schedule 80 PVC casing. The sparge points in wells SP-1 through SP-4 were installed to a depth of 45 feet bgs. The sparge points in wells SP-6S and SP-7S were installed to a shallower depth of 25 feet bgs. The remaining two sparge wells each contained dual-nested sparge points installed to 25 feet bgs (SP-5S and SP-8S) and 45 feet bgs (SP-5 and SP-8). An ozone microsparge system was then installed and began operation in December 2001. The system injected ozone into the 10 sparge points.

On April 19 through 26, 2006 seven soil borings (B-1 through B-7) were advanced at the site. Three boreholes were advanced for each soil boring location. The initial borehole was advanced to record a cone penetrometer (CPT) log of subsurface lithology. The second borehole was advanced for the purpose of collecting soil samples for identification and laboratory analysis, and to collect a depth-discrete groundwater samples at depths of approximately 38 feet to 44 feet bgs. The third borehole was advanced to collect a depth-discrete groundwater sample at approximately 57 feet to 65 feet bgs. Three general stratigraphic zones were identified – An upper zone from 36 to 43 feet bgs, a middle clay zone from 43 to 55 feet bgs, and a lower zone from 55 to the maximum depths of 65.5 feet bgs explored.

Soil samples from selected depths were submitted for laboratory analysis. Soil analytical data were as follows: Gasoline range organics (GRO) was reported in five upper zone, six clay zone, and three lower zone samples. MTBE was reported in three upper zone, three clay zone, and two lower zone samples. Benzene was reported in three clay zone samples. GRO was reported to a maximum concentration of 700 mg/kg (B-7@45'). Benzene was reported in three soil samples to a maximum concentration of 1.3 mg/kg (B-7@45'). MTBE was reported in eight soil samples to a maximum concentration of 0.29 mg/kg (B-6@25').

Groundwater analytical data were as follows: GRO was reported in each of the 14 groundwater samples. Benzene was reported in five upper zone, and six lower zone samples. MTBE was reported in four upper zone, and six lower zone samples. GRO was reported with a maximum concentration of 26,000 µg/L (B-7@57'). Benzene was reported in 11 groundwater samples with a maximum concentration of 510 µg/L (B-7@57'). MTBE was reported in 10 groundwater samples with a maximum concentration of 1,100 µg/L (B-6@43').

Although the ozone system experienced problems with consistent operation, it appeared to be effective as TPHg, BTEX, and MTBE concentrations in well U-3 significantly decreased since startup of the system. The system was shut down in October 2006 to evaluate for groundwater concentration rebound during the following quarter.

Site History Review

Aerial photographs of the site (8 photographs from 1940 to 2002) were reviewed to consider potential past use or activities at the site based on identification of structures on the site property. Photographs from 1940 and 1950 showed what appeared to be two houses on the property. The photograph from 1958 showed one building with what appears to be a large canopy which may identify the site as a service station; the photographs from 1965 and 1974 show the same building. The scale in the photograph from 1982 precludes clear identification of the site buildings. The photographs from 1993 and 1998 show what is clearly a service station with a building and attached canopy.

City directory listings from 1960, 1965, 1970, and 2002 list the site address as a service station.

Environmental Data Resources, Inc. created a radius map of businesses close to the site that are listed in databases for having hazardous or toxic substances, underground storage tanks, or impacts to drinking water. There are four up-gradient businesses listed on the radius map within one quarter-mile of the site, all at equal or higher elevation.

Desert Petroleum BP, 2008 First St., 1/8-1/4 mile ENE of site

Company owns the Gasco Service Station #795 at same address. Tank leak was caused by a structure failure. Waste includes unspecified oil-containing waste, waste oil and mixed oil. An MTBE plume was found, with a maximum groundwater concentration of 47,000 ug/L. Remediation started 2/5/2001 and is underway.

Livermore Auto Exchange, 174 South L St., 1/8-1/4 mile E of site

Tanks include waste oil and other unknown substances.

Groth Bros Oldsmobile, 59 South L St., 1/8-1/4 mile NE of site

Auto dealership classified as a small quantity generator. Tank leak was caused by a structure failure. Waste includes aqueous solutions with less than 10% organic residues and unspecified solvent mixture waste.

Quality Cleaners, 2048 First St., 1/8-1/4 mile ENE of site

Dry cleaners with wastes classified as halogenated solvents (chloroform, methyl chloride, perchloroethylene).

Sensitive Receptors

Alameda County Zone 7 Water Agency files were reviewed on April 8, 1998, to identify water supply wells located within a one half mile radius of the site. Two municipal wells were identified as present approximately 1,500 feet and 1,800 feet northwest of the site, and two domestic wells were located approximately 1,900 feet and 2,800 feet southwest and west of the site.

2006 - A survey entailing a visit to the DWR office in Sacramento was conducted to examine well log records and to identify domestic wells within the survey area. The DWR survey provided 53 potential receptors within one mile of the site; eleven

municipal wells, five irrigation wells, two domestic wells, one domestic/irrigation well, and seventeen with an unknown well type. Seventeen additional potential receptors were identified although the specific addresses could not be located.

Site Geology and Hydrogeology

The subject site is located in the Livermore Valley in the north-central Coast Range and is underlain by interbedded Holocene age alluvial fan and gravel facies. These deposits are composed of semi-consolidated deposits of sand and gravel in a matrix of clayey sand. During this soil boring assessment and previous field investigations, it was determined that the unsaturated (vadose) zone is composed predominantly of gravel with varying amounts of clay, silt and sand. The saturated zone is composed of clay, silty sand, and gravel.

Groundwater was initially encountered at depths of 28 to 30.5 feet bgs during drilling at the site and across First Street. Historical monitoring data show the static depth to water on-site varies from 23 to 33 feet bgs. The historical groundwater flow direction has varied from north to southwest with the most recent gradient of 0.08 feet per foot (ft/ft). The nearest surface water to the site is the Arroyo Mocho Creek, located approximately 2,900 feet south of the site.

Soil encountered during the April 2006 soil boring assessment consisted primarily of gravel with varying amounts of clay and silt near the surface, and continued to a depth of approximately 25 feet bgs. Units composed of clay with various amounts of silt and sand was encountered from 25 feet to 36 feet bgs and at 43 to 55 feet bgs. A saturated layer generally consisting of silty sand with gravel and comprised of multiple smaller units consisting of various amounts of gravel, sand and silt was encountered at approximately 36 feet bgs and continued to a depth of approximately 43 feet bgs. Similar lithology was encountered from 55 feet bgs to the total depth explored, 65.5 feet bgs. Groundwater was initially encountered at depths ranging from 32 to 42 feet bgs. Zones of saturated soil varied in thickness and lithology within and between borings.

SCOPE OF WORK

The scope of work included the following activities:

- Conducted utility clearance and obtained a drilling permit from the Zone 7 Water Agency;
- Obtained an encroachment permit for the drilling in First Street from the City of Livermore;
- Advancing three borings to a lower clay unit at the base of the lowermost sand and gravel unit (or until refused) using cone penetration technology (CPT) with the initial five feet cleared by "air-knife" technology;
- Measured volatile organic compounds (VOCs) in soil samples using a photoionization detector (PID) as a screening method to evaluate soil contamination in the soil column;
- Using the CPT logs, collected depth discrete grab groundwater samples from each borehole within the lower sand and gravel unit at the contact with the underlying clay unit;

- Submitted select soil samples and each groundwater sample for laboratory analysis;
- Conducted oxygen injection tests in sparge wells SP-5/5S and SP-6S to evaluate the radius of influence (ROI) in underlying stratigraphic units;
- Uploaded analytical laboratory data into the State of California Geotracker System per requirements of AB 2886; and
- Arranged for disposal of generated waste materials.

Pre-Field Investigation Activities

A utility survey was conducted prior to the field investigation. Underground Services Alert (USA) was notified at least 48 hours prior to drilling operations, and the services of a private utility locating company was utilized to reduce the risk of damage to utilities beneath the property. Additionally, the first five feet of each borehole was cleared before advancement of the borings began on March 12, 13, and 15, 2007.

Delta prepared a site-specific Health and Safety Plan (HASP) in accordance with Title 8, Section 5192 of the California Code of Regulations. The HASP contains a list of emergency contacts, as well as a hospital route map to the nearest emergency facility.

A drilling permit was obtained from the Zone 7 Water Agency prior to scheduling the field work. An encroachment was obtained from the City of Livermore for boring B-10 off-site, near the parallel parking area on the westbound side of First Street

Soil Boring and Sampling Procedures

On March 13 through 16, 2007, three borehole locations (B-8 through B-10) were advanced by a licensed contractor using a CPT rig. Borings B-8 and B-9 were advanced on-site adjacent to CPT borings that were completed to 65.5' bgs in April 2006 (B-7 and B-4, respectively). Three boreholes were advanced for each proposed soil boring location. The initial borehole was advanced to provide a continuous CPT log of subsurface lithology and stratigraphy and to determine where grab groundwater samples should be collected. Pore pressure dissipation tests were also conducted in the initial borehole above the first clay layer to investigate if groundwater was present at that depth (see Attachment A for the CPT Site Investigation Report). The second boring was advanced to collect depth-discrete soil samples. The third borehole was advanced to collect depth-discrete groundwater samples. Each boring was advanced to a lower clay unit or to a maximum depth of 99 feet bgs unless refusal was encountered. The CPT/soil boring locations are shown on Figure 2.

During CPT drilling, soil samples were collected and logged at 5-foot intervals. In borings B-8 and B-9, soil samples were collected below 65 feet bgs due to their proximity to B-7 and B-4, which had been logged from 0 to 65 feet bgs in April 2006. Boring B-10 was logged from 0 to 85 feet bgs. Soil samples were collected using 6-inch long by 2-inch diameter brass sample tubes. The samples were logged by the field geologist using the Unified Soil Classification System. Soil samples were field screened for the presence of volatile organic compounds using a pre-calibrated photoionization detector (PID). Soil samples from boring B-10 exhibiting significant changes in lithology were collected for laboratory analysis. Each soil sample was capped with Teflon® sheets and plastic end caps, and immediately placed on ice.

Groundwater was sampled using the hydro-punch sampling method. A sealed, stainless steel 1.75 inch hollow push rod was advanced to the desired sampling depth. The push rod was then retracted, exposing the inlet screen which allowed groundwater to hydrostatically flow into the sampler. The screen was allowed to sit for 10 to 15 minutes so that groundwater depth could stabilize. Depth to groundwater was determined using a water level meter. A small diameter stainless steel bailer was lowered through the hollow push rods and into the screened section for sample collection. The groundwater samples were decanted into hydrochloric acid (HCl) preserved 40-milliliter glass vials and immediately placed on ice.

Pore pressure dissipation tests were conducted in each boring at approximately 21 feet bgs, directly above the first clay layer based on the CPT logs. The pore pressure dissipation test for B-10 leveled off after 15 minutes but no groundwater was recovered when screened from 20 to 24 feet bgs and waiting 10 minutes for groundwater to flow in from the formation. Groundwater samples were collected from the top and bottom of the "lowermost sand and gravel unit" in boring B-10, and were screened at depths of 66-70 feet bgs for B-10 D (deep, at the top of the unit) and at 83-87 feet bgs for B-10 VD (very deep, at the base of the unit). For borings B-8 and B-9, the pore pressure dissipation tests did not level off because there was no groundwater present above the first clay layer. In these two borings, groundwater samples were collected from the base of the "lowermost sand and gravel unit" (B-8 VD, screened from 79-83' bgs, and B-9 VD, screened from 78-88' bgs). The borings B-4 and B-7, advanced in April 2006, collected groundwater samples from the "uppermost sand and gravel unit" and the top of the "lowermost sand and gravel unit."

Both the groundwater and soil samples were transported under chain-of-custody protocol to Severn Trent Laboratories, Inc. (STL) in Pleasanton, California for laboratory analysis. Subsurface lithology, PID readings, and field observations are documented on the boring logs presented in Attachment B.

Following sample collection, a Portland cement mixture was placed into the borehole using a tremie pipe to 0.5 feet below grade. Borings B-8 and B-9 on the station property were capped flush to the surface with cold patch asphalt. Boring B-10 in First Street was capped flush to the surface with hot patch asphalt according to City of Livermore encroachment permit regulations.

Subsurface Conditions

A Delta field geologist examined soil samples from each boring in conjunction with the corresponding CPT log when classifying soil type and thickness. Soil encountered during drilling near the surface consisted of gravel and cobbles with varying amounts of clay, silt, and sand, and continued to a depth of approximately 21 feet bgs in boring B-10. A clay unit with varying amounts of silt continued from approximately 21 feet to 37 feet bgs. The "uppermost sand and gravel unit", a saturated layer generally consisting of silty sand with gravel was estimated to be between 33 and 40 feet bgs in B-8, 43 and 47 feet bgs in B-9, and 37 and 40 feet bgs in B-10 from examining the CPT log. A clay unit with varying amounts of silt, sand and gravel was encountered below the uppermost sand and gravel unit to 67 feet bgs in B-8, 76 feet bgs in B-9, and to 72 feet bgs in B-10. The "lowermost sand and gravel unit," generally consisting of clayey sand and gravel with sand was encountered below the clay layer to 95 feet bgs in B-8 and 83

feet bgs in B-10. The soil boring for B-9 encountered refusal at 84 feet bgs and therefore did not reach the lowest clay layer. Static groundwater was encountered at depths ranging from approximately 28 to 30.5 feet bgs. Zones of saturated soil varied in thickness and lithology within and between borings. The CPT log is presented in Attachment A, and boring logs for B-8 through B-10 (along with the boring logs for B-4 and B-7 completed in April 2006) are presented in Attachment B.

Laboratory Analysis and Results

Soil and groundwater samples were submitted under chain of custody protocol to Severn Trent Laboratories, Inc. (STL), a California-certified laboratory. The soil and groundwater samples were analyzed for TPH-G, BTEX, MTBE, di-isopropyl ether (DIPE), tertiary butyl alcohol (TBA), tertiary amyl methyl ether (TAME), ethyl tertiary butyl ether (ETBE), 1,2-dichloroethane (1,2-DCA), ethylene dibromide (EDB) and ethanol by United States Environmental Protection Agency (EPA) Method 8260B. In addition, for waste profiling purposes, one soil sample was analyzed for total lead by EPA Method 6010. Attachment C includes the analytical reports and chain of custody documentation.

Soil

Analytical results of soil samples are shown in Table 1. TPH-G and benzene were not reported above the laboratories indicated reporting limits in any soil samples. MTBE was reported in two soil samples (B-10@35.5', B-10@41.5') at 0.013 mg/kg to 0.016 mg/kg, respectively.

For waste profiling, the shallowest soil sample submitted (B-10@25.5') was analyzed for total lead, which was reported at 6 mg/kg, consistent with regional background levels.

Groundwater

Analytical results of groundwater samples are shown in Table 2. TPH-G was reported in one groundwater sample at a concentration of 200 µg/L (B-8 VD, screened from 79-83' bgs). Benzene was reported in one groundwater sample (B-8 VD) at a concentration of 0.94 µg/L. MTBE was reported in two groundwater samples (B-10 D, screened from 66-70' bgs, and B-8 VD, screened from 79-83' bgs) at concentrations of 0.73 µg/L and 7.1µg/L, respectively. Toluene was reported in one groundwater sample (B-10 VD, screened from 83-87' bgs) at a concentration of 1.4 µg/L. Ethyl-benzene and total xylenes were reported in one groundwater sample B-8 VD at concentrations of 1.0 and 1.6 µg/L, respectively.

Waste Disposal

Soil cuttings generated during this investigation are temporarily being stored on-site in appropriately labeled 55-gallon Department of Transportation (DOT)-approved drums pending disposal arrangements. The soil will be transported off-site by a licensed waste hauler once an approved destination for the waste is found.

Oxygen Injection Testing

On March 29 through 31, 2007, oxygen injection testing was performed by Delta field personnel in sparge wells SP-5/5S and SP-6S. Approximately 1,000 cubic feet of oxygen was injected into each well using portable gas cylinders. To perform the testing, the wells were disconnected from the ozone system. Prior to beginning the testing, measurements of dissolved oxygen (DO) and temperature in groundwater, and hydrocarbon vapors inside the well casing were collected from monitoring wells U-1, U-3, and U-7 to evaluate background conditions.

Injection was first performed into well SP-6S for a period of approximately 3.75 hours. DO, temperature, and hydrocarbon vapor measurements were collected from monitoring wells U-1 (approximately 45 feet away), U-3 (approximately 29 feet away), and U-7 (approximately 91 feet away) every 15 minutes for a period of 6 hours following the start of the test, and every hour thereafter for the next 5 hours. No significant changes in any of these parameters were observed in monitoring wells U-1 or U-7 during the test. The DO levels in monitoring well U-3 decreased slightly (from 1.4 milligrams per liter [mg/L] to 0.67 mg/L) during the injection period and slowly returned to background following the end of the injection period. No change in hydrocarbon vapor concentrations occurred in monitoring well U-3 during the test.

Injection was then performed into well SP-5 for a period of approximately 4.75 hours. DO, temperature, and hydrocarbon vapor measurements were collected from monitoring wells U-1 (approximately 31 feet away), U-3 (approximately 12 feet away), and U-7 (approximately 76 feet away) every 15 minutes for a period of 5.75 hours following the start of the test and for a period of 1.5 hours beginning 7.5 hours following the start of the test, and approximately every hour thereafter for the next 2.5 hours. No significant changes in the parameters were observed in monitoring well U-1 during the test. In monitoring well U-3, hydrocarbon vapor concentrations increased slightly (from 0.0 parts per million by volume [ppmv] up to 2.8 ppmv) during the injection period and returned to background following the end of the injection period; DO levels decreased (from 1.12 mg/L to 0.04 mg/L) during the injection period and remained low following the end of the injection period through the end of the test. In monitoring well U-7, hydrocarbon vapor concentrations increased slightly (from 1.2 ppmv to 6.6 ppmv) during the injection period and returned to background following the end of the injection period; significant changes in DO levels were not observed.

Injection was then performed into well SP-5S for a period of approximately 3.75 hours. DO, temperature, and hydrocarbon vapor measurements were collected from monitoring wells U-1 (approximately 31 feet away), U-3 (approximately 12 feet away), and U-7 (approximately 76 feet away) every 15 minutes for a period of 6 hours following the start of the test, and every hour thereafter for the next 5 hours. No significant changes in the parameters were observed in monitoring wells U-1 or U-7 during the test. In monitoring well U-3, DO levels generally decreased slightly (from 1.05 mg/L to 0.67 mg/L) during the injection period, increased slightly approximately 9 hours after the start of the test (up to 2.05 mg/L) and returned to background following the end of the injection period; significant changes in hydrocarbon vapor concentrations were not observed.

The volume of oxygen injected into the wells, and the duration of the injection period differed from that outlined in the work plan because based on our experience, the volume (150 cubic feet) and duration (maximum 2 hours) originally outlined in the work plan would likely not be sufficient to generate significant changes in subsurface conditions. The measurements collected during the testing are summarized in the tables presented in Appendix D.

Based on the measurements collected during the testing, no significant changes in DO or hydrocarbon vapor levels were observed in surrounding monitoring wells U-1, U-3, or U-7. However, slight changes in DO were observed in monitoring well U-3 during injection into shallow sparge wells SP-5S and SP-6S; and slight increases in hydrocarbon vapor concentrations were observed in monitoring wells U-3 and U-7 during injection into deeper sparge well SP-5.

These data suggest a ROI of between 10 and 15 feet around the injection points, on an average, however, the response observed in well U-7 suggests subsurface heterogeneity likely effects DO transport. Therefore, as monitoring well U-7 is screened within the deeper coarse-grained layer, sparging in deeper well SP-5 screened just below this layer appears to be capable of influencing monitoring well U-7. However, since TPHg and MTBE concentrations have remained relatively stable in monitoring well U-7 since first quarter 2002, ozone likely is being depleted prior to reaching this monitoring well. Significant biodegradation also does not appear to be occurring in this area. Impacted groundwater also remains in monitoring well U-6. Based on the analytical data of the borings advanced in April 2006 and described above, impacted groundwater also remains in the northwest portion of the site. The impacted groundwater appears to be generally located within the deeper coarse-grained layer.

As sparge wells SP-1, SP-3, and SP-4 are screened within the deeper clay layer, it appears that the fine-grained soils are retarding the distribution of the ozone and they are not significantly influencing groundwater within the overlying coarse-grained layer. Therefore, we would recommend the installation of additional ozone injection wells in the above areas screened within the deeper coarse-grained layer to address the impacted groundwater. The screening of additional injection wells within the coarse-grained layer should increase their effectiveness compared with the existing wells.

Based on the historic groundwater monitoring data in monitoring well U-3, TPHg, BTEX, and MTBE concentrations have significantly decreased since startup of the ozone system. This appears to indicate that the system has been effective in this area, although no significant changes were observed in this monitoring well during the relatively short duration of the oxygen injection testing. Continued operation of the system is recommended to further decrease concentrations in this monitoring well.

Conclusions and Recommendations

Based on the soil and groundwater data collected during this investigation from boring B-10 the petroleum hydrocarbon impact to the soil and the groundwater at this location is not significant and appears to have been delineated across First Street, northwest of the site.

Based on the groundwater data collected during this investigation from borings B-8 and B-9 the petroleum hydrocarbon impact to the groundwater at the B-8 location is slightly

impacted in the lowermost sand and gravel unit and not impacted at the B-9 location in the lowermost sand and gravel unit.

Additional remediation wells will likely be necessary to provide for full plume coverage, although existing remediation wells appear to have been successful at accessing portions of the plume. Based on the historic groundwater monitoring results in monitoring well U-3, the ozone system appears to have been effective at least in this area as concentrations have significantly decreased since startup. Additionally, based on the fourth quarter 2006 monitoring results, TPHg, benzene, and MTBE concentrations stabilized in monitoring well U-3 following shutdown of the system; also indicating that the existing ozone system is influencing the subsurface in this area.

Impacted groundwater also remains in the areas of monitoring wells U-6 and U-7, and in the northwest portion of the site based on the results of the borings advanced in April 2006. The existing sparge wells in the northwest portion of the site do not appear to be effective based on their screened intervals. Therefore, the installation of additional ozone injection wells is recommended in these areas to address the residual impacted groundwater.

A workplan for additional injection well placement will be submitted under separate cover.

In addition, the remediation system equipment at the site will either be repaired or replaced, to address consistent mechanical issues and frequent down time.

Remarks/Signatures


The recommendations contained in this letter/report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This letter/report is based upon a specific scope of work requested by the client. The Contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This letter/report is intended only for the use of Delta's Client and anyone else specifically listed on this letter/report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this letter/report.

If you have questions regarding this report, please call Dennis Dettloff at (916) 503-1261.

Sincerely,
DELTA ENVIRONMENTAL CONSULTANTS, INC.



Lisa Stelzner
Staff Geologist



Dennis S. Dettloff, P.G.
Senior Project Manager
California Registered Professional Geologist No. 7480



DSD:JPK

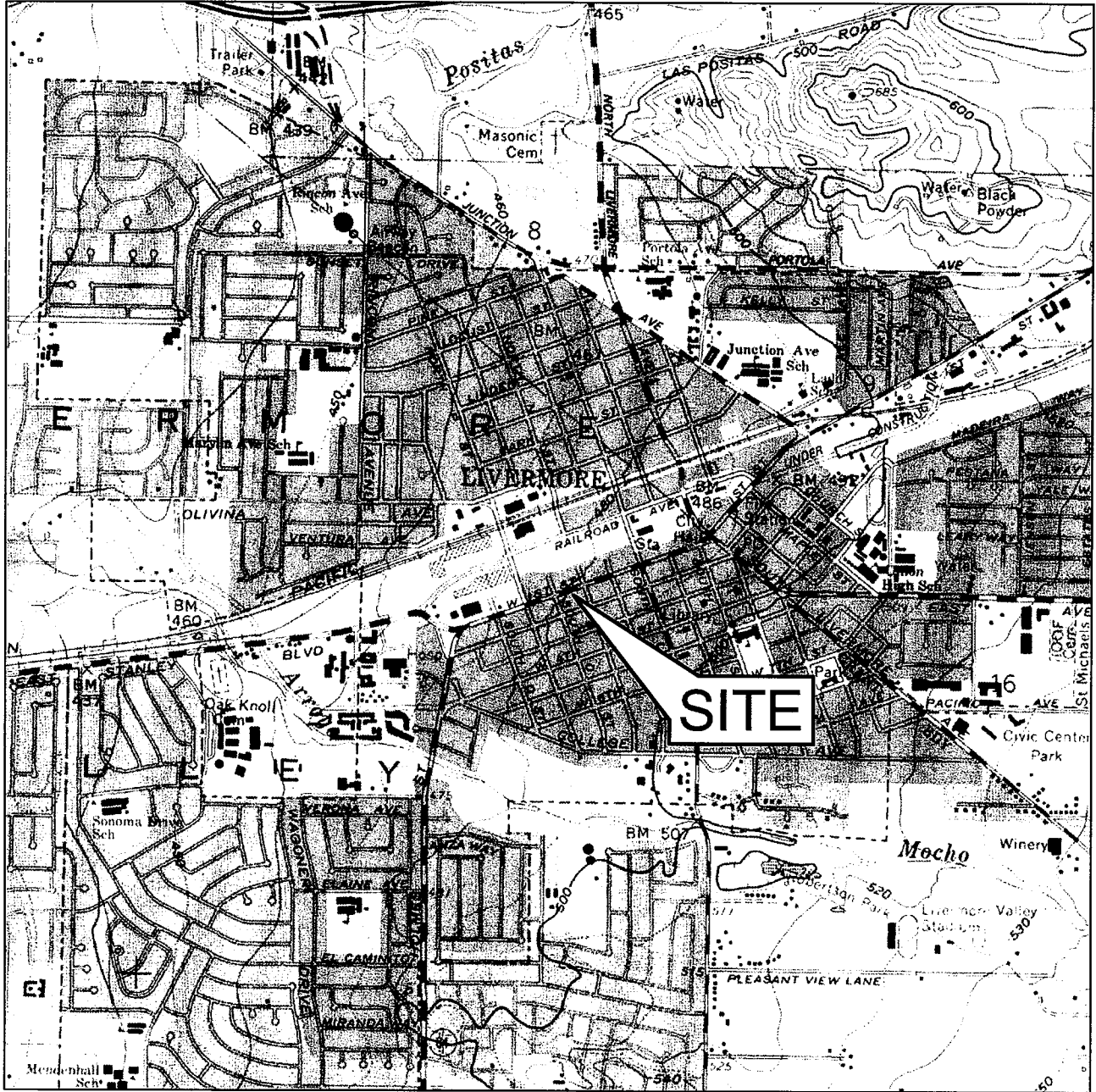
cc: Ms. Shelby Lathrop, ConocoPhillips (electronic copy)
Mr. Wyman Hong, Zone 7 Water Agency
Mr. Thomas Vadakkekunnel, Site Owner

Figures: Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – Cross Section A-A'

Tables: Table 1 – Soil Analytical Results
Table 2 – Groundwater Analytical Results

Attachments:
Attachment A – CPT Site Investigation Report
Attachment B – Boring Logs
Attachment C – Analytical Reports and Chain of Custody Documentation
Attachment D – Oxygen Injection Testing Data Sheets

Figures



0 1000 FT 2000 FT
 SCALE: 1 : 24,000



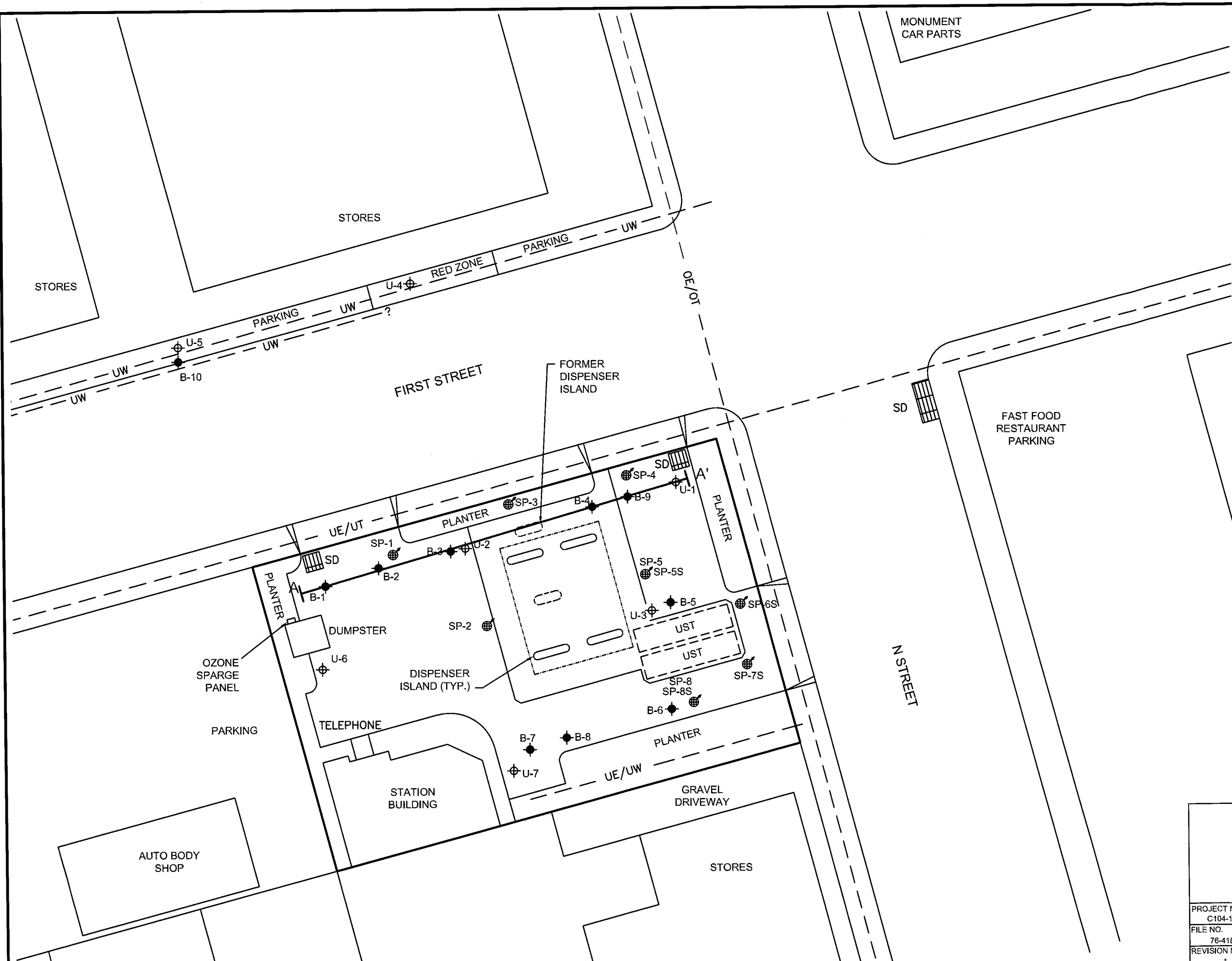
FIGURE 1
 SITE LOCATION MAP

76 STATION NO. 4186
 1771 FIRST STREET
 LIVERMORE, CA

PROJECT NO. C104-186	DRAWN BY MC 12/28/05
FILE NO. Site Locator 4186	PREPARED BY MC
REVISION NO. 1	REVIEWED BY



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, CALABASAS QUADRANGLE, 1967



LEGEND

- APPROXIMATE PROPERTY LINE
- U-7 GROUNDWATER MONITOR WELL
- SP-1 OZONE SPARGE POINT
- B-5 BOREHOLE
- SD STORM DRAIN
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- UW UNDERGROUND WATER
- OE OVERHEAD ELECTRIC
- OT OVERHEAD TELEPHONE

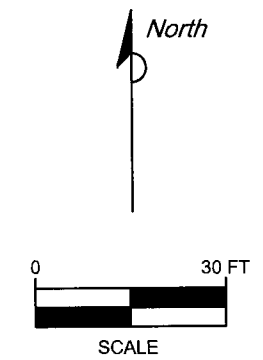


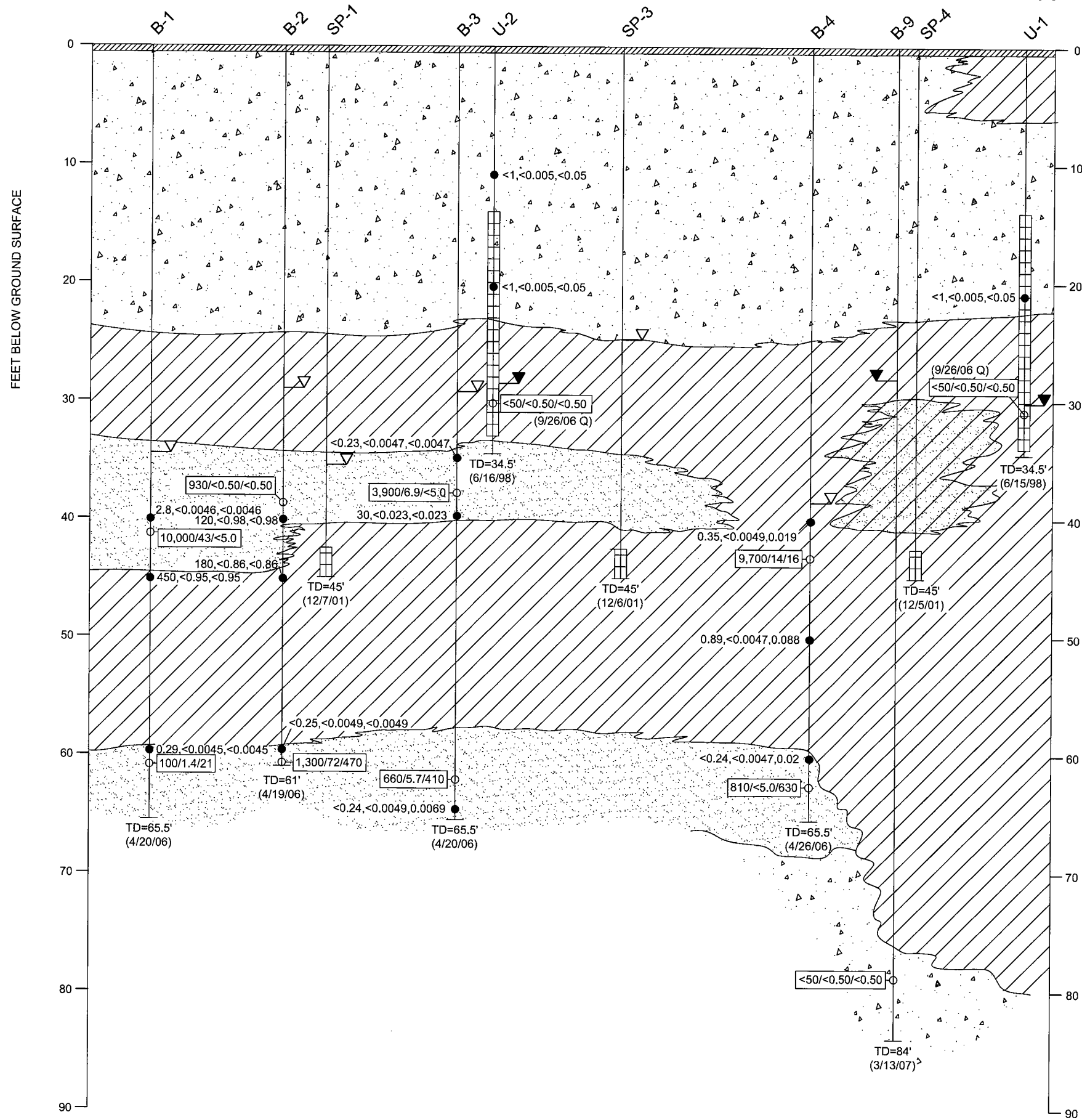
FIGURE 2
SITE PLAN

76 STATION NO. 4186
1771 FIRST STREET
LIVERMORE, CALIFORNIA

PROJECT NO. C104-186	DRAWN BY JH 04/12/07
FILE NO. 76-4186	PREPARED BY MC
REVISION NO. 1	REVIEWED BY

SOUTHWEST
A

NORTHEAST
A'



LEGEND

- U-1 MONITORING WELL, BORING NAME, SPARGE POINT
- WELL CASING, EXPLORATORY BORING
- SOIL SAMPLE LOCATION
- WELL SCREEN
- TD=65.5' (4/20/06) TD= TOTAL DEPTH (DRILLING DATE)
- ∇ DEPTH OF FIRST ENCOUNTERED GROUNDWATER
 \blacktriangledown DEPTH OF (STATIC) GROUNDWATER
- 100/1.4/21 GROUNDWATER SAMPLE LOCATION WITH ANALYTICAL DATA: TPH-G, BENZENE, MTBE (ug/L)
- 120,<0.98,470 SOIL SAMPLE LOCATION WITH ANALYTICAL DATA: TPH-G, BENZENE, MTBE (mg/Kg)
- (7/13/98 Q) MONITOR WELL GROUNDWATER SAMPLE DATE
Q= QUARTERLY SAMPLE
- ASPHALT AND BASEROCK
- GRAVEL WITH SAND, SILT AND CLAY
- SAND WITH GRAVEL, SILT AND CLAY
- FINE-GRAINED (SILT AND/OR CLAY)
- APPROXIMATE STRATIGRAPHIC BOUNDARY

- NOTES:
- 1) TPH-G = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
MTBE = METHYL TERT-BUTYL ETHER
ug/L = MICROGRAMS PER LITER
mg/Kg = MILLIGRAMS PER KILOGRAM
 - 2) STRATIGRAPHY BETWEEN BORINGS IS INTERPRETIVE
 - 3) GROUNDWATER SAMPLES FROM BORINGS WERE COLLECTED ON THE DRILLING DATE

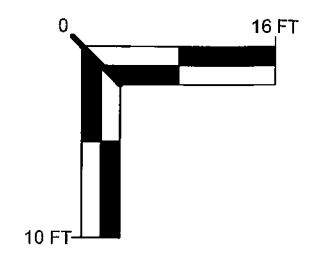


FIGURE 3
GEOLOGIC CROSS SECTION A-A'

76 STATION NO. 4186
1771 FIRST STREET
LIVERMORE, CALIFORNIA

PROJECT NO. C104-186	DRAWN BY JH 04/12/07
FILE NO. 76-4186-XS	PREPARED BY BW
REVISION NO. 2	REVIEWED BY

Tables

Table 1

SOIL ANALYTICAL RESULTS
 ConocoPhillips Station No. 4186
 1771 First Street, Livermore, California

Sample ID	Date	Sample Depth (feet)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	DIPE (mg/kg)	1,2-DCA (mg/kg)	EDB (mg/kg)	Ethanol (mg/kg)	Total Lead (mg/kg)
Soil																
B-10@25.5'	3/15/2007	25.5'	ND<0.25	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0099	ND<0.0050	ND<0.0099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.2	6
B-10@35.5'	3/15/2007	35.5'	ND<0.25	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0099	0.013	ND<0.0099	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.2	NA
B-10@41.5'	3/15/2007	41.5'	ND<0.25	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0099	0.016	ND<0.0099	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0049	ND<1.2	NA
B-10@80.5'	3/16/2007	80.5'	ND<0.21	ND<0.0043	ND<0.0043	ND<0.0043	ND<0.0086	ND<0.0043	ND<0.0086	ND<0.0043	ND<0.0043	ND<0.0043	ND<0.0043	ND<0.0043	ND<1.1	NA

TPH-G = total petroleum hydrocarbons as gasoline by EPA Method 8260B BTEX = benzene, toluene, ethylbenzene, total xylenes by EPA Method 8260B MTBE = methyl tertiary butyl ether by EPA Method 8260B TBA = tertiary butyl alcohol by EPA Method 8260B ETBE = ethyl tertiary butyl ether by EPA Method 8260B TAME = tertiary amyl methyl ether by EPA Method 8260B DIPE = di-isopropyl ether by EPA Method 8260B 1,2-DCA = 1,2-Dichloroethane (also known as ethylene dichloride) by EPA Method 8260B	EDB = ethylene dibromide (also known as 1,2-Dibromoethane) by EPA method 8260B Ethanol was analyzed by EPA Method 8260B Total lead was analyzed by EPA Method 6010B mg/kg = milligrams per kilogram ND = not detected above the laboratory detection limit NA = not analyzed Bold = detected compound concentration EPA = US Environmental Protection Agency
---	--

Table 2

GROUNDWATER ANALYTICAL RESULTS
 ConocoPhillips Station No. 4186
 1771 First Street, Livermore, California

Sample ID	Date	Sample Depth (feet)	TPH-G (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	ETBE (µg/L)	TAME (µg/L)	DIPE (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)
Groundwater															
B-9 VD	3/13/2007	78-88'	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<5.0	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	ND<250
B-8 VD	3/14/2007	79-83'	200	0.94	ND<0.50	1.0	1.6	7.1	ND<5.0	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	ND<250
B-10 D	3/16/2007	66-70'	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	0.73	ND<5.0	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	ND<250
B-10 VD	3/16/2007	83-87'	ND<50	ND<0.50	1.4	ND<0.50	ND<1.0	ND<0.50	ND<5.0	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	ND<250

TPH-G = total petroleum hydrocarbons as gasoline by EPA Method 8260B	EDB = ethylene dibromide (also known as 1,2-Dibromoethane) by EPA method 8260B
BTEX = benzene, toluene, ethylbenzene, total xylenes by EPA Method 8260B	Ethanol was analyzed by EPA Method 8260B
MTBE = methyl tertiary butyl ether by EPA Method 8260B	µg/L = micrograms per liter
TBA = tertiary butyl alcohol by EPA Method 8260B	ND = not detected above the laboratory detection limit
ETBE = ethyl tertiary butyl ether by EPA Method 8260B	Bold = detected compound concentration
TAME = tertiary amyl methyl ether by EPA Method 8260B	EPA = US Environmental Protection Agency
DIPE = di-isopropyl ether by EPA Method 8260B	VD = very deep (sample taken from base of lowest sand and gravel unit)
1,2-DCA = 1,2-Dichloroethane (also known as ethylene dichloride) by EPA Method 8260B	D = deep (sample taken from top of lowest sand and gravel unit)

Attachment A
CPT Site Investigation



GREGG IN SITU, INC.

GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

March 20, 2007

Delta Consultants
Attn: L.Stelzner
3164 Gold Camp Dr., Suite 200
Rancho Cordova, California 95670

Subject: CPT Site Investigation
76 Station #4186
Livermore, California
GREGG Project Number: 07-081MA

Dear Ms. Stelzner:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	<input checked="" type="checkbox"/>
2	Pore Pressure Dissipation Tests	(PPD)	<input checked="" type="checkbox"/>
3	Seismic Cone Penetration Tests	(SCPTU)	<input type="checkbox"/>
4	Resistivity Cone Penetration Tests	(RCPTU)	<input type="checkbox"/>
5	UVIF Cone Penetration Tests	(UVIFCPTU)	<input type="checkbox"/>
6	Groundwater Sampling	(GWS)	<input checked="" type="checkbox"/>
7	Soil Sampling	(SS)	<input checked="" type="checkbox"/>
8	Vapor Sampling	(VS)	<input type="checkbox"/>
9	Vane Shear Testing	(VST)	<input type="checkbox"/>
10	SPT Energy Calibration	(SPTE)	<input type="checkbox"/>

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (925) 313-5800.

Sincerely,
GREGG Drilling & Testing, Inc.

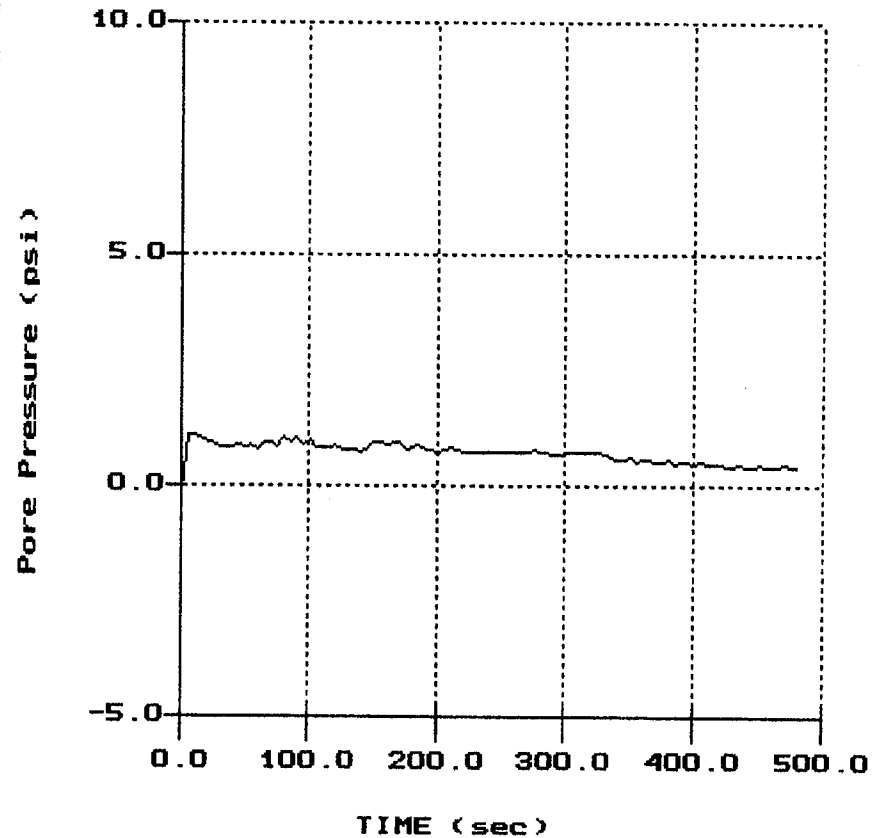
Mary Walden
Operations Manager

DELTA CONSULTANTS

Site: 76 STATION #4186
Location: CPT-9

Oversite: L. STELZNER
Date: 03:13:07 08:27

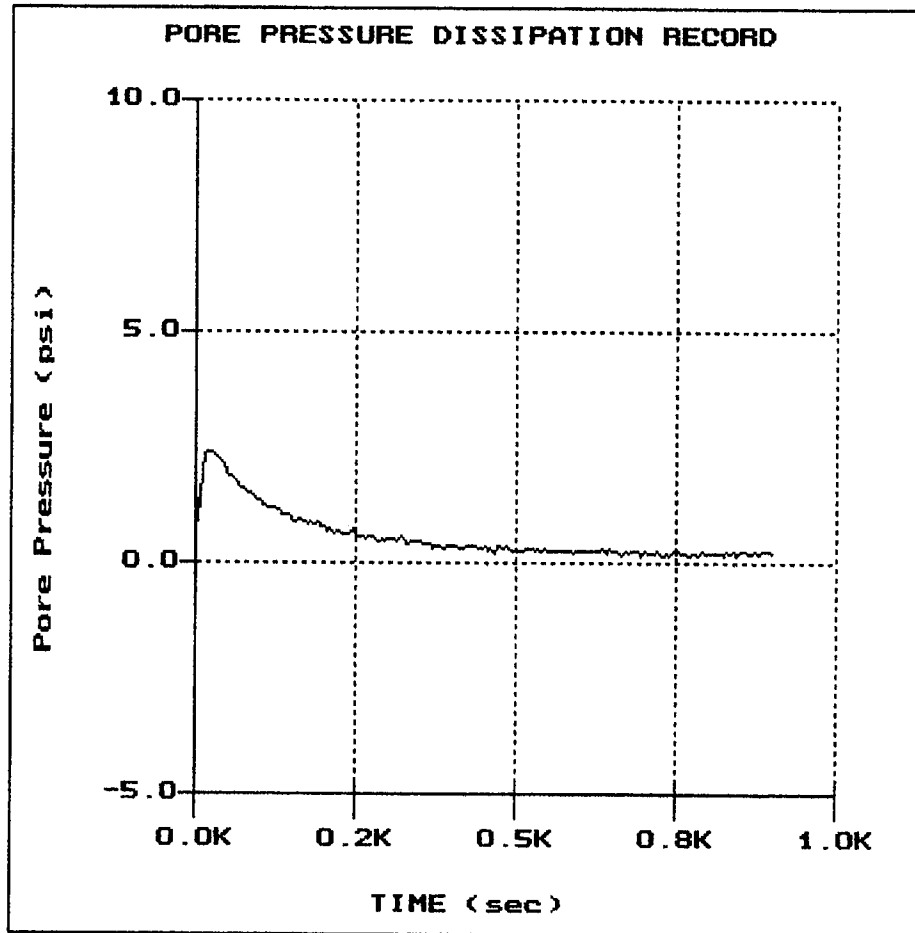
PORE PRESSURE DISSIPATION RECORD



File: 081C09.PPC
Depth (m): 6.40
 (ft): 21.00
Duration : 480.0s
U-min: -0.14 0.0s
U-max: 1.08 10.0s

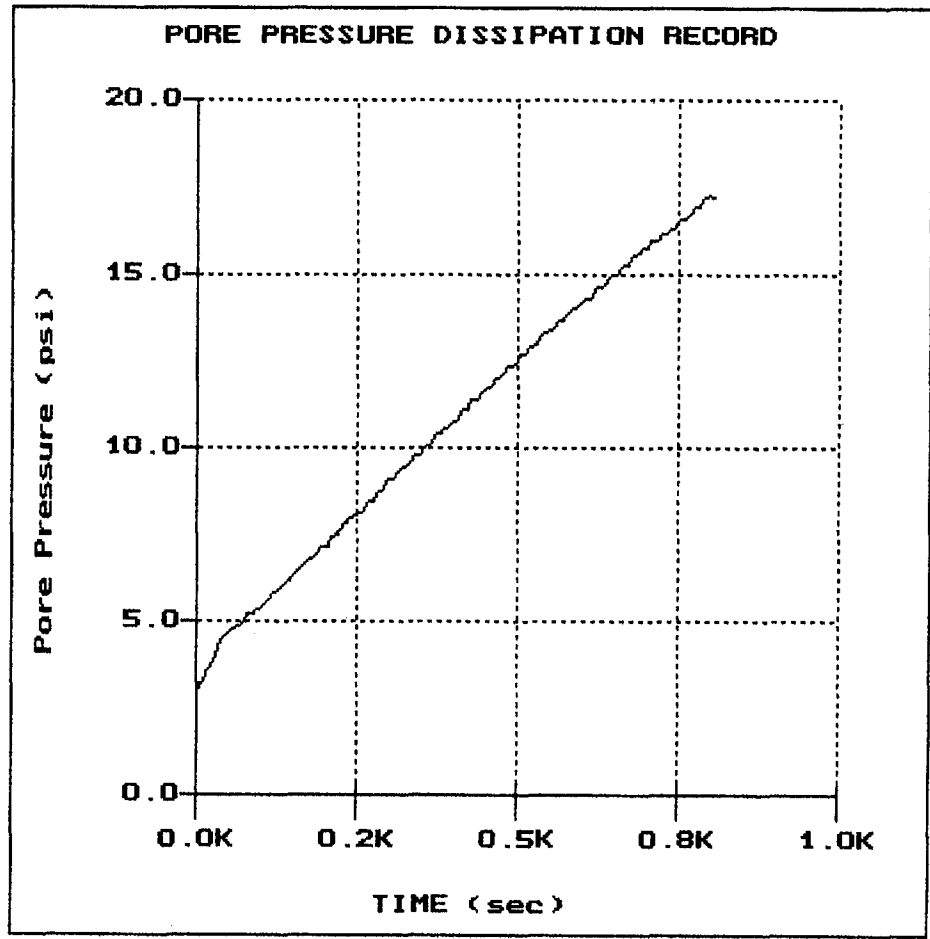
DELTA CONSULTANTS Site: 76 STATION #4186
Location: CPT-10

Oversite: L. STELZNER
Date: 03:15:07 09:36



File: 081010.PPC
Depth (m): 6.60
(ft): 21.65
Duration: 900.0s
U-min: 0.16 785.0s
U-max: 2.42 25.0s

File: 081C08.PPC
Depth (m): 6.65
(ft): 21.82
Duration: 805.0s
U-min: 2.87 0.0s
U-max: 17.27 800.0s





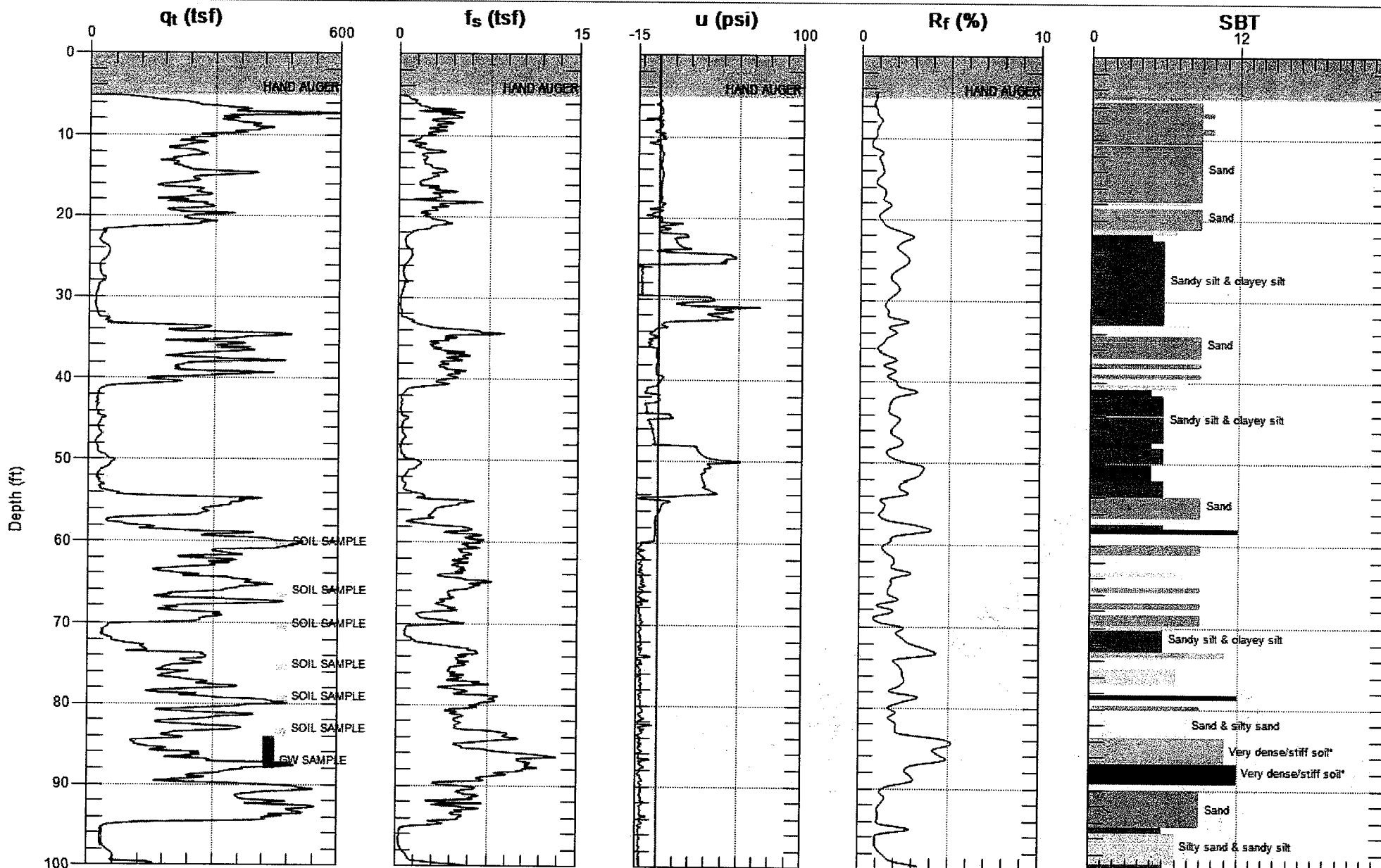
DELTA CONSULTANTS

Site: 76 STATION #4186

Engineer: L. STELZNER

Sounding: CPT-08

Date: 3/14/2007 05:34



Max. Depth: 100.230 (ft)
Avg. Interval: 0.656 (ft)

SBT: Soil Behavior Type (Robertson 1990)



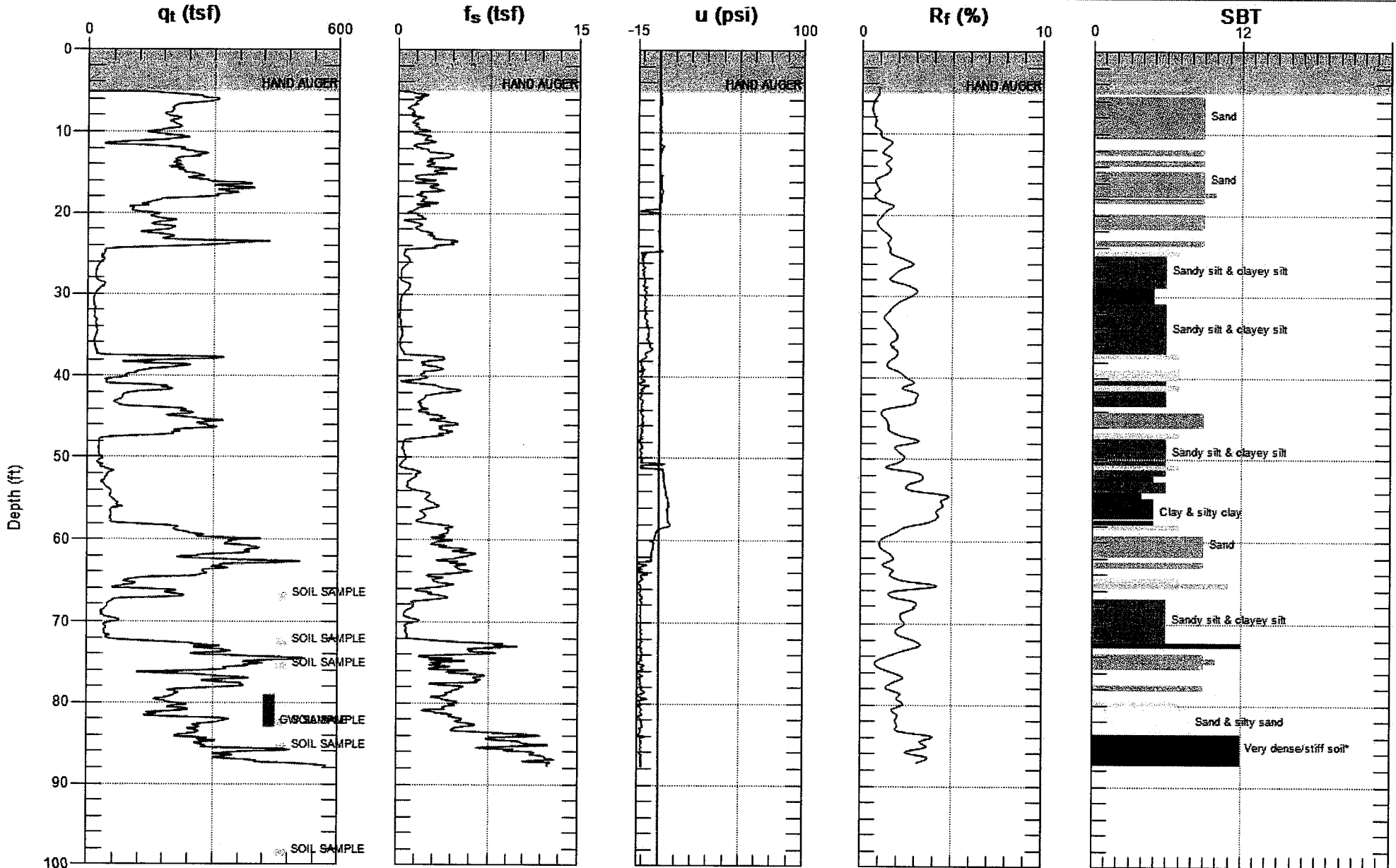
DELTA CONSULTANTS

Site: 76 STATION #4186

Engineer: L. STELZNER

Sounding: CPT-9

Date: 3/13/2007 08:27



Max. Depth: 87.760 (ft)
Avg. Interval: 0.656 (ft)

SBT: Soil Behavior Type (Robertson 1990)



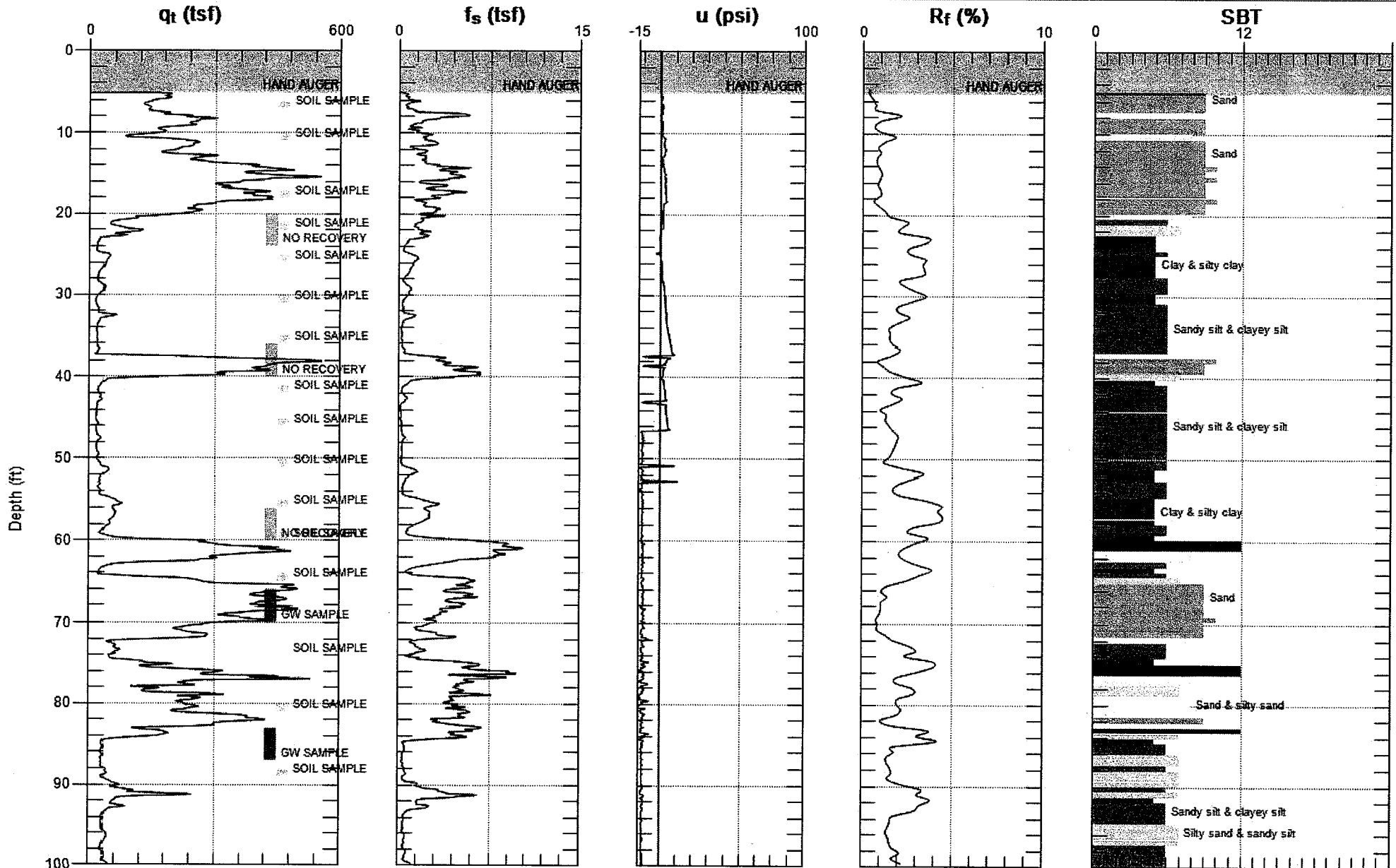
DELTA CONSULTANTS

Site: 76 STATION #4186

Engineer: L. STELZNER

Sounding: CPT-10

Date: 3/15/2007 09:36



Max. Depth: 100.230 (ft)
Avg. Interval: 0.656 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX CPT



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 $100f_s/q_c$ 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)

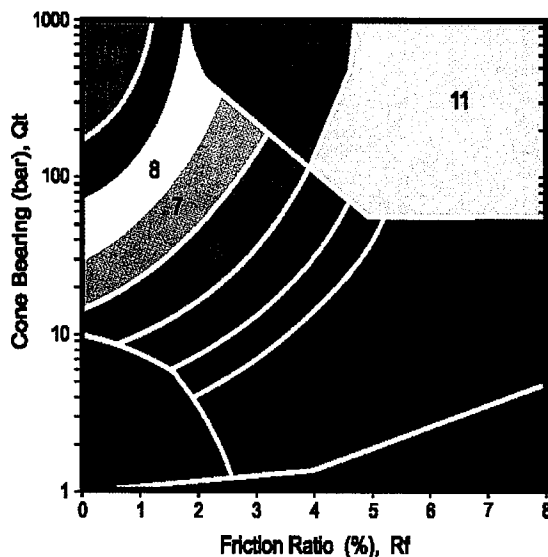
Cohesionless soils (sands)

- 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	Gravelly sand to sand
11	1	Very stiff fine grained*
12	2	Sand to clayey sand*

*over consolidated or cemented

Figure SBT



Cone Penetration Testing Procedure (CPT)

Gregg Drilling & Testing, Inc. carries out all Cone Penetration Tests (CPT) using an integrated electronic cone system, *Figure CPT*. The soundings were conducted using a 20 ton capacity cone with a tip area of 15 cm² and a friction sleeve area of 225 cm². The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85.

The cone takes measurements of cone bearing (q_c), sleeve friction (f_s) and penetration pore water pressure (u_2) at 5-cm intervals during penetration to provide a nearly continuous hydrogeologic log. CPT data reduction and interpretation is performed in real time facilitating on-site decision making. The above mentioned parameters are stored on disk for further analysis and reference. All CPT soundings are performed in accordance with revised (2002) ASTM standards (D 5778-95).

The cone also contains a porous filter element located directly behind the cone tip (u_2), *Figure CPT*. It consists of porous plastic and is 5.0mm thick. The filter element is used to obtain penetration pore pressure as the cone is advanced as well as Pore Pressure Dissipation Tests (PPDT's) during appropriate pauses in penetration. It should be noted that prior to penetration, the element is fully saturated with silicon oil under vacuum pressure to ensure accurate and fast dissipation.

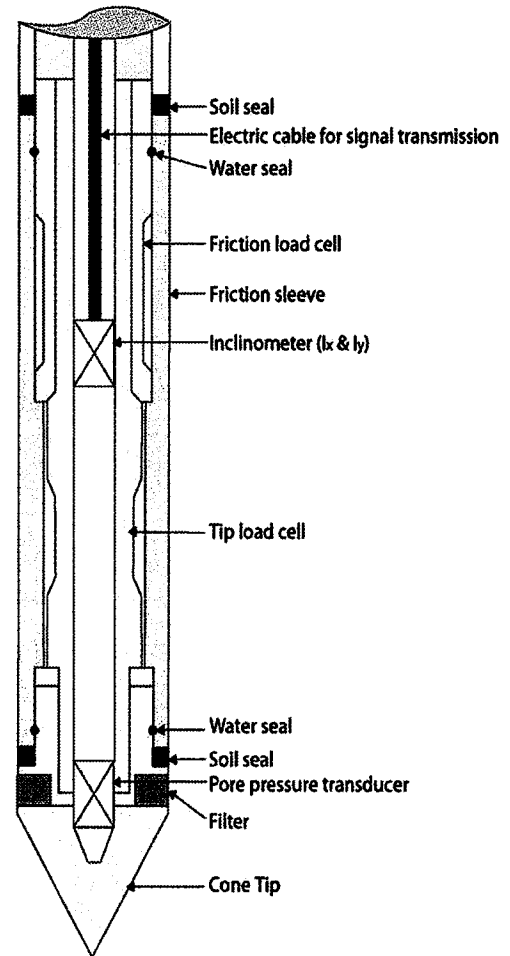


Figure CPT

When the soundings are complete, the test holes are grouted using a Gregg In Situ support rig. The grouting procedures generally consist of pushing a hollow CPT rod with a "knock out" plug to the termination depth of the test hole. Grout is then pumped under pressure as the tremie pipe is pulled from the hole. Disruption or further contamination to the site is therefore minimized.

APPENDIX PPD



Pore Pressure Dissipation Tests (PPDT)

Pore Pressure Dissipation Tests (PPDT's) conducted at various intervals measured hydrostatic water pressures and determined the approximate depth of the ground water table. A PPDT is conducted when the cone is halted at specific intervals determined by the field representative. The variation of the penetration pore pressure (u) with time is measured behind the tip of the cone and recorded by a computer system.

Pore pressure dissipation data can be interpreted to provide estimates of:

- Equilibrium piezometric pressure
- Phreatic Surface
- In situ horizontal coefficient of consolidation (c_h)
- In situ horizontal coefficient of permeability (k_h)

In order to correctly interpret the equilibrium piezometric pressure and/or the phreatic surface, the pore pressure must be monitored until such time as there is no variation in pore pressure with time, *Figure PPDT*. This time is commonly referred to as t_{100} , the point at which 100% of the excess pore pressure has dissipated.

A complete reference on pore pressure dissipation tests is presented by Robertson et al. 1992.

A summary of the pore pressure dissipation tests is summarized in Table 1. Pore pressure dissipation data is presented in graphical form in Appendix PPDT.

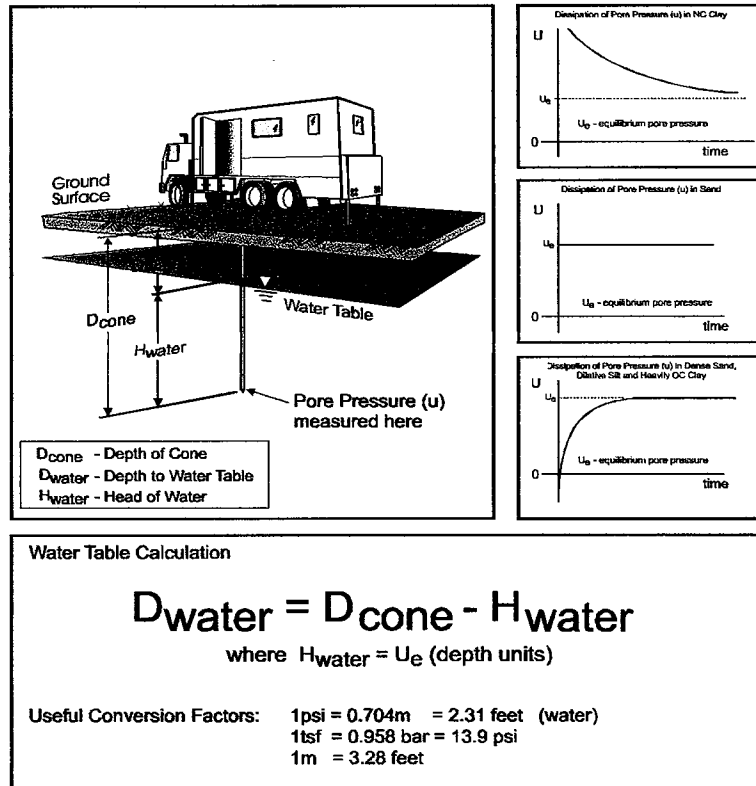


Figure PPDT

APPENDIX GWS



Groundwater Sampling (GWS)

Gregg In Situ, Inc. conducts groundwater sampling using a Hydropunch® type groundwater sampler, *Figure GWS*. The groundwater sampler has a retrievable stainless steel or disposable PVC screen with steel drop off tip. This allows for samples to be taken at multiple depth intervals within the same sounding location. In areas of slower water recharge, provisions may be made to set temporary PVC well screens during sampling to allow the drill rig to advance to the next sample location while the groundwater is allowed to infiltrate.

The groundwater sampler operates by advancing 1 ¾ inch hollow push rods with the filter tip in a closed configuration to the base of the desired sampling interval. Once at the desired sample depth, the push rods are retracted; exposing the encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A small diameter bailer (approximately ½ or ¾ inch) is lowered through the push rods into the screen section for sample collection. The number of downhole trips with the bailer and time necessary to complete the sample collection at each depth interval is a function of sampling protocols, volume requirements, and the yield characteristics and storage capacity of the formation. Upon completion of sample collection, the push rods and sampler, with the exception of the PVC screen and steel drop off tip are retrieved to the ground surface, decontaminated and prepared for the next sampling event.

A summary of the groundwater samples collected, including the sampling date, depth and location identification, is presented in Table 1 and the corresponding CPT plot.

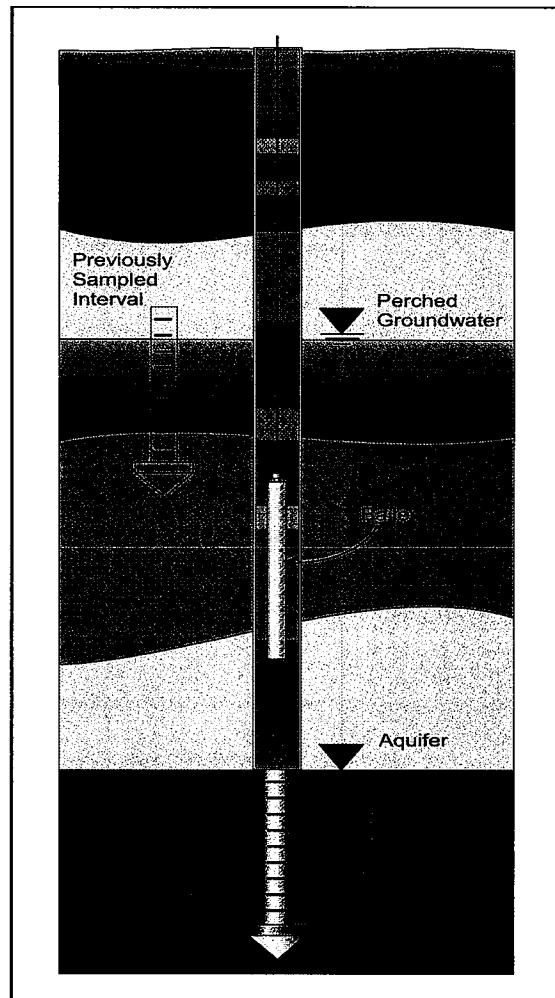


Figure GWS

For a detailed reference on direct push groundwater sampling, refer to Zemo et. al., 1992.

APPENDIX SS



Soil Sampling (SS)

Gregg In Situ, Inc. uses a piston-type sampler to obtain relatively undisturbed soil samples without generating any soil cuttings, *Figure SS*. Two different types of samplers (12 and 18 inch) are used depending on the soil type and density. The soil sampler is initially pushed in a "closed" position to the desired sampling interval using a hydraulic rig. Keeping the sampler closed minimizes the potential of cross contamination caused by sloughing. The inner tip of the sampler is then retracted 12 inches (or 18 inches if using the longer sampler) leaving a hollow soil sampler with two inner 1¼ inch diameter by 6 inch or four 3 inch long soil sample tubes. If using the 18 inch sampler, two 1½ inch diameter by 6 inch long tubes will be exposed. The hollow sampler is then pushed in a locked "open" position to collect a soil sample. The filled sampler and push rods are then retrieved to the ground surface. Because the soil enters the sampler at a constant rate, the opportunity for 100% recovery is increased. For environmental analysis, the soil sample tube ends are sealed with Teflon and plastic caps. Often, a longer "split tube" can be used for geotechnical sampling.

For a detailed reference on direct push soil sampling, refer to Robertson et al, 1998.

A summary of the soil samples collected, including the sampling date, depth and location identification, is presented in Table 1.

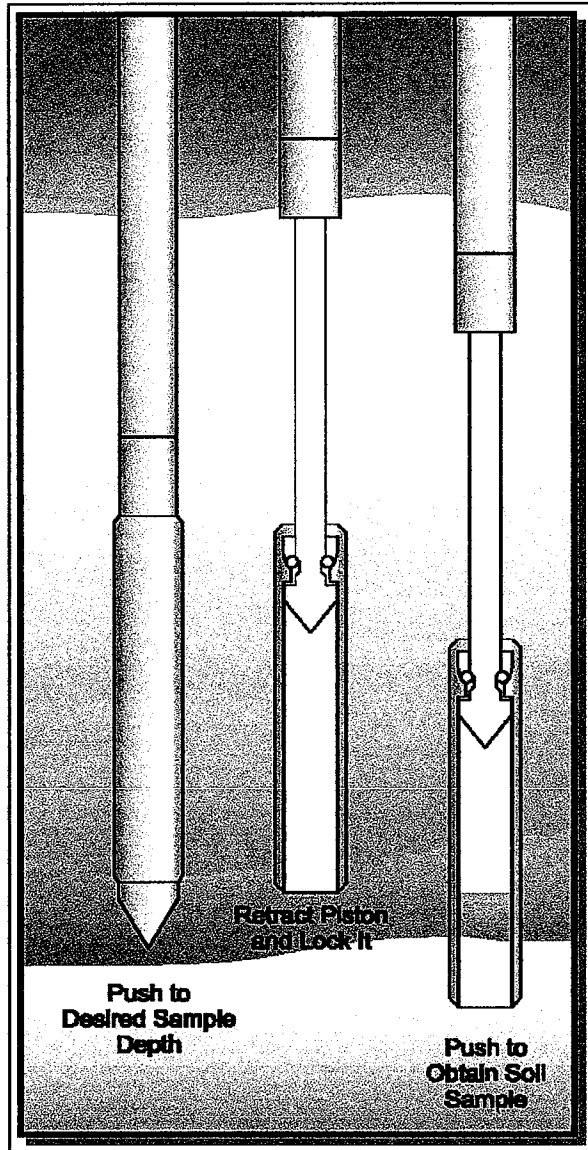


Figure SS



Bibliography

Lunne, T., Robertson, P.K. and Powell, J.J.M., "Cone Penetration Testing in Geotechnical Practice" E & FN Spon. ISBN 0 419 23750, 1997

Robertson, P.K., "Soil Classification using the Cone Penetration Test", Canadian Geotechnical Journal, Vol. 27, 1990 pp. 151-158.

Mayne, P.W., "NHI (2002) Manual on Subsurface Investigations: Geotechnical Site Characterization", available through www.ce.gatech.edu/~geosys/Faculty/Mayne/papers/index.html, Section 5.3, pp. 107-112.

Robertson, P.K., R.G. Campanella, D. Gillespie and A. Rice, "Seismic CPT to Measure In-Situ Shear Wave Velocity", Journal of Geotechnical Engineering ASCE, Vol. 112, No. 8, 1986 pp. 791-803.

Robertson, P.K., Sully, J., Woeller, D.J., Lunne, T., Powell, J.J.M., and Gillespie, D.J., "Guidelines for Estimating Consolidation Parameters in Soils from Piezocone Tests", Canadian Geotechnical Journal, Vol. 29, No. 4, August 1992, pp. 539-550.

Robertson, P.K., T. Lunne and J.J.M. Powell, "Geo-Environmental Application of Penetration Testing", Geotechnical Site Characterization, Robertson & Mayne (editors), 1998 Balkema, Rotterdam, ISBN 90 5410 939 4 pp 35-47.

Campanella, R.G. and I. Weemeees, "Development and Use of An Electrical Resistivity Cone for Groundwater Contamination Studies", Canadian Geotechnical Journal, Vol. 27 No. 5, 1990 pp. 557-567.

DeGroot, D.J. and A.J. Lutenegeger, "Reliability of Soil Gas Sampling and Characterization Techniques", International Site Characterization Conference - Atlanta, 1998.

Woeller, D.J., P.K. Robertson, T.J. Boyd and Dave Thomas, "Detection of Polyaromatic Hydrocarbon Contaminants Using the UVIF-CPT", 53rd Canadian Geotechnical Conference Montreal, QC October pp. 733-739, 2000.

Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, "Field Comparison of Analytical Results from Discrete-Depth Groundwater Samplers" BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org

Attachment B
Boring Logs

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler
/Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **99.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **30.5'**

Boring No: **B-8**

Date Drilled: **3/14/07**

Page **1** of **5**

▼ = Static Groundwater

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Neat Cement				Air-Knife	1			Asphalt - 4"
					2			
					3			GM Silty gravel , brown, fine to coarse grained gravel, some palm-sized cobbles, some medium to coarse grained sand, with silt, subangular to subrounded cobbles, well graded, some odor (65,10,25)
					4			
				5				
				6				
				7				
				8				
				9				
				10				
				11				* See boring log B-7 (completed on 4/21/06) for an approximation of the lithology between 10' and 60'
				12				
				13				
				14				
				15				
				16				
				17				
				18				
				19				
				20				
				21				
				22				

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler**

/Hydropunch

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **99.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **30.5'**

Boring No: **B-8**

Date Drilled: **3/14/07**

Page 2 of 5

▼ = Static Groundwater

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery		Soil Type	LITHOLOGY / DESCRIPTION
						Recovery	Interval		
Neat Cement	▼				23				
					24				
					25				
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler**

/Hydropunch

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **99.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **30.5'**

Boring No: **B-8**

Date Drilled: **3/14/07**

Page **3** of **5**

▼ = Static Groundwater

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample		Soil Type	LITHOLOGY / DESCRIPTION
						Recovery	Interval		
Neat Cement					45				
					46				
					47				
					48				
					49				
					50				
					51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
					60				
					61				
					62				
					63				
					64				
					65				
					66				

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler /Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **99.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **30.5'**

Boring No: **B-8**

Date Drilled: **3/14/07**

Page **4** of **5**

▼ = Static Groundwater

Contacts estimated from CPT log

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION	
Neat Cement		sat	3		67		SC	Clayey sand with gravel brown; medium sand to fine gravel; subangular; medium dense; well graded; with clay; saturated; no odor (35,45,20)	
					68				
					69				
					70				
					71				
					72			SC	Same as above; gray-brown; wet
		wet damp	0		73			CL	Lean clay with sand brown; low plasticity; medium toughness; soft; with silt; no odor; damp; medium sand; little coarse sand and fine gravel (5,15,80)
					74				
					75				
					76			GC	Clayey gravel brown with orange oxide mottling; fine to coarse gravel; subangular; loose; some coarse sand; well graded; gravel includes green and white striped gravel (no HCl reaction) and green metamorphosed conglomerate; clay is low plasticity; low toughness; soft; no odor; moist (60,10,30)
		moist	0		77				
					78				
					79				
					80				
			81						
			82			GC	Clayey gravel with sand brown; fine to coarse gravel; subrounded to subangular; loose; coarse sand; well graded; gravel is moderately cemented rock; green or black in color; little silt; no odor; saturated (50,30,20)		
sat	3.7		83						
			84						
			85			SC	Clayey sand with gravel brown; fine sand to fine gravel; well graded; subrounded to subangular; loose; with clay; little silt; no odor; saturated (20,45,35)		
			86						
			87						
			88						

B-8 VD, 3/14/07, 1:55

Water sample screened 79-83'

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler
/Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **99.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **30.5'**

Boring No: **B-8**

Date Drilled: **3/14/07**

Page **5** of **5**

▼ = Static Groundwater

Contacts estimated
from CPT log

Elevation

Northing

Easting

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing								
Neat Cement						89			
						90			
						91			
						92			
						93			
						94			
						95			
		sat	3			96			
						97			
						98			
						99		CL	Lean clay brown; medium plasticity; medium toughness; soft; with coarse sand and fine gravel; subrounded; no odor; saturated (8,5,87)
						100			Total boring depth = 99.0' bgs
						101			
						102			
						103			
						104			
						105			
						106			
						107			
						108			
						109			
						110			

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler**

/Hydropunch

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **84.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **28.0'**

Boring No: **B-9**

Date Drilled: **3/13/07**

Page **1** of **4**

▼ = Static Groundwater

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Neat Cement		damp		Air-Knife	1			Asphalt - 4"
			2					
			3				GM Silty gravel brown; fine to coarse gravel; some palm-sized cobbles; no sand; clayey silt; subangular to subrounded cobbles; well graded; damp; no odor (65,0,35)	
			4					
			5					
			6					
			7					
			8					
			9					
			10					
			11					
			12					
			13					
			14					
			15					
			16					
			17					
			18					
			19					
			20					
			21					
			22					

**See boring log B-4 (completed on 4/26/06) for an approximation of the lithology between 10' and 60'*

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler
/Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **84.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **28.0'**

Boring No: **B-9**

Date Drilled: **3/13/07**

Page **2** of **4**

▼ = Static Groundwater

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample		Soil Type	LITHOLOGY / DESCRIPTION
						Recovery	Interval		
					23				
					24				
					25				
					26				
					27				
	▼				28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

Neat Cement

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler
/Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **84.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **28.0'**

Boring No: **B-9**

Date Drilled: **3/13/07**

Page **3** of **4**

▼ = Static Groundwater

Contacts estimated
from CPT log

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION	
Neat Cement					45				
					46				
					47				
					48				
					49				
					50				
					51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
			moist	0		60		CH	Fat clay brown; no dilatancy; high plasticity; high toughness; very stiff; no odor; trace coarse sand and silt; moist (0,3,97)
						61			
						62			
						63			
						64			
						65			
			sat	0		66		CL	Lean clay brown; no dilatancy; soft; medium plasticity; low toughness; some silt; little fine and coarse gravel; trace coarse sand; subrounded; saturated; no odor (7,5,88)

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler /Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **84.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **28.0'**

Boring No: **B-9**

Date Drilled: **3/13/07**

Page 4 of 4

▼ = Static Groundwater

Contacts estimated from CPT log

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION			
Neat Cement					67						
					68						
					69						
					70		3		CH	Fat clay brown; no dilatancy; high plasticity; medium to high toughness; medium soft to stiff; trace fine gravel; trace coarse sand and silt; saturated; no odor (3,5,92)	
					71						
					72						
					73						
					74						Gravelly lean clay brown; low to medium plasticity; medium toughness; medium soft; with fine to coarse gravel; subrounded; little coarse sand; well graded; some silt; slight odor; damp (15,10,75)
					75		0		CL		
					76						
					77						
					78						
					79		0			GC	Clayey gravel with sand brown; medium sand to coarse gravel; well graded; subrounded to subangular; loose to medium dense; some clay; little silt; no odor; saturated (50,25,25)
					80						
					81						
82											
83		0			GC	Same as above; with clay (50,15,35)					
84						Total boring depth = 84.0' bgs					
85											
86											
87											
88											

Water sample (B-9 VD, 3/13/07, 4:25) screened 78-88'

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler
/Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **87.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **29.5'**

Boring No: **B-10**

Date Drilled: **3/15/2007**

Page 1 of 4

▼ = Static Groundwater

Contacts estimated
from CPT log

Elevation

Northing

Easting

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing								
Neat Cement									Asphalt - 7.0"
			dry		Air-Knife	1			
						2			
						3			GM Silty gravel brown; coarse sand to coarse gravel; well-graded; loose; dry; subrounded; with silt; little clay; slight odor (smells slightly organic) (70,10,20)
						4			
						5			
			dry	0		6			SM Silty sand with gravel gray-brown; medium to coarse sand; fine gravel; well graded; subangular to angular; very loose; dry; no odor (30,40,30)
						7			
						8			
			dry	0		9			
						10			
						11			ML Gravelly silt with sand gray-brown; fine sand to fine gravel, 80% of which is weak to strongly cemented siltstone or laminated fine grained sandstone; loose; angular; well graded; dry; no odor (25,35,40)
						12			
						13			
						14			
						15			
			damp	0		16			
						17			
						18			ML Same as above; trace coarse gravel; 50% of sand and gravel is siltstone or sandstone; damp
						19			
						20			Gravelly lean clay gray-brown; fine gravel; subangular; little medium to coarse sand; low plasticity; low toughness; soft;
			moist	0		21			CL moist; no odor (30,10,60)
					22			CL Lean clay; brown; low to medium plasticity; medium toughness; stiff; with silt; trace	

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler /Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **87.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **29.5'**

Boring No: **B-10**

Date Drilled: **3/15/2007**

Page **2** of **4**

▼ = Static Groundwater

Contacts estimated from CPT log

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Elevation		Northing		Easting		LITHOLOGY / DESCRIPTION
Backfill	Casing											
Neat Cement		▼	moist	0	B-10@25.5' 3/15/2007 1:57	23						coarse sand to fine gravel; moist; no odor (5,5,90)
						24						
						25						CL Same as above; low toughness; soft to medium soft; slight odor (2,0,98)
						26						
						27						
						28						
						29						
						30						CL Same as above; medium soft; no odor; small chunks of gray-brown clay with medium toughness (0,2,98)
						31						
						32						
			33									
			34									
			35						CL Same as above; very soft; slight odor; less silt			
			36									
			37									
			38						SM Silty sand with gravel (taken from CPT log)			
			39									
			40						Sandy lean clay with gravel gray; medium plasticity; medium toughness; soft to medium soft; medium sand to fine gravel; subangular; moist to saturated; slight			
			41						CL odor (15,20,65)			
			42						CL Lean clay brown; some silt; medium plasticity; medium toughness; medium soft to stiff; moist; no odor (0,0,100)			
			43									
			44									

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler /Hydropunch**

Slot Size: NA

Gravel Pack: NA

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **87.0'**

Well Diameter: NA

Well Depth: NA

Static Groundwater Depth: **29.5'**

Boring No: **B-10**

Date Drilled: **3/15/07**

-3/16/2007

Page **3** of **4**

▼ = Static Groundwater

Contacts estimated from CPT log

Elevation

Northing

Easting

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION		
Backfill	Casing										
Neat Cement			moist (sat on top)	0		45		CL	Same as above; low toughness; very soft; slight odor		
						46					
						47					
								48			
								49			
								50			3/16/2007
								51			No Recovery (50')
								52			
								53			
								54			
						moist	0			CL	Lean clay brown with gray chunks of clay; trace medium sand to fine gravel; subrounded; moderate gradation; no dilatancy; soft; medium plasticity; low to medium toughness; moist; no odor (1,6,93)
					55						
								56			
								57			
								58			
						damp	0			CH	Fat clay brown with black mottling; very stiff to hard; high plasticity; high toughness; damp; no odor (0,1,99)
		59									
					60						
					61						
					62						
					63			Gravelly lean clay brown; very soft; medium plasticity; low to medium toughness; some fine gravel; subrounded; little coarse sand; wet; no odor (20,10,70)			
			wet	0			CL				
		64									
					65						
					66						

Delta Consultants

Project No: **C104186161**

Logged By: **Lisa Stelzner**

Driller: **Gregg Drilling & Testing**

Drilling Method: **CPT**

Sampling Method: **Piston sampler /Hydropunch**

Slot Size: **NA**

Gravel Pack: **NA**

Client: **ConocoPhillips**

Location: **1771 First St.**

Livermore, CA

Hole Diameter: **1.75"**

Hole Depth: **87.0'**

Well Diameter: **NA**

Well Depth: **NA**

Static Groundwater Depth: **29.5'**

Boring No: **B-10**

Date Drilled: **3/16/07**

Page **4** of **4**

▼ = Static Groundwater

Contacts estimated from CPT log

Elevation Northing Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Neat Cement					67	B-10 D, 3/16, 12:05		
					68			← Water sample screened 66-70'
					69			
					70			
					71			Too hard of material to sample
					72			
					73			
					74			ML Sandy silt brown; very soft; low plasticity; low toughness; some fine gravel; subrounded; fine to medium sand; subangular; well graded; trace coarse sand; some clay; saturated; no odor (6,25,69)
					75			
					76			
					77			
					78			
					79			
					80			GM Silty gravel with sand brown with orange; loose; fine sand to fine gravel; subangular; well graded; some clay; saturated; no odor (40,30,30)
					81			
82								
83								
84								
85	No Recovery							
86	← Water sample screened 83-87'							
87								
88	Total depth of boring = 87.0' bgs							

B-10@41.5'
3/16/2007
1:13

B-10 VD, 3/16, 2:08

Attachment C
Analytical Report and Chain of Custody



STL

ANALYTICAL REPORT

Job Number: 720-8257-1

Job Description: Conoco Phillips #4186, Livermore

For:
Delta Environmental Consultants, Inc.
3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95670

Attention: Mr. Dennis Dettloff

A handwritten signature in black ink, appearing to read "D Sharma".

Dimple Sharma
Project Manager I
dsharma@stl-inc.com
03/28/2007

cc: Mr. Ben Wright

Project Manager: Dimple Sharma

Severn Trent Laboratories, Inc.

STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566
Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

EXECUTIVE SUMMARY - Detections

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-8257-2	B-8 VD				
Benzene		0.94	0.50	ug/L	8260B
Ethylbenzene		1.0	0.50	ug/L	8260B
MTBE		7.1	0.50	ug/L	8260B
Xylenes, Total		1.6	1.0	ug/L	8260B
Gasoline Range Organics (GRO)-C6-C12		200	50	ug/L	8260B
720-8257-3	B-10 D				
MTBE		0.73	0.50	ug/L	8260B
720-8257-4	B-10 VD				
Toluene		1.4	0.50	ug/L	8260B
720-8257-5	B-10 @ 25.5'				
Lead		6.0	0.99	mg/Kg	6010B
720-8257-6	B-10 @ 35.5'				
MTBE		0.013	0.0050	mg/Kg	8260B
720-8257-7	B-10 @ 41.5'				
MTBE		0.016	0.0049	mg/Kg	8260B

METHOD SUMMARY

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds by GC/MS	STL SF	SW846 8260B	
Purge and Trap for Solids	STL SF		SW846 5030B
Inductively Coupled Plasma - Atomic Emission Spectrometry	STL SF	SW846 6010B	
Acid Digestion of Sediments, Sludges, and Soils	STL SF		SW846 3050B
Matrix: Water			
Volatile Organic Compounds by GC/MS	STL SF	SW846 8260B	
Purge-and-Trap	STL SF		SW846 5030B

LAB REFERENCES:

STL SF = STL San Francisco

METHOD REFERENCES:

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986
And Its Updates.

SAMPLE SUMMARY

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-8257-1	B-9 VD	Water	03/13/2007 1625	03/16/2007 1745
720-8257-2	B-8 VD	Water	03/14/2007 1355	03/16/2007 1745
720-8257-3	B-10 D	Water	03/16/2007 1205	03/16/2007 1745
720-8257-4	B-10 VD	Water	03/16/2007 1408	03/16/2007 1745
720-8257-5	B-10 @ 25.5'	Solid	03/15/2007 1357	03/16/2007 1745
720-8257-6	B-10 @ 35.5'	Solid	03/15/2007 1417	03/16/2007 1745
720-8257-7	B-10 @ 41.5'	Solid	03/15/2007 1428	03/16/2007 1745
720-8257-8	B-10 @ 80.5'	Solid	03/16/2007 1313	03/16/2007 1745

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-1
 Client Matrix: Water
 Date Sampled: 03/13/2007 1625
 Date Received: 03/16/2007 1745

Client Sample ID: B-9 VD

	Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA							
1,2-Dichloroethane	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Benzene	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Ethanol	ND	ug/L	250	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Ethylbenzene	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
MTBE	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
TAME	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Toluene	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Xylenes, Total	ND	ug/L	1.0	8260B	03/26/2007 1306	03/26/2007 1306	1.0
TBA	ND	ug/L	5.0	8260B	03/26/2007 1306	03/26/2007 1306	1.0
DIPE	ND	ug/L	1.0	8260B	03/26/2007 1306	03/26/2007 1306	1.0
EDB	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Gasoline Range Organics (GRO)-C6-C12	ND	ug/L	50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Ethyl tert-butyl ether	ND	ug/L	0.50	8260B	03/26/2007 1306	03/26/2007 1306	1.0
Surrogate					Acceptance Limits		
Toluene-d8 (Surr)	89	%		8260B	77 - 121		
1,2-Dichloroethane-d4 (Surr)	97	%		8260B	73 - 130		

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-2
 Client Matrix: Water
 Date Sampled: 03/14/2007 1355
 Date Received: 03/16/2007 1745

Client Sample ID: B-8 VD

Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA						
1,2-Dichloroethane	ND	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Benzene	0.94	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Ethanol	ND	ug/L	250	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Ethylbenzene	1.0	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
MTBE	7.1	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
TAME	ND	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Toluene	ND	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Xylenes, Total	1.6	ug/L	1.0	8260B	03/23/2007 1551	03/23/2007 1551 1.0
TBA	ND	ug/L	5.0	8260B	03/23/2007 1551	03/23/2007 1551 1.0
DIPE	ND	ug/L	1.0	8260B	03/23/2007 1551	03/23/2007 1551 1.0
EDB	ND	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Gasoline Range Organics (GRO)-C6-C12	200	ug/L	50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Ethyl tert-butyl ether	ND	ug/L	0.50	8260B	03/23/2007 1551	03/23/2007 1551 1.0
Surrogate					Acceptance Limits	
Toluene-d8 (Surr)	88	%		8260B	77 - 121	
1,2-Dichloroethane-d4 (Surr)	104	%		8260B	73 - 130	

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-3
 Client Matrix: Water
 Date Sampled: 03/16/2007 1205
 Date Received: 03/16/2007 1745

Client Sample ID: B-10 D

Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA						
1,2-Dichloroethane	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Benzene	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Ethanol	ND	ug/L	250	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Ethylbenzene	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
MTBE	0.73	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
TAME	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Toluene	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Xylenes, Total	ND	ug/L	1.0	8260B	03/23/2007 1613	03/23/2007 1613 1.0
TBA	ND	ug/L	5.0	8260B	03/23/2007 1613	03/23/2007 1613 1.0
DIPE	ND	ug/L	1.0	8260B	03/23/2007 1613	03/23/2007 1613 1.0
EDB	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Gasoline Range Organics (GRO)-C6-C12	ND	ug/L	50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Ethyl tert-butyl ether	ND	ug/L	0.50	8260B	03/23/2007 1613	03/23/2007 1613 1.0
Surrogate					Acceptance Limits	
Toluene-d8 (Surr)	89	%		8260B	77 - 121	
1,2-Dichloroethane-d4 (Surr)	99	%		8260B	73 - 130	

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-4
 Client Matrix: Water
 Date Sampled: 03/16/2007 1408
 Date Received: 03/16/2007 1745

Client Sample ID: B-10 VD

	Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA							
1,2-Dichloroethane	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Benzene	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Ethanol	ND	ug/L	250	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Ethylbenzene	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
MTBE	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
TAME	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Toluene	1.4	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Xylenes, Total	ND	ug/L	1.0	8260B	03/23/2007 1635	03/23/2007 1635	1.0
TBA	ND	ug/L	5.0	8260B	03/23/2007 1635	03/23/2007 1635	1.0
DIPE	ND	ug/L	1.0	8260B	03/23/2007 1635	03/23/2007 1635	1.0
EDB	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Gasoline Range Organics (GRO)-C6-C12	ND	ug/L	50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Ethyl tert-butyl ether	ND	ug/L	0.50	8260B	03/23/2007 1635	03/23/2007 1635	1.0
Surrogate					Acceptance Limits		
Toluene-d8 (Surr)	90	%		8260B	77 - 121		
1,2-Dichloroethane-d4 (Surr)	106	%		8260B	73 - 130		

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-5
 Client Matrix: Solid
 Date Sampled: 03/15/2007 1357
 Date Received: 03/16/2007 1745

Client Sample ID: B-10 @ 25.5'

	Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA							
1,2-Dichloroethane	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Benzene	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Ethanol	ND	mg/Kg	1.2	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Ethylbenzene	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
MTBE	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
TAME	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Toluene	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Xylenes, Total	ND	mg/Kg	0.0099	8260B	03/20/2007 1145	03/20/2007 1145	1.0
TBA	ND	mg/Kg	0.0099	8260B	03/20/2007 1145	03/20/2007 1145	1.0
DIPE	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
EDB	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Gasoline Range Organics (GRO)-C6-C12	ND	mg/Kg	0.25	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Ethyl tert-butyl ether	ND	mg/Kg	0.0050	8260B	03/20/2007 1145	03/20/2007 1145	1.0
Surrogate					Acceptance Limits		
Toluene-d8 (Surr)	94	%		8260B	70 - 130		
1,2-Dichloroethane-d4 (Surr)	106	%		8260B	60 - 140		
METALS							
Lead	6.0	mg/Kg	0.99	6010B	03/21/2007 1000	03/21/2007 2115	1.0

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-6
 Client Matrix: Solid
 Date Sampled: 03/15/2007 1417
 Date Received: 03/16/2007 1745

Client Sample ID: B-10 @ 35.5'

	Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA							
1,2-Dichloroethane	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Benzene	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Ethanol	ND	mg/Kg	1.2	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Ethylbenzene	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
MTBE	0.013	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
TAME	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Toluene	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Xylenes, Total	ND	mg/Kg	0.0099	8260B	03/20/2007 1252	03/20/2007 1252	1.0
TBA	ND	mg/Kg	0.0099	8260B	03/20/2007 1252	03/20/2007 1252	1.0
DIPE	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
EDB	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Gasoline Range Organics (GRO)-C6-C12	ND	mg/Kg	0.25	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Ethyl tert-butyl ether	ND	mg/Kg	0.0050	8260B	03/20/2007 1252	03/20/2007 1252	1.0
Surrogate					Acceptance Limits		
Toluene-d8 (Surr)	90	%		8260B	70 - 130		
1,2-Dichloroethane-d4 (Surr)	106	%		8260B	60 - 140		

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-7
 Client Matrix: Solid
 Date Sampled: 03/15/2007 1428
 Date Received: 03/16/2007 1745

Client Sample ID: B-10 @ 41.5'

	Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA							
1,2-Dichloroethane	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Benzene	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Ethanol	ND	mg/Kg	1.2	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Ethylbenzene	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
MTBE	0.016	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
TAME	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Toluene	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Xylenes, Total	ND	mg/Kg	0.0099	8260B	03/20/2007 1314	03/20/2007 1314	1.0
TBA	ND	mg/Kg	0.0099	8260B	03/20/2007 1314	03/20/2007 1314	1.0
DIPE	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
EDB	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Gasoline Range Organics (GRO)-C6-C12	ND	mg/Kg	0.25	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Ethyl tert-butyl ether	ND	mg/Kg	0.0049	8260B	03/20/2007 1314	03/20/2007 1314	1.0
Surrogate					Acceptance Limits		
Toluene-d8 (Surr)	91	%		8260B	70 - 130		
1,2-Dichloroethane-d4 (Surr)	110	%		8260B	60 - 140		

Mr. Dennis Dettloff
 Delta Environmental Consultants, Inc.
 3164 Gold Camp Drive
 Suite 200
 Rancho Cordova, CA 95670

Job Number: 720-8257-1
 Lab Sample Id: 720-8257-8
 Client Matrix: Solid
 Date Sampled: 03/16/2007 1313
 Date Received: 03/16/2007 1745

Client Sample ID: B-10 @ 80.5'

	Result/Qualifier	Unit	RL	Method	Date Prepared	Date Analyzed	Dilution
GC/MS VOA							
1,2-Dichloroethane	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Benzene	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Ethanol	ND	mg/Kg	1.1	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Ethylbenzene	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
MTBE	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
TAME	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Toluene	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Xylenes, Total	ND	mg/Kg	0.0086	8260B	03/20/2007 1337	03/20/2007 1337	1.0
TBA	ND	mg/Kg	0.0086	8260B	03/20/2007 1337	03/20/2007 1337	1.0
DIPE	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
EDB	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Gasoline Range Organics (GRO)-C6-C12	ND	mg/Kg	0.21	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Ethyl tert-butyl ether	ND	mg/Kg	0.0043	8260B	03/20/2007 1337	03/20/2007 1337	1.0
Surrogate					Acceptance Limits		
Toluene-d8 (Surr)	92	%		8260B	70 - 130		
1,2-Dichloroethane-d4 (Surr)	109	%		8260B	60 - 140		

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description
--------------------	------------------	--------------------

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-19506					
LCS 720-19506/2	Lab Control Spike	T	Solid	8260B	
LCSD 720-19506/1	Lab Control Spike Duplicate	T	Solid	8260B	
MB 720-19506/3	Method Blank	T	Solid	8260B	
720-8257-5	B-10 @ 25.5'	T	Solid	8260B	
720-8257-5MS	Matrix Spike	T	Solid	8260B	
720-8257-5MSD	Matrix Spike Duplicate	T	Solid	8260B	
720-8257-6	B-10 @ 35.5'	T	Solid	8260B	
720-8257-7	B-10 @ 41.5'	T	Solid	8260B	
720-8257-8	B-10 @ 80.5'	T	Solid	8260B	
Analysis Batch:720-19676					
LCS 720-19676/3	Lab Control Spike	T	Water	8260B	
LCSD 720-19676/2	Lab Control Spike Duplicate	T	Water	8260B	
MB 720-19676/5	Method Blank	T	Water	8260B	
720-8257-2	B-8 VD	T	Water	8260B	
720-8257-3	B-10 D	T	Water	8260B	
720-8257-4	B-10 VD	T	Water	8260B	
Analysis Batch:720-19698					
LCS 720-19698/3	Lab Control Spike	T	Water	8260B	
LCSD 720-19698/2	Lab Control Spike Duplicate	T	Water	8260B	
MB 720-19698/4	Method Blank	T	Water	8260B	
720-8257-1	B-9 VD	T	Water	8260B	
Report Basis					
T = Total					
Metals					
Prep Batch: 720-19534					
LCS 720-19534/2-AA	Lab Control Spike	T	Solid	3050B	
LCSD 720-19534/3-AA	Lab Control Spike Duplicate	T	Solid	3050B	
MB 720-19534/1-AA	Method Blank	T	Solid	3050B	
720-8257-5	B-10 @ 25.5'	T	Solid	3050B	
Analysis Batch:720-19550					
LCS 720-19534/2-AA	Lab Control Spike	T	Solid	6010B	720-19534
LCSD 720-19534/3-AA	Lab Control Spike Duplicate	T	Solid	6010B	720-19534
MB 720-19534/1-AA	Method Blank	T	Solid	6010B	720-19534
720-8257-5	B-10 @ 25.5'	T	Solid	6010B	720-19534

Report Basis

T = Total

STL San Francisco

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Method Blank - Batch: 720-19506

**Method: 8260B
Preparation: 5030B**

Lab Sample ID: MB 720-19506/3
 Client Matrix: Solid
 Dilution: 1.0
 Date Analyzed: 03/20/2007 1016
 Date Prepared: 03/20/2007 1016

Analysis Batch: 720-19506
 Prep Batch: N/A
 Units: mg/Kg

Instrument ID: Varian 3900E
 Lab File ID: c:\varianws\data\200703\03
 Initial Weight/Volume: 5 g
 Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
1,2-Dichloroethane	ND		0.0050
Benzene	ND		0.0050
Ethanol	ND		1.3
Ethylbenzene	ND		0.0050
MTBE	ND		0.0050
TAME	ND		0.0050
Toluene	ND		0.0050
Xylenes, Total	ND		0.010
TBA	ND		0.010
DIPE	ND		0.0050
EDB	ND		0.0050
Gasoline Range Organics (GRO)-C6-C12	ND		0.25
Ethyl tert-butyl ether	ND		0.0050
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	90	70 - 130	
1,2-Dichloroethane-d4 (Surr)	105	60 - 140	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

**Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-19506**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-19506/2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/20/2007 0931
Date Prepared: 03/20/2007 0931

Analysis Batch: 720-19506
Prep Batch: N/A
Units: mg/Kg

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\032
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-19506/1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/20/2007 0953
Date Prepared: 03/20/2007 0953

Analysis Batch: 720-19506
Prep Batch: N/A
Units: mg/Kg

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\032
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Benzene	93	91	69 - 129	2	20		
MTBE	98	96	65 - 165	2	20		
Toluene	99	102	70 - 130	3	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Toluene-d8 (Surr)	95		94		70 - 130		
1,2-Dichloroethane-d4 (Surr)	100		98		60 - 140		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-19506**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 720-8257-5
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/20/2007 1208
Date Prepared: 03/20/2007 1208

Analysis Batch: 720-19506
Prep Batch: N/A

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\03
Initial Weight/Volume: 5.03 g
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 720-8257-5
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/20/2007 1230
Date Prepared: 03/20/2007 1230

Analysis Batch: 720-19506
Prep Batch: N/A

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\03
Initial Weight/Volume: 5.08 g
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Benzene	92	84	69 - 129	10	20		
MTBE	96	93	65 - 165	4	20		
Toluene	100	93	70 - 130	8	20		
Surrogate	MS % Rec		MSD % Rec		Acceptance Limits		
Toluene-d8 (Surr)	96		93		70 - 130		
1,2-Dichloroethane-d4 (Surr)	101		101		60 - 140		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Method Blank - Batch: 720-19676

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-19676/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/23/2007 1120
Date Prepared: 03/23/2007 1120

Analysis Batch: 720-19676
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\03
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
1,2-Dichloroethane	ND		0.50
Benzene	ND		0.50
Ethanol	ND		250
Ethylbenzene	ND		0.50
MTBE	ND		0.50
TAME	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
TBA	ND		5.0
DIPE	ND		1.0
EDB	ND		0.50
Gasoline Range Organics (GRO)-C6-C12	ND		50
Ethyl tert-butyl ether	ND		0.50

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	86	77 - 121
1,2-Dichloroethane-d4 (Surr)	102	73 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

**Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-19676**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-19676/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/23/2007 1013
Date Prepared: 03/23/2007 1013

Analysis Batch: 720-19676
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\032
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-19676/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/23/2007 1036
Date Prepared: 03/23/2007 1036

Analysis Batch: 720-19676
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\032
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Benzene	93	92	69 - 129	1	25		
MTBE	97	95	65 - 165	2	25		
Toluene	99	100	70 - 130	0	25		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Toluene-d8 (Surr)	92		93		77 - 121		
1,2-Dichloroethane-d4 (Surr)	95		98		73 - 130		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Method Blank - Batch: 720-19698

Method: 8260B
Preparation: 5030B

Lab Sample ID: MB 720-19698/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/26/2007 1127
Date Prepared: 03/26/2007 1127

Analysis Batch: 720-19698
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\03
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
1,2-Dichloroethane	ND		0.50
Benzene	ND		0.50
Ethanol	ND		250
Ethylbenzene	ND		0.50
MTBE	ND		0.50
TAME	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
TBA	ND		5.0
DIPE	ND		1.0
EDB	ND		0.50
Gasoline Range Organics (GRO)-C6-C12	ND		50
Ethyl tert-butyl ether	ND		0.50
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	91	77 - 121	
1,2-Dichloroethane-d4 (Surr)	94	73 - 130	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

**Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-19698**

**Method: 8260B
Preparation: 5030B**

LCS Lab Sample ID: LCS 720-19698/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/26/2007 1020
Date Prepared: 03/26/2007 1020

Analysis Batch: 720-19698
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\032
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-19698/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 03/26/2007 1042
Date Prepared: 03/26/2007 1042

Analysis Batch: 720-19698
Prep Batch: N/A
Units: ug/L

Instrument ID: Varian 3900E
Lab File ID: c:\varianws\data\200703\032
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Benzene	97	102	69 - 129	6	25		
MTBE	91	101	65 - 165	10	25		
Toluene	106	114	70 - 130	7	25		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Toluene-d8 (Surr)	94		93		77 - 121		
1,2-Dichloroethane-d4 (Surr)	88		91		73 - 130		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Method Blank - Batch: 720-19534

Method: 6010B
Preparation: 3050B

Lab Sample ID: MB 720-19534/1-AA
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/21/2007 2003
Date Prepared: 03/21/2007 1000

Analysis Batch: 720-19550
Prep Batch: 720-19534
Units: mg/Kg

Instrument ID: Varian ICP
Lab File ID: N/A
Initial Weight/Volume: 1 g
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Lead	ND		1.0

**Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-19534**

Method: 6010B
Preparation: 3050B

LCS Lab Sample ID: LCS 720-19534/2-AA
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/21/2007 2006
Date Prepared: 03/21/2007 1000

Analysis Batch: 720-19550
Prep Batch: 720-19534
Units: mg/Kg

Instrument ID: Varian ICP
Lab File ID: N/A
Initial Weight/Volume: 1 g
Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 720-19534/3-AA
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 03/21/2007 2009
Date Prepared: 03/21/2007 1000

Analysis Batch: 720-19550
Prep Batch: 720-19534
Units: mg/Kg

Instrument ID: Varian ICP
Lab File ID: N/A
Initial Weight/Volume: 1 g
Final Weight/Volume: 50 mL

Analyte	<u>% Rec.</u>		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Lead	98	99	80 - 120	1	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Delta Environmental Consultants, Inc.

Job Number: 720-8257-1

Login Number: 8257

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Attachment D
Oxygen Injection Testing Data Sheets

Proj.# : **C104186161**
 Address: 1771 First St.
 Date: **03/29/07**

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: **COP**
 PM: **Dennis Dettloff**
 Tech(s): **JDR, LS**

Time: 24 hr clock	Injection		Well U-3	DTB----	DTW 25.98	Well U-1	DTB----	DTW 25.98	
	Well #	Pressure (PSI)	Volume (CF)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)
1230	0	0	0	0.0 / 20.9	21.2 / 1.40	0	0.0 / 20.9	20.5 / 0.0	0
1300	SP-06	10		0.0 / 20.9	21.2 / 1.48	0	0.0 / 20.9	20.5 / 0.0	0
1315	SP-06	10		0.0 / 20.9	20.9 / 1.40	0	0.0 / 20.9	20.5 / 0.0	0
1330	SP-06	10		0.0 / 20.9	19.8 / 1.27	0	0.0 / 20.9	20.5 / 0.0	0
1345	SP-06	10		0.0 / 20.9	19.8 / 1.35	0	0.0 / 20.9	20.5 / 0.0	0
1400	SP-06	10		0.0 / 20.9	19.8 / 1.55	0	0.0 / 20.9	20.5 / 0.0	0
1415	SP-06	15		0.0 / 20.9	19.8 / 1.21	0	0.0 / 20.9	20.5 / 0.0	0
1430	SP-06	18	250	0.0 / 20.9	19.8 / 1.05	0	0.0 / 20.9	20.6 / 0.0	0
1445	SP-06	20		0.0 / 20.9	19.8 / 1.08	0	0.0 / 20.9	20.6 / 0.0	0
1500	SP-06	22		0.0 / 20.9	19.8 / 1.12	0	0.0 / 20.9	20.6 / 0.0	0
1515	SP-06	22	500	0.0 / 20.9	19.8 / 1.06	0	0.0 / 20.9	20.6 / 0.0	0
1530	SP-06	25		0.0 / 20.9	19.8 / 1.26	0	0.0 / 20.9	20.7 / 0.0	0
1545	SP-06	30		0.0 / 20.9	19.8 / 1.02	0	0.0 / 20.9	20.7 / 0.0	0
1600	SP-06	30	750	0.0 / 20.9	19.8 / 0.82	0	0.0 / 20.9	20.8 / 0.0	0
1615	SP-06	32		0.0 / 20.9	19.8 / 0.67	0	0.0 / 20.9	20.8 / 0.0	0
1630	SP-06	36	1000	0.0 / 20.9	21.2 / 0.99	0	0.0 / 20.9	20.6 / 0.0	0
1645	SP-06	15	Inj. ShutOff	0.0 / 20.9	21.2 / 0.99	0	0.0 / 20.9	20.7 / 0.0	0
1700	SP-06	0		0.0 / 20.9	20.9 / 1.08	0	0.0 / 20.9	20.7 / 0.0	0
1715	SP-06	0		0.0 / 20.9	20.9 / 1.06	0	0.0 / 20.9	20.7 / 0.0	0
1730	SP-06	0		0.0 / 20.9	20.7 / 1.11	0	0.0 / 20.9	20.6 / 0.0	0
1745	SP-06	0		0.0 / 20.9	20.7 / 1.21	0	0.0 / 20.9	20.5 / 0.0	0
1800	SP-06	0		0.0 / 20.9	20.8 / 1.31	0	0.0 / 20.9	20.5 / 0.0	0
1815	SP-06	0		0.0 / 20.9	20.9 / 1.22	0	0.0 / 20.9	20.6 / 0.0	0
1830	SP-06	0		0.0 / 20.9	20.9 / 1.22	0	0.0 / 20.9	20.6 / 0.0	0
1845	SP-06	0		0.0 / 20.9	20.9 / 1.15	0	0.0 / 20.9	20.7 / 0.0	0
1900	SP-06	0		0.0 / 20.9	20.6 / 1.29	0	0.0 / 20.9	20.4 / 0.0	0
1915	SP-06	0							
1930	SP-06	0							
1945	SP-06	0							
2000	SP-06	0		0.0 / 20.9	20.6 / 1.04	0	0.0 / 20.9	20.2 / 0.2	0
2015	SP-06	0							
2030	SP-06	0							
2045	SP-06	0							
2100	SP-06	0		0.0 / 20.9	21.2 / 1.22	0	0.0 / 20.9	20.4 / 0.4	0
2115	SP-06	0							
2130	SP-06	0							
2145	SP-06	0							
2200	SP-06	0		0.0 / 20.9	20.4 / 1.03	0	0.0 / 20.9	20.1 / 0.0	0
2215	SP-06	0							
2230	SP-06	0							
2245	SP-06	0							
2300	SP-06	0		0.0 / 20.9	20.3 / 1.31	0	0.0 / 20.9	19.9 / 0.0	0
2315	SP-06	0							
2330	SP-06	0							
2345	SP-06	0							
2400	SP-06	0		0.0 / 20.9	19.4 / 1.42	0	0.0 / 20.9	19.9 / 0.0	0

Proj #: **C104186161**
 Address: **1771 First St.**
 Date: **03/29/07**

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: **COP**
 PM: **Dennis Dettloff**
 Tech(s): **JDR, LS**

Time: 24 hr clock	Injection		Well U-6	DTB ----	DTW ----	Well U-7	DTB ----	DTW 30.06'	
	Well #	Pressure (PSI)	Volume (CF)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)
1230	0	0	0	0.0 / 20.9	----	0	2.5 / 20.9	20.5 / 0.1	0
1300	SP-06	10		On Inj.	On Inj.	On Inj.	1.0 / 20.9	20.5 / 0.1	0
1315	SP-06	10		----	----	----	0.2 / 20.9	20.5 / 0.0	0
1330	SP-06	10		----	----	----	0.0 / 20.9	20.5 / 0.0	0
1345	SP-06	10		----	----	----	0.0 / 20.9	20.5 / 0.0	0
1400	SP-06	10		----	----	----	0.0 / 20.9	20.5 / 0.1	0
1415	SP-06	15		----	----	----	0.2 / 20.9	20.3 / 0.0	0
1430	SP-06	18	250	----	----	----	0.0 / 20.9	20.3 / 0.0	0
1445	SP-06	20		----	----	----	0.0 / 20.9	20.3 / 0.0	0
1500	SP-06	22		----	----	----	0.0 / 20.9	20.3 / 0.2	0
1515	SP-06	22	500	----	----	----	0.2 / 20.9	20.3 / 0.1	0
1530	SP-06	25		----	----	----	0.0 / 20.9	20.3 / 0.1	0
1545	SP-06	30		----	----	----	0.0 / 20.9	20.3 / 0.0	0
1600	SP-06	30	750	----	----	----	0.2 / 20.9	20.3 / 0.2	0
1615	SP-06	32		----	----	----	0.0 / 20.9	20.3 / 0.0	0
1630	SP-06	36	1000	----	----	----	0.0 / 20.9	20.2 / 0.0	0
1645	SP-06	15	Inj. ShutOff	----	----	----	0.0 / 20.9	20.2 / 0.0	0
1700	SP-06	0		----	----	----	0.2 / 20.9	20.2 / 0.0	0
1715	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.0	0
1730	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.1	0
1745	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.0	0
1800	SP-06	0		----	----	----	0.2 / 20.9	20.2 / 0.1	0
1815	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.1	0
1830	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.0	0
1845	SP-06	0		----	----	----	0.2 / 20.9	20.2 / 0.0	0
1900	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.0	0
1915	SP-06	0		----	----	----			
1930	SP-06	0		----	----	----			
1945	SP-06	0		----	----	----			
2000	SP-06	0		----	----	----	0.0 / 20.9	20.2 / 0.0	0
2015	SP-06	0		----	----	----			
2030	SP-06	0		----	----	----			
2045	SP-06	0		----	----	----			
2100	SP-06	0		----	----	----	0.0 / 20.9	20.0 / 0.0	0
2115	SP-06	0		----	----	----			
2130	SP-06	0		----	----	----			
2145	SP-06	0		----	----	----			
2200	SP-06	0		----	----	----	0.0 / 20.9	19.9 / 0.0	0
2215	SP-06	0		----	----	----			
2230	SP-06	0		----	----	----			
2245	SP-06	0		----	----	----			
2300	SP-06	0		----	----	----	0.0 / 20.9	19.8 / 0.0	0
2315	SP-06	0		----	----	----			
2330	SP-06	0		----	----	----			
2345	SP-06	0		----	----	----			
2400	SP-06	0		----	----	----	0.7 / 20.9	19.7 / 0.1	0

Proj.# : C104186161

Address: 1771 First St.

Date: 03/29/07

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: COP

PM: Dennis Dettloff

Tech(s): JDR, LS

Time: 24 hr clock	Injection		Well U-5s	DTB ----	DTW ----	Well U-5	DTB ----	DTW ----	
	Well #	Pressure	Volume	PID /Oxy	Temp/DO	PID /Oxy	Temp/DO	Pressure	
		(PSI)	(CF)	(PPM)(20.9)	(°C/F) (mg/l)	(PPM)(20.9)	(°C/F) (mg/l)	(in.H2O)	
1230	0	0	0	0.0 / 20.9	----	0	10.3 / 20.9	----	0
1300	SP-06	10		0.0 / 20.9	----	0	9.2 / 20.9	----	0
1315	SP-06	10		0.0 / 20.9	----	0	2.9 / 20.9	----	0
1330	SP-06	10		0.0 / 20.9	----	0	2.2 / 20.9	----	0
1345	SP-06	10		0.0 / 20.9	----	0	2.2 / 20.9	----	0
1400	SP-06	10		0.0 / 20.9	----	0	2.2 / 20.9	----	0
1415	SP-06	15		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1430	SP-06	18	250	0.0 / 20.9	----	0	2.0 / 20.9	----	0
1445	SP-06	20		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1500	SP-06	22		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1515	SP-06	22	500	0.0 / 20.9	----	0	2.0 / 20.9	----	0
1530	SP-06	25		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1545	SP-06	30		0.0 / 20.9	----	0	2.2 / 20.9	----	0
1600	SP-06	30	750	0.0 / 20.9	----	0	2.1 / 20.9	----	0
1615	SP-06	32		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1630	SP-06	36	1000	0.0 / 20.9	----	0	2.0 / 20.9	----	0
1645	SP-06	15	Inj. ShutOff	0.0 / 20.9	----	0	2.2 / 20.9	----	0
1700	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1715	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1730	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1745	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1800	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1815	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1830	SP-06	0		0.0 / 20.9	----	0	2.2 / 20.9	----	0
1845	SP-06	0		0.0 / 20.9	----	0	2.1 / 20.9	----	0
1900	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
1915	SP-06	0			----	0		----	
1930	SP-06	0			----	0		----	
1945	SP-06	0			----	0		----	
2000	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
2015	SP-06	0			----	0		----	
2030	SP-06	0			----	0		----	
2045	SP-06	0			----	0		----	
2100	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
2115	SP-06	0			----	0		----	
2130	SP-06	0			----	0		----	
2145	SP-06	0			----	0		----	
2200	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
2215	SP-06	0			----	0		----	
2230	SP-06	0			----	0		----	
2245	SP-06	0			----	0		----	
2300	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0
2315	SP-06	0			----	0		----	
2330	SP-06	0			----	0		----	
2345	SP-06	0			----	0		----	
2400	SP-06	0		0.0 / 20.9	----	0	2.0 / 20.9	----	0

Proj.# : C104186161

Address: 1771 First St.

Date: 03/30/07

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: COP

PM: Dennis Dettloff

Tech(s): JDR, LS

Time: 24 hr clock	Injection			Well U-3	DTB----	DTW 25.98	Well U-1	DTB----	DTW 27.34
	Well #	Pressure (PSI)	Volume (CF)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)
100	SP-05	9	0	0.0 / 20.9	19.6 / 1.12	0	0.0 / 18.9	20.8 / 1.40	0
115	SP-05	10		0.2 / 20.9	19.4 / 1.34	0	0.0 / 19.0	20.7 / 1.36	0
130	SP-05	10		0.0 / 20.9	19.4 / 1.00	0	0.0 / 18.9	20.5 / 1.38	0
200	SP-05	10		0.5 / 20.9	19.2 / 1.46	0	0.0 / 18.7	20.5 / 1.38	0
215	SP-05	10		0.6 / 20.9	19.2 / 1.22	0	0.0 / 17.9	20.2 / 1.36	0
230	SP-05	10		1.0 / 20.9	19.0 / 1.10	0	0.0 / 18.4	20.2 / 1.40	0
245	SP-05	10		1.1 / 20.9	19.0 / 0.89	0	0.0 / 18.9	20.2 / 1.38	0
300	SP-05	12		1.2 / 20.9	18.9 / 0.22	0	0.0 / 18.0	20.1 / 1.42	0
315	SP-05	12	250	2.8 / 20.9	19.2 / 0.21	0	0.0 / 17.7	20.2 / 1.38	0
330	SP-05	15		2.2 / 20.9	19.2 / 0.11	0	0.0 / 18.0	20.2 / 1.32	0
345	SP-05	16		2.4 / 20.9	19.4 / 0.12	0	0.0 / 18.0	20.4 / 1.35	0
400	SP-05	18		0.8 / 20.9	19.6 / 0.04	0	0.0 / 18.5	20.4 / 1.32	0
415	SP-05	20	500	0.0 / 20.9	20.0 / 0.08	0	0.0 / 17.4	20.5 / 1.30	0
430	SP-05	20		1.6 / 20.9	19.9 / 0.10	0	0.0 / 17.7	20.6 / 1.36	0
445	SP-05	22		0.0 / 20.9	20.2 / 0.10	0	0.0 / 18.0	20.6 / 1.34	0
500	SP-05	25	750	1.2 / 20.9	19.9 / 0.04	0	0.0 / 18.0	20.6 / 1.36	0
515	SP-05	30		2.2 / 20.9	20.0 / 0.04	0	0.0 / 18.5	20.7 / 1.32	0
530	SP-05	34	1000	1.2 / 20.9	20.0 / 0.12	0	0.0 / 17.4	20.7 / 1.44	0
545	SP-05	20	Inj. Shut Off	0.8 / 20.9	19.8 / 0.10	0	0.0 / 18.2	20.7 / 1.28	0
600	SP-05	18		1.2 / 20.9	19.9 / 0.04	0	0.0 / 18.9	20.6 / 1.42	0
615	SP-05	5		0.2 / 20.9	19.8 / 0.00	0	0.0 / 18.9	20.7 / 1.70	0
630	SP-05	0		0.0 / 20.9	19.8 / 0.00	0	0.0 / 19.6	20.8 / 1.33	0
645	SP-05	0		0.0 / 20.9	19.6 / 0.04	0	0.0 / 20.6	20.6 / 1.32	0
700	SP-05								
715	SP-05								
730	SP-05								
745	SP-05								
800	SP-05								
815	SP-05								
830	SP-05	0		0.0 / 20.9	20.0 / 0.00	0	0.0 / 20.8	20.7 / 1.08	0
845	SP-05	0		0.0 / 20.9	20.0 / 0.05	0	0.0 / 20.8	20.7 / 1.08	0
900	SP-05	0		0.0 / 20.9	20.0 / 0.15	0	0.0 / 20.6	21.0 / 1.32	0
915	SP-05	0		0.0 / 20.9	20.0 / 0.02	0	0.0 / 20.8	20.9 / 1.38	0
930	SP-05	0		0.0 / 20.9	19.9 / 0.01	0	0.0 / 20.2	21.2 / 1.20	0
945	SP-05	0		0.0 / 20.9	20.0 / 0.15	0	0.0 / 20.8	20.7 / 1.38	0
1000	SP-05	0		0.0 / 20.9	20.0 / 0.00	0	0.0 / 20.9	21.4 / 1.24	0
1015	SP-05	0							
1030	SP-05	0							
1045	SP-05	0							
1100	SP-05	0		0.0 / 20.9	20.2 / 0.03	0	0.0 / 20.9	21.3 / 1.37	0
1115	SP-05	0							
1130	SP-05	0							
1145	SP-05	0							
1200	SP-05	0		0.0 / 20.9	20.6 / 0.00	0	0.0 / 20.9	21.5 / 1.26	0
1215	SP-05	0							
1230	SP-05	0		0.0 / 20.9	21.2 / 0.00	0	0.0 / 20.9	21.3 / 1.37	0

Proj.# : **C104186161**
 Address: 1771 First St.
 Date: **03/30/07**

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: **COP**
 PM: **Dennis Dettloff**
 Tech(s): **JDR, LS**

Time: 24 hr clock	Injection		Well U-7	DTB----	DTW 30.60	Well ----	DTB----	DTW ----
	Well #	Pressure (PSI)	Volume (CF)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F)(mg/l)	Pressure (in.H2O)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F)(mg/l)
100	SP-05	9	0	1.2 /20.9	19.7 /0.00	0		
115	SP-05	10		0.9 /20.9	19.5 /0.00	0		
130	SP-05	10		0.9 /20.9	19.6 /0.00	0		
200	SP-05	10		0.6 /20.9	19.2 /0.00	0		
215	SP-05	10		0.9 /20.9	19.2 /0.00	0		
230	SP-05	10		1.1 /20.9	19.0 /0.00	0		
245	SP-05	10		0.9 /20.9	19.0 /0.11	0		
300	SP-05	12		2.2 /20.9	18.9 /0.00	0		
315	SP-05	12	250	1.9 /20.9	19.2 /0.00	0		
330	SP-05	15		1.8 /20.9	19.2 /0.01	0		
345	SP-05	16		2.9 /20.9	19.4 /0.00	0		
400	SP-05	18		1.2 /20.9	19.6 /0.00	0		
415	SP-05	20	500	2.2 /20.9	20.0 /0.02	0		
430	SP-05	20		2.9 /20.9	19.9 /0.00	0		
445	SP-05	22		4.5 /20.9	20.2 /0.00	0		
500	SP-05	25	750	6.6 /20.9	20.0 /0.00	0		
515	SP-05	30		3.9 /20.9	20.0 /0.00	0		
530	SP-05	34	1000	4.2 /20.9	20.0 /0.00	0		
545	SP-05	20	Inj.ShutOff	5.1 /20.9	19.8 /0.00	0		
600	SP-05	18		7.0 /20.9	19.9 /0.00	0		
615	SP-05	5		3.9 /20.9	19.8 /0.00	0		
630	SP-05	0		3.9 /20.9	19.8 /0.00	0		
645	SP-05	0		0.3 /20.9	19.7 /0.02	0		
700	SP-05							
715	SP-05							
730	SP-05							
745	SP-05							
800	SP-05							
815	SP-05							
830	SP-05	0		0.0 /20.9	19.9 /0.00	0		
845	SP-05	0		0.0 /20.9	20.1 /0.00	0		
900	SP-05	0		0.0 /20.9	20.6 /0.00	0		
915	SP-05	0						
930	SP-05	0						
945	SP-05	0						
1000	SP-05	0		0.0 /21.2	20.5 /0.00	0		
1015	SP-05	0						
1030	SP-05	0						
1045	SP-05	0						
1100	SP-05	0		0.0 /21.2	20.7 /0.03	0		
1115	SP-05	0						
1130	SP-05	0						
1145	SP-05	0						
1200	SP-05	0		0.0 /20.9	21.0 /0.00	0		
1215	SP-05	0						
1230	SP-05	0		0.0 /20.9	21.2 /0.00	0		
1230	SP-05	0						

Proj.# : **C104186161**
 Address: 1771 First St.
 Date: **03/30 to 31/07**

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: **COP**
 PM: **Dennis Dettloff**
 Tech(s): **JDR, LS**

Time: 24 hr clock	Injection		Well U-3 DTB---- DTW 25.98'			Well U-1 DTB---- DTW 25.98'			
	Well #	Pressure (PSI)	Volume (CF)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)	PID /Oxy (PPM)(20.9)	Temp/DO (°C/°F) (mg/l)	Pressure (in.H2O)
1400	SP-5s	10		0.0 / 20.9	19.8 /1.05	0	0.0 / 20.9	20.7 / 0.0	0
1415	SP-5s	10		0.0 / 20.9	19.8 /1.08	0	0.0 / 20.9	20.8 / 0.0	0
1430	SP-5s	10		0.0 / 20.9	19.8 /1.12	0	0.0 / 20.9	20.8 / 0.0	0
1445	SP-5s	15		0.0 / 20.9	19.8 /1.06	0	0.0 / 20.9	20.6 / 0.0	0
1500	SP-5s	18		0.0 / 20.9	19.8 /1.26	0	0.0 / 20.9	20.7 / 0.0	0
1515	SP-5s	20	250	0.0 / 20.9	19.8 /1.02	0	0.0 / 20.9	20.7 / 0.0	0
1530	SP-5s	22		0.0 / 20.9	19.8 /0.82	0	0.0 / 20.9	20.7 / 0.4	0
1545	SP-5s	24		0.0 / 20.9	19.8 /0.67	0	0.0 / 20.9	20.6 / 0.0	0
1600	SP-5s	26		0.0 / 20.9	21.2 /0.99	0	0.0 / 20.9	20.5 / 0.0	0
1615	SP-5s	28	500	0.0 / 20.9	21.2 /0.99	0	0.0 / 20.9	20.6 / 0.2	0
1630	SP-5s	30		0.0 / 20.9	21.2 /1.48	0	0.0 / 20.9	20.7 / 0.2	0
1645	SP-5s	30		0.0 / 20.9	20.9 /1.40	0	0.0 / 20.9	20.7 / 0.0	0
1700	SP-5s	32	750	0.0 / 20.9	20.9 /1.08	0	0.0 / 20.9	20.8 / 0.0	0
1715	SP-5s	32		0.0 / 20.9	20.9 /1.06	0	0.0 / 20.9	20.8 / 0.0	0
1730	SP-5s	34	1000	0.0 / 20.9	20.7 /1.11	0	0.0 / 20.9	20.9 / 0.0	0
1745	SP-5s	15	Inj.ShutOff	0.0 / 20.9	20.7 /1.21	0	0.0 / 20.9	20.7 / 0.0	0
1800	SP-5s	0		0.0 / 20.9	20.8 /1.31	0	0.0 / 20.9	21.3 / 0.0	0
1815	SP-5s	0		0.0 / 20.9	20.9 /1.22	0	0.0 / 20.9	21.2 / 0.4	0
1830	SP-5s	0		0.0 / 20.9	20.9 /1.22	0	0.0 / 20.9	21.6 / 0.0	0
1845	SP-5s	0		0.0 / 20.9	20.9 /1.40	0	0.0 / 20.9	20.9 / 0.0	0
1900	SP-5s	0		0.0 / 20.9	19.8 /1.27	0	0.0 / 20.9	20.5 / 0.0	0
1915	SP-5s	0		0.0 / 20.9	19.8 /1.35	0	0.0 / 20.9	20.6 / 0.0	0
1930	SP-5s	0		0.0 / 20.9	19.8 /1.55	0	0.0 / 20.9	20.6 / 0.0	0
1945	SP-5s	0		0.0 / 20.9	19.8 /1.00	0	0.0 / 20.9	20.7 / 0.0	0
2000	SP-5s	0		0.0 / 20.9	20.0 /1.20	0	0.0 / 20.9	20.4 / 0.0	0
2015	SP-5s	0							
2030	SP-5s	0							
2045	SP-5s	0							
2100	SP-5s	0		0.0 / 20.9	20.6 /1.04	0	0.0 / 20.9	20.3 / 0.0	0
2115	SP-5s	0							
2130	SP-5s	0							
2145	SP-5s	0							
2200	SP-5s	0		0.0 / 20.9	20.2 /1.22	0	0.0 / 20.9	20.4 / 0.4	0
2215	SP-5s	0							
2230	SP-5s	0							
2245	SP-5s	0							
2300	SP-5s	0		0.0 / 20.9	19.6 /2.05	0	0.0 / 20.9	20.1 / 0.0	0
2315	SP-5s	0							
2330	SP-5s	0							
2345	SP-5s	0							
2400	SP-5s	0		0.0 / 20.9	19.8 /1.90	0	0.0 / 20.9	19.9 / 0.0	0
115	SP-5s	0							
130	SP-5s	0							
145	SP-5s	0							
200	SP-5s	0		0.0 / 20.9	19.4 /1.44	0	0.0 / 20.9	19.9 / 0.0	0

Proj.# : **C104186161**
 Address: 1771 First St.
 Date: **03/30 to 31/07**

Delta Environmental Consultants Inc
Infectivity Pilot Test (Oxygen)

Client: **COP**
 PM: **Dennis Dettloff**
 Tech(s): **JDR, LS**

Time:	Injection		Well U-7	DTB ----	DTW 30.06	Well ----	DTB ----	DTW ----		
	Well #	Pressure	Volume	PID /Oxy	Temp/DO	Pressure	PID /Oxy	Temp/DO	Pressure	
24 hr clock	(PSI)	(CF)	(PPM)(20.9)	(°C/F)	(mg/l)	(in.H2O)	(PPM)(20.9)	(°C/F)	(mg/l)	(in.H2O)
1400	SP-5s	10		0.2 / 20.9	20.3 / 0.1	0				
1415	SP-5s	10		0.0 / 20.9	20.3 / 0.1	0				
1430	SP-5s	10		0.0 / 20.9	20.3 / 0.0	0				
1445	SP-5s	15		0.0 / 20.9	20.3 / 0.2	0				
1500	SP-5s	18		0.2 / 20.9	20.3 / 0.0	0				
1515	SP-5s	20	250	0.0 / 20.9	20.2 / 0.0	0				
1530	SP-5s	22		0.0 / 20.9	20.2 / 0.0	0				
1545	SP-5s	24		0.0 / 20.9	20.2 / 0.0	0				
1600	SP-5s	26		0.2 / 20.9	20.2 / 0.0	0				
1615	SP-5s	28	500	0.0 / 20.9	20.2 / 0.1	0				
1630	SP-5s	30		0.0 / 20.9	20.3 / 0.2	0				
1645	SP-5s	30		0.2 / 20.9	20.2 / 0.1	0				
1700	SP-5s	32	750	0.0 / 20.9	20.2 / 0.1	0				
1715	SP-5s	32		0.2 / 20.9	20.2 / 0.0	0				
1730	SP-5s	34	1000	0.0 / 20.9	20.1 / 0.0	0				
1745	SP-5s	15	Inj. ShutOff	0.0 / 20.9	20.1 / 0.0	0				
1800	SP-5s	0		0.0 / 20.9	20.1 / 0.0	0				
1815	SP-5s	0		0.2 / 20.9	20.1 / 0.0	0				
1830	SP-5s	0		0.0 / 20.9	20.0 / 0.0	0				
1845	SP-5s	0		0.0 / 20.9	20.2 / 0.1	0				
1900	SP-5s	0		0.0 / 20.9	19.9 / 0.0	0				
1915	SP-5s	0		0.2 / 20.9	19.9 / 0.0	0				
1930	SP-5s	0		0.0 / 20.9	19.8 / 0.0	0				
1945	SP-5s	0		0.0 / 20.9	19.7 / 0.0	0				
2000	SP-5s	0		0.2 / 20.9	19.9 / 0.0	0				
2015	SP-5s	0		0.0 / 20.9	19.8 / 0.0	0				
2030	SP-5s	0								
2045	SP-5s	0								
2100	SP-5s	0								
2115	SP-5s	0		0.0 / 20.9	19.8 / 0.0	0				
2130	SP-5s	0								
2145	SP-5s	0								
2200	SP-5s	0								
2215	SP-5s	0		0.0 / 20.9	19.6 / 0.0	0				
2230	SP-5s	0								
2245	SP-5s	0								
2300	SP-5s	0								
2315	SP-5s	0		0.0 / 20.9	19.6 / 0.0	0				
2330	SP-5s	0								
2345	SP-5s	0								
2400	SP-5s	0								
115	SP-5s	0		0.0 / 20.9	19.4 / 0.0	0				
130	SP-5s	0								
145	SP-5s	0								
200	SP-5s	0								
2400	SP-06	0		0.7 / 20.9	19.4 / 0.1	0				