TRC

Customer-Focused Solutions

August 28, 2002

California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123

ATTN: MR. KELLY DORSEY

SITE: 76 STATION 6519
28903 RANCHO CALIFORNIA ROAD
TEMECULA, CALIFORNIA
HMD CASE NO. 89392

RE: TRANSMITTAL OF SITE ASSESSMENT REPORT

Dear Ms. Dorsey:

Enclosed is the Site Assessment Report for 76 Station 6519, located at 28903 Rancho California Road in Temecula, California.

If you have any questions, please call us at (858) 505-8881.

Sincerely,

TRC

John Haworth
Senior Staff Scientist

Jerome Jaminet, Jr.
Project Scientist

Gary J. McCue, RG 5886, CHG 434
Principal Hydrogeologist

cc: Mr. Dan Fischman, Tosco Marketing
Mr. Barry Pulver, CRWQCB
Mr. Kelly Winters, Riverside HMD
Mr. Ian Hutchison, TRC

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9471 Ridgehaven Court, Suite E • San Diego, California 92123-4357
Telephone 858-505-8881 • Fax 858-505-9515

SITE ASSESSMENT

76 Station 6519
Temecula, California

Prepared For:

TOSCO MARKETING
Costa Mesa, California

Prepared By:

TRC
San Diego, California

August 28, 2002

TRC

Customer-Focused Solutions

SITE ASSESSMENT
August 28, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California
HMD Case No. 89382

Project No. 600121

Prepared For:

TOSCO MARKETING
3525 Hyland Avenue
Costa Mesa, California

Prepared By:

John Haworth
Senior Staff Scientist

Jerome Jamnet, Jr., REA 7167
Project Scientist

REGISTERED GEOLOGIST
GARY J. McCUE
NO. 434
CERTIFIED HYDROGEOLOGIST
STATE OF CALIFORNIA

Gary J. McCue, RG 5886, CHG 434
Principal Hydrogeologist

TRC
9471 Ridgehaven Court, Suite E
San Diego, California 92123

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1.0 INTRODUCTION

This report summarizes site assessment activities conducted from May 10, 2001 through January 28, 2002, at 76 Service Station 6519 (site), located at 28903 Rancho California Road in Temecula, California (Figures 1 and 2). Work was performed in accordance with the workplan, the addendum to the workplan, and the second addendum to the workplan prepared by TRC Alton Geoscience, Inc. (TRC) and dated March 9, July 16, and September 13, 2001, respectively.

2.0 SITE SETTING

2.1 SITE DESCRIPTION

The Site is an active service station with three dispenser islands, two 15,000-gallon gasoline underground storage tanks (USTs), one 12,000-gallon diesel UST, and a service station building (Figure 2). The Site is bordered on the north by Rancho California Road, on the west by Front Street, and on the south by Moreno Road. Chevron Service Station 9-1870 is located to the north across Rancho California Road. The flood channel embankment for Murrieta Creek is located approximately 100 feet west of the Site across Front Street.

2.2 GEOLOGIC SETTING

The Site is located in Temecula Valley within the flood plain of Murrieta Creek, at an elevation of approximately 1,000 feet above mean sea level (United States Geological Survey [USGS], 1975 and 1979).

Tectonically, the Site lies within the Elsinore Trough, the structural feature defined by the seismically active Elsinore fault zone (Figure 3). The west side of the trough, approximately 2,000 feet from the Site, is defined by the Willard fault zone, composed of a series of east-dipping, steeply inclined normal faults. The Wildomar fault zone, approximately 1,500 to 2,000 feet east of the Site, is characterized by right-stepping, strike-slip faults. The trough is bounded to the west by the Santa Ana Mountains and to the east by the Perris Block. These mountains and hills are composed of pre-Cretaceous metamorphic rocks and Cretaceous granitic rocks, with outcroppings of Miocene-aged basalts and Quaternary-aged sedimentary deposits along the sides at lower elevations (Kennedy, 1977).

Regionally, the Site is underlain by approximately 1,500 feet of alluvium, colluvium, and slope wash sediments of late Pleistocene to Holocene age. The alluvium consists of moderately well sorted, poorly consolidated sand and silt, with tongues of pebble conglomerate. The colluvium and slope wash deposits are composed principally of poorly consolidated fine sand, silt, and clay.

These deposits are underlain by the Pauba Formation, a succession of late Pleistocene siltstone, sandstone, and conglomerate (Kennedy, 1977).

Based on drilling conducted at the Site, the Site is underlain by interbedded layers of fine to coarse sands, clayey to silty sands, clayey silts and silts.

2.3 HYDROGEOLOGIC SETTING

Based on a review of the California Regional Water Quality Control Board (CRWQCB) Water Quality Control Plan for the San Diego Region, the Site lies within the Murrieta Hydrologic Area of the Santa Margarita Hydrologic Unit. Groundwater within the Murrieta Hydrologic Area is designated as having existing beneficial uses for municipal, agricultural, and industrial supplies (CRWQCB, 1994).

The Site is located over an alluvial groundwater basin as defined by the California Department of Water Resources (CDWR) and, therefore, is located over a basin considered by the CRWQCB to be a "sensitive aquifer" and an area designated as "most vulnerable to groundwater contamination" (CDWR, 1975; CRWQCB, 1996 and 2000; California State Water Resources Control Board [CSWRCB], 2000; and State of California Teale Data Center, undated).

Based on the water well driller's report for Rancho California Water District (RCWD) well 118 located approximately 1,000 feet northwest of the site, there appear to be two primary aquifers in the Site area. The upper or shallow aquifer, extending from the surface to as deep as 145 fbg, consists of alluvial sediments of sand, silt, and clay. Recharge of the shallow aquifer is reportedly influenced by the flow of Murrieta Creek located west of the Site. The deeper Temecula Aquifer is described as consisting of older alluvial sediments, approximately 1,500 feet thick, and as the source of water to the RCWD wells (Harding Lawson Associates [HLA], 1984a; HLA, 1986; CRWQCB, 2001a; Geo-Hydro-Data, 1986).

The regional hydrologic gradient is controlled, in part, by the faults of the Elsinore fault zone that surround the Site. A groundwater barrier is reported to exist to the east of the Site, along the Wildomar fault zone. In Temecula valley, groundwater generally flows to the southwest toward Temecula Canyon and the Santa Margarita River (Giessner et al, 1971; Kennedy, 1977).

2.4 SURFACE WATER

The flood channel embankment of Murrieta Creek begins approximately 100 feet southwest of the Site, across Front Street. The primary creek channel is approximately 200 feet west of the site (Figure 2). The flow of the creek varies seasonally with rainfall and aquifer recharge.

Murrieta Creek drains a portion of the Santa Margarita Basin, an area of approximately 222 square miles (USGS, 2001). Approximately two miles southeast of the Site, Murrieta Creek converges with Temecula Creek, forming the Santa Margarita River, which flows southwest through Temecula Canyon (Figure 1).

TRC obtained USGS gauging data from gauging stations in the vicinity of the Site. TRC performed a preliminary review of the data gathered at USGS Gauging Station No. 11043000, which is located in Murrieta Creek approximately 1.5 miles southeast and downstream of the Site and RCWD well 118. Data for this station was available from 1931 through September 30, 1999. This data indicates that peak discharge occurred in January 1993 at a rate of 25,000 cubic feet per second (cfs), over 17 feet above gage datum. The daily mean discharge on days of flow in the 1990s has ranged from 0.1 to 7790 cfs with the last recorded date of no discharge being December 26, 1992 (USGS, 2001).

In a 1984 interview, the Chevron station owner reported that flood waters from Murrieta Creek have reached the level of Front Street west of the station (HLA, 1984a).

2.5 AREA GROUNDWATER USAGE

Historically, residents of Temecula Valley had to rely on many privately-owned production wells to supply water (Giessner et al, 1971). However, according to Mr. Craig Elitharp of the RCWD, there are currently no active private, domestic wells in the area. As a condition of permit approval, all new development in the area is required to utilize the RCWD as the sole supplier of potable water (Canonie, 1993). Historical private wells were reportedly abandoned when the area was developed for industrial and commercial purposes (PIC Environmental [PIC], 1997). However, TRC identified one active well during a preliminary reconnaissance of the area at the Kids World School, located at 41956 Third Street, Temecula. This well is approximately ½ mile south-southeast and upgradient of the Site. Mr. Jim Gillis, Well Permits Section, Riverside HMD, confirmed that this is an active well. Mr. Gillis was not aware of any other active wells in the area other than those operated by the RCWD (Gillis, 2001).

In addition to Mr. Gillis, TRC also contacted the CDWR, City of Temecula Planning Department and the Geotracker website to research the potential presence of groundwater wells in the vicinity of the Site (CDWR, 2001; Anders, 2001; Geotracker, 2001). Based on these sources, TRC has identified a number of historical and existing wells in the area (Figure 4). The RCWD operates a network of production wells north of the site to supply drinking water to the Temecula and surrounding communities. A number of historical, private drinking water wells were identified south of the site. The current status and exact location of most of these wells is not known. A drive-by field reconnaissance by TRC confirmed the locations of RCWD wells 118

and 137 as well as the Kids World School well. No other wells were observed during this driving survey of the area.

2.6 RCWD WELLS

The closest active production well to the Site is RCWD Well No. 118, located approximately 1,000 feet to the northwest (Figure 2). The well, used to provide drinking water to the City of Temecula, is identified by the CDWR as well number T08S/R03W-02J1, and is located at 28076 Diaz Road. The well was installed in 1986 to a depth of 1,110 feet below grade (fbg), and is screened from 320 to 400 feet, and from 460 to 1,100 feet, through the Temecula Aquifer. From July 1997 to August 2000, depth to water in the well has ranged from approximately 51 to 188 feet. The seal is set from grade to a depth of 68 feet, and the pump is positioned at 310 fbg. Production capacity is rated at approximately 2,119 gallons per minute. In the two years prior to shutdown in 2001, monthly production ranged from 82 to 139 acre-feet. Water from this well is continually chlorinated and is then blended with other water well sources before distribution to approximately 23,000 domestic connections (Geotracker, 2001; CRWQCB, 2001a).

Well 118 was taken out of service on September 10, 2000 (CRWQCB, 2001b). Based on conversations between Julie Chan, CRWQCB and Dan Fischman, Tosco, it is our understanding that well 118 was taken out of service for maintenance purposes. Prior to shut down, the well had been sampled for methyl tertiary butyl ether (MTBE) in February, March, and April of 2000. The identified MTBE concentrations were 3.7 micrograms per liter (µg/l) on February 29 and below the laboratory detection limits in March and April. On September 10, 2000, the MTBE concentration was 7.8 µg/l. Additional sampling of the well in October and November 2000 and February 2001 identified MTBE concentrations below the laboratory detection limit, at 4.7 µg/l, and 24 µg/l, respectively. The well remains out of service with occasional test pumping and is being sampled for MTBE on a monthly basis (CRWQCB, 2001b).

In addition to the recent exceedance of the MTBE maximum contaminant level (MCL) in well 118, this well has also seen at least two instances of exceedances of the secondary MCL for manganese, which is 50 µg/l. As reported in the Geotracker website, RCWD well 118 has been sampled for manganese a total of four times. Dissolved phase manganese concentrations were reported as 0.02 µg/l, 40 µg/l, 60 µg/l and 100 µg/l in the years 1990, 1993, 1996 and 1999, respectively (Geotracker, 2001).

An additional well, RCWD Well No. 102, is located approximately ½ mile northwest of the Site (Figure 4). The well (CDWR No. T8S/R3W-02Q1) is 1,275 feet deep and is screened from 348 to 396 feet, 424 to 466 feet, 563 to 663 feet, 703 to 773 feet, and 835 to 1,245 feet (PIC, 1997). The pump is set at 300 fbg and has a production capacity of 1,301 gallons per minute (Canonie

Environmental, 1993). According to Mr. Elitharp, RCWD, the well is pumped only during the summer due to hydrogen sulfide concentrations (PIC, 1997). A structure potentially housing this well was identified during the TRC field reconnaissance, but the well location could not be confirmed due to a lack of access.

Other active RCWD wells are located further northwest, north, and northeast of the Site. Typically, they are greater than 1,000 feet in depth and are screened at depths of 300 fbg and greater (Canonie Environmental, 1993).

2.7 HISTORIC OIL WELLS

One exploratory oil well was drilled in the Site vicinity by the Positive Oil Company in 1957. As mapped by a California Division of Mines and Geology publication, this oil well was located approximately 1,500 feet north of the Site, at the approximate current location of the Liberty Auto Center, 28903 Front Street, Temecula, and adjacent to the Narain Oil unauthorized release case (Figure 4). The well proved to be barren of oil and was abandoned. The method of abandonment is not described in records currently obtained by TRC, but may provide a hydrogeologic connection between the shallow and deeper aquifers. Total depth of the oil well, named "Berghofer", was approximately 4,050 feet, which was through Holocene and Pleistocene sediments. Basement rocks were reportedly not encountered (Kennedy, 1977; Munger, 1994). Other exploratory oil wells were attempted approximately 1.5 miles north of the Site.

3.0 BACKGROUND

3.1 PREVIOUS SITE ASSESSMENT ACTIVITIES

In March 1989, HLA supervised the removal of one 6,000-gallon diesel and two 10,000-gallon gasoline USTs, and a 280-gallon waste oil tank from the Site. New replacement USTs consisted of one 10,000-gallon diesel and two 12,000-gallon gasoline, double-walled USTs, which were placed within the enlarged, original tank cavity. Information supplied to Alton Geoscience by Unocal Refining and Marketing Division indicates that gasoline- and diesel-impacted soil was reportedly encountered following tank removal. The highest total petroleum hydrocarbon (TPH) concentrations were detected below the southern end of the center gasoline tank at 1,813 milligrams per kilogram (mg/kg). Soil samples beneath the diesel UST had total recoverable petroleum hydrocarbon (TRPH) concentrations of 961 mg/kg. The estimated lateral and vertical extent of gasoline- or diesel-range hydrocarbons were not assessed in the area of the gasoline storage tank cavity at that time. The soil sample collected beneath the waste oil UST was below laboratory detection limits for TRPH (HLA, 1989).

Alton Geoscience performed site characterization activities in March and October, 1992. These activities included excavation of six slanted hand auger borings, HA-1 through HA-6, installed to approximately 9 feet below existing dispenser islands, and drilling eight onsite and two offsite hollow-stem auger borings to a maximum depth of 30 fbg. These eight borings were converted to groundwater monitoring wells MW-2, MW-3, and MW-5 through MW-10 to approximately 24 fbg. One additional onsite groundwater monitoring well, MW-11, and four onsite vapor extraction wells, VEW-12 through VEW-15, were installed in September 1993.

Hydrocarbon concentrations up to 14,000 mg/kg total petroleum hydrocarbons as gasoline (TPHg) and 5,100 mg/kg total petroleum hydrocarbons as diesel (TPHd) were detected in soil samples collected in the vicinity of the tank cavity (Boring B-5 at 5 fbg), and up to 850 mg/kg TPHg in the vicinity of the center pump island (Boring HA-3 at 3.5 fbg). Soil samples from surrounding boring locations had concentrations ranging from below the laboratory detection limits to 240 mg/kg TPHg (VEW-14 at 6.5 fbg). Based on the results of these investigations, Alton Geoscience concluded that the lateral and vertical extent of adsorbed-phase hydrocarbons appeared to be adequately assessed, and the lateral extent of dissolved-phase hydrocarbons appeared adequately assessed in all directions except to the north-northwest in the downgradient direction. In this direction, it appeared that the dissolved-phase plume from the Site commingled with the dissolved-phase plume from the Chevron station. Alton Geoscience concluded that additional monitoring wells in Rancho California Road were not expected to provide any additional delineation of the dissolved-phase plumes since Chevron already had placed wells in this area (Alton Geoscience, 1992, 1993, and 1994a).

In March 1994, Alton Geoscience conducted a limited remedial excavation adjacent to and below the central dispenser island and the eastern dispenser island during station renovation activities. Soil samples collected at the limit of the excavation, representative of soil remaining at the site, had concentrations ranging from below the laboratory detection limits to 7,996 mg/kg TPHg (sample E5 at 10 fbg) (Alton Geoscience, 1994b).

In April 1996, additional soil sampling was performed as part of a complete station demolition and renovation. All existing structures were removed, a limited remedial excavation was conducted beneath the waste oil tank and one of the hydraulic lifts, and the current UST system and station structures were installed at the Site. The TPHg concentrations in the soil that was removed from beneath the underground fuel storage tanks ranged up to 9,500 mg/kg (sample T1N-12.5 at 12.5 fbg). Benzene concentrations ranged up to 9.4 mg/kg. The TPHg and benzene concentrations of soil samples collected from beneath the product lines were below the laboratory detection limits. Following remedial excavation, soil sample laboratory results for

TRPH from beneath the waste oil tank and the hydraulic lifts were below laboratory detection limits (Alton Geoscience, 1996).

On May 12, 1997, Alton Geoscience drilled five borings, B-18 through B-22, to 17 fbg to evaluate the progress of remedial activities at the Site. TPHg concentrations in soil samples ranged from below the laboratory detection limits to 3.6 mg/kg (boring B-19-17.0 at 17 fbg). Based on the results of this investigation, Alton Geoscience concluded that remedial activities had been successful in reducing hydrocarbon concentrations in soil and recommended closure of the unauthorized release case for this Site (Alton Geoscience, 1997a, 1997b).

In 1998, the Riverside County Hazardous Materials Division (HMD) stated that closure could not be granted because of increasing dissolved-phase MTBE concentrations in monitor well MW-16 and requested that the source of these increasing concentrations be investigated. Additionally, the HMD requested a 24-hour soil vapor extraction (SVE) test.

Tosco inspected the UST system at the Site and was unable to identify a specific source of the increasing MTBE concentrations. As of December 18, 2000, Tosco has started using ethanol to substitute for MTBE as a fuel additive at this station.

In January 2001, the CRWQCB informed Tosco and other UST owners of the MTBE impacts to RCWD well 118 and requested additional assessment for sites in the vicinity of well 118.

3.2 GROUNDWATER MONITORING AND SAMPLING

Groundwater monitoring has been performed quarterly in Site wells since 1992. The depth to groundwater at the Site has historically ranged from 11 to over 25 fbg with fluctuations in individual wells ranging from approximately 5 to 11 feet. The groundwater flow direction was initially measured for several quarters in 1992 and 1993 as flowing to the southeast at approximately 0.03 to 0.045 foot per foot. In the second quarter of 1993, however, the flow direction shifted to the northwest at approximately 0.016 foot per foot. Since then, the flow direction has consistently been to the west or northwest at gradients ranging from 0.01 foot per foot to 0.09 foot per foot (TRC, 2002a; Appendix A).

Historical dissolved-phase concentrations in wells adjacent to the UST cavity (MW-2, MW-3, MW-5 and MW-16) have ranged from below laboratory detection limits in well MW-3 to 3,120,000 µg/l TPHg (MW-16), 26,000 µg/l benzene (MW-5), and 717,000 µg/l MTBE (MW-16). Concentrations in the other wells at the Site have ranged from below the laboratory detection limits to 130,000 µg/l TPHg (MW-10), 6,507 µg/l benzene (MW-6), and 2,200 µg/l MTBE (MW-11). Since 1993, dissolved-phase TPHg and benzene concentrations have been

stable or have generally dropped by one to two orders of magnitude in all the Site wells, except for a temporary spike in concentrations in downgradient wells in 1998 and 1999 (TRC, 2002a; Appendix A).

Groundwater samples have only been analyzed for MTBE at the site since 1996. MTBE concentrations rose in well MW-16 to a peak of 717,000 µg/l in February 1999 and have since dropped to 21,000 µg/l in December 2001, likely as a result of ongoing SVE activities. Smaller rises in MTBE concentrations were detected in 1999 in wells MW-10, MW-11 and MW-17 (TRC, 2002a; Appendix A).

3.3 REMEDIAL TESTING ACTIVITIES

Two constant rate vapor injection tests were performed in October 1993. Monitoring wells MW-2, MW-3, MW-5, and MW-15 and vapor extraction wells VEW-12 through VEW-14 were used in the tests. The constant rate tests consisted of injecting air at 23.6 cubic feet per minute (cfm) and 15.5 cfm into VEW-14 (Test 1) and MW-2 (Test 2), respectively, and recording pressure responses in as many as three observation points. Based on this test, the radius of influence (ROI) at the Site was estimated to be approximately 40 to 80 feet. Based on laboratory analysis of vapor samples, VEW-14 and MW-2 had TPH concentrations of 2,790 and 670 parts per million per volume (ppmv) and benzene concentrations of 370 and 55 ppmv, respectively. Based on these successful results, SVE was selected as the remediation alternative and eventually implemented at the Site (Alton Geoscience, 1994c).

After the shutdown of the original SVE system and as a result of rising MTBE concentrations in soil, the HMD requested an additional SVE test. Alton Geoscience performed a 24-hour SVE test in September 1998. Trace levels of product were observed during the test in well MW-16 for the first time in any well at the Site. Based on the test results and data from previous SVE operations at the Site, Alton Geoscience concluded that SVE appeared to be a technically feasible approach for remediation of soil concentrations and free product at the Site. Alton Geoscience recommended resumption of SVE activities if measurable free product was observed at the Site (Alton Geoscience, 1999).

3.4 SOURCE REMOVAL AND REMEDIATION ACTIVITIES

In March 1989, one 6,000-gallon diesel UST, two 10,000-gallon gasoline USTs, and a 280-gallon waste oil tank were removed from the property, and replaced with one 10,000-gallon diesel and two new 12,000-gallon, double-walled, gasoline USTs within the enlarged, original tank cavity. The volume of hydrocarbon impacted soil removed during these activities was not reported to Alton Geoscience (HLA, 1989).

In March 1994 and April 1996, Alton Geoscience conducted limited remedial excavation around the dispenser islands, USTs, former clarifier, and former hydraulic lifts. The excavations removed approximately 130 cubic yards of hydrocarbon-affected soil in 1994 and 220 tons in 1996 (Alton Geoscience, 1994b; Alton Geoscience, 1996).

In addition to limited remedial excavation, an SVE remediation system has been operated at the Site. The first SVE system was started in February 1995 and shut down on June 30, 1995, under the direction of Unocal Corporation. The SVE system was disconnected on August 7, 1995 and removed from the Site on August 18, 1995. A second SVE system was installed onsite and started on February 15, 1996. The system was eventually shut off because of low benzene influent concentrations on November 21, 1996. The system was restarted on April 11, 1997, and shut off again on May 2, 1997, due to low influent concentrations. This system was subsequently removed from the Site. A total of 1,031 gallons (8,100 pounds) of hydrocarbons were recovered through SVE from February 1, 1995 through 1997 (Alton Geoscience, 1999).

Based on the rising dissolved-phase MTBE concentrations detected in well MW-16, the HMD requested in 1999 that remediation using SVE be resumed at the Site. TRC installed two new vapor extraction wells for this purpose in June 1999. ERI permitted and installed a new SVE system at the Site and SVE operations resumed on July 31, 2000. Since startup of this SVE system on July 31, 2000, the system has operated for a total of 10,469 hours and recovered approximately 8,033 pounds of hydrocarbons (Environ Strategy, 2002).

A groundwater extraction system, including seven extraction wells, was installed at the site and began operation on May 15, 2002. The system operated for the remainder of the second quarter. However, TRC has received notice from the sewer authority that our permit to discharge to the sanitary sewer has been suspended. The groundwater extraction system was temporarily turned off on July 22, 2002, while the suspension is appealed and other disposal alternatives are explored (Environ Strategy, 2002).

4.0 CHEVRON ASSESSMENT AND REMEDIATION ACTIVITIES

4.1 PREVIOUS SITE ASSESSMENT

At the Chevron station, across Rancho California Road from the Site (Figure 2), groundwater levels in monitoring wells have reportedly fluctuated by as much as 60 feet. At the time of initial investigation in 1984, groundwater was approximately 15 fbg. Groundwater levels dropped until reaching its low in 1990 and then rebounding to near 1984 levels (Groundwater Technology,

1995). Since 1992, groundwater levels in offsite Chevron wells have shown up to 10 feet in variation while wells on the Chevron station have shown up to 30 feet in variation. Chevron well B-15 appears to have anonymously high MTBE concentrations given the surrounding wells with lower MTBE concentrations. It is not clear if the MTBE concentrations are affected by the well construction. The range of variation for groundwater levels in well B-15 was at least 10 feet, but could not be determined because of inadequate screen depth, which has caused the well to become dry as the water table dropped. Groundwater flow directions have been inconsistent, but recently appear to flow to the northwest or north (BBC, 2000).

4.2 PREVIOUS REMEDIATION ACTIVITIES

Prior to 1986, free product was observed in Chevron wells B-2, B-3, B-5, B-6, and R-1, which were located adjacent to, and south of, the tank pit and pump islands. From 1984 to 1990, the thicknesses of free product and dissolved-phase hydrocarbon concentrations decreased, which was interpreted by Chevron consultants to be the result of smearing of contaminants through the vadose zone and later partial mass removal by SVE. However, SVE operations would not have removed the product trapped below groundwater, which had recovered to near 1984 levels by 1992. SVE was conducted intermittently from 1992 to 1993, 1994 to 1995, and 1996 to 1997. An estimated 9,400 pounds of hydrocarbons were recovered (Fluor Daniel GTI, 1998; Groundwater Technology, Inc., 1995).

4.3 RECENT SITE ASSESSMENT ACTIVITIES

On November 27 through 30, 2001, ten Hydropunch groundwater sample locations were installed along the northern and southern sides of Rancho California Road. Groundwater samples collected from these locations ranged from below laboratory detection limits to 2,300 µg/L TPHg, 390 µg/L benzene, and 240 µg/L MTBE (Holguin Fahan and Associates (HFA), 2001) (Appendix B). Additionally, site assessment activities including the destruction and installation of groundwater monitor wells has recently been performed for which data has not yet been received.

5.0 OBJECTIVE

The primary objective of the scope of work presented herein is to assess the lateral and vertical extent of dissolved-phase hydrocarbons in groundwater downgradient of the Site and between the Site and RCWD well 118. This assessment is also intended to serve as a basis for conducting additional more detailed assessments, conducting risk assessment, performing remediation feasibility evaluations, or establishing interim remedial actions, as necessary.

6.0 FIELD ACTIVITIES

A series of nine cone penetrometer test (CPT) borings were installed in May 2001 to determine subsurface conditions and to guide the placement of subsequent groundwater wells. Additionally, in May 2001, two groundwater monitor wells, MW-8 and MW-9, were destroyed due to insufficient water in the wells for sampling and MW-18 was installed to replace MW-9 (Figure 2).

From October through December 2001, a total of 16 groundwater monitor wells were installed using either hollow stem auger or rotosonic drilling techniques in predetermined locations and to depths based on the May 2001 CPT boring locations and geology encountered during drilling. An additional series of three CPT borings were also installed in October 2002 to assess groundwater north of well MW-25B along the river bank (Figure 2).

All CPT borings and 11 groundwater monitor wells located on the Murrieta Creek Channel right of way were installed under Encroachment Permit number 7-0-0020-2522 obtained from the Riverside County Flood Control and Water Conservation District. Wells in the street were installed under Encroachment Permit LD01-140CO obtained from the City of Temecula (Appendix C).

Prior to drilling, monitor well installation permits 25207 through 25209 and 25594 through 25611 were obtained from the Riverside County Department of Environmental Health (Appendix C). A geophysical survey was performed to verify the utility markout and finalize boring locations. The selected locations were additionally hand-augered to approximately 5 fbg prior to drilling to inspect for potential underground utilities.

6.1 CPT BORINGS

A total of nine CPT borings, CPT-1 through CPT-3, CPT-3A, CPT-4, CPT-4A, and CPT-5 through CPT-7 were advanced between May 10 to May 17, 2001 to depths of approximately 52 to 97 fbg (Figure 2). A total of 37 groundwater samples were collected from these CPT boring locations using a hydropunch type sampling technique. Soil samples were collected from these CPT borings using a piston type sampler. Soil samples were transported by BC Laboratories to Core Laboratories for physical parameter analysis. Pore pressure dissipation tests were performed at various depths on eight of the nine CPT borings (Table 1).

Three additional CPT borings, CPT-9 through CPT-11, were advanced on October 30 and 31, 2001 to depths of approximately 88 to 100 fbg (Figure 2). A total of 17 groundwater samples were collected from these CPT boring locations using a hydropunch type sampling technique. A copy of the driller's CPT reports for both drilling dates are attached in Appendix D.

6.2 HOLLOW STEM AUGER DRILLING ACTIVITIES

One groundwater monitor well, MW-18, was installed and two groundwater monitor wells, MW-8 and MW-9, were destroyed on May 24, 2001 using a 10-inch hollow stem auger. MW-8 was destroyed in anticipation of planned street expansion activities by the City of Temecula and MW-9 was destroyed due to insufficient well depth for proper sampling. Well MW-18 was intended to replace MW-9. MW-18 was drilled to approximately 30.5 fbg and the well was constructed at approximately 28 fbg using 4-inch diameter PVC. Soil samples were generally collected using a California Modified Split Spoon Sampler, screened for volatile organic compounds (VOCs) using a Bacharach combustible gas indicator, and described using the Unified Soil Classification System.

A total of five groundwater monitoring wells, MW-20A, MW-21A, MW-22A, MW-23A, and MW-24A were installed between November 27 and 28 and December 4 and 5, 2001 using 10-inch hollow stem auger. The total depth of the monitoring wells ranged between 20.5 to 27 fbg. Soil samples were generally collected using a California Modified Split Spoon sampler, screened for VOCs using a photo-ionization detector (PID), and described using the Unified Soil Classification System. Groundwater monitor wells were constructed of 4-inch diameter PVC. A drill-rig mounted surge block was typically used to develop the monitoring wells after the filter pack was installed in order to settle the filter pack and disperse fine sediment from the borehole. A drill-rig mounted bailer was typically used to remove groundwater from the wells after they were surged. In other cases a well development rig with a downhole pump was used to fully develop the well. A summary of well construction details is included in Table 2. General field procedures, the well and encroachment permits, boring logs, and well construction details are in Appendix C.

Soil samples were transported by courier to state-certified BC Laboratories, Inc. for chemical analysis. Selected samples were analyzed for TPHg, in accordance with EPA Method 8015, and for benzene, toluene, ethylbenzene, and total xylenes (BTEX), MTBE, and other oxygenates in accordance with modified EPA Method 8260B. In addition, selected soil samples were transported by courier to PTS Laboratories and analyzed for various physical parameters. Copies of the official laboratory reports and chain of custody protocol are included in Appendix E.

6.3 ROTOSONIC DRILLING ACTIVITIES

A total of eleven groundwater monitoring wells, MW-19B, MW-20B, MW-21B, MW-22B, MW-23B, MW-23C, MW-24AB, MW-24B, MW-24C, MW-25B, and MW-26C, were installed between October 23 and December 9, 2001 utilizing a rotosonic drilling technique. Monitoring wells were installed to between 60 and 214 fbg.

The rotosonic drilling technique utilized a 6-inch core barrel advanced by rotation and ultra-sonic vibrations. Various size conductor casings were advanced behind the core barrel to ensure the integrity of the boring walls as the core barrel was advanced. As many as three sizes of conductor casings, 10-inch, 9-inch, and 8-inch, were used to seal off zones of low permeability soil and limit hydraulic communication between the separate zones. The 10-inch conductor casing was typically advanced first and keyed into the first zone of low permeability soil. The 9-inch conductor casing was then advanced inside the 10-inch conductor casing and was keyed into the second zone of low permeability soil. The 8-inch conductor casing was advanced inside the 9-inch conductor casing and was typically advanced to the total depth of the boring. A bentonite grout slurry was placed between the various sized conductor casings to further limit hydraulic communication between various water producing zones.

The monitoring wells were then constructed inside the 8-inch conductor casing using 4-inch diameter PVC casing. Monitoring wells were screened at discreet depths between or below zones of low permeability soil. As the conductor casings were removed from the boring, the sand pack and other well construction materials settled due to the vibration of the casing. A well development rig with a downhole pump was used to remove groundwater from the wells after they were installed in order to fully develop the wells.

Soil from the core barrel was typically collected in polyurethane bags, screened for hydrocarbon vapors using a PID, and described in accordance with the Unified Soil Classification System. Soil samples were either collected in-situ using a California Modified Split Spoon sampler or were collected from the core after it was brought to the surface by driving a brass sleeve into the core at the desired depth. A summary of well construction details is included in Table 2. General field procedures, the well and encroachment permits, boring logs, and well construction details are in Appendix C.

Soil samples were transported by courier to state-certified BC Laboratories, Inc. for chemical analysis. Selected samples were analyzed for TPHg in accordance with EPA Method 8015, and for BTEX, MTBE, and other oxygenates in accordance with modified EPA Method 8260B. In addition, selected soil samples were transported by courier to PTS Laboratories and analyzed for

various physical parameters. Copies of the official laboratory reports and chain of custody protocol are included in Appendix E.

6.4 INVESTIGATION GROUNDWATER SAMPLING ACTIVITIES

Groundwater samples were collected from selected borings during drilling activities by one of two methods. In the first method, groundwater samples of the static water table were collected by allowing the groundwater inside the boring to equilibrate and then obtaining groundwater samples using a disposable bailer. Groundwater samples collected from discreet depths within selected borings were collected by using either a Hydropunch type or Simulprobe sampler. These sampling devices were advanced beyond the bottom of the boring to obtain undisturbed groundwater samples at desired depths.

In addition, completed groundwater monitoring wells MW-22B, MW-24B, and MW-25B were purged and sampled on November 12, 2001 prior to the completion of other site assessment activities, in order to obtain preliminary data.

Groundwater samples either were analyzed onsite by various state-certified mobile laboratories, including Baseline On-Site Analysis Laboratories, HP Laboratories, or Jones Environmental Inc., or they were transported to state-certified BC Laboratories, Inc. Groundwater samples were analyzed for TPHg in accordance with EPA Method 8015B, and for BTEX, MTBE, and other oxygenates in accordance with EPA Method 8260B. Copies of the official laboratory reports and chain of custody protocol are included in Appendix E.

6.5 MONITORING WELL GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

On December 17 and 18, 2001 all site monitor wells were monitored, purged and sampled. This sampling event could not be coordinated with Fourth Quarter sampling of Chevron's wells due to differing assessment needs. The First and Second Quarter 2002 monitoring and sampling events on January 28 and 29 and May 29 through 31, however, were coordinated with Chevron. In accordance with the approved workplan dated April 3, 2002, TRC performed pre-purge and post-purge sampling of all 76 station groundwater wells during the Second Quarter 2002 sampling event. Monitoring and sampling was performed in accordance with the general field procedures in Appendix C.

Groundwater samples were transported to BC Laboratories and analyzed for TPHg in accordance with EPA Method 8015B, and for BTEX, MTBE and other oxygenates in accordance with EPA

Method 8260B. Copies of the official laboratory reports and chain of custody protocol are included in Appendix E.

6.6 WASTE MANAGEMENT

A total of 154 drums of soil cuttings and 235 drums of purged groundwater, rinse water, and well construction water were generated during site assessment activities and stored in 55-gallon drums. The drums were transported by Filter Recycling, Inc. for offsite disposal. Copies of the manifests are attached in Appendix F.

7.0 SUMMARY OF INVESTIGATION RESULTS

7.1 GEOLOGY AND SOIL SAMPLE PHYSICAL PARAMETER RESULTS

Soils identified during drilling included fine to coarse grained sands, silts, sand/silt mixtures, clayey silts, gravelly sands, and minor clays and gravels. During drilling, TRC generally observed three distinct geologic zones. The shallow soil, up to 30 feet deep, generally consisted of a mixture of brown colored sands and silts. From between approximately 25 to 105 feet deep, a low permeability soil zone consisting of gray or green silts with some sand lenses was encountered. From below approximately 40 to 105 feet, a deeper sand unit with minor silt lenses was encountered that appears to be part of the deeper aquifer drawn by RCWD well 118 (Figures 5 through 8).

This interpretation of three distinct geologic zones is supported by the results of current and previous laboratory physical parameter analysis. Table 3 presents all physical parameter data to date by boring. Table 4 presents physical parameter data for soil samples collected during rotosonic drilling and sorted by the field geologist's interpretation of the soil type. Table 5 presents physical parameter data for soil samples collected during rotosonic drilling and sorted by the laboratory's interpretation of the soil type. Based on a review of this data, several conclusions can be drawn. It appears that many of the geologists field classifications of silty sands, clayey sands, and clays are actually silts. Therefore, it appears that previous field geologists may have similarly misinterpreted the silt content and soils classified as silty sands during previous investigations may actually be silts. Further, hydraulic conductivities of these silts are very low, averaging 1.45×10^{-6} centimeters per second (cm/s) horizontally and 3.7×10^{-6} cm/s vertically. These silts appear to act as aquitards and as barriers to contamination migration. Lastly, these laboratory results consistently show the presence of this low permeability silt in the locations tested.

Therefore, TRC believes this intermediate silt zone is an aquitard that appears to be protecting the deeper groundwater aquifer pumped by well 118 from the shallow petroleum hydrocarbons at the 76 station. This silt layer has consistently been observed at the 76 station as well as in offsite drilling. Within this silt layer, TRC observed sand lenses with thicknesses ranging from approximately one to 8 feet. However, the underlying silt layers are as thick as 22 feet. No evidence of a break in the silt layer, i.e. a natural vertical conduit through the silt layer, was identified during this investigation, nor did any boring of adequate depth fail to encounter the silt lithology. This consistency and continuity support the conclusion that the silt appears to be serving as an aquitard, limiting the vertical migration of hydrocarbons downward.

7.2 SOIL SAMPLE CHEMICAL ANALYSIS RESULTS

A total of 74 soil samples were submitted for chemical analysis during this investigation. TPHg concentrations were below laboratory detection limits in all soil samples analyzed for chemical analysis. Concentrations of other constituents ranged from below laboratory detection limits in most samples to 0.14 mg/kg benzene, 1.2 mg/kg MTBE, and 8.4 mg/kg tertiary butyl alcohol (TBA). Detected soil concentrations were identified only in the same areas as impacted groundwater (Table 6, Appendix E).

7.3 PHOTOIONIZATION DETECTOR (PID) READINGS

PID readings were used to guide selection of the screen intervals for each well location. In general, small fluctuation in PID readings did not correlate with detections of petroleum hydrocarbons in soil or groundwater, but large spikes in concentrations did. PID readings were generally collected by inserting the tip of the PID into each end of the polyurethane bag, in which the rotosonic drilling dispensed the approximately 2.5 foot long soil core. Therefore, PID readings were used to identify volatile hydrocarbons generated from the entire 2.5 foot length of the each core, and not to link the hydrocarbons to more precise depths. PID readings are listed on the boring logs and the depth measurement for each reading indicates the location at which the PID was inserted into the polyurethane bag (Appendix E).

7.4 INVESTIGATION GROUNDWATER SAMPLE RESULTS

A total of 54 groundwater samples collected from 11 CPT borings were below laboratory detection limits for TPHg and TBA. Concentrations of other constituents ranged from below laboratory detection limits to 4.1µg/l benzene and 510 µg/l MTBE (Table 7; Appendix E). These results were used to guide the location and depths of new wells installed during this investigation.

A total of 30 groundwater samples collected from six rotosonic borings were below laboratory detection limits for TPHg. Concentrations of other constituents ranged from below laboratory detection limits to 53 µg/l benzene, 180 µg/l MTBE, and 42 µg/l TBA (Table 7; Appendix E). These results were used to guide selection of the screen intervals for each well location.

On November 12, 2001, TRC collected groundwater samples from wells MW-22B, MW-24B, and MW-25B to obtain preliminary groundwater data in order to guide the ongoing investigation. The samples were not analyzed for TPHg and were below laboratory detection limits for TBA. Concentrations of other constituents ranged from 34 µg/l to 190 µg/l benzene and 0.69 µg/l to 3.6 µg/l MTBE (Table 7; Appendix E). However, this data was not and is not being used as part of our interpretation of the groundwater impacts at the site because TRC suspects cross-contamination of the samples as discussed in Section 7.7.4 below.

7.5 GROUNDWATER GRADIENT

The depth to water during the Second Quarter groundwater sampling event ranged from 11.71 to 23.78 fbg (Table 8). Historically, the groundwater gradient in the onsite shallow zone generally has been to the north until reaching a mounding of groundwater around Chevron well B-13. The groundwater gradient across the Chevron station in the shallow zone generally has been to the northeast. During the Second Quarter 2002 sampling event, the groundwater gradient onsite in the shallow zone was interpreted to be toward the groundwater wells being used for groundwater extraction, MW-10, MW-11, and MW-16 (Figure 9).

Within the aquitard, the groundwater gradient as contoured flows to the northwest at approximately 0.006 foot per foot (Figure 10). However, this may be deceptive. It is not clear that all of the wells screened within the aquitard are hydrologically connected. TRC excluded well R-1D from its gradient contour because it is screened entirely within silt, whereas all the other wells have reported a sand lens within the screen interval. It is not clear whether or not each sand lens is hydrologically connected to the other.

Below the aquitard, the groundwater gradient appears to flow southwest and then change direction to the northwest toward well 118 (Figure 11). This also may be somewhat deceptive in that some of the wells are screened considerably deeper than others so that differences in measured water levels may reflect change in pressure with depth, but, if real, it may be the result of RCWD pumping from well 118 and/or 102.

7.6 MONITORING WELL GROUNDWATER SAMPLE RESULTS

Concentrations in groundwater samples collected from groundwater monitoring wells screened through the static water table on December 17 and 18, 2001 ranged from below laboratory detection limits to 35,000 µg/L TPHg, 890 µg/L benzene, 21,000 µg/L MTBE, and 180,000 µg/L TBA. Concentrations in groundwater samples collected from groundwater monitoring wells screened at discreet intervals between or below zones of low permeability soil ranged from below laboratory detection limits to 9,100 µg/L TPHg, 2,200 µg/L benzene, 3,800 µg/L MTBE, and 2,800 µg/L TBA (Appendix A; TRC 2002b).

Concentrations in groundwater samples collected from groundwater monitoring wells screened through the static water table on January 28 and 29, 2002 ranged from below laboratory detection limits to 41,000 µg/L TPHg, 590 µg/L benzene, 16,000 µg/L MTBE, and 130,000 µg/L TBA. Concentrations in groundwater samples collected from groundwater monitoring wells screened at discreet intervals between or below zones of low permeability soil ranged from below laboratory detection limits to 18,000 µg/L TPHg, 5,100 µg/L benzene, 14,000 µg/L MTBE, and 5,100 µg/L TBA (Appendix A; TRC 2002c).

Concentrations of groundwater samples collected on May 29 through 31, 2002 were generally consistent with previous sampling events. Pre-purge and post-purge sample results were generally consistent with minor differences, except in one well. In MW-20B, dissolved-phase concentrations changed from 5,500 ug/l to 12,000 ug/l for TPHg, 350 ug/l to 2,400 ug/l for benzene, 9,300 ug/l to 20,000 ug/l for MTBE, and from 3,000 ug/l to 28,000 ug/l for TBA (Table 8, Figures 12 through 23, Appendix A; TRC 2002a).

7.7 ANOMALOUS DATA

Several instances of anomalous data were identified during this investigation and a review of previous investigations. At this time, TRC does not believe these data points are significant in assessing the release from the 76 station.

7.7.1 Monitoring Well MW-24AB

During the installation of groundwater well MW-24B, a coarse sand lens with elevated PID readings was encountered at approximately 66 to 68 fbg. However, during the installation of MW-24AB approximately five feet south of MW-24B, which was intended to be screened in this coarse sand lens, the coarse sand lens was not encountered and PID readings remained low. Subsequently, during the installation of MW-24C, approximately five feet east of MW-24B, the coarse sand lens with elevated PID readings was again encountered. Soil and groundwater data

collected from MW-24B and MW-24C contained MTBE concentrations as high as 1.2 mg/kg and 180 µg/L, respectively. Concentrations of MTBE in groundwater well MW-24AB are significantly lower (Table 7; Appendix A; TRC 2002a). The close proximately of the wells and the differences in chemical analysis results and lithology may indicate that preferential pathways for lateral contamination migration, particularly from east to west, may exist. However, there are no indications that these lenses or channels represent conduits for vertical migration of contaminants through the silt aquitard.

7.7.2 Historical Change in Groundwater Flow Direction

During the first three 76 station monitoring events in 1992 and 1993, the groundwater flow direction appeared to be to the south or southeast. However, since the installation of additional monitoring wells in February 1993, the flow direction has consistently been to the northwest. It is not clear whether there was an actual change in flow direction or, as appears more likely, more complete data facilitated a more comprehensive interpretation of the flow direction (Appendix A; Alton Geoscience, 1993).

7.7.3 Anomalous Groundwater Elevations

A mounding of groundwater, i.e. higher groundwater elevations, has consistently been observed in well B-13 relative to other nearby wells (Appendix A). The cause of this mounding is unclear, but may be the result of irrigation in the nearby planter or leaks from a nearby Rancho California Water District water line. The water line is located within two feet of well B-13.

Well MW-18 and former well MW-9 have generally had groundwater elevations a few feet lower than the rest of the 76 station (Appendix A). The cause of this is not clear.

7.7.4 Suspect Chemical Concentrations

On November 12, 2001, TRC collected groundwater samples from wells MW-22B, MW-24B, and MW-25B to obtain preliminary groundwater data in order to guide the ongoing investigation. Detected hydrocarbon concentrations ranged from 34 µg/L to 190 µg/L benzene and 0.69 µg/L to 3.6 µg/L MTBE. However, this data was not and is not being used as part of our interpretation of the groundwater impacts at the site because TRC suspects cross-contamination of the samples. This conclusion is based on:

- The elevated concentrations are inconsistent with all other chemical data from these same wells and other previous wells in the area, which have generally been below laboratory detection limits (Table 7; Appendix A).

- The highest reported concentrations are from the well sampled first and the lowest concentrations are from the well sampled last (Table 7). This pattern of cleansing from well to well is also indicative of cross contamination.

The source of the cross contamination could have been either the laboratory or field activities. The laboratory has indicated that laboratory contamination does not appear to be the source of the cross contamination. Other potential sources of cross contamination are the well development equipment or the equipment used to purge and sample the wells. After this apparent cross contamination incident, TRC reevaluated its procedures for well development, well monitoring and sampling and for QA/QC to ensure the collection of quality data at this site. A more aggressive decontamination procedure has been implemented for all equipment used in wells at the site (Appendix C). A new groundwater pump is dedicated for use only in wells known to be non-impacted. The groundwater pump is limited to use within the upper ten feet of the water column in each well to limit the surface are of the equipment exposed to groundwater. Additionally, a more rigorous equipment blank sampling protocol has been incorporated into the groundwater sampling program (Appendix C and E; Table 9).

8.0 RECEPTOR PATHWAY EVALUATION

8.1 SOURCES

8.1.1 Release Scenario

The exact location and time of the gasoline release(s) from the 76 station can not be determined from available data. However, general conclusions regarding the source of hydrocarbons at the site can be made. Based on available data, it appears that a release of gasoline range hydrocarbons from the USTs and/or piping occurred in the 1980s. This release was stopped either by ongoing maintenance at the station or by replacement of the USTs in 1989 and piping in 1996.

A significant rise in dissolved-phase hydrocarbons, and particularly MTBE, was observed in well MW-16, located near the USTs, beginning between September and October 1997. Dissolved-phase concentrations in well MW-16 reached a peak of 523,000 µg/l MTBE in February 1999 before dropping to 22,000 µg/l in September 2000, which is similar in magnitude to the most recent MTBE concentration in this well.

The cause of this rise remains unclear, although one possible explanation is that disturbance of the soil during station renovation activities in 1996 facilitated the migration of hydrocarbons from

soil to groundwater. Repeated inspections of the UST system have not located a leak in the existing UST system. Tosco stopped using MTBE at this station in December 2000 (replaced by ethanol), and began using an SVE system in July 2001 with limited affect on dissolved-phase concentrations in well MW-16. It is not clear what affect the recent groundwater pumping remediation system has had on dissolved-phase concentrations because of the short time of operation.

8.1.2 Contaminants of Concern

Based on the identified release(s) at this site, the primary contaminants of concern are petroleum hydrocarbons typically associated with a gasoline release, including benzene, toluene, ethylbenzene, xylenes, MTBE, and TBA.

8.1.3 Distribution of Hydrocarbons

On the 76 station site, the petroleum hydrocarbons appear limited in distribution to the shallow soil and groundwater. Impacts to soil are primarily located below previous source areas, i.e. in the vicinity of the USTs and dispensers. Impacts to groundwater on the station are highest in well MW-16, which is located near and directly downgradient of the USTs. Dissolved-phase hydrocarbons appear to have migrated laterally with the groundwater gradient to the north side of the station and Rancho California Road. What appears to be a laterally continuous geologic layer of low permeability silt has been identified below the shallow groundwater table on- and off-site. The silt appears to be acting as an aquitard limiting the vertical migration of the hydrocarbons downward.

Except for some anomalous data points discussed in Section 7.7, this pattern of hydrocarbon distribution has been consistently identified during current and previous site investigations and groundwater sampling events. The potential for hydrocarbons originating at the 76 station to affect identified receptors is discussed below.

8.2 RECEPTORS

TRC identified several potential receptors in the vicinity of the site including Murrieta Creek, drinking water wells, and occupants of buildings located over impacted soil or groundwater (Table 10). These receptors are described in more detail below.
The flood channel embankment of Murrieta Creek begins approximately 100 feet southwest of the site, across Front Street. The primary stream channel is approximately 200 feet southwest of the site (Figure 2). The flow of the creek varies with rainfall and aquifer recharge, but appears to have flowed continuously since 1992 based on USGS gauging data.

The closest drinking water well is RCWD well 118, which is approximately 1,000 northwest of the site. Water from this well is blended with water from other wells to provide drinking water to approximately 23,000 connections to their system. The next closest RCWD wells are almost 1/2 mile northwest and over 3/4 mile northeast of the site (Figure 4).

A smaller production drinking water well was identified at the Kids World School, approximately 1/2 mile south-southeast and upgradient of the site (Figure 4).

The closest surface structures to the site are the 76 station building, the Chevron station building to the north across Rancho California Road, the Denny's restaurant adjacent to the east, and the retail strip mall and restaurants to the south across Moreno Road (Figure 2).

The closest residences are located approximately 1/4 mile to the south of the site (Figure 1).

Numerous utilities have been identified in all of the adjacent roadways near the site. Of particular size, is the electrical utility vault on the west side of the Chevron station that appears to be approximately 15 feet deep, 10 feet wide and 20 feet long. No other utilities are known to extend so close to the shallow groundwater table in the area (Figure 24).

Other than the previously mentioned wells, residences and a daycare/school approximately 1/2 mile to the south, no other sensitive receptors were identified in the vicinity of the site.

8.3 PATHWAY EVALUATION

This discussion evaluates the exposure pathways (Table 11) through which ecological receptors, such as groundwater and surface water, can be impacted by chemicals and through which human receptors can potentially be exposed to chemicals. Typical exposure pathways as specified by the United States Environmental Protection Agency (EPA) have been considered and are described below (EPA, 1991).

The purpose of this evaluation is to identify potential pathways requiring further consideration in order to adequately evaluate the risk posed to human health and the environment by petroleum hydrocarbons at the site. Pathways that do not exist at the site or have a low potential for causing exposure are excluded from further consideration. Pathways with greater potential for causing exposure to contaminants are recommended for further evaluation.

8.3.1 Groundwater

Groundwater is an ecological receptor and is also a medium through which contaminants can impact other ecological and human receptors such as surface waters or drinking water. Groundwater beneath the 76 station has been impacted by a release of gasoline from the site as evidenced by the dissolved-phase concentrations identified in wells onsite. Therefore, groundwater has the potential to act as a medium for exposure to other receptors, which are discussed further below.

8.3.2 Murrieta Creek

Based on the available data, there is no indication that impacted groundwater is affecting Murrieta Creek. Shallow wells on the west side of Front Street across from the 76 station have consistently shown low concentrations of dissolved-phase hydrocarbons, generally below the detection limits. Previous creek water sampling and soil sampling from hand auger borings in the creek by Chevron consultants and drilling on the embankment have also shown concentrations below the laboratory detection limits (HLA, 1984a).

8.3.3 RCWD Well 118

Petroleum hydrocarbon impacts to RCWD well 118 have the potential to cause dermal and ingestion exposures to residents of the area who utilize RCWD water. However, it is not clear whether petroleum hydrocarbons released at the 76 station have contributed to detections of MTBE in RCWD well 118. As reported to Tosco by the CRWQCB, the RCWD has reportedly determined that the regional groundwater flow direction is to the south. Using RCWD data, CRWQCB staff performed a preliminary evaluation of the capture zone of RCWD well 118, which appears to indicate that the Chevron and 76 stations are on the edge or outside of the capture zone. Also, several other sources of MTBE exist in the area, including some that are upgradient of RCWD well 118.

In addition, a silt aquitard with silt layers up to 22 feet thick appears to be protecting the deeper groundwater aquifer pumped by well 118 from the shallow petroleum hydrocarbons at the 76 station. This silt layer has consistently been observed at the 76 station as well as in offsite drilling. Although occasional sand lenses were observed within the silt layer, the thickness, continuity, and low permeability of the silt appear adequately defined by TRC's recent offsite drilling. No evidence of a break in the silt layer, i.e. a natural vertical conduit through the silt layer, was identified during this investigation, nor did any boring of adequate depth fail to encounter the silt aquitard.

The only known man-made, vertical conduits through this silt layer are four former Chevron wells screened across the silt layer and possibly into the lower aquifer, i.e. wells R-1, GT-1, GT-2

and GT-3. The available data does not clearly identify whether these wells extended all the way through the silt aquitard into the deeper aquifer. The boring log for R-1, for example, ends in a silty sand that appears likely to represent the same soil demonstrated by recent drilling to be a silt aquitard, not a sand. Since the silt aquitard identified by TRC has occasional sand lenses and drilling was not performed deeper than the bottom of the wells during their installation by Chevron consultants, it is not possible to determine whether any sand identified at the bottom of these borings represent the deeper aquifer or a sand lens within the aquitard without additional subsurface investigations in the same areas.

Therefore, it appears possible that hydrocarbons reaching these Chevron wells may have migrated down to the sand lens, but not into the deeper aquifer. This would also explain the elevated concentrations detected in well MW-20B and the high PID readings detected at a similar depth during Chevron's installation of well R-1D. It is also not clear whether impacts to the sand lens within the silt layer have the potential to impact RCWD well 118 instead of merely remaining trapped within the sand lens. Based on the available data, there appears to be approximately 4 to 6 feet of silt below this particular sand lens that would protect the deeper aquifer drawn by RCWD well 118.

Evaluation of the potential migration pathway of hydrocarbons near the Chevron site is complicated by the fact that Chevron has had it's own release of petroleum hydrocarbons, including significant quantities of free product. This released product was potentially smeared across a large area when water levels below the Chevron site dropped more than 60 feet during the late 1980s, or the product may have migrated preferentially down conduits such as the four deep Chevron wells. This product was then likely trapped below groundwater when groundwater levels recharged in the early 1990s and may continue to act as an ongoing source of hydrocarbons, including MTBE.

Based on this data, it is not known whether or not hydrocarbons from the 76 station reached any of these four Chevron wells and, if they did, whether the hydrocarbons reached the deeper aquifer via these potential conduits.

8.3.4 Other Wells

The other active drinking water wells identified in the area are over 1/2 mile away from the 76 station and, therefore, appear unlikely to be affected by the petroleum hydrocarbon impacts identified in the vicinity of the 76 station.

8.3.5 Occupants of Structures

The risk to occupants from migration of vapor-phase hydrocarbons into nearby structures has not been evaluated. However, based on the assessment to date, the only structures located close enough to the hydrocarbon release to be a potential concern appear to be the 76 station building and possibly the Denny's restaurant. However, Tosco has been operating an SVE system onsite to remediate vapor-phase hydrocarbons at the site, which will likely limit vapor-phase hydrocarbons from migrating to these potential receptors.

8.3.6 Utilities

Underground utility trenches can at times act as preferential pathways for contaminant migration because the backfill material may facilitate the migration of hydrocarbons along the trench line. Underground utilities may also be considered potential receptors of contamination in that petroleum hydrocarbons may enter into the interior of the utility line. This is most likely to occur where utility trenches and utilities intersect impacted groundwater. Based on the depth to groundwater at the site, underground utilities do not appear to intersect the groundwater table, with the possible exception of a large electric vault on the west side of the Chevron Station (Figure 24). However, it appears unlikely that petroleum hydrocarbons from the 76 Station have impacted this electric vault.

9.0 CONCLUSIONS

Based on the available data, the following is concluded:

- There appears to be a laterally continuous silt aquitard limiting the vertical migration of hydrocarbons beneath the Site and immediate vicinity.

- The extent of hydrocarbon-impacted soil and groundwater in the shallow-zone appears adequately assessed.

- There is evidence to suggest a narrow sand lens in the vicinity of well MW-24B may be impacted with significant concentrations of hydrocarbons. However, the source of these hydrocarbons appears unlikely to be the 76 station based on the distance from the site, apparent orientation of the sand lens, lack of identified pathways from the 76 station and the presence of other potential sources in the area.

- The source of hydrocarbons in well MW-20B and other deeper wells is not clear. The only conduits through the silt aquitard identified to date are four former Chevron wells, R-1, GT-1, GT-2, and GT-3.

- Evaluation of the potential migration pathway of hydrocarbons near the Chevron site is complicated by the previous Chevron release, in which free product appears to have been smeared across a large area near wells R-1 and MW-20B when water levels dropped more than 60 feet in the late 1980s. This Chevron release has the potential to be acting as an ongoing source of hydrocarbons, including MTBE.

- The potential for the former conduits on the Chevron site to have affected hydrocarbon migration and the potential for the previous Chevron release to act as a continuing source for the hydrocarbons identified in the vicinity of well MW-20B needs further assessment by Chevron.

10.0 RECOMMENDATIONS

Based on the conclusions presented herein, the following is recommended:

- Tosco should continue remediation of petroleum hydrocarbons in shallow soil and groundwater at the 76 station.

- The planned aquifer test in cooperation with the RCWD and consultants for other sites should be performed.

- Chevron should continue to assess the potential affects their four deep wells may have had on hydrocarbon migration and the potential for historical Chevron releases to act as an ongoing source of impacts to deeper groundwater.

- After the results of these additional investigations are known, TRC will modify the Site Conceptual Model and make additional recommendations, as appropriate.

11.0 LIMITATIONS

The site assessment activities summarized in this report have been performed in accordance with current practice and the standard of care exercised by geologists and engineers performing similar tasks in this area.

No warranty, express or implied, is made regarding the conclusions, recommendations, and professional opinions presented in this report. The conclusions and recommendations are based solely upon analysis of the observed conditions. If actual conditions differ from those described in this report, our office should be notified and additional recommendations, if required, will be provided.

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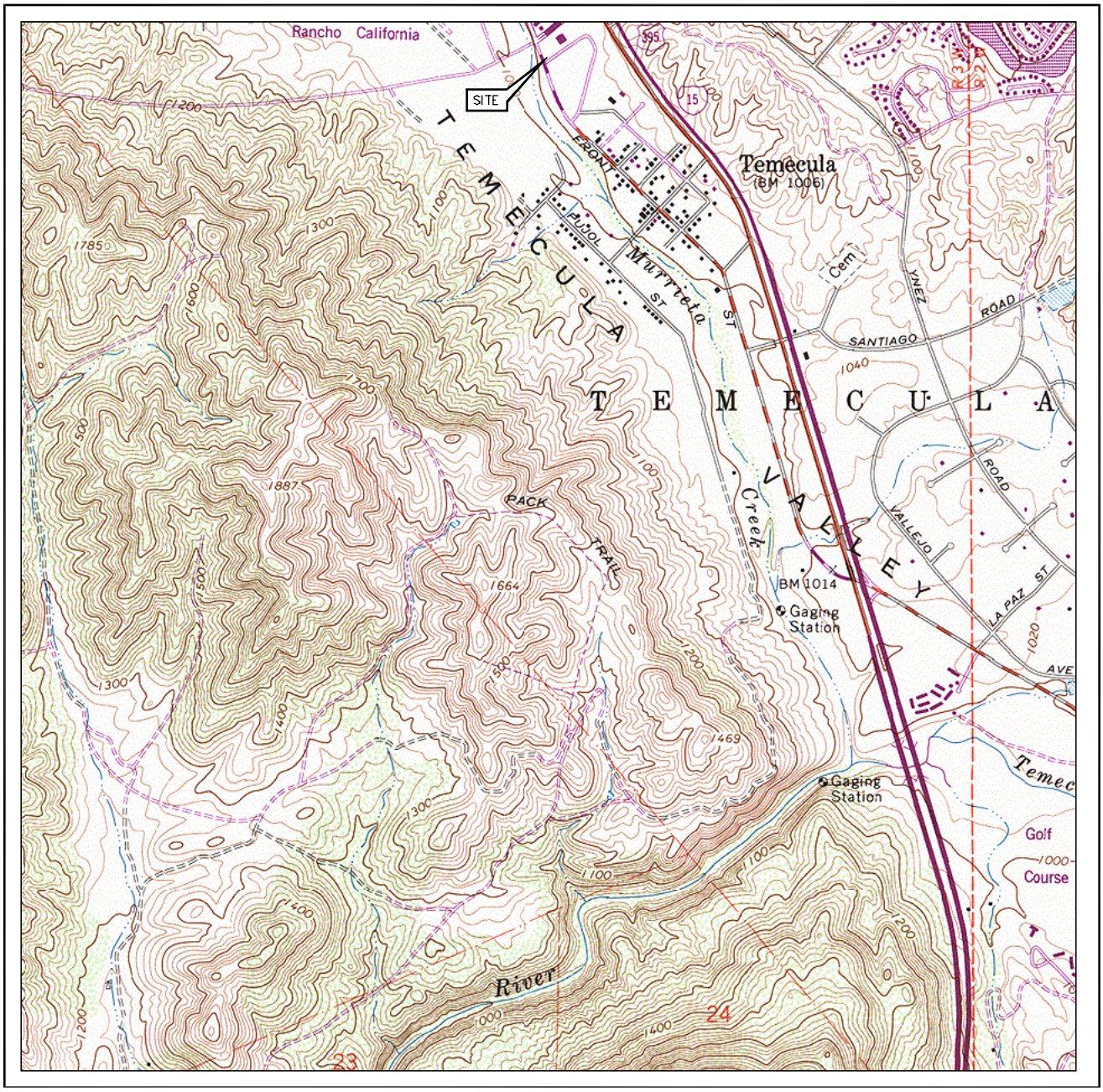


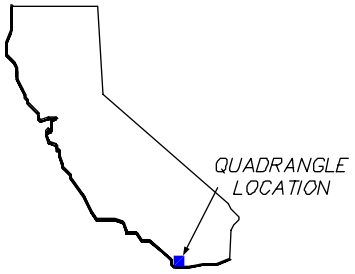
0 1/4 1/2 3/4 1 MILE

SCALE 1:24,000

N

SOURCE:

United States Geological Survey
7.5 Minute Topographic Map:
Temecula Quadrangles



INDEX MAP

76 Station 6519
28903 Rancho California Road
Temecula, California

FIGURE 1

PS=1:1

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N

LEGEND

MW–18	⊕	76 Monitoring Well
VEW–12	⊕	76 Vapor Extraction Well
B–22	⊕	76 Boring
EW–7	⊕	76 Groundwater Extraction Well
B15	⊕	Chevron Monitoring Well
VW–1	⊕	Chevron Vapor Extraction Well
B–28	⊕	Chevron Boring
MW–9	⊘	Abandoned Well
118	⊕	Rancho California Water District Production Well
406	⊕	Rancho California Water District Monitoring Well
CPT–8	△	Core Penetrometer Test Boring
B6	⊕	Geotechnical Boring (Kleinfelder, 2001)

NOTES:

USTs = underground storage tanks. VES = vapor extration system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 manitoring wells installed by TRC.

CHEVRON SERVICE STATION # 9–1870

COMMERCIAL CENTER

DENNY'S RESTAURANT

SHOPPING CENTER

76 STATION 6519

VACANT PROPERTY

VACANT PROPERTY

RANCHO CALIFORNIA ROAD

MORENO ROAD

FRONT STREET

JEFFERSON AVENUE

EDGE OF BRIDGE

CREEK FLOW DIRECTION

WELL #118 COMPOUND

DIAZ ROAD

DRAINAGE CULVERT

SITE VICINITY MAP

76 Station 6519
28903 Rancho California Road
Temecula, California

SCALE (FEET)
0 60

PS=1:60

TRC

FIGURE 2

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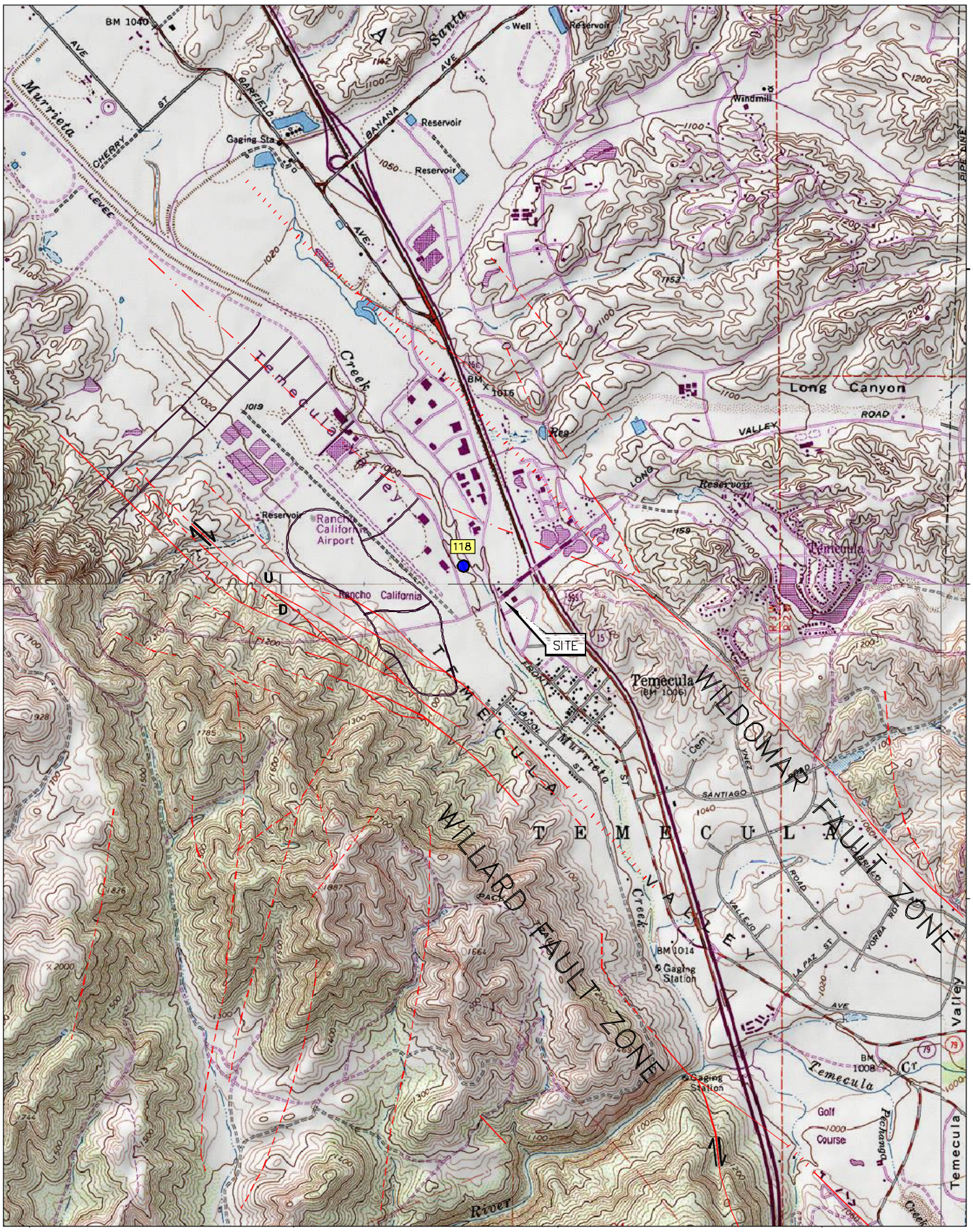


0 1/4 1/2 3/4 1 MILE

SCALE 1: 2,400'

LEGEND

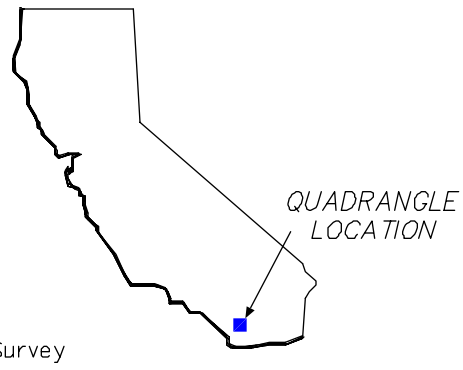
- Confirmed Fault
- Inferred Fault
- Concealed Fault
- Fault based on gravity data
- U — Upthrown Side
- D — Downthrown Side
- Relative Direction of Horizontal Movement

NOTES:

All dimensions and locations are estimated.

SOURCE:

results from Kennedy, 1977.
United States Geological Survey
7.5 Minute Topographic Map:
Murrieta and Temecula Quadrangles



VICINITY MAP SHOWING FAULTS

76 Station 6519
28903 Rancho California Road
Temecula, California

FIGURE 3

PS=1: 2,400

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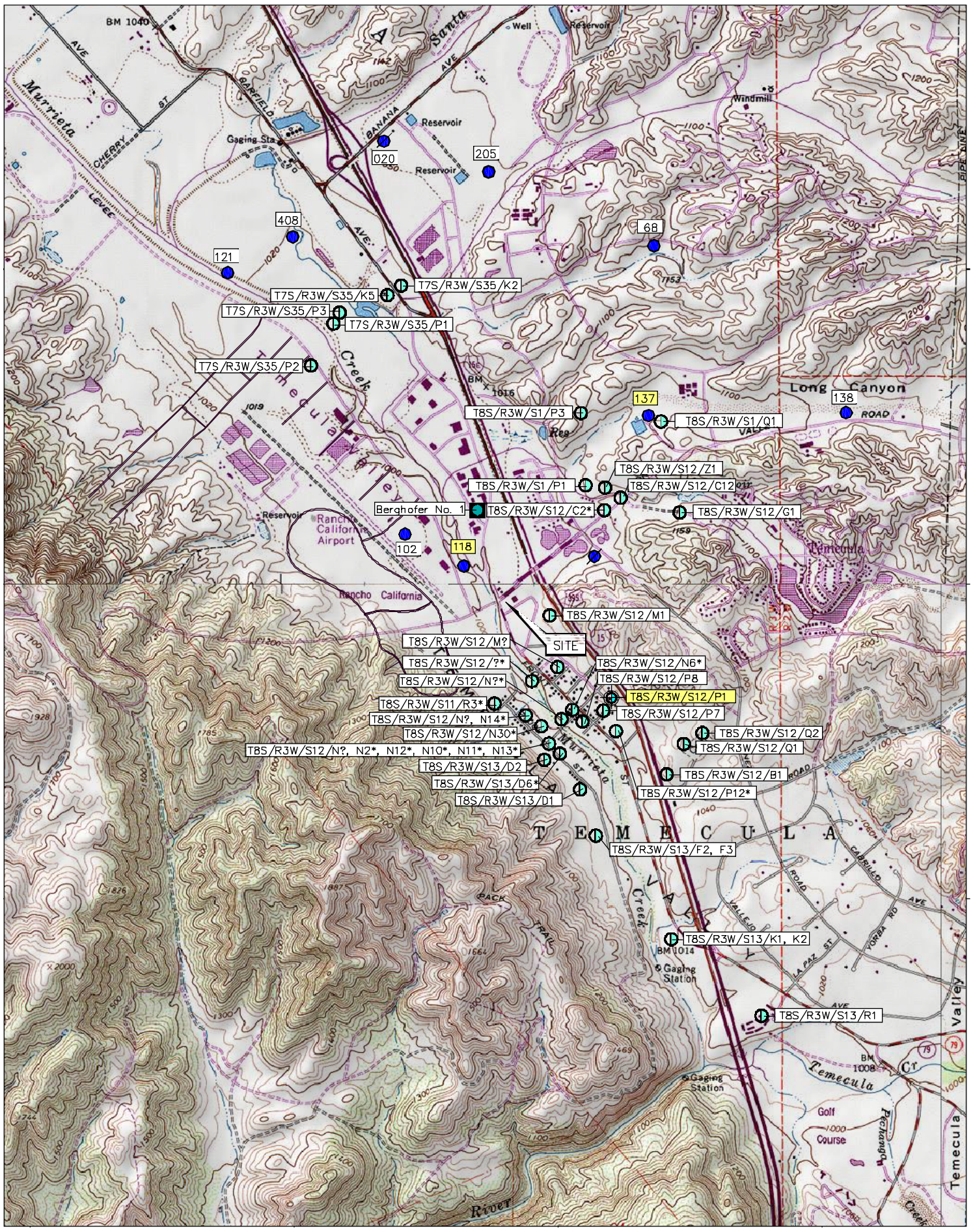


LEGEND

121 ● Rancho California Water District (RCWD) Water Well

020 ⌀ Destroyed (RCWD) Water Well

■ Exploratory Oil Well

⊕ Kid's World School Drinking Water Well

◐ Well mapped or listed by California Department of Water Resources (CDWR)

0 1/4 1/2 3/4 1 MILE

SCALE 1: 2,400'

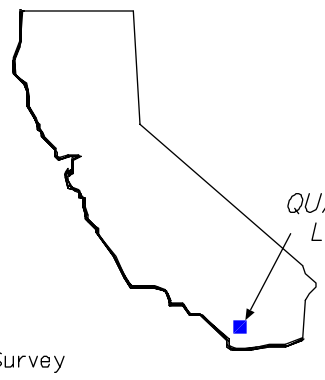
N

NOTES:

Locations of RCWD Wells based on review of Geotracker Website 1/16/01. Well ID's highlighted in yellow have been field verified to exist. Base map updated with roads based on locations and scale in the Thomas Guide 2001, Riverside County. * = well locations not mapped by CDWR; TRC estimated location based on DWR listed information. All dimensions and locations are estimated.

SOURCE:

United States Geological Survey
7.5 Minute Topographic Map:
Murrieta and Temecula Quadrangles



VICINITY MAP SHOWING LOCATION OF IDENTIFIED WATER WELLS

76 Station 6519
28903 Rancho California Road
Temecula, California

FIGURE 4

TRC

PS=1:2,400

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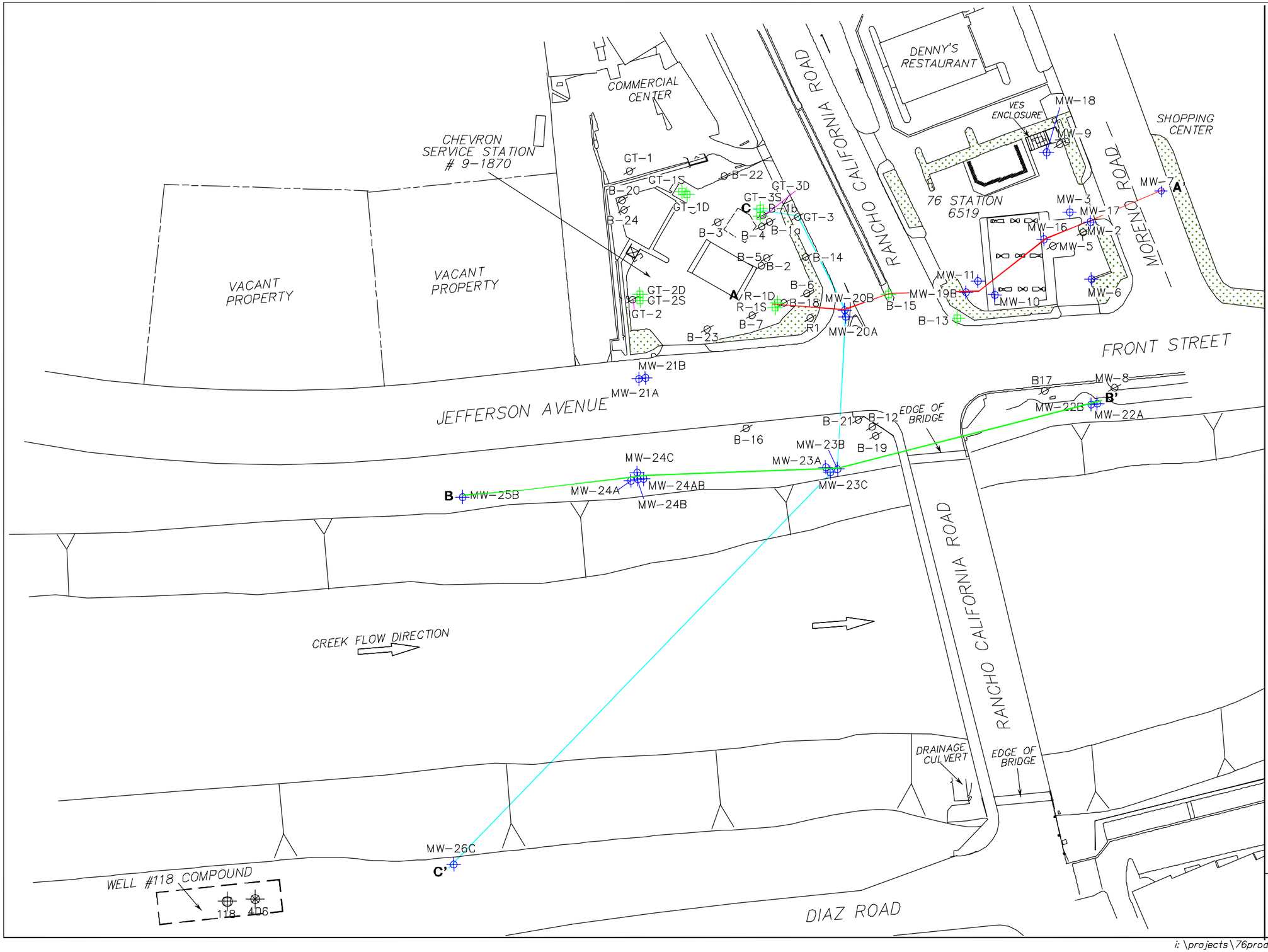

LEGEND

MW-18	⊕	76 Monitoring Well
B-15	⊕	Chevron Monitoring Well
MW-9	⊘	Abandoned Well
118	⊕	Rancho California Water District Production Well
406	⊛	Rancho California Water District Monitoring Well
A——A'		Cross Section Line

SCALE (FEET)

0 100

NOTES:

USTs = underground storage tanks. VES = vapor extration system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consulant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

VICINITY MAP SHOWING CROSS SECTION LINES

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 5

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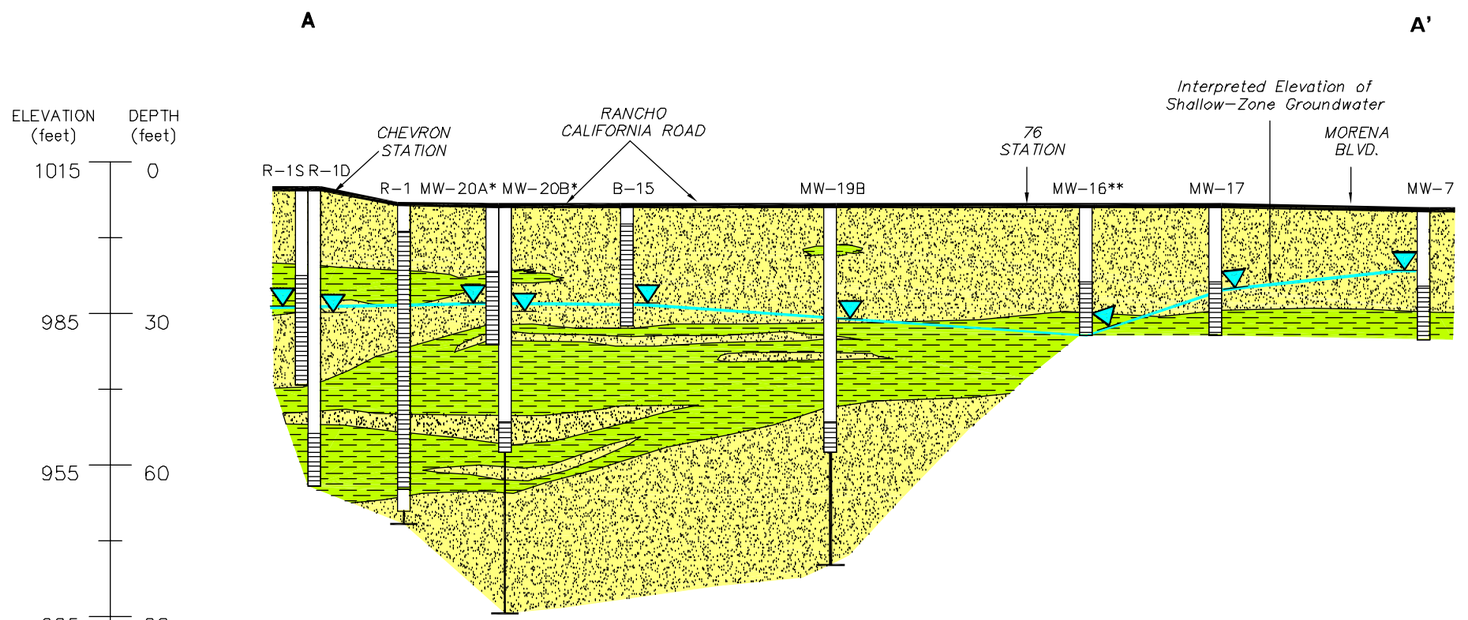

30 SCALE (feet) 60

PS = 1:60

NOTES:

* = Lithology from MW-20A and R-1 boring logs not used in stratigraphic interpretation. ** = groundwater being pumped from MW-16, groundwater elevation interpreted to be at bottom of well. Elevations are in feet above mean sea level. See Figure 5 for location of Cross Section. This is one interpretation of the data; other interpretations are possible. All dimensions and locations are estimated.

LEGEND

- Monitoring Well
- Blank PVC Casing
- Screened PVC Casing
- Total Boring Depth
- Groundwater Elevation from May 29-31, 2002 Sampling Event
- Silty Sand, Clayey Sand, Sand, Minor Gravely Sand, and Minor Gravel
- Silt, Clay, Clayey Silt, Silty Clay, Sandy Silt, and Sandy Clay

CROSS SECTION A-A'

76 Station 6519
28903 Rancho California Road
Temecula, California

FIGURE 6

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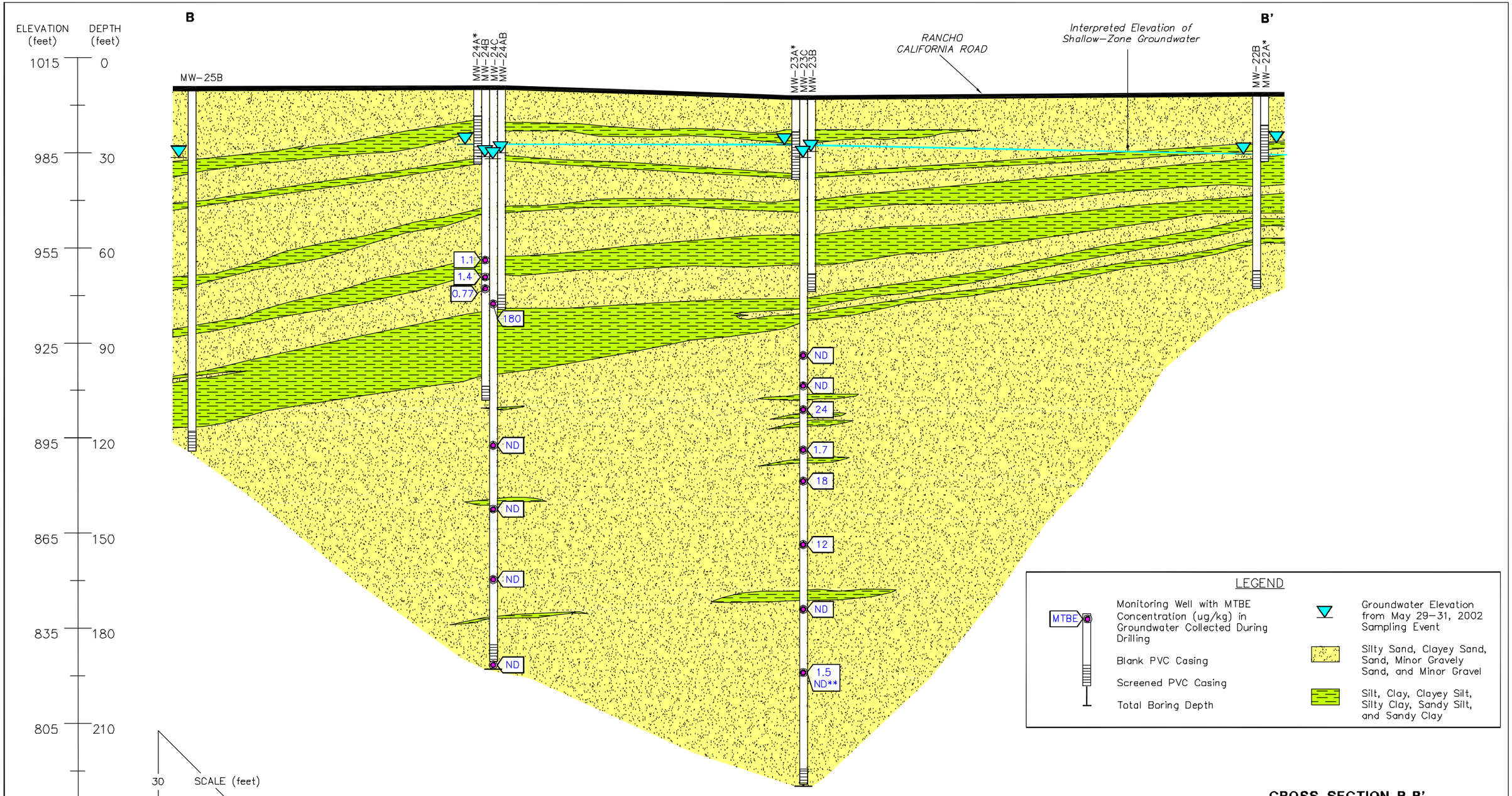

LEGEND

- MTBE — Monitoring Well with MTBE Concentration (ug/kg) in Groundwater Collected During Drilling
- Blank PVC Casing
- Screened PVC Casing
- Total Boring Depth
- Groundwater Elevation from May 29-31, 2002 Sampling Event
- Silty Sand, Clayey Sand, Sand, Minor Gravely Sand, and Minor Gravel
- Silt, Clay, Clayey Silt, Silty Clay, Sandy Silt, and Sandy Clay

NOTES:

* = Lithology from MW-24A, MW-23A, and MW-22A boring log not used in stratigraphic interpretation. ** = duplicate sample. MTBE = methyl tertiary butyl ether. ug/kg = micrograms per kilograms. Elevations are in feet above mean sea level. See Figure 5 for location of Cross Section. This is one interpretation of the data; other interpretations are possible. All dimensions and locations are estimated.

CROSS SECTION B-B'

76 Station 6519
28903 Rancho California Road
Temecula, California

FIGURE 7

TRC

PS = 1:60

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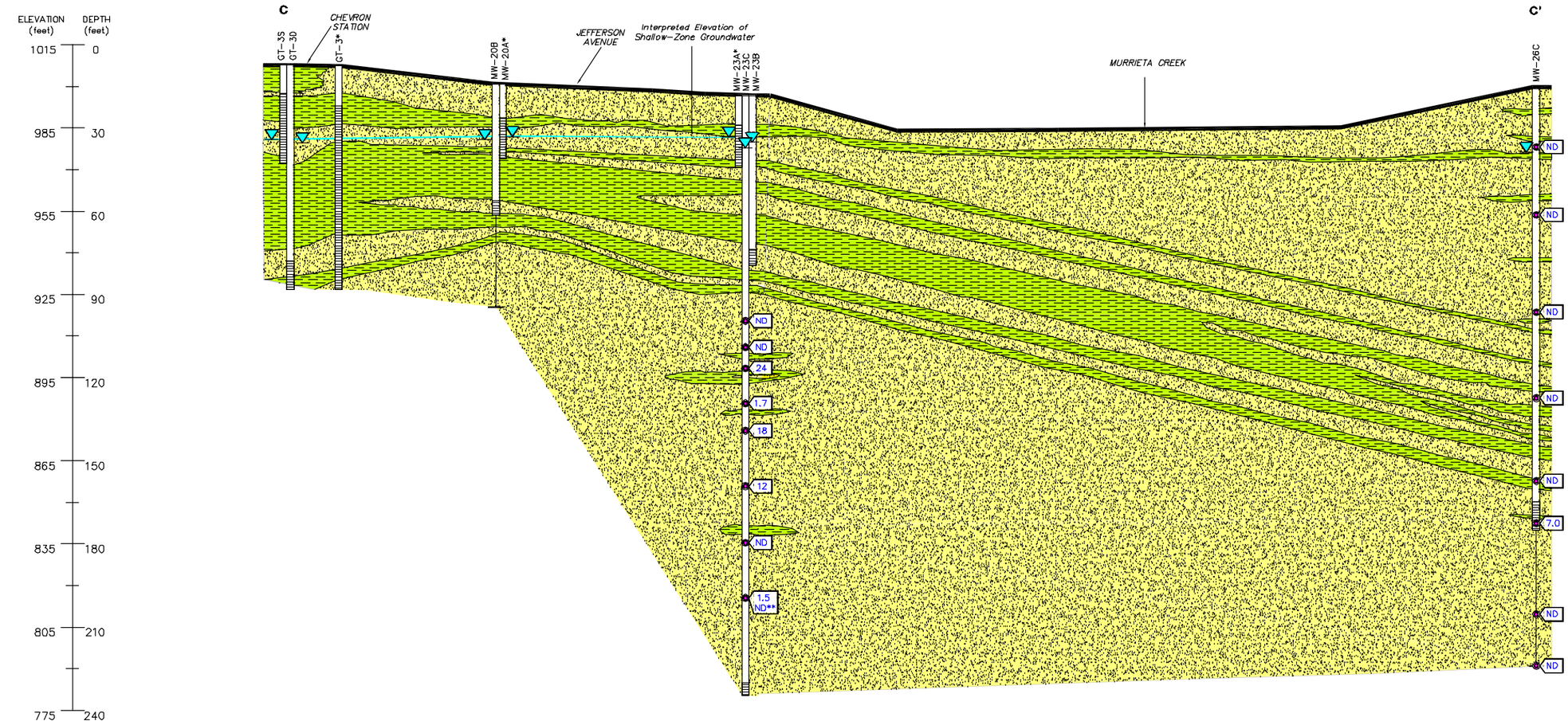

30 SCALE (feet) 60

PS = 1:60

NOTES:

* = Lithology from MW-20A, MW-23A, and GT-3 boring log not used in stratigraphic interpretation. ** = duplicate sample. MTBE = methyl tertiary butyl ether. Elevations are in feet above mean sea level. ug/kg = micrograms per kilogram. See Figure 5 for location of Cross Section. This is one interpretation of the data; other interpretations are possible. All dimensions and locations are estimated.

LEGEND

- MTBE — Monitoring Well with MTBE Concentration (ug/kg) in Groundwater Collected During Drilling
- Blank PVC Casing
- Screened PVC Casing
- Total Boring Depth
- Groundwater Elevation from May 29-31, 2002 Sampling Event
- Silty Sand, Clayey Sand, Sand, Minor Gravely Sand, and Minor Gravel
- Silt, Clay, Clayey Silt, Silty Clay, Sandy Silt, and Sandy Clay

CROSS SECTION C-C'

76 Station 6519
28903 Rancho California Road
Temecula, California

FIGURE 8

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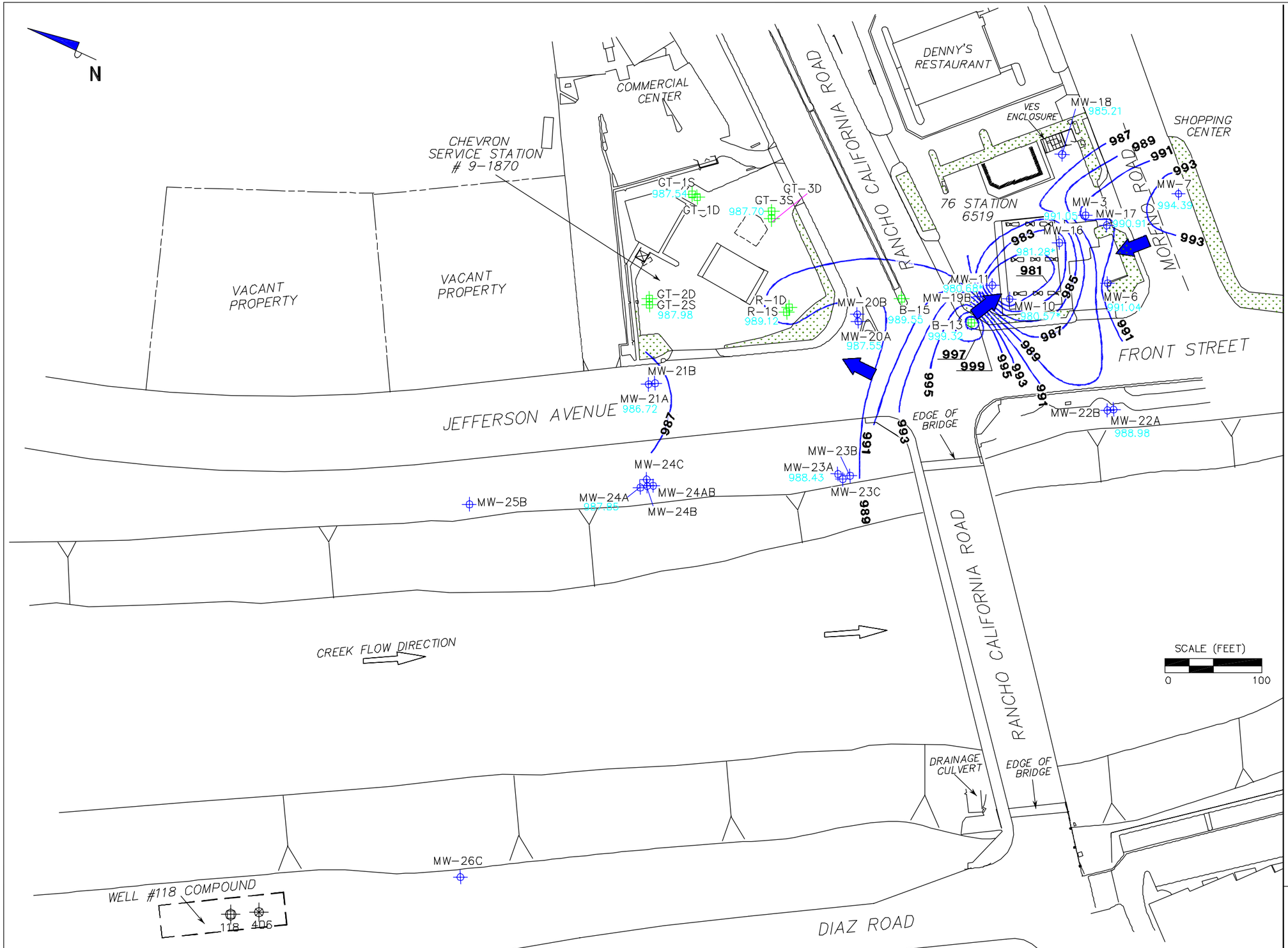

LEGEND

- MW-7 — 76 Monitoring Well with Groundwater Elevation (feet)
- GT1 — Chevron Monitoring Well with Groundwater Elevation (feet)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 993.00 — Groundwater Elevation Contour*
- General Direction of Groundwater Flow

NOTES:

* = Based on Measured Depth to Water only in wells screened through water table. * = well was dry due to active pumping/dewatering as part of remediation system operation. Water elevation assumed to be at the bottom of well's screened interval. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consulant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

GROUNDWATER ELEVATION CONTOUR MAP - SHALLOW ZONE
May 29, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 9

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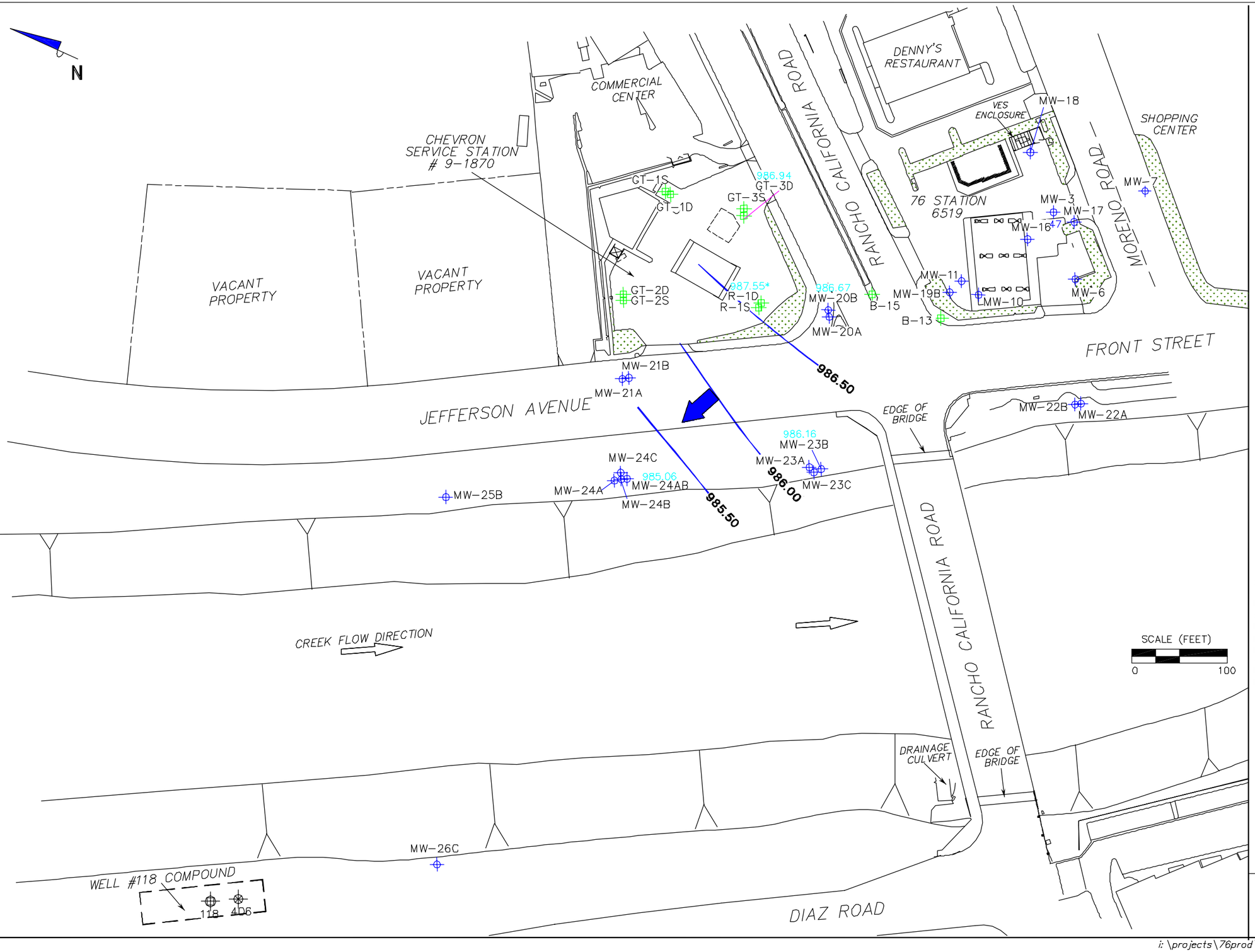


LEGEND

- MW-23B — 76 Monitoring Well with Groundwater Elevation (feet)
- GT-3D — Chevron Monitoring Well with Groundwater Elevation (feet)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 995.50 — Groundwater Elevation Contour
- General Direction of Groundwater Flow

NOTES:

* = not included in elevation contour. Well screened entirely within silt zone. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

GROUNDWATER ELEVATION CONTOUR MAP - WITHIN AQUITARD
May 29, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 10

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh

N

CHEVRON SERVICE STATION # 9-1870

COMMERCIAL CENTER

DENNY'S RESTAURANT

SHOPPING CENTER

RANCHO CALIFORNIA ROAD

MORENO ROAD

VES ENCLOSURE

76 STATION 6519

VACANT PROPERTY

VACANT PROPERTY

JEFFERSON AVENUE

FRONT STREET

EDGE OF BRIDGE

CREEK FLOW DIRECTION

DRAINAGE CULVERT

EDGE OF BRIDGE

WELL #118 COMPOUND

DIAZ ROAD

GT-1S
GT-1D 986.81
GT-3S
GT-3D
986.73 GT-2D GT-2S
R-1D
R-1S
MW-20B
MW-20A
B-15
MW-19B 984.93
B-13
MW-11
MW-10
MW-16
MW-3
MW-17
MW-18
MW-6
MW-7
986.00
985.50
985.00
984.50 MW-21B 984.39
MW-21A
MW-22B 985.16
MW-22A
985.00
984.50
984.00
MW-25B 984.02
MW-24A
MW-24C 984.13
MW-24AB
MW-24B 984.26
MW-23B
MW-23A
MW-23C 984.42
984.00
MW-26C 983.72
118 4D6

LEGEND

MW-19B — 76 Monitoring Well with Groundwater Elevation (feet)

GT-1D — Chevron Monitoring Well with Groundwater Elevation (feet)

118 — Rancho California Water District Production Well

406 — Rancho California Water District Monitoring Well

985.00 — Groundwater Elevation Contour

General Direction of Groundwater Flow

NOTES:

USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

SCALE (FEET)
0 100

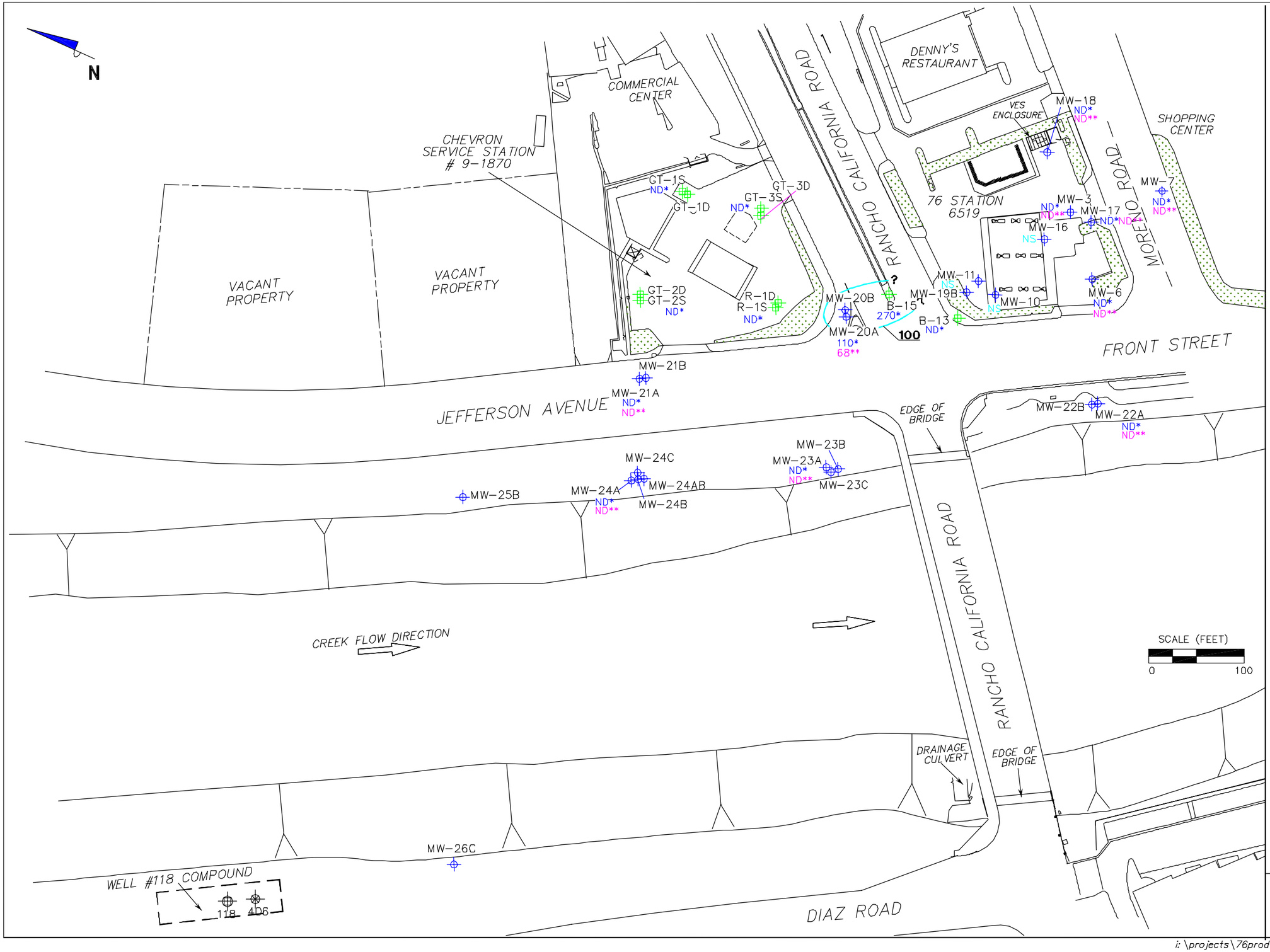
GROUNDWATER ELEVATION CONTOUR MAP - BELOW AQUITARD
May 29, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 11

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-7 — 76 Monitoring Well with Dissolved-Phase TPHg Concentration (ug/l)
- GT-1S — Chevron Monitoring Well with Dissolved-Phase TPHg Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 100 — Dissolved-Phase TPHg Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. NS = not sampled; wells pumped dry due to remediation system pumping. TPHg = total petroleum hydrocarbons as gasoline. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

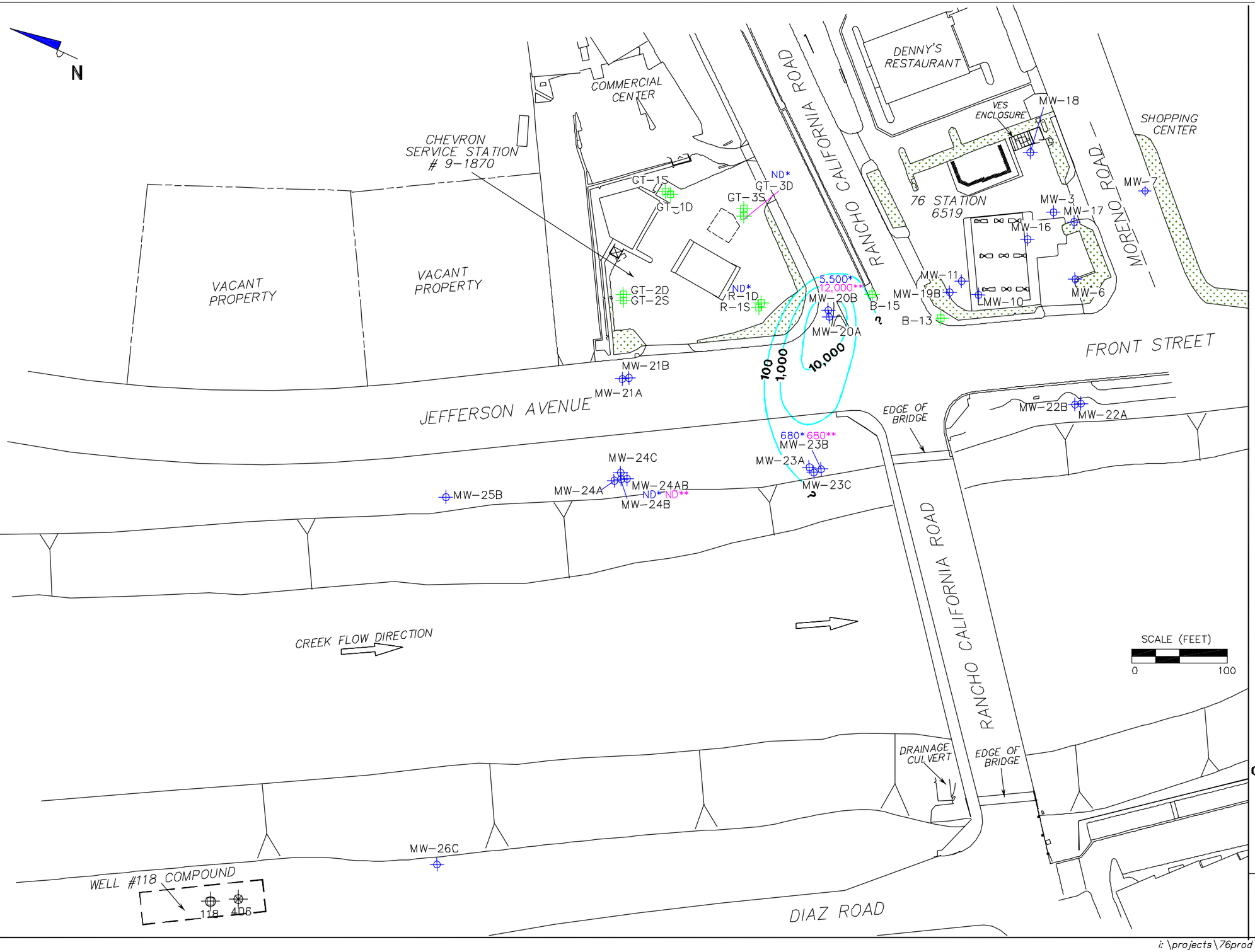
DISSOLVED-PHASE TPHg CONCENTRATION MAP - SHALLOW ZONE
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 12

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-20B — 76 Monitoring Well with Dissolved-Phase TPHg Concentration (ug/l)
- GT-3D — Chevron Monitoring Well with Dissolved-Phase TPHg Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 100 — Dissolved-Phase TPHg Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. TPHg = total petroleum hydrocarbons as gasoline. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

DISSOLVED-PHASE TPHg CONCENTRATION MAP - WITHIN AQUITARD
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 13

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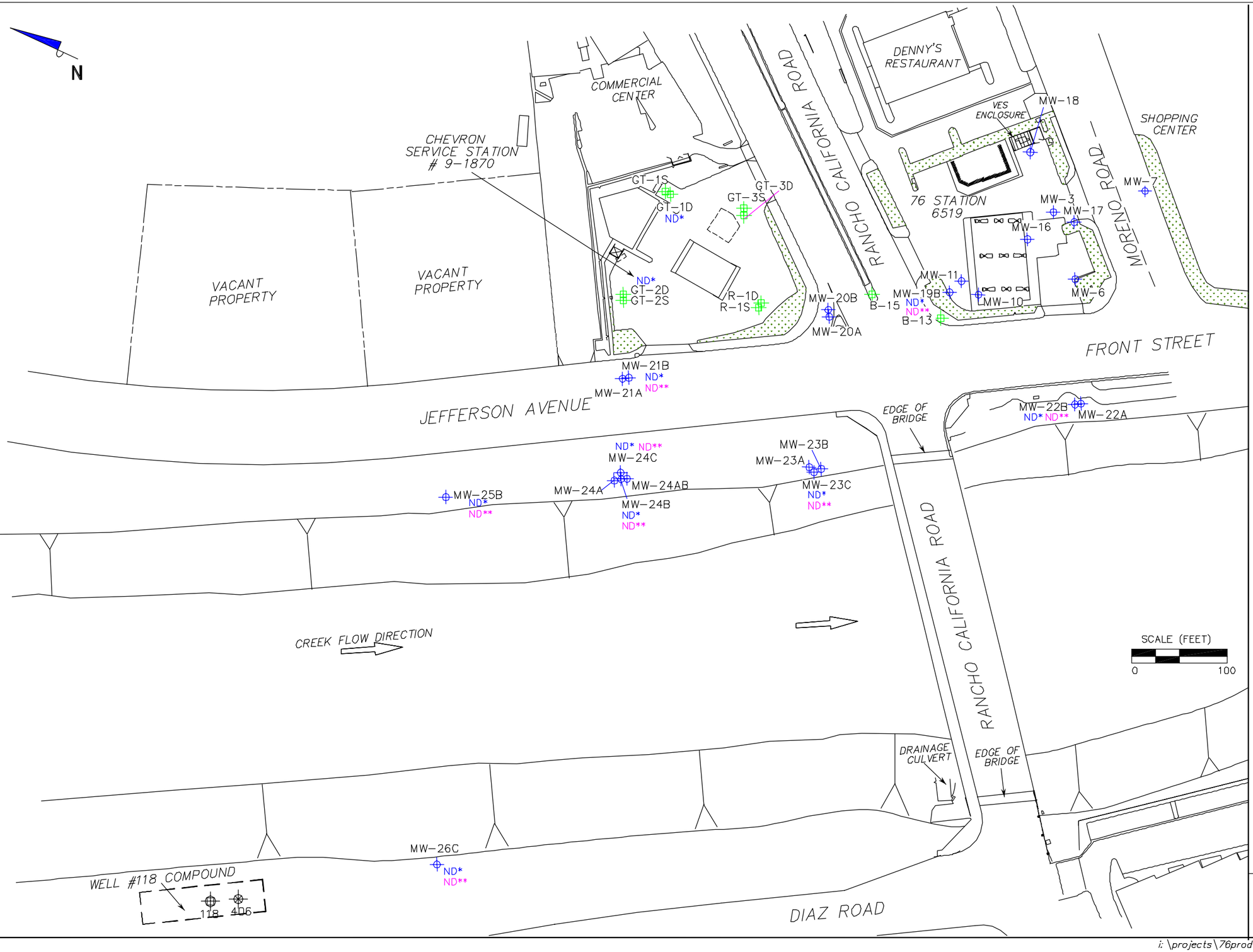

LEGEND

MW-19B	76 Monitoring Well with Dissolved-Phase TPHg Concentration (ug/l)
GT-1D	Chevron Monitoring Well with Dissolved-Phase TPHg Concentration (ug/l)
118	Rancho California Water District Production Well
406	Rancho California Water District Monitoring Well

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. TPHg = total petroleum hydrocarbons as gasoline. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consulant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

DISSOLVED-PHASE TPHg CONCENTRATION MAP BELOW AQUITARD
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 14

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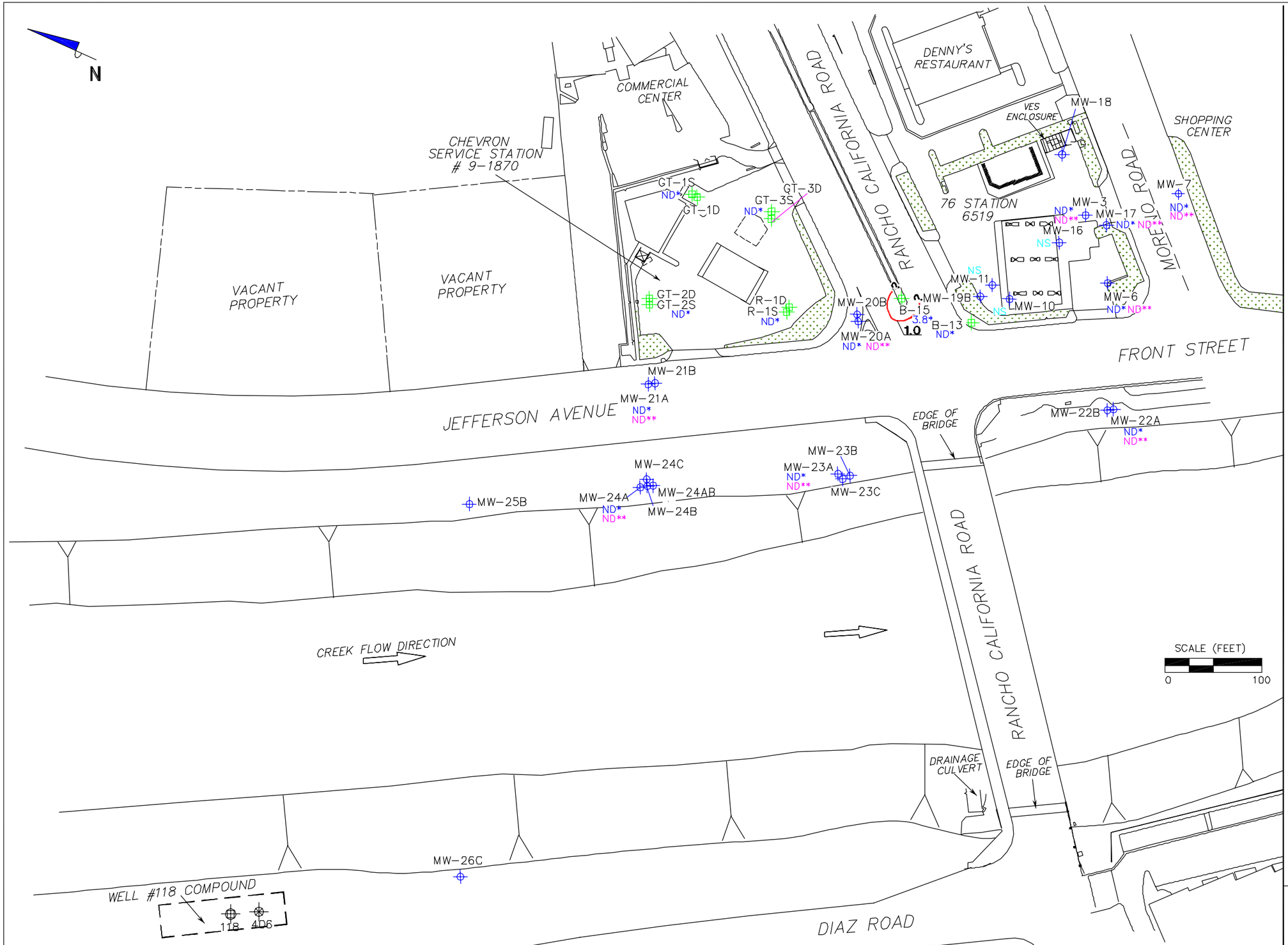


LEGEND

- MW-7 — 76 Monitoring Well with Dissolved-Phase Benzene Concentration (ug/l)
- GT-1S — Chevron Monitoring Well with Dissolved-Phase Benzene Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 1.0 — Dissolved-Phase Benzene Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. NS = not sampled; wells pumped dry due to remediation system pumping. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

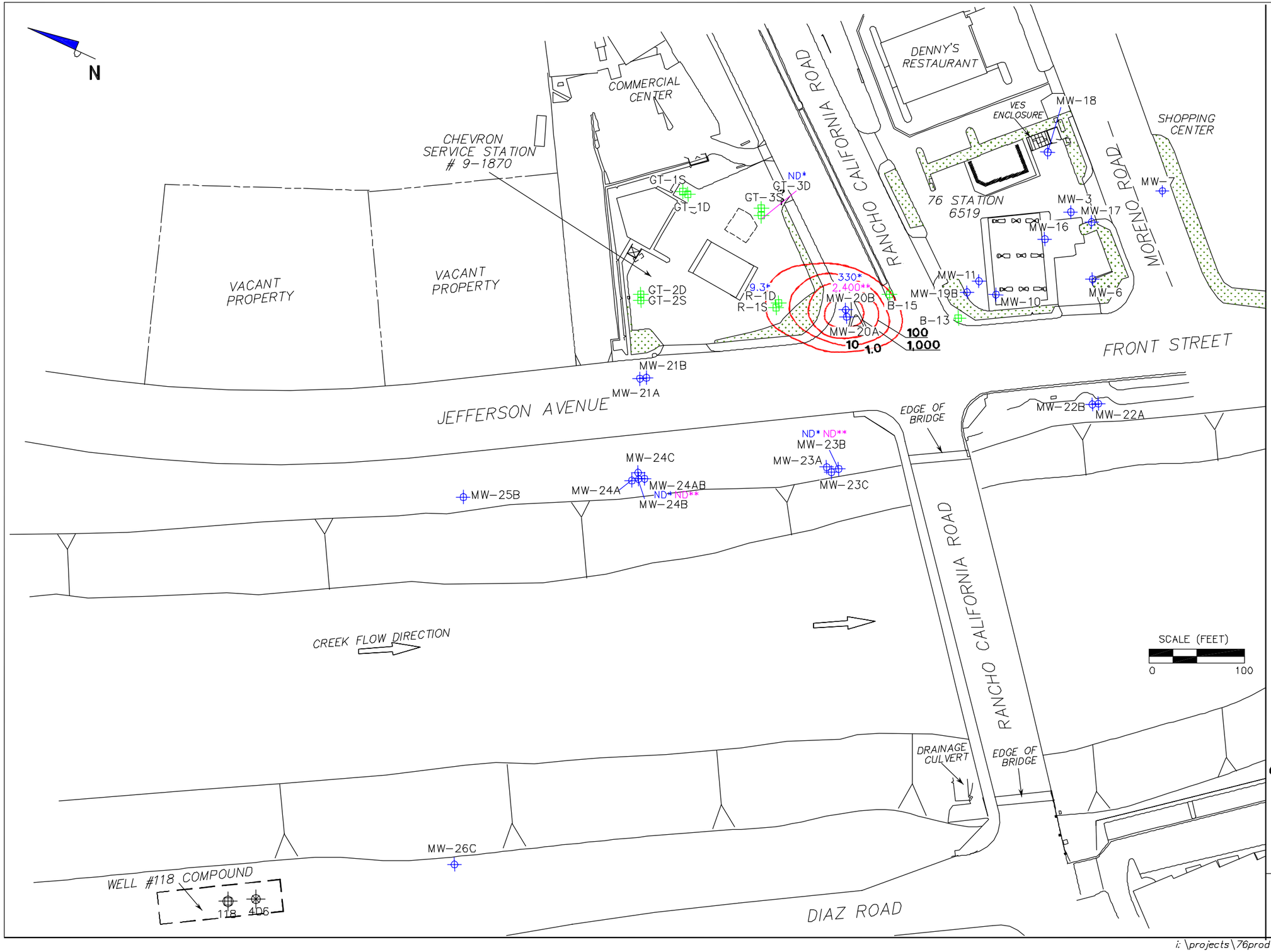
DISSOLVED-PHASE BENZENE CONCENTRATION MAP - SHALLOW ZONE
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 15

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-20B — 76 Monitoring Well with Dissolved-Phase Benzene Concentration (ug/l)
- GT-3D — Chevron Monitoring Well with Dissolved-Phase Benzene Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 10 — Dissolved-Phase Benzene Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

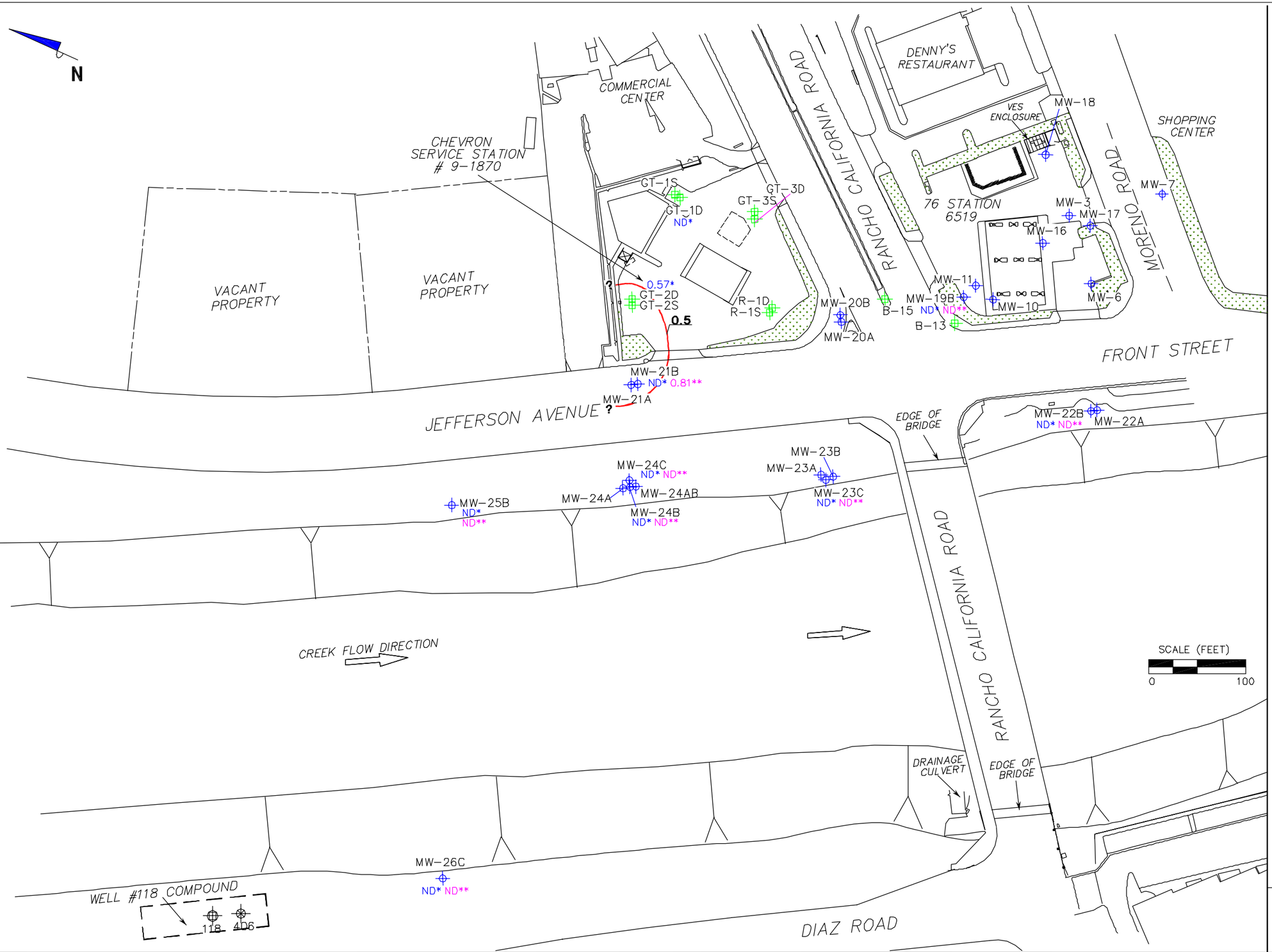
DISSOLVED-PHASE BENZENE CONCENTRATION MAP - WITHIN AQUITARD
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 16

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



SCALE (FEET)
0 100

LEGEND

MW-19B ⊕ 76 Monitoring Well with Dissolved-Phase Benzene Concentration (ug/l)

GT-1D ⊕ Chevron Monitoring Well with Dissolved-Phase Benzene Concentration (ug/l)

118 ⊕ Rancho California Water District Production Well

406 ⊕ Rancho California Water District Monitoring Well

0.5 Dissolved-Phase Benzene Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consulant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

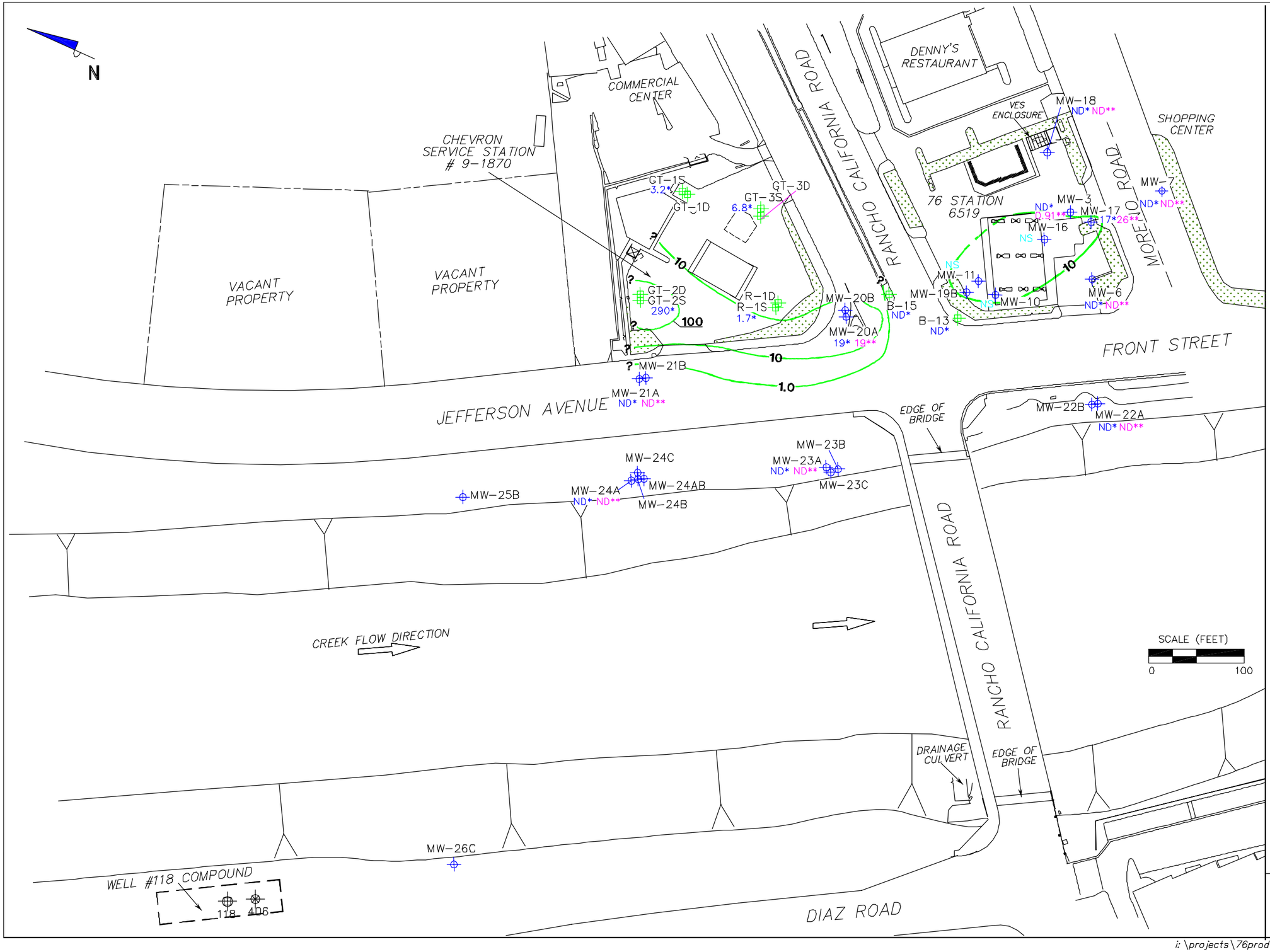
DISSOLVED-PHASE BENZENE CONCENTRATION MAP BELOW AQUITARD
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 17

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

MW-18	76 Monitoring Well with Dissolved-Phase MTBE Concentration (ug/l)
GT-1S	Chevron Monitoring Well with Dissolved-Phase MTBE Concentration (ug/l)
118	Rancho California Water District Production Well
406	Rancho California Water District Monitoring Well
10	Dissolved-Phase MTBE Concentration (ug/l). Dashed where inferred and queried where unknown.

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. NS = not sampled; wells pumped dry due to remediation system pumping. MTBE = methyl tertiary butyl ether. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

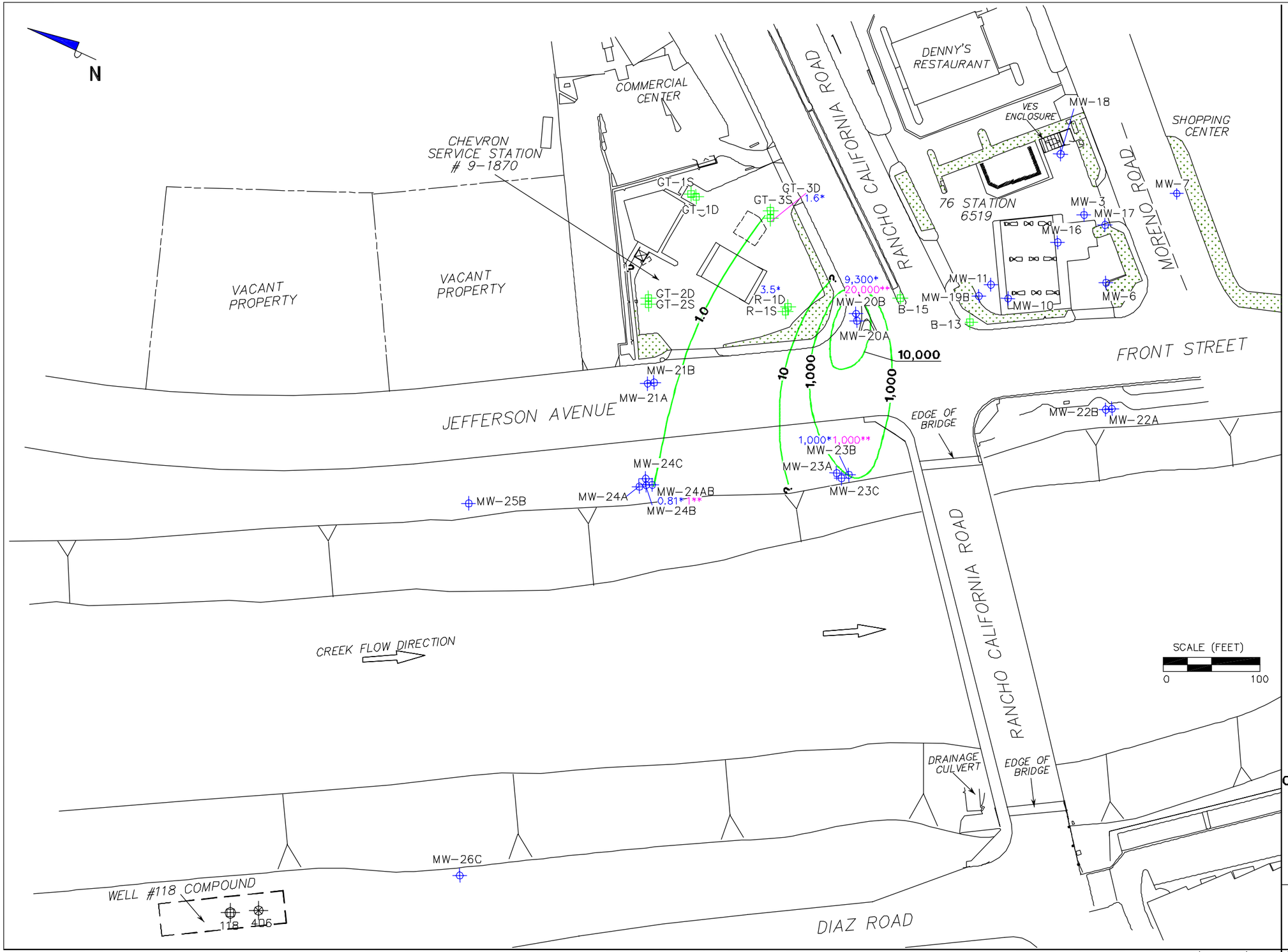
DISSOLVED-PHASE MTBE CONCENTRATION MAP - SHALLOW ZONE
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 18

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-20B — 76 Monitoring Well with Dissolved-Phase MTBE Concentration (ug/l)
- GT-3D — Chevron Monitoring Well with Dissolved-Phase MTBE Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 10 — Dissolved-Phase MTBE Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. MTBE = methyl tertiary butyl ether. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

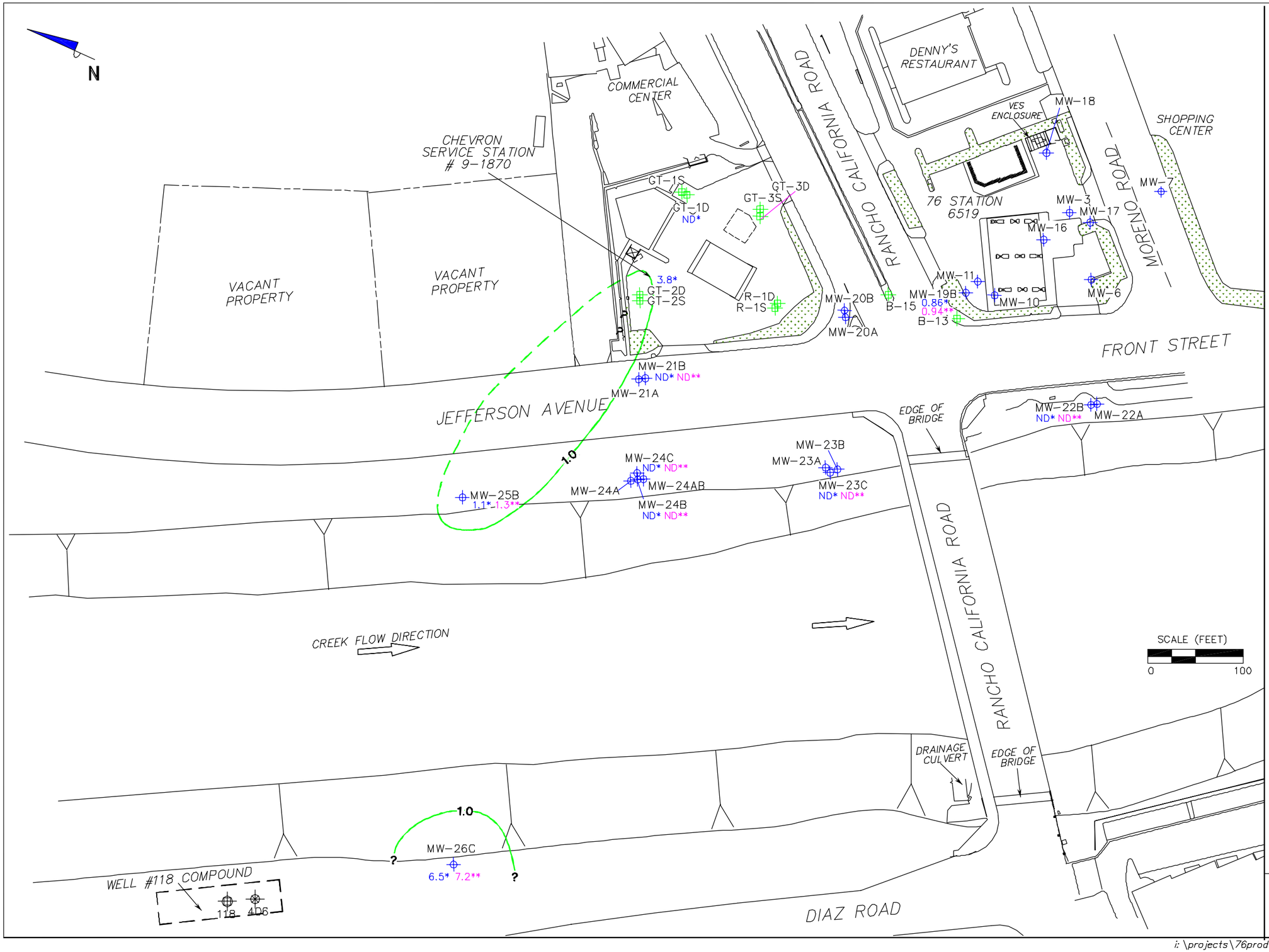
DISSOLVED-PHASE MTBE CONCENTRATION MAP - WITHIN AQUITARD
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 19

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-19B — 76 Monitoring Well with Dissolved-Phase MTBE Concentration (ug/l)
- GT-1D — Chevron Monitoring Well with Dissolved-Phase MTBE Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 1.0 — Dissolved-Phase MTBE Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. MTBE = methyl tertiary butyl ether. Contour lines are interpretive based on laboratory analysis results of groundwater samples and dashed where inferred. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consulant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

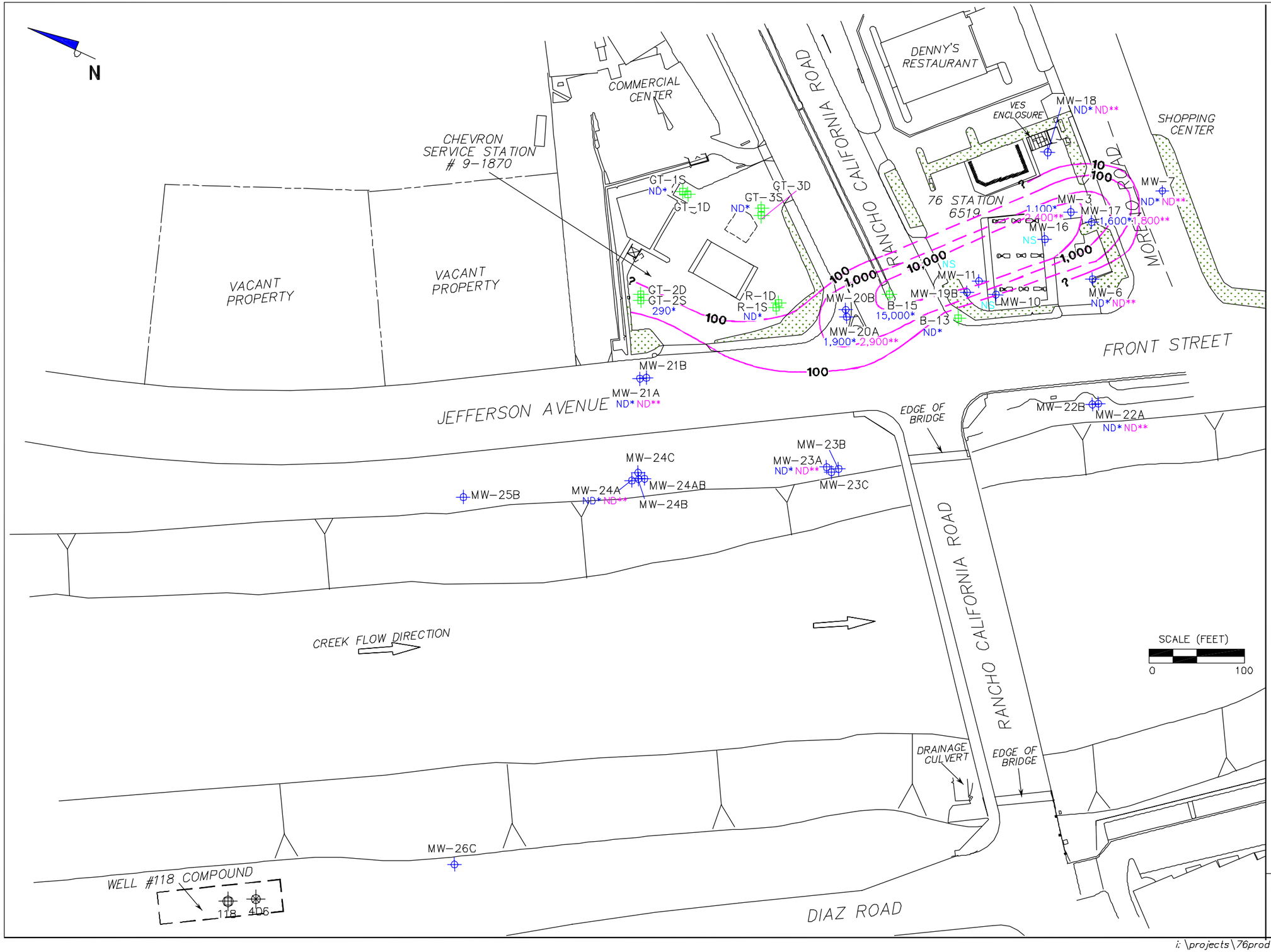
DISSOLVED-PHASE MTBE CONCENTRATION MAP BELOW AQUITARD May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 20

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-18 — 76 Monitoring Well with Dissolved-Phase TBA Concentration (ug/l)
- GT-1S — Chevron Monitoring Well with Dissolved-Phase TBA Concentration (ug/l)
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- 10 — Dissolved-Phase TBA Concentration (ug/l). Dashed where inferred and queried where unknown.

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. NS = not sampled; wells pumped dry due to remediation system pumping. TBA = tertiary butyl alcohol. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

SCALE (FEET)
0 100

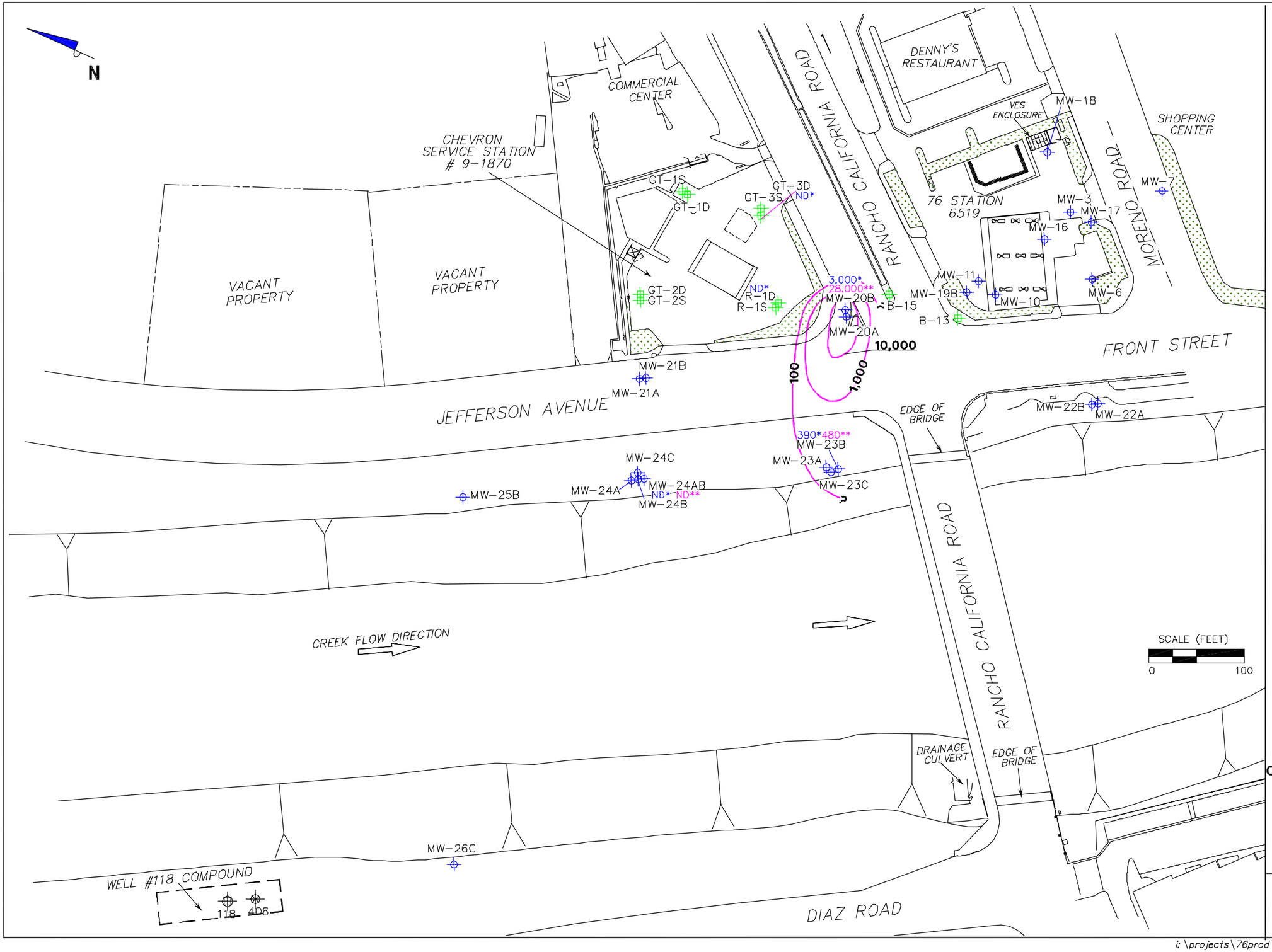
DISSOLVED-PHASE TBA CONCENTRATION MAP - SHALLOW ZONE
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 21

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

MW-20B	76 Monitoring Well with Dissolved-Phase TBA Concentration (ug/l)
GT-3D	Chevron Monitoring Well with Dissolved-Phase TBA Concentration (ug/l)
118	Rancho California Water District Production Well
406	Rancho California Water District Monitoring Well
100	Dissolved-Phase TBA Concentration (ug/l)

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. TBA = tertiary butyl alcohol. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

DISSOLVED-PHASE TBA CONCENTRATION MAP - WITHIN AQUITARD
May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 22

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh

N

COMMERCIAL CENTER

CHEVRON SERVICE STATION # 9-1870

VACANT PROPERTY

VACANT PROPERTY

RANCHO CALIFORNIA ROAD

DENNY'S RESTAURANT

VES ENCLOSURE

MW-18

SHOPPING CENTER

MORENO ROAD

MW-7

76 STATION 6519

MW-3

MW-17

MW-16

MW-11

MW-19B ND* ND**

MW-10

MW-6

B-15

B-13

GT-1S

GT-1D ND*

GT-3S

GT-3D

ND*

GT-2D

GT-2S

R-1D

R-1S

MW-20B

MW-20A

FRONT STREET

MW-21B ND* ND**

MW-21A

JEFFERSON AVENUE

EDGE OF BRIDGE

MW-22B ND* ND**

MW-22A

ND* ND**

MW-24C

MW-23B

MW-23A

MW-25B ND* ND**

MW-24A

MW-24AB

MW-23C ND* ND**

MW-24B ND* ND**

CREEK FLOW DIRECTION

RANCHO CALIFORNIA ROAD

SCALE (FEET)

0 100

DRAINAGE CULVERT

EDGE OF BRIDGE

MW-26C ND* ND**

WELL #118 COMPOUND

118 406

DIAZ ROAD

LEGEND

MW-19B — 76 Monitoring Well with Dissolved-Phase TBA Concentration (ug/l)

GT-1D — Chevron Monitoring Well with Dissolved-Phase TBA Concentration (ug/l)

118 — Rancho California Water District Production Well

406 — Rancho California Water District Monitoring Well

NOTES:

* = prepurge groundwater sample. ** = postpurge groundwater sample. The highest concentration from the two sampling methods was used in the concentration contour. TBA = tertiary butyl alcohol. Contour lines are interpretive based on laboratory analysis results of groundwater samples. ug/l = micrograms per liter. USTs = underground storage tanks. VES = vapor extraction system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consultant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

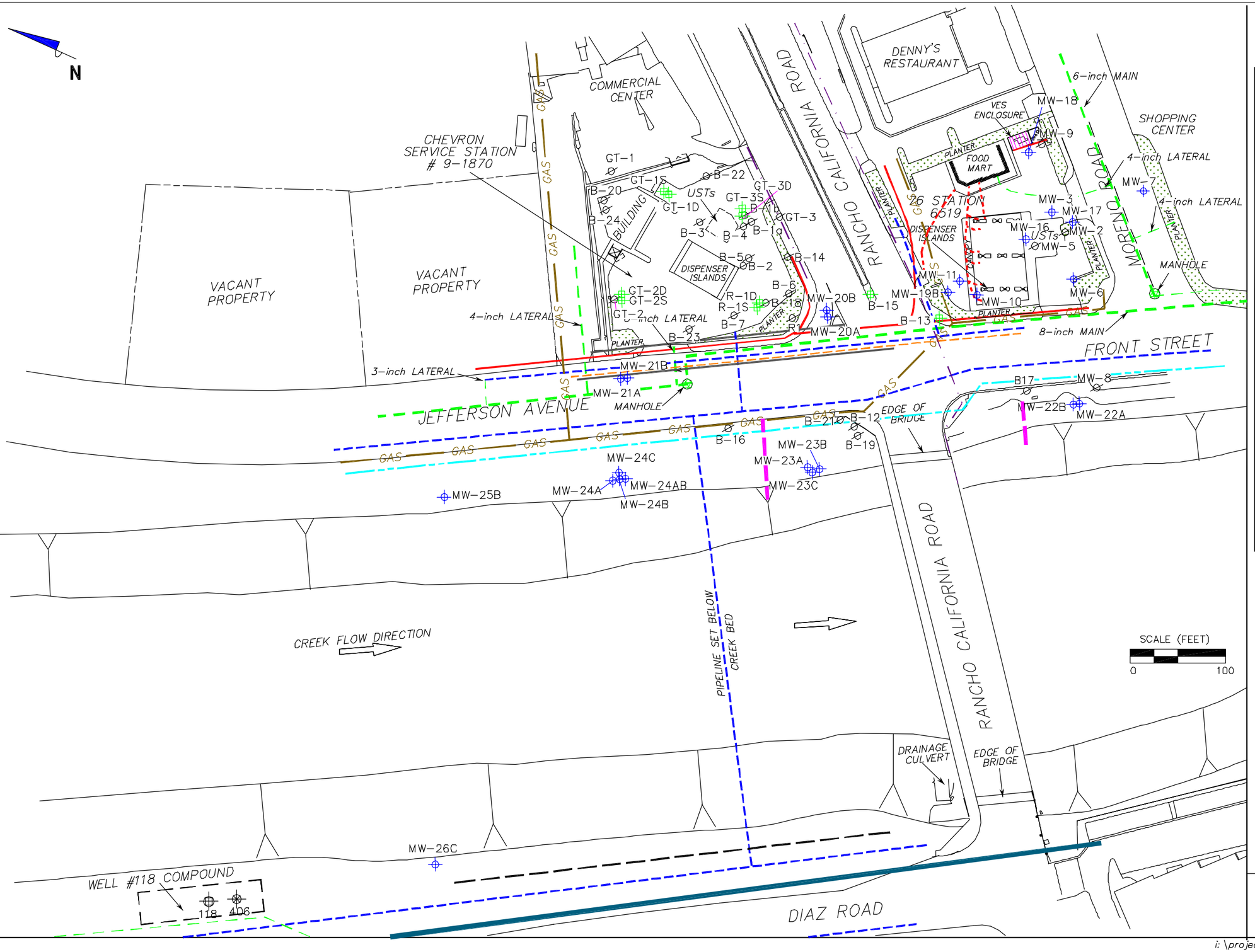
DISSOLVED-PHASE TBA CONCENTRATION MAP BELOW AQUITARD May 29 - 31, 2002

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 23

i:\projects\76prod\6519\graphics\2ndqtr2002\2nd2002.dwg 7/22/02 rmh



LEGEND

- MW-18 — 76 Monitoring Well
- B15 — Chevron Monitoring Well
- MW-9 — Abandoned Well
- 118 — Rancho California Water District Production Well
- 406 — Rancho California Water District Monitoring Well
- GAS — 6-inch HP Gas
- Cable, Fiberoptic
- Storm Drain
- Non-Potable (Gray) Water
- RCWD Water
- 1-inch Irrigation
- Southern California Edison Electric
- Electric Line
- Adelphia T.V.
- Eastern Municipal Water District Sewer
- Pacific Bell Telephone
- Unknown Cable

NOTES:

USTs = underground storage tanks. VES = vapor extration system. All dimensions and locations are estimated.

SOURCE:

Figures redrawn from blueprints by Harding Lawson and Associates. Chevron Ground and Grade Plan, blueprints by Holmes and Narver, aerial survey provided by Project Design Consulant, and survey provided by O.K.O. Engineering Inc. Chevron monitoring wells installed by Groundwater Technology, and Harding Lawson and Associates. 76 monitoring wells installed by TRC.

UTILITY MAP

76 Station 6519
28903 Rancho California Road
Temecula, California

TRC

FIGURE 24

i: \projects\76prod\6519\graphics\SITE_MAP.dwg 4/22/02 rmh

TABLE 1

CPT PORE PRESSURE DISSIPATION TEST RESULTS
76 STATION 6519

BORING NUMBER	DATE DRILLED	GROUND ELEVATION (feet above msl)	DEPTH OF CONE (feet)	ELEVATION OF CONE (feet above msl)	PORE PRESSURE (psi)	DEPTH TO WATER TABLE (feet)	ELEVATION OF WATER (feet above msl)	COMMENTS
CPT-1	5/12/2001	1005.47	54.13	951.34	15.15	19	986	
CPT-2	5/12/2001	1005.07	59.38	945.69	17.01	20	985	
CPT-3	5/10/2001	1003.37	27.40	975.97	6.12	13	990	
CPT-3a	5/17/2001	1003.37	42.16	961.21	11.8	15	988	Elevation for CPT-3 used
CPT-3a	5/17/2001	1003.37	58.07	945.30	16.42	20	983	
CPT-4a	5/16/2001	1005.02	35.10	969.92	8.32	16	989	Elevation for CPT-4 used
CPT-4a	5/16/2001	1005.02	51.02	954.00	15.16	16	989	
CPT-5	5/10/2001	1006.33	28.87	977.46	5.09	17	989	
CPT-5	5/10/2001	1006.33	52.82	953.51	14.93	18	988	
CPT-6	5/11/2001	1007.27	28.22	979.05	4.68	17	990	
CPT-6	5/11/2001	1007.27	40.35	966.92	11	15	992	
CPT-6	5/11/2001	1007.27	60.70	946.57	18.53	18	989	
CPT-6	5/11/2001	1007.27	77.43	929.84	25.9	18	990	
CPT-7	5/17/2001	1005.75	28.71	977.04	5.33	16	989	
CPT-7	5/17/2001	1005.75	50.03	955.72	16.36	12	994	(1)
CPT-7	5/17/2001	1005.75	53.81	951.94	16.05	17	989	

Notes:

Conversion factor psi to feet of water = 2.31

msl = mean sea level

psi = pounds per square inch

(1) = test halted before dissipation stabilized due to time constraints

Reference: Gregg In Situ, Inc., 2001, Presentation of Cone Penetration Test Data, Unocal #6519, Temecula, California, May 21, 2001.

TABLE 2

WELL CONSTRUCTION DATA
76 Station 6519 and Chevron 9-1870

Well ID	Date Installed	Boring Depth (feet)	Boring Diameter (inches)	Casing Depth (feet)	Casing Diameter (inches)	Screen Interval (ft)		Sand Pack Interval (ft)		Seal Interval (ft)		Elevation (ft above msl)	Comments
						Top	Bottom	Top	Bottom	Top	Bottom		
76 Station:													
MW-2	3/25/1992	24	10	24	4	14	24	12	24	3	12	1006.24[+]	Destroyed
MW-3	3/26/1992	24	10	24	4	14	24	12	24	3	12	1006.58	
MW-5	3/25/1992	24	10	24	4	14	24	12	24	3	12	1005.99[+]	Destroyed
MW-6	3/26/1992	24	10	24	4	14	24	12	24	3	12	1005.65	
MW-7	10/27/1992	25	10	25	4	15	25	13	25	3	13	1006.10	
MW-8	10/28/1992	25	10	25	4	15	25	13	25	3	13	1005.9[+]	Destroyed
MW-9	10/27/1992	25	10	25	4	15	25	13	25	2	13	1008.17[+]	Destroyed
MW-10	10/27/1992	25	10	25	4	15	25	13	25	2	13	1005.57	
MW-11	9/28/1993	25.5	10	25	4	10	25	8	25.5	3	8	1006.18	
MW-16	8/14/1996	25	10	25	4	15	25	13	25	2	13	1006.28	
MW-17	8/14/1996	25	10	25	4	15	25	13	25	2	13	1006.92	
MW-18	5/24/2001	30.5	10	28	4	8	28	6	30.5	1.5	6	1008.00	
MW-19B	11/27/2001	70.0	8	48	4	43	48	40.8	49.7	2.5	40.8	1006.03	
MW-20A	11/28/2001	27.0	10	27	4	12	27	9.5	27	3	9.5	1006.47	
MW-20B	11/20/2001	80.0	8	47	4	42	47	39.5	48	3	39.5	1006.70	
MW-21A	11/27/2001	27.0	10	26	4	11	26	9	27	3	9	1006.08	
MW-21B	11/15/2001	85.0	8	84.5	4	79.5	84.5	76	85	4	76	1006.18	
MW-22A	12/5/2001	22.0	10	20.5	4	10	20	9	21	5	9	1004.23	
MW-22B	10/24/2001	60.2	8	60.2	4	55.2	60.2	51.8	60.2	5	51.8	1004.07	
MW-23A	12/4/2001	25.5	10	25	4	10	25	8	25	4	8	1003.01	
MW-23B	10/31/2001	60.0	8	60	4	55	60	52	60	5	52	1003.00	
MW-23C	11/11/2001	215.0	8	214	4	209	214	206	215	2	206	1002.94	
MW-24A	12/4/2001	24.5	10	24.5	4	9.5	24.5	8	24.5	5	8	1005.79	
MW-24AB	11/17/2001	69.0	8	69	4	64	69	63	69	3	63	1006.00	
MW-24B	10/29/2001	98.0	8	98	4	93	98	89.7	98	5	89.7	1006.03	
MW-24C	12/2/2001	181.5	8	179.5	4	174.5	179.5	172	179.5	3	172	1006.14	
MW-25B	12/26/2001	113.0	8	112.5	4	107.5	112.5	104.8	112.5	3	104.8	1005.20	
MW-26C	12/8/2001	209.0	8	160	4	150	160	147	160	3	147	1007.50	
VEW-12	9/28/1993	19.0	10	17	4	12	17	12	19	2	12	1006.00[++]	
VEW-13	9/28/1993	17.5	10	17	4	12	17	12	17.5	1	12	1006.00[++]	
VEW-14	9/28/1993	8.0	8	8	4	3	8	3	8	1	3	1006.00[++]	
VEW-15	9/28/1993	8.0	8	8	4	3	8	3	8	1	3	1006.00[++]	
VEW-18	6/28/1999	25.0	10	25	4	10	25	8	25	3	8	1006.00[++]	
VEW-19	6/28/1999	25.0	10	25	4	10	25	8	25	3	8	1006.00[++]	
EW-1	2/4/2002	21.5	10	21.5	4	14	21.5	13	21.5	2	11	1006.00[++]	

TABLE 2

WELL CONSTRUCTION DATA
76 Station 6519 and Chevron 9-1870

Well ID	Date Installed	Boring Depth (feet)	Boring Diameter (inches)	Casing Depth (feet)	Casing Diameter (inches)	Screen Interval (ft)		Sand Pack Interval (ft)		Seal Interval (ft)		Elevation (ft above msl)	Comments
						Top	Bottom	Top	Bottom	Top	Bottom		
EW-2	2/4/2002	23.0	10	21.5	4	14	21.5	13	21.5	2	13	1006.00++	
EW-3	2/5/2002	21.0	10	21	4	13.5	21	12.5	21	2	12.5	1006.00++	
EW-4	2/6/2002	23.0	10	22.66	4	12.66	22.66	11.33	22.66	2	11.33	1006.00++	
EW-5	2/7/2002	26.0	10	25.5	4	13	25.5	12	25.5	2	12	1006.00++	
EW-6	2/6/2002	24.0	10	23.5	4	13.5	23.5	11.5	23.5	2	11.5	1006.00++	
EW-7	2/7/2002	27.0	10	27	4	14.5	27	13	27	2	13	1006.00++	
Chevron:													
B1B	6/4/1984	35	12	29	4	9	29	6.5	14	6	6.5	1012.40**	Destroyed 6/15/84
B2	6/26/1984	29	12	29	4	15	29	15	29	0	15	1011.00**	Destroyed 9/11/98
B3	6/5/1984	20.5	12	20	4	10	20	9	20	0	9	1011.50**	Destroyed 9/11/98
B4	6/15/1984	17.5	12	17	4	4	17	3.5	20	0	3.5	1011.95**	Destroyed 11/5/98
B5	6/15/1984	17	12	16	4	3	16	2.5	16.5	0	2.5	1011.20**	Destroyed 9/11/98
B6	7/16/1984	28	10	20	4	5	20	4.5	20	3	4.5	1011.00**	Destroyed 11/5/98
B7	7/16/1984	18.5	10	18	4	5	18	4.5	18.5	0	4.5	1009.40**	Destroyed 11/5/98
B12	8/24/1984	21	10	20.5	4	7	20.5	4.5	21	3	4	1004.40**	Destroyed
B13	6/28/1984	19.5	10	18	4	3.5	18.5	3	19.5	2	3	1004.17	
B14	8/28/1984	24.5	10	24.5	4	4.5	24.5	4	24.5	3	4	1011.00**	Destroyed 11/5/98
B15	8/28/1984	24	10	24	4	4	24	3	24	2	3	1007.27	
B16	5/12/1986	28.5	10	27	4	7	27	5.5	28.5	4.5	5.5	1005.36	Destroyed 1/02
B17	5/19/1986	25	10	24.5	4	4.5	24.5	3	24.5	2	3	1004.30**	Destroyed
B18	5/14/1986	46	10	40	4	30	40	28	40	0	28	1010.00**	Destroyed 11/5/98
B19	5/19/1986	34	10	33	4	28	33	27	33	0	27	1004.40**	Destroyed
B20	5/13/1986	24	10	23	4	3	23	2	23	0	2	1010.00**	Destroyed 9/11/98
B21	9/26/1987	35.5	10	35	4	15	35	12.5	35.5	2	12.5	1004.38	Destroyed 1/02
B22	9/25/1987	35.5	10	35	4	15	35	13.5	35.5	2	13.5	1013.00**	Destroyed 11/5/98
B23	9/25/1987	35.5	10	35	4	15	35	13	35.5	2	13	1008.00**	Destroyed 11/5/98
B24	9/25/1987	35.5	10	35	4	15	35	13.5	35.5	2	13.5	1010.00**	Destroyed 9/11/98
GT-1	4/5/1989	70	9	70	4	10	70	8	70	6	8	1006.33	Destroyed 1/02
GT-2	4/6/1989	85	9	76	4	16	76	14	>76	11	14	1006.49*	Destroyed 1/02
GT-3	4/13/1989	80	9	80	4	15	80	12.5	80	8.5	12.5	1012.00**	Destroyed 1/02
R-1	4/20/1985	63	--	61	6	6	56	5	63	4	5	1007.26*	Destroyed 1/02
VW-1	5/11/1995	34	10	34	2, 2	8 & 24	20.5 & 34	7 & 23	21 & 34	1 & 21	7 & 23	1011.20**	Destroyed 9/11/98
VW-2	5/10/1995	29	10	28	2, 2	8 & 19	15.5 & 28	7 & 18	16 & 29	4 & 16	7 & 18	1010.00**	Destroyed 9/11/98
VW-3	5/10/1995	30	10	30	2, 2	10.5 & 20	15.5 & 30	9 & 19	16 & 30	1 & 16	9 & 19	1011.50**	Destroyed 9/11/98
B27	10/30/1998	67.5	8	67.5	2	62.5	67.5	--	--	--	--	1011.00**	Destroyed same day

TABLE 2

WELL CONSTRUCTION DATA
76 Station 6519 and Chevron 9-1870

Well ID	Date Installed	Boring Depth (feet)	Boring Diameter (inches)	Casing Depth (feet)	Casing Diameter (inches)	Screen Interval (ft)		Sand Pack Interval (ft)		Seal Interval (ft)		Elevation (ft above msl)	Comments
						Top	Bottom	Top	Bottom	Top	Bottom		
B28	11/2/1998	70	8	70	2	65	70	--	--	--	--	1009.00**	Destroyed same day
GT-1S	12/31/2001	35	10	35	4	10	35	8	35	1.5	8	1011.41	Replaces GT-1
GT-1D	12/28/2001	75	10	75	4	65	75	63	75	1.5	63	1011.35	Replaces GT-1
GT-2S	12/31/2001	35	10	35	4	10	35	8	35	1.5	35	1008.86	Replaces GT-2
GT-2D	12/27/2001	76	10	76	4	66	76	64	76	1.5	64	1009.30	Replaces GT-2
GT-3S	12/31/2001	35	10	35	4	10	35	8	35	1.5	8	1012.47	Replaces GT-3
GT-3D	1/3/2002	80	10	80	4	70	80	68	80	1.5	68	1012.39	Replaces GT-3
R-1S	12/26/2001	38	10	38	4	18	38	16	38	1.5	16	1009.93	Replaces R-1
R-1D	12/26/2001	58	10	58	4	48	58	46	58	1.5	46	1010.00	Replaces R-1

Notes:
msl = mean sea level
-- = information not available
* = elevations calculated with respect to GT-1 and Chevron data
++ = well not yet surveyed; elevation is estimated
+ = well destroyed prior to professional survey in 2001; elevation was estimated based on average elevation change in other wells from previous survey.
** = well destroyed prior to professional survey in 2002; elevation was estimated based on available elevation data

TABLE 3

CUMULATIVE SOIL PHYSICAL PARAMETER RESULTS
76 Station 6519 and Chevron 9-1870

Sample ID	Depth (feet)	Sample Date	Hydraulic Conductivity		Intrinsic Permeability		Soil Description *	Specific Retention %	Moisture Content (% wt)	Bulk Density		Matrix (Grain) Density (g/cc)	Total Porosity (%Vb)	Effective Porosity (%Vb)	Air Filled Porosity (%Vb)	Median Grain Size (mm)	Total Organic Carbon %
			Horizontal (cm/s)	Vertical (cm/s)	Horizontal (millidarcy)	Vertical (millidarcy)				Dry (g/cc)	Natural (g/cc)						
Chevron PB1-15	15	05/10/95	1.27E-04	5.17E-05	120	51.5	fine sand	--	11.5	1.58	--	2.65	--	--	--	--	--
Chevron PB1-40	40	05/10/95	2.77E-04	1.65E-04	280	170	fine sand	--	16.0	1.49	--	2.67	--	--	--	--	--
B18-5.0	5		--	--	--	--	--	--	13.2	1.82	--	--	--	32.4	--	--	<100
B18-9.0	9		--	--	--	--	--	--	16.5	1.78	--	--	--	33.6	--	--	730
B20-17.0	17		--	--	--	--	--	--	10.9	1.61	--	--	--	39.2	--	--	420
B21-14.0	14		--	--	--	--	--	--	7.8	1.51	--	--	--	43.2	--	--	<100
B22-10.5	10.5		--	--	--	--	--	--	14.9	1.70	--	--	--	36.3	--	--	280
B22-17.0	17		--	--	--	--	--	--	8.6	1.59	--	--	--	40.4	--	--	120
CPT-1-45	45	05/12/01	--	1.90E-06	--	1.76	vf-c sandy silt w/ sl clay	80.3	16.3	1.88	2.19	2.72	30.8	5.8	0.10	0.0390	ND
CPT-1-60	80	05/12/01	3.26E-06	--	30.15	--	sl silty vf-c sand	18.5	17.2	1.83	2.14	2.67	31.6	24.4	0.02	0.4030	ND
CPT-3-19	19	05/10/01	1.42E-04	--	131.50	--	sl silty, sl clayey vf vc sand	11.9	17.2	1.76	2.06	2.68	34.5	30.3	4.39	0.4300	ND
CPT-3-35	35	05/10/01	--	1.95E-05	--	18.39	vf-f/c silty sand w/ mica	35.3	25.6	1.61	2.03	2.75	41.4	24.0	0.10	0.0918	ND
CPT-3-46	46	05/10/01	Insuff.	2.29E-06	Insuff.	2.16	vf-f/m silty sand w/ mica	43.7	24.7	1.63	2.04	2.75	40.5	21.2	0.16	0.0565	ND
CPT-3-51	51	05/10/01	Insuff.	2.52E-08	Insuff.	0.023	micaceous clayey silt	94.1	21.7	1.71	2.08	2.73	37.3	2.2	0.14	0.0160	0.057
CPT-5-70	70	05/10/01	Insuff.	2.58E-05	Insuff.	23.91	sl silty vf-vc sand w/ pbl	14.8	19.0	1.78	2.11	2.69	33.9	27.5	0.12	0.4393	ND
CPT-5-82	82	05/10/01	Insuff.	3.06E-08	Insuff.	0.028	clayey vf sandy silt w/ mica	85.5	20.0	1.77	2.12	2.73	35.4	5.2	0.15	0.0281	ND
CPT-6-53	53	05/11/01	Insuff.	1.45E-04	Insuff.	134.40	sl silty vf-vc sand w/ pbl	23.4	15.0	1.91	2.20	2.68	28.7	18.8	0.10	0.4479	0.066
MW-18@30	30	05/24/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.032	
MW-19B-9	9	11/26/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.039	
MW-19B-26.5	26.5	11/26/01	--	--	--	--	medium sand	--	--	--	--	--	--	--	--	0.655	

TABLE 3

CUMULATIVE SOIL PHYSICAL PARAMETER RESULTS
76 Station 6519 and Chevron 9-1870

Sample ID	Depth (feet)	Sample Date	Hydraulic Conductivity Horizontal (cm/s)	Hydraulic Conductivity Vertical (cm/s)	Intrinsic Permeability Horizontal (millidarcy)	Intrinsic Permeability Vertical (millidarcy)	Soil Description *	Specific Retention %	Moisture Content (% wt)	Bulk Density Dry (g/cc)	Bulk Density Natural (g/cc)	Matrix (Grain) Density (g/cc)	Total Porosity (%Vb)	Effective Porosity (%Vb)	Air Filled Porosity (%Vb)	Median Grain Size (mm)	Total Organic Carbon %
MW-19B-27.5	27.5	11/27/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.034	
MW-19B-34	34	11/26/01	4.06E-05	4.22E-05	43.3	45.9	fine sand	--	24.7	1.45	--	2.73	--	46.8	10.9	0.070	
MW-19B-36	36	11/27/01	2.49E-07	3.97E-07	0.26	0.43	silt	--	30.0	1.35	--	2.66	--	49.2	8.7	0.019	
MW-19B-43.5	43.5	11/27/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.246	
MW-20A-23	23	11/28/01	2.71E-03	3.10E-04	2,895	331	medium sand	--	16.7	1.67	--	2.69	--	37.8	9.8	0.679	
MW-20B-38	38	11/18/01	1.18E-07	4.90E-07	0.124	0.514	silt	--	25.1	1.66	--	2.72	--	38.8	38.8	0.024	
MW-20B-49.5	49.5	11/19/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.041	
MW-21A-25	25	11/27/01	4.71E-03	3.12E-04	5,054	335	medium sand	--	19.0	1.57	--	2.67	--	41.2	11.3	0.426	
MW-21B-46	46	11/15/01	--	--	--	--	medium sand	--	--	--	--	--	--	--	--	0.489	
MW-22B-15	15	10/24/01	--	--	--	--	medium sand	--	--	--	--	--	--	--	--	0.446	
MW-22B-24.5	24.5	10/23/01	1.31E-06	3.95E-07	1.34	0.40	silt	--	19.0	1.74	--	2.72	--	36.0	2.8	0.057	
MW-22B-26	26	10/24/01	1.09E-06	8.05E-07	1.12	0.83	silt	--	20.4	1.71	--	2.73	--	37.3	2.4	0.042	
MW-22B-32	32	10/24/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.186	
MW-22B-34.5	34.5	10/24/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.020	
MW-22B-48	48	10/27/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.040	
MW-22B-50	50	10/27/01	--	--	--	--	medium sand	--	--	--	--	--	--	--	--	0.386	
MW-22B-58.5	58.5	10/24/01	1.55E-04	2.54E-04	159	261	medium sand	--	14.0	1.74	--	2.67	--	34.8	10.4	0.387	
MW-23B-37.5	37.5	10/30/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.044	
MW-23B-47.5	47.5	10/30/01	1.79E-06	1.21E-06	1.85	1.26	silt	--	18.8	1.70	--	2.73	--	37.9	5.9	0.031	
MW-23B-49	49	10/31/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.032	
MW-23B-57	57	10/31/01	2.55E-04	1.07E-03	265	1,108	fine sand	--	19.5	1.63	--	2.69	--	39.3	7.5	0.188	
MW-24B-22.5	22.5	10/27/01	2.32E-06	2.20E-07	2.39	0.23	silt	--	46.3	1.05	--	2.62	--	60.0	11.6	0.011	
MW-24B-37	37	10/28/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.036	
MW-24B-56.5	56.5	10/28/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.035	
MW-24B-68.25	68.25	10/28/01	--	--	--	--	medium sand	--	--	--	--	--	--	--	--	0.413	
MW-24B-71.5	71.5	10/29/01	3.20E-07	2.26E-07	0.34	0.23	fine sand	--	16.0	1.78	--	2.70	--	34.2	5.6	0.036	
MW-24B-73.5	73.5	10/29/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.020	
MW-24B-79.75	79.75	10/29/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.018	
MW-24B-83.5	83.5	10/29/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.015	
MW-24B-94	94	10/29/01	1.23E-04	7.21E-05	128	75.6	fine sand	--	16.4	1.66	--	2.69	--	38.4	11.2	0.251	
MW-25B-40.5	40.5	10/25/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.077	
MW-25B-42.5	42.5	10/25/01	3.27E-06	2.53E-06	3.32	2.58	silt	--	26.6	1.52	--	2.72	--	44.2	3.7	0.042	
MW-25B-59.25	59.25	10/25/01	4.05E-06	1.36E-06	4.11	1.39	fine sand	--	20.1	1.65	--	2.72	--	39.2	5.9	0.063	

TABLE 3

CUMULATIVE SOIL PHYSICAL PARAMETER RESULTS
76 Station 6519 and Chevron 9-1870

Sample ID	Depth (feet)	Sample Date	Hydraulic Conductivity		Intrinsic Permeability		Soil Description *	Specific Retention %	Moisture Content (% wt)	Bulk Density		Matrix (Grain) Density (g/cc)	Total Porosity (%Vb)	Effective Porosity (%Vb)	Air Filled Porosity (%Vb)	Median Grain Size (mm)	Total Organic Carbon %
			Horizontal (cm/s)	Vertical (cm/s)	Horizontal (millidarcy)	Vertical (millidarcy)				Dry (g/cc)	Natural (g/cc)						
MW-25B-67	67	10/25/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.149	
MW-25B-69.75	69.75	10/25/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.026	
MW-25B-76	76	10/25/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.027	
MW-25B-87.75	87.75	10/25/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.032	
MW-25B-89.5	89.5	10/25/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.047	
MW-25B-90.5	90.5	10/26/01	7.77E-07	6.12E-07	0.79	0.62	fine sand	--	20.8	1.61	--	2.71	--	40.4	6.8	0.044	
MW-25B-91.5	91.5	10/26/01	7.16E-07	6.61E-07	0.73	0.67	fine sand	--	18.4	1.63	--	2.71	--	39.8	9.8	0.043	
MW-25B-101.5	101.5	10/26/01	8.99E-07	5.45E-07	0.91	0.55	silt	--	29.4	1.38	--	2.68	--	48.5	7.8	0.026	
MW-25B-108.5	108.5	10/26/01	--	--	--	--	fine sand	--	--	--	--	--	--	--	--	0.313	
MW-25B-111.5	111.5	10/26/01	2.54E-04	2.90E-04	258	296	medium sand	--	15.6	1.56	--	2.66	--	41.5	17.2	0.402	
MW-26C-88	88	12/05/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.037	
MW-26C-142	142	12/06/01	--	--	--	--	silt	--	--	--	--	--	--	--	--	0.023	
EW-1-21.5	21.5	02/04/02	--	7.00E-07	--	0.72	silt	--	18.0	1.75	--	2.71	--	35.5	4.1	0.036	
EW-2-23	23	02/04/02	--	7.15E-07	--	0.76	silt	--	18.2	1.77	--	2.70	--	34.7	2.6	0.032	
EW-3-21	21	02/05/02	--	6.87E-07	--	0.70	silt	--	18.7	1.69	--	2.71	--	37.8	6.1	0.028	
EW-4-23	23	02/06/02	--	5.40E-06	--	5.56	silt	--	20.9	1.63	--	2.72	--	40.3	6.3	0.044	
EW-5-26	26	02/07/02	--	5.07E-06	--	5.21	fine sand	--	16.8	1.72	--	2.70	--	36.3	7.5	0.044	
EW-6-24	24	02/06/02	--	2.81E-06	--	2.97	silt	--	11.6	1.86	--	2.68	--	30.8	9.2	0.043	
EW-7-27	27	02/07/02	--	5.51E-06	--	5.83	fine sand	--	27.3	1.46	--	2.68	--	45.4	5.6	0.056	

Notes:

% wt = percent weight
g/cc = grams per cubic centimeter
%Vb = percent bulk volume
mg/kg = milligrams per kilogram
md = millidarcys
mm = millimeters

-- = not analyzed
ND = not detected within instrument parameters (< 0.050 %)
Insuff. = insufficient sample for analysis
* = refer to geotechnical analytical report for grain size distribution
sl = slightly, slight
vf = very fine grained

f = fine grained
m = medium grained
c = coarse grained
vc = very coarse grained
pbl = pebble(s)
cm/s = centimeters per second

TABLE 4

SOIL PHYSICAL PARAMETER RESULTS SORTED BY FIELD GEOLOGIST'S SOIL CLASSIFICATION
76 Station 6519

Sample ID	Depth (feet)	Sample Date	Soil Description (Geologist)	USCS Symbol (Geologist)	Soil Description (Interpreted from lab analysis)	Gravel Content	Med.-Coarse Sand Content (% wt)	Fine Sand Content (% wt)	Silt Content (% wt)	Clay Content (% wt)	Silt & Clay Content (% wt)	Median Grain Size (mm)	Hydraulic Conductivity Horizontal (cm/s)	Hydraulic Conductivity Vertical (cm/s)
MW-18@30	30	05/24/01	**Sand**	SP	**Silt**	--	7.39	26.66	53.32	12.63	65.95	0.032	--	--
MW-19B-43.5	43.5	11/27/01	Sand	SP	Sand	--	29.71	47.69	19.3	3.30	22.60	0.246	--	--
MW-21A-25	25	11/27/01	Sand	SP	Sand	--	50.79	40.81	Not distinguished silt vs. clay		8.39	0.426	4.71E-03	3.12E-04
MW-22B-15	15	10/24/01	Sand	SP	Sand	--	53.39	39.03	Not distinguished silt vs. clay		7.58	0.446	--	--
MW-23B-57	57	10/31/01	Sand	SP	Sand	--	15.89	58.20	21.29	4.63	25.91	0.188	2.55E-04	1.07E-03
MW-24B-68.25	68.25	10/28/01	Sand	SP	Sand	11.16	38.55	32.24	Not distinguished silt vs. clay		18.06	0.413	--	--
MW-24B-94	94	10/29/01	Sand	SP	Sand	--	34.55	41.67	20.04	3.74	23.79	0.251	1.23E-04	7.21E-05
MW-25B-108.5	108.5	10/26/01	Sand	SP	Sand	--	38.46	46.87	Not distinguished silt vs. clay		14.68	0.313	--	--
MW-25B-111.5	111.5	10/26/01	Sand	SP	Sand	0.76	47.55	44.07	Not distinguished silt vs. clay		7.61	0.402	2.54E-04	2.90E-04
averages						***1.32***	***39.88***	***43.04***	***--***	***--***	***16.27***	***0.34***	***1.34E-03***	***4.36E-04***
MW-20A-23	23	11/28/01	Sand	SW	Sand	5.23	58.91	28.52	Not distinguished silt vs. clay		7.34	0.679	2.71E-03	3.10E-04
MW-22B-50	50	10/27/01	Sand	SW	Sand	--	47.91	44.16	Not distinguished silt vs. clay		8.65	0.386	--	--
MW-22B-58.5	58.5	10/24/01	Sand	SW	Sand	4.81	42.61	39.17	Not distinguished silt vs. clay		13.42	0.387	1.55E-04	2.54E-04
averages						***3.35***	***49.81***	***39.17***	***--***	***--***	***11.04***	***0.48***	***1.43E-03***	***2.82E-04***
MW-22B-24.5	24.5	10/23/01	**Silty Sand**	SM	**Silt**	--	1.44	41.07	48.17	9.32	57.49	0.057	1.31E-06	3.95E-07
MW-22B-32	32	10/24/01	Sand	SM/SC	Sand	--	16.21	55.38	24.21	4.20	28.41	0.186	--	--
MW-22B-48	48	10/27/01	**Silty Sand**	SM	**Silt**	--	8.48	28.34	51.73	11.45	63.19	0.040	--	--
MW-23B-37.5	37.5	10/30/01	**Silty Sand**	SM	**Silt**	--	5.30	29.33	55.68	9.70	65.38	0.044	--	--
MW-24B-37	37	10/28/01	**Silty Sand**	SM	**Silt**	--	1.07	25.96	62.12	10.86	72.98	0.036	--	--
MW-25B-40.5	40.5	10/25/01	Sand and Silt	SM	Silt/Sand	--	12.58	38.33	42.88	6.21	49.09	0.077	--	--
MW-25B-42.5	42.5	10/25/01	**Silty Sand**	SM	**Silt**	--	0.68	31.83	57.31	10.17	67.48	0.042	3.27E-06	2.53E-06
MW-25B-67	67	10/25/01	Sand	SM	Sand	--	18.20	48.94	29.30	3.57	32.86	0.149	--	--
MW-25B-69.75	69.75	10/25/01	**Silty Sand**	SM	**Silt**	--	0.36	20.36	65.99	13.30	79.28	0.026	--	--
MW-25B-89.5	89.5	10/25/01	**Silty Sand**	SM	**Silt**	--	2.24	37.81	49.02	10.93	59.95	0.047	--	--
averages						***0.00***	***6.66***	***37.82***	***47.10***	***8.97***	***57.61***	***0.07***	***2.29E-06***	***1.46E-06***
MW-19B-9	9	11/26/01	Silt	ML	Silt	--	8.02	26.08	55.84	10.07	65.91	0.039	--	--
MW-19B-26.5	26.5	11/26/01	**Silt**	ML	**Sand**	5.92	58.75	26.89	Not distinguished silt vs. clay		8.44	0.655	--	--
MW-19B-27.5	27.5	11/27/01	Silt	ML	Silt	--	1.9	30.42	56.13	11.55	67.68	0.034	--	--
MW-19B-34	34	11/26/01	Silt and Sand	ML	Silt/Sand	--	0.06	47.07	47.16	5.71	52.87	0.070	4.06E-05	4.22E-05
MW-19B-36	36	11/27/01	Silt and Clay	ML	Silt	--	--	5.04	76.76	18.20	94.96	0.019	2.49E-07	3.97E-07
MW-20B-38	38	11/18/01	Silt and Clay	ML	Silt	--	--	18.07	67.37	14.56	81.93	0.024	1.18E-07	4.90E-07
MW-21B-46	46	11/15/01	Silt and Sand	ML	Sand	0.09	57.13	32.95	Not distinguished silt vs. clay		9.83	0.489	--	--
MW-23B-47.5	47.5	10/30/01	Silt and Clay	ML	Silt	--	1.28	28.61	56.34	13.77	70.12	0.031	1.79E-06	1.21E-06
MW-23B-49	49	10/31/01	Silt and Clay	ML	Silt	--	0.15	28.11	58.92	12.82	71.73	0.032	--	--
MW-24B-56.5	56.5	10/28/01	Silt	ML	Silt	--	0.03	21.85	68.56	9.56	78.12	0.035	--	--
MW-24B-79.75	79.75	10/29/01	Clayey Silt	ML	Silt	--	--	5.46	74.76	19.79	94.54	0.018	--	--

TABLE 4

SOIL PHYSICAL PARAMETER RESULTS SORTED BY FIELD GEOLOGIST'S SOIL CLASSIFICATION
76 Station 6519

Sample ID	Depth (feet)	Sample Date	Soil Description (Geologist)	USCS Symbol (Geologist)	Soil Description (Interpreted from lab analysis)	Gravel Content	Med.-Coarse Sand Content (% wt)	Fine Sand Content (% wt)	Silt Content (% wt)	Clay Content (% wt)	Silt & Clay Content (% wt)	Median Grain Size (mm)	Hydraulic Conductivity Horizontal (cm/s)	Hydraulic Conductivity Vertical (cm/s)
MW-25B-59.25	59.25	10/25/01	Silt	ML	Silt	--	10.31	35.51	46.70	7.48	54.18	0.063	4.05E-06	1.36E-06
MW-26C-88	88	12/05/01	Silt	ML	Silt	--	0.01	26.20	64.24	9.55	73.79	0.037	--	--
averages						***0.46***	***10.59***	***24.29***	***61.59***	***12.10***	***74.92***	***0.12***	***9.36E-06***	***9.13E-06***
MW-20B-49.5	49.5	11/19/01	**Clay**	CL	**Silt**	--	1.09	28.73	58.63	11.55	70.18	0.041	--	--
MW-22B-26	26	10/24/01	**Silty Clay**	CL	**Silt**	--	0.07	34.43	52.89	12.62	65.50	0.042	1.09E-06	8.05E-07
MW-22B-34.5	34.5	10/24/01	**Clay**	CH	**Silt**	--	--	10.14	72.01	17.85	89.86	0.020	--	--
MW-24B-22.5	22.5	10/27/01	**Clay**	CL	**Silt**	--	--	.06	72.87	27.07	99.94	0.011	2.32E-06	2.20E-07
MW-24B-71.5	71.5	10/29/01	**Clay**	CL	**Silt**	--	3.99	33.14	50.60	12.26	62.86	0.036	3.20E-07	2.26E-07
MW-24B-73.5	73.5	10/29/01	**Clay**	CL	**Silt**	--	0.37	20.73	61.02	17.89	78.91	0.020	--	--
MW-24B-83.5	83.5	10/29/01	**Silty Clay**	CL	**Silt**	--	--	8.86	71.13	20.01	91.14	0.015	--	--
MW-25B-76	76	10/25/01	**Clay**	CL	**Silt**	--	0.28	15.20	71.90	12.62	84.52	0.027	--	--
MW-25B-87.75	87.75	10/25/01	**Silty Clay**	CL	**Silt**	--	2.11	23.65	61.77	12.48	74.24	0.032	--	--
MW-25B-90.5	90.5	10/26/01	**Clay**	CL	**Silt**	--	3.59	34.82	51.12	10.47	61.59	0.044	7.77E-07	6.12E-07
MW-25B-91.5	91.5	10/26/01	**Clay**	CL	**Silt**	--	3.04	36.76	48.92	11.28	60.20	0.043	7.16E-07	6.61E-07
MW-25B-101.5	101.5	10/26/01	**Silty Clay**	CL	**Silt**	--	0.03	13.20	74.25	12.52	86.77	0.026	8.99E-07	5.45E-07
MW-26C-142	142	12/06/01	**Silty Clay**	CL	**Silt**	--	0.39	17.03	67.45	15.14	82.59	0.023	--	--
averages							***1.15***	***22.54***	***62.10***	***14.90***	***77.56***	***0.03***	***1.02E-06***	***5.12E-07***

Notes:

% wt = percent weight
g/cc = grams per cubic centimeter
%Vb = percent bulk volume
mg/kg = milligrams per kilogram
md = millidarcys
mm = millimeters
-- = not analyzed
ND = not detected within instrument parameters (< 0.050 %)
Insuff. = insufficient sample for analysis
* = refer to geotechnical analytical report for grain size distribution
sl = slightly, slight
vf = very fine grained
Silt - bolded soil descriptions indicate where geologists field interpretations were different from the laboratory results

TABLE 5

SOIL PHYSICAL PARAMETER RESULTS SORTED BY LABORATORY'S SOIL CLASSIFICATION
76 Station 6519

Sample ID	Depth (feet)	Sample Date	Soil Description (Interpreted from lab analysis)	Soil Description (Geologist)	USCS Symbol (Geologist)	Gravel Content	Med.-Coarse Sand Content (% wt)	Fine Sand Content (% wt)	Silt Content (% wt)	Clay Content (% wt)	Silt & Clay Content (% wt)	Median Grain Size (mm)	Hydraulic Conductivity Horizontal (cm/s)	Hydraulic Conductivity Vertical (cm/s)
MW-19B-26.5	26.5	11/26/01	**Sand**	**Silt**	ML	5.92	58.75	26.89	Not distinguished silt vs. clay		8.44	0.655	--	--
MW-19B-43.5	43.5	11/27/01	Sand	Sand	SP	--	29.71	47.69	19.3	3.30	22.60	0.246	--	--
MW-20A-23	23	11/28/01	Sand	Sand	SW	5.23	58.91	28.52	Not distinguished silt vs. clay		7.34	0.679	2.71E-03	3.10E-04
MW-21A-25	25	11/27/01	Sand	Sand	SP	--	50.79	40.81	Not distinguished silt vs. clay		8.39	0.426	4.71E-03	3.12E-04
MW-21B-46	46	11/15/01	**Sand**	**Silt and Sand**	ML	0.09	57.13	32.95	Not distinguished silt vs. clay		9.83	0.489	--	--
MW-22B-15	15	10/24/01	Sand	Sand	SP	--	53.39	39.03	Not distinguished silt vs. clay		7.58	0.446	--	--
MW-22B-32	32	10/24/01	Sand	Sand	SM/SC	--	16.21	55.38	24.21	4.20	28.41	0.186	--	--
MW-22B-50	50	10/27/01	Sand	Sand	SW	--	47.91	44.16	Not distinguished silt vs. clay		8.65	0.386	--	--
MW-22B-58.5	58.5	10/24/01	Sand	Sand	SW	4.81	42.61	39.17	Not distinguished silt vs. clay		13.42	0.387	1.55E-04	2.54E-04
MW-23B-57	57	10/31/01	Sand	Sand	SP	--	15.89	58.20	21.29	4.63	25.91	0.188	2.55E-04	1.07E-03
MW-24B-68.25	68.25	10/28/01	Sand	Sand	SP	11.16	38.55	32.24	Not distinguished silt vs. clay		18.06	0.413	--	--
MW-24B-94	94	10/29/01	Sand	Sand	SP	--	34.55	41.67	20.04	3.74	23.79	0.251	1.23E-04	7.21E-05
MW-25B-67	67	10/25/01	Sand	Sand	SM	--	18.20	48.94	29.30	3.57	32.86	0.149	--	--
MW-25B-108.5	108.5	10/26/01	Sand	Sand	SP	--	38.46	46.87	Not distinguished silt vs. clay		14.68	0.313	--	--
MW-25B-111.5	111.5	10/26/01	Sand	Sand	SP	0.76	47.55	44.07	Not distinguished silt vs. clay		7.61	0.402	2.54E-04	2.90E-04
averages						***5.49***	***38.59***	***44.84***	***--***	***--***	***18.10***	***0.37***	***1.37E-03***	***3.85E-04***
MW-19B-34	34	11/26/01	Silt/Sand	Silt and Sand	ML	--	0.06	47.07	47.16	5.71	52.87	0.070	4.06E-05	4.22E-05
MW-25B-40.5	40.5	10/25/01	Silt/Sand	Sand and Silt	SM	--	12.58	38.33	42.88	6.21	49.09	0.077	--	--
averages						***--***	***6.32***	***42.70***	***45.02***	***5.96***	***49.09***	***0.07***	***4.06E-05***	***4.22E-05***
MW-18@30	30	05/24/01	**Silt**	**Sand**	SP	--	7.39	26.66	53.32	12.63	65.95	0.032	--	--
MW-19B-9	9	11/26/01	Silt	Silt	ML	--	8.02	26.08	55.84	10.07	65.91	0.039	--	--
MW-19B-27.5	27.5	11/27/01	Silt	Silt	ML	--	1.9	30.42	56.13	11.55	67.68	0.034	--	--
MW-19B-36	36	11/27/01	Silt	Silt and Clay	ML	--	--	5.04	76.76	18.20	94.96	0.019	2.49E-07	3.97E-07
MW-20B-38	38	11/18/01	Silt	Silt and Clay	ML	--	--	18.07	67.37	14.56	81.93	0.024	1.18E-07	4.90E-07
MW-20B-49.5	49.5	11/19/01	**Silt**	**Clay**	CL	--	1.09	28.73	58.63	11.55	70.18	0.041	--	--
MW-22B-24.5	24.5	10/23/01	**Silt**	**Silty Sand**	SM	--	1.44	41.07	48.17	9.32	57.49	0.057	1.31E-06	3.95E-07
MW-22B-26	26	10/24/01	**Silt**	**Silty Clay**	CL	--	0.07	34.43	52.89	12.62	65.50	0.042	1.09E-06	8.05E-07
MW-22B-34.5	34.5	10/24/01	**Silt**	**Clay**	CH	--	--	10.14	72.01	17.85	89.86	0.020	--	--
MW-22B-48	48	10/27/01	**Silt**	**Silty Sand**	SM	--	8.48	28.34	51.73	11.45	63.19	0.040	--	--
MW-23B-37.5	37.5	10/30/01	**Silt**	**Silty Sand**	SM	--	5.30	29.33	55.68	9.70	65.38	0.044	--	--
MW-23B-47.5	47.5	10/30/01	Silt	Silt and Clay	ML	--	1.28	28.61	56.34	13.77	70.12	0.031	1.79E-06	1.21E-06
MW-23B-49	49	10/31/01	Silt	Silt and Clay	ML	--	0.15	28.11	58.92	12.82	71.73	0.032	--	--
MW-24B-22.5	22.5	10/27/01	**Silt**	**Clay**	CL	--	--	.06	72.87	27.07	99.94	0.011	2.32E-06	2.20E-07
MW-24B-37	37	10/28/01	**Silt**	**Silty Sand**	SM	--	1.07	25.96	62.12	10.86	72.98	0.036	--	--
MW-24B-56.5	56.5	10/28/01	Silt	Silt	ML	--	0.03	21.85	68.56	9.56	78.12	0.035	--	--

TABLE 5

SOIL PHYSICAL PARAMETER RESULTS SORTED BY LABORATORY'S SOIL CLASSIFICATION
76 Station 6519

Sample ID	Depth (feet)	Sample Date	Soil Description (Interpreted from lab analysis)	Soil Description (Geologist)	USCS Symbol (Geologist)	Gravel Content	Med.-Coarse Sand Content (% wt)	Fine Sand Content (% wt)	Silt Content (% wt)	Clay Content (% wt)	Silt & Clay Content (% wt)	Median Grain Size (mm)	Hydraulic Conductivity Horizontal (cm/s)	Hydraulic Conductivity Vertical (cm/s)
MW-24B-71.5	71.5	10/29/01	**Silt**	**Clay**	CL	--	3.99	33.14	50.60	12.26	62.86	0.036	3.20E-07	2.26E-07
MW-24B-73.5	73.5	10/29/01	**Silt**	**Clay**	CL	--	0.37	20.73	61.02	17.89	78.91	0.020	--	--
MW-24B-79.75	79.75	10/29/01	Silt	Clayey Silt	ML	--	--	5.46	74.76	19.79	94.54	0.018	--	--
MW-24B-83.5	83.5	10/29/01	**Silt**	**Silty Clay**	CL	--	--	8.86	71.13	20.01	91.14	0.015	--	--
MW-25B-42.5	42.5	10/25/01	**Silt**	**Silty Sand**	SM	--	0.68	31.83	57.31	10.17	67.48	0.042	3.27E-06	2.53E-06
MW-25B-59.25	59.25	10/25/01	Silt	Silt	ML	--	10.31	35.51	46.70	7.48	54.18	0.063	4.05E-06	1.36E-06
MW-25B-69.75	69.75	10/25/01	**Silt**	**Silty Sand**	SM	--	0.36	20.36	65.99	13.30	79.28	0.026	--	--
MW-25B-76	76	10/25/01	**Silt**	**Clay**	CL	--	0.28	15.20	71.90	12.62	84.52	0.027	--	--
MW-25B-87.75	87.75	10/25/01	**Silt**	**Silty Clay**	CL	--	2.11	23.65	61.77	12.48	74.24	0.032	--	--
MW-25B-89.5	89.5	10/25/01	**Silt**	**Silty Sand**	SM	--	2.24	37.81	49.02	10.93	59.95	0.047	--	--
MW-25B-90.5	90.5	10/26/01	**Silt**	**Clay**	CL	--	3.59	34.82	51.12	10.47	61.59	0.044	7.77E-07	6.12E-07
MW-25B-91.5	91.5	10/26/01	**Silt**	**Clay**	CL	--	3.04	36.76	48.92	11.28	60.20	0.043	7.16E-07	6.61E-07
MW-25B-101.5	101.5	10/26/01	**Silt**	**Silty Clay**	CL	--	0.03	13.20	74.25	12.52	86.77	0.026	8.99E-07	5.45E-07
MW-26C-88	88	12/05/01	Silt	Silt	ML	--	0.01	26.20	64.24	9.55	73.79	0.037	--	--
MW-26C-142	142	12/06/01	**Silt**	**Silty Clay**	CL	--	0.39	17.03	67.45	15.14	82.59	0.023	--	--
averages							***2.11***	***25.19***	***60.40***	***13.21***	***74.02***	***0.03***	***1.41E-06***	***7.88E-07***

Notes:

% wt = percent weight
g/cc = grams per cubic centimeter
%Vb = percent bulk volume
mg/kg = milligrams per kilogram
md = millidarcys
mm = millimeters
-- = not analyzed
ND = not detected within instrument parameters (< 0.050 %)
Insuff. = insufficient sample for analysis
* = refer to geotechnical analytical report for grain size distribution
sl = slightly, slight
vf = very fine grained
Silt - bolded soil descriptions indicate where geologists field interpretations were different from the laboratory results

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
B-1-14.5	14.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-1-17.5	17.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-1-30	30	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-2/MW-2-15.5	15.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-2/MW-2-17.5**	17.5	03/25/92	11,000	--	--	16	21	160	770	--	--	--	--	--	--	--
B-2/MW-2-25.5	25.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-3/MW-3-15.5	15.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-3/MW-3-19	19	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-4-16	16	03/26/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-4-20	20	03/26/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-5/MW-5-15.5**	15.5	03/25/92	14,000	5,100	--	180	660	220	1200	--	--	--	--	--	--	--
B-5/MW-5-20	20	03/25/92	11	--	--	--	--	--	--	--	--	--	--	--	--	--
B-6/MW-6-16.5	16.5	03/26/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-6/MW-6-19	19	03/26/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-1-4.5	4.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-2-3.5	3.5	03/25/92	830	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-2-8	8	03/25/92	74	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-3-3.5	3.5	03/25/92	850	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-3-8	8	03/25/92	420	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-4-4.5	4.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-5-4.5	4.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-6-4.5	4.5	03/25/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-7/MW-7-14	14	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-7-MW-7-17	17	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-7-MW-7-19**	19	10/27/92	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B-7-MW-7-19.5	19.5	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-7-MW-7-27	27	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
B-8-MW-8-12	12	10/28/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-8-MW-8-18**	18	10/28/92	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B-8-MW-8-21.5	21.5	10/28/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-8-MW-8-26	26	10/28/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-9/MW-9-12	12	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-9/MW-9-18**	18	10/27/92	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B-9/MW-9-19.5	19.5	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-9/MW-9-21	21	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-9/MW-9-26	26	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-10/MW-10-15.5	15.5	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-10/MW-10-17	17	10/27/92	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-10/MW-10-21.5**	21.5	10/27/92	ND	--	--	0.157	0.922	0.207	1.124	--	--	--	--	--	--	--
B-11/MW-11-13	13	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-11/MW-11-15	15	09/28/93	6	--	--	--	--	--	--	--	--	--	--	--	--	--
B-11/MW-11-17	17	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-12/VEW-12-13	13	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-12/VEW-12-17.5	17.5	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-12/VEW-12-19	19	09/28/93	5	--	--	--	--	--	--	--	--	--	--	--	--	--
B-13/VEW-13-13	13	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-13/VEW-13-16	16	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-14/VEW-14-6.5	6.5	09/28/93	240	--	--	0.086	0.83	1.1	9.5	--	--	--	--	--	--	--
B-14/VEW-14-8	8	09/28/93	110	--	--	--	--	--	--	--	--	--	--	--	--	--
B-15/VEW-15-6.5	6.5	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
B-15/VEW-15-8	8	09/28/93	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
E1-12	12	03/09/94	5698	ND	--	--	--	--	--	--	--	--	--	--	--	--
E2-10.5	10.5	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
E3-10.5	10.5	03/09/94	816	ND	--	--	--	--	--	--	--	--	--	--	--	--
E4-10	10	03/09/94	6919	ND	--	--	--	--	--	--	--	--	--	--	--	--
E5-10	10	03/09/94	7996	ND	--	48.3	394.1	105.7	807	--	--	--	--	--	--	--

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
SS-1-3	3	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-2-3	3	03/09/94	3100	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-3-3	3	03/09/94	5496	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-4-3	3	03/09/94	10516	ND	--	69.9	408.6	94	797.1	--	--	--	--	--	--	--
SS-5-3	3	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-6-3	3	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-7-3.5	3.5	03/09/94	20	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-8-3.5	3.5	03/09/94	1600	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-9-2	2	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-10-2	2	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-11-2	2	03/09/94	53	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-12-2	2	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-13-2	2	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
SS-14-2	2	03/09/94	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--
2EX-1-9.5	9.5	03/09/94	94	ND	--	--	--	--	--	--	--	--	--	--	--	--
CL1-5.5	5.5	04/24/96	ND	---	ND	---	---	---	---	---	--	--	--	--	--	--
L1-10	10	04/24/96	---	---	110	---	---	---	---	---	--	--	--	--	--	--
L1-12	12	04/24/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
L2-10	10	04/24/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
SP1-1	---	04/24/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
SP2-1	---	04/24/96	94	---	1,100	ND	0.23	ND	ND	---	--	--	--	--	--	--
SP3-1	---	04/24/96	---	---	120	---	---	---	---	---	--	--	--	--	--	--
PL1-3.5	3.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
PL2-3.5	3.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
PL3-3.5	3.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
PL4-3.5	3.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
T1N-12.5	12.5	04/25/96	700	---	---	ND	14	18	150	---	--	--	--	--	--	--
T1N-16.5	16.5	04/25/96	9,500	---	---	9.4	530	200	1,100	ND*	--	--	--	--	--	--
T1S-16.5	16.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
T2S-12.5	12.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
T2S-16.5	16.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
T3S-12.5	12.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
T3S-16.5	16.5	04/25/96	ND	---	---	ND	ND	ND	ND	---	--	--	--	--	--	--
WT-8	8	04/25/96	---	---	19,000	---	---	---	---	ND*	--	--	--	--	--	--
WT-12	12	04/25/96	---	---	9,400	---	---	---	---	---	--	--	--	--	--	--
WT-14	14	04/25/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
WT-16	16	04/25/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
SP4-1	---	04/25/96	ND	---	---	---	---	---	---	---	--	--	--	--	--	--
SP4-2	---	04/25/96	ND	---	---	---	---	---	---	---	--	--	--	--	--	--
SP4-3	---	04/25/96	ND	---	---	---	---	---	---	---	--	--	--	--	--	--
E1-15	15	04/26/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
E2-10	10	04/26/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
E3-10	10	04/26/96	---	---	ND	---	---	---	---	---	--	--	--	--	--	--
SP5-1	---	04/26/96	110	ND	---	ND	0.11	0.11	0.19	---	--	--	--	--	--	--
SP5-2	---	04/26/96	100	ND	---	---	---	---	---	---	--	--	--	--	--	--
SP6-1	---	04/26/96	ND	---	18,000	---	---	---	---	---	--	--	--	--	--	--
SP6-2	---	04/26/96	---	---	14,000	---	---	---	---	---	--	--	--	--	--	--
SP7-1	---	04/26/96	ND	ND	---	---	---	---	---	---	--	--	--	--	--	--
SP7-2	---	04/26/96	ND	ND	---	---	---	---	---	---	--	--	--	--	--	--
SP7-3	---	04/26/96	ND	ND	---	---	---	---	---	---	--	--	--	--	--	--
SP8-1	---	04/26/96	11,000	ND	---	7.3	220	85	600	---	--	--	--	--	--	--
SP8-2	---	04/26/96	69	ND	---	---	---	---	---	---	--	--	--	--	--	--
SP9-1	---	04/26/96	ND	ND	---	---	---	---	---	---	--	--	--	--	--	--
SP9-2	---	04/26/96	440	370	---	ND	0.16	0.67	2.7	---	--	--	--	--	--	--
SP10-1	---	05/06/96	ND	---	---	---	---	---	---	---	--	--	--	--	--	--
SP10-2	---	05/06/96	ND	---	---	---	---	---	---	---	--	--	--	--	--	--
SP11-1	---	05/06/96	8000	---	---	29	570	190	1150	---	--	--	--	--	--	--
SP-10	1	05/08/96	ND	320	---	ND	ND	ND	ND	---	--	--	--	--	--	--
SP-11	0.5	05/08/96	ND	280	---	ND	ND	ND	ND	---	--	--	--	--	--	--
SP-12	1	05/08/96	ND	ND	---	ND	ND	ND	ND	---	--	--	--	--	--	--
SS-13-2	2	05/15/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFW-0.25	0.25	06/18/96	ND	---	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFW-1.0	1	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
SFN-0.25	0.25	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFN-1.0	1	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFE-0.25	0.25	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFE-1.0	1	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFS-0.25	0.25	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
SFS-1.0	1	06/18/96	ND	ND	---	ND	ND	ND	ND	ND*	--	--	--	--	--	--
B18-6.5	6.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B18-10.5	10.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B18-14.0	14	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B18-17.0	17	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B19-6.5	6.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B19-14.0	14	05/12/97	1.0	--	--	0.07	0.17	0.01	0.12	--	--	--	--	--	--	--
B19-17.0	17	05/12/97	3.6	--	--	0.47	0.47	0.04	0.47	--	--	--	--	--	--	--
B19-10.5	10.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B20-6.5	6.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B20-10.5	10.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B20-14.0	14	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B20-17.0	17	05/12/97	ND	--	--	0.013	0.018	ND	0.023	--	--	--	--	--	--	--
B21-6.5	6.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B21-10.5	10.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B21-14.0	14	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B21-17.0	17	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B22-6.5	6.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B22-10.5	10.5	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B22-14.0	14	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
B22-17.0	17	05/12/97	ND	--	--	ND	ND	ND	ND	--	--	--	--	--	--	--
VEW-18-5	5	06/28/99	ND<1	--	--	ND<0.005	0.009	ND<0.005	0.022	0.67*	--	--	--	--	--	--
VEW-18-10	10	06/28/99	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	0.3*	--	--	--	--	--	--
VEW-18-15	15	06/28/99	ND<1	--	--	0.0078	0.067	0.0073	0	0.53*	--	--	--	--	--	--
VEW-18-19	19	06/28/99	4.3	--	--	0.049	0.041	0.012	0.092	7.7*	--	--	--	--	--	--
VEW-18-20	20	06/28/99	1800	--	--	ND<0.1	17	9.9	82	3.8	--	--	--	--	--	--
VEW-18-21	21	06/28/99	140	--	--	0.25	1.3	1.3	9.7	4*	--	--	--	--	--	--

TABLE 6
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TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
VEW-18-25	25	06/28/99	ND<1	--	--	0.022	0.021	ND<0.005	ND<0.01	0.47*	--	--	--	--	--	--
VEW-19-5	5	06/28/99	1.2	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	1.6*	--	--	--	--	--	--
VEW-19-10	10	06/28/99	ND<1	--	--	0.0057	ND<0.005	ND<0.005	ND<0.01	0.28*	--	--	--	--	--	--
VEW-19-15	15	06/28/99	ND<1	--	--	0.0062	0.018	ND<0.005	0.016	1.2*	--	--	--	--	--	--
VEW-19-19	19	06/28/99	8700	--	--	6.3	280	200	1300	6.8*	--	--	--	--	--	--
VEW-19-20	20	06/28/99	2.4	--	--	0.013	0.024	0.097	0.083	1.7	--	--	--	--	--	--
VEW-19-21	21	06/28/99	3.5	--	--	0.073	0.094	0.08	0.25	8.9*	--	--	--	--	--	--
VEW-19-25	25	06/28/99	1.7	--	--	1	1.3	0.01	0.085	4.1*	--	--	--	--	--	--
MW-18-6	6	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-10	10	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-14.5	14.5	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-17	17	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-18.5	18.5	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-20	20	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-21.5	21.5	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-24.5	24.5	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-18-30	30	05/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.015	ND<0.01	--	--	--	--	--	--
MW-19B-18	18	11/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-19B-22	22	11/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	**1**	ND<0.005	ND<0.005	ND<0.005	--	--
MW-19B-24	24	11/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-19B-26	26	11/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	**0.66**	ND<0.005	ND<0.005	ND<0.005	--	--
MW-19B-33.5	33.5	11/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20A-17.5	17.5	11/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-20A-19	19	11/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-20A-20.5	20.5	11/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	34	--
MW-20A-26	26	11/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-20B-28	28	11/16/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20B-39	39	11/18/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20B-46	46	11/19/01	ND<1	--	--	**0.022**	ND<0.005	ND<0.005	ND<0.01	**0.82**	**0.69**	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20B-50.5	50.5	11/19/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	**0.011**	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20B-53	53	11/19/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
MW-20B-55	55	11/19/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20B-66	66	11/19/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-20B-80	80	11/19/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-21A-18	18	11/27/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	35	--
MW-21A-19.5	19.5	11/27/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-21A-21	21	11/27/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-21A-27	27	11/27/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-21B-49	49	11/13/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-21B-52.5	52.5	11/14/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-21B-61.5	61.5	11/14/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-21B-82.5	82.5	11/15/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-22B-19	19	10/23/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-22B-21.5	21.5	10/23/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--
MW-22B-24	24	10/23/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	110	--
MW-22B-26.5	26.5	10/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-22B-43	43	10/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-22B-50.5	50.5	10/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-22B-59	59	10/24/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-23B-12	12	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	570	--
MW-23B-13	13	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	2,000	--
MW-23B-14.5	14.5	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	330	--
MW-23B-32.5	32.5	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-23B-34	34	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-23B-42.5	42.5	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-23B-47	47	10/30/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	74	--
MW-23B-54	54	10/31/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	**0.0068**	ND<0.2	ND<0.005	ND<0.005	ND<0.005	170	--
MW-23B-57.5	57.5	10/31/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-23C-113	113	11/08/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-23C-187	187	11/11/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-24B-22	22	10/27/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	1,800	--
MW-24B-35	35	10/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-24B-50	50	10/28/01	--	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	--	--

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
MW-24B-57	57	10/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	74	--
MW-24B-65	65	10/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	37	--
MW-24B-68	68	10/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	**0.081**	**0.38**	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-24B-69.5	69.5	10/28/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	**0.02**	ND<0.2	ND<0.005	ND<0.005	ND<0.005	110	--
MW-24B-71	71	10/29/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	320	--
MW-24B-83	83	10/29/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	370	--
MW-24B-94.5	94.5	10/29/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	40	--
MW-24C-69	69	11/29/01	ND<1	--	--	**0.053**	ND<0.005	ND<0.005	ND<0.01	**1.2**	**8.4**	ND<0.005	ND<0.005	**0.0053**	ND<30	--
MW-24C-68.75	68.75	11/29/01	ND<1	--	--	**0.027**	ND<0.005	ND<0.005	ND<0.01	**0.36**	**5**	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-24C-69.25	69.25	11/29/01	ND<1	--	--	**0.14**	ND<0.005	ND<0.005	ND<0.01	**0.63**	**2.5**	ND<0.005	ND<0.005	**0.0052**	280	--
MW-25B-57.25	57.25	10/25/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-25B-58.5	58.5	10/25/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	92	--
MW-25B-60.5	60.5	10/25/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
MW-25B-86	86	10/25/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	91	--
MW-25B-88	88	10/25/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	120	--
MW-25B-90.5	90.5	10/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	280	--
MW-25B-101	101	10/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	310	--
MW-25B-105.25	105.25	10/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	47	--
MW-25B-111	111	10/26/01	ND<1	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.2	ND<0.005	ND<0.005	ND<0.005	ND<30	--
EW-1@17	17	02/04/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.05	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-1@19	19	02/04/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.05	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-1@21	21	02/04/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	0.13	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-2@17	17	02/04/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	0.19	0.82	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-2@19.5	19.5	02/04/02	3,200	--	--	1.2	5.5	1.6	8.5	1.7	1.9	ND<0.02	ND<0.02	ND<0.02	--	ND<0.10
EW-2@22.5	22.5	02/04/02	11	--	--	0.14	0.35	0.033	0.26	0.99	0.44	ND<0.02	ND<0.02	ND<0.02	--	ND<0.10
EW-3@19.5	19.5	02/05/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	0.0059	6.7	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-3@20.5	20.5	02/05/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.05	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-4@19	19	02/06/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	12	480	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-4@22.5	22.5	02/06/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	9.6	2,400	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-5@19	19	02/07/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	22	1,800	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-5@25	25	02/07/02	1.4	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	350	6,700	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)
EW-6@19	19	02/06/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	ND<0.05	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-6@22	22	02/06/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	430	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-6@23.5	23.5	02/06/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	660	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-7@19	19	02/07/02	ND<0.50	--	--	ND<0.005	ND<0.005	ND<0.005	ND<0.01	ND<0.005	240	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10
EW-7@25.5	25.5	02/07/02	2.0	--	--	13	ND<0.005	ND<0.005	ND<0.01	270	3,200	ND<0.01	ND<0.01	ND<0.01	--	ND<0.10

TABLE 6
SOIL SAMPLE LABORATORY RESULTS FOR CHEMICAL ANALYSIS
TOSCO STATION 6519

Sample ID	Depth (fbg)	Date	TPHg (mg/kg)	TPHd (mg/kg)	TRPH (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TOC (mg/kg)	ETHANOL (mg/kg)

Notes:

Depths are in feet below grade
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
TRPH = total recoverable petroleum hydrocarbons
B = benzene
T = toluene
E = ethylbenzene
X = xylenes

ND = not detected above indicated laboratory detection limit
NA = not analyzed
TBA = tertiary butyl alcohol
DIPE = di-isopropyl ether
ETBE = ethyl-tertiary-butyl ether
TAME = tertiary-amyl-methyl-ether
mg/kg = milligrams per kilogram
MTBE = methyl tertiary butyl ether

TOC = total organic carbon
* = Analyzed by EPA method 8020
** = Sample analyzed for organic lead but not reported in this table

TABLE 7

INVESTIGATION GROUNDWATER SAMPLE LABORATORY RESULTS
76 STATION 6519

SAMPLE ID	DEPTH (feet)	DATE SAMPLED	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	ETHANOL µg/L	TBA µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
CPT-1-19	19	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-1-49	49	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-1-60	60	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-1-71	71	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-2-22	22	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-2-29	29	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-2-62	62	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-2-74	74	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-3-15	15	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-3-30	30	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-3-40	40	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-3-43	43	05/16/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-3-57	57	05/15/01	ND<500	**1.7**	ND<1.0	ND<1.0	ND<2.0	**510**	ND<250	ND<5.0	ND<1.0	ND<1.0	**2.5**
CPT-3-72	72	05/15/01	ND<500	**4.1**	ND<1.0	ND<1.0	ND<2.0	**4.0**	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-4-19	19	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-4-35	35	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-4-50	50	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	**5.3**	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-4-82	82	05/16/01	ND<500	**14**	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-4-87	87	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-5-20	20	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-5-33	33	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-5-52	52	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-5-70	70	05/14/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-5-95	95	05/14/01	ND<500	**1.3**	ND<1.0	ND<1.0	ND<2.0	**31**	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-6-20	20	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-6-30	30	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-6-45	45	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0

TABLE 7

INVESTIGATION GROUNDWATER SAMPLE LABORATORY RESULTS
76 STATION 6519

SAMPLE ID	DEPTH (feet)	DATE SAMPLED	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	ETHANOL µg/L	TBA µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
CPT-6-68	68	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-6-77	77	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-6-85	85	05/15/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-7-19	19	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-7-30	30	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-7-40	40	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-7-51	51	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-7-63	63	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-7-83	83	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<3.0	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-8-22	22	05/17/01	ND<500	ND<1.0	ND<1.0	ND<1.0	**1.8**	**97**	ND<250	ND<5.0	ND<1.0	ND<1.0	ND<1.0
CPT-9-23.5-28.5	23.5-28.5	11/30/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-9-47-52	47-52	11/30/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-9-60-62	60-62	11/30/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-9-73.5-78.5	73.5-78.5	11/30/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-9-81-85	81-85	11/30/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-9-88-90	88-90	11/30/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-10-24-29	24-29	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-10-39-44	39-44	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-10-50-55	50-55	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-10-61-66	61-66	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-10-74-79	74-79	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-11-22-24	22-24	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-11-37-39	37-39	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-11-59-64	59-64	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-11-66-71	66-71	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-11-73-76	73-76	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2
CPT-11-97-99	97-99	11/31/01	ND<50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	--	ND<10	ND<2	ND<2	ND<2

TABLE 7

INVESTIGATION GROUNDWATER SAMPLE LABORATORY RESULTS
76 STATION 6519

SAMPLE ID	DEPTH (feet)	DATE SAMPLED	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	ETHANOL µg/L	TBA µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
MW-24B-GW54	54	10/28/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	**1.1**	--	ND<50	ND<1	ND<1	ND<1
MW-24B-GW59	59	10/28/01	ND<50	**0.77**	ND<0.5	ND<0.5	ND<1	**1.4**	--	ND<50	ND<1	ND<1	ND<1
MW-24B-GW63	63	10/28/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	**0.77**	--	ND<50	ND<1	ND<1	ND<1
MW-23C-GW80	80	11/06/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	--	--	--	--
MW-23C-GW90	90	11/07/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	--	--	--	--
MW-23C-GW90 Dup	90	11/07/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	--	--	--	--
MW-23C-GW97.5	97.5	11/07/01	ND<50	**1.6**	ND<0.5	ND<0.5	ND<1.5	**24**	--	--	--	--	--
MW-23C-GW110	110	11/07/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	**1.7**	--	--	--	--	--
MW-23C-GW120	120	11/08/01	ND<50	**0.6**	ND<0.5	ND<0.5	ND<1.5	**18**	--	--	--	--	--
MW-23C-GW140	140	11/08/01	ND<50	**1.2**	ND<0.5	ND<0.5	ND<1.5	**12**	--	--	--	--	--
MW-23C-160B	160	11/09/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	--	--	--	--
MW-23C-GW180	180	11/10/01	ND<50	**0.8**	**0.8**	ND<0.5	ND<1.5	**1.5**	--	--	--	--	--
MW-23C-GW180 Dup	180	11/10/01	ND<50	**0.7**	**0.6**	ND<0.5	ND<1.5	ND<1	--	--	--	--	--
MW-22B		11/12/01	--	**190**	**230**	**72**	**230**	**3.6**	--	ND<50	ND<1	ND<1	ND<1
MW-25B		11/12/01	--	**87**	**140**	**53**	**170**	**2.0**	--	ND<50	ND<1	ND<1	ND<1
MW-24B		11/12/01	--	**34**	**80**	**36**	**110**	**0.69**	--	ND<50	ND<1	ND<1	ND<1
MW-21B-GW55	55	11/14/01	ND<50	ND<0.5	**1.0**	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
MW-24C-GW67.5	67.5	11/29/01	ND<500	**53**	ND<2.0	ND<2.0	ND<2.0	**180**	--	**42**	ND<2.0	ND<2.0	ND<2.0
MW-24C-GW111.5	111.5	11/30/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-24C-GW131.5	131.5	11/30/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-24C-GW153.5	153.5	12/01/01	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-24C-GW181.5	181.5	12/01/01	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW22	22	12/03/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW46.5	46.5	12/04/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW81.5	81.5	12/05/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0

TABLE 7

INVESTIGATION GROUNDWATER SAMPLE LABORATORY RESULTS
76 STATION 6519

SAMPLE ID	DEPTH (feet)	DATE SAMPLED	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	ETHANOL µg/L	TBA µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
MW-26C-GW111.5	111.5	12/05/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW141.5	141.5	12/06/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW156.5	156.5	12/06/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	**7.0**	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW186.5	186.5	12/07/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
MW-26C-GW209	209	12/07/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0

Notes:

Depths are in feet below grade
TPHg = total petroleum hydrocarbons as gasoline
B = benzene
T = toluene
E = ethylbenzene
X = xylenes
MTBE = methyl tertiary butyl ether
TBA = tertiary butyl alcohol
DIPE = di-isopropyl ether
ETBE = ethyl-tertiary-butyl ether
TAME = tertiary-amyl-methyl-ether
µg/L = micrograms per liter
ND = not detected above indicated laboratory detection limit
-- = not analyzed

TABLE 8

GROUNDWATER WELL GAUGING AND ANALYTICAL RESULTS
Second Quarter 2002
76 STATION 6519

Well No.	Monitoring Date	Depth to Water (feet)	LPH Thickness (feet)	Well Elevation	Ground-water Elevation	TPH-g (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260B (µg/l)	Ethanol 8260B (µg/l)	TBA 8260B (µg/l)	DIPE 8260B (µg/l)	ETBE 8260B (µg/l)	TAME 8260B (µg/l)	Comments
76 Station:																	
MW-3	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	1100	ND<1	ND<1	ND<1	Pre-purge
MW-3	05/29/02	15.53	0	1006.58	991.05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	0.91	ND<2000	2400	ND<1	ND<1	ND<1	
MW-6	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-6	05/29/02	14.61	0	1005.65	991.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-7	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-7	05/29/02	11.71	0	1006.1	994.39	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-10	05/29/02	--	--	1005.57	--	--	--	--	--	--	--	--	--	--	--	--	Obstruction in well
MW-11	05/29/02	--	--	1006.18	--	--	--	--	--	--	--	--	--	--	--	--	Obstruction in well
MW-16	05/29/02	--	--	1006.28	--	--	--	--	--	--	--	--	--	--	--	--	Obstruction in well
MW-17	05/29/02	16.01	0	1006.92	990.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	26	ND<2000	1800	ND<1	ND<1	ND<1	
MW-17	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	17	ND<2000	1600	ND<1	ND<1	ND<1	Pre-purge
MW-18	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-18	05/29/02	22.79	0	1008	985.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-19B	05/31/02	21.1	0	1006.03	984.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	0.94	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-19B	05/31/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	0.86	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-20A	05/29/02	--	--	--	--	110	ND<0.5	ND<0.5	ND<0.5	ND<1	19	ND<2000	1900	ND<1	ND<1	ND<1	Pre-purge
MW-20A	05/29/02	18.92	0	1006.47	987.55	68	ND<0.5	ND<0.5	ND<0.5	ND<1	19	ND<2000	2900	ND<1	ND<1	ND<1	
MW-20B	05/29/02	--	--	--	--	5500	330	ND<0.5	7.8	9.5	9300	ND<2000	3000	ND<1	ND<1	ND<1	Pre-purge
MW-20B	05/29/02	20.03	0	1006.7	986.67	12000	2400	4.9	1100	1300	20000	ND<2000	28000	ND<1	ND<1	ND<1	
MW-21A	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-21A	05/29/02	19.36	0	1006.08	986.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-21B	05/29/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-21B	05/29/02	21.79	0	1006.18	984.39	ND<50	0.81	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-22A	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-22A	05/30/02	15.25	0	1004.23	988.98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-22B	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-22B	05/30/02	18.91	0	1004.07	985.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-23A	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-23A	05/30/02	14.58	0	1003.01	988.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-23B	05/29/02	--	--	--	--	680	ND<0.5	ND<0.5	ND<0.5	ND<1	1000	ND<2000	390	ND<1	ND<1	3.9	Pre-purge
MW-23B	05/29/02	16.84	0	1003	986.16	680	ND<0.5	ND<0.5	ND<0.5	ND<1	1000	ND<2000	480	ND<1	ND<1	4.3	
MW-23C	05/30/02	18.52	0	1002.94	984.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-23C	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-24A	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-24A	05/30/02	17.94	0	1005.79	987.85	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-24B	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge

TABLE 8

GROUNDWATER WELL GAUGING AND ANALYTICAL RESULTS
Second Quarter 2002
76 STATION 6519

Well No.	Monitoring Date	Depth to Water (feet)	LPH Thickness (feet)	Well Elevation	Ground-water Elevation	TPH-g (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE 8260B (µg/l)	Ethanol 8260B (µg/l)	TBA 8260B (µg/l)	DIPE 8260B (µg/l)	ETBE 8260B (µg/l)	TAME 8260B (µg/l)	Comments
MW-24B	05/30/02	21.77	0	1006.03	984.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-24C	05/30/02	22.01	0	1006.14	984.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-24C	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-25B	05/30/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	1.1	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-25B	05/30/02	21.18	0	1005.2	984.02	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	1.3	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-26C	05/31/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	6.5	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-26C	05/31/02	23.78	0	1007.5	983.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	7.2	ND<2000	ND<50	ND<1	ND<1	ND<1	
MW-24AB	05/31/02	--	--	--	--	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	0.81	ND<2000	ND<50	ND<1	ND<1	ND<1	Pre-purge
MW-24AB	05/31/02	20.94	0	1006	985.06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	1	ND<2000	ND<50	ND<1	ND<1	ND<1	
Chevron Station:																	
B-13	05/29/02	7.13	0	1006.45	999.32	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<1.0	ND<0.5	ND<25	ND<2	ND<2	ND<2	
B-15	05/29/02	19.99	0	1009.54	989.55	270	3.8	0.49	ND<0.3	0.65	ND<10	ND<0.5	15,000	ND<20	ND<20	ND<20	
GT-1D	05/29/02	26.81	0	1013.62	986.81	ND<50	ND<0.3	0.33	ND<0.3	1.4	ND<10	ND<0.5	ND<250	ND<20	ND<20	ND<20	
GT-1S	05/29/02	26.13	0	1013.67	987.54	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	3.2	ND<0.5	ND<25	ND<2	ND<2	ND<2	
GT-2D	05/29/02	24.84	0	1011.57	986.73	ND<50	0.57	ND<0.3	ND<0.3	ND<0.6	3.8	ND<0.5	ND<25	ND<2	ND<2	ND<2	
GT-2S	05/29/02	23.15	0	1011.13	987.98	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	290	ND<0.5	290	ND<2	ND<2	2.8	
GT-3D	05/29/02	27.71	0	1014.65	986.94	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	1.6	ND<0.5	ND<25	ND<2	ND<2	ND<2	
GT-3S	05/29/02	27.03	0	1014.73	987.70	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	6.8	ND<0.5	ND<25	ND<2	ND<2	ND<2	
MW-25	05/29/02	28.32	0	1015.49	987.17	ND<50	ND<0.3	ND<0.3	ND<0.3	0.74	1.5	ND<0.5	ND<25	ND<2	ND<2	ND<2	
MW-26A	05/29/02	42.22	0	1030.28	988.06	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<1.0	ND<0.5	ND<25	ND<2	ND<2	ND<2	
R-1D	05/29/02	24.72	0	1012.27	987.55	ND<50	9.3	ND<0.3	2.0	ND<0.6	3.5	ND<0.5	ND<25	ND<2	ND<2	ND<2	
R-1S	05/29/02	23.08	0	1012.20	989.12	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.6	1.7	ND<0.5	ND<25	ND<2	ND<2	ND<2	

Notes:
Oxygenates analyzed for the first time on this date.
µg/l = micrograms per liter
TPH-g = total petroleum hydrocarbons as gasoline
MTBE = methyl tertiary butyl ether
TAME = tertiary-amyl methyl ether
TBA = tertiary butyl alcohol
DIPE = diisopropyl ether
ETBE = ethyl tertiary-butyl ether
-- = not analyzed for this constituent
* = elevations calculated with respect to GT-1 and Chevron data

TABLE 9

QUALITY ASSURANCE/QUALITY CONTROL SAMPLE LABORATORY RESULTS
76 STATION 6519

SAMPLE ID	SAMPLE PHASE	SAMPLE DESCRIPTION	DATE SAMPLED	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	ETHANOL µg/L	TBA µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
MW-22B-TW1	Sonic Drilling	Equip blank- drill rig water tank	10/24/01	ND<50	ND<0.5	ND<0.5	ND<0.5	**2.0**	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EQB-1	Sonic Drilling	Equip blank- box 1, brass sleeves	10/26/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EQB-2	Sonic Drilling	Equip blank- split spoon, MW-25B	10/26/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
MW-25B-TW1	Sonic Drilling	Equip blank- drill rig water tank	10/26/01	ND<50	ND<0.5	ND<0.5	ND<0.5	**1.1**	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
TRAVEL BLANK	Sonic Drilling	Trip blank- samples collected 10/26/01-10/29/01	10/26/01	ND<50	--	--	--	--	--	--	--	--	--	--
EQB-3	Sonic Drilling	Equip blank- hydropunch, MW-24B	10/28/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
Field Blank	Sonic Drilling	Field blank- MW-23C-90	11/07/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	NA	NA	NA	NA
Equipment Blank	Sonic Drilling	Equip blank- hydropunch, MW-23C	11/07/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	NA	NA	NA	NA
MW-23C-TW1	Sonic Drilling	Equip blank- drill rig water tank	11/08/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<1	--	NA	NA	NA	NA
Field Blank	Sonic Drilling	Field blank- MW-23C-180	11/10/01	ND<50	ND<0.5	**0.6**	ND<0.5	ND<1.5	**1.1**	--	NA	NA	NA	NA
EQB-6	Sonic Drilling	Equip blank- hydropunch, MW-21B	11/14/01	**110**	**0.74**	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EQB-7	Sonic Drilling	Equip blank, box 2, brass sleeves	11/26/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
FB-3	Sonic Drilling	Field blank- MW-24C-67.5	11/29/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
EQB-8	Sonic Drilling	Equip blank- simul probe, MW-24C	11/29/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
EB-1	Auger Drilling	Equip blank- bailer, MW-21A	11/30/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-2	Auger Drilling	Equip blank- pump, MW-21A	11/30/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-3	Auger Drilling	Equip blank- surge block, MW-21A	11/30/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
Bottle blank	Sonic Drilling	Equip blank- VOAs batch 101101	11/30/01	ND<500	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
FB-12	Sonic Drilling	Field blank- MW-26C-156.5	12/06/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
EQB-18	Sonic Drilling	Equip blank- simul probe, MW-26C	12/06/01	ND<200	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0
EB-19	Well Development	Equip blank- surge block, MW-20B	12/11/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-20	Well Development	Equip blank- bailer, MW-20B	12/11/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-21	Well Development	Equip blank- pump, MW-20B	12/11/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-33	Well Development	Equip blank- pump, MW-19B	12/13/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
MW-26C-TW1	Well Development	Equip blank- decon water tank	12/13/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-34	Well Development	Equip blank- surge block, MW-26C	12/13/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
EB-35	Well Development	Equip blank- pump, MW-26C	12/13/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	--	ND<50	ND<1	ND<1	ND<1
MW-19B	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-19B	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-20A	GW Sampling	Field Blank	12/17/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-20A	GW Sampling	Equip Blank	12/17/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-20B	GW Sampling	Field Blank	12/17/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1

TABLE 9

QUALITY ASSURANCE/QUALITY CONTROL SAMPLE LABORATORY RESULTS
76 STATION 6519

SAMPLE ID	SAMPLE PHASE	SAMPLE DESCRIPTION	DATE SAMPLED	TPHg µg/L	B µg/L	T µg/L	E µg/L	X µg/L	MTBE µg/L	ETHANOL µg/L	TBA µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
MW-20B	GW Sampling	Equip Blank	12/17/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-21B	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-21B	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-22A	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-22A	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-23B	GW Sampling	Field Blank	12/17/01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-23B	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-23C	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-23C	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-24AB	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-24AB	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-24B	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-24B	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-25B	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-25B	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-26C	GW Sampling	Field Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1
MW-26C	GW Sampling	Equip Blank	12/17/01	--	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<0.5	ND<2,000	ND<50	ND<1	ND<1	ND<1

Notes:

Depths are in feet below grade
TPHg = total petroleum hydrocarbons as gasoline
B = benzene
T = toluene
E = ethylbenzene
X = xylenes
MTBE = methyl tertiary butyl ether
TBA = tertiary butyl alcohol
DIPE = di-isopropyl ether
ETBE = ethyl-tertiary-butyl ether
TAME = tertiary-amyl-methyl-ether
µg/L = micrograms per liter
ND = not detected above indicated laboratory detection limit
NA = not analyzed

Table 10

POTENTIAL RECEPTORS
Tosco 76 Station 6519

Potential Receptors	Explanation
Residential Land Use	The nearest residential structure is located approximately 1/4 mile south of the site.
Commercial/Industrial Land Use	A Denny's Restaurant is adjacent to the east, a Chevron gas station is across Rancho California Road to the north, and a several restaurants and retail shops are located across Moreno Road to the south.
Surface Water	The nearest water body is Murrieta Creek. The banks of the creek are less than 150 feet southwest of the station across Front Street. The main creek channel is approximately 250 feet southwest of the site.
Groundwater	Groundwater occurs at approximately 14 to 24 feet below grade at the site. Groundwater is an ecological receptor and is also a medium through which contaminants can impact other ecological and human receptors such as surface waters or drinking water.
Utilities	Underground utilities beneath the site do not appear to intersect the groundwater table, with the possible exception of a large electric vault on the west side of the Chevron station.
Other Sensitive Receptors	The closest identified sensitive receptors are the Rancho California Water District well 118 located 1,000 feet northwest of the site and a well at the Kids World Child Care Center located 1/2 mile southeast of the site.

Note: Sensitive receptors consist of people or environments with greater than normal vulnerability to adverse reactions from exposure to contaminants. Typical examples are the elderly, children, and people with illnesses.

Table 11

EXPOSURE PATHWAY BY MEDIUM
Tosco 76 Station 6519

	Receptor / Exposure Pathway				
Medium	Residential Land Use[1]	Commercial / Industrial Land Use[1]	Ecological and Other Non-Human Receptors	Comments	Requiring Further Evaluation?
Groundwater	Ingestion from drinking	Ingestion from drinking	---	It is not clear whether petroleum hydrocarbons released at the 76 station have contributed to detections of MTBE in RCWD well 118, a municipal drinking water supply well.	Yes
	Inhalation of volatiles	Inhalation of volatiles	---	Petroleum hydrocarbon-impacted groundwater is present beneath the site. However, active soil vapor extraction activities are likely to limit the potential for exposure to human occupants of buildings over or adjacent to the impacted groundwater.	No
	Dermal absorption from bathing	Dermal absorption	---	It is not clear whether petroleum hydrocarbons released at the 76 station have contributed to detections of MTBE in RCWD well 118, a municipal drinking water supply well.	Yes
	---	---	Underground Utilities	Impacted groundwater occurs at approximately 14 to 24 feet below grade (fbg). No utilities in the area are known to be located this deep.	No
	---	---	Surface Water	Based on a review of historical groundwater monitoring data, soil data and creek sampling performed by Tosco and/or Chevron, it appears unlikely that dissolved-phase hydrocarbons have migrated and impacted Murrietta Creek. Further evaluation of this receptor pathway does not appear warranted.	No

Table 11

EXPOSURE PATHWAY BY MEDIUM
Tosco 76 Station 6519

	Receptor / Exposure Pathway				
Medium	Residential Land Use[1]	Commercial / Industrial Land Use[1]	Ecological and Other Non-Human Receptors	Comments	Requiring Further Evaluation?
Surface water	Ingestion from drinking	Ingestion from drinking	---	Surface water is not known to be impacted.	No
	Inhalation of volatiles	Inhalation of volatiles	---	Surface water is not known to be impacted.	No
	Dermal absorption from bathing	Dermal absorption	---	Surface water is not known to be impacted.	No
	Ingestion during recreational swimming	Ingestion	---	Surface water is not known to be impacted.	No
	Ingestion of contaminated fish	Ingestion	---	Surface water is not known to be impacted.	No
	---	---	Reservoir or Marine Surface Water Body	Surface water is not known to be impacted.	No

Table 11

EXPOSURE PATHWAY BY MEDIUM
Tosco 76 Station 6519

	Receptor / Exposure Pathway				
Medium	Residential Land Use[1]	Commercial / Industrial Land Use[1]	Ecological and Other Non-Human Receptors	Comments	Requiring Further Evaluation?
Soil	Ingestion	Ingestion	---	The entire site is paved and therefore there is a low likelihood of exposure through ingestion of hydrocarbon impacted soil.	No
	Inhalation of particulates	Inhalation of particulates	---	The entire site is paved and therefore there is a low likelihood of exposure through inhalation of particulates.	No
	Inhalation of volatiles	Inhalation of volatiles	---	Inhalation of volatiles is possible due to vapor migration from impacted soil into onsite and offsite buildings. However, active soil vapor extraction activities are likely to limit the potential for exposure to human occupants of buildings over or adjacent to the impacted soil.	No
	Ingestion via plant uptake	Ingestion	---	This exposure is only possible from residential lawns/gardens directly over shallow impacted soil. However, there is a low likelihood of exposure at this site because the site and vicinity are developed for commercial purposes.	No
	Dermal absorption from gardening	Dermal absorption	---	This exposure is only possible from residential lawns/gardens directly over shallow impacted soil. However, there is a low likelihood of exposure at this site because the site and vicinity are developed for commercial purposes.	No
	---	---	Beneficial Use Groundwater	Groundwater has been impacted and groundwater is used in the vicinity. The closest well is RCWD well 118.	Yes
	---	---	Non-Beneficial Use Groundwater	Not applicable; groundwater is beneficial.	No

Note:
[1] Exposure pathway by medium from EPA, 1991

APPENDIX A

SELECTED TABLES FROM PREVIOUS REPORTS

APPENDIX B

SELECTED TABLES AND FIGURES FROM CHEVRON REPORTS

APPENDIX C
GENERAL FIELD PROCEDURES, WELL AND ENCROACHMENT PERMITS, BORING LOGS, AND SURVEY DATA

APPENDIX C

FIELD PROCEDURES

A description of the field procedures used during this phase of site assessment activities is presented below.

1.0 WELL INSTALLATION

1.1 HOLLOW STEM AUGER DRILLING AND SOIL SAMPLING

Soil borings were drilled using continuous-flight, hollow-stem augers. Soil samples were obtained from each boring for soil description, field hydrocarbon vapor screening, and possible laboratory analysis. Soil samples were collected at 5-foot intervals from approximately 5 feet below grade to groundwater and then continuously from the depth of groundwater to the base of the boring. Soil samples were collected using a standard split-spoon sampler with sample rings. The split-spoon sampler was driven approximately 18 inches beyond the lead auger with a 140-pound hammer dropped from a height of 30 inches.

Upon retrieval, soil samples selected for laboratory analysis were covered with teflon strips and end caps. Each soil sample was labeled with the project number and/or station ID, boring/well number, sample depth, geologist's initials, and date of collection. After the soil samples were labeled and documented in the chain of custody record, they were placed in a cooler with ice at approximately 4 degrees Celsius prior to and during transport to a state-certified laboratory for analysis. Chain of custody protocol was followed for all soil samples collected for laboratory analysis. The chain of custody form(s) accompanied the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis. Soil samples were transported to the laboratory within 32 hours of sample collection.

Soil adjacent to the laboratory sample was screened for hydrocarbon vapors using a Mini-Rae 2000^{TM} photo-ionization detector (PID). For each hydrocarbon vapor-screening event, a small plastic, zip-lock bag or a 6-inch-long by 2.5-inch-diameter sample insert was filled approximately 1/3 full with soil, closed or capped at both ends, and shaken. The PID probe was inserted through a small opening in the cap or bag, and a reading was taken after approximately 15 seconds and recorded on the boring log. The remaining soil recovered in the split spoon sampler was described in accordance with the Unified Soil Classification System. For each sampling interval, field estimates of soil type, color, density/consistency, moisture, and other descriptions were recorded on the boring logs.

1.2 ROTOSONIC DRILLING AND SOIL SAMPLING

Soil borings were drilled using a rotosonic method of advancing casing. Soil samples were obtained from each boring for soil description, field hydrocarbon vapor screening, and possible laboratory analysis. Soil samples were generally collected continuously from approximately 5 feet below grade to the base of the boring. Soil samples were either collected using a standard split-spoon sampler with sample rings or by continuous coring in advance of the casing being advanced. The split-spoon sampler was driven approximately 18 inches beyond the total core depth with a 140-pound hammer dropped from a height of 30 inches.

Upon retrieval, soil samples from the split spoon sampler selected for laboratory analysis were covered with teflon strips and end caps. For the continuous core, a clean sample ring was manually inserted into the core and then covered with teflon strips and end caps. Each soil sample was labeled with the project number, boring/well number, sample depth, geologist's initials, and date of collection. After the soil samples were labeled and documented in the chain of custody record, they were placed in a cooler with ice at approximately 4 degrees Celsius prior to and during transport to a state-certified laboratory for analysis. Chain of custody protocol was followed for all soil samples collected for laboratory analysis. The chain of custody form(s) accompanied the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis. Soil samples were transported to the laboratory within 32 hours of sample collection.

Soil adjacent to the laboratory sample was screened for hydrocarbon vapors using a Mini-Rae 2000^{TM} photo-ionization detector (PID). For each hydrocarbon vapor-screening event the PID probe was inserted through a small opening in the bag in which the cores were placed as they were brought to the surface and a reading was taken after approximately 15 seconds and recorded on the boring log. The remaining soil recovered in the split spoon sampler was described in accordance with the Unified Soil Classification System. For each sampling interval, field estimates of soil type, color, density/consistency, moisture, and other descriptions were recorded on the boring logs.

1.3 MONITORING WELL INSTALLATION

Groundwater monitoring wells were constructed with 4-inch-diameter, flush-threaded Schedule 40 or Schedule 80 PVC blank and screened (0.020-inch slot size) casing. All well casing used in constructing the monitoring wells was new and in factory-sealed plastic enclosures. Prior to well casing installation the boring annulus was drilled approximately one foot below the proposed screen interval. During well installation, the well casing was suspended and centralized within the hollow-stem augers or sonic casing and did not rest against the sides or bottom of the annulus

prior to being fixed in place. Simultaneously with the removal of the augers from the borehole, the filter pack, seal, or grout was emplaced, thereby centralizing the casing.

A filter pack (No. 3 Monterey or No. 2/12 sand) was installed from the total depth of the boring to approximately two to five feet above the screen interval. The screened interval extended approximately 10 feet below the top of the groundwater table in shallow wells and was up to 10 feet total in wells screened below the water table. Following installation of the filter pack in the wells installed using hollow stem auger, the well was surged using a surge block for wells installed using hollow stem auger drilling. Surging was performed by running the surge block up and down the entire length of the screen interval in one continuous motion. After surging activities, a 3-foot-thick bentonite annular seal was placed on top of the filter pack. The remaining annular space was grouted with volclay grout to the surface. Utility access boxes were installed slightly above grade, locking watertight caps and locks were installed to prevent unauthorized access to the well and to limit infiltration of surface fluids.

1.4 EQUIPMENT DECONTAMINATION

Drilling equipment was decontaminated by high pressure, hot water cleaning before being brought onsite. The drilling equipment was also washed before each new boring was commenced. Prior to initial use at the site and before each sample was collected, the split spoon sampler was brush-scrubbed in a Liqui-Nox™ and potable water solution, rinsed twice with potable water, and then rinsed with laboratory provided de-ionized water.

2.0 WELL DEVELOPMENT

Well sealing materials were allowed to set for at least 48 hours prior to well development activities. Wells were developed such that water samples would be representative of the formation water.

Groundwater monitoring wells were developed by surging and bailing and/or pumping. Prior to well development, fluid levels were measured in the wells using a water level meter (electronic interface probe with conductance sensors). The depth to water and total well depth were measured relative to the top of the well casing.

The well was then surged using a surge block appropriate for the diameter of the well. Surging was performed by running the surge block along the length of the well screen that penetrated the current groundwater level. Following surging activities, all water introduced into the well during installation activities plus three borehole volumes were removed. Suspended silt was purged using

a cleaned 4-inch diameter PVC or stainless steel bailer. When purged water appeared visibly clean of silt, a 2- or 3-inch downhole pump with a one way check valve was used to remove the water. Temperature, electric conductivity (EC), and pH measurements were measured using a Hydac™ Model 910 meter and recorded on well development logs during bailing activities.

All development equipment that may contact the groundwater was decontaminated prior to being brought onsite and before commencing development of each monitoring well. Development equipment was brush-scrubbed in a Liqui-Nox™ and potable water solution, rinsed with potable water, rinsed again with potable water and then sprayed with laboratory provided de-ionized water. For pumps and tubing systems, both the pumps and tubing were submerged in each successive wash or rinse drum to the extent that their external surfaces would come into contact with standing water in the well. While submerged, the pump was switched on and soapy water or rinse water was allowed to circulate through the equipment back into the same drum until at least three pump and tubing volumes had fully circulated. When solid piping was used in place of tubing for bringing pumped well water to the surface, the piping was decontaminated using a high pressure, hot water cleaning system in a decontamination trailer. The exterior of the pipe was scrubbed with soapy water and soapy water was sprayed inside the pipe prior to the high pressure, hot water cleaning.

3.0 FLUID LEVEL MONITORING

Fluid levels were measured in the wells using a water level meter (electronic interface probe with conductance sensors). The depth to water was measured relative to the top of the well casing. The interface probe was decontaminated prior to being brought onsite and before use in each monitoring well. The interface probe was brush-scrubbed in a Liqui-Nox™ and potable water solution, rinsed with potable water, and then rinsed with laboratory provided de-ionized water.

4.0 GROUNDWATER PURGING AND SAMPLING

After development activities, groundwater monitoring wells were allowed to re-equilibrate for a minimum of 24 hours prior to conducting groundwater purging and sampling activities. Groundwater monitoring wells were purged and sampled in accordance with standard regulatory protocol. Monitoring wells were purged of groundwater prior to sampling so that fluids collected were representative of fluids within the formation. Fluids were purged from the monitoring wells by using a down-hole pump, which was decontaminated prior to being brought onsite and before use in each monitoring well. Temperature, EC, and pH were measured after each well casing volume was removed. Temperature, EC, and pH were measured using a Hydac™ Model 910 meter. Purging was considered complete when three casing volumes of fluid had been removed.

If the well was purged dry and did not recharge to 80% of its prepurge volume within 2 hours, then samples for laboratory analysis were collected without further purging.

Groundwater samples were collected by lowering a 1.5-inch-diameter, bottom-fill, disposable polyethylene bailer just below the static water level in the well. The samples were carefully transferred from the check-valve-equipped bailer to 40-milliliter glass containers. The sample containers were filled to zero headspace and fitted with Teflon-sealed caps. Each sample was labeled with the project number, well number, sample date, and sampler's initials. After the groundwater samples were labeled and documented in the chain of custody record, they were placed in a cooler with ice at approximately 4 degrees Celsius prior to and during transport to a state-certified laboratory for analysis. Chain of custody protocol was followed for all groundwater samples. The chain of custody form(s) accompanied the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis. Groundwater samples were transported to the laboratory within 24 hours.

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

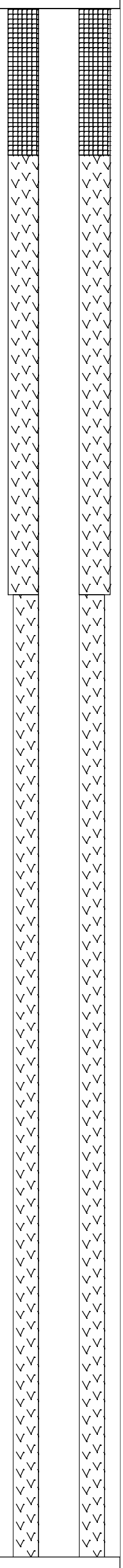
DATE DRILLED: November 26-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5 feet
TOTAL DEPTH: 70 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Asphalt	
								Fill, very dark grayish brown (2.5Y 3/2), moist, sand and gravel, medium grained sand fill, some concrete debris	
							1		
							2	Fill, dark grayish brown (2.5Y 4/2), clay, silt and sand, medium plastic to low plasticity	
							3		
								Sand, light olive brown (2.5Y 5/3), damp, medium and fine grained sand, some silt, some clay, non-plastic	
							4		
	4.2						5	Sand, olive brown (2.5Y 4/3), wet, fine, medium and coarse grained sand with gravel, with silt, some clay, water from drill rig	SP
							6		
	6.5						7		
	5.7							Silt, olive brown (2.5Y 4/3), damp, silt with clay with medium and fine grained sand, medium plastic, trace gravel	ML
							8		
			55.84	10.07	65.91		9	Sand, olive brown (2.5Y 4/3), damp, medium and fine grained sand with clay, low plasticity	SC
	10.9						10	Sand, dark grayish brown (2.5Y 4/2), wet, medium and fine grained sand with gravel, some silt	SP
	12.6						11	Sand, light olive brown (2.5Y 5/3), wet, coarse and medium grained sand	SP
							12	Sand and Silt, very dark greenish gray (Gley 1 3/1), moist, fine grained sand, non-plastic	SM
	15.3							Sand, olive brown (2.5Y 4/3), wet, coarse grained sand with gravel with medium grained sand	SP
	14.4						13	Sand, very dark greenish gray (Gley 1 3/1), wet, fine and medium graind sand	SP
							14	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with gravel with coarse grained sand, some fine grained sand, trace silt	SP
	19.8						15	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, some coarse grained sand, some gravel	SP
	120						16	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some gravel, some fine grained sand, some silt	SP
	191						17		
	478	ND<0.005					18		
							19		
	223						20	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel, some silt	SP
	58						21		
								Sand, greenish gray (Gley 1 5/1), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
		ND<0.005					22		
	241							Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with gravel, some fine grained sand	SP
	63.5						23	Silty Sand, very dark greenish gray (Gley 1 3/1), moist, fine grained sand, non-plastic, non-cohesive	SM
								Silt and Sand, very dark greenish gray (Gley 1 3/1), damp/moist, fine grained sand, some clay, cohesive	ML
		ND<0.005					24		
	70.8						25	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt	SP
	28.3							Silt, very dark greenish gray (Gley 1 3/1), moist, silt with clay with fine grained sand, low plasticity, cohesive	ML
		ND<0.005					26		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-19B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 26-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5 feet
TOTAL DEPTH: 70 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
				*	*	8.44	27	Silt and Sand, very dark greenish gray (Gley 1 3/1), moist, fine grained sand, some clay, non-plastic, cohesive	ML
	72.6								
	12.7			56.13	11.55	67.68	28		
							29	Sand, very dark greenish gray (Gley 1 3/1), moist, fine grained sand with silt, trace clay, non-cohesive	SM
	45.2						30		
	13.3							Silt and Sand, very dark greenish gray (Gley 1 3/1), moist, fine grained sand, trace clay	ML
							31		
							32		
	12.6								
	4.8						33	Sand and Silt, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, low plasticity, non-cohesive	SM
		ND<0.005					34		
				47.16	5.71	52.87		Silt and Sand, very dark greenish gray (Gley 1 3/1), moist/damp, fine grained sand with clay, low plasticity, cohesive	ML
	4.2						35		
	1.4							Silt and Clay, very dark greenish gray (Gley 1 3/1), damp, with fine grained sand, low plasticity, cohesive	ML
				76.76	18.2	94.96	36		
								Silt and Clay, very dark greenish gray (Gley 1 3/1), moist/damp, with fine grained sand, low-medium plasticity, cohesive	ML
							37		
	1.5								
	5.5						38		
								Silt, very dark greenish gray (Gley 1 3/1), moist, silt with clay with fine grained sand, cohesive, non-plastic	ML
							39		
								Sand, very dark greenish gray (Gley 1 3/1), moist/damp, fine grained sand with silt, trace clay, non-plastic, non-cohesive	SM
	12.6						40		
	10.4							Sand, dark greenish gray (Gley 1 4/1), damp/moist, fine grained sand with medium grained sand, some silt	SP
							41		
								Sand, dark greenish gray (Gley 1 4/1), damp/moist, fine grained sand and medium grained sand, non-cohesive	SP
							42		
	19.7								
	6.5						43	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand and fine grained sand, trace silt	SP
				19.3	3.3	22.6		Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
	2.8						44		
	4.0							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand with coarse grained sand	SP
							45		
	3.9						46		
	7.6							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt	SP
							47		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some fine grained sand, trace coarse grained sand	SP
							48		
	4.1						49		
	1.7							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
							50		
							51		
	4.4							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand and fine grained sand, trace silt	SP
	4.3						52	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, trace fine grained sand	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 26-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5 feet
TOTAL DEPTH: 70 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							53	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand and medium grained sand, trace fine grained sand, trace gravel	SP		
	7.3						54				
	6.0							Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, trace fine grained sand, trace gravel	SP		
							55				
	2.2						56				
	4.1							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace gravel	SP		
							57				
	4.8						58				
	5.5										
							59	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, trace fine grained sand	SP		
	5.8						60				
	4.7							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand and coarse grained sand, some fine grained sand	SP		
							61				
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel	SP		
							62				
	10.7										
	7.3						63				
							64				
	5.8						65				
	3.1										
							66				
							67				
	8.1										
	5.3						68	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand with coarse grained sand	SP		
							69				
	4.9						70				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Split Spoon - CA Mod
DEPTH TO WATER: 18.5
TOTAL DEPTH: 27 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Backfill of sand and gravel	SP
							3	Sandy Silt, very dark gray, damp	ML
							4	Sand, light yellowish brown, damp, very fine to medium grained sand, trace silt, grades to silty sand	SP
5 10 14	0.5						5	Silty Sand, yellowish brown, moist, silty very fine to medium grained sand, medium dense	SM
7 8 16	0.5						8	Sandy Silt, dark gray, moist, very fine to medium grained sandy silt, very stiff, poor plasiticity	ML
8 14 16	1						15	becomes dark greenish gray	ML
14 19 23	2	ND<0.005					17	Silty Sand, dark greenish gray, moist, silty very fine to medium grained sand, dense	SM
24 30	11						18	becomes very dense	SM
29 34 34	4	ND<0.005					19	Sand, gray, wet, very fine to medium grained sand, very dense, some coarse grained sand	SP
42 31 33 40	4	ND<0.005					20	Sandy Silt, dark greenish gray, wet, very fine grained sandy silt, hard	ML
22 28 30	10			*	*	7.34	21	Sand, gray, wet, very fine to coarse grained sand, very dense, some silt	SW
24 25 38	6						24	Silt, dark gray, wet, silt, hard, trace very fine grained sand, good plasticity	ML
12 28	0	ND<0.005					26		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

TRC

LOG OF EXPLORATORY BORING

MW-20A

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Split Spoon - CA Mod
DEPTH TO WATER: 18.5
TOTAL DEPTH: 27 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
40							27				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecul, California

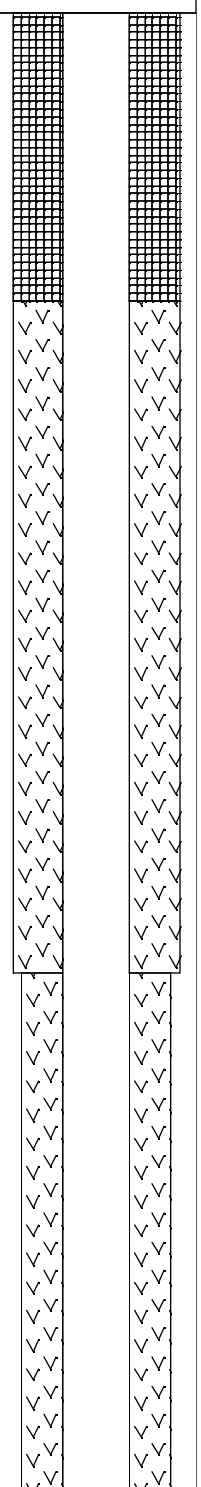
DATE DRILLED: November 16, 18-21, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5
TOTAL DEPTH: 80 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Asphalt	
							1	Fill, olive brown, dry sand, coarse, medium and fine grained sand with gravel	
							2		
							3		
							4		
							5	No recovery	
							6		
	5.6						7	Sand, grayish brown (10YR 5/2), dry, medium and fine grained sand, some silt, trace gravel	SP
	4.9						8	Sand, grayish brown (10YR 5/2), dry, coarse and medium grained sand with fine grained sand, some gravel- some black asphalt type material at 8 feet	SP
							9		
	3.9						10	Clayey Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand, some medium grained sand, plastic, water from drill rig	SC
	0.9						11		
							12	Sand, olive brown (2.5Y 4/3), wet, coarse grained sand with silt, some gravel, trace clay	SM
	1.6						13	Sandy Clay, dark greenish gray (Gley 1 4/1), wet, medium and fined grained sand with silt, medium plasticity	CL
	5.3						14	Clay and Silt, dark greenish gray (Gley 1 4/1), wet, with fine grained sand	CL
	9.5						15	Silt and Clay, dark greenish gray (Gley 1 4/1), wet, with fine grained sand, some medium grained sand	ML SP
	51.9							Sand, grayish brown (2.5Y 3/2), damp, medium grained sand with fine grained sand, some gravel, trace clay	SP
							16	Sand, dark greenish gray (Gley 1 4/1), moist, medium and fine grained sand with silt, trace clay, trace gravel	
							17		
	52.4							Sand, greenish gray (Gley 1 5/1), moist, medium and fine grained sand with silt, some gravel, trace clay	SP
	320						18	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel	SP
							19		
	196						20	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand with gravel, trace silt	SP
	110						21		
							22		
	71								
	128						23		
							24	Silt, greenish black (Gley 2.5/1), wet, silt and fine grained sand, trace clay, non-plastic	ML
								Silt, greenish black (Gley 1 2.5/1), wet, silt and fine grained sand, some clay, non-plastic	ML
	106						25	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand, trace silt	SP
	58.2						26	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some silt	SM

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-20B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecul, California

DATE DRILLED: November 16, 18-21, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5
TOTAL DEPTH: 80 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27	Silt and Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some medium grained sand, non-cohesive	ML
	75.5								
	29.3	ND<0.005					28	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay with fine grained sand, low plasticity, cohesive	ML
							29	Silt and Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace of medium grained sand, low plasticity, cohesive	ML
	49.5						30	Clay and Silt, very dark greenish gray (Gley 1 3/1), wet, trace fine grained sand, medium plasticity, cohesive	CL
	69.9							Silt and Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic	ML
							31		
							32		
	72.1							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, slightly plastic, cohesive	ML
	25.7						33		
							34	Silt and Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic	ML
	9.5						35		
	40.9							Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, with fine grained sand, low plasticity, cohesive	ML
							36		
							37	Clay, very dark greenish gray (Gley 1 3/1), wet, clay with silt, some fine grained sand, cohesive, medium plasticity	CL
	61.8								
	19.0			67.37	14.56	81.93	38	Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, with fine grained sand, low plasticity	ML
							39		
		ND<0.005						Clay and Silt, very dark greenish gray (Gley 1 3/1), wet, with fine grained sand, medium plasticity	CL
	37.9							Sandy Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, cohesive, non-plastic	ML
	25.0						40		
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay with fine grained sand, low plasticity, cohesive	ML
							41	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with silt, some clay, non-cohesive	SM
	88						42		
	275							Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with silt with medium grained sand, non-cohesive	SM
							43		
							44		
							45		
	307							Sand and Silt, dark greenish gray (Gley 1 4/1), wet, fine grained sand, some medium grained sand	SM
		0.82					46		
								Silt, dark greenish gray (Gley 1 4/1), wet, silt and fine grained sand, some clay, non-cohesive	ML
							47		
								Silt, dark greenish gray (Gley 1 4/1), wet, silt with clay, non-plastic, cohesive	ML
	2,107							Silt, dark greenish gray, silt with fine grained sand, trace clay, non-cohesive, non-plastic	ML
							48		
							49	Clay, dark greenish gray (Gley 1 4/1), wet, clay with silt, some fine grained sand, low plasticity	CL
	528			58.63	11.55	70.18			
	90.8	0.011					50	Clay and Silt, dark greenish gray (Gley 1 4/1), wet, some fine grained sand, cohesive, medium plasticity	CL
							51	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with silt, some medium grained sand, non-cohesive	SM
	15.6						52		
	2.6							Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some silt, non-cohesive	SM

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecul, California

DATE DRILLED: November 16, 18-21, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5
TOTAL DEPTH: 80 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
		ND<0.005					53		
	8.8							Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, low plasticity, cohesive	ML
	5.2						54	Clay, very dark greenish gray (Gley 1 3/1), wet, clay with silt, moderately plastic, cohesive	CL
		ND<0.005					55	Silt and Sand, dark greenish gray (Gley 1 4/1), damp/moist, fine grained sand, some clay, non-cohesive	ML
	8.3						56		
	8.5							Sand, very dark greenish gray (Gley 1 3/1), damp, fine and medium grained sand with silt, cohesive	SM
							57	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand, non-cohesive	SP
							58		
	8.0								
	8.3						59	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, trace fine grained sand	SP
	7.6						60		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace gravel	SP
	6.3						61	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand	SP
							62	Sand, greenish gray (Gley 1 6/1), wet, medium grained sand with coarse grained sand, some gravel	SP
	5.0						63		
	13.2							Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, trace gravel	SP
							64		
	19.2						65		
	3.9							Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, trace fine grained sand	SP
		ND<0.005					66		
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel	SP
							67		
	3.7							Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand	SP
	5.2						68	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel	SP
							69		
	7.0						70		
	7.2							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel	SP
							71		
							72		
	8.5								
	5.4						73	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand, some medium grained sand, some gravel	SP
							74		
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, some medium grained sand	SP
	5.5						75		
	3.3							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel	SP
							76		
							77	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, trace gravel	SP
	3.0								
	3.2						78	Sand, greenish gray (Gley 1 5/1), wet, medium and coarse grained sand, some gravel	SP
							79		

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecul, California

DATE DRILLED: November 16, 18-21, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19.5
TOTAL DEPTH: 80 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
	4.6	ND<0.005					80				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

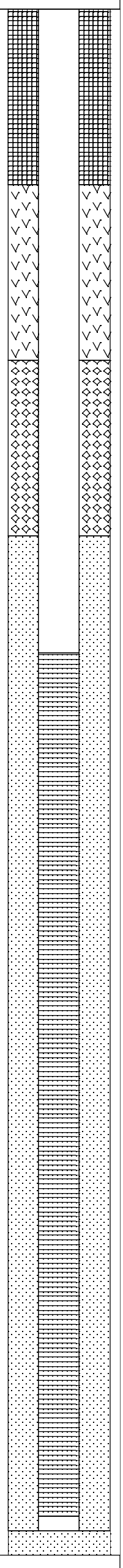
DATE DRILLED: November 27, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Split Spoon - CA Mod
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 27 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Asphalt	
							1	Backfill, sand and gravel	SP
							2	Sandy silt, very dark gray, moist, very fine grained sandy silt, some fine to medium grained sand	ML
5	2.5						3		
6							4		
6							5	Sandy silt, very dark gray, moist, very fine grained sandy silt, some fine to medium grained sand, stiff, poor plasticity	ML
							6		
							7		
							8		
							9		
6							10	Sandy silt, dark olive gray, moist, very fine to fine grained sandy silt, some medium grained sand, very stiff, poor plasticity	ML
10	4						11		
11							12		
							13		
							14		
7							15	becomes moderately plastic	ML
7	2						16		
11									
8									
16	1						17	becomes hard	ML
21									
9		ND<0.005					18		
17	3							Silty sand, dark greenish gray, wet, silty very fine to fine grained sand, some medium grained sand, dense	SM
30							19		
13		ND<0.005							
30	5						20	becomes very dense	SM
38									
27		ND<0.005					21	Silty sand, dark greenish gray, wet, silty very fine to coarse grained sand, very dense	SM
34	2								
50							22	Silt, dark gray, very fine grained sandy silt	ML
13									
21	0						23	Sand, gray, very fine to coarse sand with trace to some silt	SW
27									
24							24	Sand, gray, wet, very fine to medium grained sand, very dense, trace to some silt, trace coarse sand	SP
39	0.5								
50				*	*	8.39	25		
16									
17	1						26	as above with isolated gravel clast	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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LOG OF EXPLORATORY BORING

MW-21A

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 27, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Split Spoon - CA Mod
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 27 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
30		ND<0.005					27	Sandy silt, very dark gray, very fine grained sandy silt, hard	ML		

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

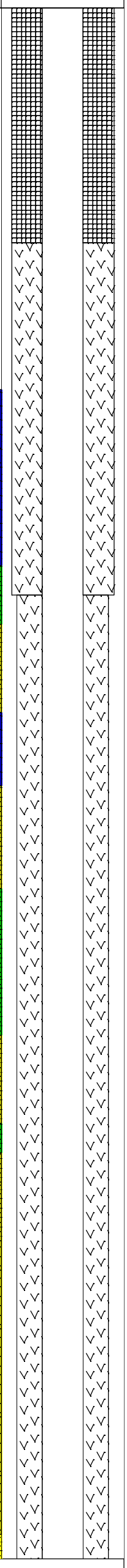
DATE DRILLED: November 13-15, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 85 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Aaphalt	
								Road base, light olive brown (2.5Y 4/4)	
	1.2						1	Fill, black (10YR 2/1), black clayey silt, semi plastic	
							2		
							3		
							4		
							5	No recovery	
							6		
								Clay and Silt, black (10YR 2/2), wet, plastic, water from drill rig	CL
	5.0						7		
	5.5							Clay and Silt, dark gray (2.5Y 4/1), moist	CL
							8	Clay and Silt, black (10YR 2/1), moist	CL
							9		
								Silt and Sand, olive brown (2.5Y 4/3), moist, medium grained sand with clay	ML
	7.7						10		
	7.5							Silt and Clay, dark olive brown (5Y 3/2), damp, low plasticity	ML
								Sand, dark olive gray (5Y 3/2), slightly moist, medium grained sand with silt, some clay, non-plastic	SM
							11		
							12		
	12.9							Clay, dark greenish gray (Gley 1 4/1), moist, clay with silt with fine grained sand, trace coarse grained sand, plastic	CL
	7.8						13		
								Sand, dark greenish gray (Gley 1 4/1), moist, fine and medium grained sand with silt, some clay, non plastic	SM
							14	Sand, dark greenish gray (Gley 1 4/1), moist, fine and medium grained sand with silt, non plastic	SM
	6.5						15		
	10.2							Silt and Clay, dark greenish gray (Gley 1 4/1), moist, with fine grained sand, medium plasticity	ML
							16		
								Sandy Silt, dark greenish gray (Gley 1 4/1), moist, fine grained sand with clay, some medium grained sand	ML
							17		
	12.7							Silty Sand, dark greenish gray (Gley 1 4/1), moist, fine grained sand, some clay, trace medium grained sand	SM
	9.8						18		
							19		
								Silt and Clay, dark greenish gray (Gley 1 4/1), moist, with fine grained sand, some clay, low plasticity	ML
	9.1							Sand, dark greenish gray (Gley 1 4/1), moist, fine and medium grained sand with silt, some coarse grained sand	SM
	7.7						20	Sand, dark greenish gray (Gley 1 4/1), wet, fine and medium grained sand, trace silt	SM
							21		
								Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand with gravel	SP
							22	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt	SP
	9.7							Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand with some fine grained sand, trace silt	SP
	9.1						23		
							24	Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand, trace fine grained sand	SP
	8.2						25		
	10.2							Sand, greenish gray (Gley 1 6/1), wet, medium and coarse grained sand, some fine grained sand	SP
							26	Sand and Silt, dark greenish gray (Gley 1 4/1), wet, fine grained sand, trace clay	SM

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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LOG OF EXPLORATORY BORING

MW-21B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 13-15, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 85 feet

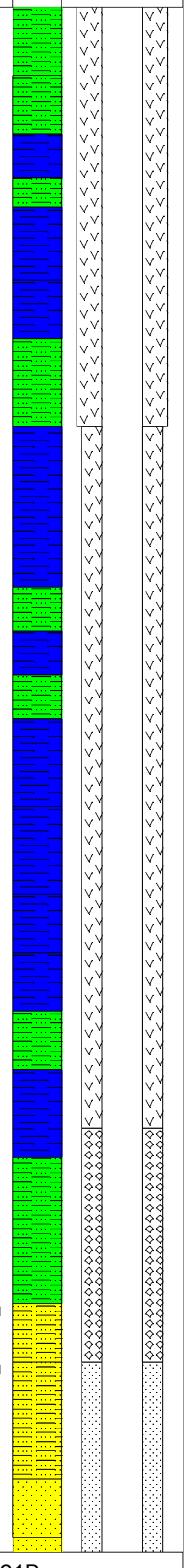
BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27		
	13.1							Silt and Clay, dark greenish gray (Gley 1 4/1), wet, with fine grained sand	ML
	10.9						28	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, some silt	SP
							29		
	12.2						30	Sand, dark greenish gray (Gley 1 6/1), wet, medium grained sand with fine grained sand	SP
	7.2						31		
	6.3						32	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some gravel	SP
	9.3						33		
	5.7						34	Sand, dark greenish gray (Gley 1 4/1), wet, fine and medium grained sand, some silt	SP
	7.7						35	Silty Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand	SM
							36	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, trace silt	SP
	11.5							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt	SP
	6.6						37		
							38		
								Silt and Clay, dark greenish gray (Gley 1 4/1), wet, with fine grained sand, very low plasticity	ML
	6.9						39		
	12.2							Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with silt	SM
							40		
							41		
	33.5							Silt and Sand, very dark greenish grey (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic, dense, cohesive	ML
	7.1						42		
	11.8							Silt, very dark greenish grey (Gley 1 3/1), wet, silt with clay and fine grained sand, non-plastic, dense, cohesive	ML
	11.4						43		
							44		
								Silt and Clay, very dark greenish grey (Gley 1 3/1), wet, with fine grained sand, moderate plasticity, dense, cohesive	ML
	10.1						45		
	3.4							Silt and Sand, very dark greenish grey (Gley 1 3/1), moist, fine grained sand, trace clay, soft, non-cohesive	ML
				*	*	9.83	46	Silt and Sand, very dark greenish grey (Gley 1 3/1), moist, fine grained sand, some clay, dense, cohesive	ML
							47		
	36.0							Sand, very dark greenish grey (Gley 1 3/1), moist, fine grained sand with silt, trace clay	SM
	54.8						48		
							49		
		ND<0.005						Silt and Sand, very dark greenish grey (Gley 1 3/1), moist, fine grained sand, some clay, non-plastic, soft, non-cohesive	ML
	36.6						50		
	19.6							Silt and Sand, very dark greenish grey (Gley 1 3/1), moist, fine grained sand with clay, non-plastic, soft, non-cohesive	ML
							51		
								Silt, very dark greenish grey (Gley 1 3/1), wet, silt with fine grained sand with clay, slightly dense, cohesive	ML
							52		
	50.0								
		ND<0.005						Silt and Sand, very dark greenish grey (Gley 1 3/1), wet, fine grained sand, some clay,	ML

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 13-15, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 85 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	31.3						53	soft, non-cohesive	
							54	Silt and Sand, very dark greenish grey (Gley 1 3/1), damp, fine grained sand, trace clay, slightly cohesive	ML
	19.2		ND<0.5				55	Clay and Silt, very dark greenish grey (Gley 1 3/1), some fine grained sand, plastic, dense, cohesive	CL
	6.9						56	Silt and Clay, very dark greenish grey (Gley 1 3/1), moist, plastic	ML
								Clay, very dark greenish grey (Gley 1 3/1), wet, clay with silt, dense, cohesive	CL
	5.8						57		
	5.8							Clay, very dark greenish grey (Gley 1 3/1), moist, clay with silt, trace fine grained sand, moderately plastic, dense	CL
							58		
								Silt and Clay, very dark greenish grey (Gley 1 3/1), moist, low plasticity, dense, cohesive	ML
							59		
	10.8						60	Clay, greenish gray (Gley 1 4/1), wet, clay with silt, some fine grained sand, medium plastic, cohesive	CL
	5.3								
	4.4						61		
	2.4	ND<0.005							
							62		
	3.7						63	Silt and Sand, greenish gray (Gley 1 4/1), wet, fine grained sand, some clay, non-plastic, non-cohesive	ML
	3.3							Clay and Silt, very dark greenish grey (Gley 1 3/1), wet, some fine grained sand, moderate plasicity	CL
							64		
								Silt and Clay, very dark greenish grey (Gley 1 3/1), moist, low plasticity, cohesive	ML
	2.8						65		
	3.2							Clay and Silt, dark greenish gray (Gley 1 4/1), moist, trace fine grained sand, tough, cohesive, low to medium plasticity	CL
							66		
								Clay, dark greenish gray (Gley 1 4/1), moist, clay with silt, plastic, cohesive	CL
							67		
	5.1								
	4.3						68	Silty Clay, dark greenish gray (Gley 1 4/1), damp/moist, clay, medium plasticity, cohesive	CL
							69		
								Clay, dark greenish gray (Gley 1 4/1), wet, clay with silt, plastic, cohesive	CL
	6.2						70		
	9.8							Silt, dark greenish gray (Gley 1 4/1), moist, silt with clay and fine grained sand, low plasticity, cohesive	ML
							71		
								Clay and silt, dark greenish gray (Gley 1 4/1), some fine grained sand, moderate plasticity, cohesive	CL
	9.2						72		
	10.4							Silt and Clay, dark greenish gray (Gley 1 4/1), with fine grained sand, low plasticity, cohesive	ML
							73		
							74		
	7.6						75	Sand and Silt, dark greenish gray (Gley 1 4/1), wet, fine grained sand with clay, trace medium grained sand, non-cohesive	SM
	12.2						76	Silty Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand, some medium grained sand, non-cohesive	SM
	13.2								
							77		
	15.7						78	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace fine grained sand	SP
	9.8						79		SP



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LOG OF EXPLORATORY BORING

MW-21B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 13-15, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 85 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
	5.8						80	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP		
	6.5						81	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, trace fine grained sand	SP		
	6.0	ND<0.005					82	Sand, greenish gray (Gley 1 5/1), wet, medium and coarse grained sand, some fine grained sand	SP		
	7.2						83	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, trace fine grained sand, some gravel	SP		
	5.9						84				
							85				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

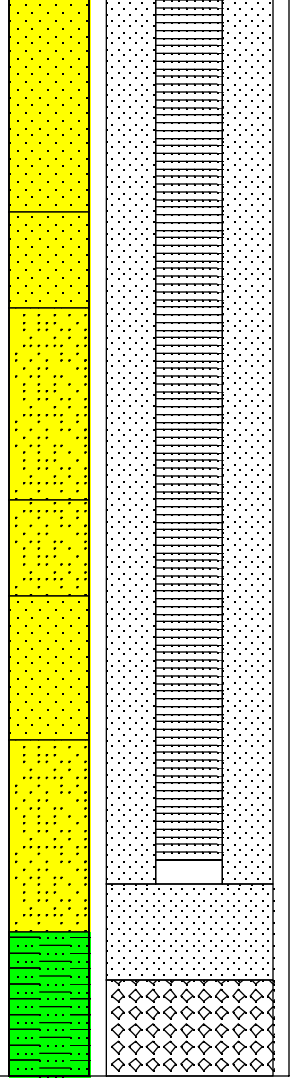
DATE DRILLED: December 5, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Split Spoon - CA Mod
DEPTH TO WATER: 16 feet
TOTAL DEPTH: 22 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Silty sand	SM
3 3 4	0						5	Silty sand, brown, moist, silty very fine to fine grained sand, trace medium grained sand, loose	SM
6 6 8	0						9	Sand, brown, moist, very fine to medium grained sand, dense	SP
5 9 10	0						13	becomes light yellowish brown	SP
3 4 5	0						14	Sand, light gray, wet, very fine to coarse grained sand, trace silt, loose	SW
5 7 11	0						16	becomes medium dense	SW
6 7 9	0						17	Sand, light gray, wet, very fine to medium grained sand, trace silt, medium dense	SP
7 9 10	0						19	Sand, light gray, wet, very fine to coarse grained sand, trace silt, medium dense	SW
6 8 10	0						21	Silt, black, moist, silt, some very fine grained sand, very stiff, moderately plastic	ML
							22		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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LOG OF EXPLORATORY BORING

MW-22A
PAGE 1 OF 1

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

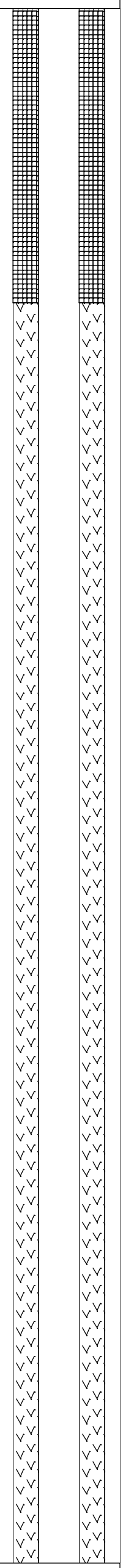
DATE DRILLED: October 23-24, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 17.5 feet
TOTAL DEPTH: 60.2 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Fill, organic silts, dark brown (2.5Y), moist, sandy, fine grained sand, root fragments	
	4.2						5	Sand, dark brown (dark olive brown 2.5Y 3/3), dry	SW
							6	Sand, tan (olive brown 2.5Y 6/6), medium grained sand	SP
	1.1						7		
	21						8	Sand, tan (olive brown 2.5Y 6/6), fine grained sand, some silt	SP
								Sand, tan (olive brown 2.5Y 4/3), dry, fine grained sand	SP
							9	Sand, tan (yellow 2.5Y 7/8), coarse grained sand with gravel	SW
	14						10		
	5.5							Sand, gray (gray 2.5Y 5/1), coarse and medium grained sand with gravel	SW
							11		
							12	Sand, tan (grayish brown 2.5Y 5.2), moist, coarse grained sand	SP
	8.0						13		
	19							Sand, gray-tan (gray 2.5Y 5.1), coarse grained sand, some gravel	SP
							14	Sand, tan (light brownish gray 2.5Y 6.2), wet, coarse grained sand with gravel	SP
	6.7			*	*	7.58	15		
	14.3							Sand, yellow (light gray 10YR 7.1), moist, coarse grained sand with gravel	SP
							16	Sand, green gray (greenish gray Gley 1 5/1), moist	SP
								Silty clay, very dark gray (Gley 1 3/1), wet, silty clay	CL
								Sand, gray green (Gley 1 2.5), coarse sand with gravel	SP
							17	Sand, gray green (Gley 1 2/7), wet, coarse grained sand with gravel	SP
	4.2								
	6.7						18		
								Sand, gray green (Gley 1 2/7), wet, coarse grained sand with medium grained sand	SP
		ND<0.005					19		
								Silt, dark green (Gley 1 2/3), moist, silt with fine grained sand, some clay, slightly plastic	ML
	6.8						20		
								Silt, dark green (Gley 1 3/), moist, silt with fine grained sand	ML
	11.9						21		
								Silt, dark green (Gley 1 3/), moist, silt, some fine grained sand	ML
		ND<0.005					22		
								Silt, dark green (Gley 1 3/), moist, silt, trace fine grained sand	ML
	21.1						23		
	9.4							Silt, dark green (Gley 1 3/), moist, trace fine grained sand	ML
		ND<0.005					24		
								Sand, dark green (Gley 1 3/), moist, fine grained sand with silt	SM
	4.2		48.17	9.32	57.49			Silty Sand, dark green (Gley 1 3/), moist, fine grained sand	SM
	27.2						25	Silty Clay, dark green (Gley 1 3/), slightly moist, clay with fine sand, non-plastic	CL
	2.2								
			52.89	12.62	65.5		26		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-22B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: October 23-24, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 17.5 feet
TOTAL DEPTH: 60.2 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	3.3	ND<0.005					27		
								Silt and clay, dark green (Gley 1 3/), slighty moist, very fine silt	ML
	3.5							Sandy silt, dark green (Gley 1 3/), silt with clay	ML
							28	Sand, dark green (Gley 1 4/1), wet, fine grained sand	SC
							29		
	3.1						30		
	4.6							Sand, dark green (Gley 1 16Y), wet, fine grained sand, some clay, micaceous	SC
							31		
	4.8							Sand, dark green (Gley 1 2.5), wet, fine to medium grained sand	SM
				24.21	4.2	28.41	32	Sand, dark green (Gley 1 2.5), wet, fine grained sand with silt	SC
	2.8							Clay, dark green (Gley 1 2.5), slightly moist, some silt, stiff	CH
							33		
								Clay, dark green (Gley 1 2.5), moist	CH
							34	Clay, dark green (Gley 1 2.5), moist, clay, some silt, very plastic	CH
				72.01	17.85	89.86			
	5.3						35		
	8.2							Silty Sand, dark green, (Gley 1 3/1), moist, very fine grained sand, some clay, micaceous	SM
							36		
								Silty clay, dark green, (Gley 1 3/1), moist, clay with fine grained sand, micaceous	CL
							37		
	10.3							Silty clay, dark green, (Gley 1 3/1), almost dry, fine grained	CH
	9.9						38	Silty sand, dark green, (Gley 1 3/1), fine grained sand	SM
							39		
								Silt and clay, dark green, (Gley 1 3/1), almost dry, slightly moist, tough, micaceous	ML
	7.2						40		
	0.9							Clayey sand, dark green (Gley 1 2.5 2.5/1), wet, fine grained sand, with silt	SC
							41		
								Silty clay, dark green (Gley 1 2.5 2.5/1), medium tough	CL
								Sand, green (Gley 1 2.5 2.5/1), fine grained sand with silt with mica	SM
							42		
	9.2							Sand, dark green (Gley 1 2.5 2.5/1), fine grained sand with silt	SM
	5.9							Sand, dark green (Gley 1 2.5 2.5/1), wet, fine grained sand with silt	SM
		ND<0.005					43	Silty sand, dark green (Gley 1 2.5 2.5/1), moist, fine grained sand, micaceous	SM
							44		
	5.2								
	8.3						45	Sandy Silt, dark green (Gley 1 2.5 2.5/1), moist	ML
							46	No recovery	
	18.0								
	14.9						47	Silty Sand, greenish black (Gley 1 2/5 2.5/1), moist, very fine grained sand, some clay, micaceous	SM
				51.73	11.45	63.19	48		
								Sand, dark green (Gley 1 2.5 2.5/1), moist, very fine grained sand with silt, tough, micaceous	SM
	10.2							Sand, dark green (Gley 1 2.5 2.5/1), moist, fine grained sand, trace medium grained sand	SM
							49	Sand, dark green (Gley 1 2.5 2.5/1), wet, fine grained sand	SM
	5.1							Sand, dark green (Gley 1 2.5/1), moist	SW
				*	*	8.65	50		
		ND<0.005					51	Sand, dark green (Gley 1 2.5/1), moist, medium grained sand, some fine grained sand, micaceous	SW
	3.4								
	5.8						52		

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: October 23-24, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 17.5 feet
TOTAL DEPTH: 60.2 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
	6.1 5.7						53	Sand, dark green (Gley 1 2/5/1), moist, fine grained sand with silt, trace clay	SW		
							54	Sand, dark green (Gley 1 2.5/1), moist, coarse grained sand with medium grained sand, trace silt	SW		
	7.4 11.8						55	Sand, dark green (Gley 1 3/1), wet, coarse grained sand, some medium grained sand	SP		
	6.2						56	Sand, gray green (Gley 1 4/1), wet, coarse grained sand	SW		
	5.5						57	Sand, gray green (Gley 1 5/1), wet, medium grained sand, some coarse grained sand	SW		
	7.7							Sand, gray green (Gley 1 5/1), wet, medium and coarse grained sand	SW		
				*	*	13.42	58	Sand, gray green (Gley 1 5/1), wet, medium grained sand, trace fine grained sand	SW		
	5.3	ND<0.005					59	Sand, gray green (Gley 1 5/1), wet, medium and coarse grained sand, trace gravel	SW		
							60				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

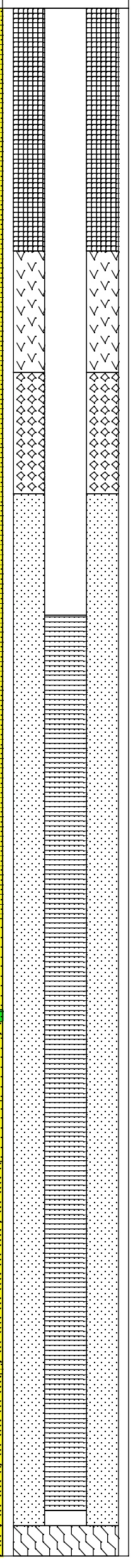
DATE DRILLED: December 4, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Split Spoon - CA Mod
DEPTH TO WATER: 15 feet
TOTAL DEPTH: 25.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Silty Sand	SM
4 5 7	0						5	Silty Sand, dark grayish brown, damp, silty very fine to medium grained sand, medium dense, trace coarse grained sand, trace gravel	SM
3 5 7	3.6						10		
3 3 3	0						15	Sand, wet, very fine to medium grained sand, loose, trace to some silt, trace coarse grained sand	SP
2 3 3	0						17	Silt, dark olive gray, wet, soft Sand, gray, wet, very fine to coarse grained sand Sand, gray, wet, very fine to medium grained sand, loose, trace coarse grained sand	ML SW SP
4 5 7	0						18	as above, medium dense	SP
3 3 3	0						20	Sand, gray, wet, very fine to coarse grained sand, loose, trace silt as above, coarse subangular sand common	SW SW
3 4 3	0						23	Silty Sand, very dark gray, wet, silty very fine to fine grained sand, loose, trace medium grained sand Sand, gray, wet, very fine to coarse grained sand, loose, trace silt	SM SW
3 4 4	0						25	as above, trace to some silt as above, trace silt, trace angular fine gravel	SW SW

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-23A

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

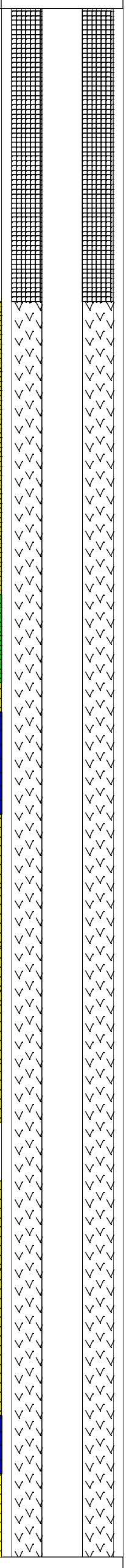
DATE DRILLED: October 30-31, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 16 feet
TOTAL DEPTH: 60 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Sand and Silt, olive brown (2.5Y 3-2.5), with clay, trace rock/boulders	
	12.8						5	Silty Sand, dark grayish brown (2.5Y 4/2), dry, fine grained sand with clay	SM
	5.4						8		
	9.1						9	Sand, olive brown (2.5Y 3/1), dry, fine grained sand with silt	SM
	8.5						10	Silt and Sand, black (10YR 2/1), moist, fine grained sand, some clay	ML
	14.9						11		
							12	Sand, grayish brown (2.5Y 5/1), moist, medium and fine grained sand, trace silt	SP
	7.2	ND<0.005					12	Clay, grayish brown (2.5Y 5/1), moist, clay with silt, trace fine grained sand, plastic	CL
	11.9	ND<0.005					13		
							14	Sand, dark grayish brown (2.5Y 4/1), wet, fine and medium grained sand, trace silt	SP
	2.3	ND<0.005					15	Sand, grayish brown (2.5Y 5/2), wet, medium grained sand with fine grained sand	SP
	25.0						16	Sand, grayish brown (2.5Y 5/2), wet, coarse grained sand, some medium grained sand	SP
							17	Sand, grayish brown (2.5Y 5/2), wet, medium and fine grained sand	SP
								Sand, light brownish gray (2.5Y 5/1), wet, medium grained sand, some fine grained sand	SP
							18	Sand, light brownish gray (2.5Y 5/1), wet, coarse grained sand	SP
							19	No recovery	
	14.1						20	Sand, dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand	SP
							22	Sand, gray (Gley 1 6/1), wet, very coarse grained sand, some gravel, some medium grained sand with fine grained sand	SP
	3.5						24	Clay and Silt, dark gray green (Gley 1 3/1), wet	CL
	7.1						25	Sand, gray (Gley 1 5/1), wet, very coarse grained sand with fine grained sand, some gravel, trace silt	SP
	4.8								
	2.9								

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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LOG OF EXPLORATORY BORING

MW-23B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

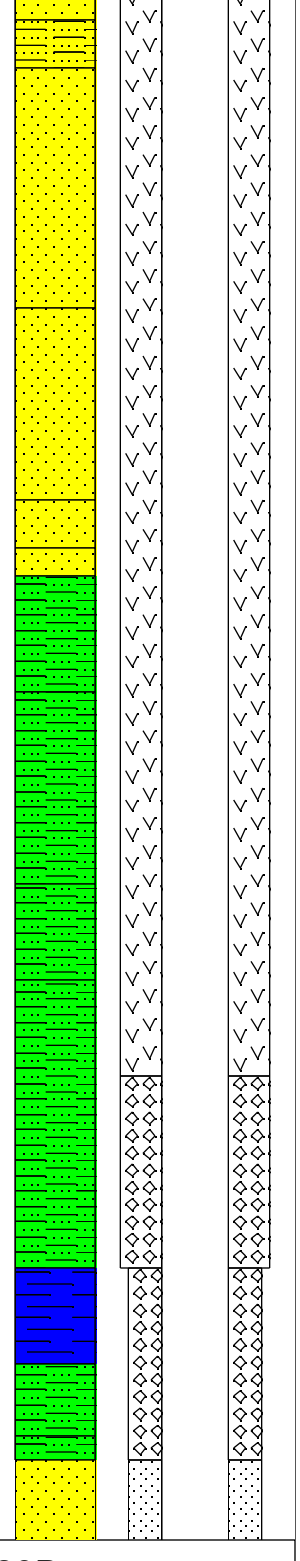
DATE DRILLED: October 30-31, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 16 feet
TOTAL DEPTH: 60 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27		
	1.5								
	9.0						28	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, some silt	SP
							29		
	4.1						30	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, trace silt	SP
	3.0						31		
								Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand with fine grained sand, some silt	SP
	3.5	ND<0.005					32		
	9.7							Silt, dark greenish gray (Gley 1 3/1), wet, silt with clay, some fine grained sand, low plasticity	ML
		ND<0.005					33		
	16.2						34		
	13.6						35	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, non-plastic	ML
								Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand	SP
							36	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand	SP
	16.3						37		
	8.0			55.68	9.7	65.38		Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand	SM
							38	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with medium grained sand, some silt	SP
							39		
	8.7								
	6.4						40	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand	SP
							41		
	5.4						42		
	5.0							Sand, very dark greenish gray (Gley 1 3/1), wet, coarse grained sand, trace fine grained sand	SP
		ND<0.005						Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand	SP
							43	Silt, very dark greenish gray (Gley 1 3/1), wet, silt, some very fine grained sand	ML
	5.3						44		
	18.5							Silt and Clay, very dark greenish gray (Gley 1 3/1), moist/damp, some fine grained sand, non-plastic	ML
							45		
	15.1						46	Sandy Silt, very dark greenish gray (Gley 1 3/1), wet, silt, non-plastic	ML
	4.0						47		
		ND<0.005						Silt and Clay, very dark greenish gray (Gley 1 3/1), moist/damp, trace to some very fine grained sand, slightly plastic	ML
				56.34	13.77	70.12	48		
				58.92	12.82	71.73	49		
	6.4						50	Clay and Silt, very dark greenish gray (Gley 1 3/1), damp, clay and silt, plastic	CL
	3.7						51		
								Silt, very dark greenish gray (Gley 1 3/1), moist, silt with clay, non-plastic	ML
	5.4						52	Silt, very dark greenish gray (Gley 1 3/1), silt with clay	ML
	27.8							Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

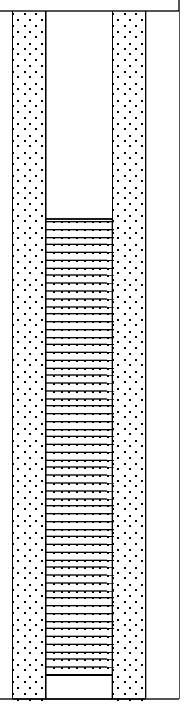
DATE DRILLED: October 30-31, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 16 feet
TOTAL DEPTH: 60 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							53		
	31.4	0.0068					54	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand, some fine grained sand	SP
	21.2						55	Sand, very dark gray (Gley 1 3/4), wet, medium grained sand, some fine grained sand	SP
	25.4						56	No recovery	
				21.29	4.63	25.91	57	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt	SP
	55	ND<0.005					58	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand, trace coarse grained sand	SP
	12.7						59		
	3.9						60		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							0	Sand, dark olive gray (5Y 3/2), dry, fine grained sand with silt, organic debris, rocks, twigs			
							5	Well MW-23C located near MW-23B, began logging hole at 55 feet below grade			

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							27				
							28				
							29				
							30				
							31				
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				
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							46				
							47				
							48				
							49				
							50				
							51				
							52				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							53		
							54		
	13.6						55	Sand, dark greenish gray (Gley 1 4/1), wet, medium and fine grained sand, trace silt	SP
							56		
	4.2						57	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some fine grained sand	SP
	19.4						58		
							59		
	16.7						60	Silty Sand, very dark greenish gray (Gley 1 3/1), damp/moist, fine grained sand	SP
	4.3						61	Silt and Sand, very dark greenish gray (Gley 1 3/1), damp/moist, fine grained sand	ML
								Sand, very dark greenish gray (Gley 1 3/1), damp/moist, fine grained sand with silt	SP
							62		
	11.3							Silt, very dark greenish gray (Gley 1 3/1), damp/moist, silt with fine grained sand, non-plastic	ML
	11.9						63		
							64	Silt, very dark greenish gray (Gley 1 3/1), damp/moist, silt with fine grained sand, some clay, non-plastic	ML
	17.3						65		
	26.1							Sand, very dark greenish gray (Gley 1 3/1), damp-wet, fine grained sand, trace silt with medium grained sand	SP
							66		
							67		
	37.2							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, slightly plastic	ML
	6.7						68	Sandy Silt, very dark greenish gray (Gley 1 3/1), moist, fine grained sand	ML
								Silt, very dark greenish gray (Gley 1 3/1), moist, silt with fine grained sand, trace medium grained sand	ML
							69	Sand, dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
	7.8						70	Sand, dark greenish gray (Gley 1 3/1), wet, fine grained sand, some medium grained sand	SP
	4.5							Sand, very dark greenish gray (Gley 1 3/1), moist/damp, fine grained sand with silt, some medium grained sand, trace coarse grained sand	SP
							71		
								Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand	SP
	3.4						72		
	7.9						73	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, trace fine grained sand	SP
							74		
	3.5							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand, trace gravel	SP
	11.3						75	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some fine grained sand, trace gravel	SP
							76		
							77		
	2.8							Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand, some fine grained sand	SP
	6.6						78		
							79		SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	4.1		ND<1				80	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
	6.4						81	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with medium grained sand, trace gravel	SP
	4.6						82		
	15.3						83	Sand, dark gray (Gley 1 4/), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
							84	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with medium grained sand, some gravel	SP
	4.4						85		
	6.5						86	Sand, dark gray (Gley 1 4/), wet, coarse grained sand, some medium grained sand with gravel	SP
	2.8						87	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with fine grained sand with medium grained sand	SP
	6.6						88	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with medium grained sand, some gravel	SP
							89	Silty Sand, dark gray (Gley 1 4/), wet, fine grained sand, some medium grained sand	SM
	3.2		ND<1				90	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with gravel with medium grained sand	SP
	5.9							Silty Sand, dark gray (Gley 1 4/), wet, fine and medium grained sand	SM
							91	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with medium grained sand, some gravel	SP
							92		
	5.0							Silt, dark greenish gray (Gley 1 4/1), wet, silt, some fine grained sand with clay, slightly plastic	ML
	7.5						93	Sand, dark gray (Gley 1 4/), wet, coarse and medium grained sand, trace gravel	SP
							94		
	5.6						95		
	4.1						96	Sand, dark gray (Gley 1 4/), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
							97	Sand, dark gray (Gley 1 3/1), wet, medium grained sand with fine grained sand	SP
	5.9		24						
	6.4						98	Sand, dark gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand	SP
								Clay and Silt, very dark gray (Gley 1 3/1), wet, clay and silt, plastic	CL
							99	Sand, dark gray (Gley 1 4/1), wet, coarse and medium grained sand with gravel, some fine grained sand	SP
	12.8						100		
	6.4							Clay and Silt, very dark greenish gray (Gley 1 3/1), moist, clay and silt with fine grained sand, very stiff, non-plastic	CL
							101		
							102	Sand, dark gray (Gley 1 4/), wet, medium grained sand with coarse grained sand	SP
	9.8								
	7.3						103	Sand, dark gray (Gley 1 4/), wet, coarse grained sand with gravel, some medium grained sand	SP
							104		
	4.2								
	4.7						105	Sand, dark gray (Gley 1 4/), wet, medium grained sand with coarse grained sand	SP
	12.4							Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some fine grained sand	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							106		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with course grained sand, some fine grained sand	SP
	3.7						107		
	6.4						108	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some gravel, some fine grained sand	SP
							109		
	2.3								
	5.5		1.7				110	Sand, dark gray (Gley 1 4/), wet, coarse grained sand, some gravel with medium grained sand	SP
							111		
								Silt and Sand, dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic	ML
	7.8						112		
	5.3								
		ND<0.005					113		
								Sand, dark greenish gray (Gley 1 3/1), wet, coarse grained sand with medium grained sand, some gravel	SP
							114		
	2.9								
	3.1						115		
							116		
							117		
	5.8								
	5.8						118	Sand, dark greenish gray (Gley 1 3/1), wet, medium grained sand with coarse grained sand	SP
								Sand, dark greenish gray (Gley 1 3/1), wet, coarse grained sand with medium grained sand with fine grained sand, trace gravel	SP
							119		
	11.7						120	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP
	3.9		18						
							121		
							122	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
	3.0							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace fine grained sand	SP
	4.2						123		
							124		
	2.6						125	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace gravel	SP
	7.5								
							126	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
							127		
	3.6								
	6.4						128	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel, some fine grained sand	SP
							129		
								Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand with fine grained sand	SP
	4.0						130		
	8.3							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some fine grained sand	SP
							131		
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand, some medium grained sand, some fine grained sand, some gravel	SP
							132		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

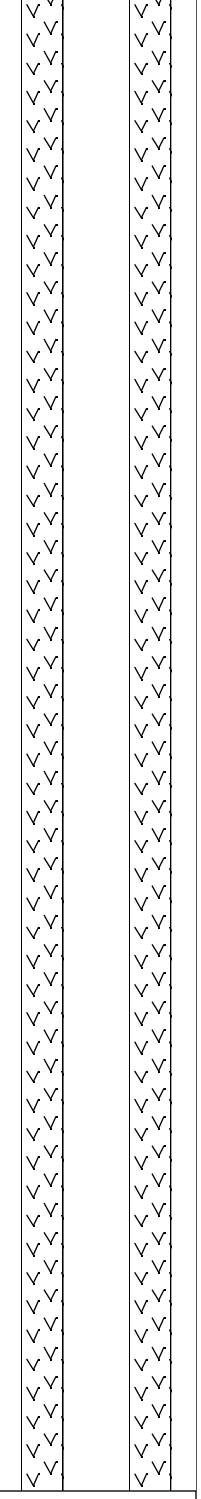
DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	6.1						133	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel with medium grained sand, some fine grained sand	SP
	5.3						134		
	3.3						135	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, trace gravel	SP
	6.6						136		
							137		
	2.6						138	Sand, greenish gray (Gley 1 5/), wet, coarse grained sand with medium grained sand, some gravel	SP
	3.7						139		
							140	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand	SP
	3.3		12				141	Sand, gray (Gley 1 5/), wet, medium and coarse grained sand, trace fine grained sand	SP
	4.7						142	Sand, gray (Gley 1 5/), wet, coarse grained sand with gravel, some medium grained sand	SP
							143	Sand, gray (Gley 1 5/), wet, coarse grained sand and gravel with silty fine sand	SP
	8.8						144	Sand, gray (Gley 1 5/), wet, coarse grained sand with gravel with medium grained sand, some fine grained sand	SP
	6.0						145		
							146		
	5.0						147	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand	SP
	4.2						148	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with gravel, some medium grained sand	SP
							149	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
	2.1						150	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, trace gravel	SP
	3.5						151	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with gravel, some medium grained sand	SP
							152		
	1.3						153	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace fine grained sand	SP
	8.6						154	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, some medium grained sand	SP
							155		
	7.2						156	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some gravel	SP
	6.6						157	Sandy Silt, greenish gray (Gley 1 5/1), wet, fine grained sand, trace clay, non-plastic	ML
							158		
	2.9							Silty Sand, olive brown (2.5Y 4/3), wet, fine grained sand, some medium grained sand	SP
	7.9							Sandy Silt, olive brown (2.5Y 4/3), wet, fine grained sand with clay, trace coarse grained sand, stiff, slightly plastic	ML
								Sand and Silt, olive brown (2.5Y 4/3), wet, fine grained sand, trace clay, soft	SP
	3.5								
	3.6								

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							159	Silty Sand, olive brown (2.5Y 4/3), wet, fine grained sand, trace clay, non-plastic	SM
	11.9		ND<1				160	No recovery	
							161		
							162		
	3.7						163	Sand, olive brown (2.5Y 5/1), wet, fine grained sand, some medium grained sand	SP
							164	Sand, olive brown (2.5Y 5/1), wet, coarse grained sand, some medium grained sand, some fine grained sand	SP
								Sand, olive brown (2.5Y 5/1), wet, medium and fine grained sand, some silt	SP
	4.9						165	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, trace coarse grained sand, some fine grained sand	SP
	8.1						166		
							167		
	5.4							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand, trace silt	SP
	4.5						168		
							169		
	2.9						170	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand, trace gravel	SP
	4.9						171		
							172	Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand, some fine grained sand	SP
	3.2							Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand, some fine grained sand	SP
	7.1						173		
							174		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace coarse grained sand	SP
	5.3						175	Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand, some fine grained sand, trace gravel	SP
	7.8						176		
							177	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand with fine grained sand, trace gravel	SP
	11.6							Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand with fine grained sand, some gravel	SP
	9.1						178		
							179	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand with fine grained sand	SP
	6.9		1.5				180	Sand, light olive brown (2.5Y 5/2), wet, coarse grained sand and gravel with cobbles with medium grained sand, some silt, some clay	SP
	1.2		ND<1				181		
							182	Sand, light olive brown (2.5Y 5/2), wet, coarse grained sand with medium grained sand with gravel, some silt, some clay	SP
	1.4						183		
	24.3								
							184	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some fine grained sand	SP
	6.8								
	6.8								

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

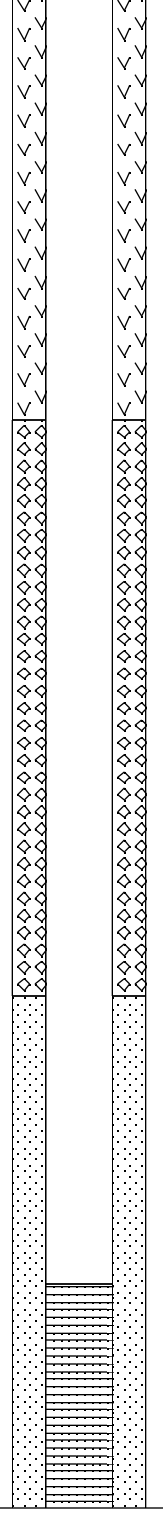
DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							185		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand with fine grained sand, some silt, trace clay	SP
	4.5						186		
	79.3	ND<0.005						Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand, some fine grained sand, trace gravel	SP
							187		
							188		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
	46						189		
	27							Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand with fine grained sand with gravel, some silt	SP
							190		
							191		
	16.3							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand, trace silt	SP
	20.7						192		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand with fine grained sand with gravel, trace silt	SP
							193		
	4.0							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium gained sand, some gravel	SP
	11.9						194		
								Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand with gravel, some fine grained sand	SP
							195		
	7.2							Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, trace coarse grained sand	SP
	10.2						196		
							197		
								Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, some fine grained sand, trace silt, some gravel	SP
							198		
	6.1							Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, some fine grained sand, trace gravel	SP
	11.2						199		
							200		
								Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, some gravel, some fine grained sand, trace silt	SP
	8.7						201		
	7.8							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP
							202		
								Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand with fine grained sand, some silt, some gravel	SP
	12.0						203		
	14.4								
							204		
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, some silt	SP
	12.6						205		
	5.8							Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand with fine grained sand, some silt, trace gravel	SP
							206		
								Sand, greenish gray (Gley 1 5/1), wet, fine grained sand with medium grained sand with silt, trace clay, dense	SP
							207		
	7.5							Sand, greenish gray (Gley 1 5/1), wet, fine and medium grained sand with silt, some clay	SP
	9.6						208		
							209		
								Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, some silt	SP
	5.0						210		
								No recovery	
							211		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 6-11, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 18 feet
TOTAL DEPTH: 215 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
	7.9						212	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, some fine grained sand, trace gravel	SP		
	4.6						213	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP		
							214				
							215				

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temcula, California

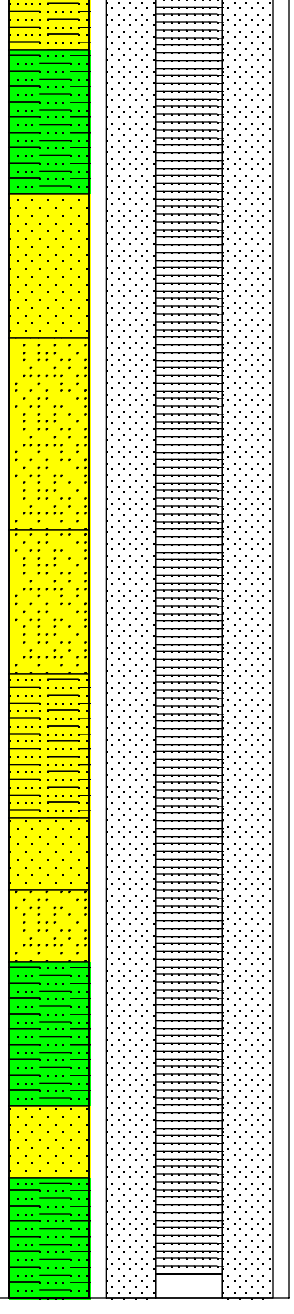
DATE DRILLED: December 4, 2001
LOGGED BY: Todd Wirths
APPROVED BY: Gary J. McCue
DRILLING CO.: THF

DRILLING METHOD: Hollow Stem Auger - 10-inch
SAMPLER TYPE: Splitspoon - CA Mod
DEPTH TO WATER: 17 feet
TOTAL DEPTH: 24.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Silty Sand	SM
3 5 6	0						5	Silty Sand, brown, damp, silty very fine to medium grained sand, medium dense, trace coarse grained sand	SM
5 5 6	0						9	becomes dark brown, damp to moist	SM
3 4	0						12	Sandy Silt, dark brown, moist, very fine to medium grained sandy silt, medium stiff, poor plasticity	ML
5 3 4							13	Sand, light yelowish brown, damp, very fine to medium grained sand, medium dense	SP
3 5 6 7	0						14	Sand, light yellowish brown, damp, very fine to coarse grained sand	SW
4 4 6	0						17	becomes dark grayish brown, some silt	SW
3 3 4	0						18	Silty Sand, dark grayish brown, saturated, silty very fine to fine grained sand, loose	SM
4 4 4 5	0						19	Sand, dark grayish brown, wet, very fine to medium grained sand, loose, some silt	SP
6 7 7	0						20	Sand, very fine to coarse grained sand, loose	SW
4 5 5	0						21	Sandy Silt, olive gray, wet, very fine to medium grained sandy silt, stiff, poor plasticity	ML
							22	Sand, gray, wet, very fine to medium grained sand, loose, some silt, trace coarse sand	SP
							23	Silt, very dark gray, wet, stiff	ML
							24		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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LOG OF EXPLORATORY BORING

MW-24A
PAGE 1 OF 1

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 16-17, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 21 feet
TOTAL DEPTH: 69 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							0	Sand, olive brown (2.5Y 4/3), dry, medium and fine grained sand, some silt			
							5	MW-24AB located 5 feet from MW-24B, begin logging hole at 50 feet below grade			

PROJECT NO.: 600121
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Temecula, California

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DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 21 feet
TOTAL DEPTH: 69 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							27				
							28				
							29				
							30				
							31				
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				
							41				
							42				
							43				
							44				
							45				
							46				
							47				
							48				
							49				
							50	Silt and Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, non-plastic, cohesive	ML		
	6.1						51				
							52	Sand, very dark greenish gray (Gley 1 3/1), wet, fine and medium grained sand, some silt, non-cohesive	SM		
	5.8							Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, some fine grained sand, low	ML		

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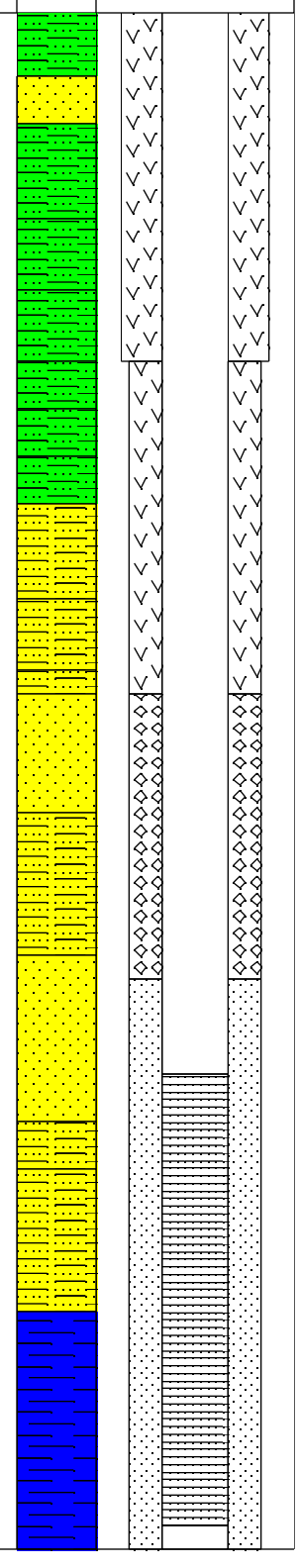
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 21 feet
TOTAL DEPTH: 69 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	4.8						53	plasticity, cohesive	
							54	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand, trace silt	SP
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay with fine grained sand, non-plastic, cohesive	ML
	2.8						55	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, very low plasticity, cohesive	ML
	5.0						56	Silt and Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, non-cohesive	ML
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay with fine grained sand, non-plastic, cohesive	ML
							57	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, non-plastic	ML
	3.3							Silt, very dark greenish gray (Gley 1 3/1), wet, silt and fine grained sand, trace clay	ML
	6.7						58	Sand, very dark greenish gray (Gley 1 3/1), wet, fine and medium grained sand with silt	SM
							59	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt with medium grained sand	SM
	6.5						60	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand with silt	SM
	8.6							Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, trace silt	SP
							61	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, some medium grained sand	SM
							62		
	8.1								
	6.1						63	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
							64		
								Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, trace medium grained sand	SM
	7.3						65	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic	SM
	5.6						66		
	6.2							Clay, very dark greenish gray (Gley 1 3/1), wet, clay with silt, moderately plastic, cohesive	CL
							67		
	3.3								
	15.1						68		
	11.6						69		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: October 27-29, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 98 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Fill, sand, brown (10YR 4/), dry, fined grained silty sand	
	6.1						5	Clayey Sand, very dark grayish brown (10YR 3/2), moist, fine grained sand, trace coarse grained sand, clay and silt stringers	SC
	5.4						7		
	11.3						8	Silty Sand, dark brown (10YR 3/2), moist, fine grained sand with clay, some coarse grained sand, trace medium grained sand	SM
	4.2						10	Sand, dark gray brown (10YR 3/), damp/moist, coarse grained sand	SP
	9.6						11		
							12	Clayey Silt, very dark brown (10YR 3/2), damp/moist, trace fine grained sand	ML
	10.6						13		
	6.9						13	Silt, dark gray brown (10YR 3/2), moist, silt with fine grained sand, some clay	ML
							14		
							14	Sand, light yellow brown (2.5Y 6/3), damp/moist, medium and coarse grained sand	SP
	8.8						15		
	14.9						16	Silty Sand, brown (10YR 3/), moist, fine grained sand with clay, 60% recovery for this interval	SM
	24.6						17	Sand, light yellow brown (2.5Y 3/3), damp, medium grained sand, some coarse grained sand	SP
	18.7						18	Sand, light yellow brown (2.5Y 3/3), moist-almost wet, medium grained sand, some coarse grained sand	SP
							18	Sand, light yellow brown (2.5Y 3/3), wet, coarse grained sand with medium grained sand	SP
							19		
	10.0						20	Sand, light yellow brown (2.5Y 3/3), wet, medium grained sand with coarse grained sand	SP
	24.2						20	Sand, light green brown (2.5Y 4/3 olive brown), wet, fine grained sand with silt	SP
							21		
							21	Clay, green (Gley 1 3/1), wet, clay, trace silt, trace mica, very plastic	CL
		ND<0.005					22		
	15.2			72.87	27.07	99.94	23		
	14.6						24	Sand, dark green (Gley 1 2.5/1), wet, coarse grained sand with medium grained sand	SP
	7.4						25		
	5.5						25	Sand, dark green (Gley 1 2.5/1), wet, medium and fine grained sand, trace silt	SP
							26		

WELL CONSTRUCTION DETAIL

TRC

LOG OF EXPLORATORY BORING

MW-24B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: October 27-29, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 98 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27		
	2.8								
	3.1						28	Sand, dark green (Gley 1 2.5), wet, coarse grained sand with medium grained sand, some gravel	SP
							29	Sand, dark green (Gley 1 2.5), wet, medium grained sand with coarse grained sand	SP
	3.4								
	3.1						30	Sand, light gray green (Gley 1 7/1), wet, coarse grained sand with gravel	SP
							31		
								Sand, light green (Gley 1 7/1), wet, coarse grained sand, trace medium grained sand, trace gravel	SP
	2.9						32		
	8.2							Sand, light gray (Gley 1 7/1), wet, coarse grained sand, trace medium grained sand, trace gravel	SP
							33		
							34	Sand, light gray (Gley 1 7/1), wet, coarse grained sand with medium grained sand, trace silt, trace gravel	SP
	13.5								
	11.5	ND<0.005					35	Silty Sand, dark green (Gley 1 3/1), wet, fine grained sand with clay, non-plastic	SM
							36		
								Silty Sand, dark green (Gley 1 3/1), wet, fine grained sand and clay	SM
				62.12	10.86	72.98	37		
	15.7								
	7.7						38	Silt, dark green (Gley 1 3/1), wet, silt with clay with fine grained sand	ML
							39		
								Sand, dark green (Gley 1 3/1), wet, medium and fine grained sand, some silt	SP
	11.2						40		
	10.5							Silty Sand, dark green (Gley 1 3/1), wet, fine grained sand	SM
							41		
								Sand, dark green (Gley 1 3/1), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
							42		
	9.2								
	5.2						43		
								Sand, dark greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand	SP
							44		
	6.9								
	7.2						45	Sand, dark greenish gray (Gley 1 5/1), wet, medium grained sand with silt stringers with fine grained sand	SM
							46		
								Sand, dark greenish gray (Gley 1 5/1), wet, medium grained sand and coarse grained sand, trace of gravel, some silt	SM
	7.6						47		
	12.9								
							48		
								Sand, dark greenish gray (Gley 1 5/1), wet, medium grained sand, trace gravel, some silt	SP
							49		
	9.0								
	5.0	ND<0.005					50	Sand, dark greenish gray (Gley 1 3/1), wet, fine grained sand with medium grained sand, some silt	SP
							51		
								Sand, dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt	SM
							52		
	10.3							Clayey Silt, dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand	ML

GRAPHIC LOG / WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: October 27-29, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 98 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	6.0						53	Sand, dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, some silt	SP
			1.1				54	Clayey Silt, dark green (Gley 1 3/1), wet, silt with fine grained sand	ML
	10.8						55	Silt, dark green (Gley 1 3/1), wet, silt with clay, trace coarse grained sand, slightly plastic	ML
	9.2						56	Silt, dark greenish gray (Gley 1 3/1), wet, silt and fine grained sand	ML
				68.56	9.56	78.12	57	Clayey Silt, dark greenish gray (Gley 1 3/1), wet, trace gravel, non-plastic	ML
	12.7	ND<0.005							
	13.2						58	Sand, dark greenish gray (Gley 1 3/1), wet, fine and medium grained sand, trace clay, with silt	SM
	13.1						59		
			1.4				60	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt	SM
	7.8						61		
							62	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand, trace coarse grained sand	SP
	12.6								
	8.2		0.77				63	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand, trace silt	SP
							64	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand	ML
	11.7						65	Sand, very dark greenish gray (Gley 1 3/1), wet, coarse grained sand with medium grained sand	SP
	11.8	ND<0.005							
							66	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with gravel	SP
	55						67		
	242								
		0.081		*	*	18.06	68		
							69	Clay, very dark greenish gray (Gley 1 3/1), wet, clay, trace silt, medium to highly plastic	CL
		0.02							
	195						70	Clay, dark greenish gray (Gley 1 3/1), moist/damp, clay, some silt, trace fine grained sand, low plasticity	CL
	33.5								
		ND<0.005					71		
				50.6	12.26	62.86	72	Clay, dark greenish gray (Gley 1 3/1), moist/damp, clay, some silt, trace fine grained sand, low to medium plasticity	CL
	8.4								
	12.5						73		
				61.02	17.89	78.91	74	Clay, dark greenish gray (Gley 1 3/1), moist/damp, clay, some silt, low plasticity	CL
	18.5						75	Silty Clay, dark greenish gray (Gley 1 3/1), damp/moist, some fine grained sand	CL
	10.1							Silty Clay, dark greenish gray (Gley 1 3/1), moist/damp, clay, trace fine grained sand, non-plastic	CL
							76	Clayey Silt, dark greenish gray (Gley 1 3/1), damp/moist, silt, trace fine grained sand, non-plastic	ML
							77	Silt, dark greenish gray (Gley 1 3/1), moist/damp, silt with clay, some fine grained sand, non-plastic	ML
	9.4							Clayey Silt, dark greenish gray (Gley 1 3/1), moist/damp, silt, trace fine grained sand, low plasticity	ML
	3.2						78		
							79		

WELL CONSTRUCTION DETAIL

GRAPHIC LOG

TRC

LOG OF EXPLORATORY BORING

MW-24B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

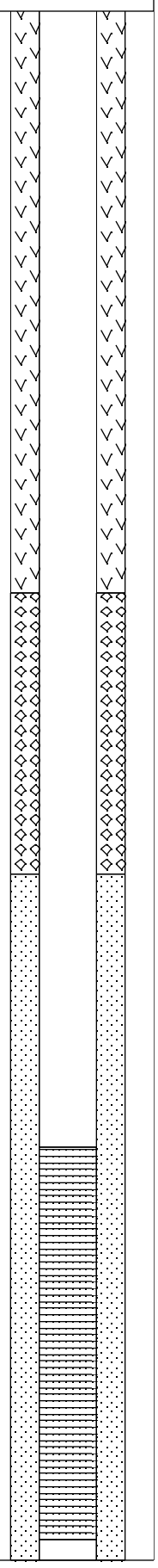
DATE DRILLED: October 27-29, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 98 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	8.3			74.76	19.79	94.54	80	Clay and Silt, very dark greenish gray (Gley 1 3/1), damp/moist, slightly plastic	CL
	9.4						81		
	5.0						82	Silty Clay, very dark greenish gray (Gley 1 3/1), moist, low plasticity	CL
	3.2	ND<0.005					83		
				71.13	20.01	91.14	84	Silt and Clay, dark greenish gray (Gley 1 3/1), moist, slightly plastic	ML
	7.6						85	Clayey Silt, dark greenish gray (Gley 1 3/1), moist-almost dry, some fine grained sand, non-plastic	ML
	5.1						86	Silt, very dark greenish gray (Gley 1 3/1), slightly damp, silt with clay, some fine grained sand	ML
	5.7						87	Silt, very dark green (Gley 1 3/1), damp, silt with very fine grained sand, some clay	ML
	2.5						88		
							89		
	7.1						90	Silty Sand, very dark green (Gley 1 3/1), damp, very fine grained sand	SM
	3.9							Sand, greenish gray (Gley 1 5/1), wet, medium and coarse grained sand	SP
	5.0						91		
	6.6							Sand, greenish gray (Gley 1 5/1), wet, medium and coarse grained sand, trace fine grained sand	SP
	7.0						92		
	6.2						93	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, trace fine grained sand	SP
				20.04	3.74	23.79	94		
		ND<0.005					95		
	8.1								
	6.5						96		
							97	Sand, greenish gray (Gley 1 5/1), wet, medium and coarse grained sand, some fine grained sand	SP
	7.7						98		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							0	MW-24C located near MW-24B, begin logging hole at 40 feet below grade			
							1				
							2				
							3				
							4				
							5				
							6				
							7				
							8				
							9				
							10				
							11				
							12				
							13				
							14				
							15				
							16				
							17				
							18				
							19				
							20				
							21				
							22				
							23				
							24				
							25				
							26				

TRC

LOG OF EXPLORATORY BORING

MW-24C

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

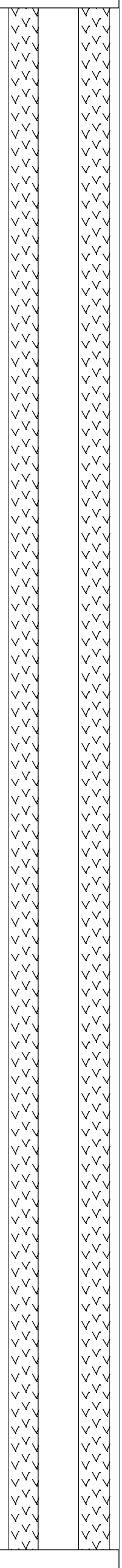
DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27		
							28		
							29		
							30		
							31		
							32		
							33		
							34		
							35		
							36		
							37		
							38		
							39		
							40	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand	SP
	4.5						41	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand, some fine grained sand	SP
							42	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
	4.2								
	4.5						43	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand, some fine grained sand	SP
							44		
	1.4						45		
	3.7						46		
							47	Sand, greenish black (Gley 1 2.5/1), wet, fine grained sand with medium grained sand with silt	SP
	7.5						48	Silt and Sand, greenish black (Gley 1 2.5/1), wet, fine grained sand, some clay, non-plastic	ML
	5.9							Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand with fine grained sand	SP
							49		
	5.8						50	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some medium grained sand, trace clay, non-cohesive	SM
	6.9						51		
							52		
	6.7							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay with fine grained sand, low	ML

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	7.5						53	plasticity Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt	SM
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, medium plastic, cohesive	ML
							54		
								Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-cohesive, non-plastic	SM
	2.8						55		
								Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with medium grained sand, non-cohesive	SP
	5.6						56		
	4.6							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, very low plasticity, lowly cohesive	ML
							57		
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, non-plastic, lowly cohesive	ML
							58	Sand, dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt	SM
	6.2								
	2.1						59	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with medium grained sand with silt, trace coarse grained sand	SP
	9.2								
	4.8						60		
								Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, some clay, trace medium grained sand	SM
							61		
								Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some medium grained sand, trace silt	SP
	8.3						62		
								Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand with silt, dense, non-plastic, trace gravel	SP
							63		
	1.5						64	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand, trace gravel	SP
	3.6								
							65	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand with gravel, some fine grained sand	SP
	4.0						66		
								Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand, some coarse grained sand	SP
							67		
								Sand, very dark greenish gray (Gley 1 3/1), wet, medium and coarse grained sand, some gravel	SP
			180				68		
	79							Sand, very dark greenish gray (Gley 1 3/1), wet, coarse grained sand with medium grained sand, some gravel	SP
	575								
		0.36					69	Silt, dark greenish gray (Gley 1 4/1), wet, silt with clay with fine grained sand	ML
		1.2							
		0.63							
	1,049						70		
	69.2							Clay and Silt, very dark greenish gray (Gley 1 3/1), wet, medium plastic, cohesive	CL
							71		
								Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, with fine grained sand, non-plastic, cohesive	ML
							72		
	51.1								
	13.6						73	Clay, very dark greenish gray (Gley 1 3/1), wet, clay and silt, trace fine grained sand, medium plastic, cohesive	CL
							74		
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay with fine grained sand, cohesive	ML
	8.8						75		
	4.8							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, non-plastic, cohesive	ML
							76	Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, some fine grained sand, medium plastic, cohesive	ML
	3.1						77		
	4.2							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, trace of fine grained sand, non-plastic, cohesive	ML
							78		
							79		ML

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	5.8						80	Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, low plasticity, cohesive	ML
	5.7							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, trace fine grained sand	ML
							81	Silty Clay, very dark greenish gray (Gley 1 3/1), wet, clay, medium plastic, cohesive	CL
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt with clay, non-plastic, cohesive	ML
	6.2						82	Sandy Silt, very dark greenish gray (Gley 1 3/1), damp/moist, fine grained sand, some clay, non-plastic, cohesive	ML
	4.0								
							83		
	3.9						84	Silt and Sand, very dark greenish gray (Gley 1 3/1), damp/moist, fine grained sand, trace clay, non-plastic, cohesive	ML
	4.7								
							85	Silty Sand, very dark greenish gray (Gley 1 3/1), damp, fine grained sand, non-plastic to moderately plastic	SM
	5.4						86	Sandy Silt, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic, cohesive	ML
	5.7								
							87	Silty Sand, very dark greenish gray (Gley 1 3/1), wet-damp, fine grained sand, trace clay, non-plastic, cohesive	SM
	11.3						88		
	8.8								
							89		
	10.2						90	Sand, dark greenish gray (Gley 1 4/1), damp/moist, medium grained sand with fine grained sand, trace silt, non-cohesive	SP
	4.8								
							91		
							92		
	4.6						93	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand, non-cohesive	SP
	5.9								
							94		
	13.8						95	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some fine grained sand, trace gravel	SP
	4.7						96	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
							97		
	6.9								
	7.0						98		
							99		
	6.2						100	Silt and Clay, very dark greenish gray (Gley 1 3/1),wet, cohesive, medium plastic	ML
	3.8							Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, trace fine grained sand, trace gravel, non-cohesive	SP
							101		
							102		
	3.5								
	6.1						103		
							104	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand with gravel, some cobbles, non-cohesive	SP
	9.2						105		
	1.5								

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							106		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand, trace fine grained sand, non-cohesive	SP
	2.5						107		
	4.7						108	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, some medium grained sand, non-cohesive	SP
							109	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with course grained sand with gravel, non-cohesive	SP
	3.8						110	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, some cobbles, some medium grained sand	SP
	4.6						111		
			ND<2.0				112	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace gravel	SP
	2.7								
	0.6						113		
							114		
	3.4						115	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
	2.5						116		
							117	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace gravel	SP
	4.5								
	3.2						118	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, trace silt, some coarse grained sand, trace gravel	SP
							119		
	2.7						120	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand, some coarse grained sand with fine grained sand	SP
	5.9						121		
							122	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, trace gravel	SP
	7.4								
	6.7						123		
							124	Sand, greenish gray (Gley 1 5/1), wet, fine and medium grained sand, trace silt	SP
	18.3						125		
	5.9						126	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand with coarse grained sand	SP
							127		
	11.1								
	12.2						128		
							129	Silt and Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand, some clay, cohesive, non-plastic	ML
	9.6						130	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some fine grained sand, some silt	SP
	3.7						131		
			ND<2.0				132	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	4.3						133	with gravel	
	7.6						134		
	5.6						135	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
	7.2						136		
	7.0						137	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel	SP
	10.5						138		
	10.5						139		
	9.7						140	Sand, greenish gray (Gley 1 5/1), wet, fine grained sand with silt, cohesive, trace medium grained sand	SM
							141	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, trace gravel	SP
	9.9						142	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, trace silt	SP
	13.4						143	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel	SP
								Silt, dark greenish gray (Gley 1 4/1), wet, silt with gravel with fine grained sand	ML
							144	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel with medium grained sand, trace fine grained sand, trace cobbles	SP
	10.5						145	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand with fine grained sand, trace gravel	SP
	4.7						146		
							147		
	13.5						148	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, some fine grained sand, some gravel	SP
	11.8						149		
	8.1						150	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with silt with gravel, non-cohesive	SP
	8.7						151	Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand with cobbles, trace fine grained sand	SP
							152	Sand, greenish gray (Gley 1 3/1), wet, coarse grained sand with gravel, with medium grained sand, some cobbles, non-cohesive	SP
	24.9						153		
	16.6						154		
			ND<2.0				155		
	13.3						156		
	9.4						157		
	19.4						158	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, lowly cohesive	SP
	16.5								

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: November 28- December 2, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 20 feet
TOTAL DEPTH: 181.5 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							159		
								Sand, greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, non-cohesive	SP
	6.6						160		
	14.9							Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel	SP
							161		
							162		
	18.5								
	16.9						163		
							164		
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with gravel, some cobbles, some medium grained sand	SP
	8.5						165		
	11.1							Silt and Clay, very dark greenish gray (Gley 1 3/1), wet, with fine grained sand, medium plasticity, cohesive	ML
							166		
							167		
								Silty Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, non-cohesive	SM
	15.3								
	9.2						168	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand	SP
							169		
								Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand and medium grained sand	SP
	9.9						170		
	4.7							Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, non-plastic, cohesive	SM
							171	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some silt, non-cohesive	SP
							172		
	9.1								
	8.4						173	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt, non-cohesive	SP
							174		
	14.5						175		
	6.2							Silty Sand, olive brown (2.5Y 4/4), wet, fine grained sand, some clay, non-plastic, semi-cohesive	SM
							176	Sand, olive brown (2.5Y 4/4), wet, medium grained sand with laminar coarse grained lenses with fine grained sand, non-cohesive	SP
							177		
	4.7								
	5.8						178	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, trace fine grained sand, non-cohesive	SP
							179		
	10.7						180		
			ND<2.0				181		

PROJECT NO.: 600121
LOCATION: 76 Station 6519
29803 Rancho California Road
Temecula, California

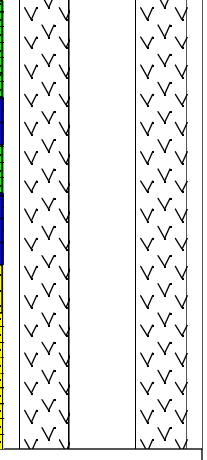
DATE DRILLED: October 25-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19 feet
TOTAL DEPTH: 113 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Artificial fill, sand, tan (grayish brown 10YR 5/2), dry, fine grained sand with silt, some gravel	
	6.2						5	Sand, brown (10YR 3/2), dry, fine grained sand, trace medium grained sand	SM
							6	becomes dark brown (10YR 3/3), some clay	SM
	7.9						7		
	5.1						8	becomes tan (10YR 5/3), some medium sand	SM
							9		
	12.5						10	Clayey Sand, dark brown (10YR 3/2), slightly moist, some medium grained sand	SC
	14.7						11		
							12	Sand, dark brown (10YR 3/2), slightly moist, fine and medium grained sand with clay, some silt	SC
	20.0						13	Sand, tanish green (Gley 1 4/1), moist, medium grained sand, some silt	SP
	6.9						14	Silty Sand, tanish green (2.5 Y 4/2), moist, trace clay	SM
	3.8						15	Fine Sand and Silt, brown (2.5Y 4/2), moist, very fine grained sand, trace clay	SM
	15.6						16		
							17	Silty Sand, brown (5Y 4/2), very moist, fine grained sand, trace gravel, mica	SM
	16.2						18	Sand, green (Gley 1 3/1), wet, fine grained sand with silt, some medium grained sand	SM
	9.8						19	Sand, gray (Gley 1 4/1), wet, coarse grained sand, some medium grained sand	SP
								Sand, tan (5Y 5/3), wet, coarse grained sand, some medium grained sand, some fine grained sand	SP
	2.6						20	Sand, gray green (Gley 1 3/1), wet, coarse grained sand with medium grained sand	SW
	9.7						21		
							22	Silt, green (Gley 1 3/1), moist, silt, some clay	ML
	7.0							Silt, green (Gley 1 3/1), moist, silt, some fine grained sand with clay, slightly plastic	ML
	7.8						23	Clay, dark green (Gley 1 3/1), dry to moist, clay	CL
								Silt, dark green (Gley 1 3/1), moist, silt, some clay	ML
							24	Clay, dark green (Gley 1 3/1), moist, clay, some silt, low plasticity	CL
	5.3							Sand, dark green (Gley 1 2.5/1), wet, coarse grained sand, some medium grained sand	SP
	6.7						25	Sand, dark green (Gley 1 2.5/1), wet, fine grained sand with medium grained sand with coarse grained sand	SM
							26		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-25B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
29803 Rancho California Road
Temecula, California

DATE DRILLED: October 25-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19 feet
TOTAL DEPTH: 113 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27	Sand, dark green (Gley 1 2.5/1), wet, coarse grained sand	SW
	4.3							Silt, dark green (Gley 1 2.5/1), wet, silt, some fine grained sand, non-plastic	ML
	14.3						28	Sand, green (Gley 1 2.5/1), wet, coarse grained sand with medium grained sand, some mica	SW
							29		
	2.5						30	Sand, green (Gley 1 5/1), wet, coarse grained sand, some medium grained sand	SP
	3.2						31		
							32		
	1.6							Sand, green (Gley 1 5/1), wet, coarse grained sand, some medium grained sand, well rounded, trace gravel	SP
	1.8						33		
							34	Sand, green (Gley 1 5/1), wet, coarse grained sand, trace gravel	SP
	3.9						35	Sand, green (Gley 1 5/1), wet, coarse grained sand with gravel	SP
	4.7							Silt, dark green (Gley 1 5/1), moist, silt, some medium grained sand, some fine grained sand, some clay, non-plastic	ML
							36	Sand, greenish gray (Gley 1 3/1), wet, coarse grained sand, some medium grained sand, some gravel	SW
							37		
	4.6							Sand, green gray (Gley 1 3/1), wet, coarse grained sand, gravely, well rounded	SW
	2.0						38		
							39		
	6.0						40	Sand and Silt, dark green (Gley 1 3/1), wet, fine grained sand, mica, non-plastic	SM
	1.3		42.88	6.21	49.09		41		
							42	Silty Sand, dark green (Gley 1 3/1), moist, fine grained sand, non-plastic	SM
	10.7		57.31	10.17	67.48			Silty Sand, dark green (Gley 1 3/1), moist to wet, fine grained sand, mica	SM
	6.0						43		
							44		
	20.4						45	Sand, dark green (Gley 1 3/1), wet, medium and coarse grained sand, trace fine grained sand, well rounded	SP
	11.8						46		
							47		
	4.4								
	3.7						48		
							49		
	2.3						50	Sand, dark green (Gley 1 5/1), wet, coarse grained sand with gravel, well rounded	SP
	8.4						51		
							52		
	4.2							Sand, dark green (Gley 1 5/1), wet, medium grained and coarse grained sand	SP

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
29803 Rancho California Road
Temecula, California

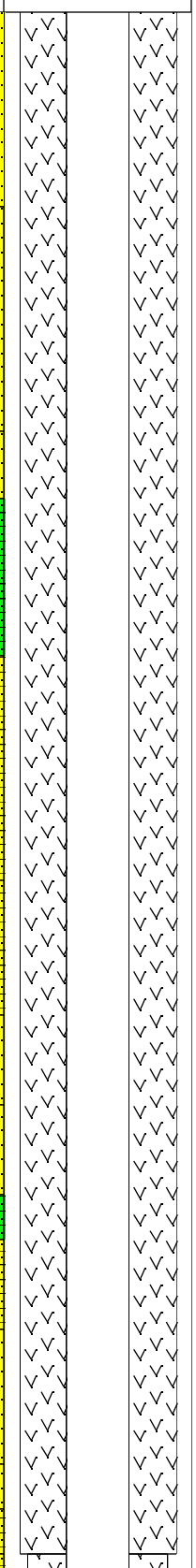
DATE DRILLED: October 25-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19 feet
TOTAL DEPTH: 113 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							53		
							54		
	9.3						55	Sand, dark green (Gley 1 5/1), wet, coarse grained sand and medium grained sand	SP
	9.3						56		
							57		
	8.0	ND<0.005					58	Sand, dark green (Gley 1 5/1), wet, coarse grained sand and medium grained sand, well rounded	SP
	3.9						59	Silt, dark green (Gley 1 5/1), moist, silt with clay, tough, non-plastic	ML
		ND<0.005		46.7	7.48	54.18	60		
	6.8						61	Sand, dark green (Gley 1 2.5/1), wet, fine grained sand with silt, non-plastic	SM
	3.5	ND<0.005					62		
	5.9						63	Sand, dark green (Gley 1 2.5/1), wet, fine grained sand with silt	SM
	12.2						64	Sand, dark green (Gley 1 2.5/1), wet, fine grained sand with silt, non-plastic	SP
	16.2						65	Sand, dark green (Gley 1 2.5/1), wet, medium grained sand with fine grained sand	SP
	6.4						66	Silt, dark green (Gley 1 2.5/1), wet, silt with fine grained sand, trace clay	ML
				29.3	3.57	32.86	67	Sand, dark green (Gley 1 2.5/1), wet, medium grained sand with fine grained sand with silt, non-plastic	SM
	8.0						68	Sand, dark green (Gley 1 2.5/1), wet, medium grained sand with fine grained sand	SP
	6.2						69	Sand, dark green (Gley 1 2.5/1), wet, medium grained sand, trace fine grained sand	SP
	6.2			65.99	13.3	79.28	70	Silty Sand, dark green (Gley 1 2.5/1), wet, fine grained sand with clay, non-plastic	SM
	6.3						71	Sand, dark green (Gley 1 3/1), wet, fine grained sand, some silt, trace clay	SM
							72	Sand, dark green (Gley 1 3/1), wet, fine grained sand and silt	SM
	8.8						73	Sand, dark green (Gley 1 3/1), wet, fine grained sand with silt, trace clay	SM
	5.3						74	Silt, dark green (Gley 1 3/1), moist, silt and clay, trace fine grained sand, low plasticity	ML
	8.8						75	Clay, dark green (Gley 1 3/1), moist, silty clay, low plasticity	CL
	4.2			71.9	12.62	84.52	76	Sand, dark green (Gley 1 3/1), wet, fine grained sand, some silt	SP
	6.4						77		
	2.5						78	Sand, dark green (Gley 1 2.5/1), wet, medium grained sand with coarse grained sand, trace silt	SP
	5.2						79	Sand, gray green (Gley 1 4/3), wet, coarse grained sand, some medium grained sand	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-25B

PROJECT NO.: 600121
LOCATION: 76 Station 6519
29803 Rancho California Road
Temecula, California

DATE DRILLED: October 25-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19 feet
TOTAL DEPTH: 113 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							80		
								Sand, gray green (Gley 1 4/1), wet, coarse grained sand with medium grained sand	SP
	5.8						81		
	4.2							Sand, gray green (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some cobbles, well rounded	SP
							82		
	5.1						83		
	7.3							Sand, gray green (Gley 1 4/1), wet, coarse grained sand, some gravel, with medium grained sand	SP
							84		
	9.6						85		
	3.5							Sand, gray green (Gley 1 4/1), wet, coarse grained sand, some medium grained sand, well rounded	SP
		ND<0.005					86		
							87		
	3.4							Silty Clay, gray green (Gley 1 4/1), wet, clay, trace fine grained sand, semi-plastic	CL
	9.3	ND<0.005		61.77	12.48	74.24	88		
								Clayey Silt, gray green (Gley 1 4/1), wet, silt, trace of fine grained sand, slightly plastic	ML
							89		
								Silty Sand, gray green (Gley 1 4/1), wet, fine grained sand, very dense, non-plastic	SM
				49.02	10.93	59.95			
	4.9						90		
	11.5							Clay, dark green (Gley 1 4/1), moist, clay with silt	CL
		ND<0.005		51.12	10.47	61.59	91		
				48.92	11.28	60.2		Clay, dark green (Gley 1 4/1), moist, clay, some fine grained sand, very low plastic	CL
	10.7						92		
	8.6							Clayey Silt, dark green (Gley 1 4/1), moist, silt, non-plastic	ML
							93		
								Clayey Silt, dark green (Gley 1 4/1), moist, silt, low-medium plasticity	ML
							94		
	2.5						95		
	10.1							Silty Clay, dark green (Gley 1 3/1), wet, clay, trace fine grained sand, medium plastic	CL
							96		
							97		
	14.1								
	9.0						98		
							99		
	3.7						100		
	11.1								
		ND<0.005					101		
				74.25	12.52	86.77			
							102		
	10.7								
	10.1						103	Clayey Silt, dark green (Gley 1 3/1), moist, silt, non-plastic	ML
								Silt, dark green (Gley 1 3/1), moist to dry, silt with clay, non-plastic	ML
							104	Clayey Silt, dark green (Gley 1 3/1), moist, silt with very fine sand	ML
	10.3						105		
	24.2	ND<0.005						Silty Sand, dark green, (Gley 1 4/1), moist, fine grained sand with clay	SM

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
LOCATION: 76 Station 6519
29803 Rancho California Road
Temecula, California

DATE DRILLED: October 25-27, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary J. McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 19 feet
TOTAL DEPTH: 113 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							106	Sand, dark green, (Gley 1 4/1), wet, medium grained sand with coarse grained sand	SP		
	14.5						107				
	9.9			*	*	14.68	108	Sand, gray green (Gley 1 5/1), wet, coarse grained sand with medium grained sand	SP		
							109				
	8.0						110				
	11.3							Sand, gray green (Gley 1 5/1), wet, medium grained sand with fine grained sand, well rounded	SP		
		ND<0.005					111				
				*	*	7.61	112				
	15.0						113				

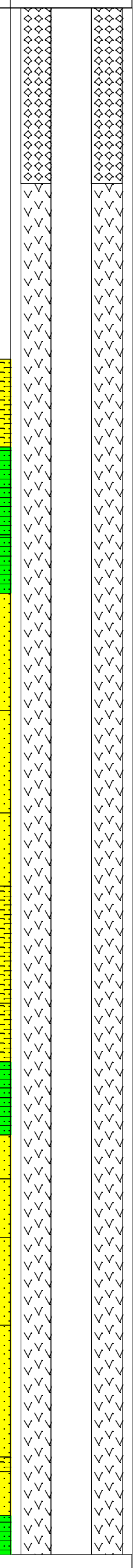
PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: December 3-8, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							0	Fill, sand, olive brown (2.5Y 4/4), moist, medium and fine grained sand, some silt	
							5	No recovery	
5.0							6	Sand, olive brown (2.5Y 4/3), dry, fine sand with silt with medium grained sand, some gravel	SM
9.4							7		
10.6							8	Silt, light olive brown (3.5Y 3/4), dry, silt and fine grained sand, some clay	ML
							9	Silt, very dark olive brown (2.5Y 3/2), dry, silt with clay with fine and medium grained sand, low plasticity	ML
24.3							10	Sand, dark grayish brown (2.5Y 4/2), dry, medium grained sand with fine grained sand, trace coarse grained sand	SP
6.1							11		
							12	Sand, greenish gray (Gley 1 6/2), dry, medium grained sand and fine grained sand, trace gravel	SP
12.7							13		
17.1							14	Sand, greenish gray (Gley 1 5/1), dry, fine grained sand with medium grained sand with silt, trace clay, non-cohesive	SP
18.6							15	Sand, olive brown (2.5Y 4/3), dry, fine grained sand with silt with medium grained sand	SM
7.1							16		
							17	Sand, dark olive brown (2.5Y 3/1), dry, fine grained sand with silt	SM
16.0							18		
10.8							19	Silt, very dark gray (2.5Y 3/1), damp, silt with clay with fine grained sand, non-plastic, non-cohesive	ML
							20	Sand, olive brown (2.5Y 4/3), dry, fine grained sand with medium grained sand, some silt	SP
11.5							21	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, trace silt	SP
13.0							22	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, some silt, trace gravel	SP
		ND<2.0					23		
12.6							24	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some fine grained sand, some coarse grained sand, trace gravel	SP
7.2							25	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace clay, cohesive	SM
9.3								Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand	SP
11.7							26	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with very fine sand, some clay, non-plastic, non-cohesive	ML

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-26C

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

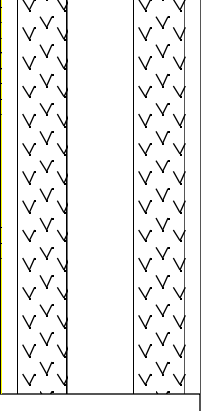
DATE DRILLED: December 3-8, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							27	Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand, some fine grained sand, trace gravel	SP
	4.0								
	7.4						28	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace coarse grained sand	SP
							29		
	9.9						30		
	10.9							Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand and medium grained sand, trace silt, cohesive	SP
							31		
							32		
	10.8							Sand, dark greenish gray (Gley 1 4/1), wet, medium and coarse grained sand with fine grained sand	SP
	11.2						33		
							34	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand with gravel	SP
	12.8						35		
	5.3							Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP
							36		
							37		
	5.8								
	4.5						38	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
							39	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some gravel	SP
								Silt, very dark greenish gray (Gley 1 3/1), wet, silt and fine grained sand, some clay, non-plastic, cohesive	ML
	5.3						40		
	9.8						41		
								Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace clay, cohesive, non-plastic	SM
							42		
	17.2								
	10.9						43	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, some silt, non-cohesive	SP
							44	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with medium grained sand, trace silt, non-cohesive	SM
	13.0						45		
	8.0							Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, trace medium grained sand	SM
							46	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand with silt	SM
		ND<2.0						Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with medium grained sand, some silt	SM
	12.2						47		
	7.3							Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand, some silt	SM
							48	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some medium grained sand, trace clay	SM
	18.7						49		
	2.2								
							50	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt	SP
	1.8						51		
	11.6							Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand, some silt, some medium grained sand	SM
							52	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace silt, trace gravel, trace coarse grained sand	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

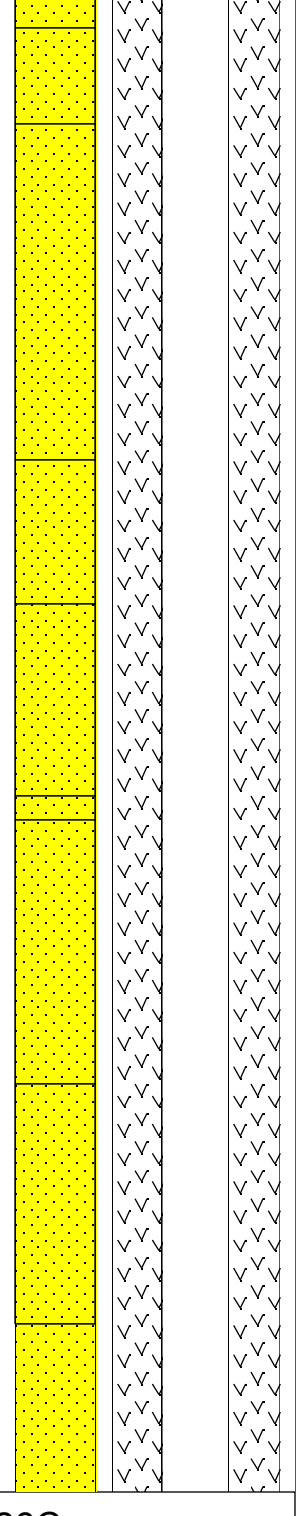
DATE DRILLED: December 3-8, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	6.4						53	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some fine grained sand, trace gravel	SP
	9.8						54		
	7.5						55	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, some silt	SM
	4.6						56	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, trace coarse grained sand	SP
	4.7						57	Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand, some fine grained sand	SP
	9.2						58	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some silt	SP
							59	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some gravel, trace fine grained sand	SP
	19.5						60	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
	4.1						61	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, slightly cohesive	SM
							62	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand and medium grained sand	SP
	9.2							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, slightly plastic, cohesive	ML
	9.4						63	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
							64	Sand, greenish gray (Gley 1 5/1), wet, medium and coarse grained sand, trace gravel	SP
	8.5						65	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, trace silt	SP
	7.9						66		
							67		
	6.6						68		
	6.8						69	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP
	7.1						70	Sand, greenish gray (Gley 1 5/1), wet, coarse and medium grained sand, some gravel	SP
	3.8						71		
							72	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, trace silt	SP
	8.9								SP
	6.6						73	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel	
							74		
	6.9						75	Sand, dark greensih gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand, some fine grained sand, trace silt	SP
	3.7						76		
							77		
	3.9						78	Sand, gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some silt, some gravel	SP
	5.6						79		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



TRC

LOG OF EXPLORATORY BORING

MW-26C

PROJECT NO.: 600121
LOCATION: 76 Station 6519
28903 Rancho California Road
Temecula, California

DATE DRILLED: December 3-8, 2001
LOGGED BY: Lonnell Griffith
APPROVED BY: Gary McCue
DRILLING CO.: Boart Longyear

DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	11.5						80		
	4.1							Sand, gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
							81	Sand, gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some fine grained sand	SP
			ND<2.0				82		
	3.6							Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand	SP
	5.3						83	Sand, dark greensih gray (Gley 1 4/1), wet, coarse and medium grained sand, trace fine grained sand	SP
							84		
	4.7							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand with clay, medium plastic, cohesive	ML
	2.5						85	Sand, very dark gray (Gley 1 3/), wet, coarse grained sand with gravel, some medium grained sand	SP
							86		
							87	Silty Sand, very dark gray (Gley 1 3/), wet, fine grained sand, trace clay, slightly cohesive	SM
	5.0								
	6.2		64.24	9.55	73.79		88	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, cohesive, non-plastic	ML
								Sand, dark gray (Gley 1 4/), wet, coarse grained sand with medium grained sand with gravel, some fine grained sand	SW
							89		
	4.9						90		
	3.1							Sand, dark gray (Gley 1 4/), wet, coarse grained sand with medium grained sand with cobbles	SP
							91		
								Sand, dark greenish gray (Gley 1 4/1), wet, fine and medium grined sand, trace silt	SP
	6.7						92		
	4.6							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some fine grained sand	SP
							93		
							94	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand, some coarse grained sand, some fine grained sand	SP
	6.2						95		
	3.2							Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand, some gravel, trace silt	SP
							96		
							97		
	1.6							Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, some silt, trace coarse grained sand	SP
	5.6						98		
								Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some gravel, some fine grained sand	SP
							99		
	4.1							Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, cohesive, low plasticity	ML
							100		
	2.6							Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, some medium grained sand, cohesive	SM
								Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with fine grained sand, trace silt, non-cohesive	SP
							101		
							102		
	5.8							Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand, some silt, trace clay, cohesive, non-plastic	SM
	6.0						103		
								Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, non-plastic, slightly cohesive	SM
							104		
	8.7						105		
	9.1							Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some medium grained sand, trace clay, non-plastic, slightly cohesive	SM

WELL CONSTRUCTION DETAIL

PROJECT NO.: 600121
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Temecula, California

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DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
							106		
	10.2						107	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt with medium grained sand, non-cohesive	SM
	9.1						108	Silt, dark greenish gray (Gley 1 4/1), moist, silt with clay, some gravel, some fine grained sand, cohesive, medium plastic	ML
							109	Silty Sand, dark greenish gray (Gley 1 4/1), moist, fine grained sand, non-cohesive, non-plastic, trace clay	SM
	17.2						110	Sand, very dark gray (Gley 1 3/1), wet, fine grained sand with silt, cohesive, some medium grained sand, non-plastic, cemented	SM
	2.9						111	Sand, very dark greenish gray (Gley 1 3/1), wet, medium and fine grained sand, non-cohesive	SP SM
			ND<2.0					Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, some medium grained sand, cohesive, cemented	
	7.8						112		
	3.7						113	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace clay, non-plastic, non-cohesive	SM
							114		
	11.3						115	Sandy Silt, very dark greenish gray (Gley 1 3/1), damp, fine grained sand, some clay, cohesive, non-plastic	ML
	6.1						116		
							117	Silty Sand, very dark greenish gray (Gley 1 3/1), damp, fine grained sand, lowly cohesive	SM
	8.6						118	Silt, very dark greenish gray (Gley 1 3/1), damp, silt with clay, cohesive, some fine grained sand, low platsitcity	ML
	7.5						119	Silty Sand, very dark greenish gray (Gley 1 3/1), damp, fine grained sand, trace clay, non-cohesive, non-plastic	SM
	7.0						120	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, lowly cohesive, non-plastic, some clay	SM
	7.1						121		
							122	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand with clay, cohesive, low plasticity	ML
	10.2						123	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace clay, cohesive	SM
	8.0						124		
							125	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, some clay, non-plastic, cohesive	ML
	9.8						126	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace medium grained sand, lowly cohesive	SM
	4.8						127		
							128		
	3.6						129		
	7.6						130	Silt and Clay, very dark greenish gray (Gley 1 3/1), damp, medium plastic, cohesive	ML
							131	Clayey Silt, very dark greenish gray (Gley 1 3/1), wet, silt, cohesive, medium plastic	ML
	6.6							Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt, trace clay, non-plastic, cohesive	SM
	5.4						132	Clayey Silt, very dark greenish gray (Gley 1 3/1), moist, silt, cohesive, medium plastic	ML

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

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DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS
	8.2						133	Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand with silt,	SM
	9.4							Clayey Silt, very dark greenish gray (Gley 1 3/1), moist, silt, cohesive, medium plastic	ML
	4.6						134	Silty Sand, very dark greenish gray (Gley 1 3/1), damp, fine grained sand, some clay, non-cohesive to lowly cohesive	SM
	4.0						135		
	8.8						136		
	15.1							Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, non-cohesive, non-plastic	SM
	11.7						137		
	9.1						138	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, trace clay, non-plastic, lowly cohesive	SM
							139	Silty Sand, very dark greenish gray (Gley 1 3/1), wet, fine grained sand, some clay, lowly to semi cohesive, non-plastic	SM
	7.6						140	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand	SP
	2.8								
	7.3						141	Silty Clay, very dark greenish gray (Gley 1 3/1), wet, trace fine grained sand, cohesive, medium plastic	CL
	9.0	ND<2.0							
	7.5		67.45	15.14	82.59		142		
	6.3						143	Silt, very dark greenish gray (Gley 1 3/1), wet, silt with fine grained sand, cohesive, low plasticity	ML
							144	Sandy Silt, very dark greenish gray (Gley 1 3/1), wet, fine grained silt, some clay, cohesive, non-plastic	ML
	12.6						145	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand, some coarse grained sand, trace fine grained sand, some silt, some fine grained sand	SP
	10.7						146	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand with coarse grained sand, trace fine grained sand	SP
							147		
	7.1						148	Sand, very dark greenish gray (Gley 1 3/1), wet, medium grained sand, some fine grained sand, some coarse grained sand	SP
	11.2						149		
	4.6						150	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP
	2.7						151	Sand, very dark gray (Gley 1 4/1), wet, coarse grained cemented sand, some silt, cohesive	SP
							152	Sand, dark gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some gravel	SP
	3.6						153		
	5.1						154	Sand, dark gray (Gley 1 4/1), wet, medium and coarse grained sand, some fine grained sand, non-cohesive	SP
	4.5						155	Silt, very dark gray (Gley 1 3/), wet, silt with coarse grained sand, cohesive, non-plastic	ML
	4.3							Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some fine grained sand, some gravel	SP
							156		
		7.0					157	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some clay, some gravel	SP
	7.6								
	8.9						158	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand with grave	SP

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

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DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
							159	sand with gravel			
	6.3						160	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand, some medium grained sand, some gravel, some silt	SP		
	10.2						161				
							162				
	10.8							Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, some silt, lowly cemented, slightly cohesive	SP		
	10.6						163				
							164	Silty Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, non-cohesive	SM		
	17.3						165	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, some silt	SP		
	11.7						166	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand, some fine grained sand, some silt	SP		
							167				
	16.5							Silty Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, non-cohesive	SM		
	18.1						168				
							169				
	16.1						170	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, some silt, non-cohesive	SP		
	2.6						171				
							172				
	4.8							Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with silt, some medium grained sand, trace coarse grained sand, trace gravel, non-cohesive	SP		
	7.1						173				
							174				
	10.2						175	Sand, dark greenish gray (Gley 1 4/1), wet, coarse and medium grained sand, some fine grained sand, trace gravel	SP		
	8.6						176				
							177				
	6.1							Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand	SP		
	8.0						178				
							179				
	5.1						180	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with fine grained sand, some coarse grained sand, trace silt	SP		
	8.9						181				
							182	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some fine grained sand	SP		
	8.5						183				
	7.2						184	Sand, dark greenish gray (Gley 1 4/1), wet, fine grained sand with medium grained sand, some coarse grained sand, some silt	SM		

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DRILLING METHOD: Rotasonic
SAMPLER TYPE: 6 - inch Core Barrel
DEPTH TO WATER: 22 feet
TOTAL DEPTH: 209 feet

BLOWS PER 6 INCHES	OVM (ppm)	MTBE soil (mg/kg)	MTBE groundwater (ug/L)	Silt Content %	Clay Content %	Silt and Clay Content %	DEPTH (feet)	DESCRIPTION	USCS	GRAPHIC LOG	WELL CONSTRUCTION DETAIL
	11.1						185	Sand, dark greenish gray (Gley 1 4/1), wet, medium grained sand with coarse grained sand	SP		
	6.8						186	Sand, dark greenish gray (Gley 1 4/1), wet, coarse grained sand with medium grained sand, some fine grained sand, trace silt	SP		
			ND<2.0				187				
	2.4							Sand, gray (Gley 1 5/), wet, medium grained sand with fine grained sand, some silt, trace coarse grained sand	SP		
	6.1						188				
							189	Sand, greenish gray (Gley 1 5/2), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP		
	8.8						190	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, trace fine grained sand	SP		
	13.3						191				
							192	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some fine grained sand, trace silt	SP		
	12.0										
	9.8						193				
							194	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, trace silt	SP		
	8.2						195				
	5.5										
							196				
							197				
	6.5							Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, trace silt	SP		
	6.2						198	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand with gravel, some fine grained sand, trace silt	SP		
							199				
	6.3						200	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some fine grained sand, some gravel, trace silt	SP		
	4.6						201				
							202	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with coarse grained sand, some fine grained sand	SP		
	2.5										
	3.4						203	Sand, greenish gray (Gley 1 5/1), wet, coarse grained sand with medium grained sand, some gravel, some fine grained sand	SP		
							204				
	4.4						205	Sand, greenish gray (Gley 1 5/1), wet, medium grained sand with fine grained sand, some coarse grained sand, trace gravel	SP		
	4.6						206				
							207				
	12.8						208				
			ND<2.0				209				

MONITORING WELL SURVEY

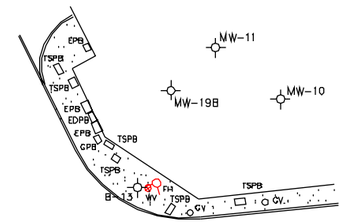
76 STATION No. 6519

28903 RANCHO CALIFORNIA ROAD

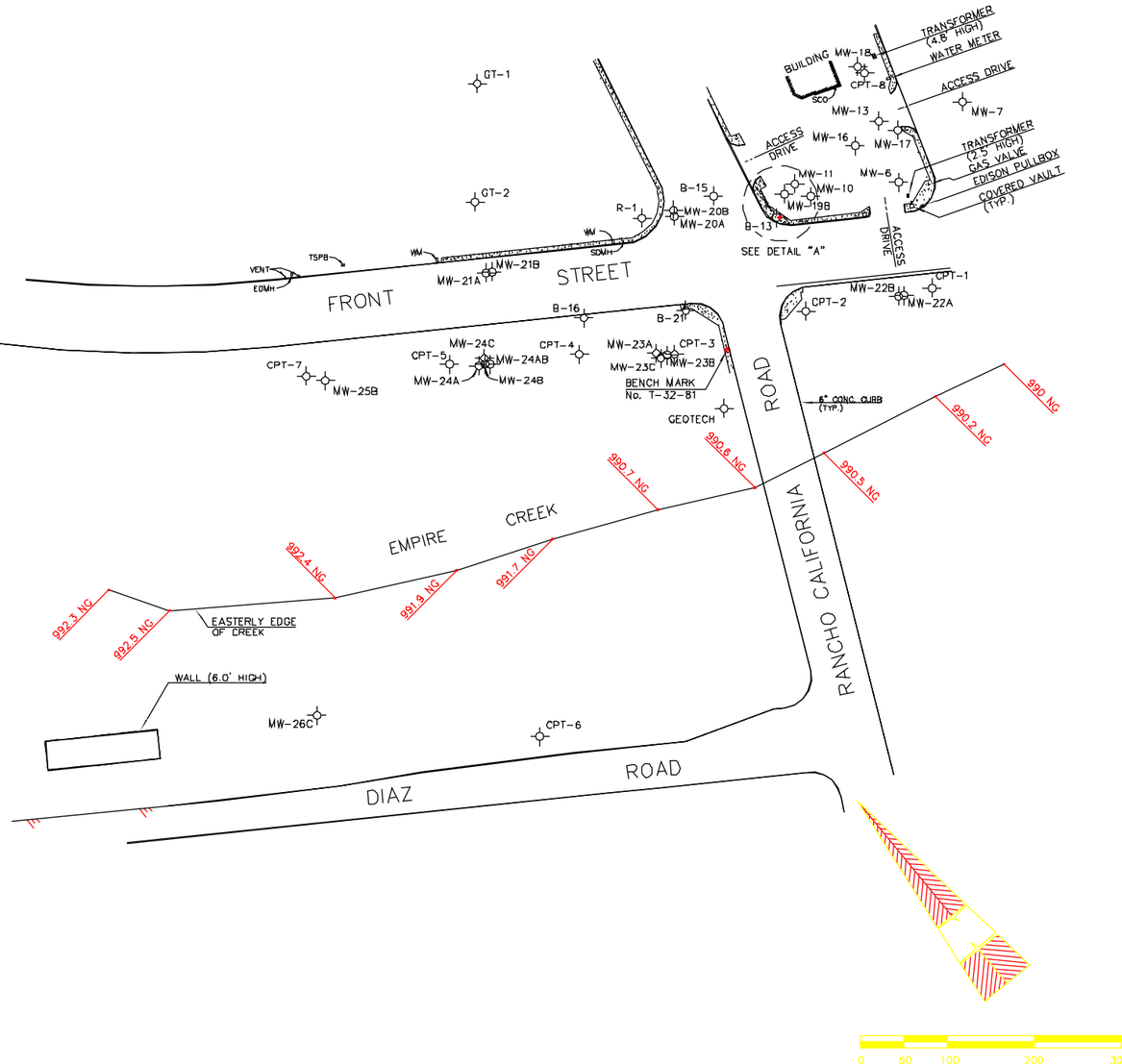
TEMECULA, CALIFORNIA

DATE OF SURVEY: 1-28-02

(Y.) NORTHING	(X.) EASTING	(Z.) ELEVATION	MW # DESCRIPTION
1157.959	1494.985	1005.47	CPT-1
1131.422	1350.023	1005.07	CPT-2
1081.655	1199.108	1003.37	CPT-3
1081.657	1089.636	1005.02	CPT-4
1070.320	940.220	1006.33	CPT-5
642.537	1044.219	1007.27	CPT-6
1056.627	775.693	1005.75	CPT-7
1404.856	1417.339	1008.00	CPT-8
1031.942	308.374	1008.37	CPT-9
980.814	94.398	1009.03	CPT-10
942.734	-64.975	1009.11	CPT-11
1239.071	1315.782	1004.17	B-13
1263.858	1243.690	1007.27	B-15
1123.522	1094.641	1005.36	B-16
1132.312	1211.935	1004.38	B-21
1279.575	1456.602	1005.65	MW-6
1372.225	1529.679	1006.10	MW-7
1263.479	1355.363	1005.57	MW-10
1277.727	1337.448	1006.18	MW-11
1349.857	1433.842	1006.58	MW-13
1321.542	1406.602	1006.28	MW-16
1339.537	1455.452	1006.92	MW-17
1412.676	1409.564	1008.00	MW-18
1265.925	1325.046	1006.03	MW-19B
1240.349	1198.830	1006.47	MW-20A
1247.487	197.865	1006.70	MW-20B
1175.275	982.331	1006.08	MW-21A
1176.383	989.169	1006.18	MW-21B
1149.369	1462.556	1004.23	MW-22A
1148.437	1456.278	1004.07	MW-22B
1082.769	1178.054	1003.01	MW-23A
1080.806	1190.488	1003.00	MW-23B
1077.327	1182.988	1002.94	MW-23C
1068.731	973.885	1005.79	MW-24A
1070.268	981.027	1006.03	MW-24B
1077.010	980.361	1006.14	MW-24C
1070.473	987.194	1006.00	MW-24AB
1051.479	797.542	1005.20	MW-25B
666.593	788.098	1007.50	MW-26C
1019.551	1256.009	993.26	GEOTECH
1393.015	972.279	1006.33	GT-1
1256.987	969.734	1009.67	GT-2
1238.359	1161.472	1007.63	R-1



DETAIL "A"
NOT TO SCALE



0 50 100 200 300

GRAPHIC SCALE: 1"=100'

LEGEND

GV – GAS VALVE
TSPB – TRAFFIC SIGNAL PULLBOX
WV – WATER VALVE
FH – FIRE HYDRANT
CPB – CABLE PULLBOX
EDPB – EDISON PULLBOX
EPB – ELECTRICAL PULLBOX
EDMH – EDISON MANHOLE
WM – WATER METER
SDMH – STORM DRAIN MANHOLE
SCO – SEWER CLEANOUT

BENCH MARK:

2 1/2" ALUMINUM DISK AT THE INTERSECTION OF RANCHO CALIFORNIA ROAD AND FRONT STREET, 96'± SOUTHWESTERLY OF FRONT STREET, 29'± NORTHWESTERLY RANCHO CALIFORNIA ROAD, IN APPROXIMATELY CENTER OF NORTHERLY SIDEWALK OF BRIDGE OVER TEMECULA RIVER, FLUSH WITH SIDEWALK. ALSO 32'± SOUTHWESTERLY OF SIGNAL POST AT NORTHWEST CORNER OF BRIDGE.

ELEVATION = 1007.337 (1987)

O.K.O. ENGINEERING INC.
CIVIL ENGINEERS/SURVEYORS/STRUCTURAL/ & CAD SPECIALISTS
23671 BIRTCHER DRIVE
LAKE FOREST, CALIFORNIA 92630
949/597-3577
FAX 949/597-3579

J.N. 2002-21

APPENDIX D

DRILLER'S CPT REPORTS

PRESENTATION OF CONE PENETRATION TEST DATA

UNOCAL #6519

TEMECULA, CALIFORNIA

Prepared for:

TRC
San Diego, California

Prepared by:

GREGG IN SITU, INC.
Signal Hill, California
01-124sh

Prepared on:

May 21, 2001

TABLE OF CONTENTS

PRESENTATION OF CONE PENETRATION TEST DATA

1.0 INTRODUCTION

This report presents the results of a Cone Penetration Testing (CPT) and in situ soil & groundwater sampling program carried out at the UNOCAL #6519 site located in Temecula, CA. The work was performed from May 10th, to May 17th, 2001. The scope of work was performed as directed by TRC personnel.

2.0 FIELD EQUIPMENT & PROCEDURES

The Cone Penetration Tests (CPT) were carried out by GREGG IN SITU, INC. of Signal Hill, CA using an integrated electronic cone system. The CPT soundings were performed in accordance with ASTM standards (D3441). A 20 ton capacity cone was used for all of the soundings (figure 1). This cone has a tip area of 15 sq.cm. and friction sleeve area of 225 sq.cm. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85.

The cones used during the program recorded the following parameters at 5 cm depth intervals:

- Tip Resistance (Qc)
- Sleeve Friction (Fs)
- Dynamic Pore Pressure (Ut)

The above parameters were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference.

The pore water pressure element was located directly behind the cone tip. The pore water pressure element was 5.0 mm thick and consisted of porous plastic. Each of the elements were saturated in silicon oil under vacuum pressure prior to penetration. Pore pressure dissipations were recorded at 5 second intervals when appropriate during pauses in the penetration.

A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

The cones were pushed using GREGG IN SITU's CPT rig, having a down pressure capacity of approximately 25 tons. 9 CPT soundings were performed. The penetration tests were carried to depths of approximately 52 to 97 feet below ground surface. Test locations and depths were determined in the field by TRC personnel.

In situ groundwater samples were taken at 7 Locations. Groundwater samples were collected using the Hydropunch groundwater sampling system (figure 2). The Hydropunch operates by pushing 1.75 diameter hollow rods with a retrievable tip. A stainless steel filter screen is attached to the tip. At the desired sampling depth, the rods are retracted exposing the filter screen and allowing for groundwater infiltration. A small diameter bailer is then used to collect groundwater samples through the hollow rod.

Soil samples were taken using a piston type soil sampler (figure 3). The soil samples were collected in approximately 1 1/8 inch diameter stainless steel sample rings.

The CPT/Hydropunch holes were grouted using our support rig. The grouting procedure consists of pushing a hollow CPT rod with a "knock out" plug back down the hole to the test hole termination depth. Grout is then pumped under pressure as the tremie pipe is pulled from the hole.

3.0 CONE PENETRATION TEST DATA & INTERPRETATION

The cone penetration test data is presented in graphical form. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

The stratigraphic interpretation is based on relationships between cone bearing (Qc), sleeve friction (Fs), and penetration pore pressure (Ut). The friction ratio (Rf), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

Pore Pressure Dissipation Tests (PPDT's) were taken at various intervals in order to measure hydrostatic water pressures and approximate depth to groundwater table. In addition, the PPDT data can be used to estimate the horizontal permeability (k_h) of the soil. The correlation to permeability is based on the time required for 50 percent of the measured dynamic pore pressure to dissipate (t_{50}). The PPDT correlation figure (figure 4) is provided in the Appendix.

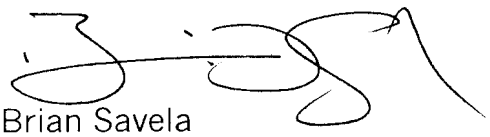
GREGG IN SITU, INC.
May 21, 2001
01-124sh

TRC
UNOCAL #6519
Temecula, Ca.

The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1998. It should be noted that it is not always possible to clearly identify a soil type based on Qc, Fs and Ut. In these situations, experience and judgement and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type. The soil classification chart (chart 1) used to interpret soil types based on Qc and Rf is provided in the Appendix.

We hope the information presented is sufficient for your purposes. We recommend that all data be carefully reviewed by qualified personnel to verify the data and make appropriate recommendations. If you have any questions, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,
GREGG IN SITU, INC.



Brian Savela
Operations Manager

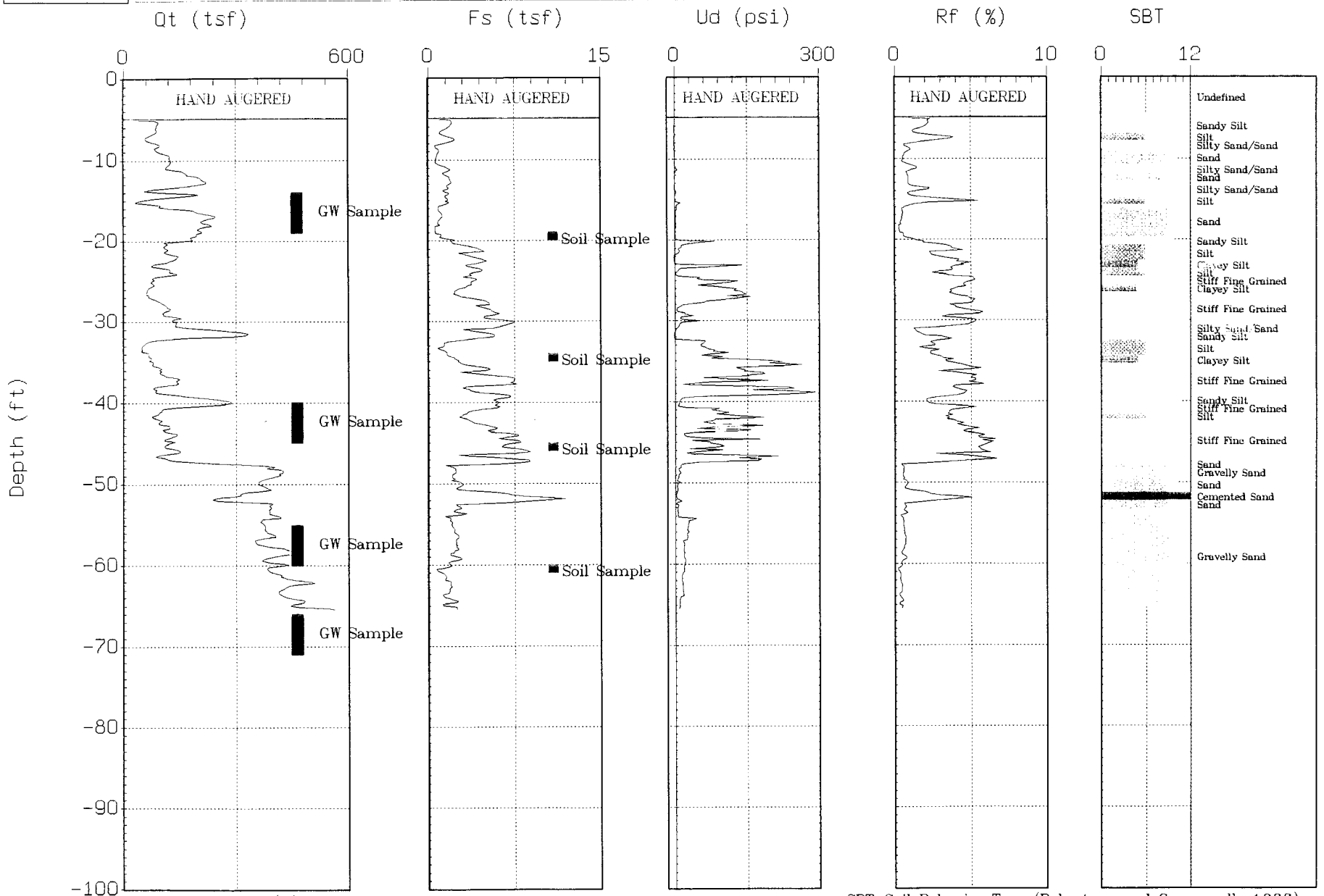
3.1 CPT PLOTS

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-1

Geologist : TODD WIRTHS
Date : 05:12:01 03:06



Max. Depth: 65.45 (ft)

Depth Inc.: 0.164 (ft)

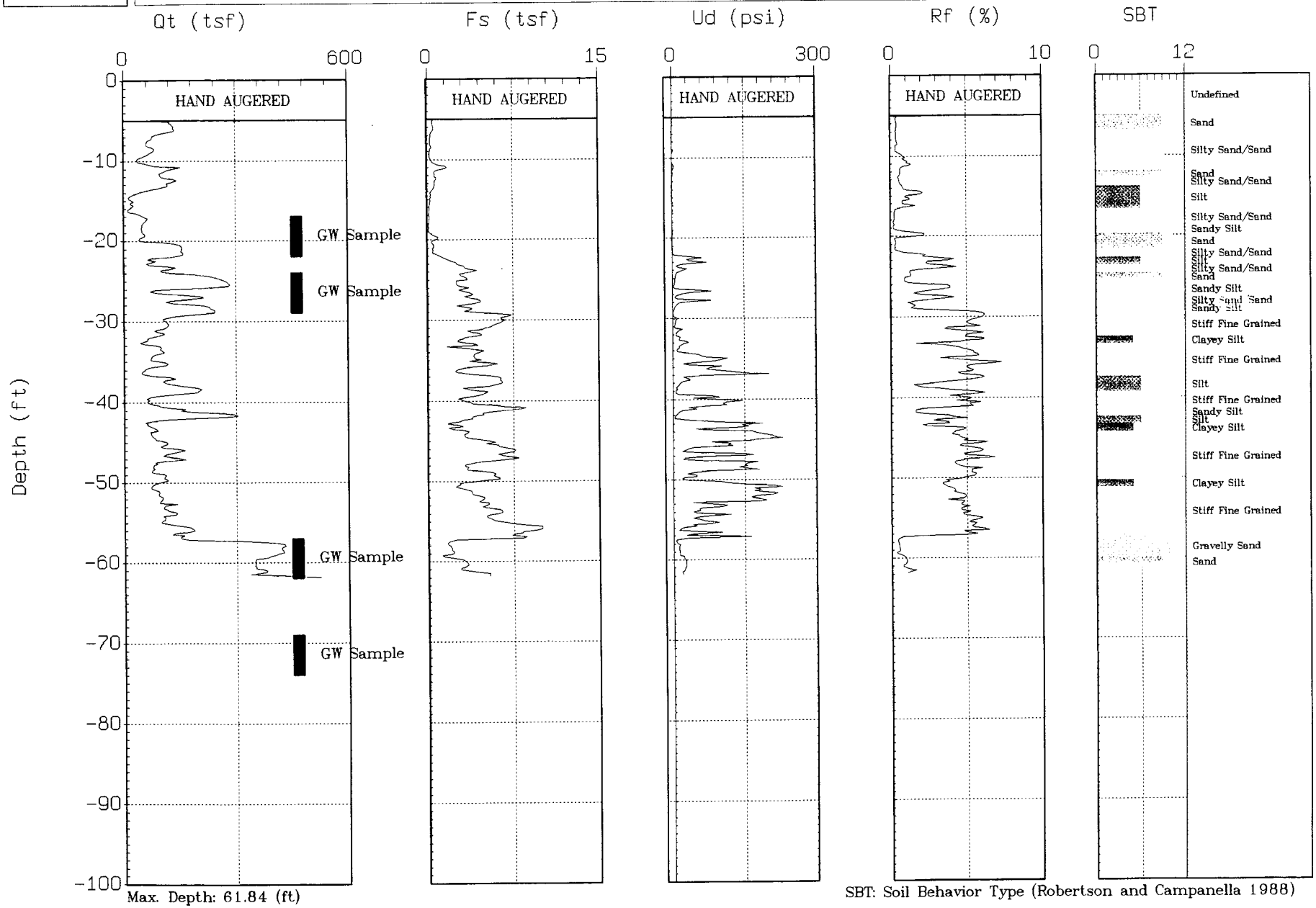
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-2

Geologist : TODD WIRTHS
Date : 05:12:01 01:46



Max. Depth: 61.84 (ft)

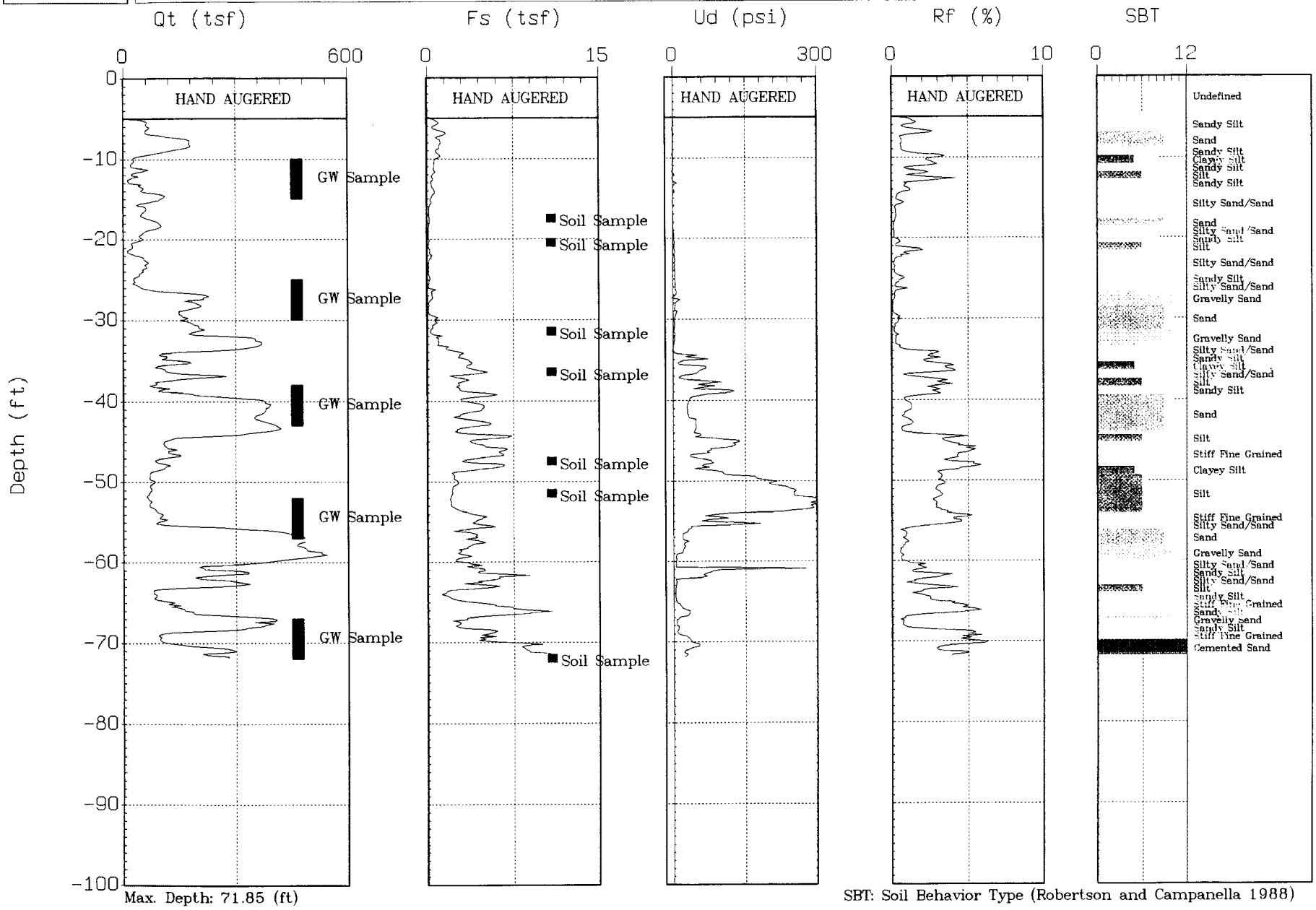
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-3

Geologist : TODD WIRTHS
Date : 05:10:01 23:24



Max. Depth: 71.85 (ft)

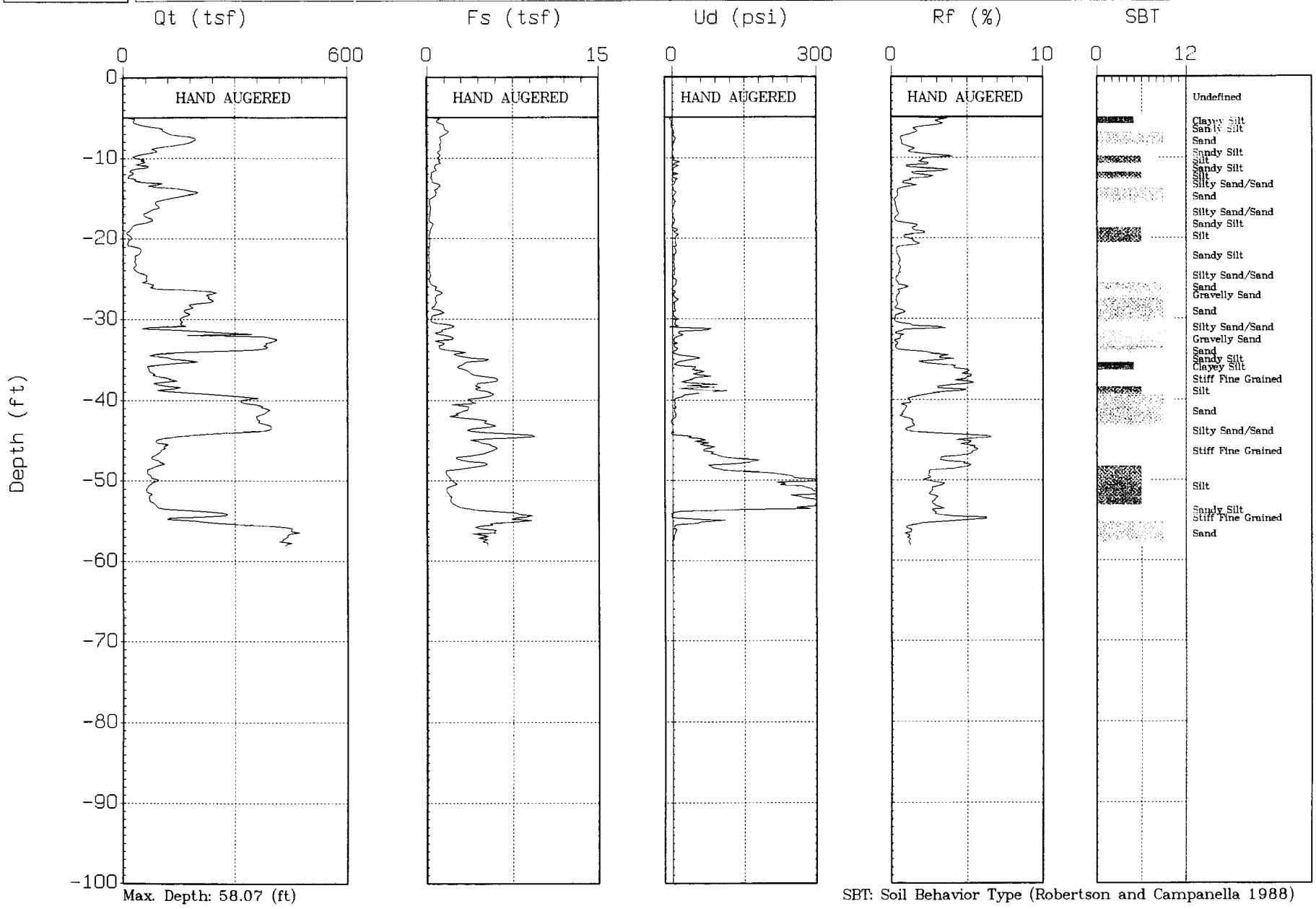
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-3A

Geologist : TODD WIRTHS
Date : 05:17:01 01:51



Max. Depth: 58.07 (ft)

Depth Inc: 0.164 (ft)

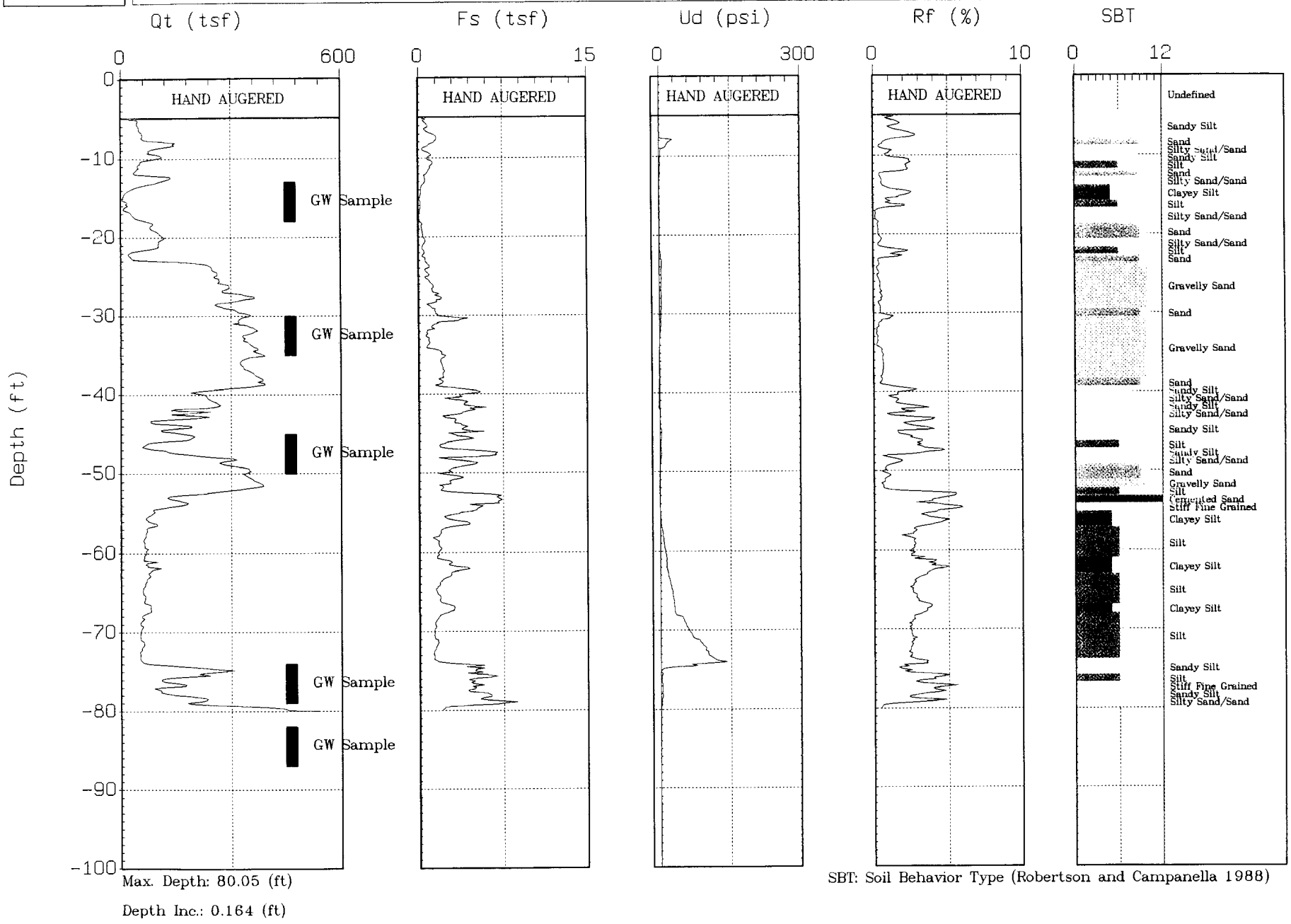
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6513
Location : CPT-4

Geologist : TODD WIRTHS
Date : 05:10:01 22:38

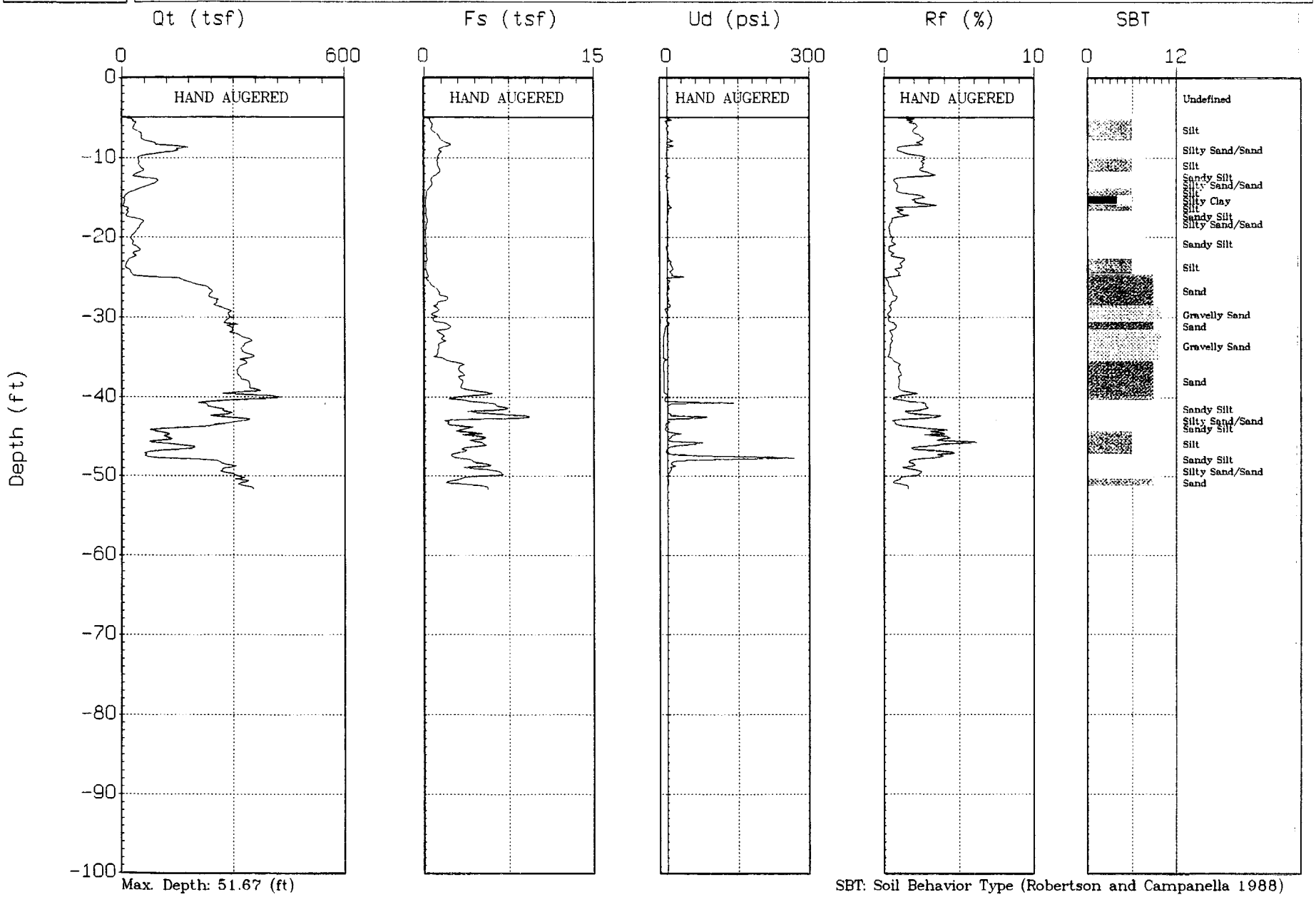


GREGG

TRC

Site : UNOCAL #6519
Location : CPT-4A

Geologist : TODD WIRTHS
Date : 05:16:01 22:31



Max. Depth: 51.67 (ft)

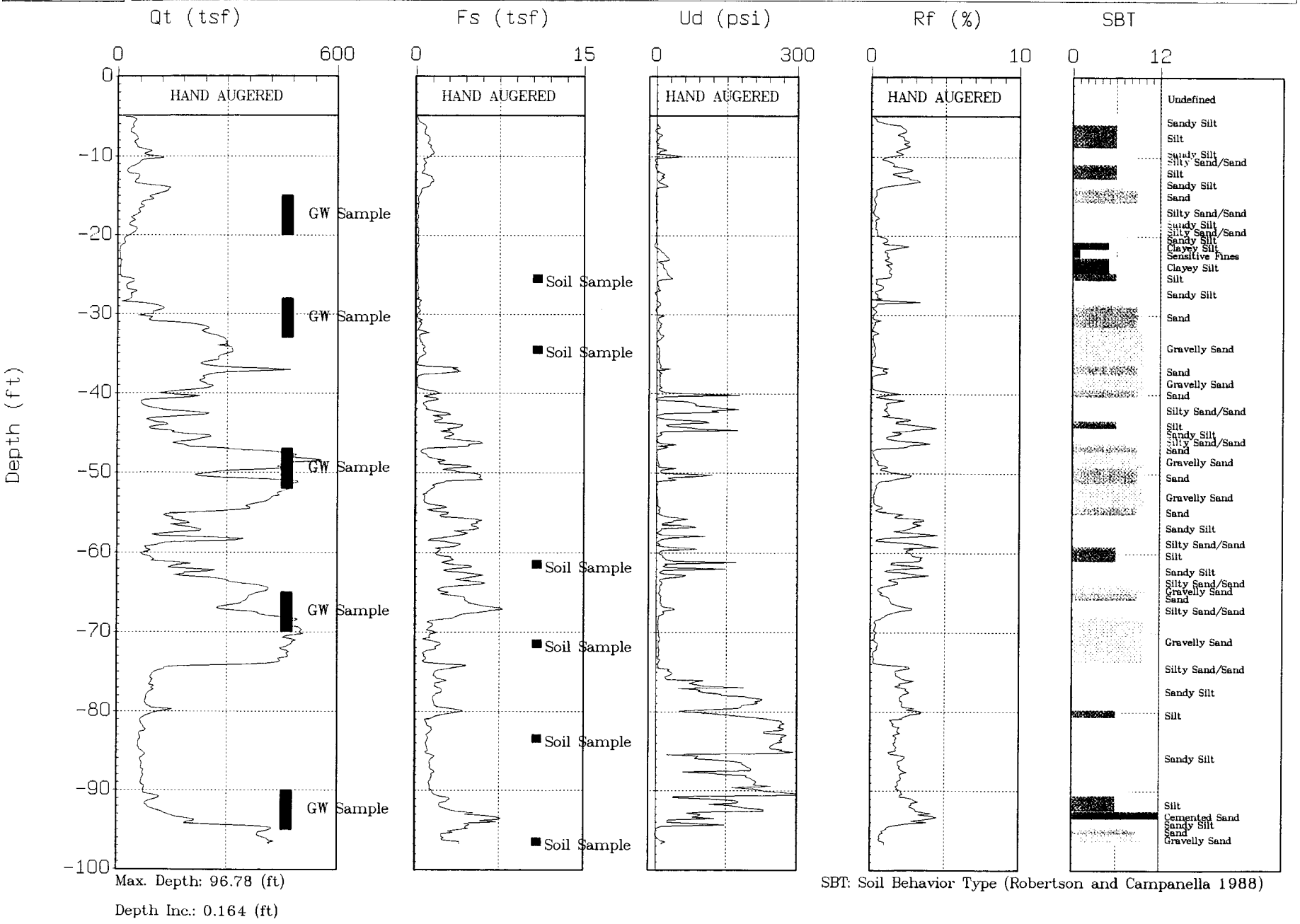
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-5

Geologist : TODD WIRTHS
Date : 05:10:01 20:45



Max. Depth: 96.78 (ft)

Depth Inc.: 0.164 (ft)

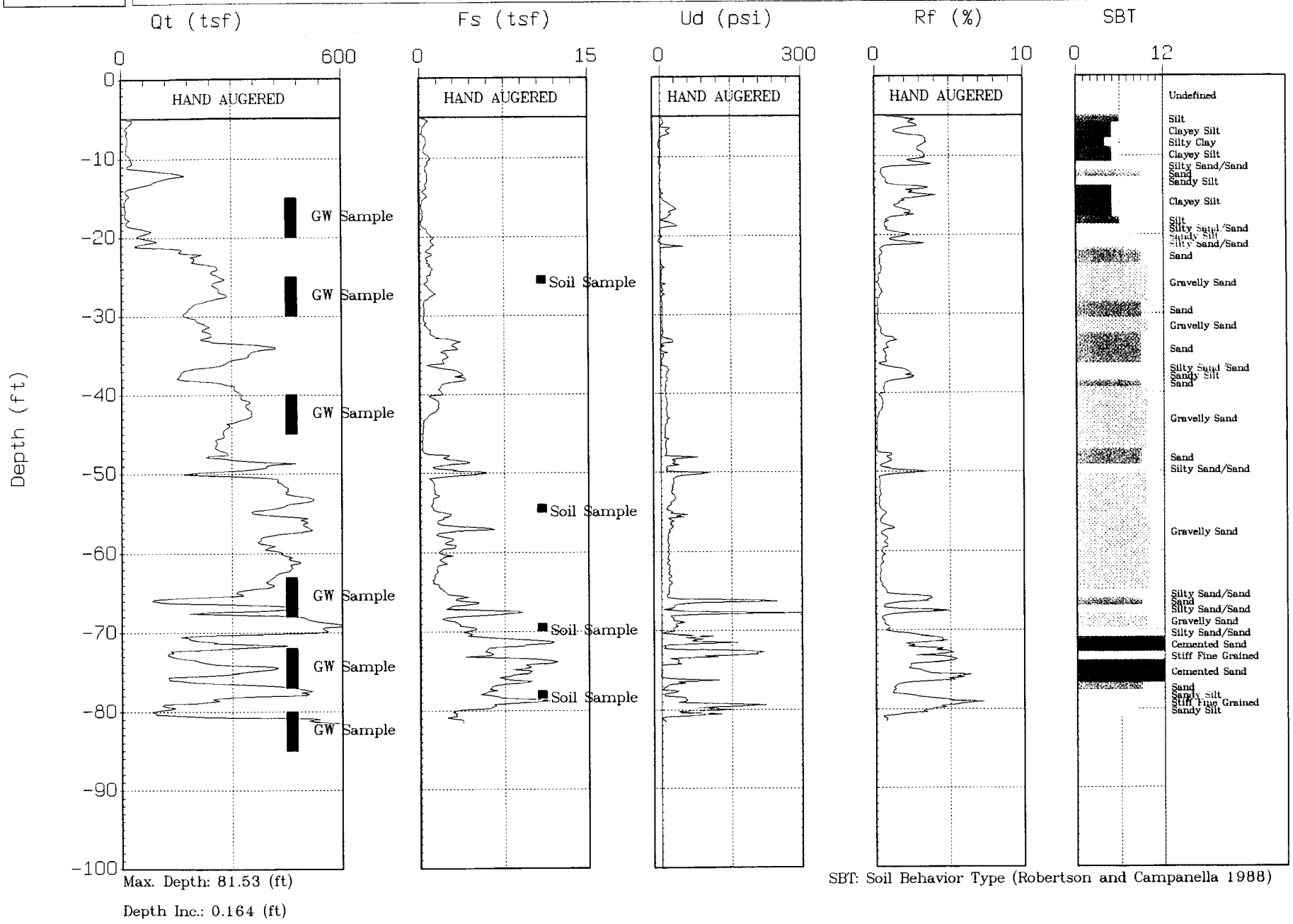
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-6

Geologist : TODD WIRTHS
Date : 05:11:01 20:34



Max. Depth: 81.53 (ft)

Depth Inc.: 0.164 (ft)

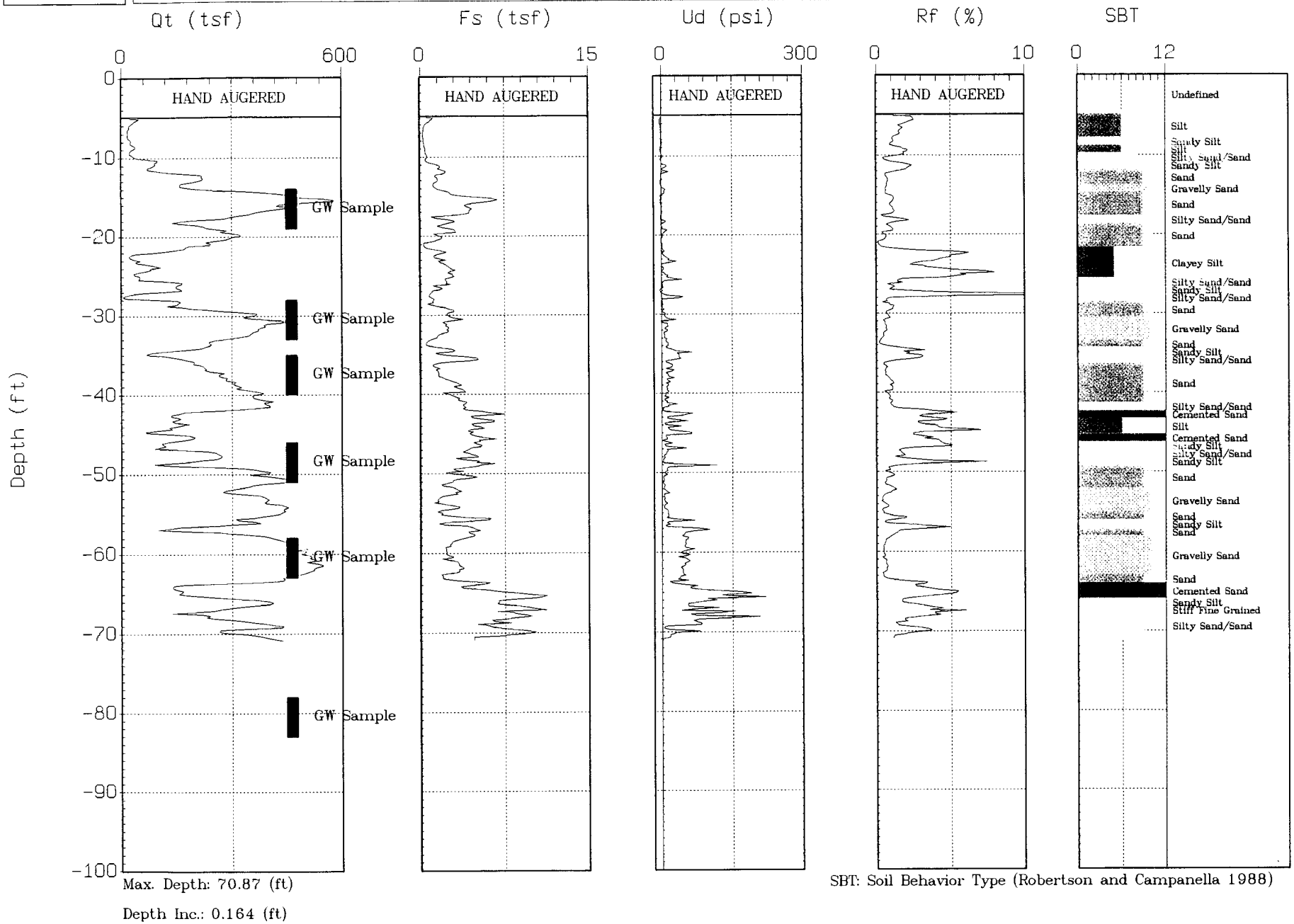
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC

Site : UNOCAL #6519
Location : CPT-7

Geologist : TODD WIRTHS
Date : 05:17:01 20:39



Max. Depth: 70.87 (ft)

Depth Inc.: 0.164 (ft)

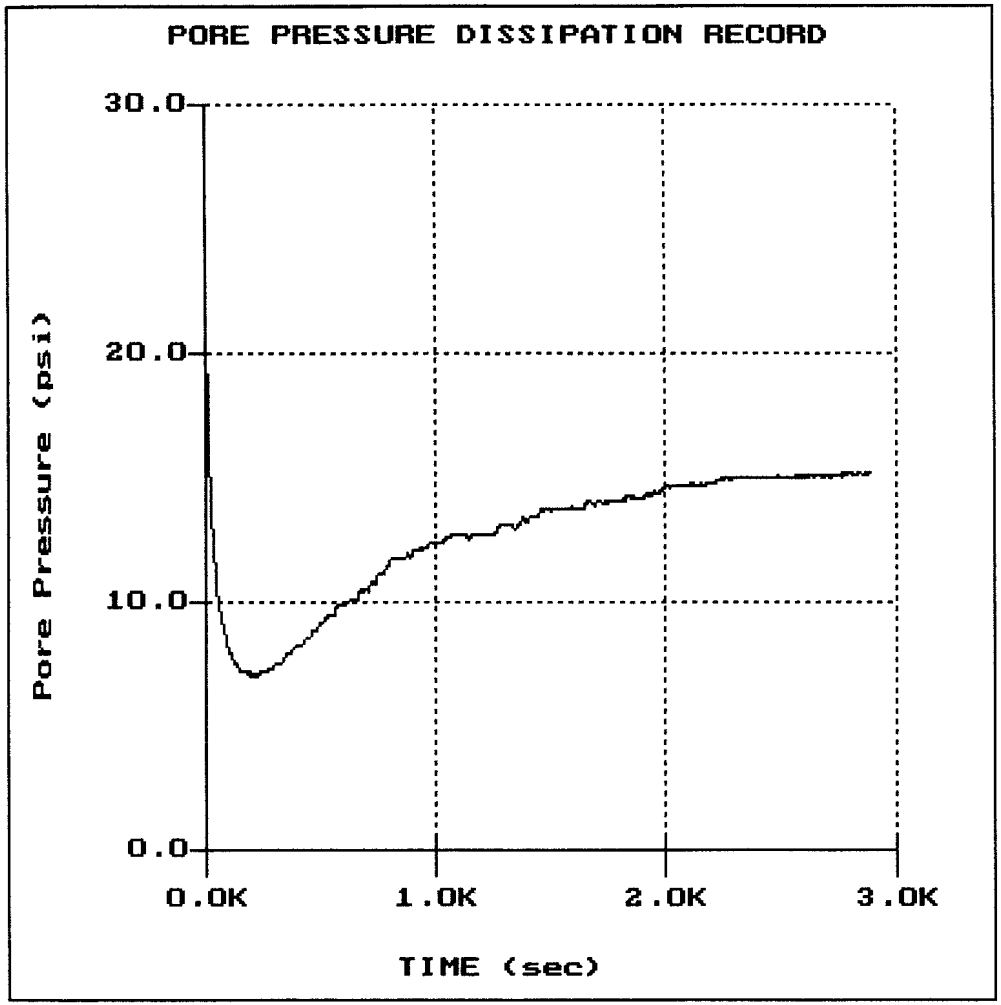
SBT: Soil Behavior Type (Robertson and Campanella 1988)

3.2 PORE PRESSURE DISSIPATION PLOTS

TRC

Site: UNOCAL #6519
Location: CPT-1

Geologist: TODD WIRTHS
Date: 05:12:01 03:06

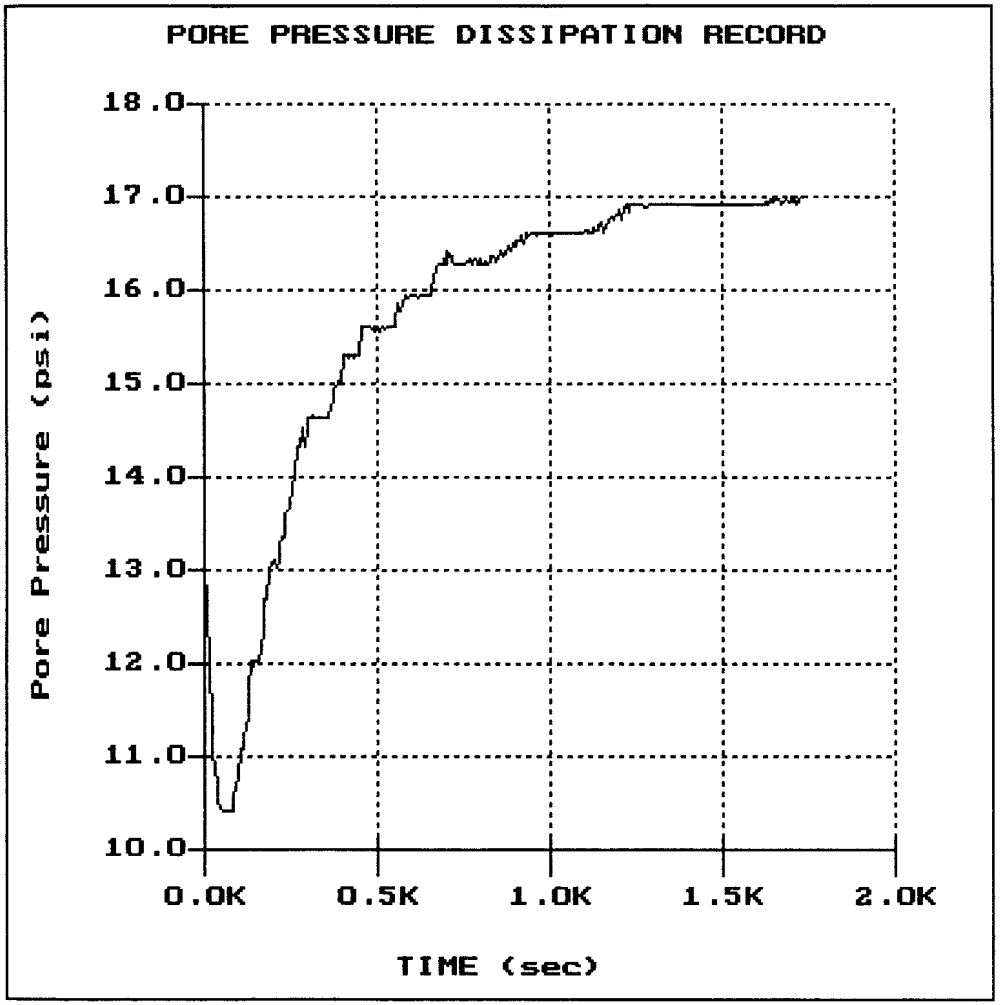


File: 124C01.PPC
Depth (m): 16.50
(ft): 54.13
Duration : 2890.0s
U-min: 6.94 210.0s
U-max: 20.57 5.0s

TRC

Site: UNOCAL #6519
Location: CPT-2

Geologist: TODD WIRTHS
Date: 05:12:01 01:46

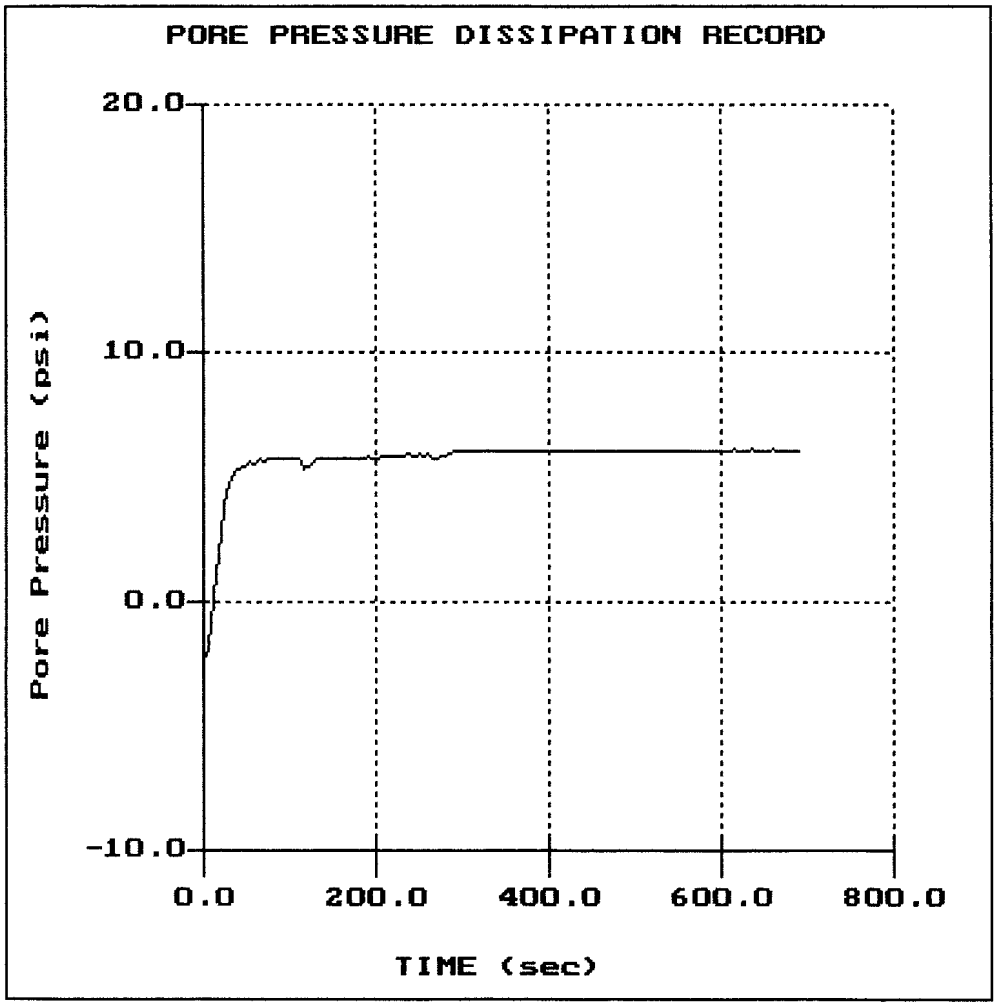


File: 124CO2.PPC
Depth (m): 18.10
(ft): 59.38
Duration : 1730.0s
U-min: 10.42 80.0s
U-max: 17.01 1655.0s

TRC

Site: UNOCAL #6519
Location: CPT-3

Geologist: TODD WIRTHS
Date: 05:10:01 23:24

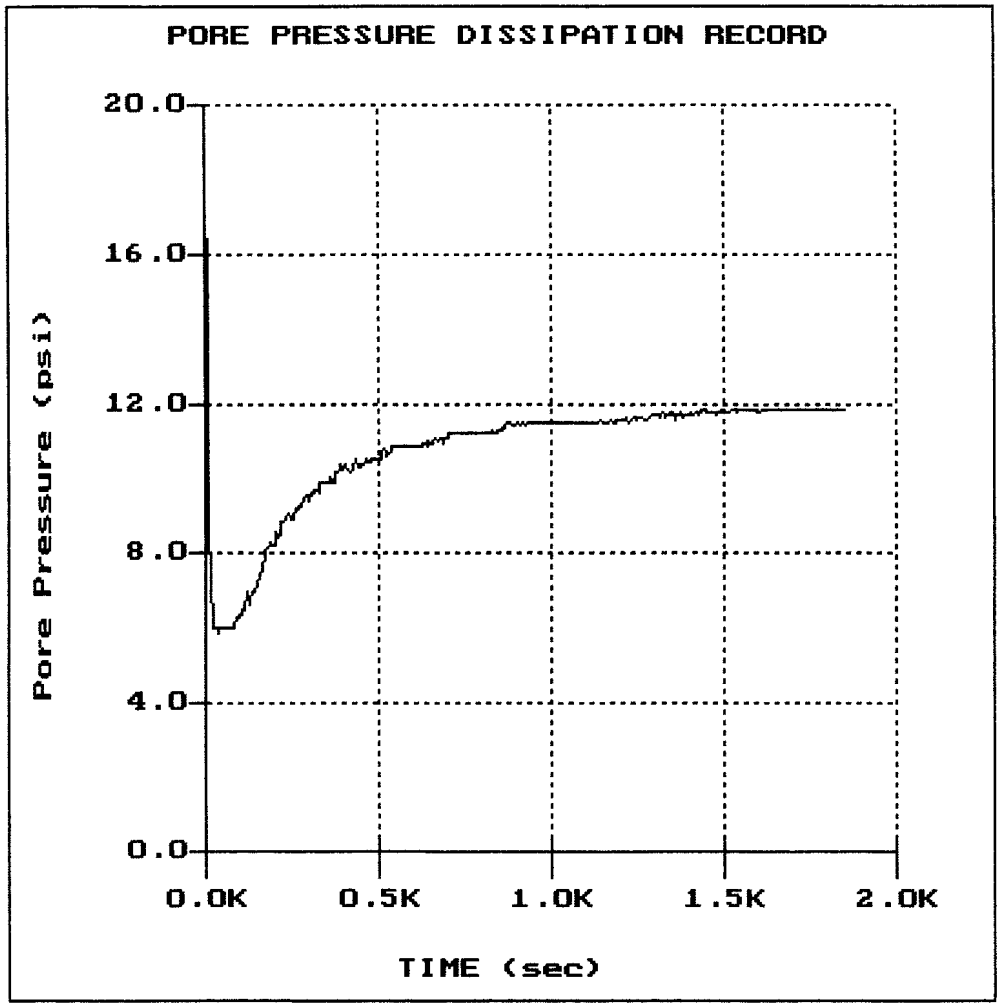


File: 124C03.PPC
Depth (m): 8.35
(ft): 27.40
Duration : 690.0s
U-min: -2.42 0.0s
U-max: 6.12 635.0s

TRC

Site: UNOCAL #6519
Location: CPT-3A

Geologist: TODD WIRTHS
Date: 05:17:01 01:51

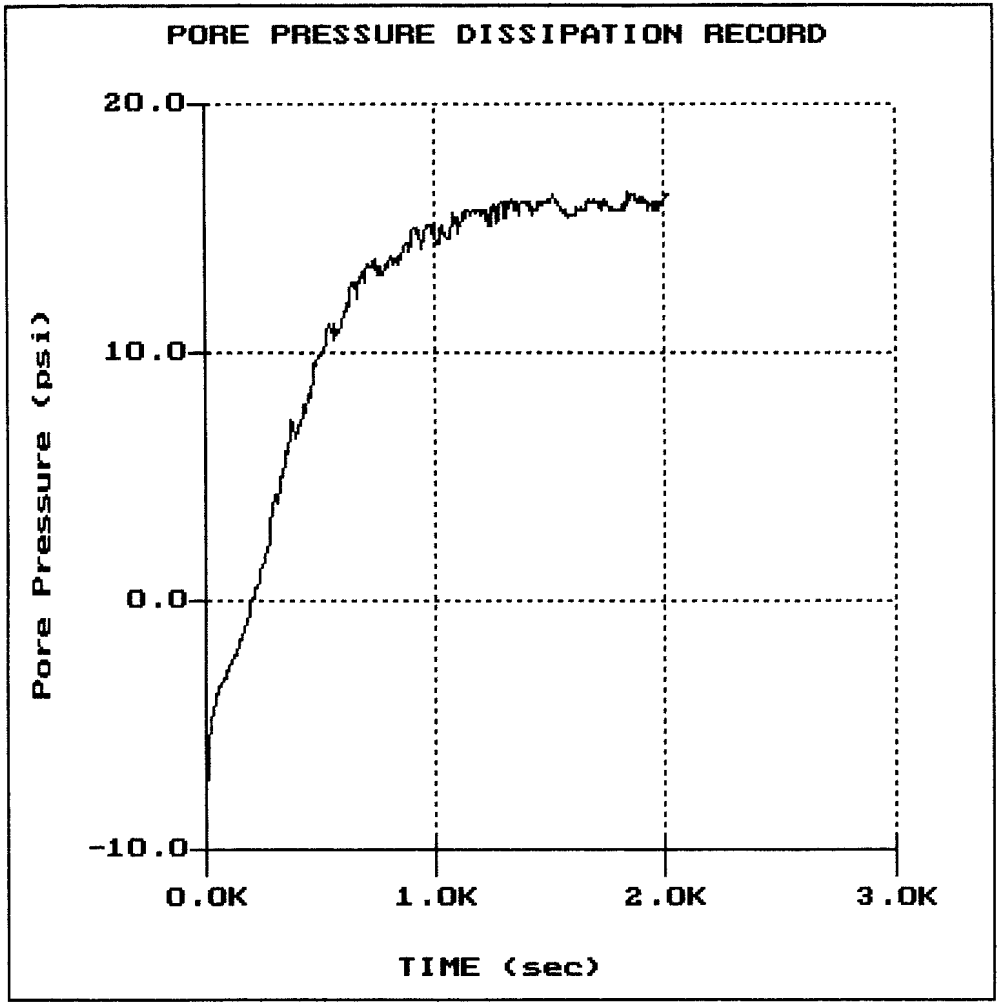


File: 124C03A.PPC
Depth (m): 12.85
(ft): 42.16
Duration : 1850.0s
U-min: 4.48 0.0s
U-max: 16.38 5.0s

TRC

Site: UNOCAL #6519
Location: CPT-3A

Geologist: TODD WIRTHS
Date: 05:17:01 01:51

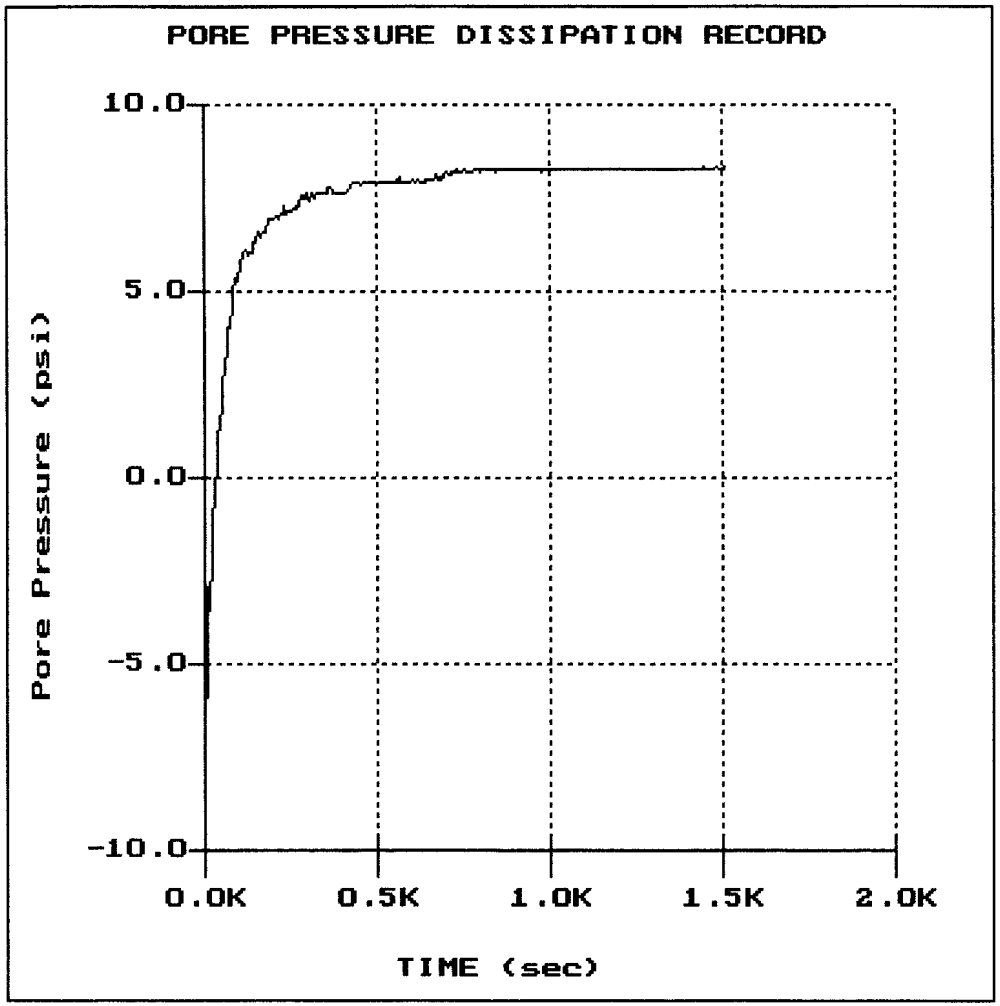


File: 124C03A.PPC
Depth (m): 17.70
(ft): 58.07
Duration : 2015.0s
U-min: -8.04 5.0s
U-max: 16.42 1840.0s

TRC

Site: UNOCAL #6519
Location: CPT-4A

Geologist: TODD WIRTHS
Date: 05:16:01 22:31

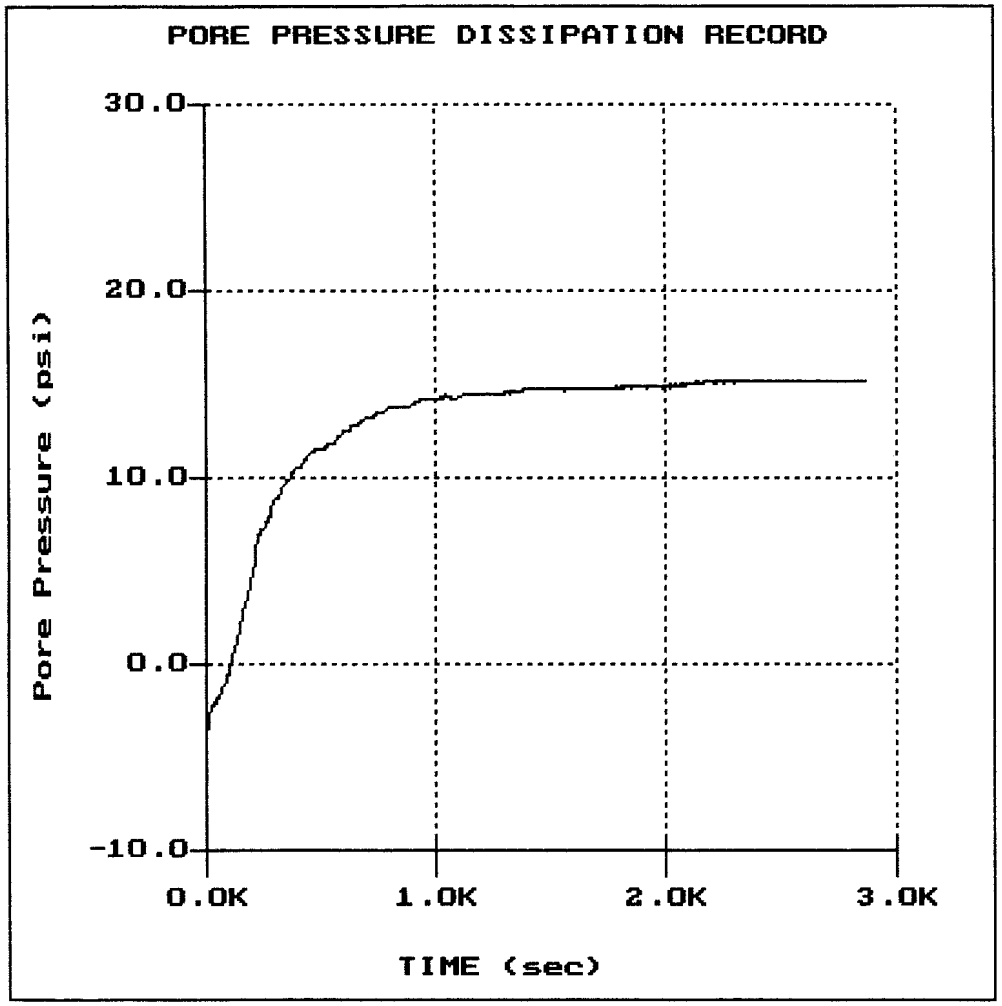


File: 124C04A.PPC
Depth (m): 10.70
(ft): 35.10
Duration : 1510.0s
U-min: -8.99 0.0s
U-max: 8.32 1505.0s

TRC

Site: UNOCAL #6519
Location: CPT-4A

Geologist: TODD WIRTHS
Date: 05:16:01 22:31

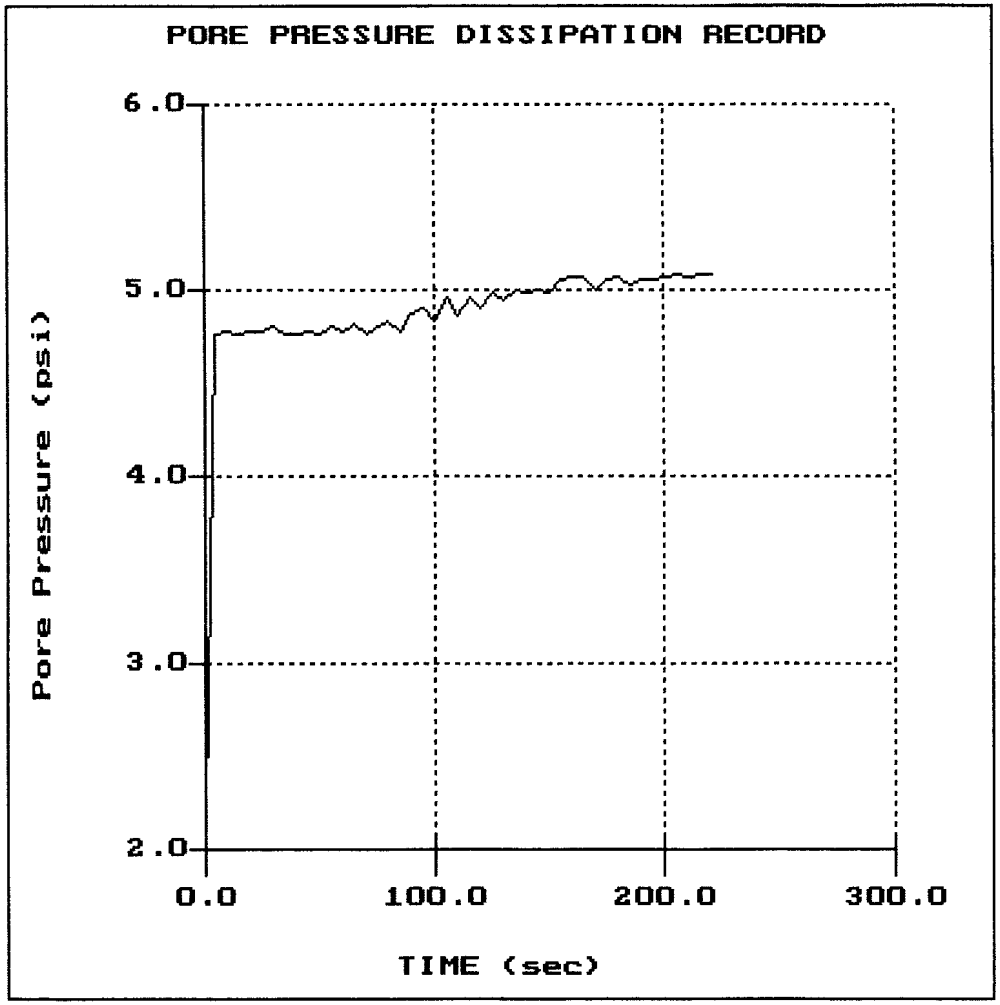


File: 124C04A.PPC
Depth (m): 15.55
(ft): 51.02
Duration : 2870.0s
U-min: -3.70 5.0s
U-max: 15.16 2840.0s

TRC

Site: UNOCAL #6519
Location: CPT-5

Geologist: TODD WIRTHS
Date: 05:10:01 20:45

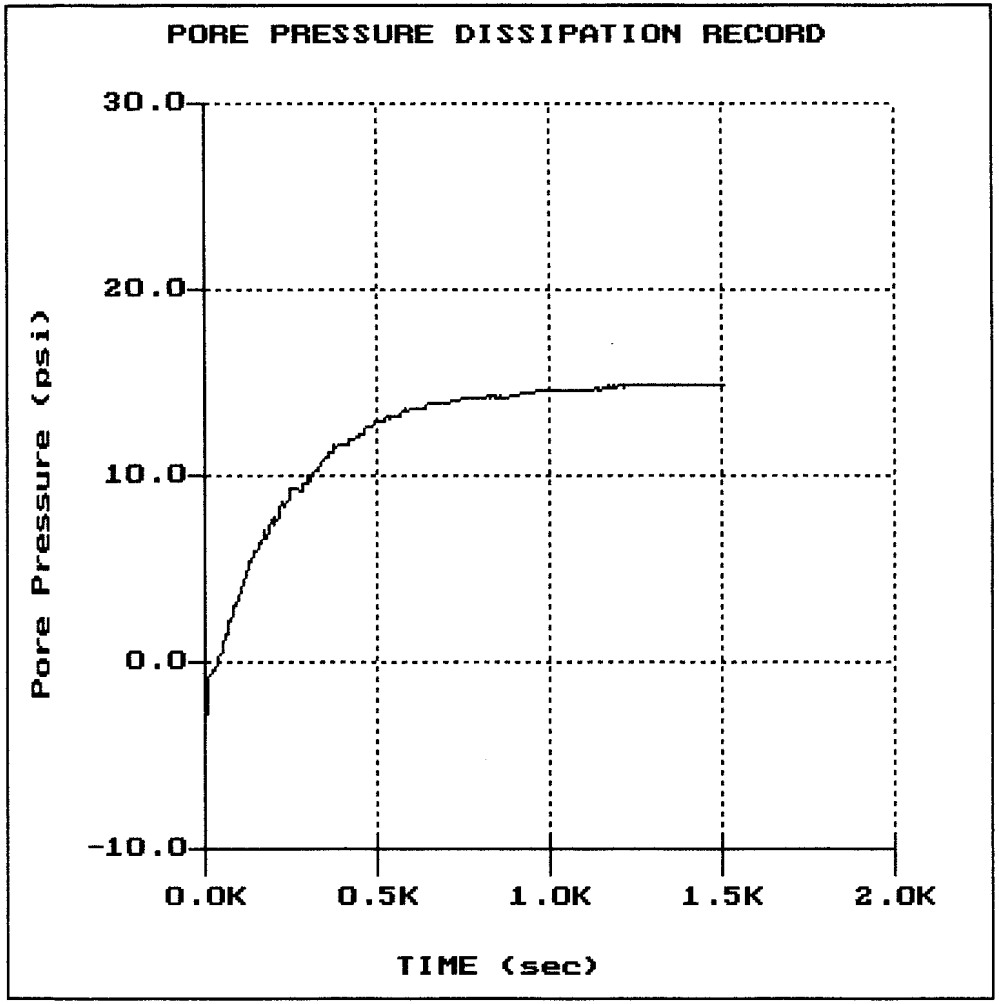


File: 124C05.PPC
Depth (m): 8.80
(ft): 28.87
Duration : 220.0s
U-min: 2.16 0.0s
U-max: 5.09 220.0s

TRC

Site: UNOCAL #6519
Location: CPT-5

Geologist: TODD WIRTHS
Date: 05:10:01 20:45

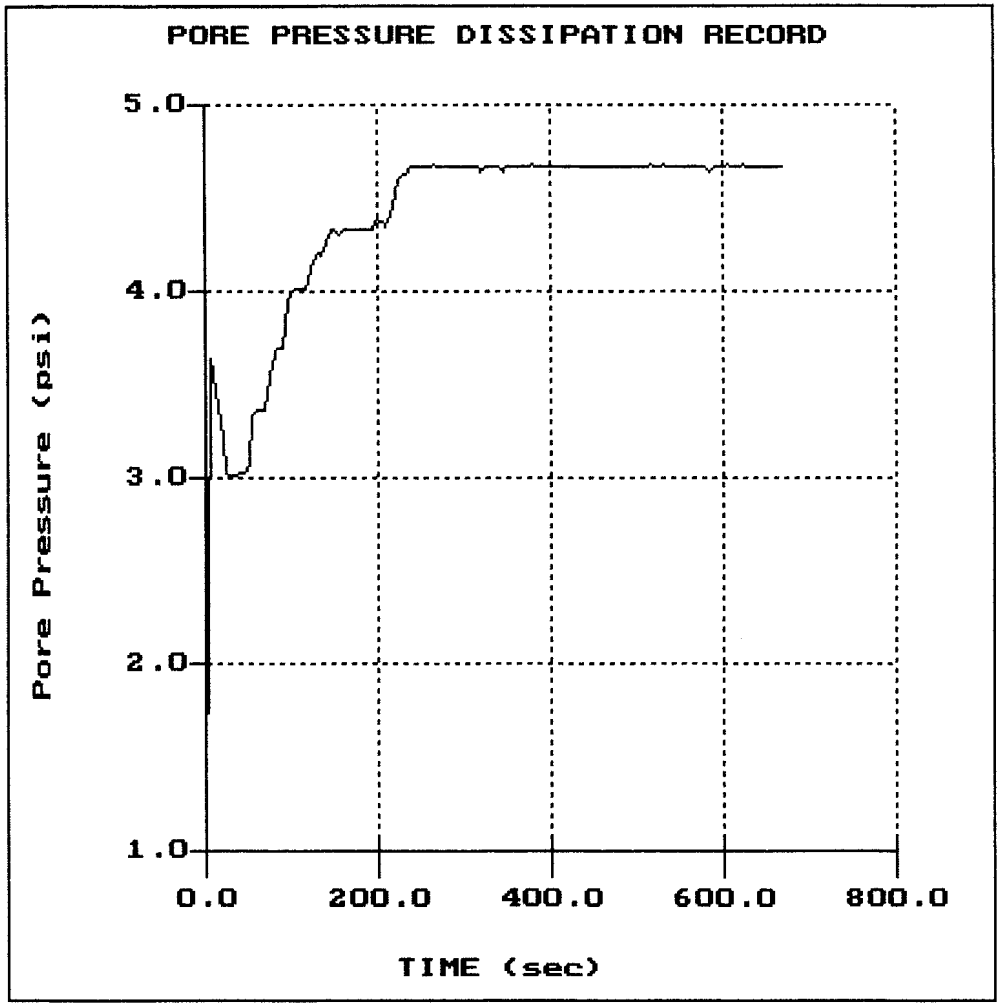


File: 124C05.PPC
Depth (m): 16.10
(ft): 52.82
Duration : 1505.0s
U-min: -2.73 5.0s
U-max: 14.93 1480.0s

TRC

Site: UNOCAL #6519
Location: CPT-6

Geologist: TODD WIRTHS
Date: 05:11:01 20:34

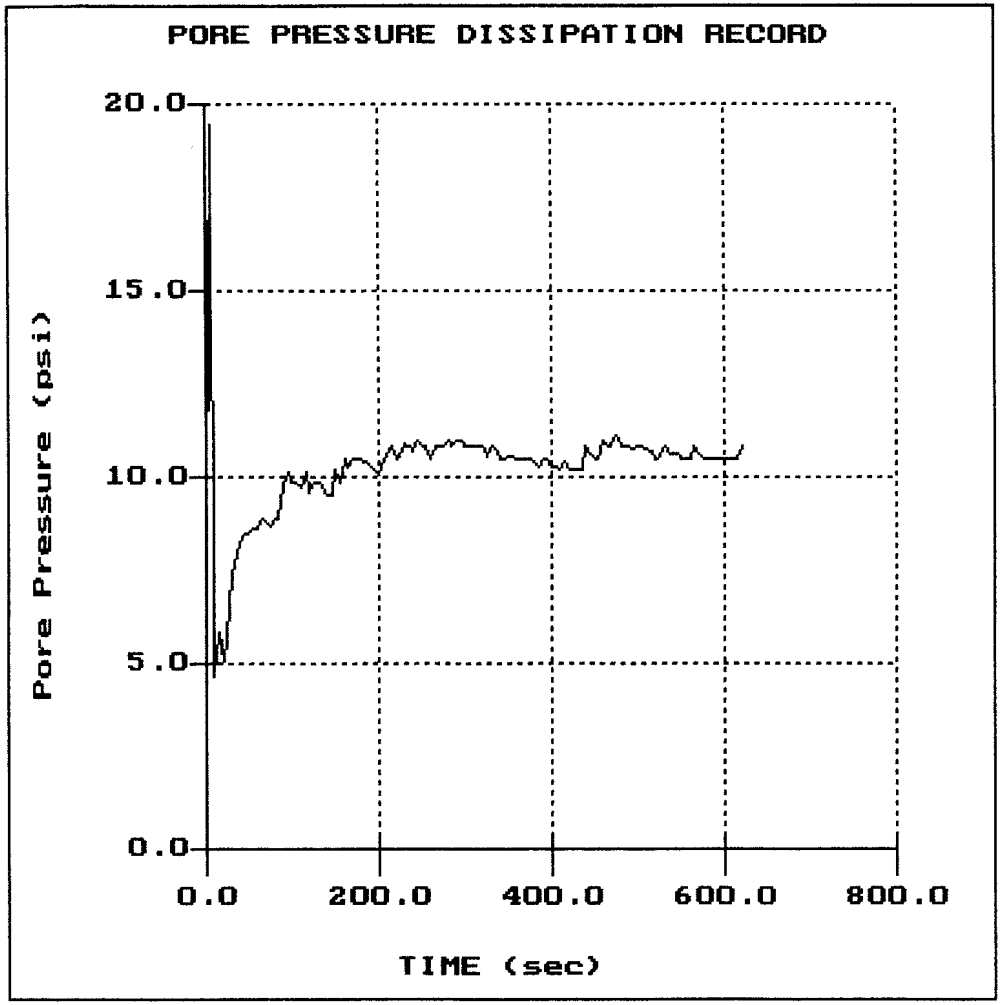


File: 124C06.PPC
Depth (m): 8.60
(ft): 28.22
Duration : 670.0s
U-min: 1.10 0.0s
U-max: 4.68 625.0s

TRC

Site: UNOCAL #6519
Location: CPT-6

Geologist: TODD WIRTHS
Date: 05:11:01 20:34

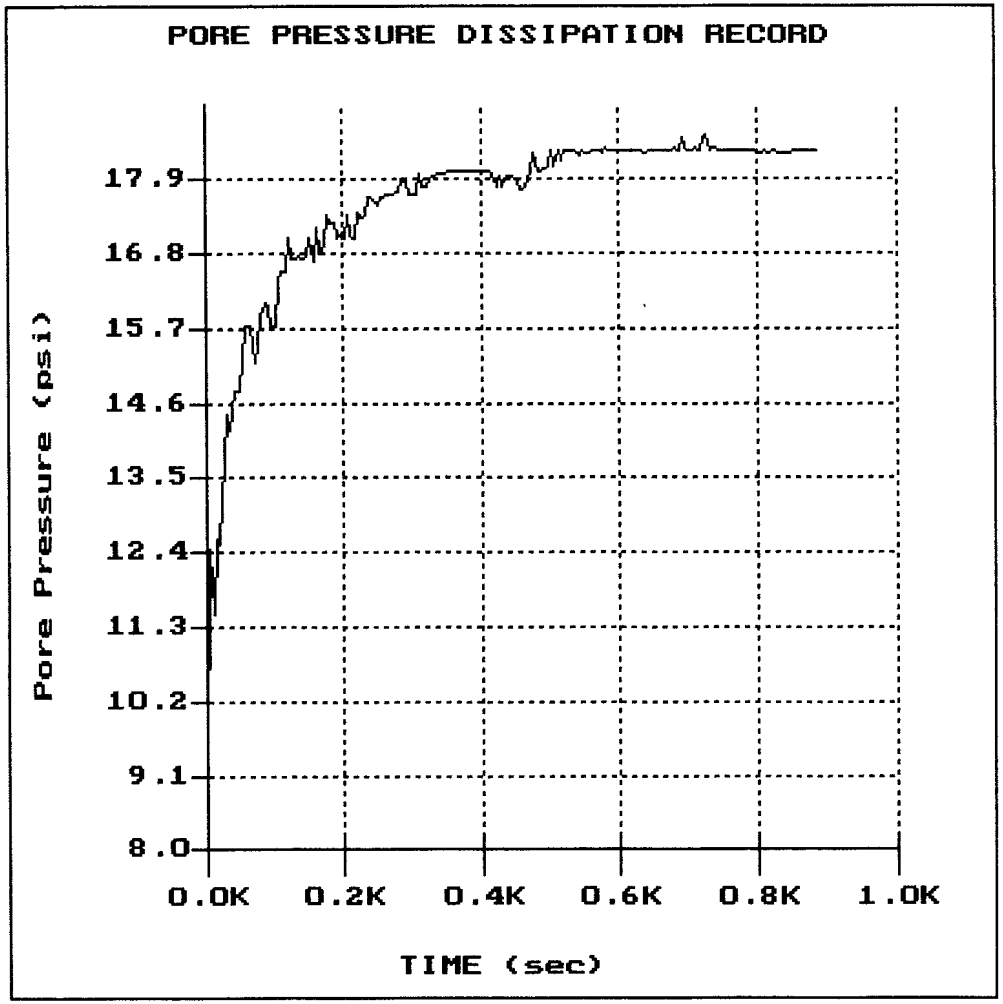


File: 124C06.PPC
Depth (m): 12.30
(ft): 40.35
Duration : 620.0s
U-min: 4.66 10.0s
U-max: 19.43 5.0s

TRC

Site: UNOCAL #6519
Location: CPT-6

Geologist: TODD WIRTHS
Date: 05:11:01 20:34

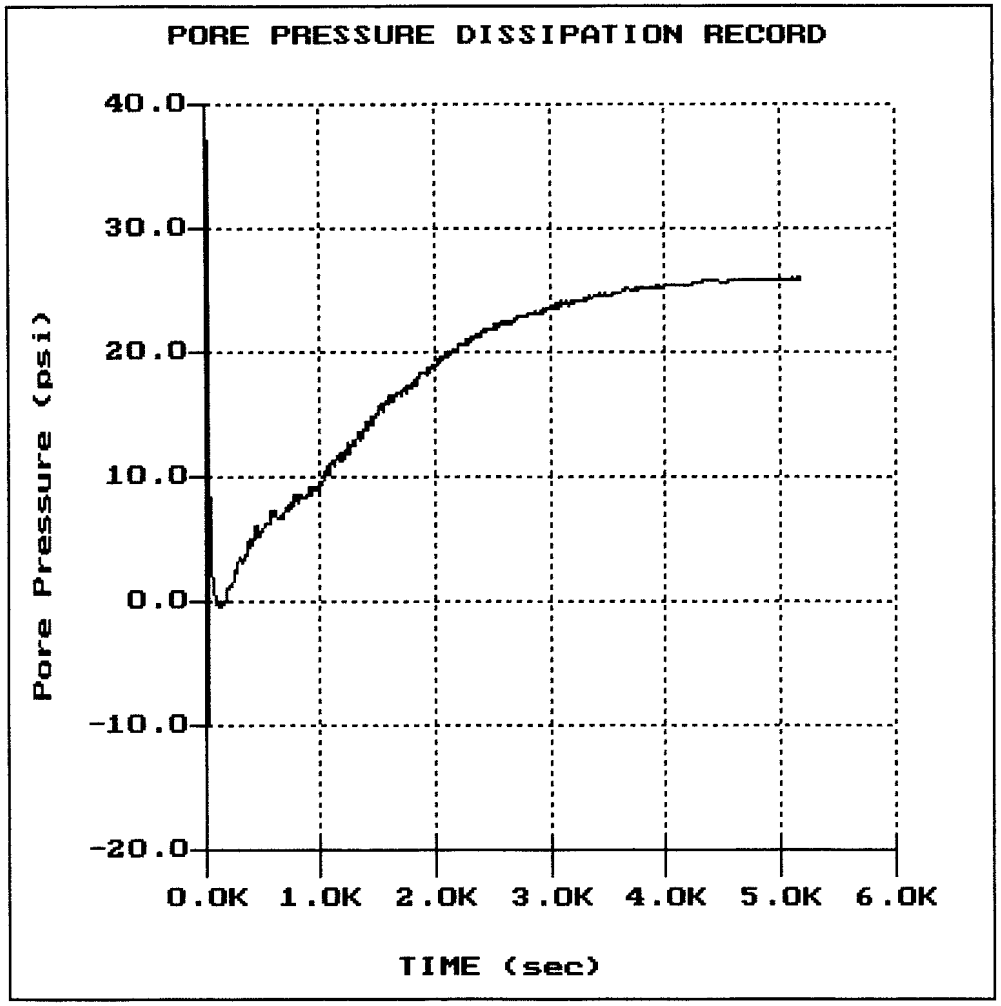


File: 124C06.PPC
Depth (m): 18.50
(ft): 60.70
Duration : 885.0s
U-min: 8.87 0.0s
U-max: 18.53 725.0s

TRC

Site: UNOCAL #6519
Location: CPT-6

Geologist: TODD WIRTHS
Date: 05:11:01 20:34

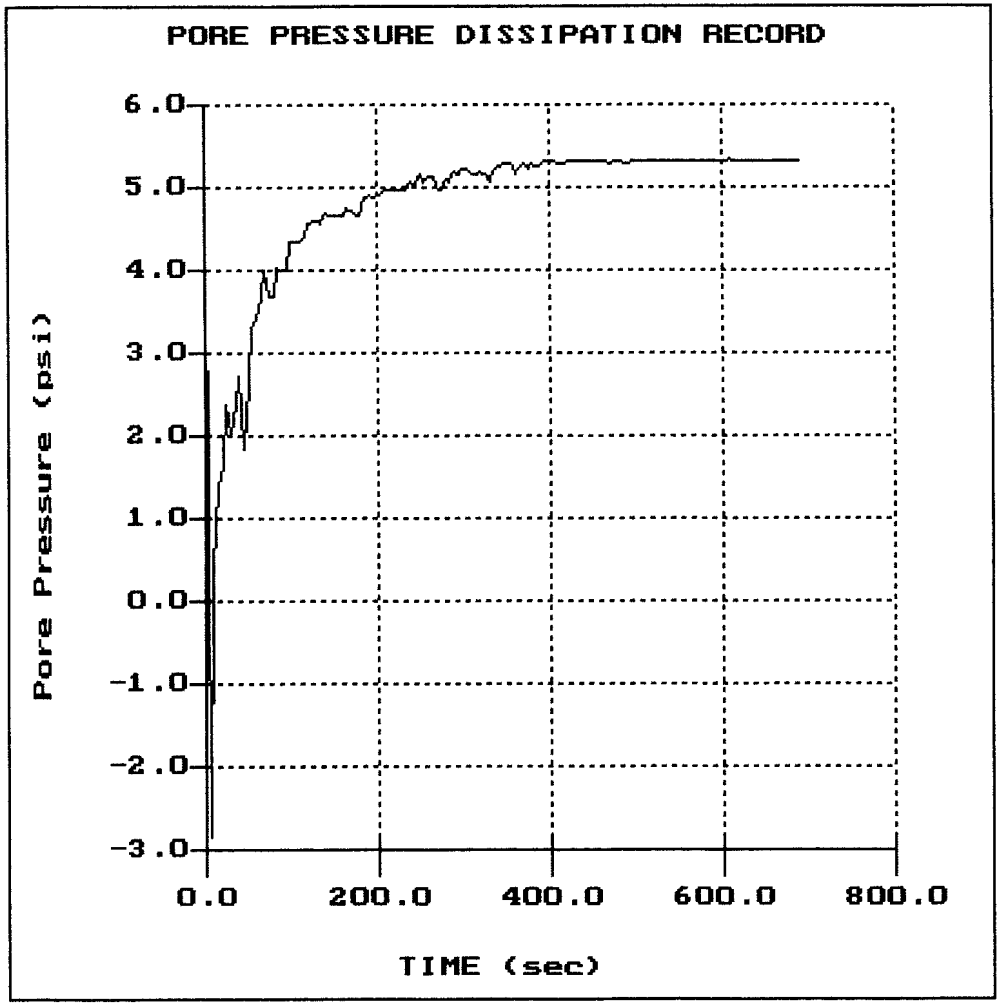


File: 124C06.PPC
Depth (m): 23.60
(ft): 77.43
Duration : 5180.0s
U-min: -9.91 15.0s
U-max: 37.01 20.0s

TRC

Site: UNOCAL #6519
Location: CPT-7

Geologist: TODD WIRTHS
Date: 05:17:01 20:39

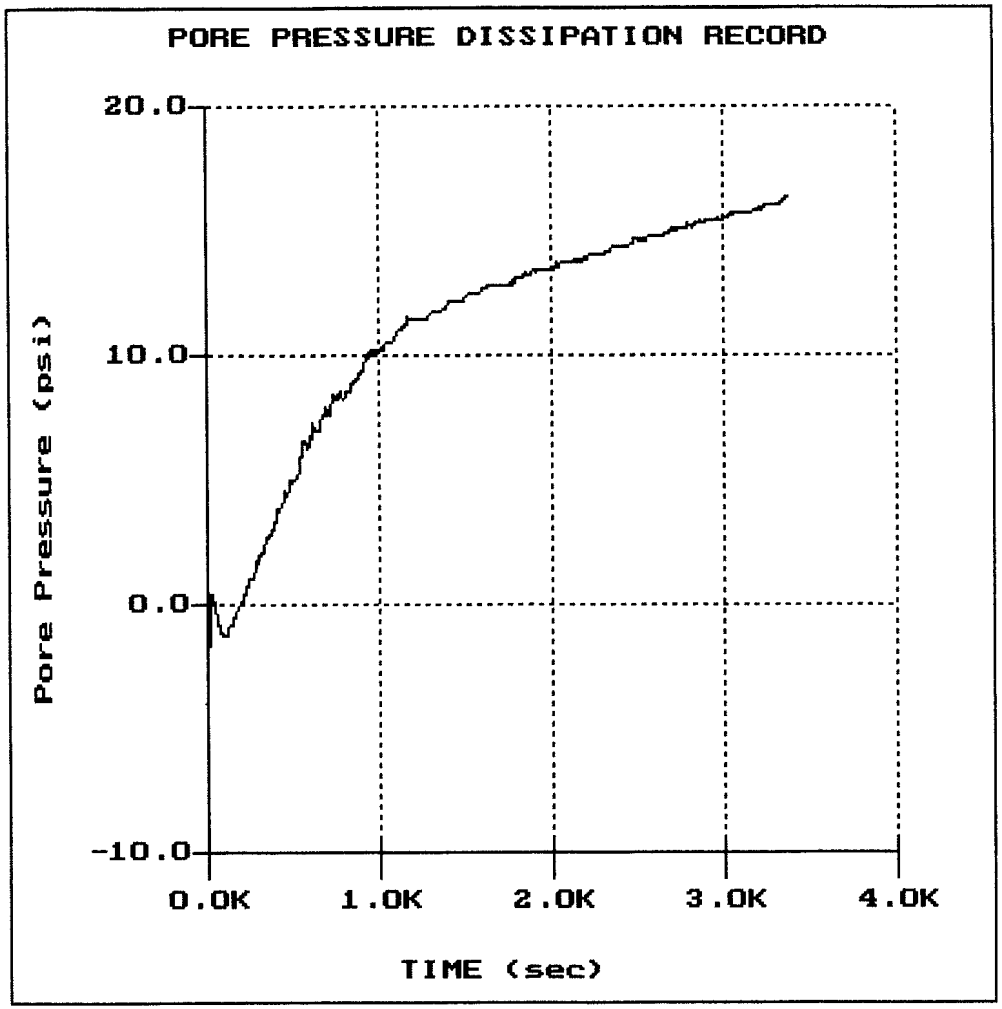


File: 124C07.PPC
Depth (m): 8.75
(ft): 28.71
Duration : 690.0s
U-min: -2.83 5.0s
U-max: 5.33 610.0s

TRC

Site: UNOCAL #6519
Location: CPT-7

Geologist: TODD WIRTHS
Date: 05:17:01 20:39

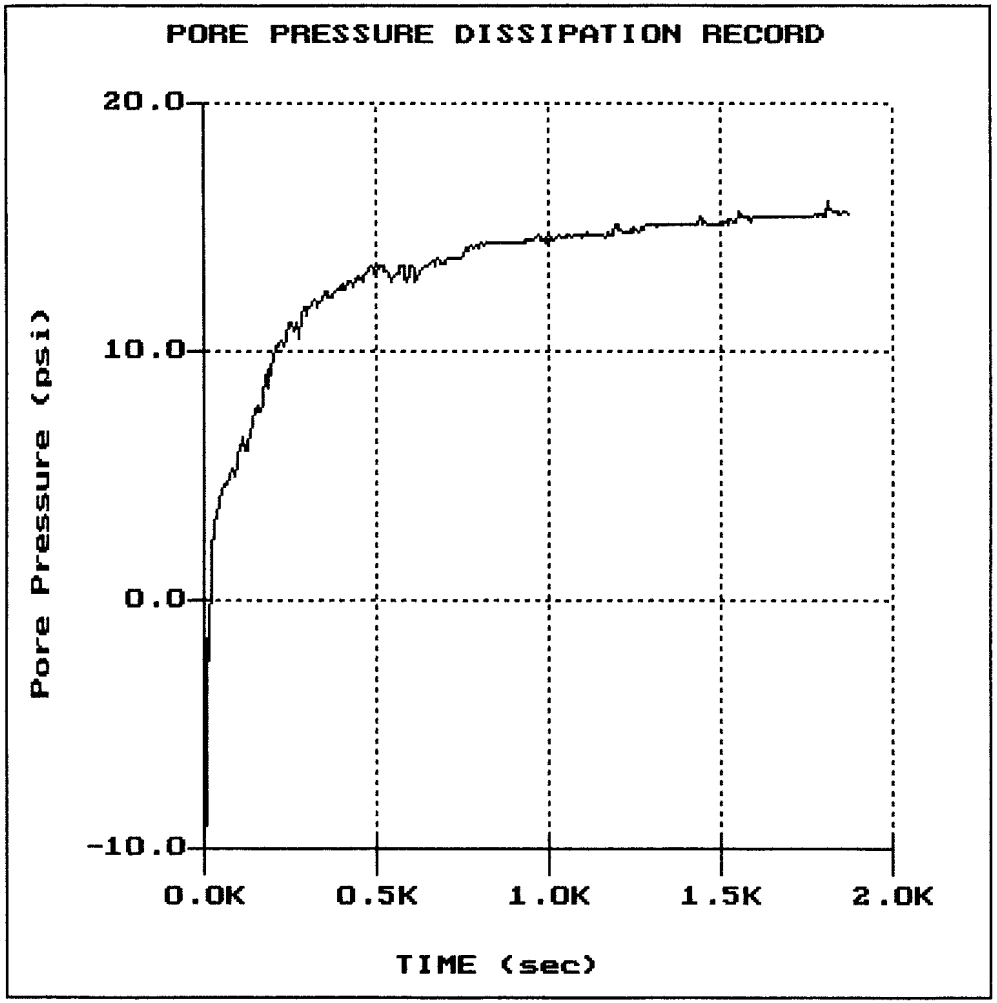


File: 124C07.PPC
Depth (m): 15.25
(ft): 50.03
Duration : 3380.0s
U-min: -2.95 5.0s
U-max: 16.36 3375.0s

TRC

Site: UNOCAL #6519
Location: CPT-7

Geologist: TODD WIRTHS
Date: 05:17:01 20:39



File: 124C07.PPC
Depth (m): 16.40
(ft): 53.81
Duration : 1870.0s
U-min: -9.11 5.0s
U-max: 16.05 1810.0s

APPENDIX

ELECTRICAL PIEZOCONE

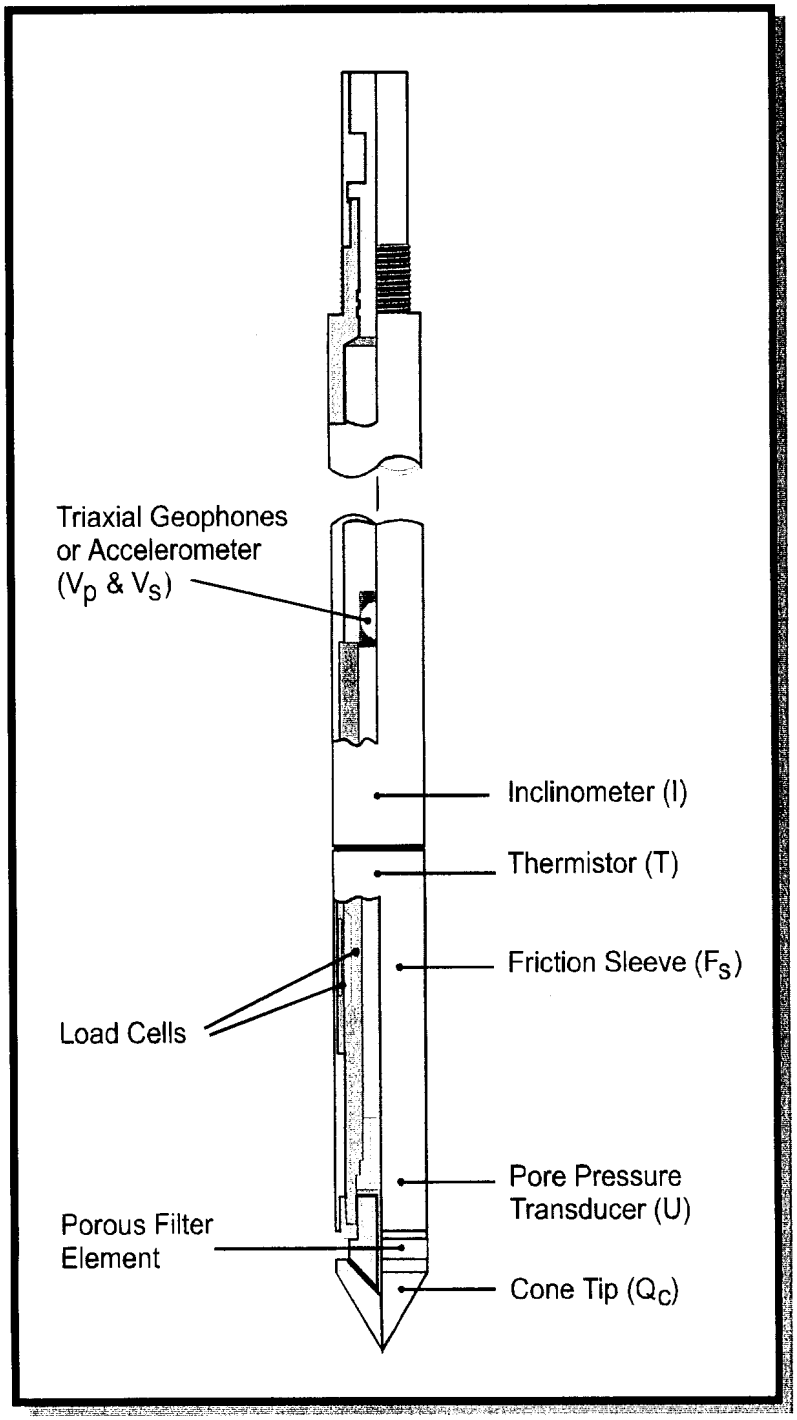


Figure 1

GROUNDWATER SAMPLER (HYDROPUNCH)

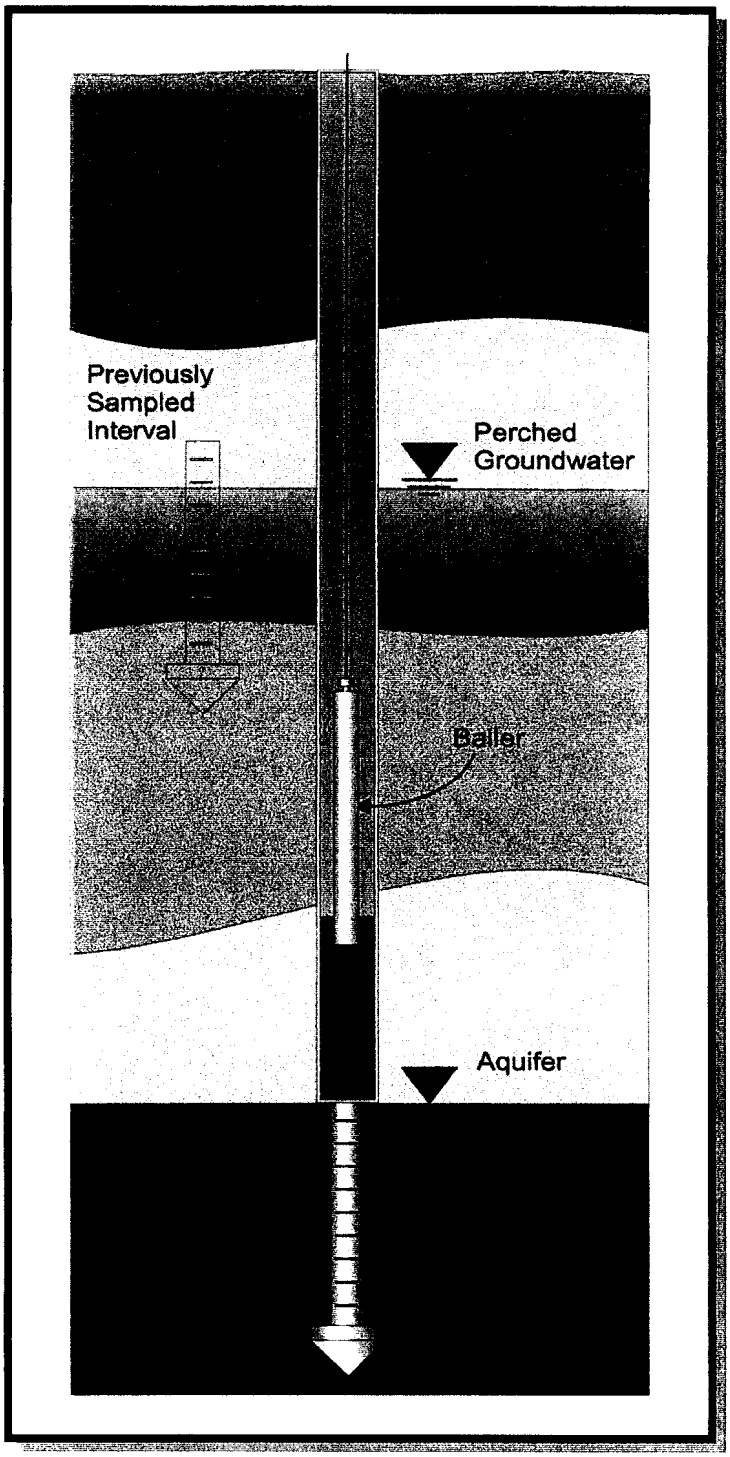


Figure 2

PISTON TYPE SOIL SAMPLER

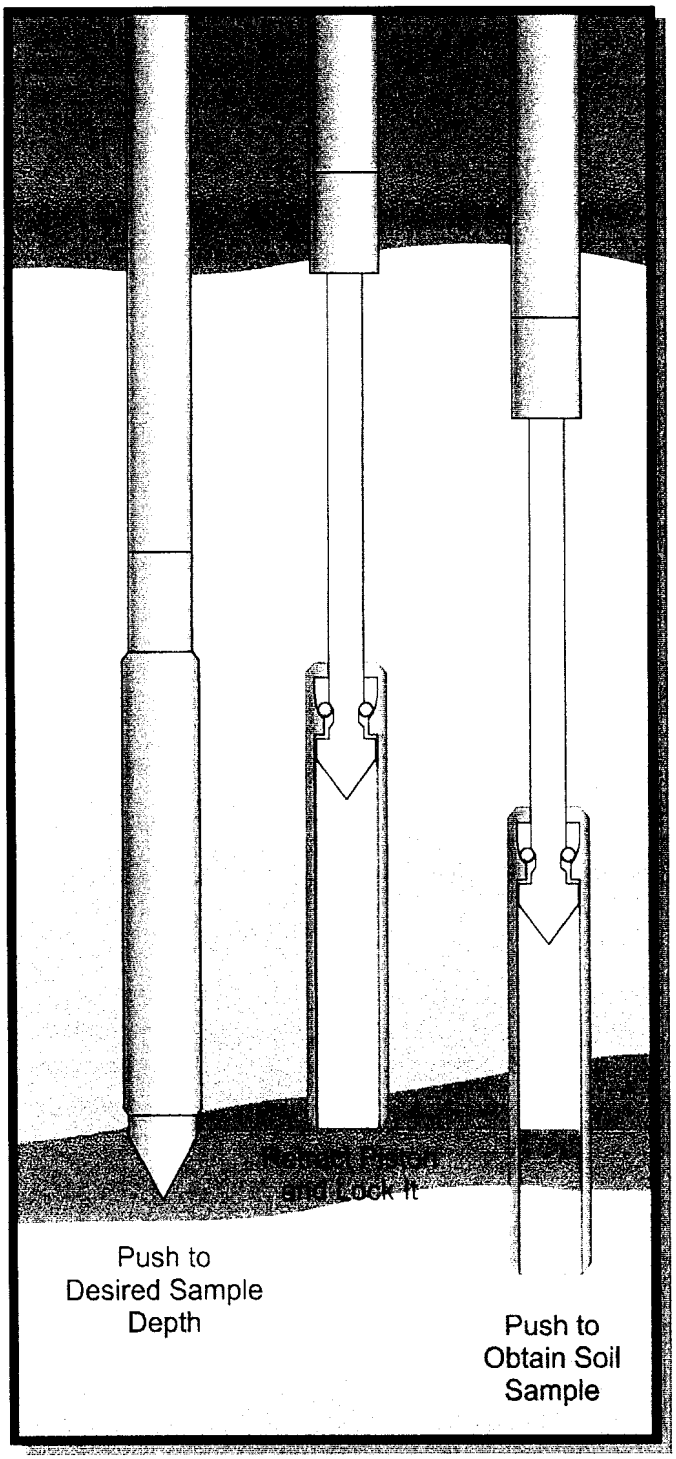
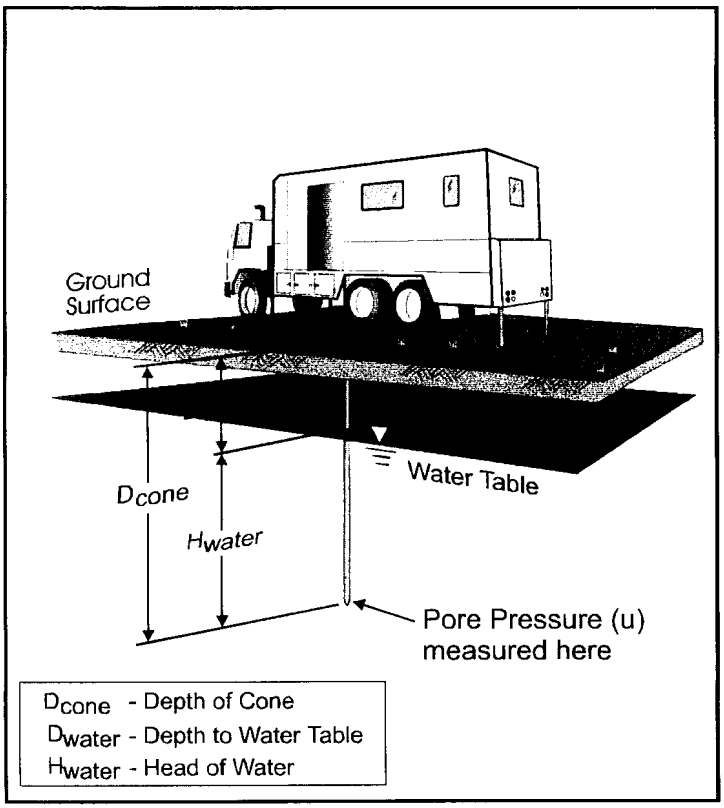
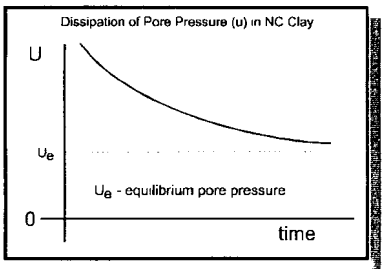
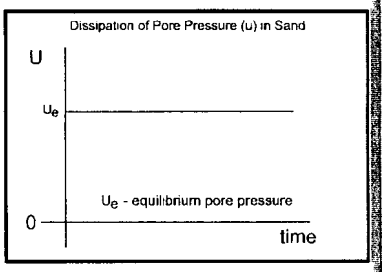


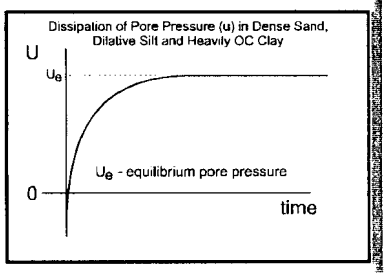
Figure 3

PPDT CORRELATION









Water Table Calculation

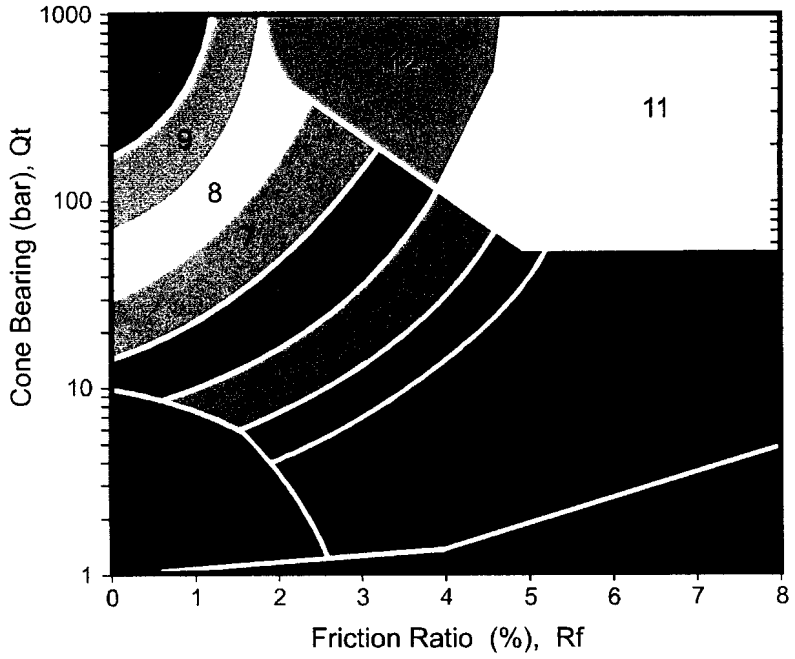
$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

Useful Conversion Factors:
1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

Figure 4

SOIL CLASSIFICATION CHART



Zone	Q_t / N	Soil Behaviour Type
1	2	sensitive fine grained
2	1	organic material
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 *

* overconsolidated or cemented

After Robertson and Campenella

Figure 5

REFERENCES

Robertson, P.K. and Campanella, R.G. and Wightman, A., 1983 "SPT-CPT Correlations", Journal of the Geotechnical Division, ASCE, Vol. 109, No. GT11, Nov., pp. 1449-1460.

Robertson, P.K. and Wride C.E., 1998 "Evaluating Cyclic Liquefaction Potential Using The Cone Penetration Test", Journal of Geotechnical Division, Mar. 1998, pp. 442-459.

Robertson, P.K. and Campanella, R.G., Gillespie, D. and Grieg, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.

Robertson, P.K. and Campanella, R.G., 1988, "Guidelines for Use, Interpretation and Application of the CPT and CPTU", UBC, Soil Mechanics Series No. 105, Civil Eng. Dept., Vancouver, B.C., V6T 1W5, Canada; also available from Hogentogler and Co., P.O. Box 385, Gaithersburg, MD 20877, 3rd Edition, 197 pp.

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

PRESENTATION OF CONE PENETRATION TEST DATA

MURRIETA CREEK

TEMECULA, CALIFORNIA

Prepared for:

TRC/ALTON GEOSCIENCE
San Diego, California

Prepared by:

GREGG IN SITU, INC.
Signal Hill, California
01-297sh

Prepared on:

November 8, 2001

TABLE OF CONTENTS

PRESENTATION OF CONE PENETRATION TEST DATA

1.0 INTRODUCTION

This report presents the results of a Cone Penetration Testing (CPT) and in situ groundwater sampling program carried out at the Murrieta Creek site located in Temecula, CA. The work was performed on October 30 and 31, 2001. The scope of work was performed as directed by TRC/Alton Geoscience personnel.

2.0 FIELD EQUIPMENT & PROCEDURES

The Cone Penetration Tests (CPT) were carried out by GREGG IN SITU, INC. of Signal Hill, CA using an integrated electronic cone system. The CPT soundings were performed in accordance with ASTM standards (D 5778-95). A 20 ton capacity cone was used for all of the soundings (figure 1). This cone has a tip area of 15 cm^2 and friction sleeve area of 225 cm^2. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85.

The cones used during the program recorded the following parameters at 5 cm depth intervals:

- Tip Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (U)

The above parameters were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference.

The pore water pressure element was located directly behind the cone tip. The pore water pressure element was 5.0 mm thick and consisted of porous plastic. Each of the elements were saturated in silicon oil under vacuum pressure prior to penetration. Pore pressure dissipations were recorded at 5 second intervals when appropriate during pauses in the penetration.

A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

The cones were pushed using GREGG IN SITU's CPT rig, having a down pressure capacity of approximately 25 tons. Three CPT soundings were performed. The penetration tests were carried to depths of approximately 88 to 100 feet below ground surface. Test locations and depths were determined in the field by TRC/Alton personnel.

In situ groundwater samples were taken at three locations. Groundwater samples were collected using a Hydropunch® type groundwater sampling system (figure 2). The groundwater sampler operates by pushing 1.75 diameter hollow rods with a retrievable tip. A stainless steel filter screen is attached to the tip. At the desired sampling depth, the rods are retracted exposing the filter screen and allowing for groundwater infiltration. A small diameter bailer is then used to collect groundwater samples through the hollow rod.

The CPT/groundwater sample holes were grouted using our support rig. The grouting procedure consists of pushing a hollow CPT rod with a "knock out" plug back down the hole to the test hole termination depth. Grout is then pumped under pressure as the tremie pipe is pulled from the hole.

3.0 CONE PENETRATION TEST DATA & INTERPRETATION

The cone penetration test data is presented in graphical form. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

The stratigraphic interpretation is based on relationships between cone bearing (qc), sleeve friction (fs), and penetration pore pressure (U). The friction ratio (Rf), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

Pore Pressure Dissipation Tests (PPDT's) were taken at various intervals in order to measure hydrostatic water pressures and approximate depth to groundwater table. In addition, the PPDT data can be used to estimate the horizontal permeability (k_h) of the soil. The correlation to permeability is based on the time required for 50 percent of the measured dynamic pore pressure to dissipate (t_{50}). The PPDT correlation figure (figure 3) is provided in the Appendix.

The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1988. It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and U. In these situations, experience and judgement and an assessment of the pore pressure dissipation data

should be used to infer the soil behavior type. The soil classification chart (figure 4) used to interpret soil types based on qc and Rf is provided in the Appendix.

We hope the information presented is sufficient for your purposes. We recommend that all data be carefully reviewed by qualified personnel to verify the data and make appropriate recommendations. If you have any questions, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,
GREGG IN SITU, INC.

Brian Savela
Operations Manager

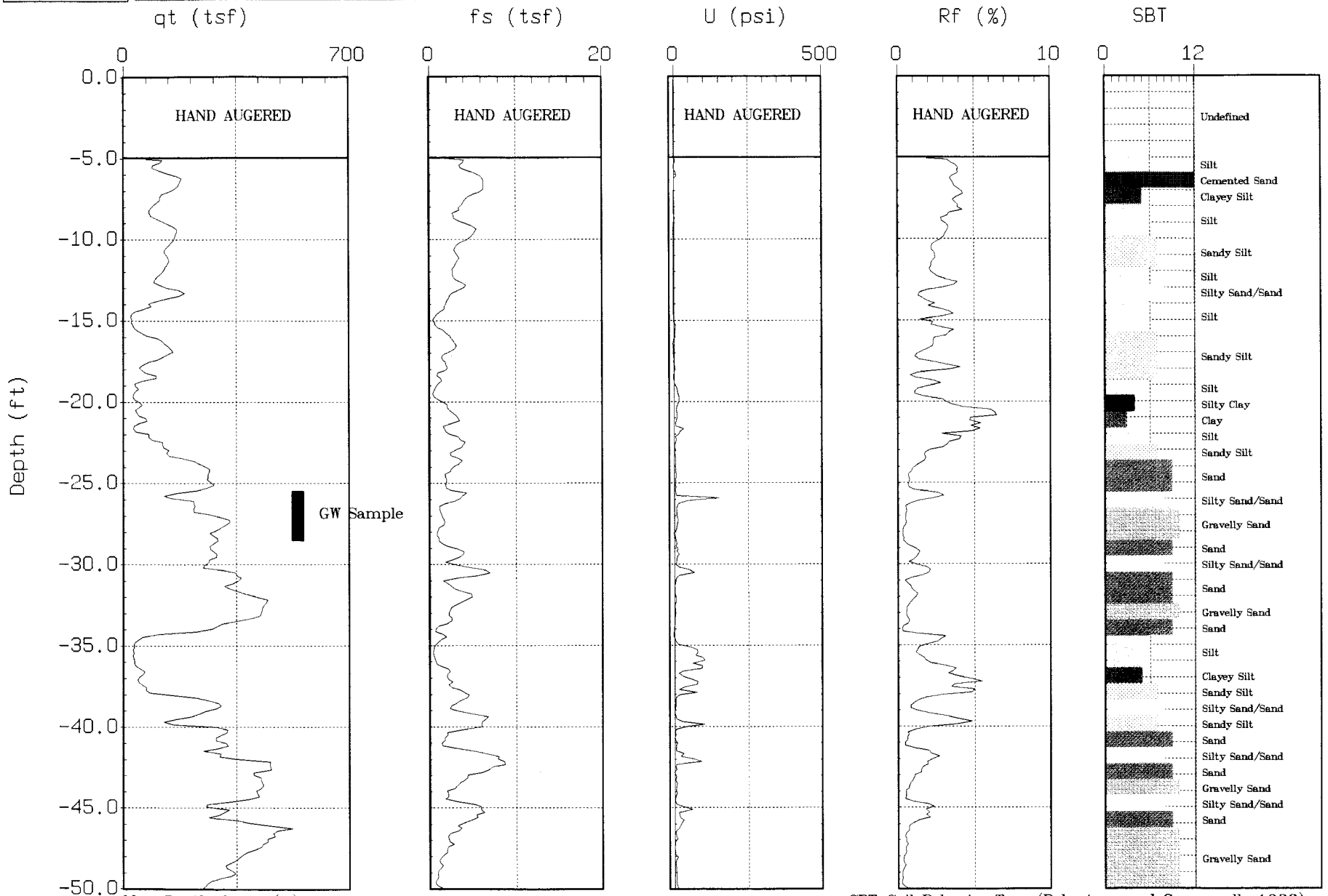
3.1 CPT PLOTS

GREGG

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-09

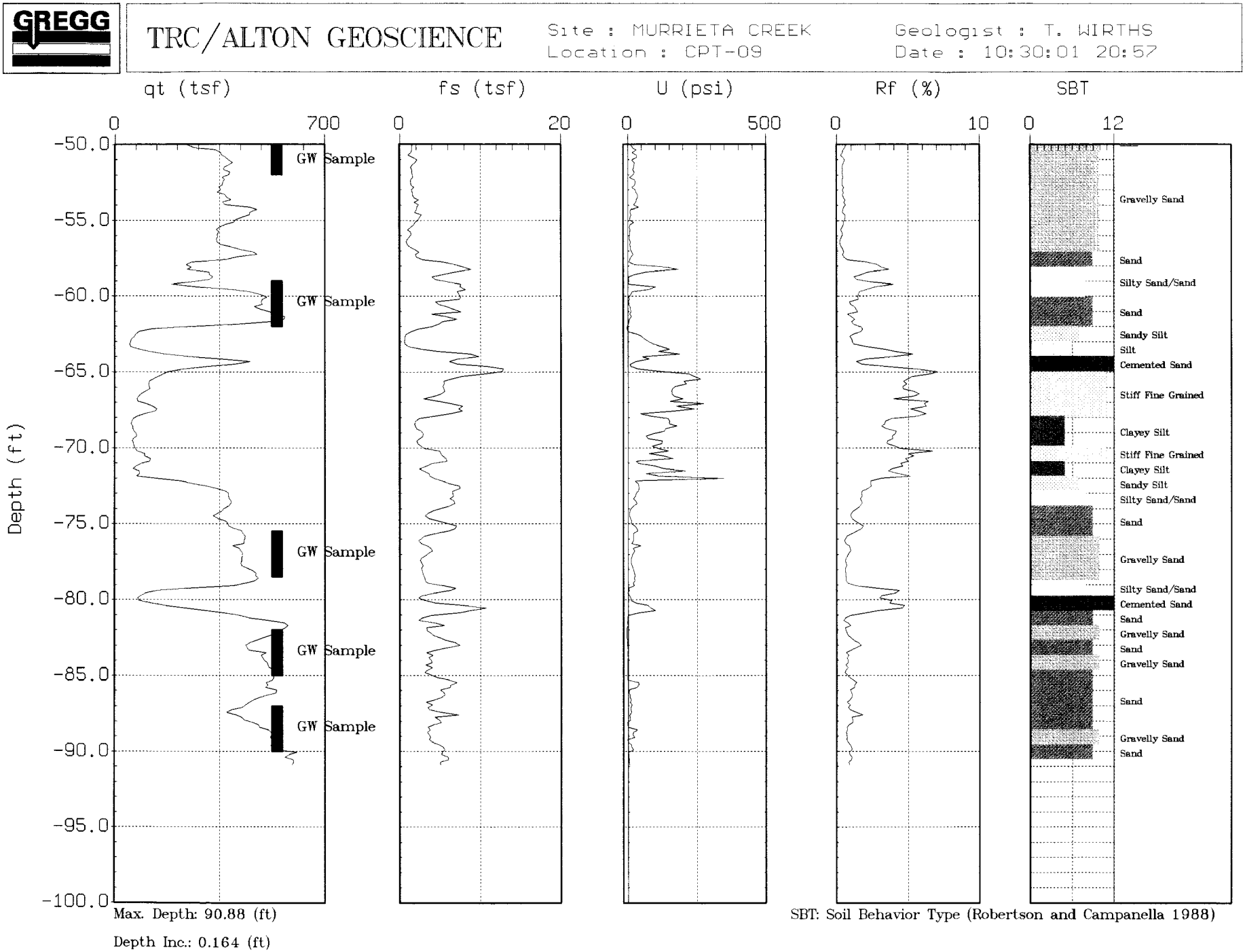
Geologist : T. WIRTHS
Date : 10:30:01 20:57



Max. Depth: 90.88 (ft)

Depth Inc.: 0.164 (ft)

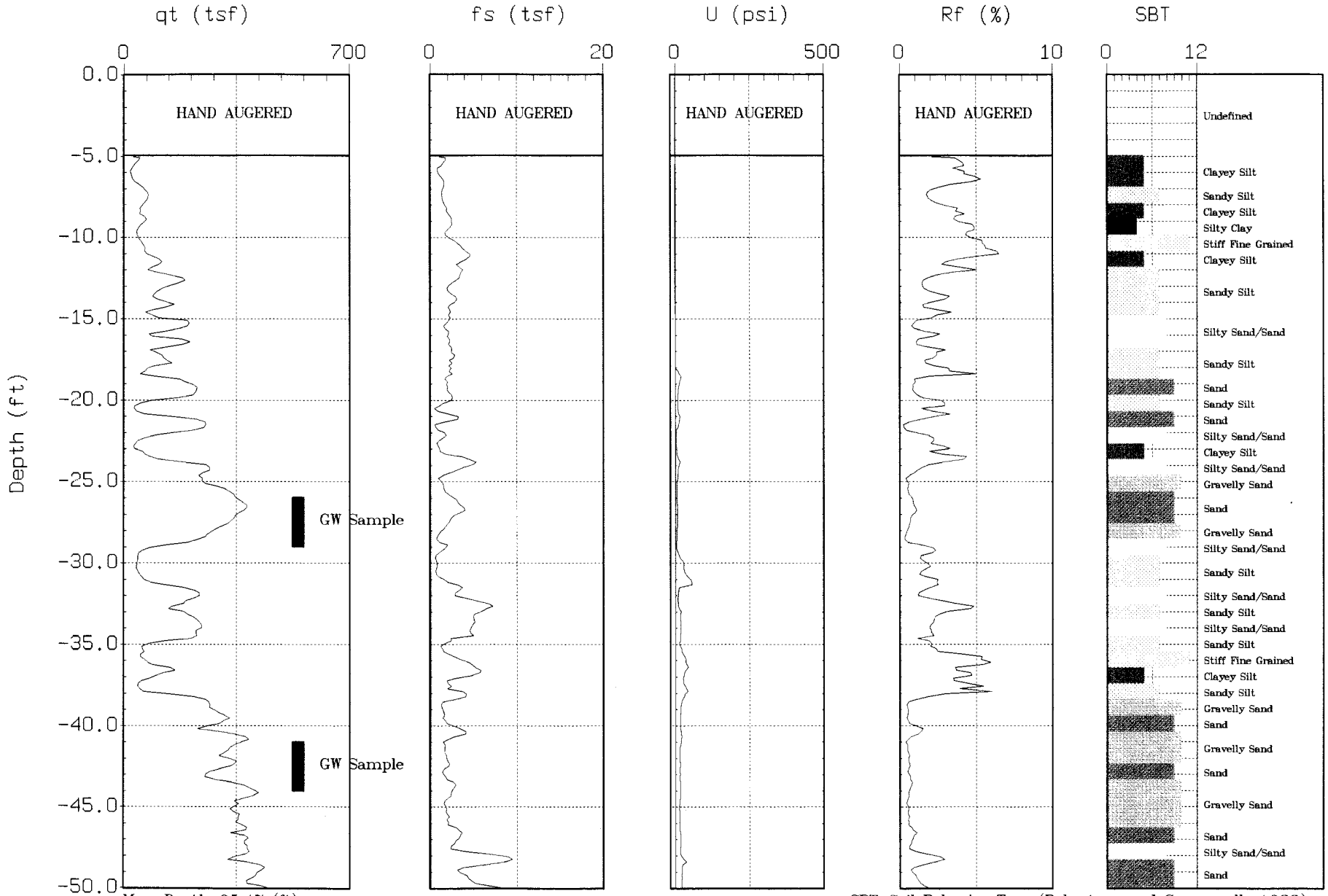
SBT: Soil Behavior Type (Robertson and Campanella 1988)


GREGG
TRC/ALTON GEOSCIENCE
Site : MURRIETA CREEK
Location : CPT-09
Geologist : T. WIRTHS
Date : 10:30:01 20:57
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
0
700
20
500
10
12
-50.0
-55.0
-60.0
-65.0
-70.0
-75.0
-80.0
-85.0
-90.0
-95.0
-100.0
Depth (ft)
GW Sample
GW Sample
GW Sample
GW Sample
GW Sample
Gravelly Sand
Sand
Silty Sand/Sand
Sand
Sandy Silt
Silt
Cemented Sand
Stiff Fine Grained
Clayey Silt
Stiff Fine Grained
Clayey Silt
Sandy Silt
Silty Sand/Sand
Sand
Gravelly Sand
Silty Sand/Sand
Cemented Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Max. Depth: 90.88 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-10

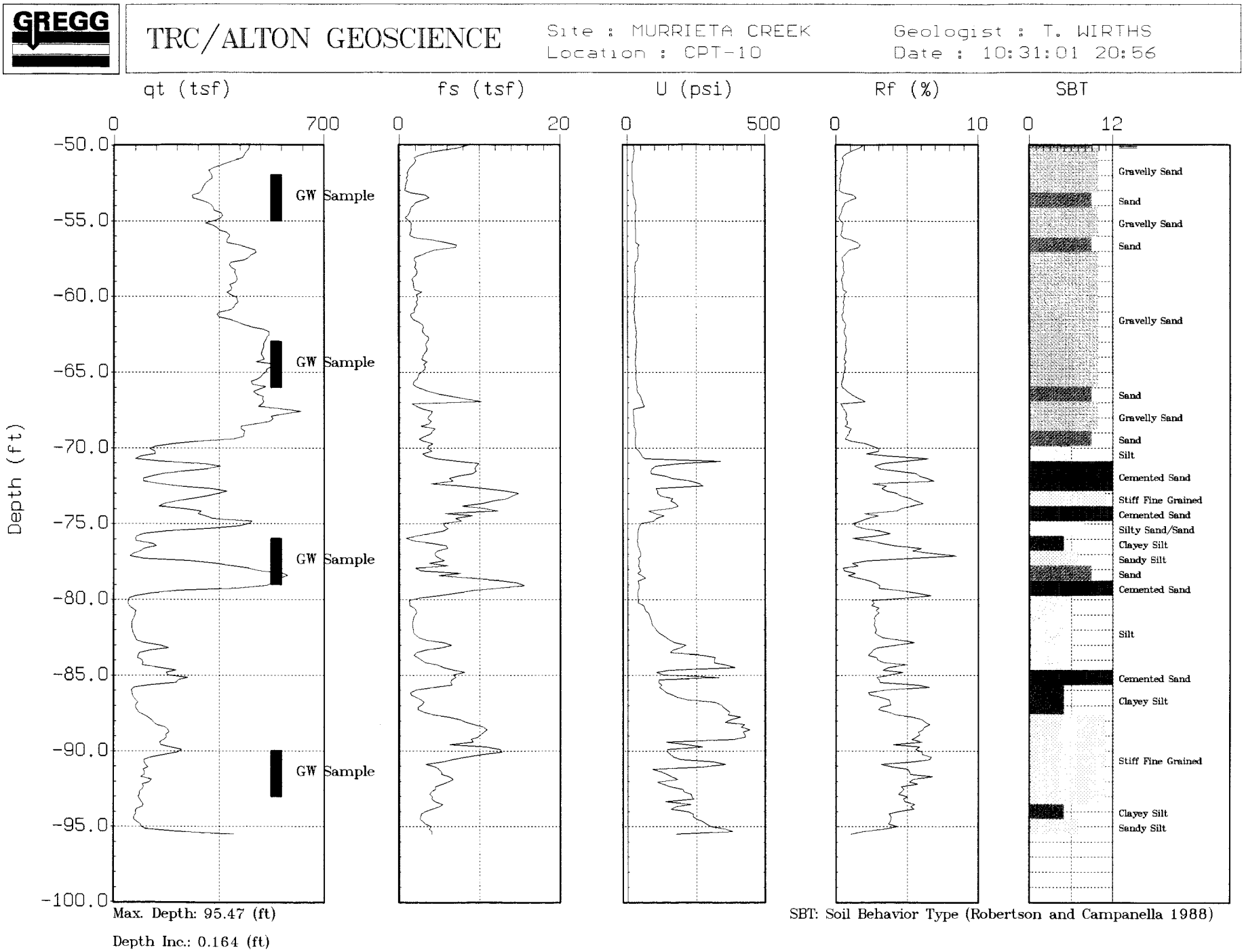
Geologist : T. WIRTHS
Date : 10:31:01 20:56



Max. Depth: 95.47 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

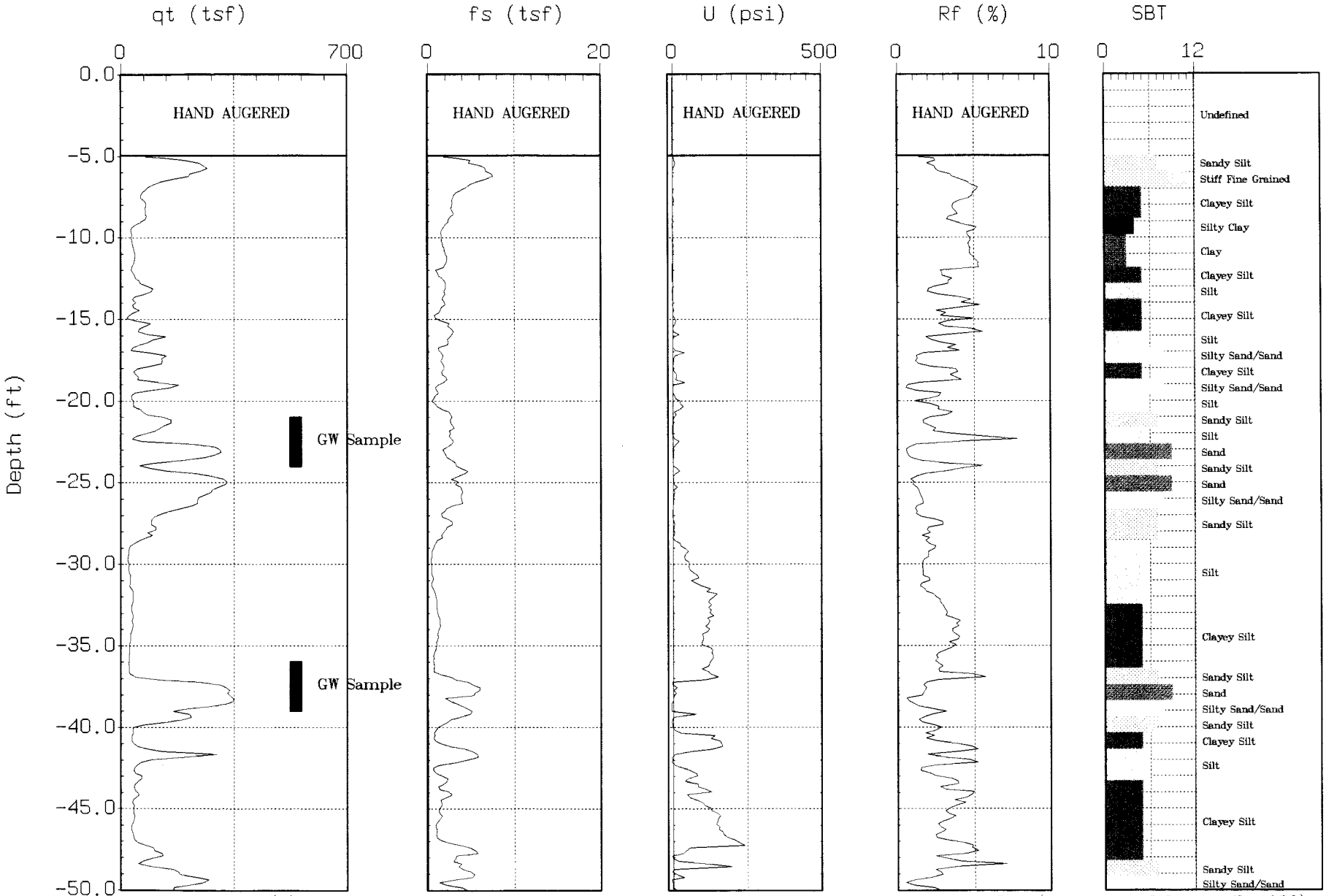

GREGG
TRC/ALTON GEOSCIENCE
Site : MURRIETA CREEK
Location : CPT-10
Geologist : T. WIRTHS
Date : 10:31:01 20:56
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
0
700
20
500
10
12
-50.0
-55.0
-60.0
-65.0
-70.0
-75.0
-80.0
-85.0
-90.0
-95.0
-100.0
Depth (ft)
GW Sample
GW Sample
GW Sample
GW Sample
Gravelly Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Silt
Cemented Sand
Stiff Fine Grained
Cemented Sand
Silty Sand/Sand
Clayey Silt
Sandy Silt
Sand
Cemented Sand
Silt
Cemented Sand
Clayey Silt
Stiff Fine Grained
Clayey Silt
Sandy Silt
Max. Depth: 95.47 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-11

Geologist : T. WIRTHS
Date : 10:30:01 23:08



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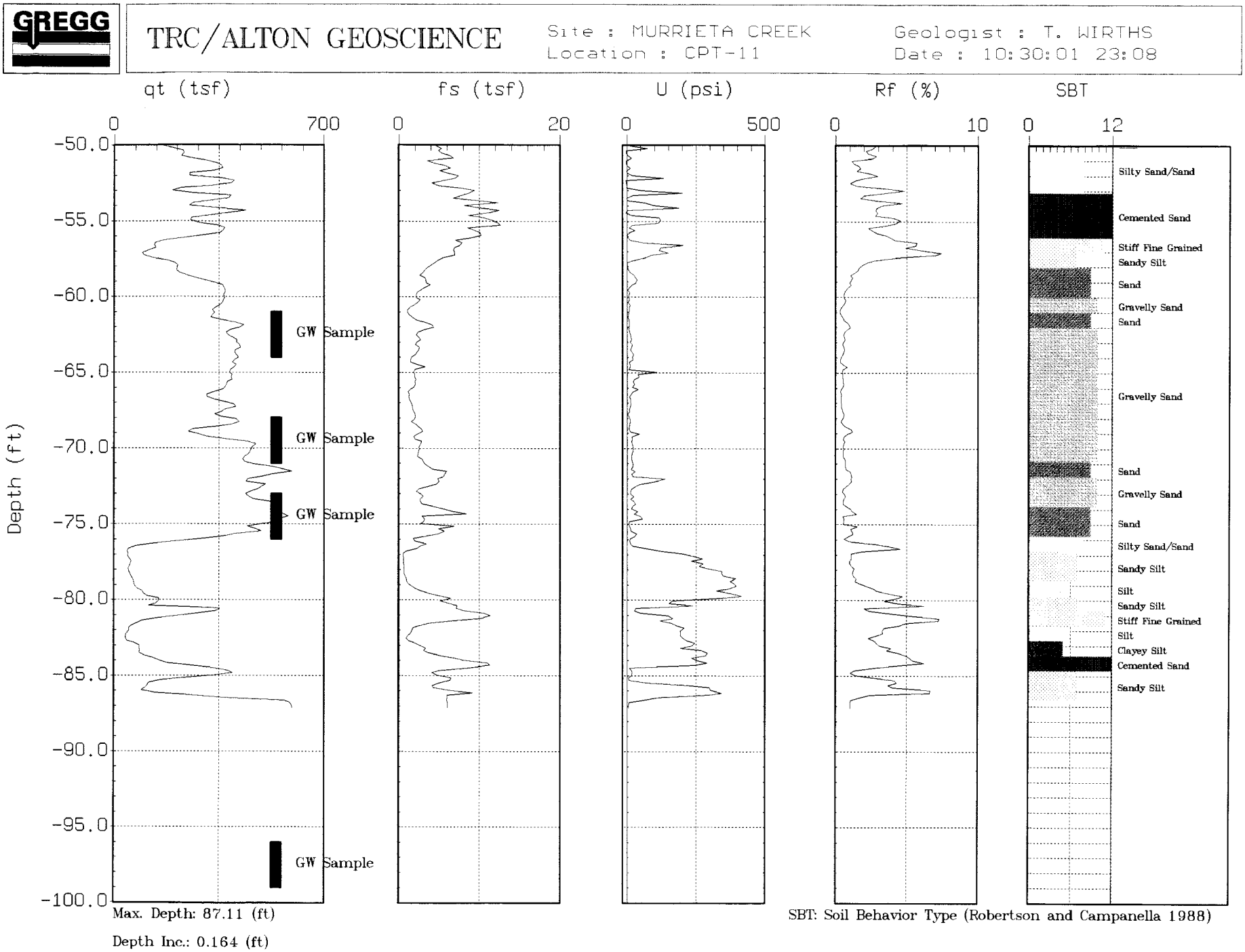
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

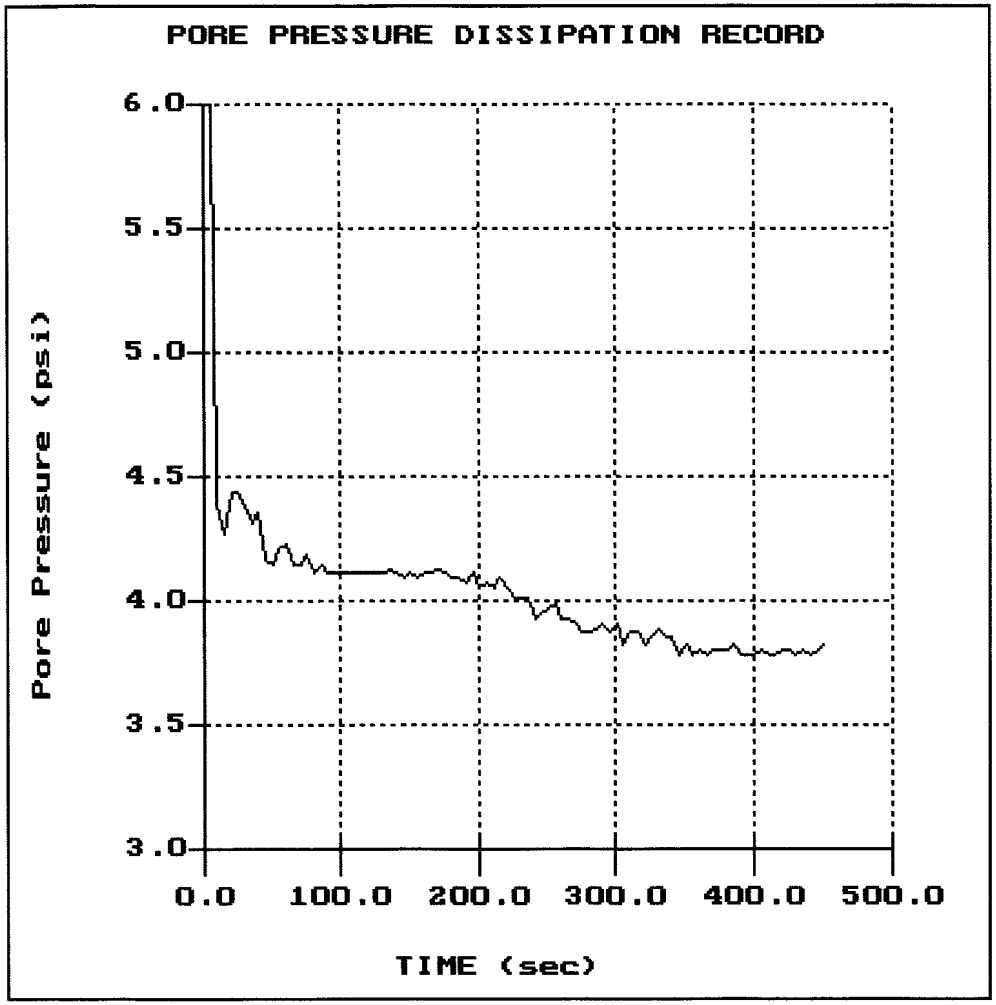

TRC/ALTON GEOSCIENCE
Site : MURRIETA CREEK
Location : CPT-11
Geologist : T. WIRTHS
Date : 10:30:01 23:08
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
0
700
20
500
10
12
-50.0
-55.0
-60.0
-65.0
-70.0
-75.0
-80.0
-85.0
-90.0
-95.0
-100.0
Depth (ft)
GW Sample
GW Sample
GW Sample
GW Sample
Silty Sand/Sand
Cemented Sand
Stiff Fine Grained
Sandy Silt
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Stiff Fine Grained
Silt
Clayey Silt
Cemented Sand
Sandy Silt
Max. Depth: 87.11 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

3.2 PORE PRESSURE DISSIPATION PLOTS

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57



File: 297C09.PPC
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(ft): 24.61
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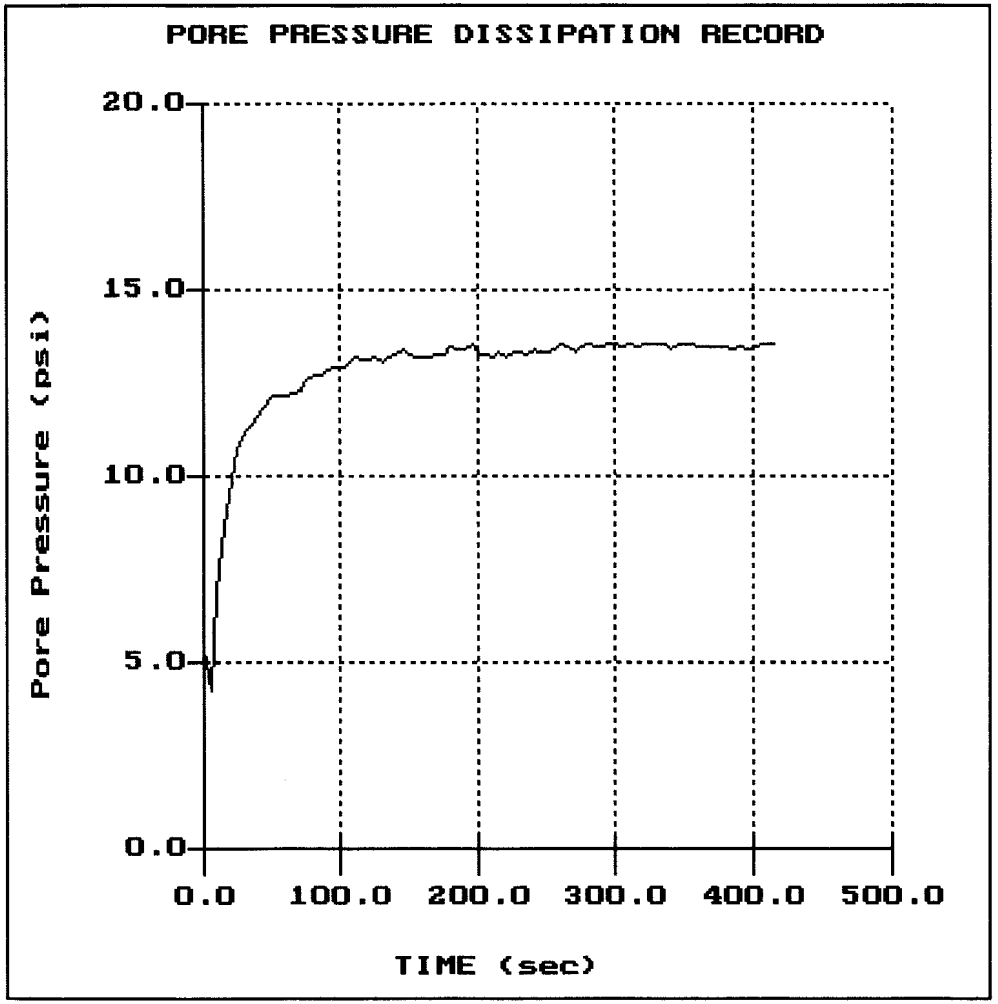
U-min: 3.78 440.0s
U-max: 6.00 5.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57



File: 297C09.PPC
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(ft): 46.75
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U-min: 4.23 5.0s
U-max: 13.55 195.0s

TRC / ALTON

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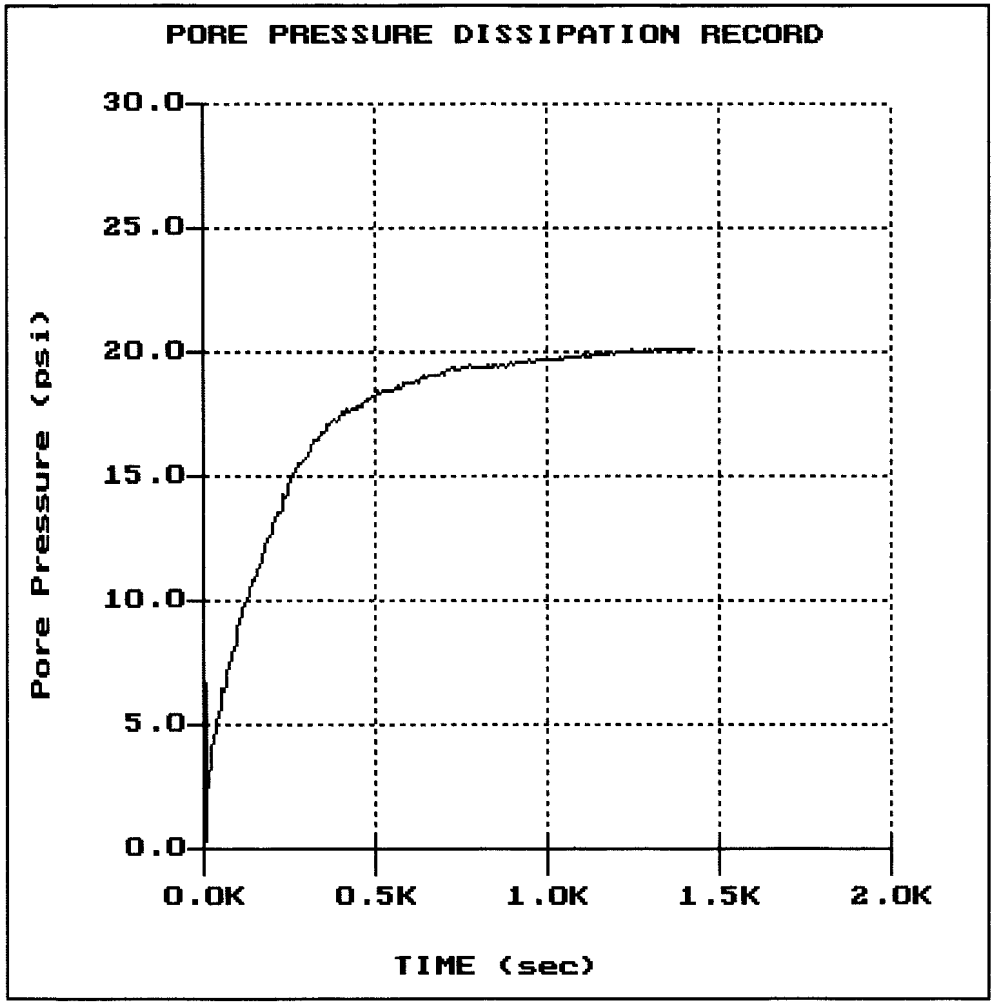
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57



File: 297C09.PPC
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(ft): 76.28
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U-min: 0.33 5.0s
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TRC / ALTON

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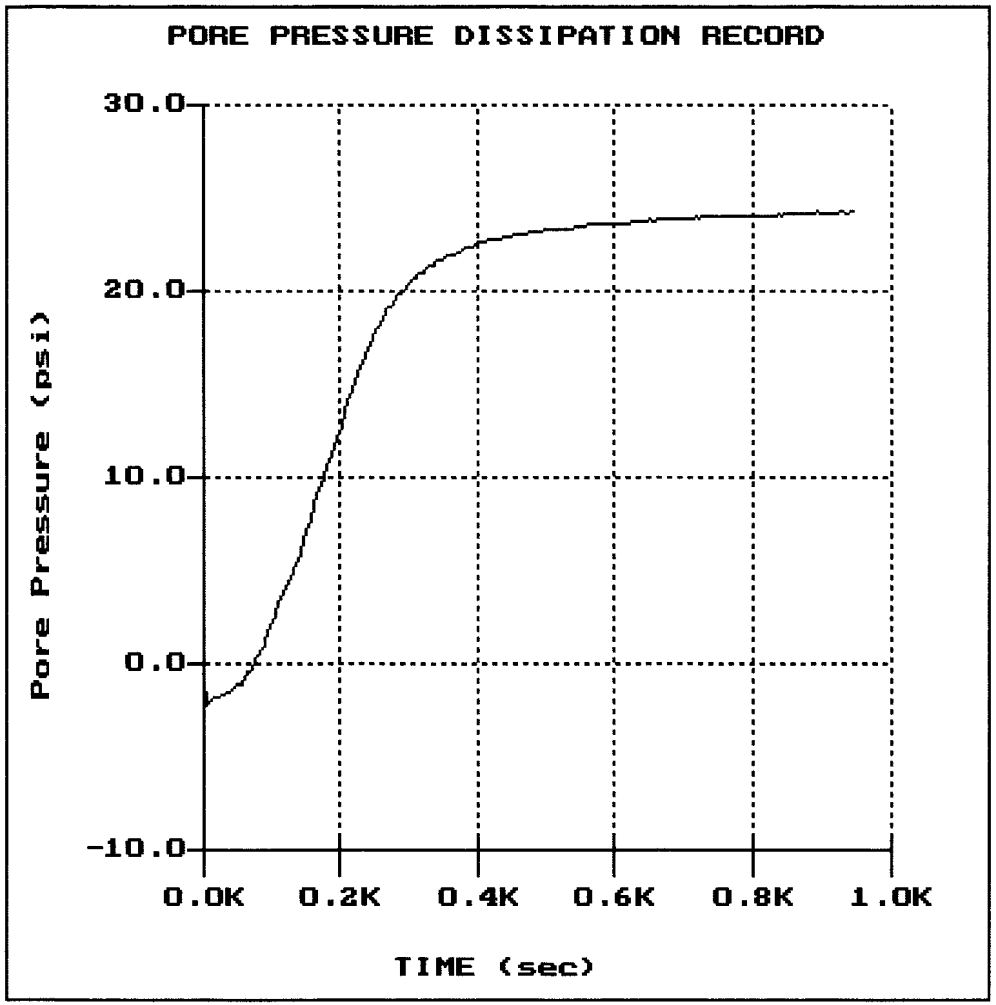
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57



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(ft): 85.30
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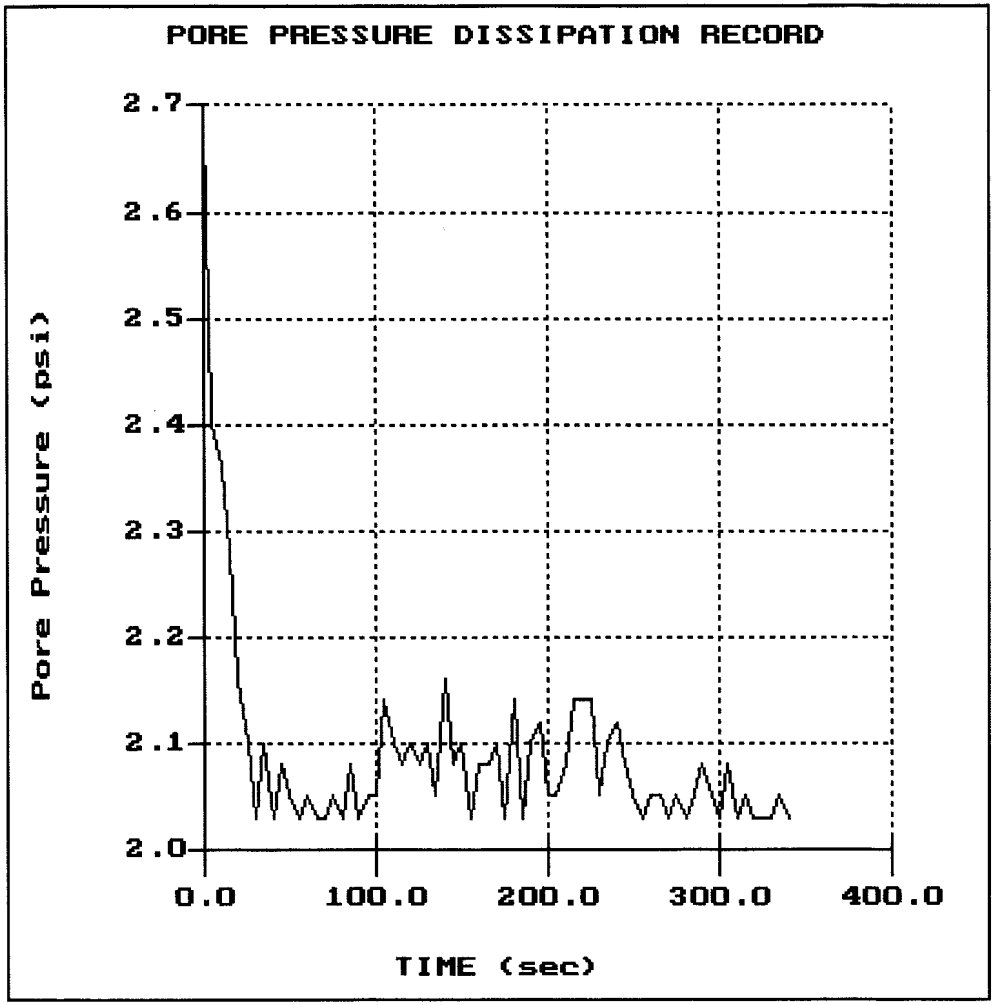
U-min: -2.16 5.0s
U-max: 24.27 945.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-10

Geologist: T. WIRTHS
Date:10:31:01 20:56



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(ft): 21.98
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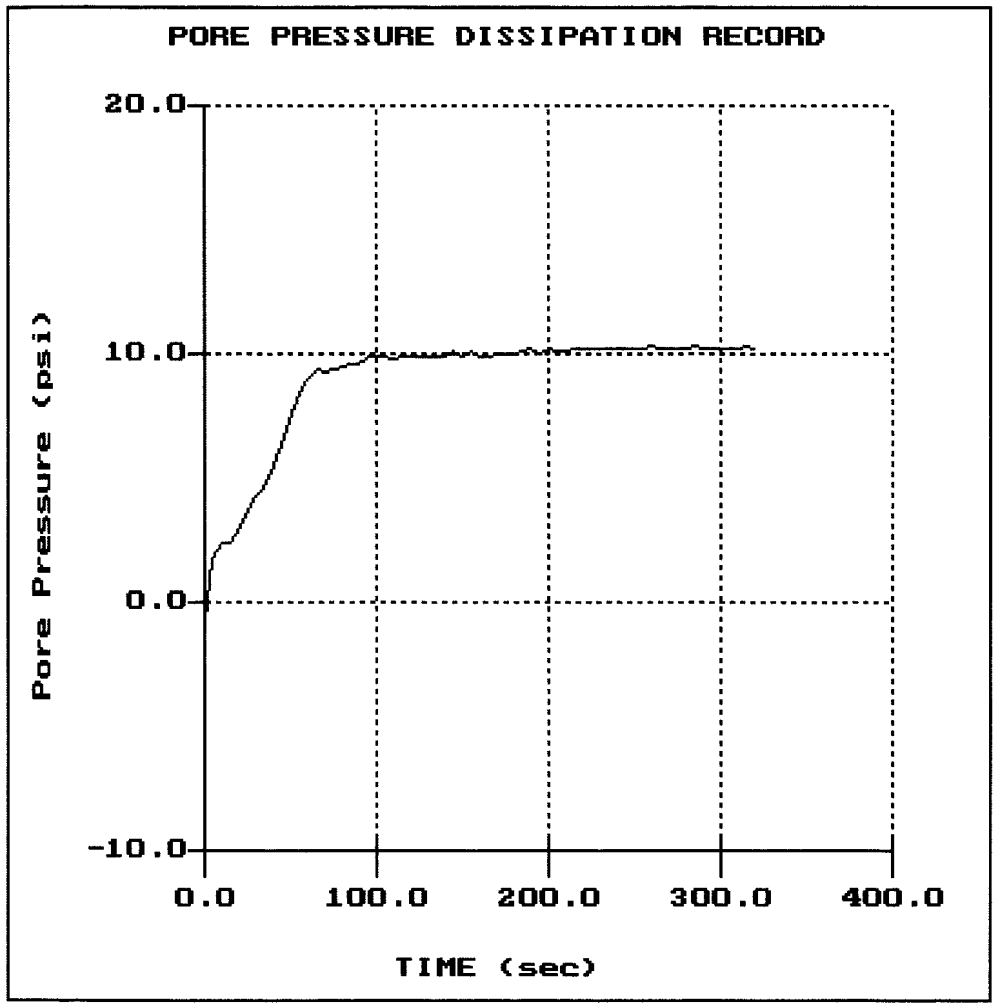
TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-11

Geologist: T. WIRTHS
Date:10:30:01 23:08



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(ft): 38.39
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APPENDIX

ELECTRICAL PIEZOCONE

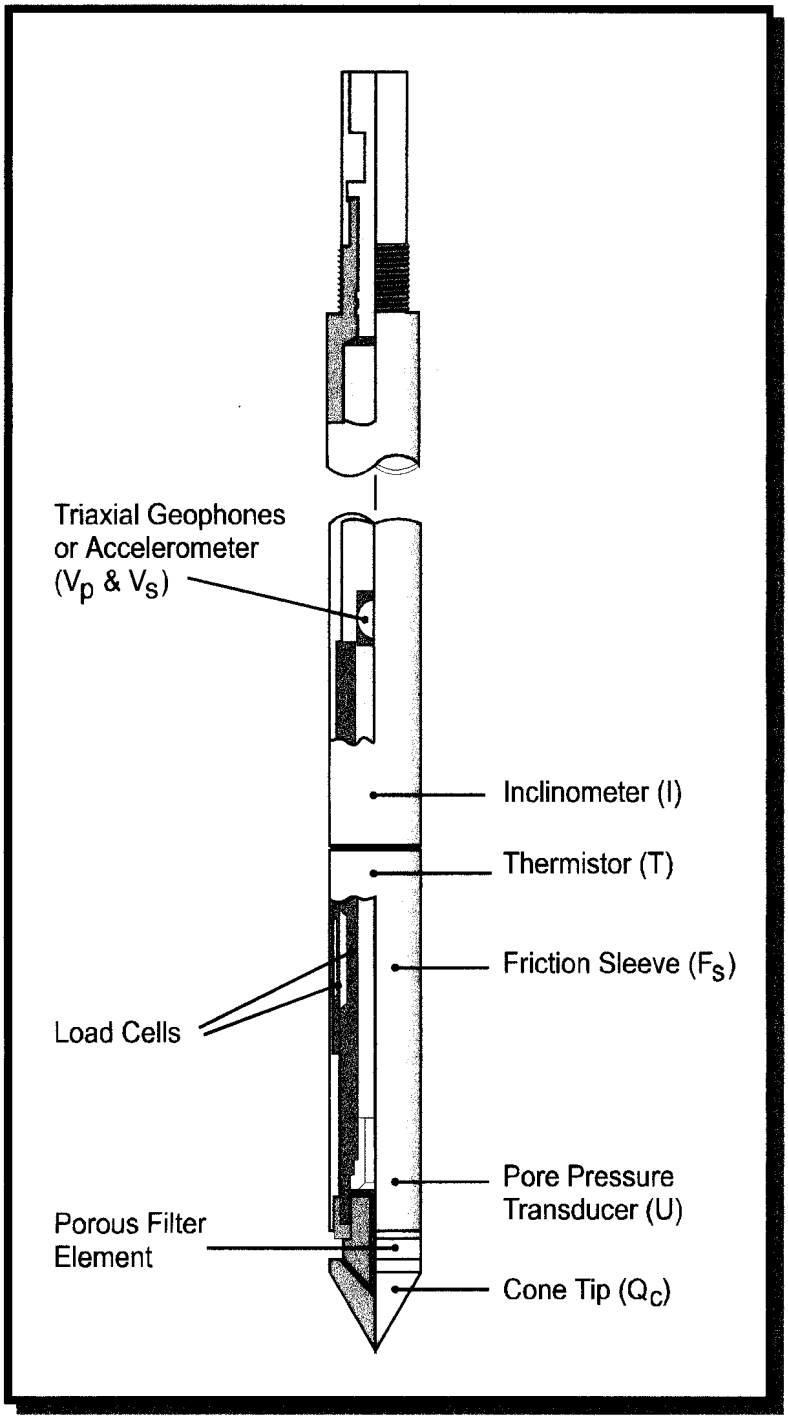


Figure 1

GROUNDWATER SAMPLER (HYDROPUNCH)

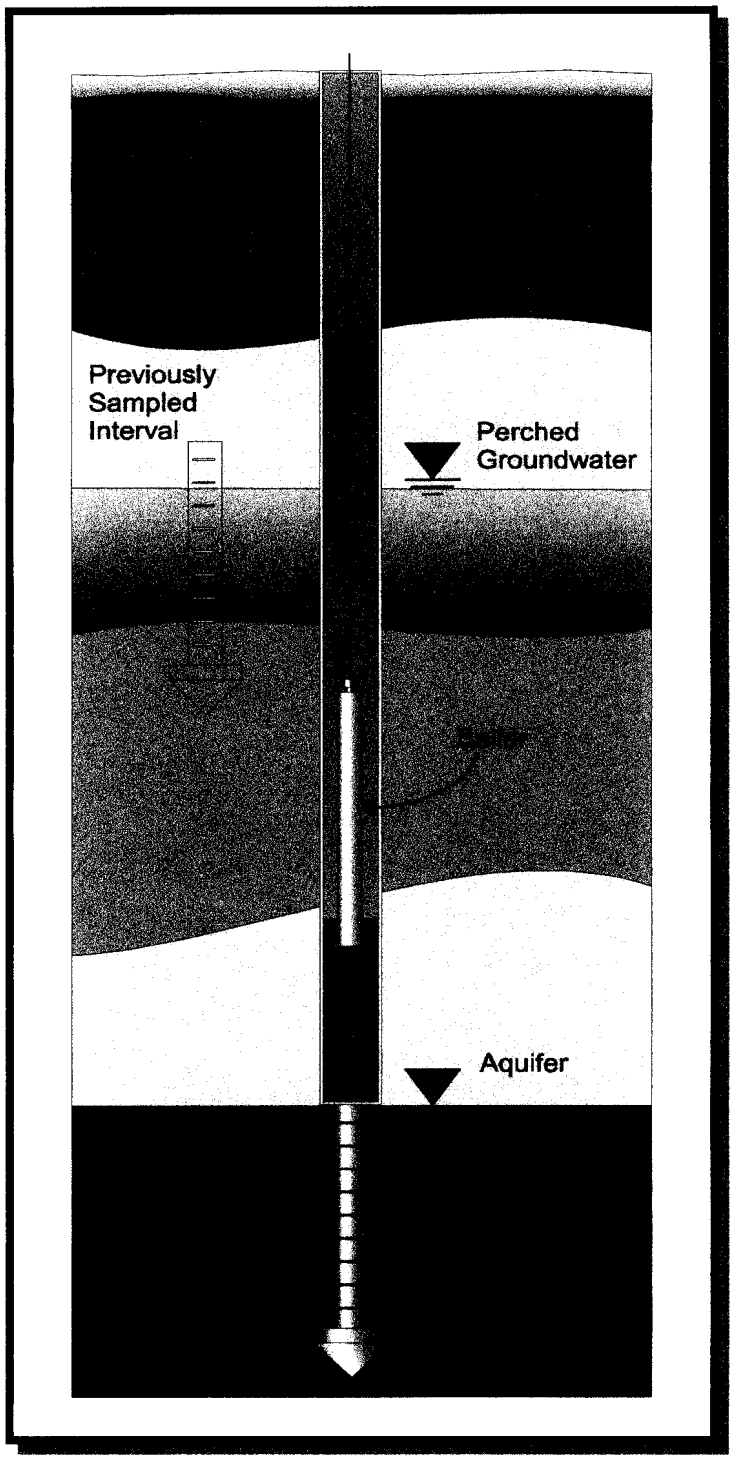
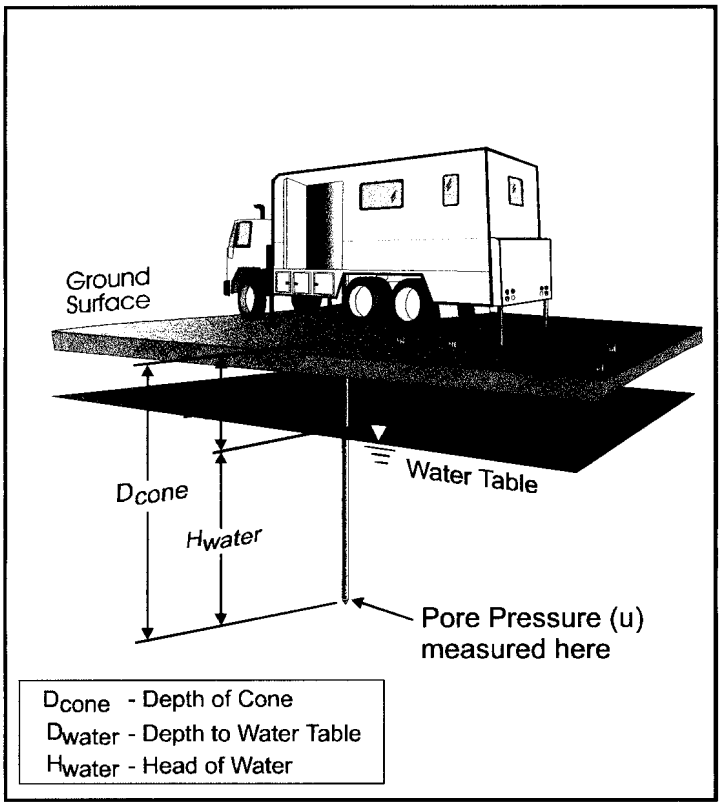
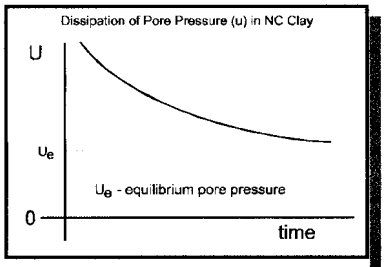
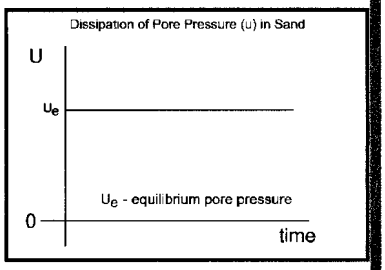


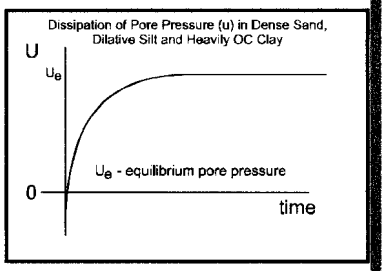
Figure 2

PPDT CORRELATION









Water Table Calculation

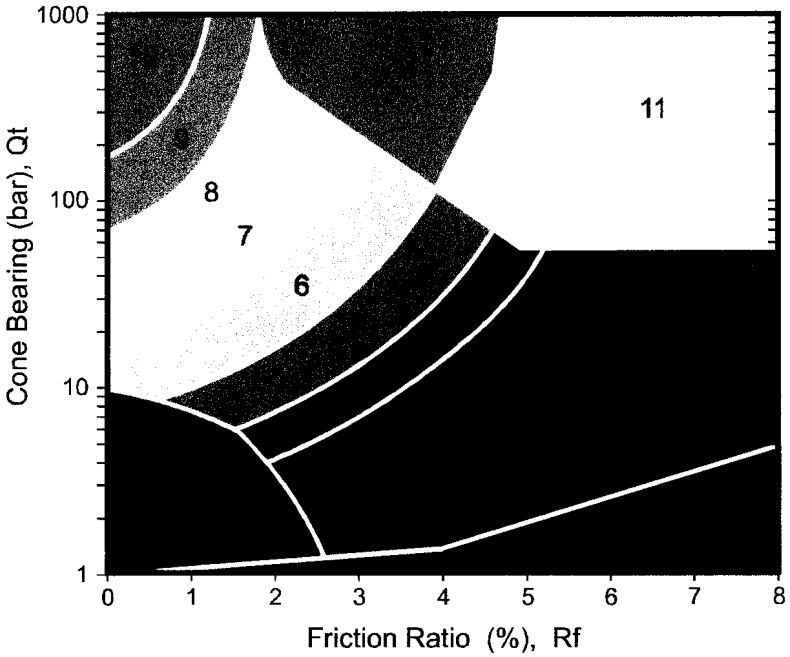
$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

Useful Conversion Factors: 1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

Figure 3

SOIL CLASSIFICATION CHART



Zone	Q_t / N	Soil Behaviour Type
1	2	sensitive fine grained
2	1	organic material
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 *

* overconsolidated or cemented

After Robertson and Campenella

Figure 4

REFERENCES

Robertson, P.K. and Campanella, R.G. and Wightman, A., 1983 "SPT-CPT Correlations", Journal of the Geotechnical Division, ASCE, Vol. 109, No. GT11, Nov., pp. 1449-1460.

Robertson, P.K. and Wride C.E., 1998 "Evaluating Cyclic Liquefaction Potential Using The Cone Penetration Test", Journal of Geotechnical Division, Mar. 1998, pp. 442-459.

Robertson, P.K. and Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.

Robertson, P.K. and Campanella, R.G., 1988, "Guidelines for Use, Interpretation and Application of the CPT and CPTU", UBC, Soil Mechanics Series No. 105, Civil Eng. Dept., Vancouver, B.C., V6T 1W5, Canada.

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

PRESENTATION OF CONE PENETRATION TEST DATA

MURRIETA CREEK

TEMECULA, CALIFORNIA

Prepared for:

TRC/ALTON GEOSCIENCE
San Diego, California

Prepared by:

GREGG IN SITU, INC.
Signal Hill, California
01-297sh

Prepared on:

January 14, 2002

TABLE OF CONTENTS

PRESENTATION OF CONE PENETRATION TEST DATA

1.0 INTRODUCTION

This report presents the results of a Cone Penetration Testing (CPT) and in situ groundwater sampling program carried out at the Murrieta Creek site located in Temecula, CA. The work was performed on October 30 and 31, 2001. The scope of work was performed as directed by TRC/Alton Geoscience personnel.

2.0 FIELD EQUIPMENT & PROCEDURES

The Cone Penetration Tests (CPT) were carried out by GREGG IN SITU, INC. of Signal Hill, CA using an integrated electronic cone system. The CPT soundings were performed in accordance with ASTM standards (D 5778-95). A 20 ton capacity cone was used for all of the soundings (figure 1). This cone has a tip area of 15 cm^2 and friction sleeve area of 225 cm^2. The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85.

The cones used during the program recorded the following parameters at 5 cm depth intervals:

- Tip Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (U)

The above parameters were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference.

The pore water pressure element was located directly behind the cone tip. The pore water pressure element was 5.0 mm thick and consisted of porous plastic. Each of the elements were saturated in silicon oil under vacuum pressure prior to penetration. Pore pressure dissipations were recorded at 5 second intervals when appropriate during pauses in the penetration.

A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

The cones were pushed using GREGG IN SITU's CPT rig, having a down pressure capacity of approximately 25 tons. Three CPT soundings were performed. The penetration tests were carried to depths of approximately 88 to 100 feet below ground surface. Test locations and depths were determined in the field by TRC/Alton personnel.

In situ groundwater samples were taken at three locations. Groundwater samples were collected using a Hydropunch® type groundwater sampling system (figure 2). The groundwater sampler operates by pushing 1.75 diameter hollow rods with a retrievable tip. A stainless steel filter screen is attached to the tip. At the desired sampling depth, the rods are retracted exposing the filter screen and allowing for groundwater infiltration. A small diameter bailer is then used to collect groundwater samples through the hollow rod.

The CPT/groundwater sample holes were grouted using our support rig. The grouting procedure consists of pushing a hollow CPT rod with a "knock out" plug back down the hole to the test hole termination depth. Grout is then pumped under pressure as the tremie pipe is pulled from the hole.

3.0 CONE PENETRATION TEST DATA & INTERPRETATION

The cone penetration test data is presented in graphical form. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

The stratigraphic interpretation is based on relationships between cone bearing (qc), sleeve friction (fs), and penetration pore pressure (U). The friction ratio (Rf), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

Pore Pressure Dissipation Tests (PPDT's) were taken at various intervals in order to measure hydrostatic water pressures and approximate depth to groundwater table. In addition, the PPDT data can be used to estimate the horizontal permeability (k_h) of the soil. The correlation to permeability is based on the time required for 50 percent of the measured dynamic pore pressure to dissipate (t_{50}). The PPDT correlation figure (figure 3) is provided in the Appendix.

The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1988. It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and U. In these situations, experience and judgement and an assessment of the pore pressure dissipation data

should be used to infer the soil behavior type. The soil classification chart (figure 4) used to interpret soil types based on qc and Rf is provided in the Appendix.

We hope the information presented is sufficient for your purposes. We recommend that all data be carefully reviewed by qualified personnel to verify the data and make appropriate recommendations. If you have any questions, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,
GREGG IN SITU, INC.

Brian Savela
Operations Manager

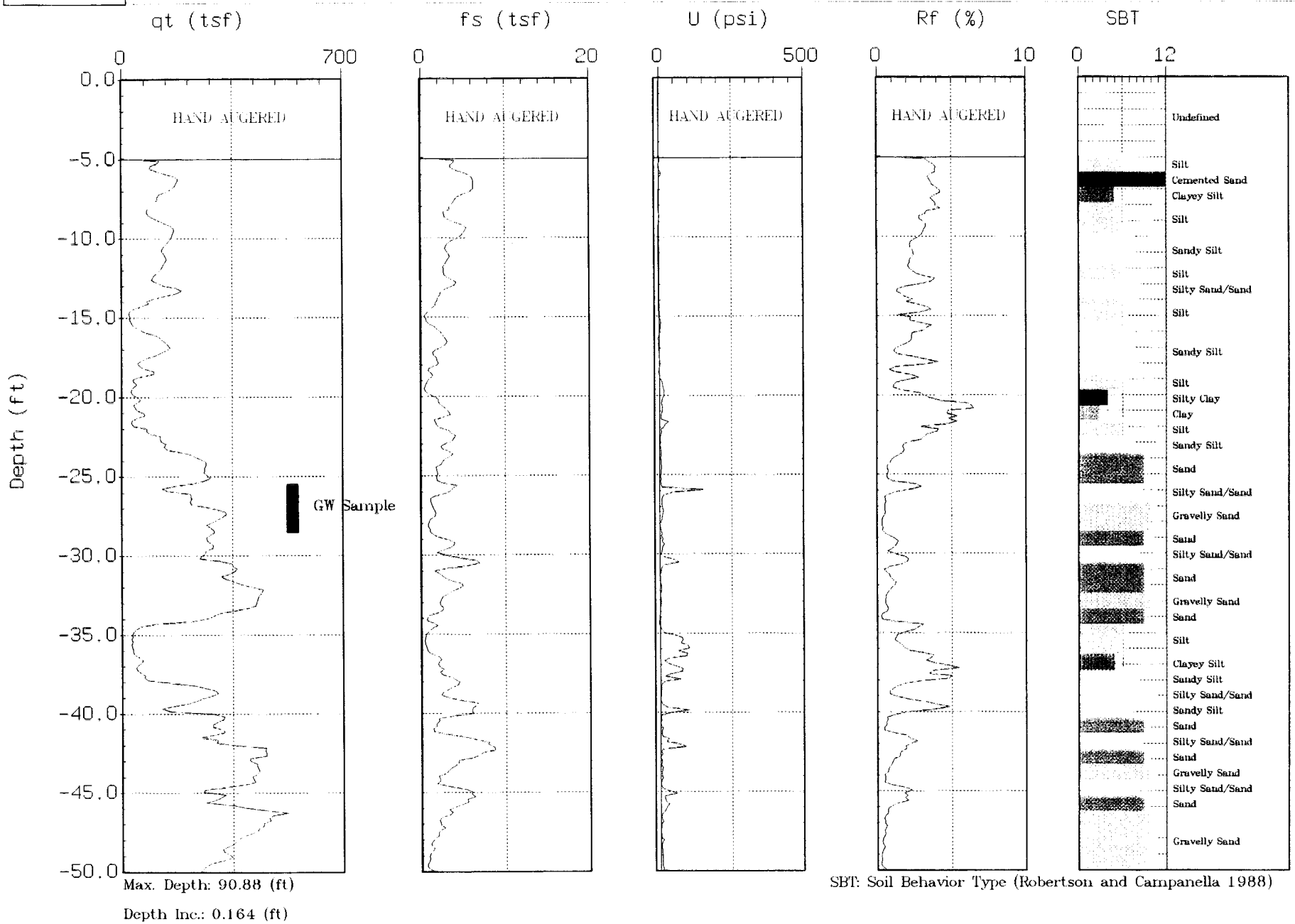
3.1 CPT PLOTS

GREGG

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-09

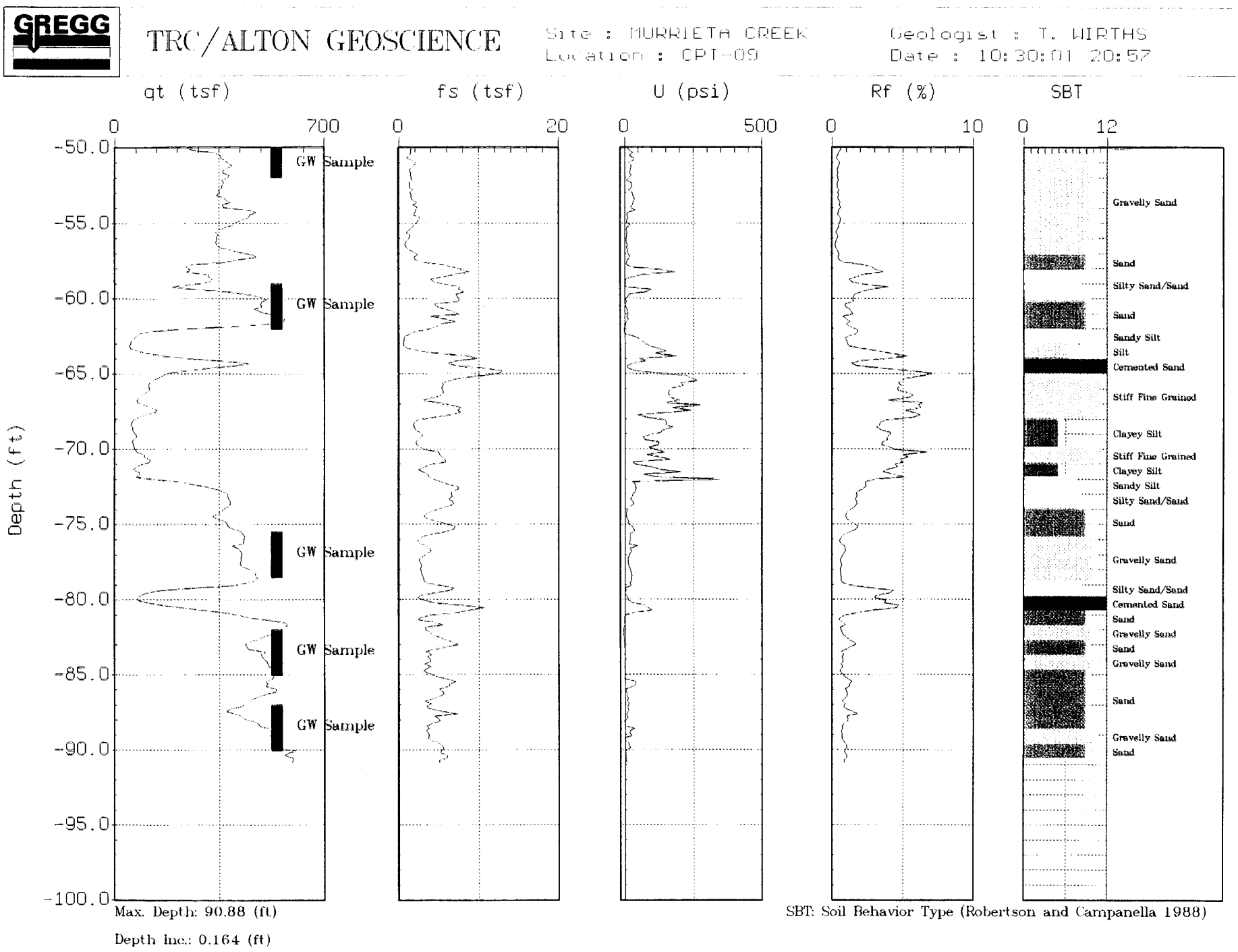
Geologist : T. WIRTHS
Date : 10:30:01 20:57

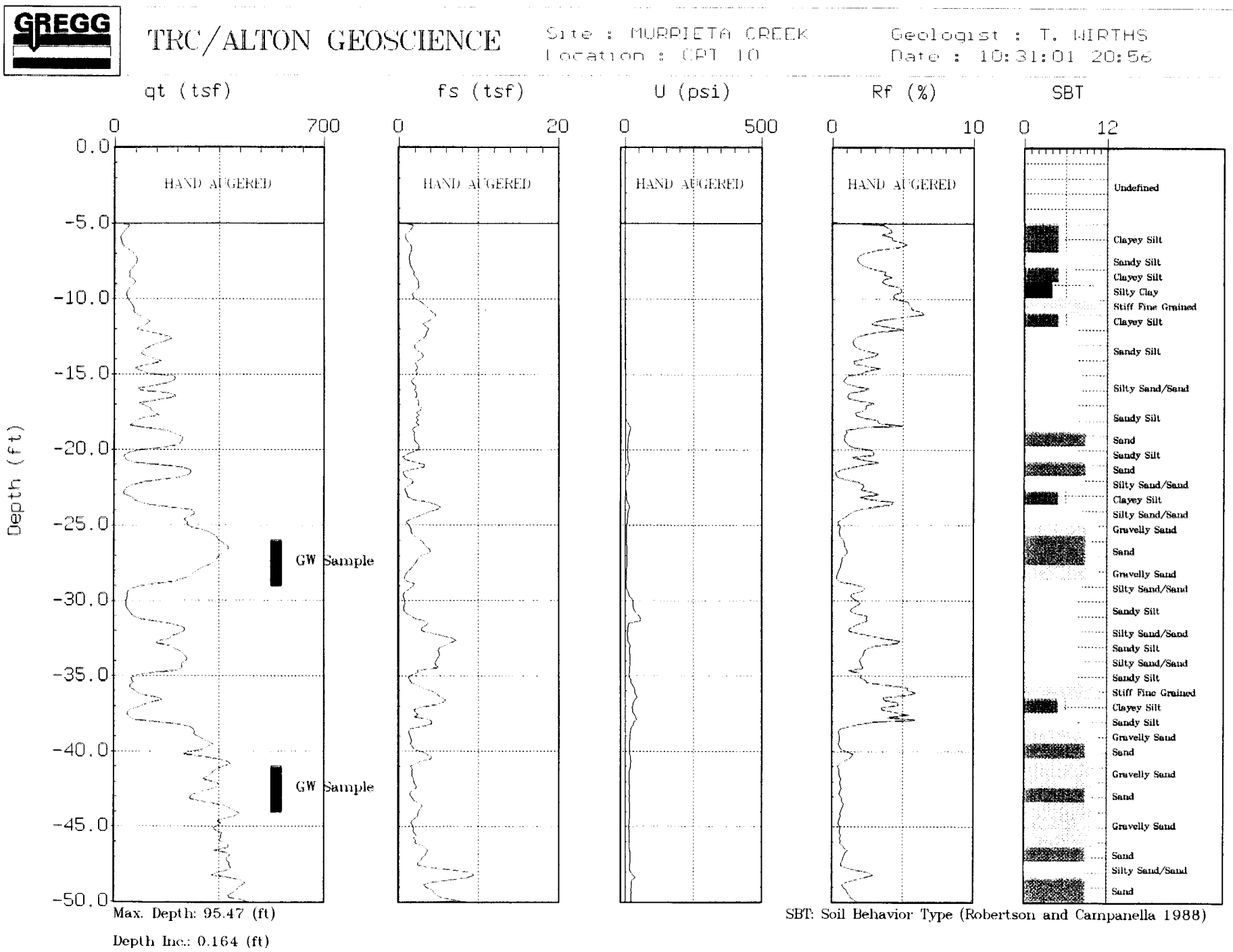


Max. Depth: 90.88 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)


GREGG
TRC/ALTON GEOSCIENCE
Site : MURRIETA CREEK
Location : CPT-09
Geologist : T. WIRTHS
Date : 10:30:01 20:57
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
0
700
20
500
10
12
-50.0
-55.0
-60.0
-65.0
-70.0
-75.0
-80.0
-85.0
-90.0
-95.0
-100.0
Depth (ft)
GW Sample
GW Sample
GW Sample
GW Sample
GW Sample
Gravelly Sand
Sand
Silty Sand/Sand
Sand
Sandy Silt
Silt
Cemented Sand
Stiff Fine Grained
Clayey Silt
Stiff Fine Grained
Clayey Silt
Sandy Silt
Silty Sand/Sand
Sand
Gravelly Sand
Silty Sand/Sand
Cemented Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Max. Depth: 90.88 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

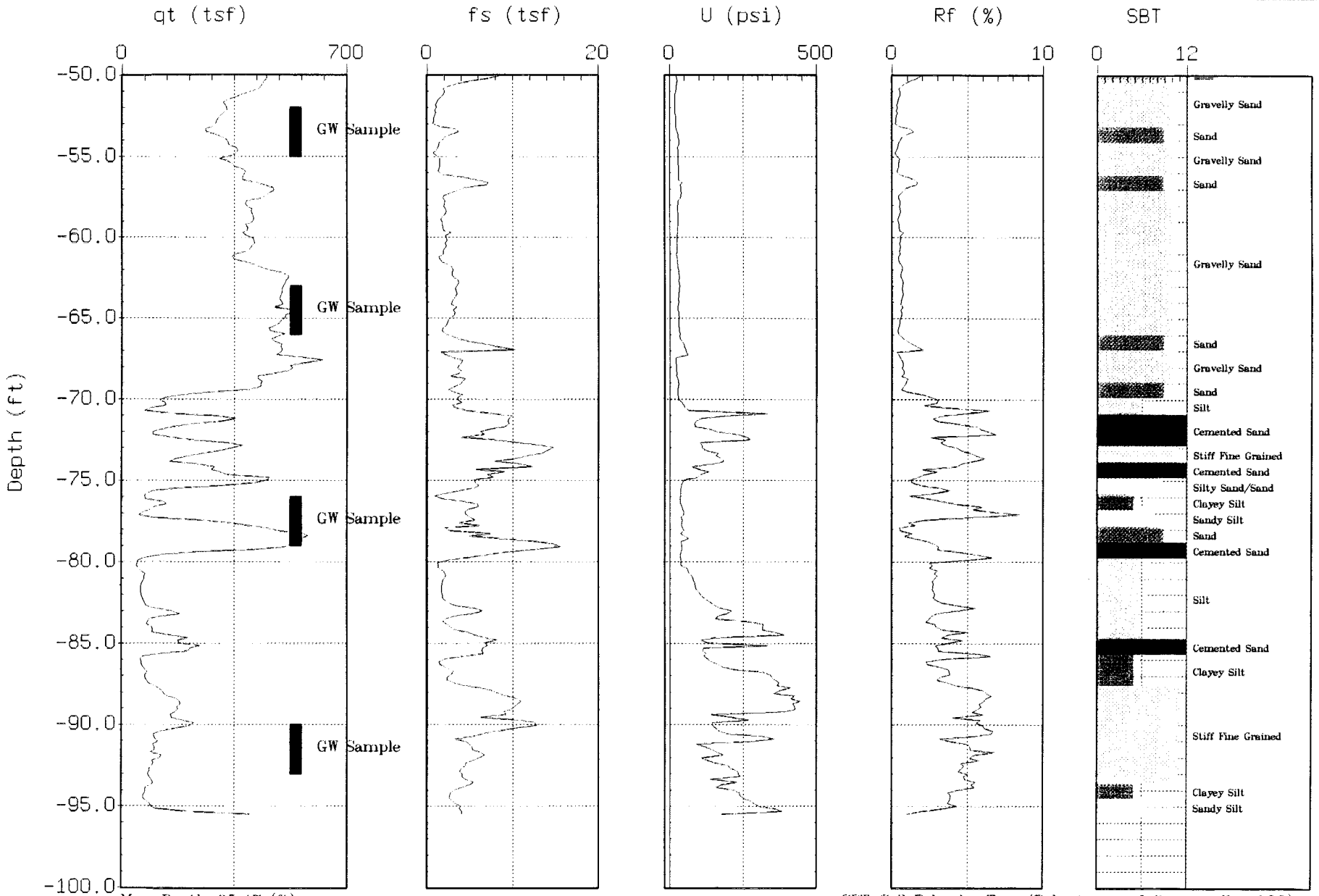

GREGG
TRC/ALTON GEOSCIENCE
Site : MURRIETA CREEK
Location : CPT 10
Geologist : T. WIRTHS
Date : 10:31:01 20:56
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
0
700
20
500
10
12
HAND AUGERED
Depth (ft)
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
GW Sample
GW Sample
Undefined
Clayey Silt
Sandy Silt
Clayey Silt
Silty Clay
Stiff Fine Grained
Clayey Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Sand
Sandy Silt
Sand
Silty Sand/Sand
Clayey Silt
Silty Sand/Sand
Gravelly Sand
Sand
Gravelly Sand
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Sandy Silt
Stiff Fine Grained
Clayey Silt
Sandy Silt
Gravelly Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Silty Sand/Sand
Sand
Max. Depth: 95.47 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-10

Geologist : T. WIRTHS
Date : 10:31:01 20:56



Max. Depth: 95.47 (ft)

Depth Inc.: 0.164 (ft)

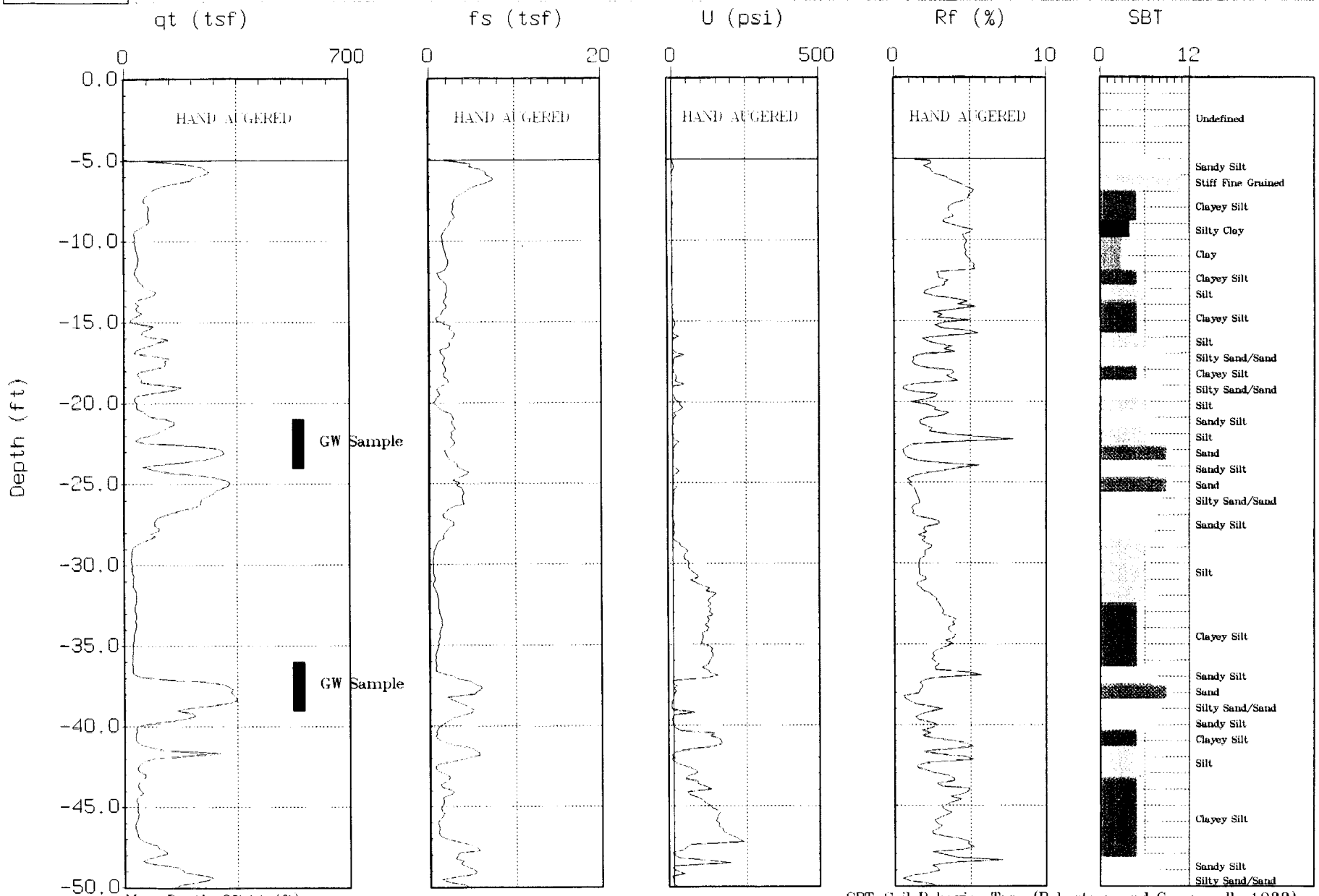
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-11

Geologist : T. WIRTHS
Date : 10:30:01 23:08



Max. Depth: 87.11 (ft)

Depth Inc.: 0.164 (ft)

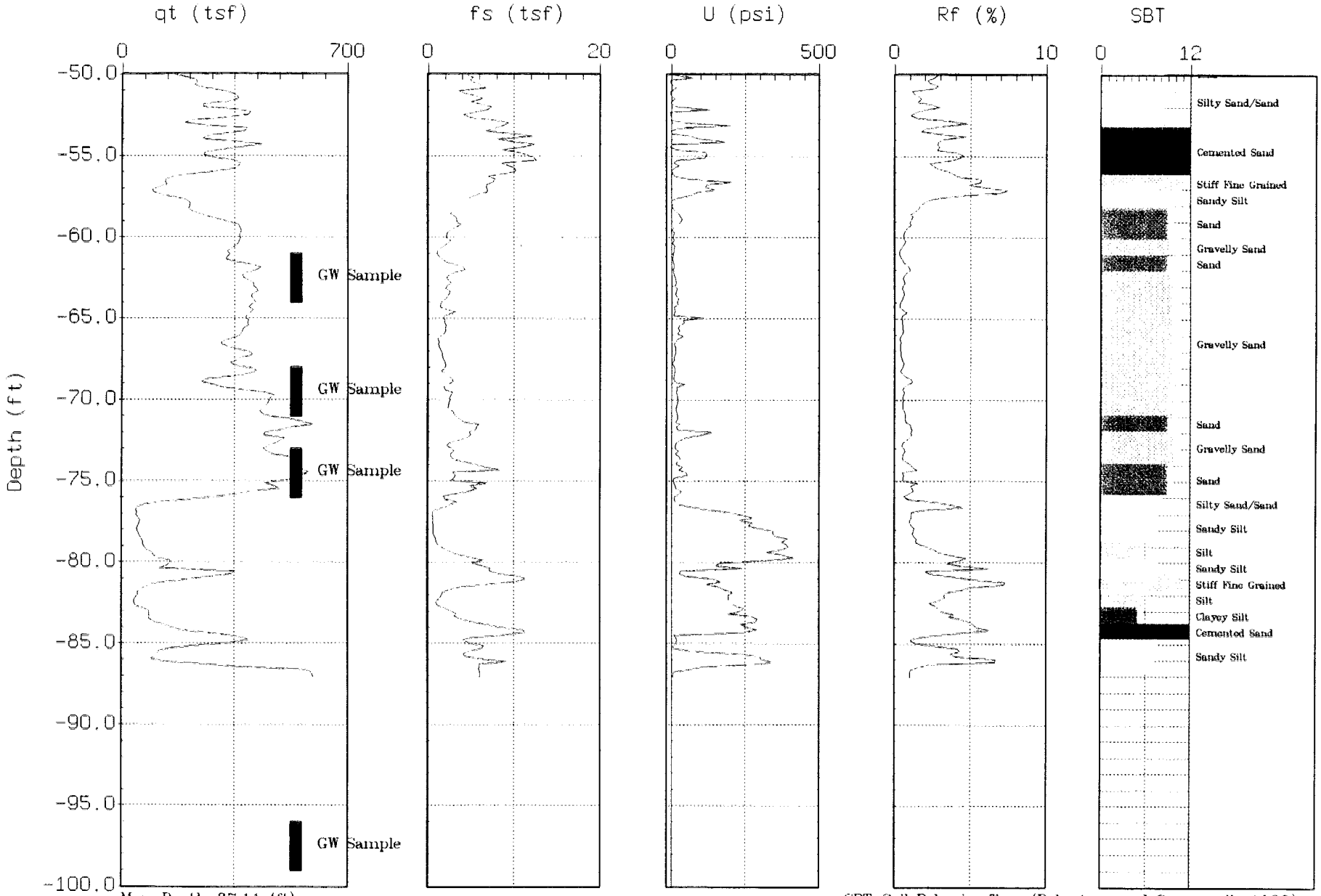
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

TRC/ALTON GEOSCIENCE

Site : MURRIETA CREEK
Location : CPT-11

Geologist : T. WIRTHS
Date : 10:30:01 23:08



Max. Depth: 87.11 (ft)

Depth Inc.: 0.164 (ft)

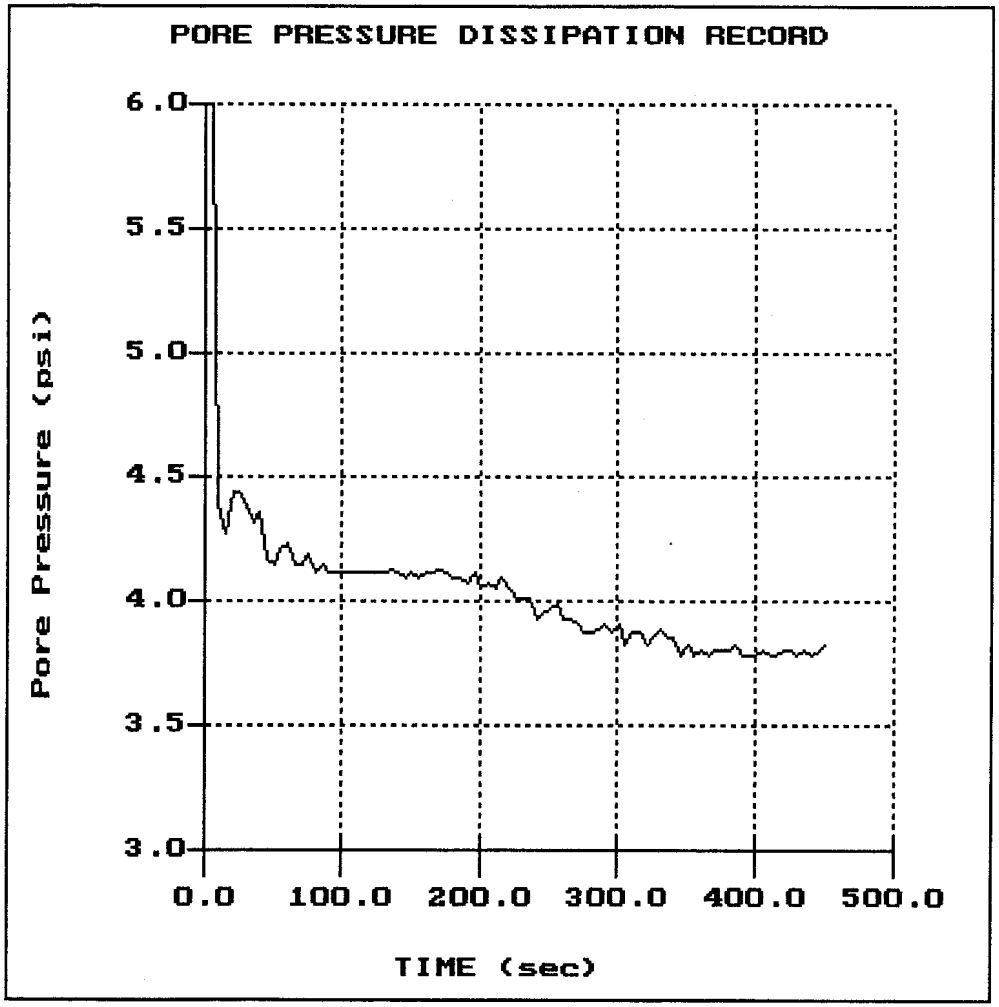
SBT: Soil Behavior Type (Robertson and Campanella 1988)

3.2 PORE PRESSURE DISSIPATION PLOTS

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57

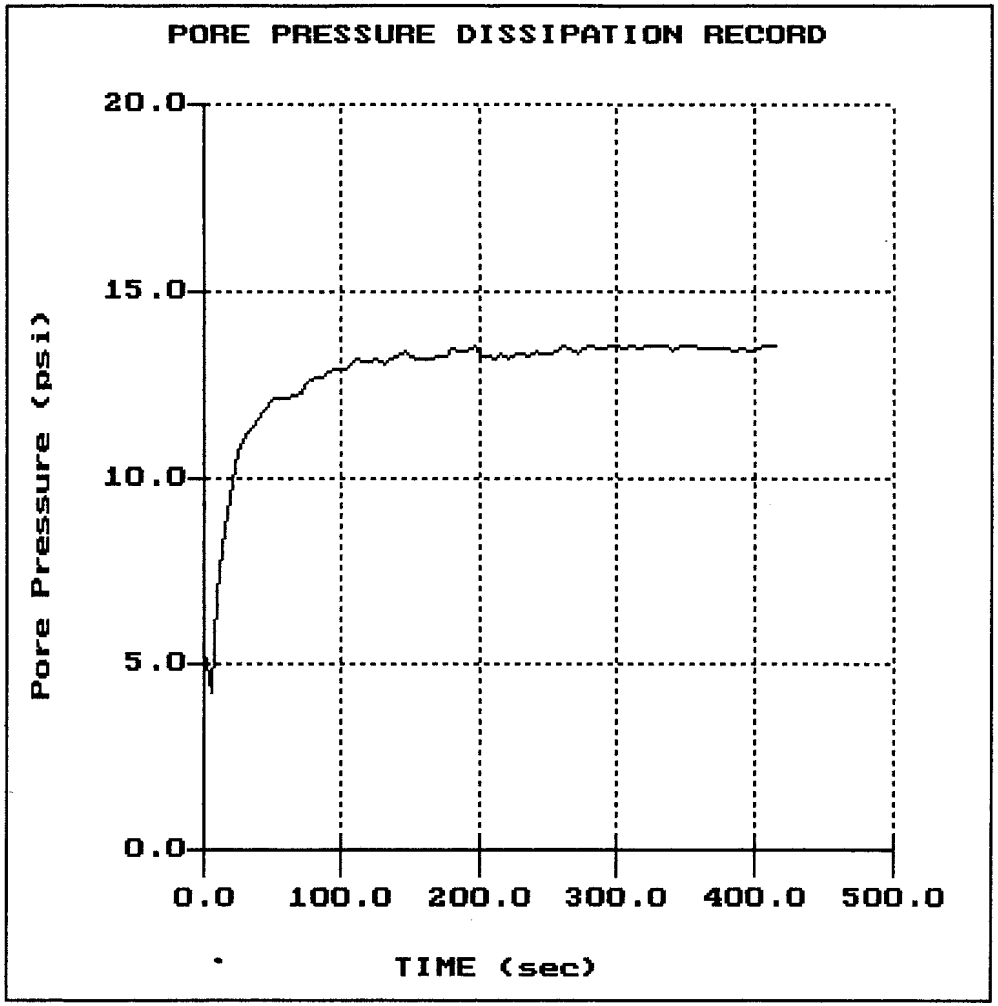


File: 297C09.PPC
Depth (m): 7.50
(ft): 24.61
Duration : 450.0s
U-min: 3.78 440.0s
U-max: 6.00 5.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57

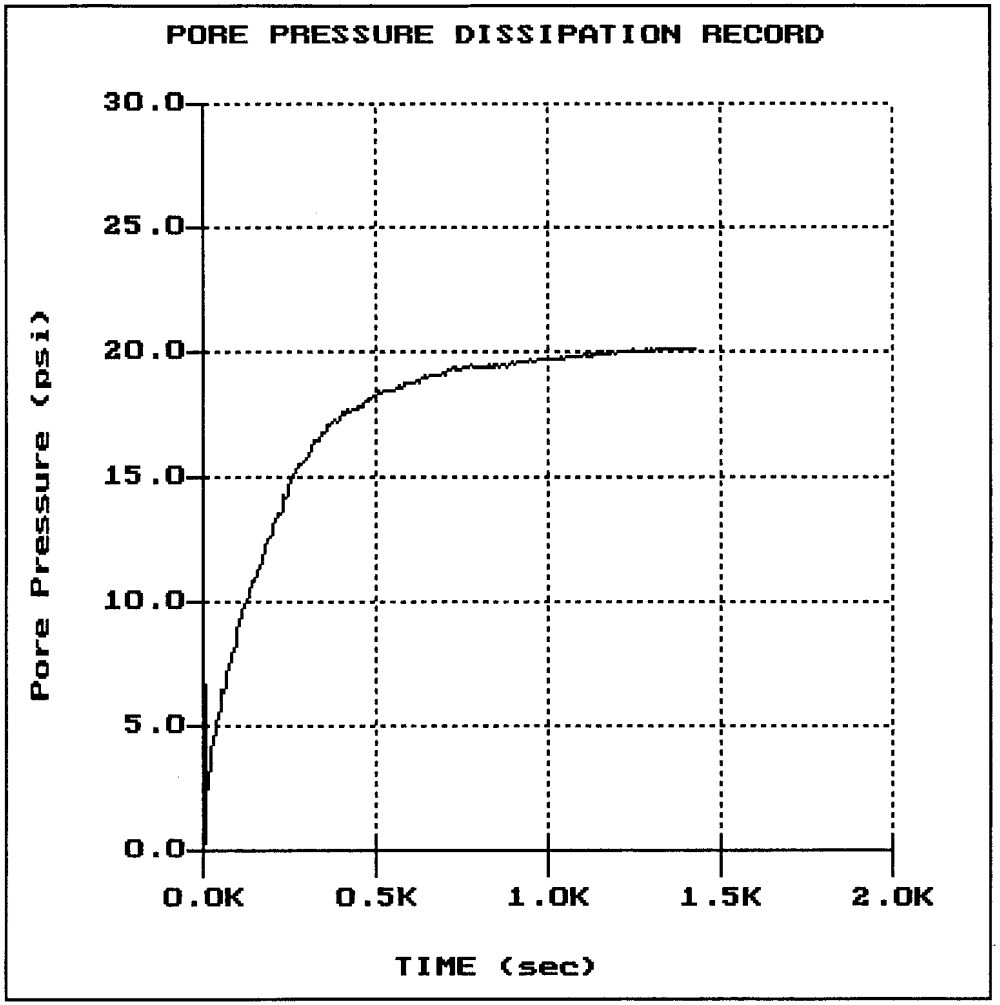


File: 297C09.PPC
Depth (m): 14.25
(ft): 46.75
Duration : 415.0s
U-min: 4.23 5.0s
U-max: 13.55 195.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57

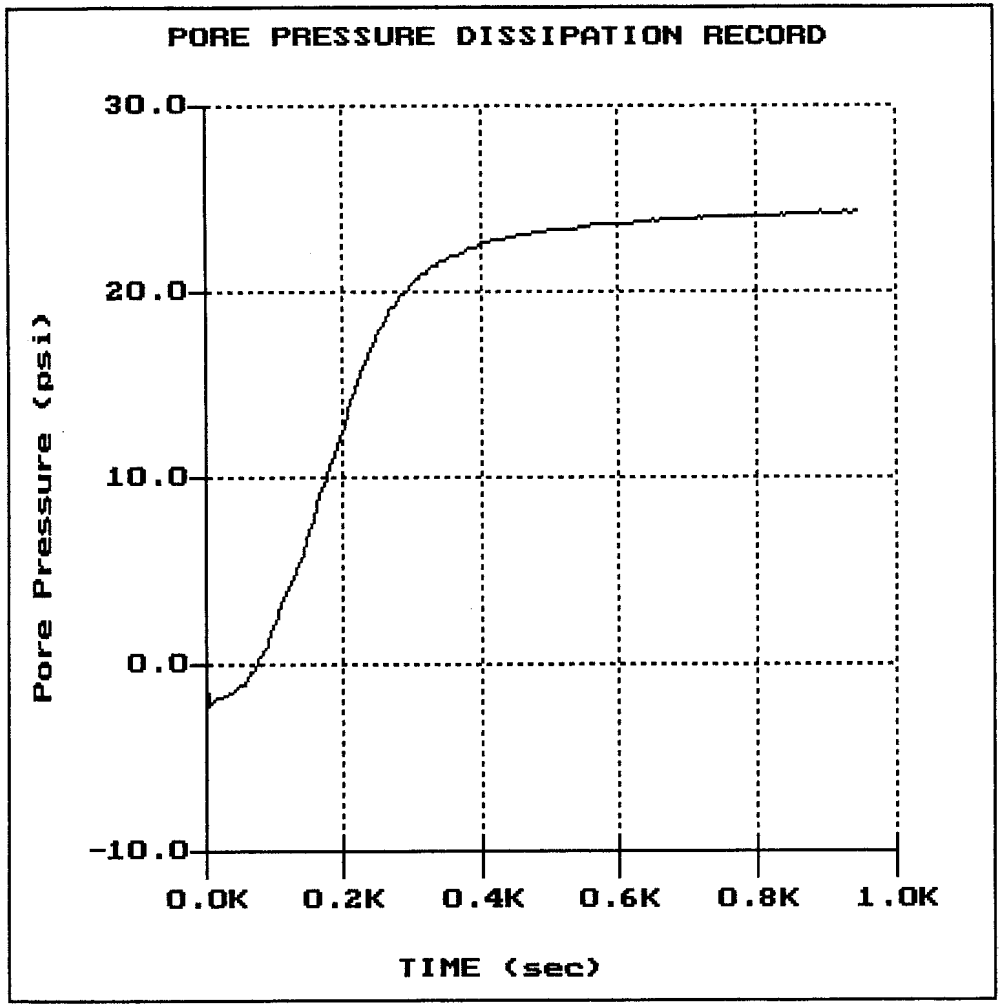


File: 297C09.PPC
Depth (m): 23.25
(ft): 76.28
Duration : 1425.0s
U-min: 0.33 5.0s
U-max: 20.14 1425.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-09

Geologist: T. WIRTHS
Date:10:30:01 20:57

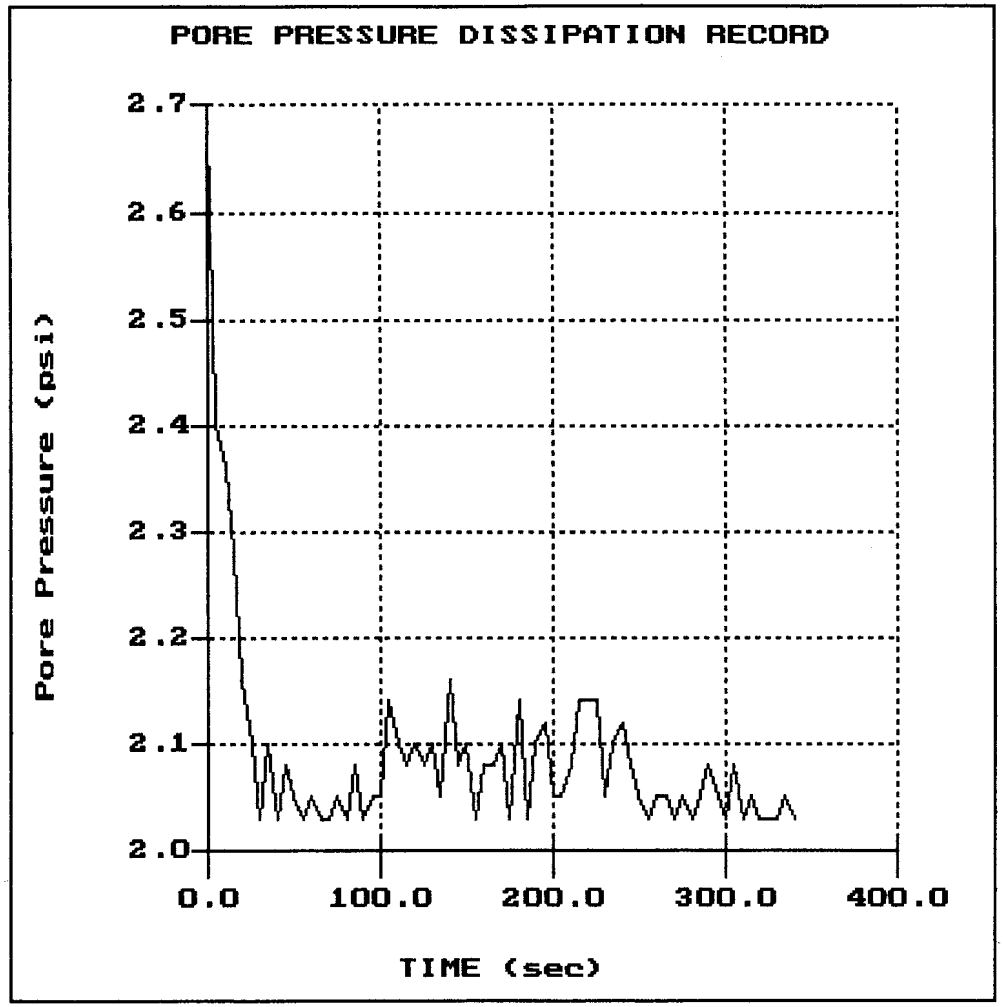


File: 297C09.PPC
Depth (m): 26.00
(ft): 85.30
Duration : 945.0s
U-min: -2.16 5.0s
U-max: 24.27 945.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-10

Geologist: T. WIRTHS
Date:10:31:01 20:56

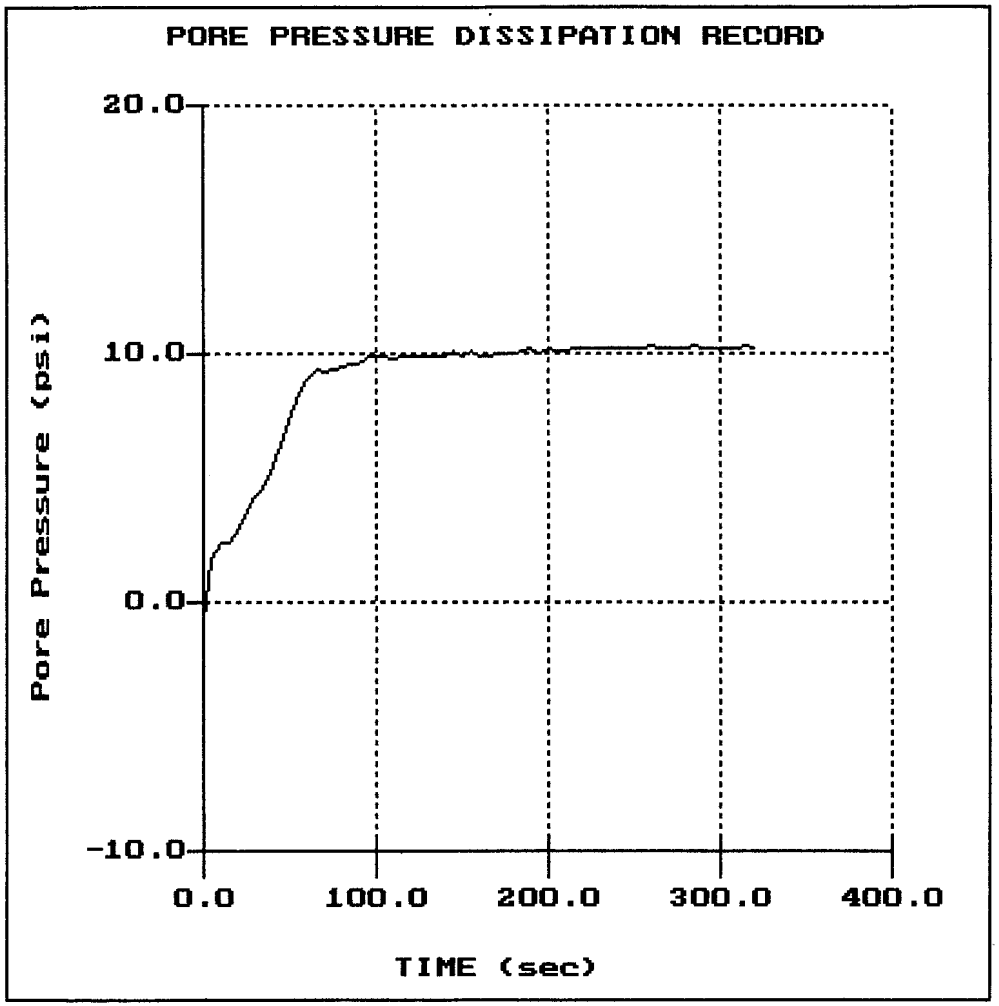


File: 297C10.PPC
Depth (m): 6.70
(ft): 21.98
Duration : 340.0s
U-min: 2.03 340.0s
U-max: 2.69 0.0s

TRC / ALTON

Site: MURRIETA CREEK
Location:CPT-11

Geologist: T. WIRTHS
Date:10:30:01 23:08



File: 297C11.PPC
Depth (m): 11.70
(ft): 38.39
Duration : 320.0s
U-min: -0.79 0.0s
U-max: 10.31 260.0s

APPENDIX

ELECTRICAL PIEZOCONE

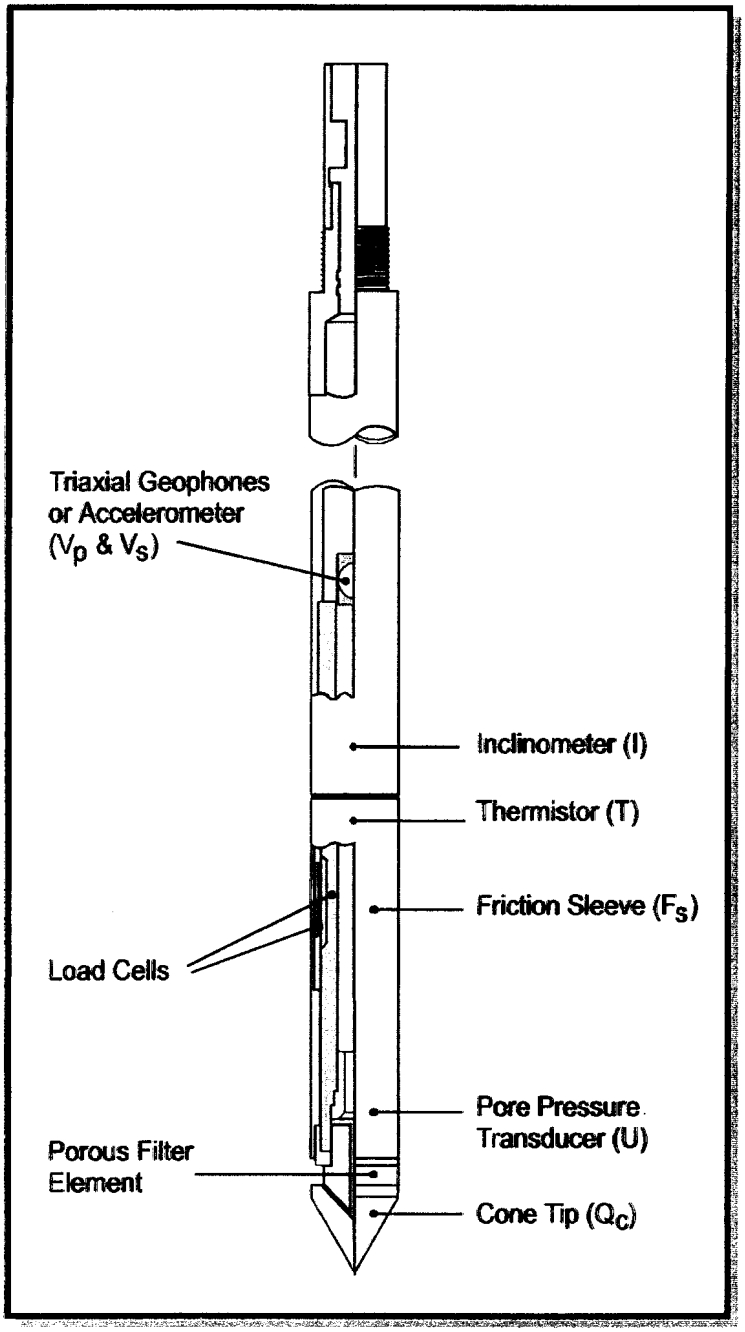


Figure 1

GROUNDWATER SAMPLER (HYDROPUNCH)

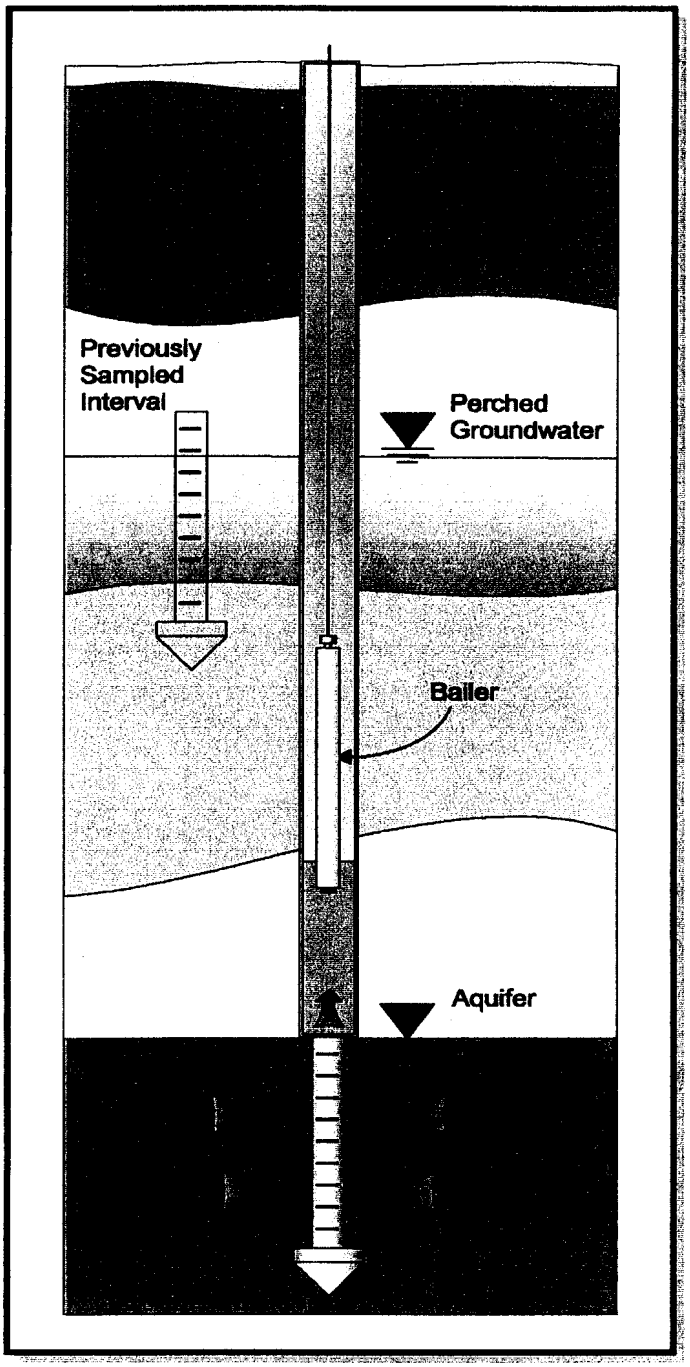
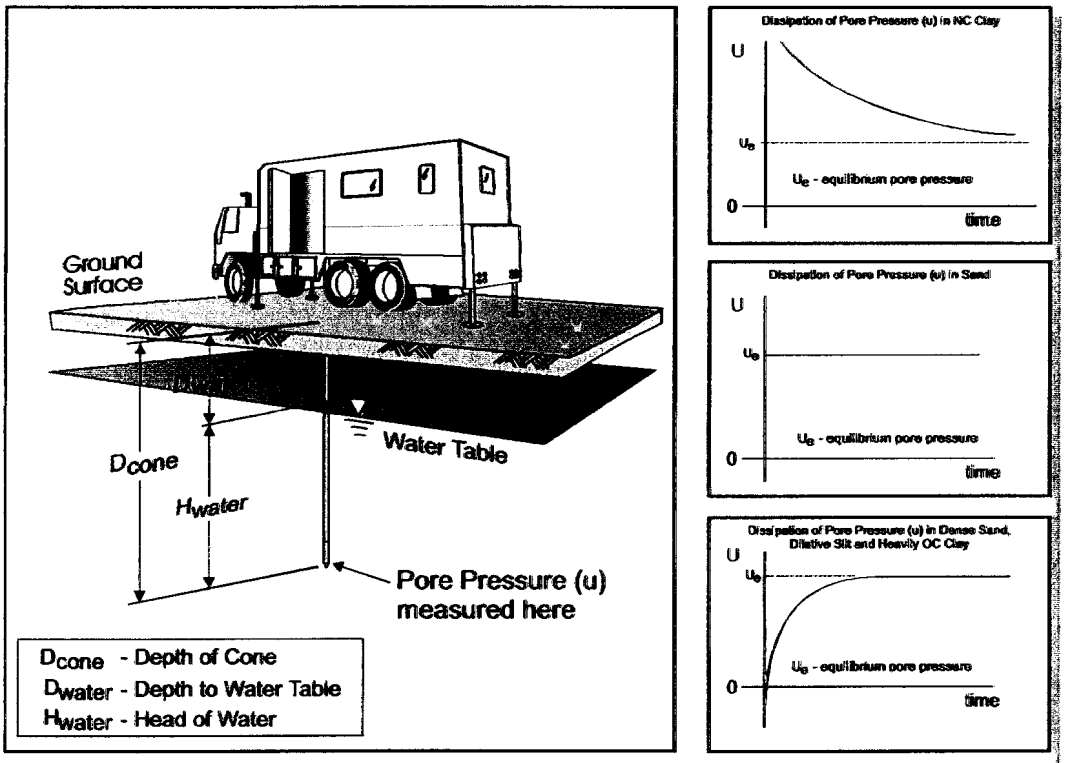


Figure 2

PPDT CORRELATION



Water Table Calculation

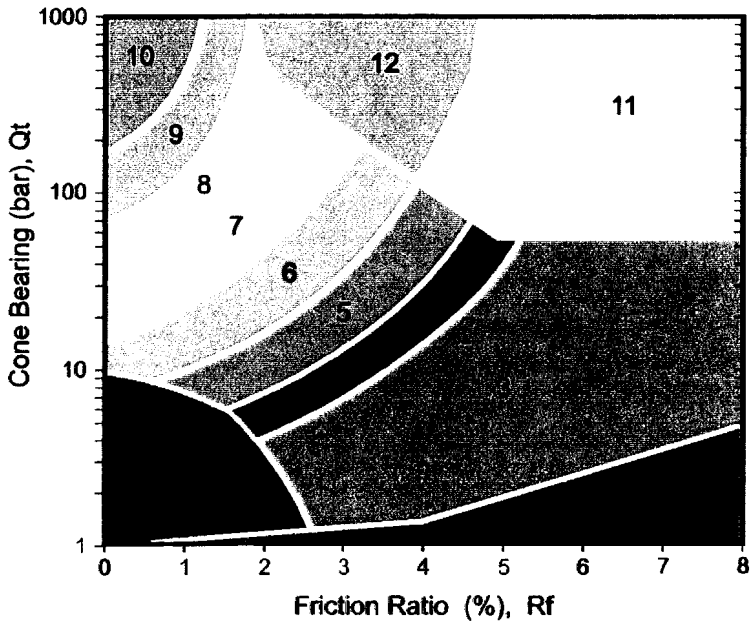
$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

Useful Conversion Factors:
1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

Figure 3

SOIL CLASSIFICATION CHART



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2	1	organic material
3	1	clay
4	1.5	silty clay to clay
5	2	clayey silt to silty clay
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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 *

* overconsolidated or cemented

After Robertson and Campenella

Figure 4

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Robertson, P.K. and Wride C.E., 1998 "Evaluating Cyclic Liquefaction Potential Using The Cone Penetration Test", Journal of Geotechnical Division, Mar. 1998, pp. 442-459.

Robertson, P.K. and Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.

Robertson, P.K. and Campanella, R.G., 1988, "Guidelines for Use, Interpretation and Application of the CPT and CPTU", UBC, Soil Mechanics Series No. 105, Civil Eng. Dept., Vancouver, B.C., V6T 1W5, Canada.

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

APPENDIX E
LABORATORY REPORTS AND CHAIN OF CUSTODY

APPENDIX F
WASTE DISPOSAL MANIFESTS