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FINAL GROUNDWATER SURVEY AND SUBSURFACE SOIL DELINEATION AT HYDRANT FUELING SYSTEM PHASE 1 AND 2 NAS FORT WORTH TX

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GEOMARINE

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FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

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PHASE I & II REPORT
GROUNDWATER SURVEY & SUBSURFACE SOIL DELINEATION

HYDRANT FUELING SYSTEM
CARSWELL AIR FORCE BASE
FORT WORTH, TEXAS

Prepared for

Department of the Army
Fort Worth District Corps of Engineers
Fort Worth, Texas 76102-0300

Contract No. DACA63-93-D-0014
Modification to Delivery Order No. 055

Prepared by

Geo-Marine, Inc.
550 East 15th Street
Plano, Texas 75074

February 1995

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EXECUTIVE SUMMARY

Geo-Marine, Inc. (GMI) has completed two phases of the groundwater survey on a major portion of Carswell Air Force Base (CAFB) located in Fort Worth, Texas, for the Fort Worth District Corps of Engineers (USACE) under Contract No. DACA63-93-D-0014, Delivery Order No. 0055. Phase I included the collection of soil descriptions, groundwater samples, laboratory analyses, and static water measurements from 53 pre-determined cone penetrometer locations. The water samples were analyzed by a fixed laboratory for purgeable halocarbons and aromatic hydrocarbons using Environmental Protection Agency (EPA) method 8021, and for total petroleum hydrocarbons (TPH) using EPA method 418.1. Phase II included the collection of soil descriptions, groundwater samples, and static water level measurements from five bore holes drilled by a conventional truck-mounted drill rig and 199 cone penetrometer locations. Phase II utilized an on-site mobile laboratory with the same analytical scheme as was used in Phase I. During drilling and sampling of the soil borings, the same fixed laboratory used for Phase I analyzed the water by the same previous methods; soils were also analyzed for purgeable halocarbons and aromatic hydrocarbons using EPA method 8021, and TPH was analyzed using EPA method 8015 modified for jet fuel (JP-4).

The purpose of sampling in both phases was to determine the levels and extent of any petroleum hydrocarbon contamination in the vicinity of the hydrant fueling system, to define the levels and overall dimensions of the trichloroethene (TCE) plume previously identified in the area during previous phases of GMI work, to establish groundwater head and gradient, and to describe the sedimentologic framework. Data obtained during these phases of work have been combined with data acquired during the Air Force Plant 4 (AFP4) groundwater sampling project done by GMI in 1994. This work defines the extent of the petroleum hydrocarbon contamination on the majority of the flightline. It also defined the TCE plume in the north, east, and southern directions, and provided data between the widely spaced monitoring wells placed on the runway area to aid in the discovery and interpretation of contaminant sources; the outer limits of the plume were previously defined in these directions (Geo-Marine, Inc. 1992, 1993).

Field work, including soil description, water sampling, and water level measuring, was conducted during four intervals: Phase I - May 09 through May 18, 1994; Phase II - August 01 through August 25, 1994, and October 17 through October 28, 1994; and the soil borings - September 13, 14, and 15, 1994. The soil borings were performed using GMI's truck-mounted drill rig. The penetrometer holes were done

by equipment and crew contracted from Fugro Geosciences, Inc. (Fugro) of Houston, Texas. Proper decontamination practices were followed for all equipment involved in sampling. Soil samples were contained in approved jars and retained on ice without additional preservative for transportation to the laboratory, either on-site or off-site. Water samples were contained in approved bottles and retained on ice; only those TPH samples that were shipped off-site and the purgeable halocarbon samples that were shipped to DHL Analytical (DHL) in Austin were preserved with hydrochloric acid. Soil cuttings and decon water were retained at CAFB in closed barrels prior to being transported off-site for proper disposal; PVC pipe used for temporary well installation was deconned and is temporarily stored on base until the Texas Natural Resource Conservation Commission (TNRCC) approval for disposal in an approved landfill.

Static water level measurements were taken from each sampled site. All sites have been surveyed; water gradient and direction with reference to ground surface were determined for the locations measured during this project (1992 and 1993 data not included). The local groundwater direction in the north is to the east; in the south it is to the east-southeast. These directions are consistent with other data.

Subsurface soils information was obtained at each location. At the soil boring locations, actual soil samples were examined and described. At the remaining sites, the cone penetrometer recorded physical parameters while punching the hole, from which soil profiles based on textural changes were derived mathematically and then plotted. At two locations, holes were deliberately drilled and punched side-by-side in order to "calibrate" the electronic soil profile to the described one. Cross-sections were derived chiefly from data collected during this project, but does include some locations from Phase II 1993.

Talem, Inc. (Talem) did the analyses on all Phase I work. Analytic work for the five water samples and five soil samples collected during the soil boring operation was done by Talem with PDP Analytical Services (PDP) doing only the EPA method 8015 analyses; both labs are USACE-approved facilities. Analytic work for the remainder of the Phase II samples collected from cone penetrometer holes was done on-site in a mobile laboratory contracted from DHL, Austin, Texas, also approved by the USACE. During the sampling process, 257 holes were either drilled or pushed, and 195 water samples were collected. Duplicate quality assurance/quality control (QA/QC) samples were collected every ten sample sites for analysis by both the above labs and the USACE Southwestern Division Laboratory (SWDL) in Dallas, Texas.

Results for 14 analytes (nine halocarbons, four petroleum hydrocarbons, and TPH) have been received for 195 water samples and five soil samples plus the trip blanks, rinsate samples, field blank samples, and duplicate samples included as proper QA/QC procedure. The results indicate the following:

- Groundwater contamination by jet fuel is evident along portions of the fuel hydrant system on the flightline. Elevated levels of BTEX and TPH are coexistent and complementary in two of three major areas on the flightline. One of the major plume areas, the Alert Apron, is defined in each direction for both TPH and BTEX; the second, the South Apron, is not defined to the southeast near Hangar 1402 for either BTEX or TPH; the third plume is not defined except to the north; however, previous investigation in these areas did not include TPH analyses.

- Elevated BTEX components were present on the east side of the base near the truckfill facility on Knights Lake Road approximately one block in the down gradient direction from the POL (petroleum, oil, and lubricant) Tank Farm and Flightline Drainage Ditch. This plume remains open toward Rogner Drive.

- Hydrocarbons, which could not be confirmed by analytical results, were occasionally detected by smell and/or PID. In some instances groundwater was not available for sampling.

- In the north area the TCE plume has been defined to the north (except at the north end of the runway), east, and south. The area open to the west is connected to the previously identified AFP4 plume; the potential exists for one or more additional TCE plume(s) on CAFB.

- Two other halocarbons (cis-1,2-DCE and trans-1,2-DCE) were identified in the sampling area. Distribution is similar to TCE, but values are generally lower except that concentration highs are sometimes offset. Perchloroethene (PCE) and vinyl chloride (VC) were detected in relatively low levels and in scattered locations on the flightline. PCE was frequently detected during the 1992 Phase I on the golf course.

- Sample areas which overlap data from previous TCE studies do not duplicate sample results on the golf course; however, the patterns of relative high and low values are similar. Data obtained along the runway and Parallel Taxiway are comparable to values detected at most nearby monitoring wells.

- The cone penetrometer was a successful tool in the collection of groundwater over much of the base; however, the depth of penetration was occasionally limited by dense gravel layers and stiff clays.

- The use of the electronically generated soil profiles to identify sand and gravel and, therefore, delineate channels in the subsurface was less successful. Comparisons of soil descriptions with nearby cone profiles show varying degrees of correlation; however, this may also reflect the inherent sedimentologic variations in the area.

- Groundwater was found to occur in clayey sediments as well as in clean sands which is consistent with previous observations.

- Groundwater gradient direction measured in the north one-half of the base is to the east, and in the south one-half of the base groundwater flow is to the east-southeast, which is consistent with previous determinations. Groundwater gradient can be characterized as sloping gently over most of the flightline with one exception, a 1,000 to 3,000 foot-wide trend has a maximum gradient estimated at 0.02 feet per foot.

Additional work could fill in the data gaps and refine both the lateral contaminant distribution and the vertical sub-surface delineation. Recommendations which could accomplish these objectives include the following:

- Additional groundwater sampling could move plume boundaries up to 1,000 feet; each of these areas either has shallow bedrock (above the water table) or has layers impenetrable to the cone penetrometer; therefore, drilling by conventional drill rig with hollow-stem augers is advisable around the TPH plume near Building 1050 and to define both BTEX and TPH east of Hangar 1402.

- Additional groundwater sampling using the cone penetrometer could move halocarbon and/or hydrocarbon plume boundaries up to 500 feet in at least six different areas; this should be considered, although it is considered less crucial than the previous recommendation.

- Simulated mass transport models might help define contaminant migration pathways and provide information of the number and location of TCE sources.

- Additional soil borings to bedrock with detailed descriptions would aid in defining bedrock surface, including location of channels cut into bedrock and paleochannel features, and also refine the use of CPT plots as soil descriptors by providing additional calibration with actual soil profiles.

1.0 INTRODUCTION - SCOPE AND OBJECTIVES

The Fort Worth District Corps of Engineers (USACE) contracted Geo-Marine, Inc. (GMI) to perform two phases of groundwater investigation at Carswell Air Force Base (CAFB), Fort Worth, Texas, under Contract No. DACA63-93-D-0014, Delivery Order No. 55 and Modification 001 thereto (Figure 1). This report covers the operations and results of both phases. Phase I field data collection took place May 09 to May 19, 1994. The Phase I results were informally presented in a meeting held June 23, 1994, prior to the initiation of the Phase II field work. The Phase II field data collection was accomplished over two periods: August 01 to August 25, 1994, and October 17 to 28, 1994. The separation was based on logistical factors only, and data collection would have been uninterrupted had circumstances allowed.

The intent of Phases I and II was to identify contaminants and their lateral extent, to determine locations of the release(s) of the contaminants, and to consolidate the new information with the data acquired during previous drilling and penetrometer surveys at CAFB. The overall objective was to develop a comprehensive picture of the petroleum hydrocarbon and trichloroethylene (TCE) impact on shallow groundwater at CAFB. All water samples collected were analyzed for nine volatile halocarbons, to check for TCE and its derivatives, and for benzene, toluene, ethyl benzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH) to check for the presence of fuel.

The two phases were organized differently. Phase I consisted of 53 groundwater sampling locations placed along an existing hydrant fueling pipeline system which is scheduled for decommission and replacement. Using a cone penetrometer (CPT), subsurface soils were delineated at each location and groundwater sampled where present; water samples were analyzed at an off-site laboratory.

Phase II consisted of an additional 199 sample points placed around the Phase I locations to infill, supplement, and detect the presence of chlorinated solvents and BTEX/TPH. During this phase 199 sites were punched with a CPT rig resulting in the collection of 153 groundwater samples; 136 samples were analyzed within 24 hours at a mobile laboratory on-site. The on-site analyses allowed prioritization and redistribution of sample locations in response to analytic results. During the October portion of this phase, thunderstorms delayed sampling activities such that the mobile laboratory had to leave the site to meet its schedule elsewhere. Therefore, 17 samples were shipped to the DHL laboratory in Austin. Phase II also included five soil borings drilled with a truck-mounted rig in areas where dry penetrometer

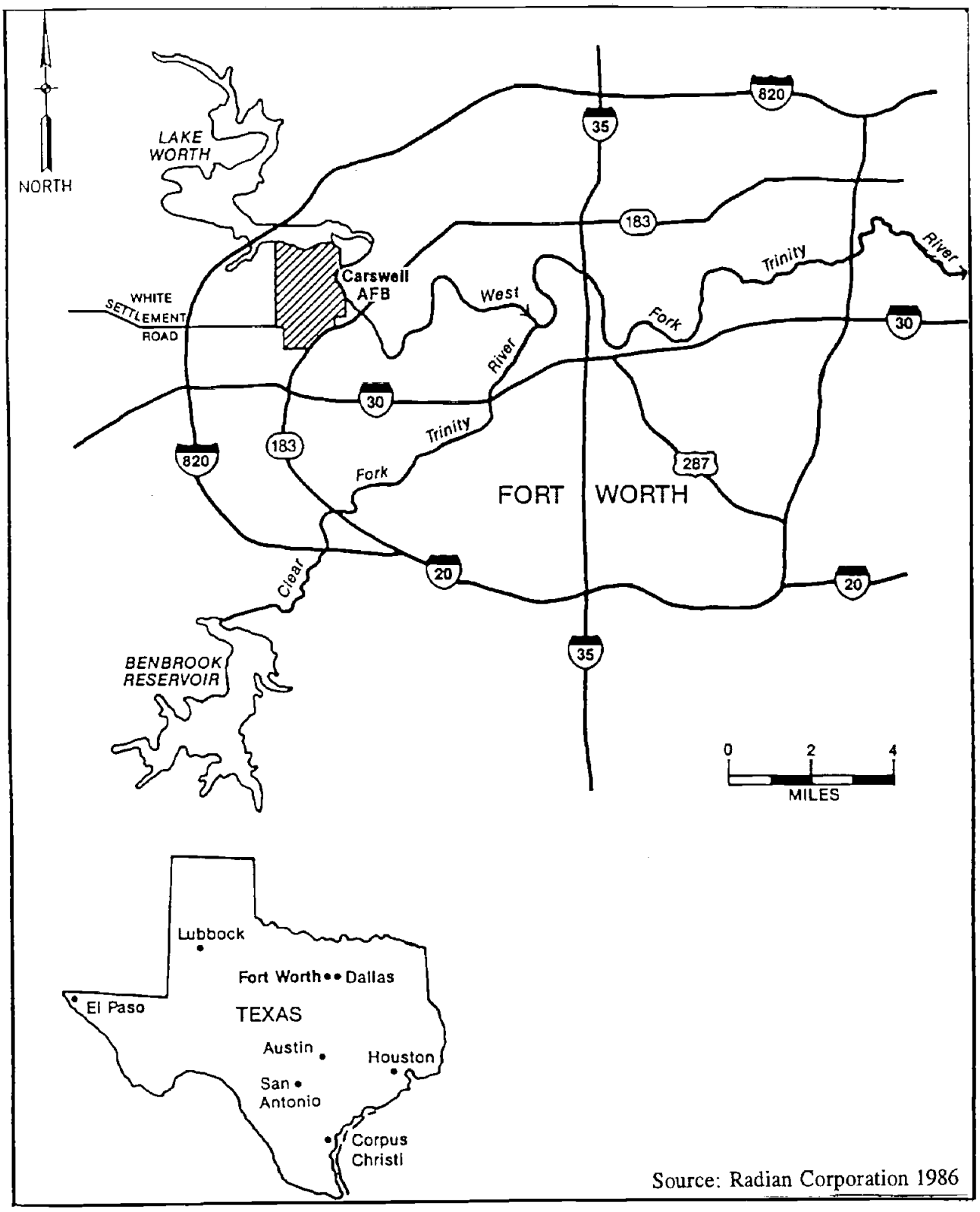

Figure 1. Regional location map of Carswell Air Force Base, Fort Worth, Texas

holes resulted in data gaps. The soils were continuously cored for description, and the water samples were analyzed at an off-site laboratory for the same constituents as the penetrometer holes.

Description of soils in the subsurface was done visually for the five soil borings and interpreted from electronically collected friction and tip resistance data for each penetrometer location. The purpose for the soils data was to define paleochannels in the sampling areas which would both complement and supplement existing sand distribution from well logs and soil borings and identify possible preferential pathways for the lateral migration of water and contaminants. All punched and drilled locations were surveyed; total depths and static water levels (SWLs) were measured on the day following the sampling event so that groundwater gradient and direction could be determined using the survey data. The subsurface flow direction combined with the current contaminant distribution and the location of potential subsurface sand and gravel channels should provide predictive information regarding the direction of future contaminant migration in the shallow subsurface.

2.0 SITE INVESTIGATION HISTORY

Work at CAFB, under the Department of Defense Installation Restoration Program (IRP), was initiated with records research by CH2M Hill which identified and ranked a number of sites of potential contamination based on past disposal practices and spill incidents. The subsequent two stages of Phase II field investigation performed by Radian Corporation (Radian) were conducted at the 11 sites at CAFB deemed to present a hazard to the environment and/or human health (Radian 1986); the second stage emphasized four of the sites located in the flightline area of west-central CAFB (Radian (1991). Concurrently, Hargis & Associates (H&A) in conjunction with their investigative work at Air Force Plant No. 4 (AFP4) drilled 12 monitor wells on either side of Taxiway 197 in the flightline portion along the west side of CAFB (Hargis & Associates 1983, 1989). Investigative work by Radian and H&A resulted in the installation of numerous monitor wells on CAFB and AFP4. In July 1991, quarterly sampling and analysis of selected monitor wells began across both AFP4 and CAFB; this program included a comprehensive sampling round in June 1993 (Jacobs Engineering Group, Inc. [JE] 1993). Other recent work has included the development of remediation systems, including the construction of water treatment plants and installation and sampling of extraction wells on both CAFB and AFP4 (International Technology Corporation [ITC] 1993); continued quarterly monitoring of various wells by JE; two phases of AFP4 TCE plume delineation, stratigraphic information, monitor well installation and sampling (Geo-Marine, Inc. 1992, 1993, 1994a, 1994b); and a compilation of TCE plume data collected to date (Environmental Science and Engineering, Inc. [ESE] 1994).

2.1 Previous Geologic and Hydrogeologic Studies at Carswell Air Force Base

Unconsolidated surficial deposits at CAFB consist of alluvium with floodplain and fluviatile terrace deposits. These deposits constitute the "Upper Zone" which lies unconformably on the Cretaceous-aged Goodland and Walnut Formations (Fms), the local limestone and shale bedrock, respectively. Where the Goodland and Walnut Fms are continuous, they form an aquitard between the Upper Zone and the underlying Paluxy aquifers (Radian Corporation 1991). In the "window area" at AFP4, the Walnut Fm is either absent or thin enough to allow leakage from the Upper Zone to recharge and contaminate the upper Paluxy sand (Hargis and Associates 1989). Monitor well data are more sparse on CAFB; the Paluxy appears to be continuously protected by intervening bedrock.

Alluvium thickness is variable, but seems to range from as little as ten feet to as much as 40 feet. In very general descriptive terms, the top five to ten feet are silt and clay with variable amounts of sand and gravel. Below this, sand and gravel gradually dominate with depth, and grain size increases. Paleochannel features appear to have eroded into the bedrock with basal deposits of gravel-sized limestone and shell fragments common. The bedrock has been described as being irregular locally, which is typical of an erosional surface modified by fluvial processes (Radian Corporation 1991).

Monitor well distribution at CAFB is irregularly spaced and far less comprehensive than at neighboring AFP4; it consists of a north-south strip of 12 H&A wells along the west side, 18 Radian wells clustered near Landfills No. 4 and 5 (LF04 and LF05) and Fire Department Training Areas No. 1 and 2 (designated by IRP site numbers FT08 and FT09) on the edge of the golf course, eight ITC wells along White Settlement Road, and nine GMI wells widely spaced from the golf course to the shore of Lake Worth. However, Phase II of the GMI TCE plume delineation by CPT data included measuring SWLs and surveying ground surface (GS) elevations so that degree and direction of shallow groundwater gradient could be determined (Geo-Marine 1993). Gradient direction varies locally, but is consistent with other information and shows direction of flow to be to the east or southeast, which is away from Lake Worth (borders CAFB on the north) and toward the Trinity River (borders CAFB on the east).

2.2 History of Hazardous Waste Investigations

Investigations of shallow (i.e., unconsolidated) subsurface conditions at CAFB have been ongoing since the early 1980s. The first phase of work included a records search to identify waste disposal activities and sites with the potential to impact groundwater. Twenty-two identified disposal and spill sites were then assessed, based on the nature of the hazardous material(s) involved, the environmental setting, the migration potential, and the disposal practices, and ranked in order of importance (Radian 1986). Ten sites were designated as not of significant concern, one was located off-site (weapons storage area), and the remaining 11 underwent additional delineation in order to characterize the contamination and determine movement and environmental consequences (Figure 2). Four of the sites near the flightline along the west edge of CAFB subsequently underwent remedial investigation to specifically document the contaminant plume (Radian 1991). These sites include LF04, LF05, waste burial area (WP07), and FT09. Both of these Radian investigative stages plus work by H&A included the installation of monitor wells for data collection over time, as well as soil borings which underwent a single sampling and water

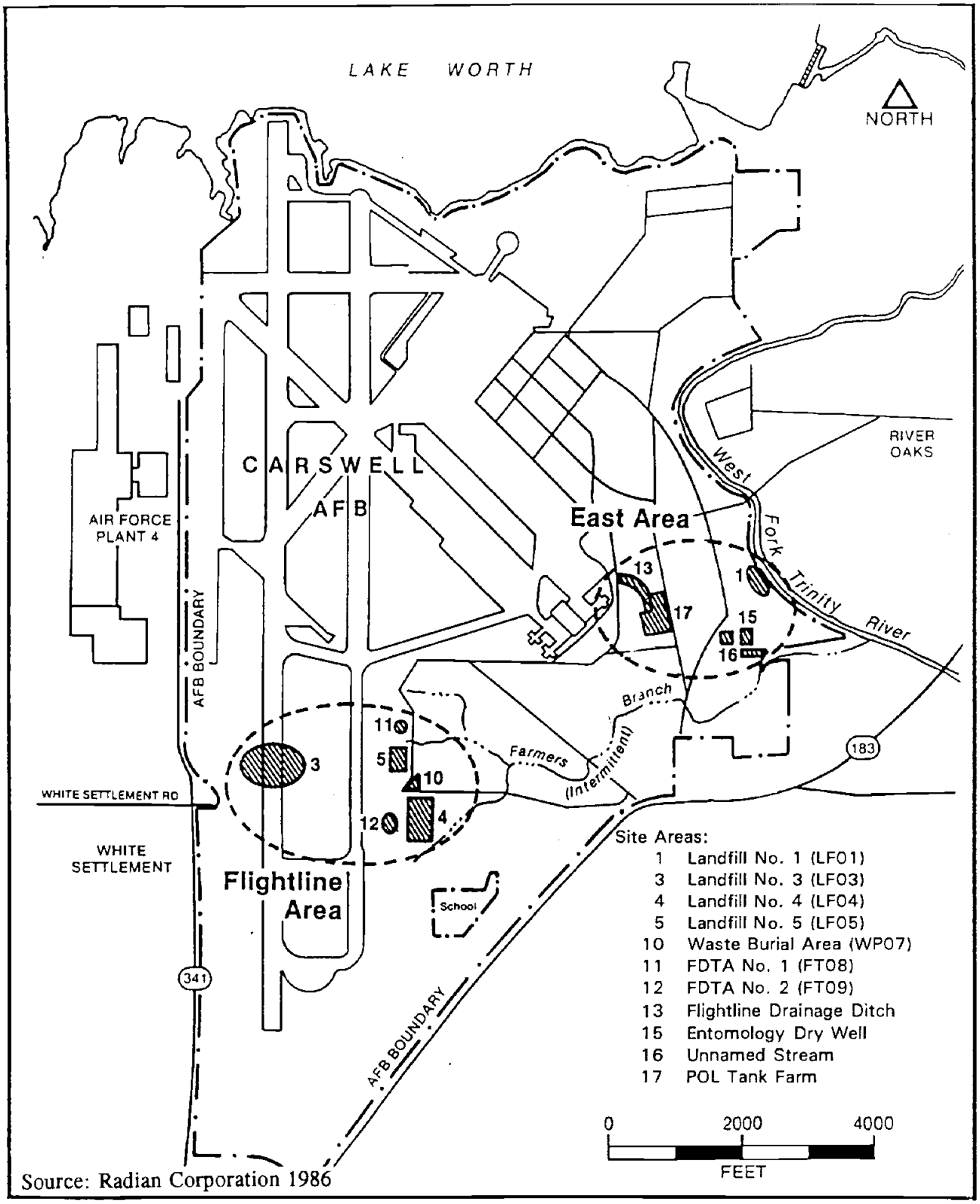

Figure 2. General location map of the potential hazardous waste sites identified during the Installation Restoration Program at Carswell Air Force Base

level measuring event. Early studies on CAFB identified chlorinated solvents (TCE and its derivatives) and various petroleum hydrocarbons (jet fuel and gasoline) in both the soil and water. However, at the completion of work by Radian and by H&A, neither the sources nor the lateral extents of contamination had been delineated.

2.3 Quarterly Groundwater Monitoring Program

Since October 1991 JE has performed the quarterly groundwater monitoring activities on selected wells at AFP4 and CAFB to aid in the remedial action plan by delineating both gradient direction and contaminant concentrations, as well as tracking movement of contamination. The objectives are to monitor changes in groundwater quality in the Upper Zone and Paluxy aquifers, map contaminant plumes, assess the potential for movement of plumes across AFP4 and CAFB boundaries, monitor changes in water table levels, check for free product and measure its thickness, monitor water quality in White Settlement municipal drinking water wells, and detect contaminants seeping into surface waters (Jacobs Engineering 1991).

In May and June 1993 all accessible wells on both CAFB and AFP4 were sampled together for the first time (Jacobs Engineering 1993) so that an accurate picture of groundwater contamination at a single point in time could be established across the entire area. Approximately 35 of the sample points were located east of Runway 130N; these included 15 H&A wells along the runways, eight associated with LF04, seven associated with LF05, and two each with FT08 and FT09. Eleven of the wells fall within the 1992-1993 GMI Phase I or II areas of the earlier TCE investigation; the rest are within the 1994 Phase I and II fuels project area.

The monitor well data do not match GMI results precisely even where a well and a penetrometer hole are close to each other; however, they are generally consistent to the extent that they do not alter plume boundaries, where defined, and they maintain the distribution of relative concentration highs and lows. Absolute values are a function of sample location, soil texture, laboratory technique, collection and transportation methods, time lapse to analysis, temperature and pressure, moisture level, etc., and are not expected to replicate exactly. The total number of sample sites was 262, and it included 247 monitor wells, seven production wells, and eight surface water sites.

The latest round of quarterly sampling (done in May 1994 and reported in July 1994) included four H&A monitor wells located along the west edge of the Phase II sampling area plus a fifth well in the north part of the flightline (Jacobs Engineering Group Inc. 1994). The data from the four wells within the Phase II sampling area are all consistent with their neighboring penetrometer location results and also consistent over time; however, the fifth well to the west (closer to AFP4) has shown a general decrease in halocarbons since July 1992 in the five sets of analytic data collected since July 1992.

2.4 USACE Hydrant Fuel System Subsurface Investigation

In 1990 routine tightness testing identified a section of the hydrant fueling system pipeline near Spot 35 which was not intact. It was removed from the system at that time; fuel seepage was observed in a pump pit in the immediate area. Spot 35 is within the GMI Phase I area closest to site GMI18-37P. Subsequent initial and follow-up investigations consisted of the installation of nine borings with three converted to monitor wells in 1990 and an additional ten monitor wells in 1991 (U.S. Army Corps of Engineers 1992). The data points are clustered around Spot 35 in an area with an approximate radius of 500 feet. Soils were sampled from all the borings and wells for analysis for TPH and BTEX. Water from the wells was also sampled for BTEX and TPH with TCE added as an analyte in the September 1992 sampling round (the most recent reported). The analytic data, coupled with hydraulic gradient as determined from groundwater elevations, suggest that the leak initially identified at Spot 35, which precipitated this investigation, cannot account for all of the observed contamination.

2.5 Previous GMI Investigations (1992-1993)

In 1992 and 1993 GMI performed two phases of a sample collection and analysis program designed to identify the extent (including down gradient boundary) boundaries of the TCE plume previously identified on CAFB from monitor well information (Figure 3). The project area extended throughout CAFB. Water samples and subsurface descriptive information were collected from 230 locations using a penetrometer and from an additional five locations using a conventional drill rig. The first 90 locations, from which 37 samples were collected (Phase I), plus water from three of the five soil borings were analyzed off-site for purgeable halocarbons using Environmental Protection Agency (EPA) approved method 8010. The remaining 140 locations (Phase II), from which 94 water samples were collected, were analyzed on-site at a mobile laboratory for volatile organics using EPA-approved method 8021.

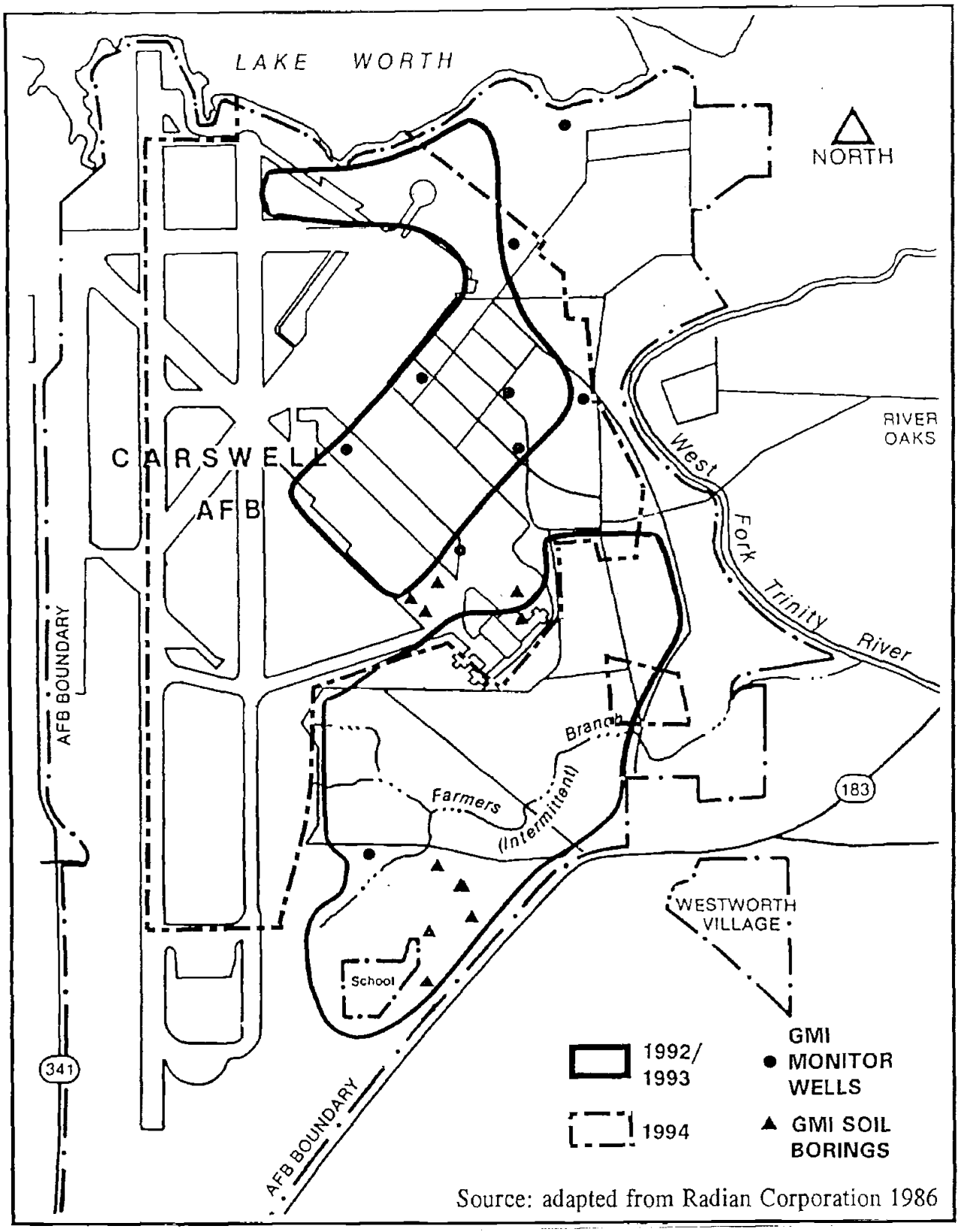

Figure 3. Index map of former GMI project areas including projected area of sampling for the Hydrant Fueling System project

Method 8021 analyses include B, T, E, and X in addition to the halocarbons (TCE and derivatives) determined in Phase I. BTEX was added to scope requirements because Phase II locations included areas with the potential for fuel contamination from various sources.

The objectives of the two phases were to determine the overall dimensions and extent of the known TCE plume; to identify petroleum hydrocarbon contamination of the groundwater from jet fuel and/or diesel and/or gasoline; to determine groundwater gradient and direction; and to define channels of sand and/or gravel which might serve as preferential migration pathways for groundwater and associated hydrocarbons, both as free product and in solution.

The results showed the TCE plume edge defined to the east and north; therefore, the plume has not impacted Lake Worth, and it has not migrated off-site. The southern edge also appears to be defined, although a number of holes in that area were dry at the time of the survey. The TCE plume was not defined to the west by this previous work. Locations with BTEX results were limited to a small area on the east side of CAFB where the BTEX boundary is not defined to the east. Other data elsewhere in the project area suggest that BTEX analyses were insufficient to identify petroleum hydrocarbons, and so TPH analyses were added to the scope for the current work addressed in the body of this report.

Groundwater gradient directions varied somewhat locally, but in general were to the east and southeast which is toward the Trinity River and away from Lake Worth; this was consistent with other earlier observations. Soil columns, as defined electronically during cone penetration, differentiate between sand, silt, clay, and mixtures. These profiles do not show well-defined channels, but rather an intermittent layer of relatively coarse sedimentation resting on the bedrock. It is presumed to provide a preferential pathway for fluids which reach this level. At the end of the Phase I and II TCE (with limited BTEX) delineation it was concluded that (1) the penetrometer was a more successful tool in the northern part of CAFB because of a more consistent groundwater presence; (2) the on-site laboratory provided valuable flexibility for plume delineation; (3) the electronically generated soil profile did not specifically and reliably identify water bearing horizons; and (4) information gathered to date could not unequivocally determined if CAFB had a TCE source in addition to those already identified from AFP4.

3.0 FIELD PROCEDURES

3.1 Introduction

For Phase I, the USACE supplied a site map of the sampling area along the hydrant fueling system with 53 sampling locations identified. These locations were chosen by the USACE and strategically placed on a field map in the hydrant fueling system area to screen the area for petroleum hydrocarbon contamination (Figure 4). Prior to the initiation of any field activities a pre-work meeting was held for personnel from USACE, Base Conversion Agency (BCA), GMI, and various CAFB personnel (Appendix A - Meeting Notes and Records of Communication). The purpose was to resolve any questions or issues related to the scope of work, initiate utility clearance, clarify flightline training schedule and impact, and generally enhance communication between the participants. For Phase II GMI recommended 150 sampling locations as a portion of the presentation of the Phase I data made on June 23, 1994, to USACE, BCA, and EPA personnel. During the presentation 209 sample sites were finalized by mutual agreement.

The specific sample sites were located by GMI personnel using a compass, measuring wheel, and known mapped points for reference. Mr. Alan Flolo of the BCA coordinated the utility clearance efforts of base personnel, public utilities, and private companies for each location in both phases.

Sample analyses were handled differently for the two phases, while subsurface data and groundwater collection using a CPT were essentially the same, except for the five, conventionally drilled soil borings which comprised part of Phase II. Sample and data collection using a penetrometer rig was subcontracted to Fugro Geosciences, Inc. of Houston, Texas, for both phases. A hydraulically driven steel probe (a CPT) was used to penetrate the unconsolidated surface material to point-of-refusal and to collect sleeve friction and tip resistance data from which the soil profiles were derived. Water samples from Phase I were transported to Talem, Inc. (Talem) of Fort Worth, Texas, a USACE-approved laboratory, while DHL Analytical (DHL) of Austin, Texas, also USACE-approved, maintained a mobile laboratory at the site during Phase II. Water samples were transported to each laboratory in 40-milligram (mg) glass VOA vials on ice with no other preservatives and in amber one-liter bottles. The one-liter bottles were treated with hydrochloric acid to lower the pH to 2 for transportation to Talem; acidification was not deemed

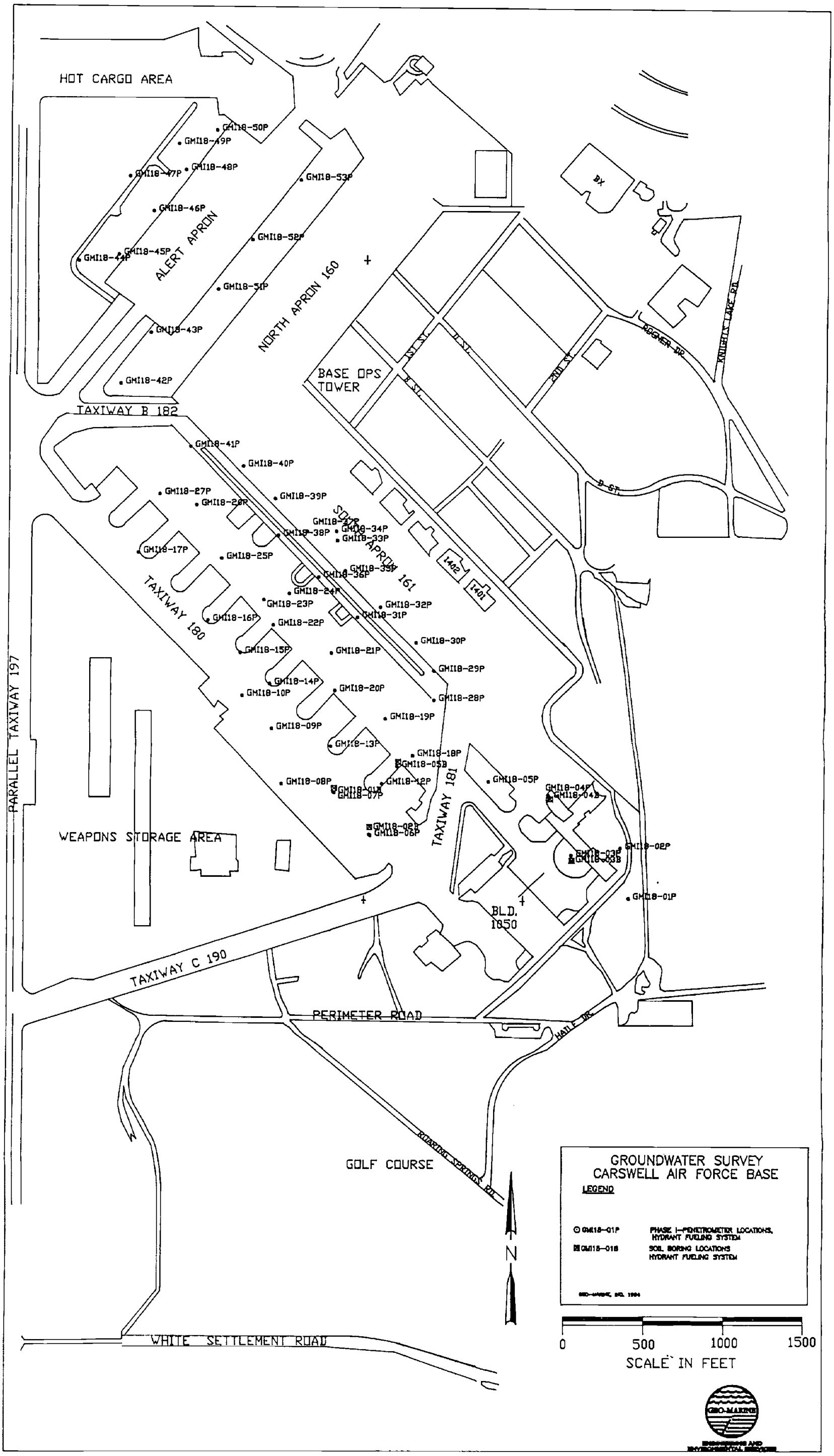

Figure 4. Phase I penetrometer locations and Phase II soil borings in area of hydrant fueling system

necessary for the samples analyzed by DHL on-site. Soil samples from the boreholes were transported to Talem in 8-ounce glass jars on ice without other preservative.

The soil borings were drilled using a conventional truck-mounted drill rig. Descriptive soil information, soil samples, and water samples were collected from the five soil borings by GMI personnel. Water was sampled using a 1.5-inch diameter 35-inch long teflon disposable bailer. The soil borings were located in areas where penetrometer holes from Phase I had been dry, but soil odor and/or appearance suggested contamination. The visual soil descriptions were used to "calibrate" the electronically derived soil profiles from the dry penetrometer sites nearby.

One-inch diameter PVC pipe with screen was set temporarily in each penetrometer hole and one- or two-inch diameter PVC pipe with screen was set in each soil boring, so that SWLs and total depths could be measured the next day. Ground surface location and elevation of each hole were surveyed by Brittain & Crawford of Fort Worth, Texas.

Drilling equipment, penetrometer components, and sampling bailers were decontaminated between each station. All wash water was collected in 55-gallon drums on site for later treatment and proper disposal. Drill cuttings from the soil borings and cored material not used for samples were stored and subsequently disposed of in a like manner. Following water level measurement, the temporary casing was pulled from each hole and the holes were grouted to the surface. All dry holes were also grouted to the surface. The PVC casing was cleaned pending proper disposal.

All groundwater samples were analyzed for purgeable halocarbons (EPA method 8021) and for TPH (EPA method 418.1). Talem performed the analyses within the regulated holding time, while DHL personnel performed the same analyses in the mobile laboratory with results available within 24 hours of sampling. Rinsate samples were taken for analysis every 20 sample locations. Trip blanks were prepared each day samples were transported to a laboratory. Duplicate samples and field blanks for every 10 sampled sites were collected and shipped to USACE Southwestern Division Laboratory (SWDL) in Dallas, Texas, as a quality assurance sample as well as to the regular laboratory (Talem or DHL). All soil samples were analyzed by Talem for purgeable halocarbons (EPA method 8021) and for TPH (EPA method 8015 modified).

A Safety, Health, and Emergency Response Plan (SHERP) was developed and submitted to the Fort Worth District USACE for approval by an industrial hygienist prior to the commencement of Phase I field activities. The SHERP was subsequently revised to include the conventional drilling activities which were not a part of the original SOW. A GMI safety officer was on site at all times to convene safety meetings as needed and to assure compliance with the SHERP. Breathing zone air was monitored for organic vapors using an organic vapor analyzer (OVA or HNu) instrument at each sampling site following penetration and emplacement of the temporary casing.

3.2 Sample Site Location and Utility Clearance

Phase I sample site locations were marked as closely as possible to the locations designated on the map supplied by the USACE; Phase II sites were marked from the map developed by GMI and approved by USACE personnel. The five soil borings were located within the Phase I project area near the south end. Permanent structures such as roads, buildings, and some fences were used as reference marks. Obstructions such as restricted areas, utilities, streams, and structures resulted in deviation from the original layouts. Both phases had locations in grass, asphalt, and concrete-surfaced areas. Individual locations were flagged and labeled with two-foot high ½" by 2" wooden stakes (dirt and grass) or marked on ground surface with brightly colored spray paint (concrete and asphalt). In Phase II a surplus of approximately 60 locations was marked for utility clearance to cover the possibility of non-clearance, shallow subsurface obstructions, difficulty with site access, and to permit tracking of the plume in conjunction with the immediate laboratory results from the mobile laboratory. All sample locations were subsequently surveyed, so that accurate maps and subsurface diagrams could be prepared.

The SOW specified 53 locations in Phase I and approximately 150 additional sites in Phase II. The SOW was modified during Phase II to include an additional 59 locations plus five soil borings. Of the 209 penetrometer locations, 204 were subsequently staked for clearance for Phase II. All of the Phase I and most of the Phase II sites were on the flightline, requiring special training for all GMI, Fugro, and DHL personnel. Available roads, driveways, parking lots, and runways provided ready access to all sites and minimized the potential for surface damage. The 204 Phase II locations were divided into five priority areas to aid in efficient utility clearance.

The five bore hole locations at the south end of the Phase I area duplicate five of the dry Phase I penetrometer sites, namely GMI18-03P, GMI18-04P, GMI18-06P, GMI18-07P, and GMI18-12P (see Figure 4). These locations were along the edge of the flightline.

Utility coordination and clearance were handled through the office of Mr. Alan Flolo of the BCA. Utilities included fuel pipelines, water, sanitary sewer, storm sewer, gas, communications, and electricity. Where appropriate, subsurface utilities were located with colored flags and/or lines spray-painted on the ground surface. During both phases no subsurface utilities were damaged by either the drill rig or the penetrometer.

3.3 Cone Penetrometer Locations

Hole penetration and data and sample collection were conducted by equipment and personnel from Fugro (Appendix B). The patented 10-ton buggy- or truck-mounted CPT system is hydraulically driven with a maximum pushing force of 20 tons. The probe is two inches in diameter and has a stainless steel friction cone at the tip equipped with an array of load cell sensors. It is driven into the ground at a constant rate of two centimeters per second (cps) which can penetrate most soils and some soft weathered rock. Probe refusal and instrument response generally indicate fresh bedrock or a large, hard pebble. The cone and pipe are removed and one-inch diameter PVC casing with a five-foot screened interval at the base temporarily installed for immediate water sampling and later SWL measurement. The casing is removed, usually the next day, and the hole grouted to the surface.

3.3.1 Subsurface Delineation

The patented Fugro friction cone measures two physical parameters, friction against the sleeve of the probe and resistance against the tip, while pushing through the soil column to bedrock. These two parameters are digitally collected and soil types, primarily defined by grain size(s), are interpreted from the ratio of friction to tip resistance following the Campanella-Robertson classification (Appendix C). At the five borehole locations, both visual and electronic soil descriptions were available so that the electronic curve could be compared with and standardized against the distribution of soil types commonly present in the CAFB area. The interpreted soil profiles are used to trace soil types and boundaries across

the project areas, especially the presence of relatively permeable layers and possible paleochannels which might provide preferential migration pathways for groundwater and contaminants.

3.3.2 Water Sampling

When total depth (TD) was reached, the probe and pipe were pulled out of the hole. If water was encountered, it was sampled immediately following the emplacement of the screen and casing using a small diameter bailer. If the hole was bottomed on bedrock and was initially dry or only moist, it was sampled at the time of SWL measurement the next day, provided sufficient water had accumulated in the interval. If still dry, the hole was designated "dry" and plugged. Occasionally sufficient water accumulated in a "moist" hole overnight for sampling; however, initially dry holes invariably remained "dry".

Water samples were checked for color, odor, and turbidity and then emptied directly into 40-ml VOA glass vials and one-liter amber glass jars used to transport the samples to the laboratories. Glass vial samples were sealed only after an undisturbed meniscus was visible. Following capping, each vial was carefully checked for bubbles; if any were found, the sample was retaken. One-liter glass bottles were not completely filled; pH was adjusted to 2 using hydrochloric acid only for the samples transported off-site. Talem did the analyses off-site within the regulated holding time of 14 days (Phase I), and DHL did the analyses on-site within two to 24 hours of sampling (Phase II) with the sample refrigerated in the interim. Both DHL and the USACE SWDL analyzed duplicates and field blanks taken for every ten samples and rinsate blanks every 20 samples. Trip blanks accompanied every shipment of water samples.

Each sample was individually labeled as to site designation, date, time, sampler, and methods and sealed in the field. Samples were immediately stored in ice-filled coolers for transportation to the laboratories; samples were usually delivered to DHL within two hours of being collected and to USACE SWDL within one day of collection. Chain-of-custody forms were prepared for all samples noting time and date of sampling with continuous custody documented by signatures with date and time. Copies of the forms are included with the analytic results in Appendix D. Sample designations for Phase I were constructed using the site name with 1, 2, or 3 on the end, meaning normal sample, Talem duplicate, or regulatory duplicate respectively; for a duplicate at location GMI18-62P, the sample number is GMI18-622. Sample

designations for Phase II were constructed using the site name without the final P; duplicate samples were indicated with a D on the end of the number.

3.4 Sample Analyses

Per the SOW, all water samples were analyzed using EPA methods 8021 for volatile organics and 418.1 for TPH; all soil samples were analyzed using EPA methods 8021 for volatile organics and 8015 modified for extractable hydrocarbons JP-4. EPA method 8021 is a gas chromatographic (GC) method which can identify a large number of analytes, including TCE and its degradation products, as well as BTEX. EPA method 418.1 uses an infrared (IR) spectrophometric method for total, undifferentiated non-halogenated hydrocarbons. EPA method 8015 modified for JP-4 is a GC method which will give the total amount of non-halogenated hydrocarbons of a specified range of carbon chain length C_{10} to C_{16}, but not the individual compounds. Halogenated solvents and hydrocarbons (fuels) have both been identified as groups of compounds of concern in the area. In particular, TCE, its breakdown product vinyl chloride (VC), and benzene, an indicator of both jet fuel and gasoline, are proven carcinogens (Proctor et al. 1989). All sample preparation and analyses were done within the maximum allowable holding time of 14 days (seven days for unpreserved volatile organic compounds [VOCs]).

3.5 Static Water Level Measurement and Hole Closure

One-inch diameter casing with five feet of screen at the base was placed in each penetrometer hole. The casing was often emplaced through the drill stem (GMF casing). The tops of the casing were temporarily closed with a slip-on cap to prevent accidental placement of foreign material into the hole. The following day the holes were visited, and both sounding depth and SWL measured from ground surface with a Well Wizard Water Level Meter Model 6000 wherever water was present. Using the survey data for locations and surface elevations, the elevation of water across the project areas was determined (see Section 4.3).

3.6 Soil Boring Operations

The five bore holes were drilled by GMI using a truck-mounted Simco model 2800 drill rig with 7-5/8" outside diameter hollow stem augers. The holes were drilled to bedrock, identified by auger refusal and

visual identification of limy shale. In order to measure SWL, 2-inch schedule 40 PVC pipe was temporarily installed with ten feet of screen at the base of each hole. Casing was removed and each hole grouted to surface within 24 hours following sampling and the measurement of TD and SWL. Core barrels and drill stem were decontaminated between each use, and the water level indicator was deconned between each location; disposable 1.5-inch teflon bailers were used for sampling. Drill cuttings and decon water were collected and drummed. The drums were labeled and stored inside a fenced area south of White Settlement Road at the former radar station as specified by Mr. Alan Flolo of the BCA, pending analysis and appropriate disposal.

3.6.1 Soil Descriptions

The five borings were cored continuously, so that cored samples could be described in detail (Appendix E). Descriptions included primary and secondary soil textures, color, mineralogy, roundness, sorting, cohesivity, and plasticity. The soil logs also recorded sample recovery, depth to water, hard layers encountered while drilling, drilling parameters, photo-ionization detector (PID) readings, odors, and other unusual features. Penetrometer logs were previously generated at holes GMI18-07P, GMI18-06P, GMI18-03P, GMI18-04P, and GMI18-12P, respectively, which directly offset the soil borings. This provided a basis for comparison between the electronic soil profiles generated by Fugro at each of the five penetrometer sites with visual description of the same soil column.

3.6.2 Soil Sampling

Following description, each five-foot cored interval was field-screened at six-inch intervals with the HNu model PI101. The interval with the highest reading was put in an air-tight plastic bag and placed on ice for later comparison with cored intervals elsewhere in the soil section. At the hole's TD, the sample with the highest HNu reading was placed in two 8-ounce glass jars with teflon sealed lids for analysis for volatile organics using EPA method 8021 and for TPH using EPA method 8015 modified (extractable hydrocarbons - JP4). If any hole had been dry preventing the collection of a water sample, a second soil sample would have been collected from directly above bedrock; however, water was encountered in each of the five borings during drilling. The jars were filled completely so that no head space remained, and the soil was subjected to as little disturbance as possible.

Each sample was individually labeled as to site designation, date, time, sampler, and methods, and sealed in the field with custody seals. No preservatives were used on the soil samples other than cold temperature. As with the Phase I and II penetrometer hole water samples, chain-of-custody forms were prepared for all samples noting time and date of sampling with continuous custody documented by signatures with date and time. Copies of the forms are included with the analytic results in Appendix D. Talem performed the 8021 analyses, and PDP, Houston, Texas, performed the 8015 modified analyses. Sample designations were constructed using the sample location (e.g., 5B) plus the depth.

3.6.3 Water Sampling

Following drilling, two-inch PVC casing with ten feet of screen at the base were placed in each hole. Water was allowed to reach static equilibrium and sediment to settle out overnight. Sampling procedures were identical to those used for the Phase I and II penetrometer holes except the larger diameter casing allowed the use of a one-inch disposable bailer, and three rather than one 1-liter amber glass jars per location were required for TPH analyses to meet laboratory QA/QC requirements. SWL was measured immediately before sampling. Water samples were checked for color, odor, and turbidity. Forty-milliliter glass vials, used for volatile analyses, were sealed only when an undisturbed meniscus was visible, and following capping, each vial was carefully checked for bubbles. Talem performed EPA method 8021 and method 418.1 analyses; both Talem and the USACE SWDL analyzed duplicates taken from one of the wells.

As with previous water samples, each was individually labeled as to site designation, date, time, sampler, and required analyses, and sealed with custody seals in the field. Samples in glass vials were immediately wrapped in bubble wrap to protect from breakage and stored in ice-filled coolers for daily transportation to the two laboratories. At laboratory recommendation and with USACE approval, no preservative other than ice was used for the volatiles sample while the TPH samples were adjusted to a pH of 2 using hydrochloric acid. Chain-of-custody forms were prepared for all samples noting time and date of sampling with continuous custody documented by signatures with date and time. Copies of the forms are included with the analytic results in Appendix D.

3.7 Quality Assurance/Quality Control

Field procedures were carried out in a systematic manner by trained, experienced, and properly equipped individuals to assure consistency in data collection. Breathing zone air measurements, done at each sample location for the protection of the crew, were performed at the same point in the data collection sequence by a GMI employee; PID monitors were used, either an HNu model PI101 or an organic vapor monitor (OVM) Thermo Environmental Instruments (TE) OVM model 580 PID. The equipment was calibrated each morning, and the zero point was checked frequently during the day. Field activities are described chronologically in a complete field notebook maintained on site at all times. A copy of the field notebook is included as Appendix F.

3.7.1 Sampling

Rinsate samples for the three laboratories were prepared at a frequency of one per 20 sampled sites by collecting deionized (DI) water used for the final rinse of the sampling bailer decon procedures. For the soil borings, one rinsate sample was collected from the DI water used as the final rinse for deconning the core barrel. Each cooler of samples transported to any laboratory which included a water sample to be analyzed for volatile organics and a trip blank, which was prepared using DI water tested and approved by the lab, and transported in the same type of 40-ml glass vials under the same conditions as the field-collected samples. Field or ambient condition blanks, which test for airborne contaminants present during sampling, were collected every tenth volatile organic water sample, using DI water. Duplicate samples were collected every tenth sample of either water or soil; one sample was analyzed by the USACE SWDL per the SOW; a pair of samples was submitted either to Talem or PDP off-site, or to the DHL mobile laboratory.

3.7.2 Analytic

Documentation of QA/QC procedures for each laboratory, as required by the SOW, are included with the analytic results in Appendix D.

3.8 Decontamination

All equipment which came in contact either with soil or groundwater, and therefore had the potential to be contaminated, was decontaminated between each sample station to avoid cross contamination. Cone tips, protective steel casing and steel well screen sections, augers, core barrels, non-disposable bailers, water level indicators, and hand samplers such as trowels were cleaned with hot water and alconox, an approved detergent. New PVC screen was used in each penetrometer hole for sampling and SWL measurement. Used PVC pipe and screen was deconned per Texas Natural Resource Conservation Commission (TNRCC) directives prior to disposal. All wash water was retained in closed and labeled 55-gallon metal drums at CAFB in the fenced area at the former radar station south of White Settlement Road.

Other cross contamination-minimization precautions included: (1) the use of disposable surgical gloves by those handling the sample and (2) grouting all holes as soon as possible after the temporary casing had been pulled in order to protect other horizons from possible exposure to contaminated groundwater.

3.9 Disposal

Following the SOW all solid and liquid waste, including drill cuttings, excess sample, and decon water, generated during both phases has been placed in 55-gallon drums and temporarily stored at CAFB in a locked and fenced location specified by Mr. Alan Flolo of the BCA; this did not include the PVC pipe used for temporary casing. The pipe was decontaminated and transported at the close of the field phase to a hangar for storage until proper disposal following TNRCC directives. The drum inventory included six drums of soil cuttings from the soil borings, three drums of wash water from the decon operations associated with the five soil borings, one drum of used crushed sample jars, one drum containing the sampled groundwater, and 27 drums of wash water from the decon operations associated with the penetrometer sampling sites.

3.9.1 Soil Boring Cuttings

The contents of six drums of soil was disposed at the soil stockpile near Building 20 on base. The stockpile, for non-hazardous waste soil only, stores waste soil until it can be landfarmed. The drums

were sampled on November 18, 1994, and analyzed for the eight RCRA metals (total metals); this completed the required analyses as others were previously done during drilling and sampling. The analytical results from the drums of soil were reviewed by Mike Botwin, Environmental Engineer for the BCA. Mr. Botwin gave GMI permission on December 19, 1994, to dispose of the waste soil generated during the soil boring operations. On December 20, 1994, Hubert H. Thompson of GMI transported the drums of soil from the drum storage area (LF04) to the soil stockpile, emptied the drums, and decontaminated the drums with a steam-pressure washer. No Hazardous Waste Manifest documentation was required. All available documentation, i.e., Records of Communication, lab analyses, and field log book are included in Appendix G.

3.9.2 Decon Water

The contents of 15 drums of decon water were sampled for analysis by Mr. Tony Mills of GMI. Analyses for TPH, BTEX, and halogenated were done by DHL on August 18 and 23, 1994. Results indicate the drums of decon water are free of TPH and VOCs. The unsampled drums are presumed to be part of the same waste stream and therefore considered to have characteristics similar to those sampled. A total of 30 drums will be treated and properly disposed of by a TNRCC approved disposal contractor. At present, disposal efforts is awaiting approval from the BCA.

3.10 Safety, Health, and Emergency Response

Prior to the initiation of the Phase I field activities, a SHERP was prepared for approval by USACE industrial hygiene personnel to cover the penetrometer field activities of both phases. The SHERP addressed the subjects of designated safety personnel, required/recommended personal protective equipment (PPE), breathing zone monitoring procedures and allowable limits, characteristics of anticipated contaminants (including the Material Safety Data Sheets [MSDS]), and applicable certifications for field personnel. The SHERP also included plans to be used in the case of an emergency including key names and phone numbers, directions to the nearest hospital with appropriate care facilities, and reference to the hospital route map, a highlighted copy of which was kept at all times in each vehicle.

One of the results of the presentation of the Phase I penetrometer data on June 23, 1994, was the addition of five bore holes for data infill. Drilling operations had not been included in the original SHERP, so relevant sections were revised to address potential hazards associated with this additional task.

Prior to the initiation of each phase of penetrometer sampling and the soil boring, a site safety meeting was held and attended by all field personnel to discuss pertinent safety issues and assure that all members had reviewed the SHERP and were familiar with the hospital route. Additional safety issue discussions were convened by the Site Safety Officer on an "as needed basis" and in response to concerns expressed by any member of the field crew. A copy of the SHERP, including revisions, is included as Appendix H.

The breathing zone air was monitored at each sample location for volatile organics for the protection of the field crew and others in the area. The instrument used was a PID, either HNu model PI101 or a TE OVM model 580, both of which measure total organic vapors. Although neither specifies compounds, elevated readings would provide an indication of possible concern. The decision of whether or not to instruct the crew to use air purifying respirators (APR) with chemical filter cartridges would be made by the Site Safety Officer. All field personnel had APRs available during the sampling phase of the project; only once was their use warranted when the OVM readings in the breathing zone exceeded the designated action level. This occurred at location GMI18-184P where volatiles were detected during groundwater sampling. Since the breathing zone readings did not exceed 20 parts per million (ppm), the sampler chose to remain on-site and use his APR for the duration of the sampling rather than evacuate.

Flightline training at CAFB is required for any person working on or near any of the runways or taxiways. This training includes an illustrated lecture and a tour of the areas under the jurisdiction of this training. The key elements of the training are: (1) always display the card and the flag or beacon distributed at Base Ops check-in, (2) aircraft always have the right-of-way, (3) posted speed limits are strictly enforced, (4) red lines painted on the pavement indicate restricted areas and are not to be crossed by either individuals or vehicles except at designated crossing points, and (5) radio the tower to request clearance to proceed across taxiways and runways in designated areas. GMI, Fugro, and DHL staff members who worked on the flightline section of the project underwent this training and received necessary clearance.

4.0 DISCUSSION AND INTERPRETATION OF FINDINGS

4.1 Introduction

Five soil boring locations and 252 CPT locations were accessed in two phases (I and II) to collect water samples, soils information, soil samples, and groundwater elevations; all data locations are plotted on Map 1. The soil borings directly offset dry penetrometer locations in order to collect water samples and to calibrate the derived soil profiles with the observed local soil section. At each sample station the soil profile from ground surface to point of penetrometer or auger refusal was recorded and, where water was encountered, a sample was collected and the SWL measured. In addition soil samples were collected from the borings.

Water samples from the five soil borings and 190 penetrometer locations (Table 1) were submitted for laboratory analyses using EPA methods 8021 and 418.1; soil samples were analyzed using EPA methods 8021 and 8015 modified (Tables 2, 3, 4, 5, and 6). Water was not encountered at the other 62 penetrometer sites. Real-time data provided by the on-site laboratory for the Phase II penetrometer locations permitted several initially staked sample sites to be moved to the northwest corner of the project area where the plume boundary was not initially defined. In addition four sites staked near building 1651 were eliminated because the plume boundary had already been established in that area. One other site, located at the south end of the parallel taxiway, was omitted since bedrock outcrops near the location. The depth of soil to bedrock at several other locations in that area ranges from one to three feet.

EPA method 8021 supplies analytic results for 18 purgeable halocarbons and four petroleum hydrocarbons; these include the nine halocarbon compounds and four petroleum hydrocarbons of interest specified in the SOW. Five of the nine halocarbons (cis-1,2-dichloroethene [DCE]; trans-1,2-DCE; trichloroethene [TCE]; tetrachloroethene [PCE]; and vinyl chloride [VC]), as well as the four petroleum hydrocarbons (benzene [B], toluene [T], ethylbenzene [E], and xylenes [X]) had results elevated above their respective laboratory detection limits (dl) at one or more locations (Table 2). The dl for each analyte is listed with the laboratory data in Appendix D. Results for the remaining four compounds of interest (1,2-DCE; 1,1-dichloroethane [DCA]; 1,1,1-trichloroethane [TCA]; and 1,1,2-TCA) were ND for all compounds at all sample sites. No other compounds of the purgeable halocarbon family which were tested had elevated values at any location in the project area.

TABLE 1

SUMMARY OF SAMPLE ACQUISITION AND RESULTS

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-01P	yes	no	
GMI18-02P	yes	no	
GMI18-02PA	yes	no	
GMI18-03P	yes	no	
GMI18-04P	yes	no	
GMI18-05P	yes	no	
GMI18-06P	yes	no	
GMI18-07P	yes	no	
GMI18-08P	yes	no	
GMI18-09P	yes	no	
GMI18-10P	yes	05/18/94	TCE, TPH
GMI18-11P	yes	05/17/94	TCE, TPH
GMI18-12P	yes	no	
GMI18-13P	yes	no	
GMI18-14P	yes	05/12/94	TCE, TPH
GMI18-15P	yes	05/12/94	TPH
GMI18-16P	yes	05/12/94	TPH
GMI18-17P	yes	05/12/94	X, TPH
GMI18-18P	yes	no	
GMI18-19P	yes	no	
GMI18-20P	yes	05/17/94	TCE, TPH
GMI18-21P	yes	05/17/94	TPH
GMI18-22P	yes	05/17/94	B, T, E, X, TPH
GMI18-23P	yes	05/18/94	TPH
GMI18-24P	yes	05/18/94	B, TPH

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-25P	yes	no	
GMI18-26P	yes	no	
GMI18-26PA	yes	no	
GMI18-27P	yes	05/18/94	TPH
GMI18-28P	yes	05/09/94	TPH
GMI18-29P	yes	05/11/94	TCE, DCE, TPH
GMI18-30P	yes	05/11/94	E, X, TPH
GMI18-31P	yes	no	
GMI18-32P	yes	05/11/94	B, T, E, X, TPH
GMI18-33P	yes	05/11/94	E, X,
GMI18-34P	yes	05/12/94	E, X, TPH
GMI18-35P	yes	05/12/94	B, T, E, X, TPH
GMI18-36P	yes	05/10/94	TPH
GMI18-37P	yes	05/10/94	TPH
GMI18-38P	yes	05/09/94	E, X, TPH
GMI18-39P	yes	05/12/94	B, T, E, X, TPH
GMI18-40P	yes	05/12/94	TPH
GMI18-41P	yes	05/09/94	TPH
GMI18-42P	yes	05/16/94	TCE, TPH
GMI18-43P	yes	05/16/94	TCE, TPH
GMI18-44P	yes	05/12/94	TPH
GMI18-45P	yes	05/13/94	B, T, E, X, TPH
GMI18-46P	yes	05/13/94	TCE, TPH
GMI18-47P	yes	05/12/94	TPH
GMI18-48P	yes	05/13/94	TCE, DCE, TPH
GMI18-49P	yes	05/17/94	B, T, E, X, TPH

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-50P	yes	05/16/94	TCE, B, TPH
GMI18-51P	yes	05/16/94	TCE, TPH
GMI18-52P	yes	05/16/94	TCE
GMI18-53P	yes	05/16/94	TCE, TPH
GMI18-54P	yes	08/16/94	all analytes ND
GMI18-55P	yes	08/16/94	TCE
GMI18-56P	yes	08/16/94	all analytes ND
GMI18-57P	yes	08/16/94	all analytes ND
GMI18-58P	yes	08/16/94	all analytes ND
GMI18-59P	yes	08/16/94	all analytes ND
GMI18-60P	yes	no	
GMI18-61P	yes	08/17/94	all analytes ND
GMI18-62P	yes	08/17/94	all analytes ND
GMI18-63P	yes	08/17/94	TCE
GMI18-64P	yes	08/22/94	TCE
GMI18-65P	yes	08/22/94	TCE
GMI18-66P	yes	08/17/94	all analytes ND
GMI18-67P	yes	08/17/94	TCE, DCE
GMI18-68P	yes	08/17/94	all analytes ND
GMI18-69P	yes	08/17/94	TCE, DCE
GMI18-70P	yes	08/18/94	TCE, DCE
GMI18-71P	yes	08/18/94	TCE, DCE
GMI18-72P	yes	10/27/94	TCE, DCE
GMI18-73P	yes	10/27/94	TCE, DCE, VC
GMI18-74P	yes	no	
GMI18-75P	yes	10/20/94	all analytes ND

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-76P	yes	no	
GMI18-77P	yes	no	
GMI18-78P	yes	no	
GMI18-79P	yes	no	
GMI18-80P	yes	10/20/94	TCE
GMI18-81P	yes	no	
GMI18-82P	yes	10/20/94	TCE, DCE
GMI18-83P	yes	10/20/94	TCE, DCE, VC
GMI18-84P	yes	10/27/94	TCE, DCE, VC
GMI18-85P	yes	08/18/94	TCE, DCE
GMI18-86P	yes	08/18/94	TCE, DCE
GMI18-87P	yes	08/18/94	TCE
GMI18-88P	yes	08/16/94	TCE, DCE
GMI18-89P	yes	08/16/94	TCE, DCE
GMI18-90P	yes	08/16/94	all analytes ND
GMI18-91P	yes	08/16/94	TCE
GMI18-92P	yes	08/19/94	TCE
GMI18-93P	yes	08/19/94	TCE
GMI18-94P	yes	no	
GMI18-95P	yes	08/17/94	all analytes ND
GMI18-96P	yes	08/19/94	TCE
GMI18-97P	yes	08/19/94	all analytes ND
GMI18-98P	yes	08/19/94	TCE, DCE, PCE
GMI18-99P	yes	08/19/94	all analytes ND
GMI18-100P	yes	no	
GMI18-101P	yes	08/19/94	TCE, DCE

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-102P	yes	no	
GMI18-103P	yes	08/18/94	TCE, DCE
GMI18-104P	yes	08/18/94	TCE, DCE
GMI18-105P	yes	08/18/94	TCE, DCE
GMI18-106P	yes	08/18/94	TCE, DCE
GMI18-107P	yes	10/27/94	TPH
GMI18-108P	yes	10/27/94	DCE
GMI18-109P	yes	10/27/94	all analytes ND
GMI18-110P	yes	10/27/94	all analytes ND
GMI18-111P	yes	10/27/94	all analytes ND
GMI18-112P	yes	no	
GMI18-113P	no[4]		
GMI18-114P	yes	no	
GMI18-115P	yes	no	
GMI18-116P	yes	no	
GMI18-117P	yes	no	
GMI18-118P	yes	10/19/94	TCE, DCE
GMI18-119P	yes	10/19/94	all analytes ND
GMI18-120P	yes	10/19/94	TCE, DCE
GMI18-121P	yes	08/16/94	TCE, DCE
GMI18-122P	yes	08/16/94	TCE
GMI18-123P	yes	08/16/94	TCE, DCE
GMI18-124P	yes	08/16/94	TCE, DCE
GMI18-125P	yes	08/09/94	TCE, DCE
GMI18-126P	yes	no	
GMI18-127P	yes	08/09/94	TCE, TPH

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-128P	yes	08/10/94	TCE
GMI18-129P	yes	08/10/94	TCE
GMI18-130P	yes	08/10/94	TCE
GMI18-131P	yes	08/10/94	TCE
GMI18-132P	yes	08/10/94	all analytes ND
GMI18-133P	yes	08/10/94	all analytes ND
GMI18-134P	yes	08/11/94	TCE
GMI18-135P	yes	08/09/94	TCE, DCE, PCE, TPH
GMI18-136P	yes	08/02/94	TCE, TPH
GMI18-137P	yes	08/02/94	TCE, TPH
GMI18-138P	yes	08/02/94	TCE, DCE, TPH
GMI18-139P	yes	08/09/94	TCE, DCE
GMI18-140P	yes	08/15/94	TCE, DCE
GMI18-141P	yes	08/15/94	TCE, DCE
GMI18-142P	yes	no	
GMI18-143P	yes	08/15/94	TCE, DCE
GMI18-144P	yes	10/17/94	TCE, DCE
GMI18-145P	no[4]		
GMI18-146P	yes	10/19/94	TCE
GMI18-147P	yes	no	
GMI18-148P	yes	10/19/94	TCE, DCE
GMI18-149P	yes	10/19/94	TCE, DCE
GMI18-150P	yes	no	
GMI18-151P	yes	no	
GMI18-153P	yes	no	
GMI18-154P	yes	08/15/94	TCE, DCE

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-155P	yes	no	
GMI18-156P	yes	08/15/94	TCE, DCE
GMI18-157P	yes	08/09/94	TCE
GMI18-158P	yes	08/09/94	TCE
GMI18-159P	yes	08/09/94	TCE
GMI18-160P	yes	08/09/94	TCE
GMI18-161P	yes	08/02/94	TPH
GMI18-162P	yes	08/11/94	TCE
GMI18-163P	yes	08/11/94	all analytes ND
GMI18-164P	yes	08/10/94	all analytes ND
GMI18-165P	yes	no	
GMI18-166P	yes	no	
GMI18-167P	yes	08/11/94	all analytes ND
GMI18-169P	yes	08/10/94	all analytes ND
GMI18-171P	yes	08/10/94	all analytes ND
GMI18-172P	yes	08/11/94	all analytes ND
GMI18-173P	yes	08/11/94	TCE
GMI18-174P	yes	08/11/94	TCE, DCE
GMI18-175P	yes	08/04/94	TCE, DCE
GMI18-176P	yes	08/04/94	TCE, DCE
GMI18-177P	yes	08/04/94	TCE, DCE
GMI18-178P	yes	08/03/94	TCE, DCE
GMI18-179P	yes	08/03/94	TCE, TPH
GMI18-180P	yes	08/03/94	all analytes ND
GMI18-181P	yes	08/03/94	DCE
GMI18-182P	yes	08/03/94	all analytes ND

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-183P	yes	08/03/94	E, TPH
GMI18-184P	yes	08/03/94	E, X, TPH
GMI18-185P	yes	08/04/94	TPH
GMI18-186P	yes	08/04/94	DCE
GMI18-187P	yes	08/04/94	DCE
GMI18-188P	yes	08/04/94	all analytes ND
GMI18-189P	yes	08/08/94	TCE
GMI18-190P	yes	08/08/94	VC, TPH
GMI18-191P	yes	08/08/94	VC
GMI18-192P	yes	08/08/94	TPH
GMI18-193P	yes	08/08/94	TPH
GMI18-194P	yes	no	
GMI18-195P	yes	no	
GMI18-196P	yes	no	
GMI18-197P	yes	no	
GMI18-198P	yes	08/09/94	TCE, DCE
GMI18-199P	yes	08/15/94	TCE, DCE
GMI18-200P	yes	08/15/94	TCE, DCE
GMI18-201P	yes	08/15/94	TCE
GMI18-202P	yes	08/12/94	all analytes ND
GMI18-203P	yes	no	
GMI18-204P	yes	no	
GMI18-205P	yes	08/04/94	DCE, VC
GMI18-206P	yes	no	
GMI18-207P	yes	no	
GMI18-208P	yes	08/05/94	TCE, DCE, VC

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-209P	yes	08/05/94	TCE, DCE
GMI18-210P	yes	08/05/94	TCE, DCE
GMI18-211P	yes	08/03/94	TCE, DCE
GMI18-212P	yes	08/15/94	all analytes ND
GMI18-213P	yes	08/15/94	all analytes ND
GMI18-214P	yes	08/15/94	all analytes ND
GMI18-215P	yes	08/15/94	all analytes ND
GMI18-216P	yes	10/21/94	all analytes ND
GMI18-217P	yes	08/22/94	all analytes ND
GMI18-218P	yes	no	
GMI18-219P	yes	no	
GMI18-220P	yes	no	
GMI18-221P	yes	no	
GMI18-222P	yes	no	
GMI18-223P	yes	no	
GMI18-224P	yes	10/26/94	TCE
GMI18-225P	yes	no	
GMI18-226P	yes	08/23/94	all analytes ND
GMI18-227P	yes	10/24/94	all analytes ND
GMI18-228P	yes	08/23/94	all analytes ND
GMI18-229P	yes	08/23/94	all analytes ND
GMI18-230P	yes	08/23/94	all analytes ND
GMI18-231P	yes	10/26/94	all analytes ND
GMI18-232P	yes	10/26/94	all analytes ND
GMI18-233P	yes	10/26/94	all analytes ND
GMI18-234P	yes	10/24/94	all analytes ND

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-235P	yes	no	
GMI18-236P	yes	10/24/94	all analytes ND
GMI18-237P	yes	08/23/94	TCE, DCE
GMI18-238P	yes	no	
GMI18-239P	yes	08/12/94	all analytes ND
GMI18-240P	yes	no	
GMI18-241P	yes	08/12/94	all analytes ND
GMI18-242P	yes	08/12/94	TCE, DCE
GMI18-243P	yes	08/11/94	TCE, DCE
GMI18-244P	no[4]		
GMI18-245P	yes	08/02/94	TCE, DCE
GMI18-246P	yes	08/11/94	TCE, DCE, VC
GMI18-247P	yes	08/11/94	TCE, DCE, VC
GMI18-249P	yes	10/21/94	TCE, DCE, PCE
GMI18-250P	yes	08/22/94	TCE, DCE, PCE
GMI18-251P	yes	08/22/94	DCE, TPH
GMI18-252P	yes	no	
GMI18-253P	yes	10/24/94	all analytes ND
GMI18-254P	yes	no	
GMI18-255P	yes	10/21/94	all analytes ND
GMI18-257P	no		
GMI18-258P	no		
GMI18-259P	no		
GMI18-260P	no		
GMI18-261P	yes	08/11/94	all analytes ND
GMI18-263P	yes	10/26/94	all analytes ND

TABLE 1 (Cont'd)

Location No.[1]	Drilled or Punched[2]	Sampled[3] (Date)	Results (Compound[s] Listed Where Present)
GMI18-01B	yes	09/15/94	all analytes ND
GMI18-02B	yes	09/15/94	all analytes ND
GMI18-03B	yes	09/15/94	TPH
GMI18-04B	yes	09/14/94	TPH
GMI18-05B	yes	09/15/94	all analytes ND

[1]P in the location name refers to penetrometer locations; B refers to borings that were drilled by the hollow stem auger method; the number 18 refers to IRP site number 18.

[2]Sites with "B" in the location were drilled; remainder were punched. A "no" in this column indicates that the location was staked but not punched.

[3]"No" in the "Sampled" column refers to holes which were punched, but not sampled; this generally indicates a dry hole.

[4]Location GMI18-113P was not punched since bedrock outcropped nearby. It was assumed that the soil would be less than one foot thick. This location was not surveyed.

[5]Locations were staked and surveyed, but not punched to depth due to surface obstructions.

TABLE 2

PHASE I PENETROMETER LABORATORY RESULTS - EPA METHODS 8021 AND 418.1
with DETECTION LIMITS[1]

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg\L	PCE 5.0 μg\L	Σ TCA[2] 5.0 μg/L	VC 5.0 μg/L	B 5.0 μg\L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 0.5 mg/L
GMI18-10P	220. (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)	ND (2.0)	35.
GMI18-11P	24. (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)	ND (2.0)	1.2
GMI18-14P	260.	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2
GMI18-15P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.
GMI18-16P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24.
GMI18-17P	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.	45.
GMI18-20P	440.	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.4
GMI18-21P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.1
GMI18-22P	ND	ND	ND	ND	ND	ND	600.	520.	1200.	530.	1400.
GMI18-23P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.
GMI18-23P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.8
GMI18-24P	ND	ND	ND	ND	ND	ND	1400.	ND	ND	ND	8000.
GMI18-27P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	44.
GMI18-28P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4
GMI18-29P	20.	26.	ND	ND	ND	ND	ND	ND	ND	ND	61.
GMI18-30P	ND	ND	ND	ND	ND	ND	ND	ND	150.	350.	4900.

TABLE 2 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg\L	PCE 5.0 μg\L	Σ TCA[2] 5.0 μg/L	VC 5.0 μg/L	B 5.0 μg\L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 0.5 mg/L
GMI18-32P	ND	ND	ND	ND	ND	ND	24.	15.	16.	61.	170.
GMI18-33P	ND	ND	ND	ND	ND	ND	ND	ND	49.	320.	6500.
GMI18-34P	ND	ND	ND	ND	ND	ND	ND	ND	35.	47.	1400.
GMI18-34P[3]	ND	ND	ND	ND	ND	ND	ND	ND	48.	52.	280.
GMI18-35P	ND	ND	ND	ND	ND	ND	11.	190.	130.	334.	3900.
GMI18-36P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	890.
GMI18-37P	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)	ND (2.0)	18.
GMI18-38P	ND	ND	ND	ND	ND	ND	ND	ND	580.	1600.	310.
GMI18-39P	ND	ND	ND	ND	ND	ND	440.3	111.	580.	1700.	2300.
GMI18-40P	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)	ND (2.0)	24.
GMI18-41P	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)	ND (2.0)	2.7
GMI18-42P	520.	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.2
GMI18-43P	570. (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)	ND (2.0)	1.5
GMI18-44P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.8
GMI18-45P	ND	ND	ND	ND	ND	ND	1500.	56.	700.	1300.	1200.
GMI18-46P	120.	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.
GMI18-46P[3]	100.	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
GMI18-47P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1
GMI18-48P	130.	13.	ND	ND	ND	ND	ND	ND	ND	ND	11.

TABLE 2 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg\L	PCE 5.0 μg\L	Σ TCA[2] 5.0 μg/L	VC 5.0 μg/L	B 5.0 μg\L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 0.5 mg/L
GMI18-49P	ND	ND	ND	ND	ND	ND	14.	21.	26.	74.	17.
GMI18-49P[3]	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	3.7 (2.0)	3.1 (2.0)	3.9 (2.0)	19. (2.0)	11.
GMI18-50P	21.	ND	ND	ND	ND	ND	9.7	ND	ND	ND	2.8
GMI18-51P	820.	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6
GMI18-52P	950. (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)	ND (2.0)	ND
GMI18-53P	610.	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9

Method 8021 measures chlorinated hydrocarbons and BTEX in soil and water - results in micrograms per liter (μ/L)
Method 418.1 measures TPH in water - results in mg/L

ND = non-detect

[1] standard detection limits (DLs) are noted under the analyte in the header; DLs which vary for a particular sample are noted in parentheses under the results for that sample
[2] summation of DCE, cis-1,2-DCE, and trans-1,2-DCE; summation of 1,1,1-TCA and 1,1,2-TCA; summation of o, m, and p Xylenes
[3] duplicate sample

TABLE 3

PHASE II PENETROMETER LABORATORY RESULTS - EPA METHODS 8021 AND 418.1
with DETECTION LIMITS[1]

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-54P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-55P	222.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-56P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-57P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-58P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-59P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-61P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-62P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-63P	15.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-64P	40.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-64P[3]	33.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-65P	70.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-66P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-66P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-67P	215.	47.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-68P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-69P	728.	76.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-70P	263.	16.2	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-71P	118.	2.92	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-71P[3]	120.	7.76	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-72P	4852.	343.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-73P	255.	690.7	ND	ND	ND	21.9	ND	ND	ND	ND	ND
GMI18-73P[3]	242.	672.	ND	ND	ND	21.	ND	ND	ND	ND	ND
GMI18-75P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-80P	4.26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-82P	7.14	49.51	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-83P	1182.	236.4	ND	ND	ND	5.71	ND	ND	ND	ND	ND
GMI18-84P	571.	227.	ND	ND	ND	5.61	ND	ND	ND	ND	ND
GMI18-85P	454.	33.5	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-86P	32.4	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-87P	8.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-88P	662.	104.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-89P	67.6	8.91	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-89P[3]	66.5	9.75	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-90P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-91P	1.35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-92P	12.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-93P	8.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-95P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-96P	1.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-97P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-98P	119.	2.76	ND	2.96	ND	ND	ND	ND	ND	ND	ND
GMI18-99P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-101P	19.4	1.21	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-103P	1069.	155.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-104P	1269.	159.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-105P	987.	115.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-106P	154.	7.69	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-107P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.2
GMI18-108P	ND	5.89	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-109P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-110P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-111P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-118P	1095.	319.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-119P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-120P	89.	568.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-121P	582.	47.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-122P	48.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-123P	1441.	195.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-124P	143.	33.5	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-125P	123.	14.9	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-127P	145.	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.
GMI18-128P	50.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-129P	23.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-130P	18.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-131P	9.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-131P[3]	9.64	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-132P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-133P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-134P	6.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-135P	500.	9.09	ND	12.6	ND	ND	ND	ND	ND	ND	3.3
GMI18-136P	121.	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3
GMI18-137P	34.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1
GMI18-138P	203.	37.5	ND	ND	ND	ND	ND	ND	ND	ND	5.3
GMI18-139P	122.	14.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-140P	108.	8.11	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-141P	1418.	214.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-143P	1034.	85.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-144P	768	72.4	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-146P	3.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-148P	782	254.1	ND	ND	ND	9.67	ND	ND	ND	ND	ND

TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-149P	28.	15.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-154P	167.	14.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-154P[3]	176.	15.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-156P	797.	109.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-157P	89.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-158P	5.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-159P	6.25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-159P[3]	4.53	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-160P	36.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-161P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9
GMI18-162P	209.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-163P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-163P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-164P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-167P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-169P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-171P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-172P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-173P	15.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-174P	203.	31.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-175P	347.	19.	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-176P	156.	43.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-177P	354.	19.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-178P	189.	20.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-179P	99.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.2
GMI18-180P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-181P	ND	12.18	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-181P[3]	ND	14.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-182P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-183P	ND	ND	ND	ND	ND	ND	ND	ND	78.3	ND	6.2
GMI18-184P	ND	ND	ND	ND	ND	ND	ND	ND	35.3	4.71	775.
GMI18-185P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.8
GMI18-186P	ND	26.4	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-187P	ND	23.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-188P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-189P	23.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-190P	ND	ND	ND	ND	ND	19.	ND	ND	ND	ND	2.6
GMI18-191P	ND	ND	ND	ND	ND	220.	ND	ND	ND	ND	ND
GMI18-192P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	99.
GMI18-193P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1
GMI18-198P	697.	94.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-199P	558.	78.4	ND	ND	ND	ND	ND	ND	ND	ND	ND

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TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-200P	186.	17.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-201P	22.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-202P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-205P	ND	6.16	ND	ND	ND	91.8	ND	ND	ND	ND	ND
GMI18-208P	9.23	86.3	ND	ND	ND	12.4	ND	ND	ND	ND	ND
GMI18-208P[3]	5.07	81.3	ND	ND	ND	12.9	ND	ND	ND	ND	ND
GMI18-209P	107.	84.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-210P	5.46	106.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-211P	29.3	110.	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-212P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-213P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-214P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-215P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-216P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-217P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-224P	5.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-226P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-227P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-228P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-228P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-229P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-230P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-231P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-232P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-233P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-233P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-234P[4]	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND
GMI18-236P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-237P	146.	50.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-239P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-239P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-241P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-242P	33.7	106.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-243P	164.	34.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-245P	88.8	149.	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-246P	605.	78.2	ND	ND	ND	10.2	NND	ND	ND	ND	ND
GMI18-247P	121.	105.	ND	ND	ND	11.7	ND	ND	ND	ND	ND
GMI18-249P	120.	5.69	ND	8.07	ND	ND	ND	ND	ND	ND	ND
GMI18-250P	118.	3.5	ND	1.39	ND	ND	ND	ND	ND	ND	ND
GMI18-251P	ND	90.9	ND	ND	ND	ND	ND	ND	ND	ND	5.13
GMI18-253P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-253P[3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3 (cont'd)

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 10.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 1 mg/L
GMI18-255P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
GMI18-261P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-263	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Method 8021 measures chlorinated hydrocarbons and BTEX in soil and water - results in micrograms per liter (μ/L)
Method 418.1 measures TPH in water - results in mg/L

ND = non-detect

[1] standard detection limits (DLs) are noted under the analyte in the header; DLs which vary for a particular sample are noted in parentheses under results for that sample
[2] summation of DCE, cis-1,2-DCE, and trans-1,2-DCE; summation of 1,1,1-TCA and 1,1,2-TCA; summation of o, m, and p Xylenes
[3] duplicate sample
[4] broken sample

TABLE 4

PHASE II SOIL BORINGS - LABORATORY RESULTS - EPA METHOD 8021, 8015 (MODIFIED), AND 418.1
with DETECTION LIMITS (Soil-Water)

Location No.	TCE 1 mg/kg- 10 μg/L	Σ DCE[1] 1 mg/kg- 10 μg/L	DCA 1 mg/kg- 10 μg/L	PCE 1 mg/kg- 10 gμ/L	Σ TCA[1] 1 mg/kg- 10 μg/L	VC 3 mg/kg- 30 μg/L	B 1 mg/kg- 10 μg/L	T 1 mg/kg- 10 μg/L	E 1 mg/kg- 10 μg/L	Σ X[1] 1 mg/kg- 10 μg/L	TPH 8.33 mg/kg- 0.5 mg/L
GMI18-01B-5 (soil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-01B (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-01B2[2] (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-02B-20 (soil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-02B-202[2] (soil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-02B (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-03B-15 (soil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-03B (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.5
GMI18-04B-5 (soil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-04B (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200.

TABLE 4 (cont'd)

Location No.	TCE 1 mg/kg- 10 μg/L	Σ DCE[1] 1 mg/kg- 10 μg/L	DCA 1 mg/kg- 10 μg/L	PCE 1 mg/kg- 10 gμ/L	Σ TCA[1] 1 mg/kg- 10 μg/L	VC 3 mg/kg- 30 μg/L	B 1 mg/kg- 10 μg/L	T 1 mg/kg- 10 μg/L	E 1 mg/kg- 10 μg/L	Σ X[1] 1 mg/kg- 10 μg/L	TPH 8.33 mg/kg- 0.5 mg/L
GMI18-05B-15 (soil)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GMI18-05B (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Method 8021 measures chlorinated hydrocarbons and BTEX in soil and water - results in micrograms per liter (μ/L)
Method 8015 (modified) measures TPH in soil - results in mg/kg
Method 418.1 measures TPH in water - results in mg/L

ND = non-detect

[1] summation of DCE, cis-1,2-DCE, and trans-1,2-DCE; summation of 1,1,1-TCA and 1,1,2-TCA; summation of o, m, and p Xylenes
[2] duplicate sample

TABLE 5

MONITORING WELL[1] LABORATORY RESULTS - EPA METHODS 8021 AND 418.1
WITH DETECTION LIMITS

Location No.	TCE 5.0 μg/L	Σ DCE[2] 5.0 μg/L	DCA 5.0 μg/L	PCE 5.0 μg/L	Σ TCA[2] 5.0 μg/L	VC 5.0 μg/L	B 5.0 μg/L	T 5.0 μg/L	E 5.0 μg/L	Σ X[2] 5.0 μg/L	TPH 0.5 mg/L
GMI22-01M	ND	3.7	ND	ND	ND	ND	41	ND	ND	ND	19.
GMI22-02M	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	78.
GMI22-03M	26.	77.	ND	23.	ND	ND	ND	ND	ND	ND	7.4
GMI22-04M	780.	48.	ND	ND	ND	ND	ND	ND	ND	ND	6.3
GMI22-04M[3]	47.	750.	ND	ND	ND	ND	ND	ND	ND	ND	7.4
GMI22-05M	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.3
GMI22-06M	660.	74.	ND	7.2	6.1	3.9	ND	ND	ND	ND	8.0
GMI22-07M	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.9
GMI22-08M	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.3
GMI04-01M	1200.	424.	ND	ND	ND	7.0	ND	ND	ND	ND	11.0

Method 8021 measures chlorinated hydrocarbons and BTEX in water - results in micrograms per liter (μ/L)
Method 418.1 measures TPH in water - results in mg/L

ND = non-detect

[1] GMI monitoring wells installed February 1994 and sampled May 1994
[2] summation of DCE, cis-1,2-DCE, and trans-1,2-DCE; summation of 1,1,1-TCA and 1,1,2-TCA; summation of o, m, and p Xylenes
[3] duplicate sample

TABLE 6

PHASE I AND II QUALITY CONTROL LABORATORY RESULTS[1] - EPA METHODS 8021, 8015 (MODIFIED), AND 418.1

Location No.	TCE	Σ DCE[2]	DCA	PCE	Σ TCA[2]	VC	B	T	E	Σ X[2]	TPH
TB51094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB50994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.8
FB51894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4
RB51894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6
TB51894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB51794	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
Trip Blank	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB51394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB51394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
RB51394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.3
FB51294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.4
TB51294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB51194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.2
TB91394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
RB91494	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB91594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB80294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB80394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6 (cont'd)

Location No.	TCE	Σ DCE[2]	DCA	PCE	Σ TCA[2]	VC	B	T	E	Σ X[2]	TPH
TB80394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
RB80594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB80594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB80594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB80894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
RB81094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB81094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB80994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB80994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB81094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB81194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB81194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB81294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB81294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB81294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB81594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB81594	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB81694	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB81694	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB81694	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB81794	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 6 (cont'd)

Location No.	TCE	Σ DCE[2]	DCA	PCE	Σ TCA[2]	VC	B	T	E	Σ X[2]	TPH
B81794	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
RB81894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB81894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB81894	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB81994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB82294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB82294	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
RB82394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB82394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB82394	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB101794	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB101994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB102094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB102194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
TB102494	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB102494	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB102794	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB102794	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
FB102694	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RB102694	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB102694	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS

Method 8021 measures chlorinated hydrocarbons and BTEX in soil and water - results in micrograms per liter (μ/L)
Method 8015 (modified) measures TPH in soil - results in milligrams per liter (mg/L)
Method 418.1 measures TPH in water - results in mg/L

ND = non-detect
NS = no sampler (trip blanks are not required for soil samples)

FB field blank
TB trip blank
RB rinsate blank

[1] sample number includes the date as an identifier
[2] summation of DCE, cis-1,2-DCE, and trans-1,2-DCE; summation of 1,1,1-TCA and 1,1,2-TCA; summation of o, m, and p Xylenes

EPA method 418.1 analyzes for TPH using IR spectrophotometry. The method does not identify individual compounds or the amount of their contribution.

Analyses for BTEX and TPH established a plume boundary around the hydrant fueling system in two distinct areas on the flightline. The BTEX plume is coexistent with the TPH plume in both areas: one in the Alert Apron and one in the South Apron, with the exception of the TPH plume near Hangar 1050. During the 1993 phase of the AFP4 TCE project, BTEX was also detected east of the fueling station between Knights Lake Road and Rogner Drive near building 1213. The extent of the plume east of Rogner Drive was not delineated.

Analyses for TCE and 17 other purgeable halocarbon compounds plus BTEX under EPA method 8021 demonstrated a general consistency in distribution of elevated values of TCE and the TCE degradation product cis-1,2-dichloroethene (DCE). Other TCE degradation products (trans-1,2-DCE), VC, and PCE plus the four hydrocarbons showed isolated elevated spikes. The other halocarbons were all ND. Where project areas overlap, peak concentrations generally are comparable to values measured by others in 1993 (ITC and JE) and those measured by GMI in 1992-1993, although there are a few exceptions.

The results obtained for this project established the TCE plume boundaries as follows. On the north side of the base, it runs inside the flightline in the vicinity of Facility 162 (Hot Cargo Area). On the northeast, it extends around the BX Mart parking lot and south on the west side of Knights Lake Road. On the east side of the base, one finger of the plume reaches a point west of Knights Lake Road near Building 1504. On the southeast, the plume encompasses Hangar 1050 and proceeds south toward Roaring Springs Road near Ascol Drive, while another portion of the plume extends eastward to Tinker Drive and White Settlement Road. On the south the plume boundary is defined by the golf course along the south side of White Settlement Road. The TCE plume defined by the JP-4 project overlaps the 1993-1994 AFP4 TCE project area in several areas and infills areas previously undefined. The plume is currently defined to the north (except for a short length), east, and south, and is open to the west and at the northernmost end of the runway near Taxiway A193.

4.2 Subsurface Stratigraphy and Soil Sampling

The stratigraphy of the unconsolidated alluvial sediments has been delineated on much of the base predominantly by the CPT method as requested in the SOW. In areas in which the CPT did not intercept groundwater, and where there was evidence that groundwater might be present, five boreholes were drilled to collect soil and water samples, both for laboratory analyses and for stratigraphy. Previous monitoring well soil logs and other data were also used to supplement the subsurface information as well as for groundwater modeling.

4.2.1 Subsurface Stratigraphy

Previous studies (Radian Corporation 1991; Hargis and Associates 1989) have suggested that one or more paleochannels exist in the shallow subsurface under the project area and that these provide preferential conduits for both groundwater and contaminant migration. These channels reportedly cut into the local bedrock of limestone and marl and are filled with relatively coarse, unconsolidated clastics and muds. These sediments were transported into the area as well as derived locally. The objective of the subsurface delineation component of the SOW was to describe the soil types encountered and their characteristics and to determine static water depths.

CPT soil profiles are developed using two physical parameters recorded digitally while the cone penetrometer is being pushed from ground surface to point-of-refusal. The two parameters are tip resistance, measured at the tip of the cone, and friction, measured along the sleeve of the probe. Both are quantified in tons per square foot. Friction divided by tip resistance results in a ratio which generally falls within the range of 0.01 to 0.10, i.e., 0% to 10%. This ratio can correspond to a single soil (as defined by texture) or to a mixture of soil textural types. Generally, values over 5% or 6% are clay-rich, while values under 2% are sand and gravel. Intermediate values are interpreted as mixtures of different grain size sediments. The lithologic symbols for these soil interpretations are plotted next to the three curves for each location (see Appendix C for annotated profiles).

The cones are not calibrated specifically to different sites, and so direct comparison with an actual local soil profile is advisable. This was intentionally done at seven locations: GMI-03SB and GMI-04SB in 1993 and GMI18-01B, GMI18-02B, GMI18-03B, GMI18-04B, and GMI18-05B in 1994. The 1994

borings were drilled to determine if the penetrometer reached bedrock and to collect water samples near originally dry holes along the fuel hydrant system. Drilled and described bore holes closely offset (less than ten feet) the penetrometer holes (Figures 5 and 6). Comparisons indicate four pairs of soil profiles are similar regarding major shifts in grain size, especially GMI18-04B and GMI18-05B. The purpose of the penetrometer curves is to identify the location and extent of coarser sediments that may suggest stream channel deposits and preferential migration pathways. One limitation of the CPT is that it does not identify grain sizes greater than sand size within the soil column, because cobbles and pebbles often help define basal channel deposits.

There are several other examples of previously described soil profiles located within 250 feet of penetrometer soil profiles. Soil borings GMI-01SB and GMI-02SB are within 100 to 250 feet, respectively, of GMI penetrometer locations punched in 1993. Soil boring GMI-01SB and penetrometer location GMI-4W have a similar section (sand dominant below approximately five feet) and similar TDs (25 feet). Both had water that contained TCE. Soil boring GMI-02SB and penetrometer locations GMI-5W and 16W may explain some dry holes. Both penetrometer holes bottomed at the approximate depth of resistant layers identified in the soil column description which is six feet deeper. The soil boring encountered water, while both shallower penetrometer holes did not. The same can be said of the five borings located on the flightline where the penetrometer failed to reach water due to a gravel layer or the presence of partially cemented sand.

At an additional four penetrometer sites in the southeast portion of the base, general soil descriptions were available from nearby soil borings done by Radian Corporation in 1991. Comparisons do not show GMI-66S and Radian 17C/17B or GMI-56S and Radian 17A to be identical; however, comparisons between GMI-74S and Radian 17F and between GMI-75S and Radian 17G show comparable depths for the clay to sand boundaries.

One difference between penetrometer profiles and visual soil profiles on the flightline is that the penetrometer interpretation shows more silt than was actually observed. Therefore, for the purposes of producing cross-sections which would reasonably illustrate the distinction between clays, sands, and mixed grain sizes, the friction/resistance ratio curve was used for interpretation. Sand boundaries were generally picked at or below the 2% friction ratio, clay boundaries were picked at or above 5% to 6%, and anything in between was interpreted as a combination of sand and clay.

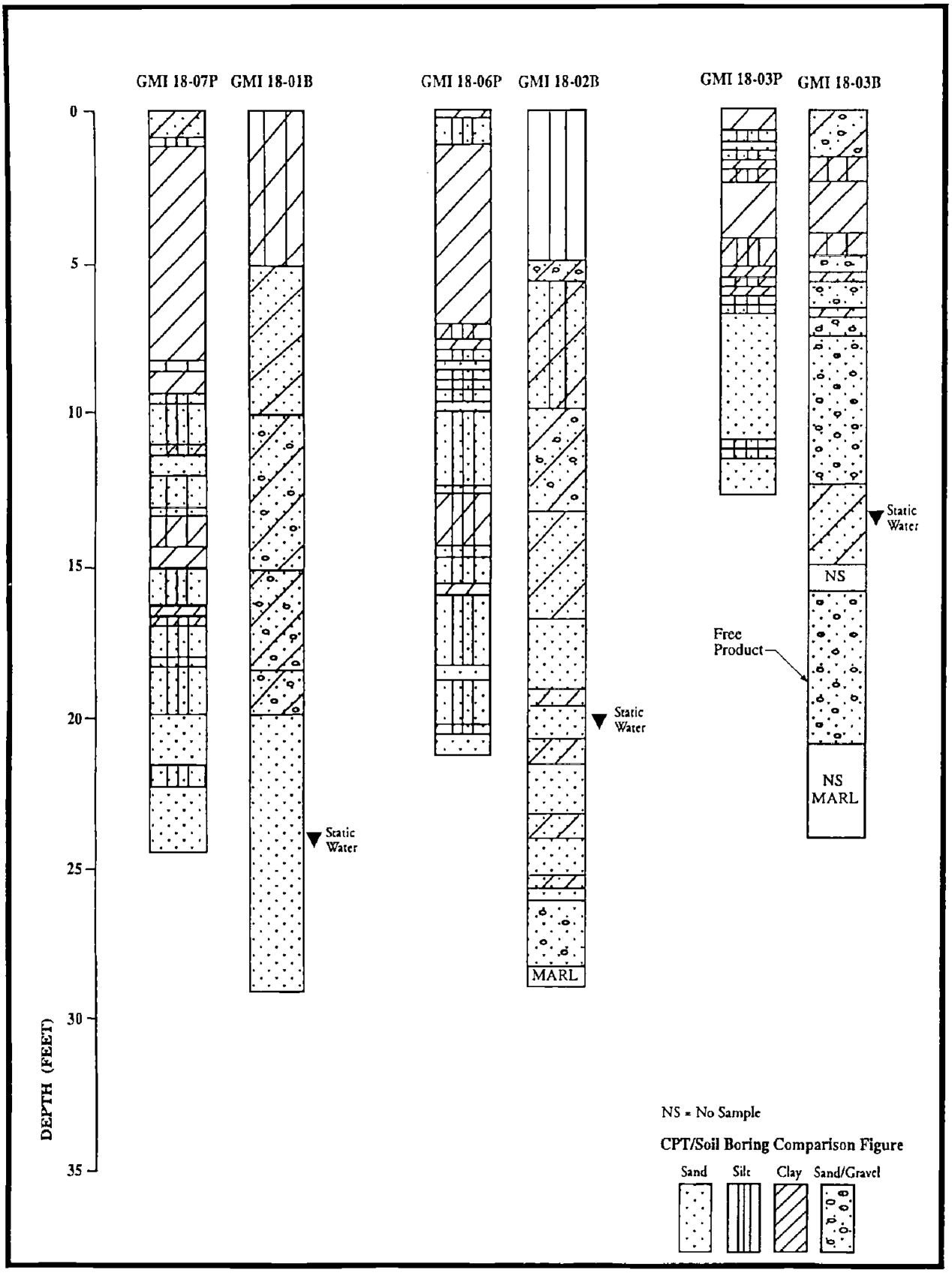

Figure 5. Comparative soil profiles from soil borings (on the right of each pair) and CPT plots (on the left of each pair). Data were collected on the flightline in 1994.

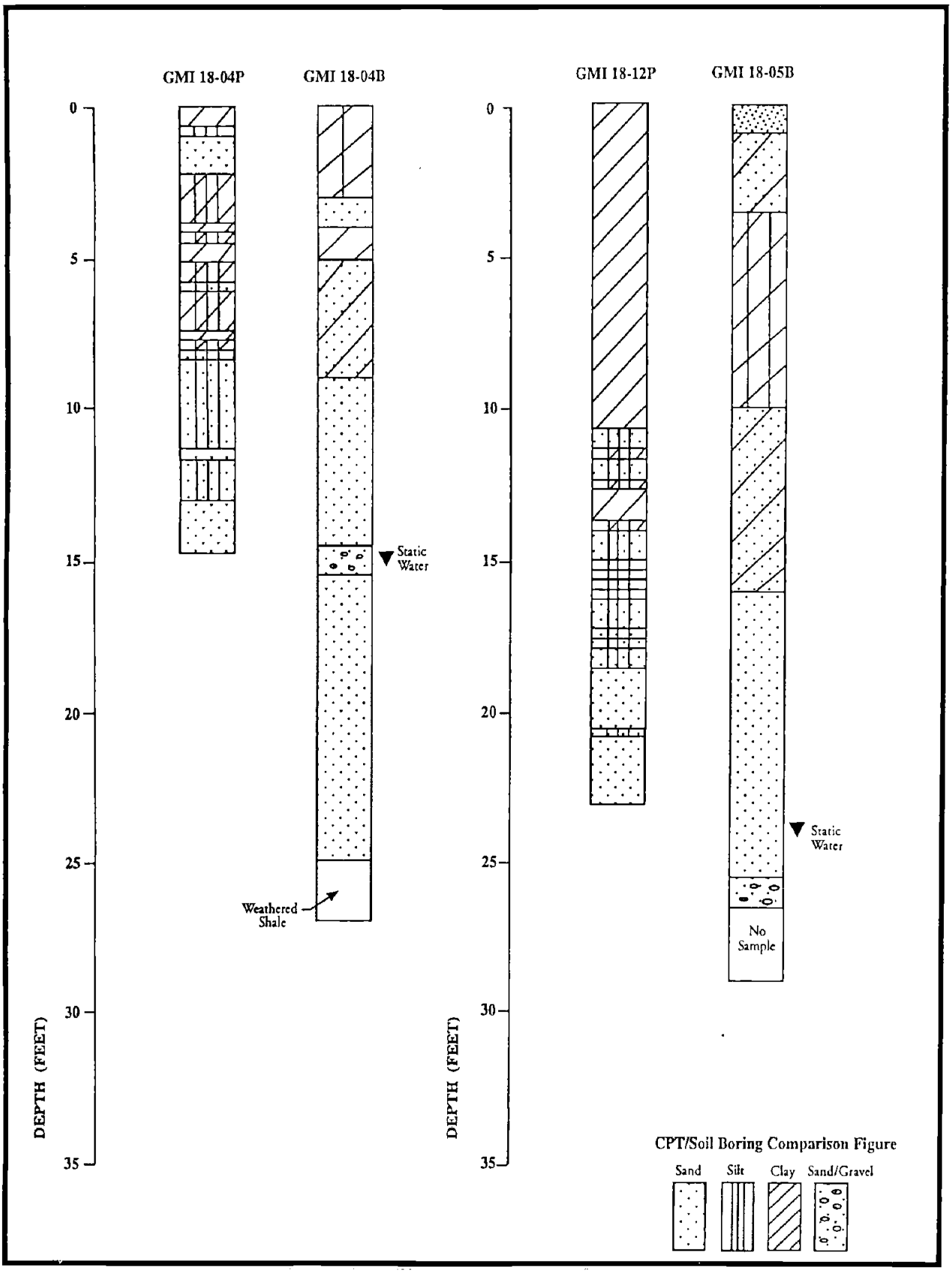

Figure 6. Comparative soil profiles from soil borings (on the right of each pair) and CPT plots (on the left of each pair) collected on the flightline in 1994

A generalized sedimentologic sequence of most of the base area can be described from surface to bedrock as sandy clay over clay over clayey sand over sand. However, from location to location many gradational changes from one soil type to another occur, and often soil types in the generic sequence are absent. Occurrences of sand lenses encased in finer-grained sediments (and vice versa) were common. This is typical of fluvial sedimentation processes (Figures 7, 8, 9, 10, 11, 12, 13, and 14). Map 2, found in a pocket at the back of the report, shows the locations of these cross sections.

Unambiguous channel margins could not be identified throughout the project area. Channels can be defined by linear depressions scoured into the bedrock by stream action. In this project many penetrometer holes did not reach bedrock, so this delineation method is not applicable here. Channels can also be defined by lateral shifts from sand and gravel-sized particles to silt and clay-size particles; however, this criterion was also not always applicable in the project area. As a rule clay and silt size particles have lower effective porosity and permeability and do not transmit fluids as readily as the coarser-grained sediments. However, several examples were seen of clay-rich holes that produced water for samples and water level measurements and of sand-rich holes that were dry, even when left open overnight.

A paleochannel described in a previous report (Radian 1991) is evident on the south part of cross sections A-A' and B-B' (see Figures 7 and 9). The channel axis is oriented northwest to southeast. The south margin of the channel intersects cross section A-A' at location GMI18-108P (near LF-03); it proceeds east across Parallel Taxiway to a point south of GMI18-149P (near LF04), and continues east-southeast across the golf course to location GMI-04SB. The north margin is located along a transect beginning at GMI18-069P and continuing toward GMI18-154P, then southeast into the golf course along Roaring Springs Road approximately to Haile Drive (see Map 2). This was confirmed by CPT plots from Phase II 1993 work on the golf course; however, lack of data in this area has left this end of the channel undefined. The channel may continue northeast, since the sand interval is continuous throughout most of the base.

A well-developed basal sand deposit exists over much of the northern one-half of the base. This sand layer could be defined as two separate side-by-side deposits oriented north to south (see Figures 12 and 13 [Sections D & E]), which could be terraces oriented parallel to the West Fork of the Trinity River.

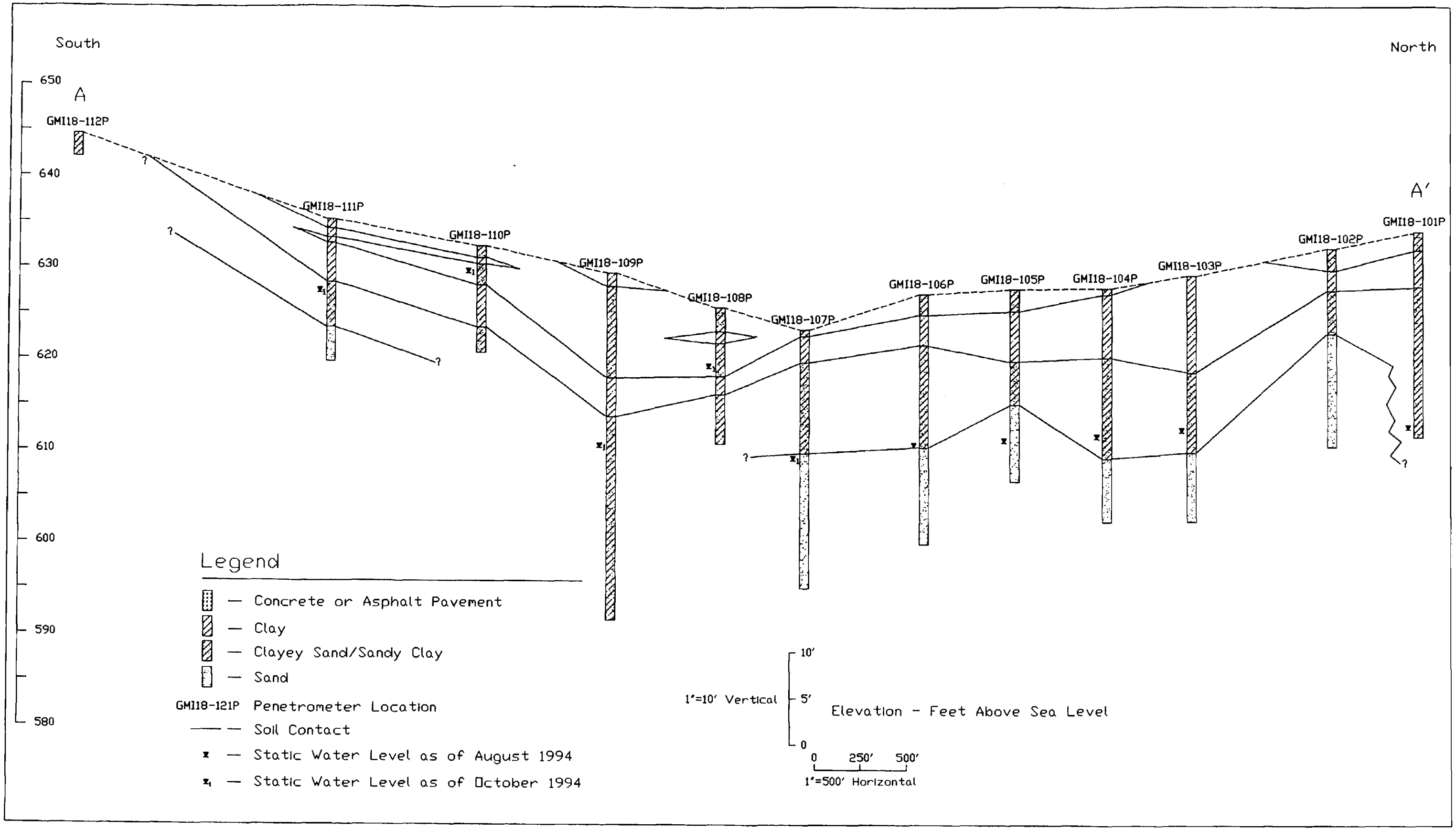

Figure 7. North - South cross section A - A′

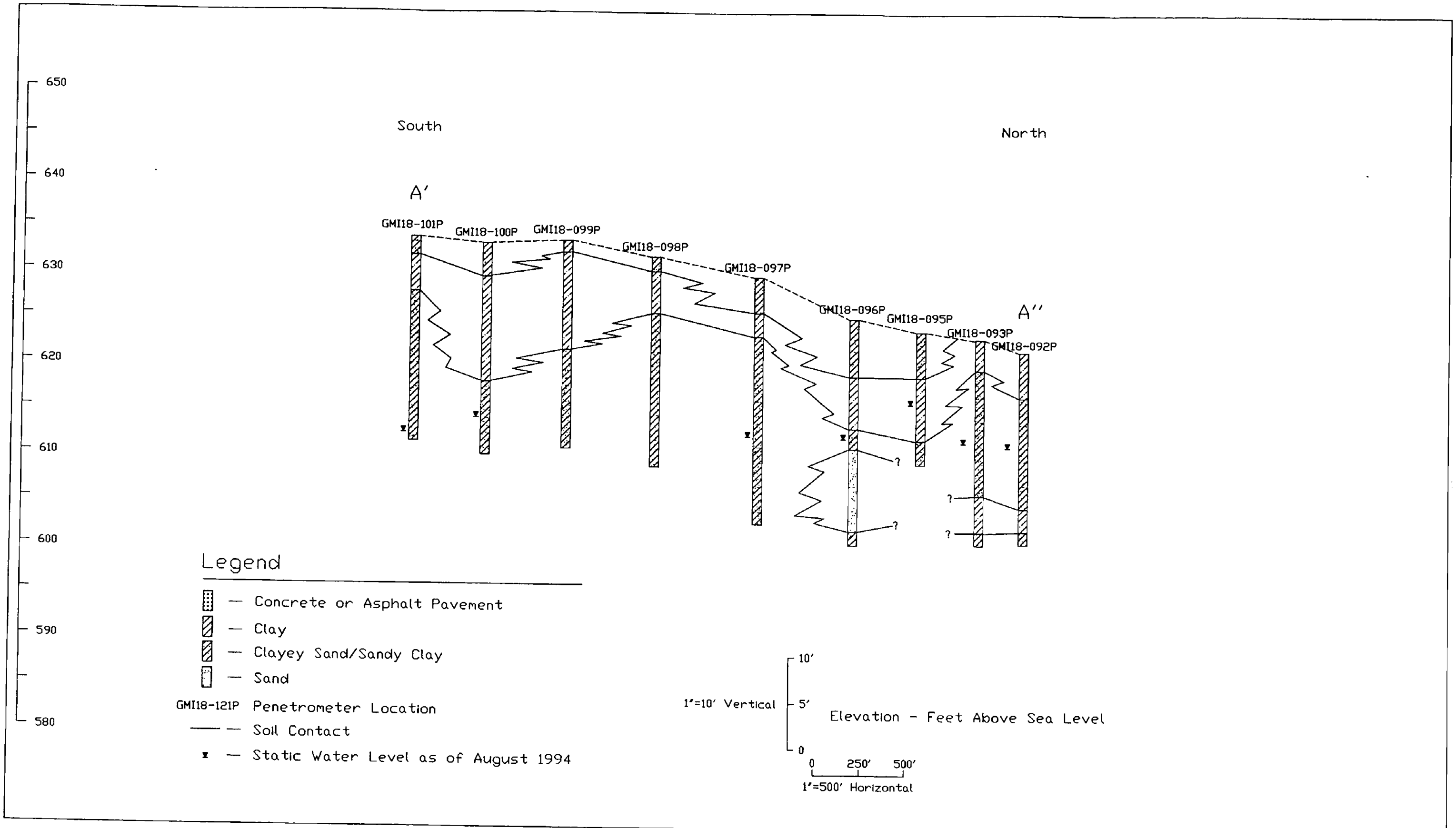

Figure 8. North - South cross section A' - A''

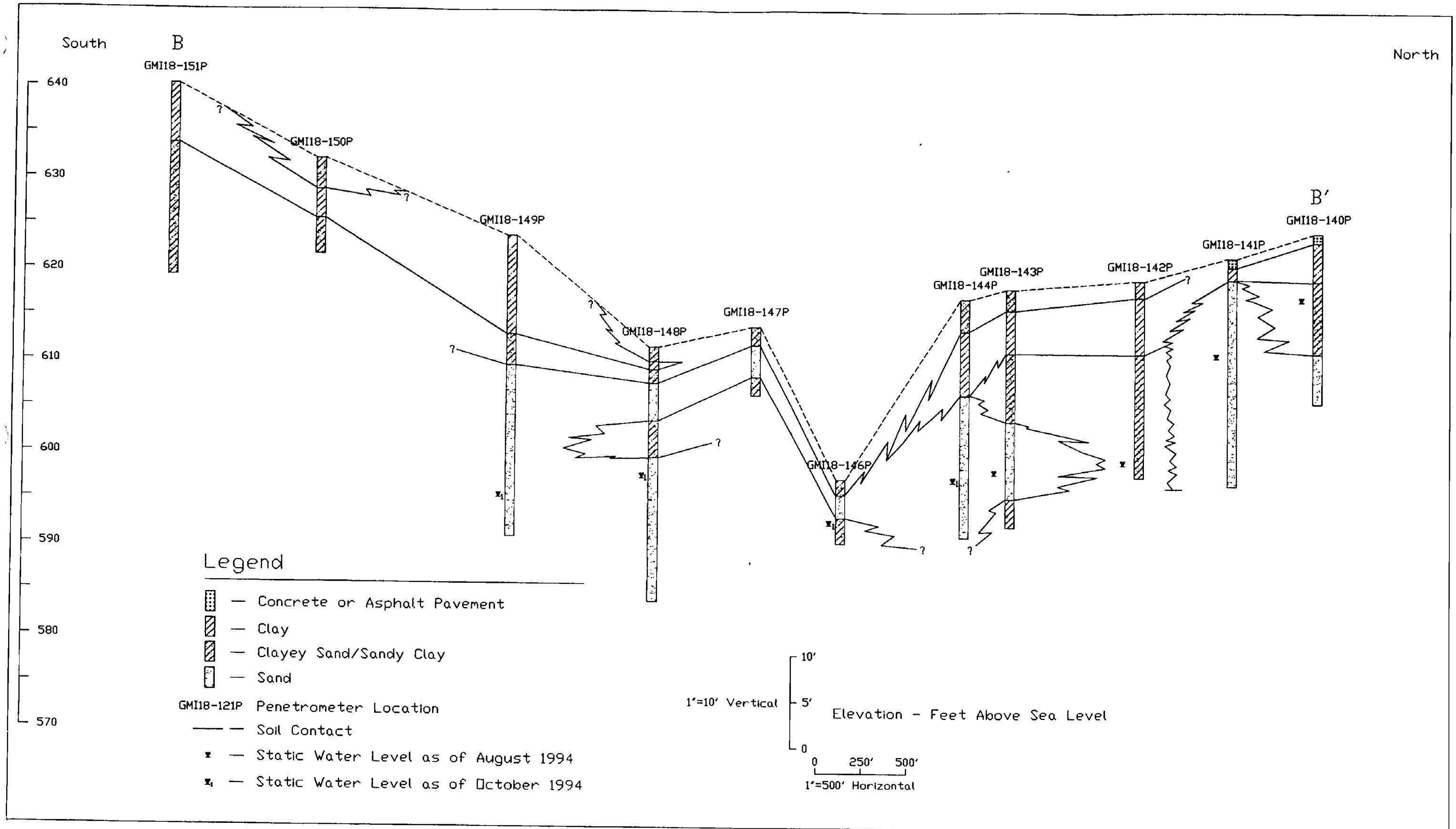

Figure 9. North - South cross section B - B'

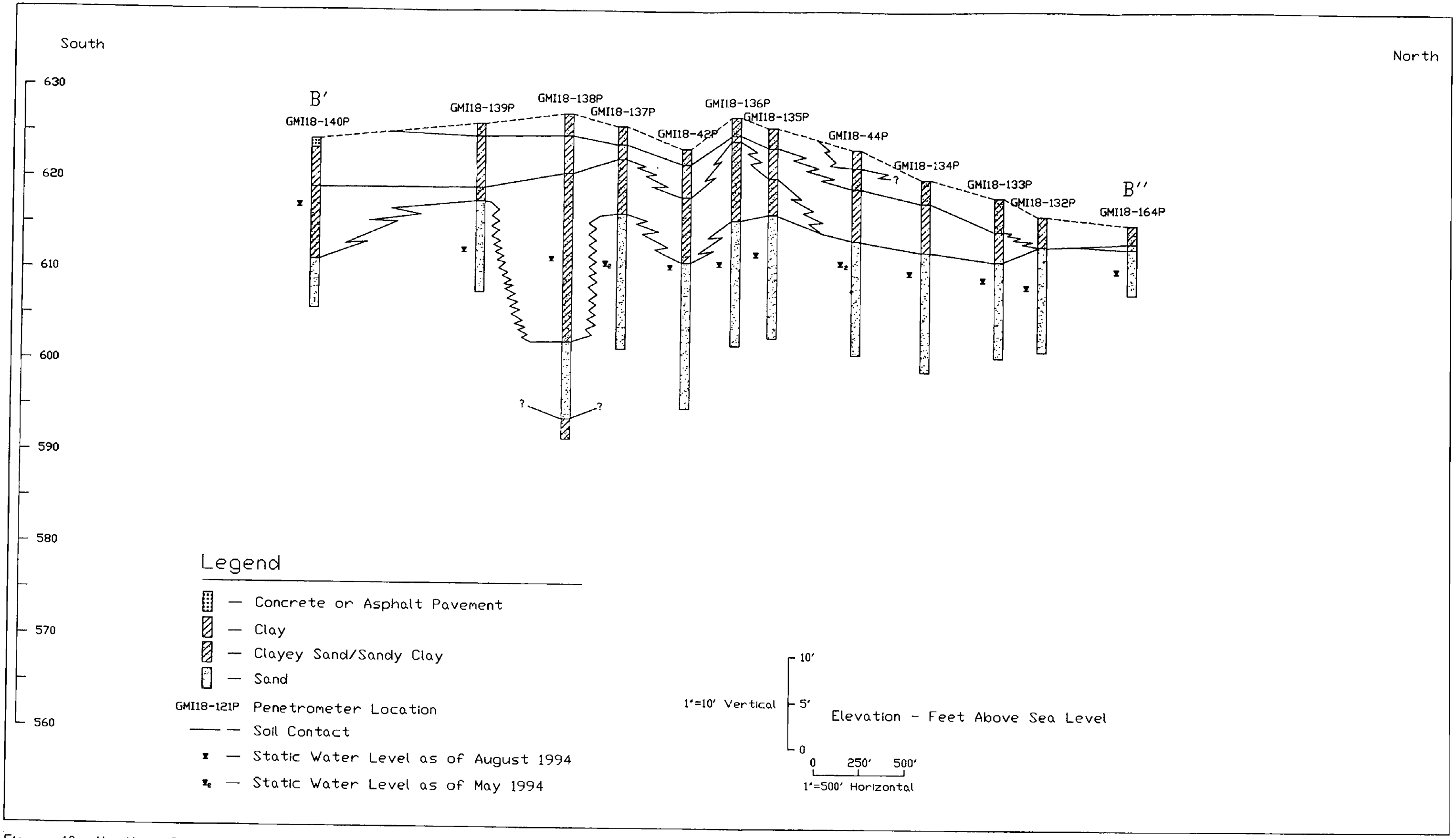

Figure 10. North - South cross section B′ - B″

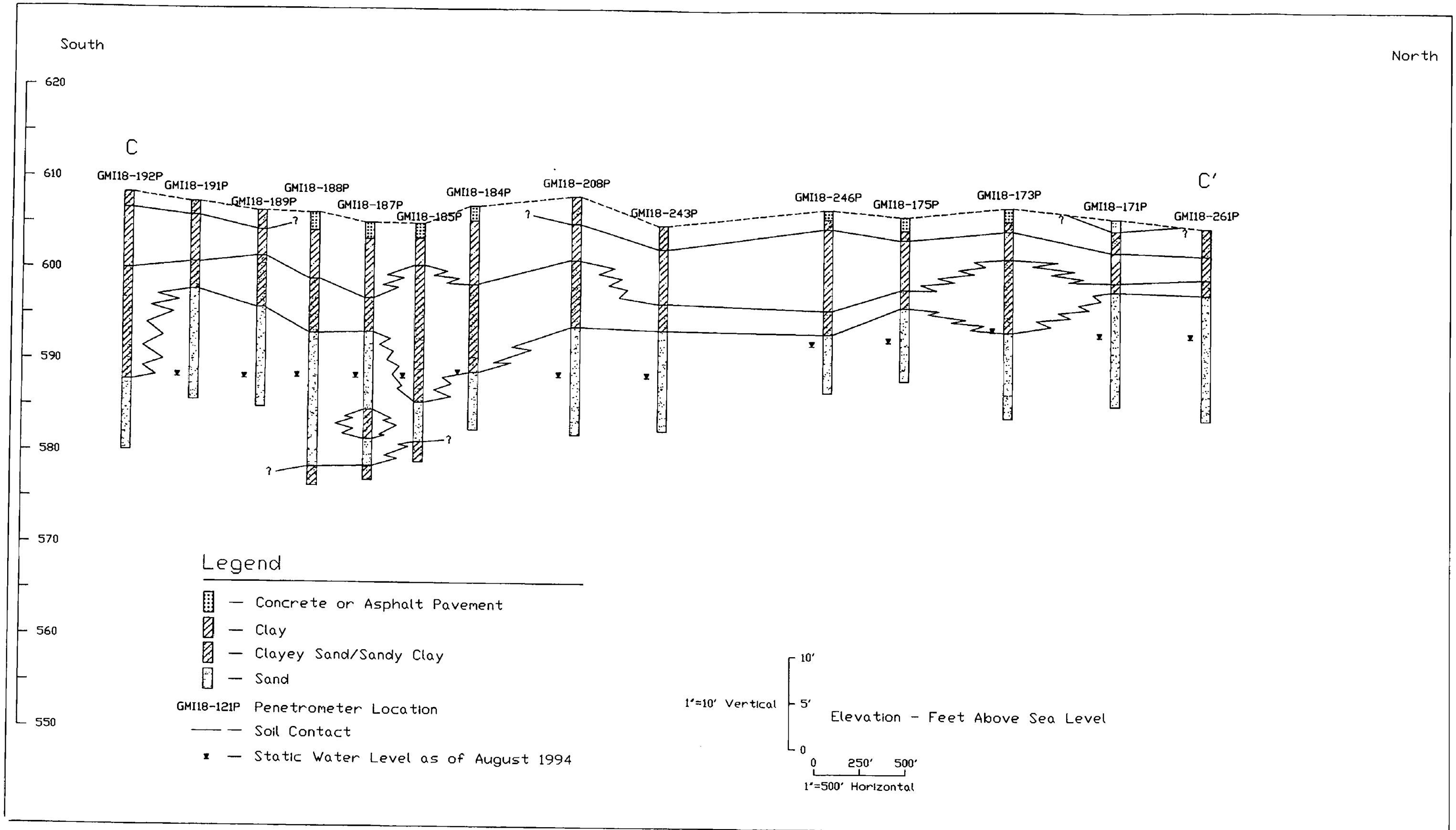

Figure 11. North - South cross section C - C'

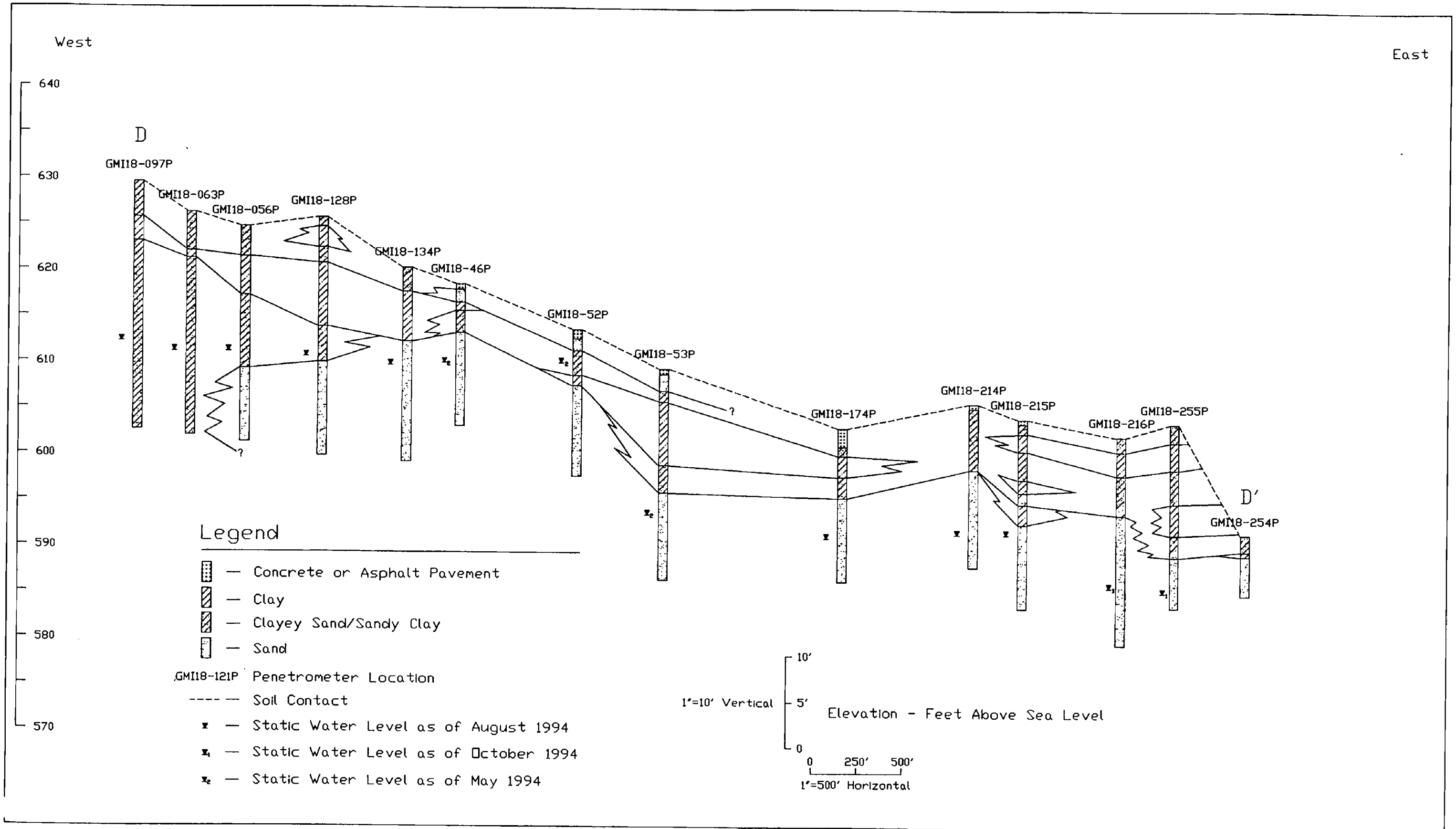

Figure 12. East - West cross section D - D'

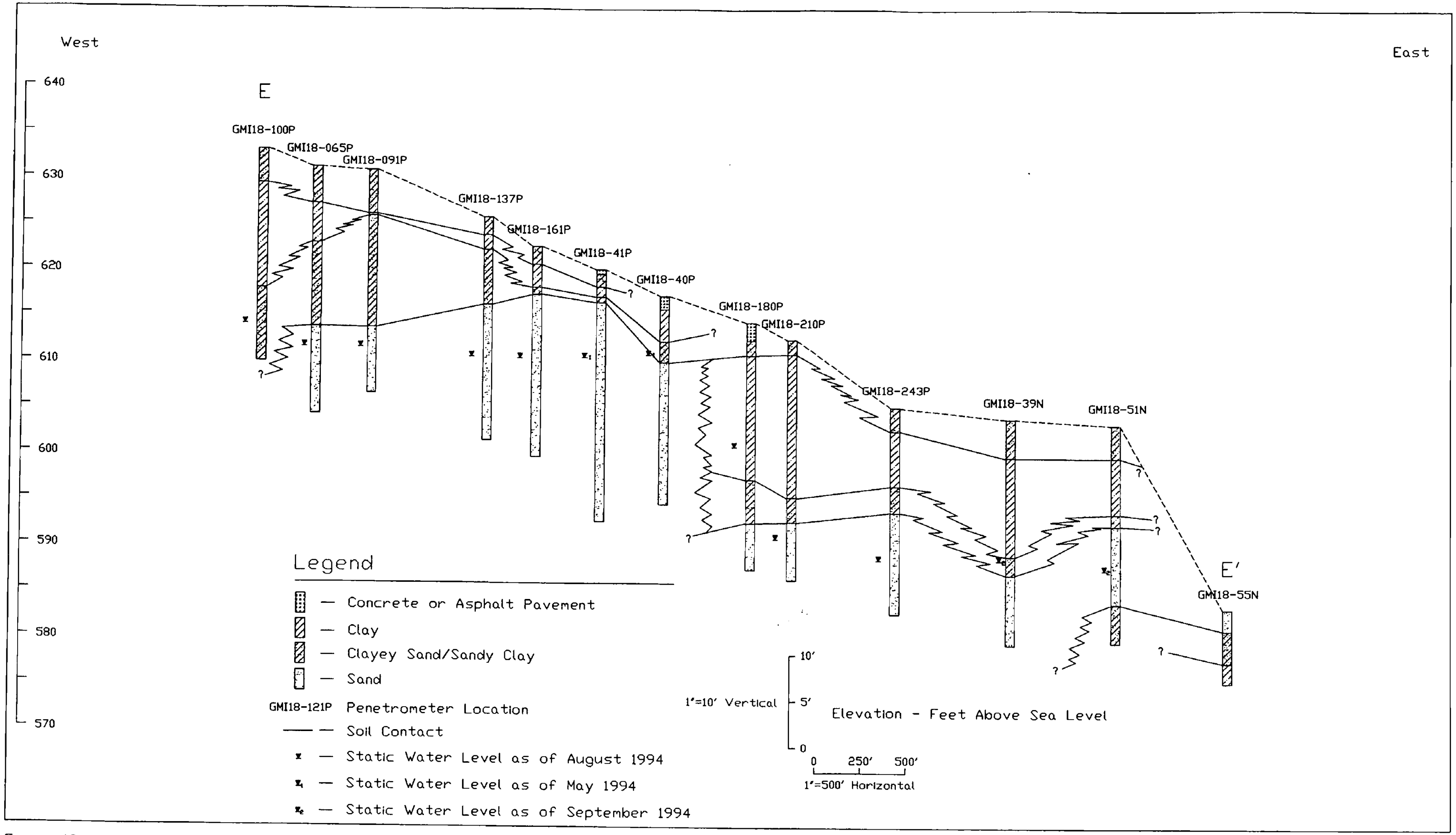

Figure 13. East - West cross section E - E'

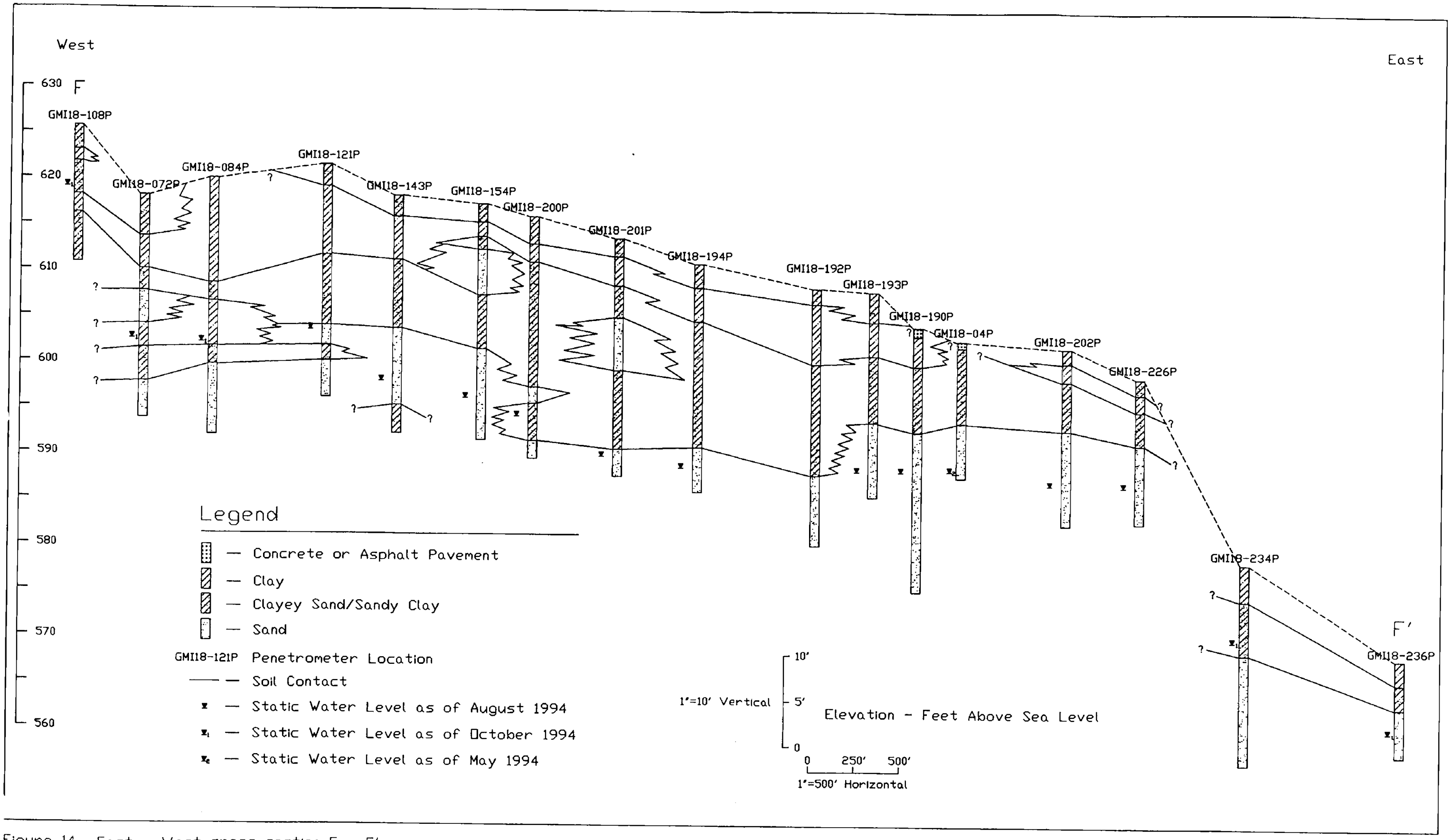

Figure 14. East - West cross section F - F'

4.2.2 Soil Sampling and Results

Modification No. 001 of this project was added to implement the use of a drill rig with hollow-stem augers and continuous core sampling. This method was recommended for the purpose of explaining the occurrence of PID detected hydrocarbon vapors at two dry penetrometer holes (GMI18-03P and GMI18-04P) and to establish the absence of hydrocarbons in the groundwater in the vicinity of fuel lines at three other penetrometer locations (GMI18-06P, GMI18-07P, and GMI18-12P). Refer to Section 3.6 for details concerning soil sampling operations.

Each of the five borings were drilled to limestone or shale bedrock with water encountered at each hole. Although the consistency of the soil at the point of penetrometer refusal is generally unknown (no sample recovered), it has been noted that the occurrence of a layer of pebble-sized limestone fragments might be acting as a "pseudo bedrock" for the CPT probe. It is often difficult to ascertain with certainty which locations are genuinely dry. In the case of these five borings, the reasons for drilling were justified. All five penetrated deeper than the CPT and holes, and all encountered water. In three instances a hard gravel layer was definitely identified as the cause. Other dry CPT holes are believed to have reached bedrock, and there is no basis for drilling; the south end of the flightline where bedrock outcrops serve as an example.

One soil sample from each boring was collected from the interval of the hole which had the highest PID reading (GMI18-01B and GMI18-04B), provided sufficient soil was available; if the boring had no PID readings, the interval closest to the soil-water interface with sufficient soil was sampled (GMI18-02B, GMI18-03B, and GMI18-04B). All five soil samples are ND for all analytes [both volatiles (EPA 8021) and TPH-JP4 (EPA 8015 modified)]. Two borings were reported as having product on the sample barrel while drilling (GMI18-03B and GMI18-04B); therefore, positive TPH values would be expected from the laboratory results, except that both samples were taken at least five feet above the interval with the free product. If the release was initially in the subsurface, as is likely, it probably never passed through the interval which was available for analysis. The free product was below the water table which explains the absence of PID readings in those intervals.

The two boreholes with positive PID values (GMI18-01B and GMI18-04B) displayed those elevated values at or above the five-foot depth with high values in GMI18-04B also around the soil-water interface.

Both were sampled from the shallow intervals with the elevated PID readings which are best explained by a surface spill or spills; it is not understood why hydrocarbons were not detected in these soil intervals.

Soils at the other two borehole locations (GMI18-02B and GMI18-05B) did not have any evidence of hydrocarbons, either odor, elevated PID readings, or analytic results. In both instances samples were collected from directly above the water table. Nearby penetrometer locations (GMI18-07P, GMI18-06P, and GMI18-12P) had generally low concentrations of hydrocarbon vapors (9, 2, and 22, respectively); soils were not analyzed from these holes.

Variable PID readings and apparent discrepancies between PID readings, odors observed, and analytic results can also result from the limitations of PID instruments in humid weather conditions and the fact that a positive PID reading does not necessarily identify an analyte of interest. Records of subsurface exploration with borehole information, soil description, PID readings, and sampled intervals, are available in Appendix E.

4.3 Groundwater Gradient and Distribution of Water

Phase I water data collection took place in May 1994, while the Phase II work was accomplished in August through October 1994. Both phases demonstrated variable water distribution similar to that experienced during both phases of the earlier TCE plume delineation work done at CAFB with the same equipment. Sixty-seven percent of the holes punched in Phase I of the fuel investigation could be sampled and measured, while 76% of those in Phase II had water. Weather conditions over the intervening six months were highly variable with a wet and rainy spring and early fall separated by an unusually long drought during the summer. Previous conclusions that the interface between the soil and the less permeable bedrock provided the most likely locus for groundwater collection continued to hold, although there were noticeable exceptions where SWLs were measured substantially above the TD of the hole. Hole TD occurred at or above the top of the limestone and/or marl bedrock at all penetrometer locations.

All of the sampled locations contained free water at the time they were punched and could be sampled immediately. Some, however, required pushing the PVC pipe deeper in order to get enough water for TPH analysis; this was done by making another penetrometer hole using GMF casing and an expendable

tip. Five holes, which did not initially have sufficient water for sampling, subsequently accumulated enough volume for a static water measurement but not a sample.

Six of the sampled locations did not have water in the casing when static water measurements were attempted the following day. These locations are GMI18-98P, GMI18-99P, GMI18-125P, GMI18-192P, GMI18-241P, and GMI18-263P. It is apparent that in four of these locations the screen might not have been deep enough in the hole to adequately intercept the water table. The other two holes, GMI18-125P and GMI18-241P, had from one to two feet, respectively, of water in the hole. In cases such as this, it is difficult to speculate whether water recovered to static level conditions, or if recovery had taken place at all. GMI procedures are such that if the PVC pipe reaches a depth where water cannot be readily sampled, every effort is made to get the PVC screen as deep as possible, usually to the bottom of the original hole; however, if an acceptable volume of water can be obtained, no additional effort is attempted at pushing the pipe deeper in the ground. Another sampling endeavor is to get as much water as possible for analysis; DHL mobile laboratory preferred a full one liter bottle for TPH analysis, however, it could be done with only 100 ml. In wells such as the two previously mentioned, where water level is near TD, many successive attempts were made to collect the groundwater, even to the point that ten ml or less of water was recovered in the bailer, and bailed until the PVC was completely dry. In speculating where the water came from and why it could not be detected upon measuring static water level the following day, it is suspected that the static water level is actually below the screen; the penetrometer pushed through the capillary fringe, where water is forced upward from the water table by interstitial pressures. Once the screen is in place, water from the capillary fringe drains into the screen and is available for sampling until the soil around the borehole has become depleted of water in the capillary fringe; thus, the supply of water for sampling has been cut short, and the static water level cannot be measured. It should be noted that none of these six locations are dry, but that a dependable depth for static water level cannot be reported.

In addition to the 252 penetrometer locations, five soil borings (GMI18-01B, GMI18-02B, GMI18-03B, GMI18-04B, and GMI18-05B) were drilled during Phase II in locations of suspected contamination where penetrometer holes did not encounter water. It was postulated that they were not deep enough and may have been stopped by a well-cemented layer or large pebble within the soil column. This phenomenon of "pseudo bedrock" was widely observed during the TCE investigation phases which used the same equipment in generally the same areas. The five drill holes all encountered water and resulted in both

water level measurement and sample collection. In all but one hole, water was present either near the base or below the section penetrated by the cone. Several of the drill holes encountered hard layers, requiring a change from continuous sampler to auger, at approximately the level of CPT point-of-refusal.

Each hole, whether or not it was initially wet, had five to ten feet of casing installed temporarily at the base. Water samples and SWLs were available from approximately 74% of the punched or drilled locations (Table 7). All locations were surveyed, and water gradient and direction with reference to ground surface elevation were determined (refer to Map 3 in a pocket in the back of the report).

The local groundwater direction throughout the project area is generally to the east except where small highs (one or two locations in size) result in local variations in other directions. Previous reports by GMI (1992, 1993) showed groundwater gradient direction basically consistent with these results. There are five areas designated as "dry" on the map; four are relatively small and isolated, and the fifth is the southern end of CAFB, including portions of the golf course south of the current fuels delineation project area which was tested previously for TCE only. In these instances "dry" refers to the area, not merely the individual holes. Independent evidence of shallow bedrock from surface outcrop, local topography, and correlative subsurface logs from nearby monitor wells and soil boreholes is supportive, although not all dry holes are on a local bedrock high. Other penetrometer locations individually labeled as "dry" could not be certified as sufficiently deep and, therefore, genuinely dry.

Many sampled holes include a sand section at or near the bottom of the hole, while most of the holes which could be determined to be "genuinely" dry (based on comparison with nearby penetrometer profiles or with soil boring descriptions) have a dominantly clay/silt character. However, this pattern does not always hold, and some holes are anomalous with clay and/or silt which were water-bearing or substantial sand sections near the base of the column which were dry. Variability in both water occurrence and sedimentology over short distances have also been experienced by other workers at CAFB (Jacobs 1993). However, occurrence of groundwater over most of the flightline is reasonably consistent. Groundwater gradient can be characterized as sloping gently (i.e., .002 to .004 feet per foot) over most of the flightline, with one exception: a 1,000 to 3,000 foot-wide trend with a maximum gradient estimated at 0.02 feet per foot. This trend is oriented from north to south-southwest through the center of the base.

TABLE 7

SUMMARY OF STATIC WATER LEVEL DATA

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-10P	618.864	28.5	23.1	595.76
GMI18-11P	620.103	25.5	12.3	607.803
GMI18-14P	617.494	29.0	25.25	592.244
GMI18-15P	619.392	27.5	22.65	596.742
GMI18-16P	621.548	17.2	14.65	606.898
GMI18-17P	624.636	18.5	12.5	612.136
GMI18-20P	614.446	25.0	24.8	589.646
GMI18-21P	614.401	26.0	24.25	590.151
GMI18-22P	616.608	27.0	15.65	600.958
GMI18-23P	618.500	29.9	22.5	596.
GMI18-24P	615.776	26.0	20.75	595.026
GMI18-27P	621.795	15.5	15.5	606.295
GMI18-28P	606.494	22.5	not measured	not measured
GMI18-29P	607.138	22.4	18.2	588.938
GMI18-30P	608.190	22.0	19.5	588.69
GMI18-32P	610.130	20.9	20.5	589.63
GMI18-33P	613.038	23.5	23.43	589.608
GMI18-34P	613.291	24.0	21.98	591.311
GMI18-35P	612.487	24.0	22.	590.487
GMI18-36P	613.769	25.0	22.	591.769
GMI18-37P	614.552	25.5	21.85	592.702
GMI18-38P	616.183	27.2	19.45	596.733
GMI18-39P	615.497	26.0	20.1	595.397
GMI18-40P	617.164	22.8	6.5	610.664
GMI18-41P	619.920	27.5	9.62	610.3

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-42P	623.482	28.5	13.25	610.232
GMI18-43P	621.367	18.5	11.13	610.237
GMI18-44P	623.442	22.5	12.7	610.742
GMI18-45P	622.371	23.5	11.1	611.271
GMI18-46P	618.484	15.5	8.6	609.884
GMI18-47P	618.411	19.5	9.4	609.011
GMI18-48P	614.912	13.0	6.6	608.312
GMI18-49P	613.955	20.0	11.21	602.745
GMI18-50P	612.365	10.7	6.25	606.115
GMI18-51P	616.303	26.0	4.75	611.553
GMI18-52P	613.555	16.0	3.66	609.895
GMI18-53P	609.289	23.0	15.75	593.539
GMI18-54P	629.663	28.7	18.68	610.983
GMI18-55P	627.489	28.1	16.54	610.949
GMI18-56P	624.716	23.5	13.66	611.056
GMI18-57P	622.665	17.5	10.52	612.145
GMI18-58P	621.584	14.5	9.58	612.004
GMI18-59P	618.947	16.0	8.76	610.187
GMI18-60P	618.124	11.0	10.48[3]	607.644
GMI18-61P	622.725	15.7	12.66	610.065
GMI18-62P	623.572	19.0	11.44	612.132
GMI18-63P	626.231	24.3	14.58	611.651
GMI18-64P	630.160	26.0	18.6	611.256
GMI18-65P	631.253	27.0	19.7	611.553
GMI18-66P	631.393	23.7	19.48	611.913
GMI18-67P	629.443	26.7	17.26	612.183

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-68P	627.214	24.0	15.3	611.914
GMI18-69P	625.826	25.0	14.26	611.566
GMI18-70P	624.909	21.3	14.2	610.709
GMI18-71P	625.196	28.6	15.1	610.096
GMI18-72P	618.091	24.4	15.75	602.341
GMI18-73P	623.955	33.5	23.7	600.255
GMI18-75P	629.287	14.5	6.95	622.337
GMI18-80P	630.801	13.0	10.84	619.961
GMI18-82P	623.428	33.6	24.4	599.028
GMI18-83P	621.101	33.2	20.20	600.901
GMI18-84P	620.016	28.1	18.0	602.016
GMI18-85P	622.375	16.8	13.6	620.775
GMI18-86P	623.774	22.0	13.4	610.374
GMI18-87P	625.115	25.5	13.5	611.615
GMI18-88P	626.910	24.2	14.88	612.03
GMI18-89P	628.165	29.5	16.24	611.925
GMI18-90P	629.848	22.7	17.62	612.228
GMI18-91P	630.617	24.4	19.4	611.217
GMI18-92P	621.530	21.0	10.45	611.08
GMI18-93P	622.880	22.7	11.35	611.53
GMI18-95P	623.683	14.5	7.94	615.743
GMI18-96P	625.022	24.7	13.1	611.922
GMI18-97P	629.514	27.0	17.4	612.114
GMI18-98P	631.739	23.0	no depth[4]	NA
GMI18-99P	633.518	22.8	no depth[4]	NA
GMI18-100P	633.132	23.2	19.15[3]	613.982

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-101P	633.843	22.4	21.5	612.343
GMI18-103P	629.102	26.8	17.11	611.992
GMI18-104P	627.761	25.5	16.44	611.321
GMI18-105P	627.621	21.0	16.72	610.901
GMI18-106P	627.128	27.3	16.78	610.348
GMI18-107P	623.210	28.2	14.3	608.910
GMI18-108P	625.616	14.9	6.65	618.966
GMI18-109P	629.411	37.9	27.75	601.661
GMI18-110P	632.368	11.7	3.0	629.368
GMI18-111P	635.242	15.5	8.05	627.192
GMI18-118P	622.522	31.8	24.30	598.222
GMI18-119P	621.195	27.0	16.45	604.745
GMI18-120P	619.973	29.0	19.45	600.523
GMI18-121P	621.602	25.5	18.1	603.502
GMI18-122P	623.589	18.4	14.36	609.229
GMI18-123P	624.976	22.9	13.36	611.616
GMI18-124P	626.909	19.5	15.06	611.849
GMI18-125P	628.594	17.7	no depth[4]	NA
GMI18-127P	627.727	23.5	17.24	610.487
GMI18-128P	625.730	26.0	15.18	610.55
GMI18-129P	623.882	23.4	13.28	610.602
GMI18-130P	621.971	16.8	9.9	612.071
GMI18-131P	621.643	22.0	11.62	610.023
GMI18-132P	616.197	14.8	8.	608.197
GMI18-133P	618.215	17.5	9.18	609.035
GMI18-134P	620.211	21.1	10.58	609.631

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-135P	625.780	23.0	14.12	611.66
GMI18-136P	626.924	25.0	16.3	610.624
GMI18-137P	625.888	24.4	15.3	610.588
GMI18-138P	627.248	35.6	16.14	611.108
GMI18-139P	626.133	18.5	14.1	612.033
GMI18-140P	624.362	18.6	7.5[5]	616.862
GMI18-141P	621.672	24.9	10.98	610.692
GMI18-142P	619.134	21.5	20.14[3]	598.994
GMI18-143P	618.151	26.0	20.28	597.871
GMI18-144P	617.020	26.0	20.04	596.980
GMI18-146P	597.313	7.0	5.0	592.313
GMI18-148P	611.703	27.8	14.28	597.423
GMI18-149P	623.849	32.9	28.65	595.199
GMI18-154P	617.332	29.2	21.28	596.052
GMI18-156P	618.790	13.5	10.14	608.65
GMI18-157P	621.383	16.0	11.48	609.903
GMI18-158P	621.932	16.2	12.	609.932
GMI18-159P	623.931	17.6	12.44	611.491
GMI18-160P	626.103	21.4	14.08	612.023
GMI18-161P	622.454	23.0	12.26	610.194
GMI18-162P	620.225	15.6	10.06	610.165
GMI18-163P	615.571	15.5	7.66	607.911
GMI18-164P	615.328	7.6	5.3	610.028
GMI18-167P	611.877	11.5	6.5	605.227
GMI18-169P	608.198	20.0	14.66	593.538
GMI18-171P	605.972	20.5	13.	592.972

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-172P	604.970	19.4	11.90	593.07
GMI18-173P	607.125	23.0	13.6	593.525
GMI18-174P	602.912	16.7	12.	580.912
GMI18-175P	606.129	18.0	13.8	592.329
GMI18-176P	610.175	23.7	13.28	596.895
GMI18-177P	614.046	29.2	19.7	594.346
GMI18-178P	617.863	17.0	7.66	610.203
GMI18-179P	615.707	26.4	5.9	609.807
GMI18-180P	614.210	27.0	13.64	600.57
GMI18-181P	612.129	27.3	9.18	602.949
GMI18-182P	610.855	22.2	20.58	590.275
GMI18-183P	609.080	21.8	20.42	588.66
GMI18-184P	606.985	24.5	18.46	588.525
GMI18-185P	605.068	26.1	16.94	588.128
GMI18-186P	604.204	19.0	16.46	587.744
GMI18-187P	605.150	28.2	17.02	588.13
GMI18-188P	606.241	29.9	18.1	588.141
GMI18-189P	606.404	21.5	18.42	587.984
GMI18-190P	604.040	29.0	15.88	588.16
GMI18-191P	607.318	21.7	19.24	588.078
GMI18-192P	608.268	28.32	no depth[4]	NA
GMI18-193P	607.887	22.5	19.7	588.187
GMI18-194P	610.869	25.0	22.34[3]	588.529
GMI18-198P	618.814	27.2	12.26	606.554
GMI18-199P	618.493	33.0	27.14	591.353
GMI18-200P	615.970	26.5	21.9	584.07

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-201P	613.648	26.1	23.9	589.748
GMI18-202P	601.788	19.4	15.04	586.748
GMI18-205P	603.980	20.0	16.53	587.45
GMI18-208P	608.083	26.1	19.76	588.323
GMI18-209P	610.621	23.9	20.6	590.021
GMI18-210P	612.639	26.2	21.76	590.879
GMI18-211P	614.571	29.5	16.9	597.671
GMI18-212P	608.327	21.6	13.08	595.247
GMI18-213P	607.184	19.5	13.34	593.844
GMI18-214P	605.619	17.8	12.62	592.999
GMI18-215P	604.003	20.6	12.64	591.363
GMI18-216P	602.120	22.7	16.5	585.620
GMI18-217P	601.835	24.5	18.08	583.755
GMI18-219P	587.259	4.7	2.8[3]	584.459
GMI18-224P	590.919	8.6	7.8	583.119
GMI18-226P	598.532	15.9	11.9	586.632
GMI18-227P	587.750	4.0	0.75[6]	587.000
GMI18-228P	575.470	18.5	11.5	564.02
GMI18-229P	574.425	19.4	13.7	560.725
GMI18-230P	573.554	18.5	13.88	559.674
GMI18-231P	568.545	13.2	8.1	560.445
GMI18-232P	572.782	16.6	11.35	561.432
GMI18-233P	573.285	16.4	9.7	563.585
GMI18-234P	578.249	21.9	8.5	569.749
GMI18-236P	567.939	10.6	8.0	559.939
GMI18-237P	596.173	17.5	9.75	586.423

TABLE 3 (Cont'd)

Location No.[1,2]	Ground Elevation (ft.)	Total Depth (ft.)	Depth to Water (ft.)	Water Level Elevation (ft.)
GMI18-239P	602.866	26.0	16.08	586.786
GMI18-241P	606.287	19.8	no depth[4]	NA
GMI18-242P	605.217	24.3	17.46	587.757
GMI18-243P	604.936	22.5	16.68	588.256
GMI18-245P	611.646	24.3	17.82	593.826
GMI18-246P	606.783	20.0	14.9	591.883
GMI18-247P	604.036	19.0	12.86	591.176
GMI18-249P	600.341	16.4	10.0	590.341
GMI18-250P	600.443	18.1	15.17	585.273
GMI18-251P	599.720	19.1	15.73	584.
GMI18-253P	591.876	15.0	8.1	583.776
GMI18-255P	603.545	20.0	18.4	585.145
GMI18-261P	604.890	21.0	12.0	592.890
GMI18-263P	576.391	21.1	no depth[4]	NA
GMI18-01B	613.825	29.0	24.4	589.425
GMI18-02B	611.721	29.0	23.0	588.721
GMI18-03B	602.575	25.0	14.3	588.175
GMI18-04B	602.545	27.0	14.4	588.245
GMI18-05B	611.79	29.0	23.45	588.34

NA not applicable

[1]P in the location name refers to penetrometer locations. The number 18 refers to IRP site number 18, the groundwater site at CAFB.
[2]B in the location name refers to borings that were drilled by the hollow stem auger method. Each of the locations were drilled near previously punched penetrometer locations.
[3]Holes had sufficient water for static level measurement, but not for sampling.
[4]Water was sampled at this location, but no water level was obtained.
[5]Measured static level may not be real. Noted water in hole beneath concrete.
[6]Location GMI18-227 is located in a roadside storm drainage ditch. SWL may be elevated due to recent rainy conditions.

Phases I and II fuel results have not substantively altered the conclusions expressed in the TCE Phases I and II reports (Geo-Marine, Inc 1992, 1993) regarding the four factors thought to be responsible for the variable occurrence of water.

(1) The cone penetrometer can be stopped by the first hard layer; if this is an isolated layer or even a large hard pebble within the soil profile, rather than the top of continuous bedrock, the water-bearing horizon may lie below. This was clearly the case with GMI-18-03P and GMI18-04P, both punched in 1994.

(2) The 1994 sampling took place across two seasons and half a year in which weather conditions, especially precipitation amounts, varied erratically.

(3) Recovery in at least some of the monitor and production wells is documented by others as being slow. Only five initially moist holes left open up to 24 hours by GMI accumulated sufficient water for either sampling or SWL measuring; no initially dry holes accumulated water overnight.

(4) Based on elevations determined from SWL measurements, water sometimes occurs at levels other than the soil-rock interface. If these relatively porous lenses encased within less permeable material occurred more than ten feet above the base of the hole, they would be sealed off as long as the casing and screen remain in the ground.

4.4 Groundwater Data Distribution

Analytic data distribution reflects water distribution as well as deviations in the sample grid necessitated by restricted areas, utilities, buildings, and roads. GMI believes that some holes were genuinely dry while some were not deep enough; it is not possible to differentiate between the two cases with certainty at all dry locations. Contoured concentration maps have been prepared for TCE, DCE, TPH, and BTEX with the plume boundaries indicated (Figures 15, 16, 17, and 18). These maps incorporate GMI analytic data acquired in 1992, 1993, and 1994; data from the different years are distinguished in the map legends. Where the continuity or the boundary of the contamination plume can not be unequivocally supported, it is indicated by a dashed line.

The BTEX and TPH contour maps are very similar to each other with the exception of the TPH plume near Hangar 1050 and the BTEX plume on Rogner Drive. Groundwater from the Rogner Drive area was sampled during the second phase of the TCE project and was not analyzed for TPH, as is the case for the south side of Hangar 1050.

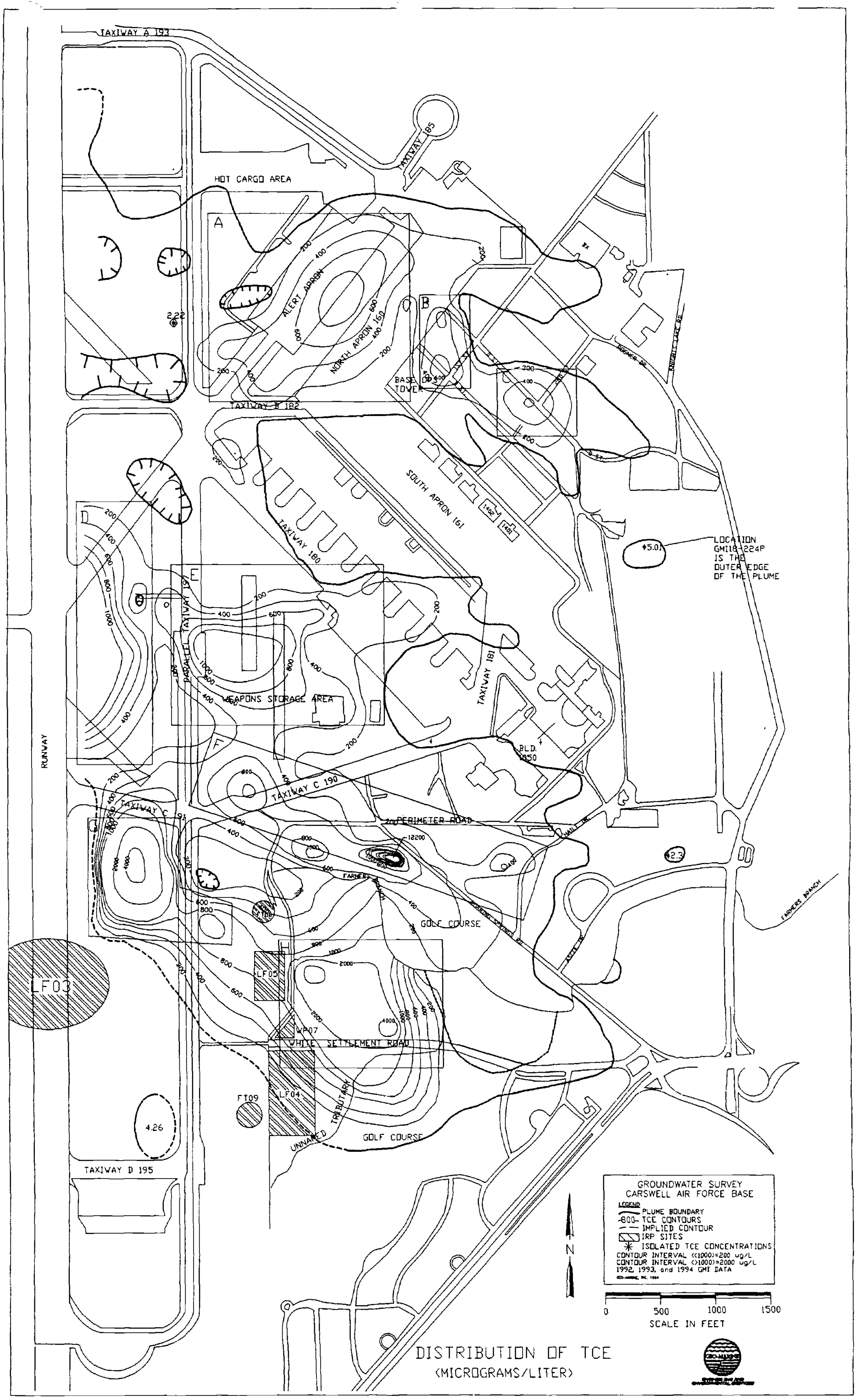

Figure 15. Distribution of elevated TCE levels.

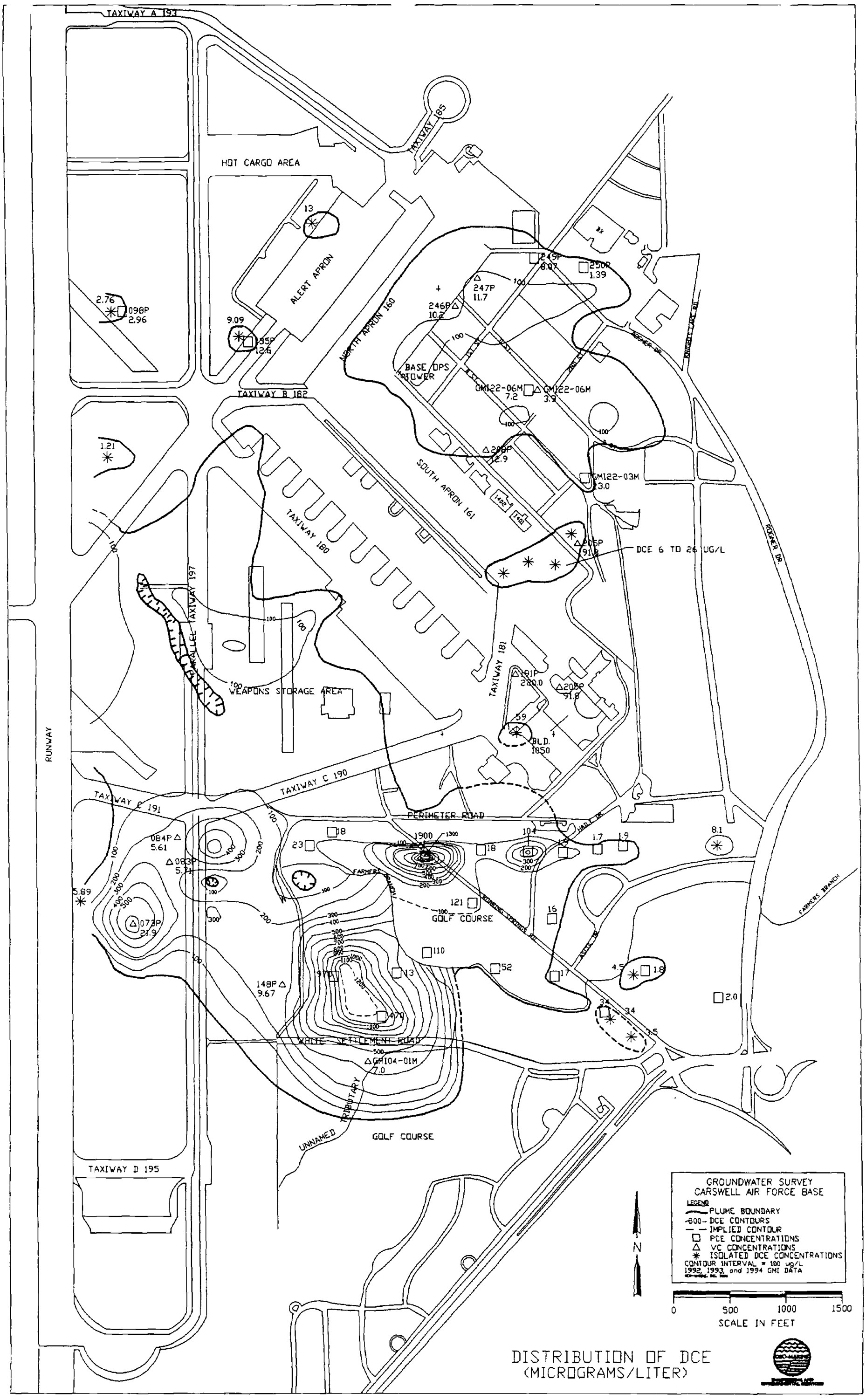

Figure 16. Distribution of elevated DCE levels with isolated PCE and VC concentrations

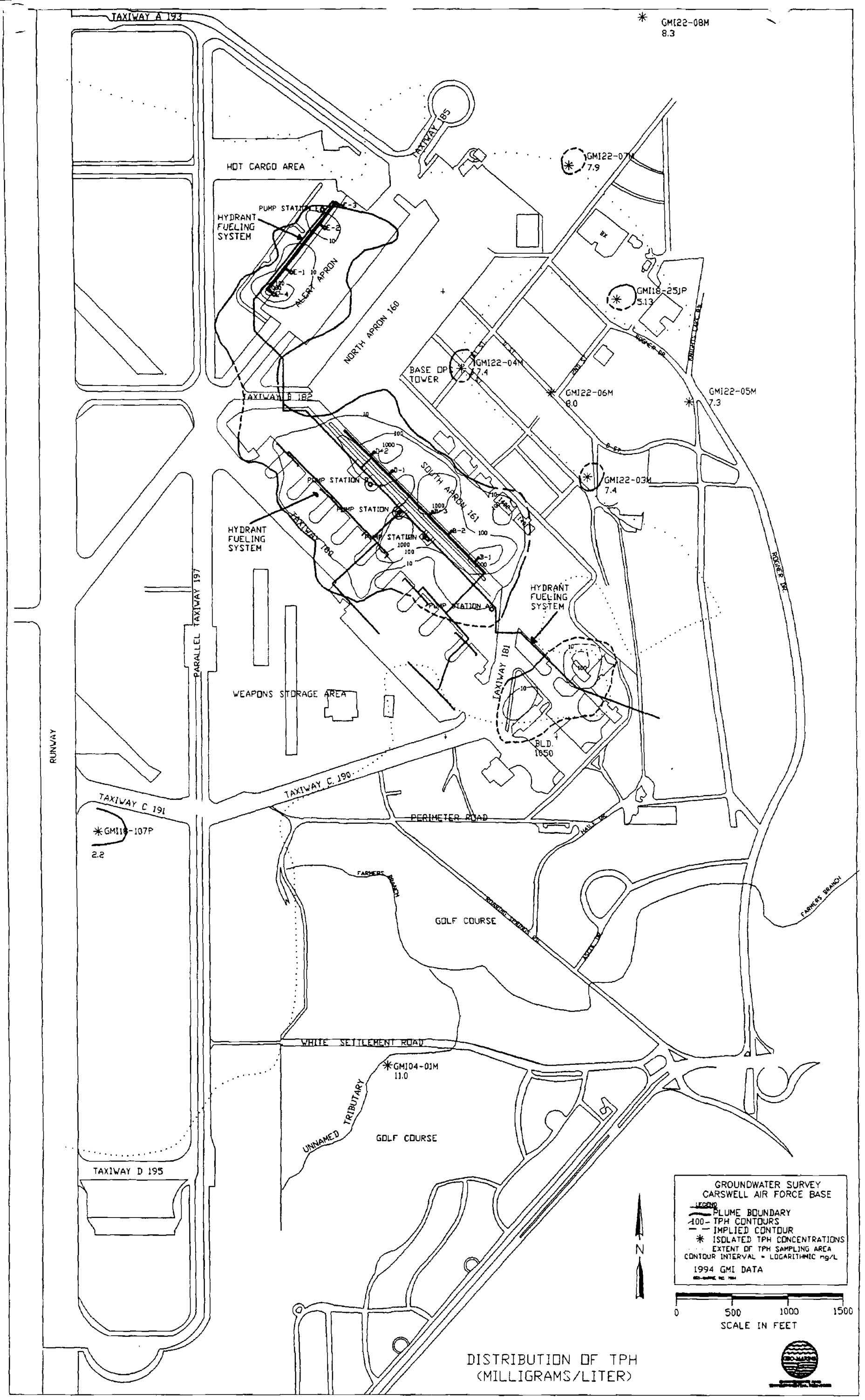

Figure 17. Distribution of elevated TPH levels.

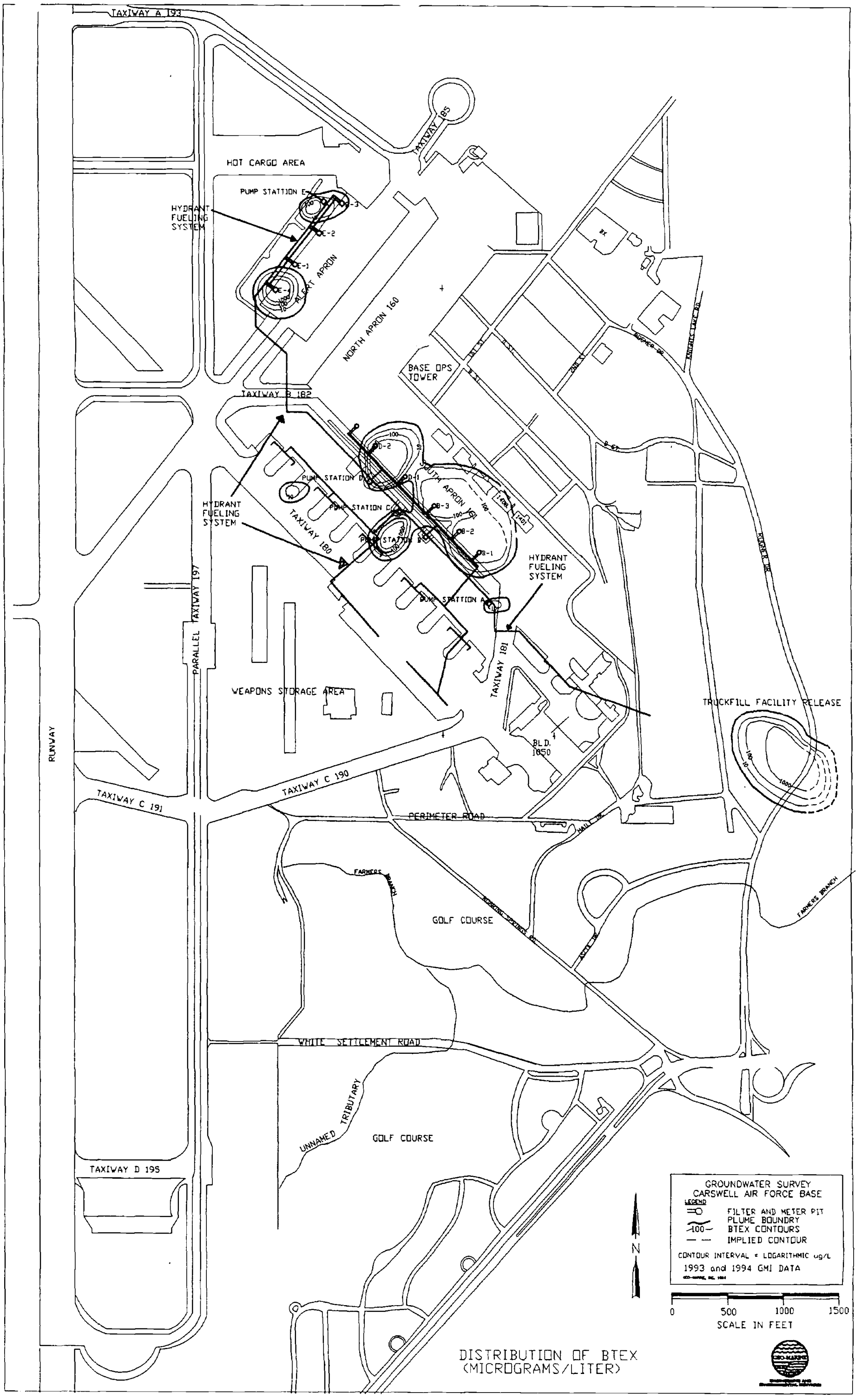

Figure 18. Distribution of elevated BTEX levels.

4.4.1 Trichloroethene and Associated Compounds

The TCE plume extends from AFP4 on the west side of the runway, across the runway from Taxiway A 193 (north), to Taxiway C 191 (south). The plume continues eastward across Parallel Taxiway 197 and divides into two major lobes near Taxiway B 182; the "north lobe" extends across the Alert Apron and proceeds across North Apron 160 and off of the flightline to the BX Mart and then south to D Street; the "south lobe" of the plume proceeds eastward from the Weapons Storage Area (WSA) to Taxiway 181 and stays generally confined within the flightline fence until it crosses southward into the golf course. The eastward extent of the south lobe is at the intersection of Roaring Springs Road and White Settlement Road, while its southern boundary is located south of White Settlement Road on the golf course. The north lobe of the plume extends to Knights Lake Road at D street (see Figure 15).

In the north lobe three local anomalous concentration highs, labelled A, B, and C exist. The highest values of TCE (500 to 950 micrograms per liter [μg/l]) occur in anomaly A. Slightly lower concentrations (605 to 780 μg/l) are located in anomaly B between the flightline fence and 1st Street east of the flight tower. Anomaly C has 660 μg/l. These anomalies suggest one or more possible additional sources that may be contributing to the AFP4 plume.

The south lobe is quite extensive in area with at least five anomalously high sub-areas. These are labelled D, E, F, G, and H. Area D is open-ended to the west toward AFP4. TCE values decline from $>1{,}200$ to <100 μg/l on the west side of Parallel Taxiway 197. Area E has peak values $>1{,}400$ μg/l. This anomaly protrudes in a finger-like outline directly eastward to site GMI18-189P on the east end of Taxiway 181. Anomaly F proceeds from Taxiway C 190 east-southeast along the flightline fence on the golf course side. This narrow plume of TCE contains four hot spots with values of 1,034, 1,300, 12,200, and 690 μg/l from west to east. Anomaly G, with a peak TCE value of 4,852 μg/l was detected near the runway immediately south of Taxiway C. This hot spot abruptly declines both east and west and is approximately 800 μg/l before crossing from the flightline to the golf course. In this report most of the groundwater analytical data for this area of the golf course was collected by GMI in 1992. The highest values for the golf course side of the plume (4,400, 4,500, 1,500, and 1,200 μg/l) constitute anomaly H. Contours within the boundaries of WP07 and LF04 have been constructed from previously collected data (Jacobs Engineering 1993). Contours have been truncated on both sides of Farmers

Branch, since the stream channel is limestone bedrock and, therefore, the stream has been assumed to be a gaining stream.

Comparison between analytical data obtained during this project and data reported by JE in August 1993 shows a great deal of correlation. Most of the monitoring wells sampled by JE have values that deviate approximately 10% from GMI data. Exceptions include GMI18-72P and the northern one-third of the area between Parallel Taxiway and the runway. The TCE value at GMI18-72P, near former LF-03, is four times that of well number LF05-01. Compared with three of the HM wells on the northern one-third of the runway, nearby GMI values were nearly one order of magnitude less.

The DCE plume map was constructed as a sum of cis-1,2-DCE and trans-1,2-DCE. As expected, the DCE plume generally occurs in conjunction with the TCE plume. Exceptions to this occur at GMI18-108P (5.89 μg/l), GMI18-181P (14.16 μg/l), GMI18-186P (26.4 μg/l), GMI18-187P (23.3 μg/l), GMI18-205P (6.16 μg/l), and GMI18-251P (90.9 μg/l). Generally, DCE values are lower than TCE; however, on the down gradient edge of TCE anomalies, DCE increases as would be expected from the microbial dechlorination of TCE.

The DCE plume follows essentially the same pattern as the TCE plume (see Figure 16). The north area is confined to the east at location GMI18-237P, to the west at GMI18-178P, to the north on the North Apron, and to the south near monitoring well GMI22-03M. One other enclosed area, located at the south end of the South Apron, is oriented east to west and is approximately 1,000 feet in length. Isolated areas of detected DCE exist at locations GMI18-48P, GMI18-135P, GMI18-098P, GMI18-101P, and GMI-22S. In the south lobe, DCE is confined much farther west; the north boundary is located south of Taxiway B; the west is open toward AFP4 between Taxiway B and Taxiway C, and at location GMI18-108P; the east boundary is confined to the WSA area until the plume crosses Taxiway C and enters the golf course. On the golf course the DCE boundary is the same as TCE, with occurrences of DCE at only two locations on the golf course south of White Settlement Road. DCE mimics the TCE plume, except for actual values. DCE was detected with peaks in the same general area as TCE peak values, but varies in lateral position in some cases by 800 to 1,000 feet (GMI18-073P and GMI18-120P). These two locations contained the highest DCE values on the flightline (690.7 μg/l and 568 μg/l respectively). The highest DCE values obtained on the golf course during the previous project were 1,250 μg/l and 1,067 μg/l near LF04, and 502 μg/l and 1,300 μg/l near LF06.

Other chlorinated compounds such as PCE and VC were detected during the current project (see Figure 16). These components were not detected during Phase II of the AFP4 TCE project; however, PCE was detected on the golf course during Phase I of 1992. PCE was detected at only four locations during this project with concentrations < 13 μg/l (GMI18-98P, GMI18-135P, GMI18-249P, and GMI18-250P) (see Table 2). Monitoring wells sampled in May 1994, detected PCE at GMI22-03M (23 μg/l) and GMI22-06M (7.2 μg/l). The two wells are located on the south boundary of the north TCE lobe; two penetrometer sites are located directly north of the wells on the north boundary of the north TCE lobe; the other two locations are found within the TCE plume near the Taxiway B and Parallel Taxiway junction. Of the 31 locations that were sampled during Phase I of the AFP4 TCE investigation in 1993, PCE was detected at 19 locations.

VC was detected at ten penetrometer locations and two monitoring wells with the highest values at GMI18-191P (220 μg/l) and GMI18-205P (91.8 μg/l) and the remaining < 22 μg/l (see Figure 16). The two monitoring wells, GMI22-06M and GMI04-01M, had 3.9 μg/l and 7.0 μg/l respectively. Four of these are located within the TCE plume near former LF-03 on the runway south of Taxiway C; two are located within the north lobe, and four are found along and outside of the edges of the TCE plume. In two of the 12 occurrences (GMI18-191P and 192P), VC was the lone component; otherwise, it was present with DCE. Beyond this fact there is no noticeable correlation as to the proportion of VC to other breakdown compounds, and its occurrence is not predictable.

The other four halocarbons specified in the SOW (1,1-DCE; 1,1-DCA; 1,1,1-TCA; and 1,1,2-TCA) had no positive results from the holes from which water was obtained during this project. Data for the 1992 GMI Phase I work included results for 1,1-DCE, yet none for VC; the 1993 GMI Phase II penetrometer work yielded no positive results for PCE or VC in addition to the four above; and the 1994 GMI TCE Phase II modification for the sampling of nine monitoring wells lacked positive results for only 1,1-DCA and 1,1,2-TCA. None of the other compounds which are included in the EPA method 8021 scan had positive results in any of the samples. The number of chlorinated compounds identified at CAFB in this project and in the Phase II AFP4 TCE investigation is much narrower than during TCE Phase I (1992). At that time a total of nine halocarbons showed positive, although four of them appeared only in isolated spikes which were not deemed significant.

4.4.2 Total Petroleum Hydrocarbons

Analyses for TPH establish three distinct plumes associated with the JP-4 fuel hydrant system on the flightline (see Figure 17). Two of the plumes may or may not join across Taxiway B. The northernmost plume, located on the Alert Apron, is confined to the Alert Apron in all directions except to the west where it reaches the Parallel Taxiway. Two individual anomalies are apparent; one, with a peak concentration of 1,200 mg/l, is associated with a fueling terminal; the other is down gradient of a remediated underground storage tank (UST) site. The largest plume, located on the South Apron near the fuel and defuel points, consists of five individual highs. Three are associated with fuel and defuel points, one with USTs and a valve pit, and one of unknown origin located near Hangar 1402. Anomalies detected within this plume range in value from 775 to 8,000 mg/l. The extent of the plume is defined to the west on Taxiway 180, and to the north and south on the South Apron; a portion remains somewhat undefined to the east as far as the perimeter road near Hangar 1402. Product was visible on PVC pipe and on the bailer at site GMI18-184P (775 mg/l). TPH contamination was also evident at GMI18-182P by the discolored appearance of groundwater, hydrocarbon smell over the hole, and OVM readings in the hole; however, ND was the result for each analytical method. Location GMI18-182P may be located on the plume boundary, where vapor phase hydrocarbons have dispersed beyond the boundary of detectable levels of dissolved phase hydrocarbons in the saturated zone. The southernmost TPH plume, located near Hangar 1050, has high TPH values of 99 and 200 mg/l. A black petroleum product was visible on the PVC pipe and bailers at sites GMI18-192P and GMI18-04B, as well as at GMI-22S, sampled previously. The extent of this plume remains undefined to the south, east, and west; groundwater samples taken during former studies were not analyzed for TPH. It is suspected that the southern boundary may be confined by shallow bedrock; however, the eastern boundary may extend toward Haile Road near the Flightline Drainage Ditch. It is apparent that the eastern anomalous high could be the result of a JP-4 pipeline leak; however, since the western section of this plume is upgradient from the hydrant fueling system, the source needs further investigation; perhaps it is the result of a major fuel spill in the vicinity of Hangar 1050.

Isolated areas with above dl values for TPH include seven of the nine GMI monitoring wells which were sampled May 23, 1994, and two other penetrometer locations that were sampled during this project. The first of the two penetrometer locations is located in the BX Mart parking lot at location GMI18-251P where a fuels odor was noticeable while sampling. The second penetrometer location is located at

GMI18-107P near Taxiway C and the runway at the western edge of the current project area. The areas at which TPH was detected which have no nearby TPH data are represented on Figure 17 by the location number or well number with the detected value. The locations at which TPH was detected near areas that were analyzed for TPH are illustrated by a zero contour which is partially defined, and partially implied toward the area which has not been sampled and analyzed for TPH. Figure 17 includes a dotted line showing the boundary between samples analyzed in this fuels project (west of the line), and the unsampled area (east of the line). The detected results for the nine wells are included in Table 2; these are labelled GMI22-01M, GMI22-02M, GMI22-03M, GMI22-04M, GMI22-05M, GMI22-06M, GMI22-07M, GMI22-08M, and GMI04-01M.

Locations at which visual, olfactory, and/or PID evidence of petroleum contamination exists at dry holes include the following: GMI18-02P (slight PID elevation only), GMI18-25P (PID), and GMI18-76P (PID/odor). Locations at which visual, olfactory, and/or PID evidence of petroleum contamination exists at sampled holes with ND include the following: GMI18-06P (resampled at boring GMI18-02B), GMI18-07P (resampled at boring GMI18-01B), GMI18-12P (resampled at boring GMI18-05B), GMI18-182P, GMI18-188P, GMI18-202P (slight odor/PID), and GMI18-226P.

4.4.3 Benzene, Toluene, Ethylbenzene, and Total Xylenes

The BTEX component distribution was similar to most of the TPH anomalies on the flightline, with the exception of the southernmost TPH plume in the area of Hangar 1050 (see Figure 18). Specifically, two separate plumes exist on the northern edge of the Alert Apron, four coalescing plumes on the South Apron, and an isolated point in the grassy area between Taxiway 180 and the South Apron. Site GMI18-17P, designed as a background point, unexpectedly had above dl of Xylenes. This point is located west of the fuel and defuel point on Taxiway 180. BTEX was also detected at monitoring well GMI22-01M (sampled May 23, 1994) located at the south end of the South Apron.

Of the plumes on the Alert Apron site GMI18-45P has the highest detected values (B, T, E, and X). Site GMI18-49P (B, T, E, and X) and GMI18-50P (B) are down gradient from the other plume; however, two sampling sites in between were ND, thus constituting two separate plumes. Sources are most likely meter pit E-4 and USTs at pump station E. The latter has been removed.

Sites GMI18-38P (E and X) and GMI18-39P (B, T, E, and X) are cross-gradient to each other and are located at opposite ends of a plume near pump station D on the South Apron. Since both sites have similar values of total BTEX, it is not clear if there is more than one source. Possible sources include meter pit D-2, USTs at pump station D, or pipelines in between.

Sites GMI18-33P, GMI18-34P, and GMI18-35P (E and X) are located within a plume near Spot 35. Fuel lines at Spot 35 (meter pit D-1) were repaired in the past; an assessment was conducted, resulting in the construction of several monitoring wells on the South Apron area (see Section 2.4). Contrary to previous reports, site GMI18-37P located at Spot 35 showed ND results. GMI's plume suggests meter pit B-3 as the source. Considering hydraulic gradient in this area and the knowledge of Spot 35, both meter pits B-3 and D-1 are apparent sources for this individual BTEX plume.

Sites GMI18-30P (E and X) and GMI18-32P (B, T, E, and X) are included within the boundaries of a plume in the vicinity of meter pits B-1 and B-2, respectively. Both of these pits could be sources; however, further investigation is necessary for confirmation.

The fourth plume on the apron, located at Hangar 1402, may have a separate source, since free product was visible on the pipe at site GMI18-184P. However, the lower levels of BTEX at GMI18-183P (E) and GMI18-184P (E and X) suggest that they are located on the down gradient ends of two previously mentioned plumes. This plume is undefined to the east of Hangar 1402 where the penetrometer holes are dry. It is unknown at this point whether bedrock is genuinely above the water table or if the soil is too dense to be penetrated by CPT. The source, as well as the extent, can be determined by more sampling and analyses.

Sites GMI18-22P (B, T, E, and X) and GMI18-24P (B) are located in another plume having two separate sources. The sources associated with these two locations are likely from fuel pipelines or spills, and from USTs at pump station C.

One additional BTEX plume was identified outside of the flightline directly east of the JP-4 truckfill facility on Knights Lake Road. This is only one block east of bulk fuel storage area (petroleum, oil, and lubricants [POL]) and the Flightline Drainage Ditch, two of the sites originally identified as possible contaminant sources (see Figure 2). Site GMI-75S (E only), site GMI-83S (B and E), and site GMI-84S

(B, T, E, and X) are all down gradient from the two sites. Sites GMI-57S, GMI18-58S, and GMI18-66S are all closer to the tank farm and ditch, but the samples tested ND for all components including halocarbons as well as BTEX (see Table 2). This suggests subsurface leakage at the truckfill facility may account for the elevated values. The BTEX area is confined, except to the east (see Figure 18).

4.5 Source(s) and/or Derivation of Contaminants

Chlorinated hydrocarbons have the potential to degrade into other compounds analogous to the decay of radioactive elements. Therefore, not all of those compounds identified in the water under CAFB are directly explained by disposal or leaks. According to Radian Corporation (1991), TCE can react via a process called hydrogenolysis to form the DCE group, then VC, and finally an end product of ethene (Figure 19). Hydrogenolysis is a reduction reaction which results in the progressive replacement of the halogen ions (in this case chloride) by hydrogen. The timing of these reactions is believed to be relatively short (days to a few years) and may account for some of the variety of compounds and diversity of occurrence observed at CAFB.

It can be noted that the TPH and BTEX plumes on the flightline are, as expected, a result of leaks or spills around the fuel hydrant system. Two exceptions might exist: one at Hangar 1050 where the western portion of the plume might be due to a major fuel spill or some unknown waste petroleum UST and the other source is at Hangar 1402. The hydrocarbon sites in the southeast area (as previously noted) are near the POL tank farm, a possible source area (Radian Corporation 1986); however, the closest potential source, the truckfill facility, was not identified in the same report. The Comprehensive Plan - Liquid Fuel System map can be obtained from CAFB (now NAS Fort Worth JRB) illustrating the location of jet fuel lines, transfer lines, refuel and defuel lines, fuel and defuel points, filter and meter pits, hydrant lateral control pits, and pump stations with USTs. All are potential sources of BTEX and TPH contamination.

Clusters of positive halocarbon (TCE) values in the north lobe area are not near any of the suspected contaminant sources originally identified. In general this area had virtually no groundwater data (e.g., from monitor wells sampled by Jacobs Engineering) prior to the GMI Phase II 1993 sampling. The current project designed "extra" sampling locations to infill the areas that have not been sampled and to obtain TPH data until two rows of ND values were acquired as defining the limits of the TPH plume.

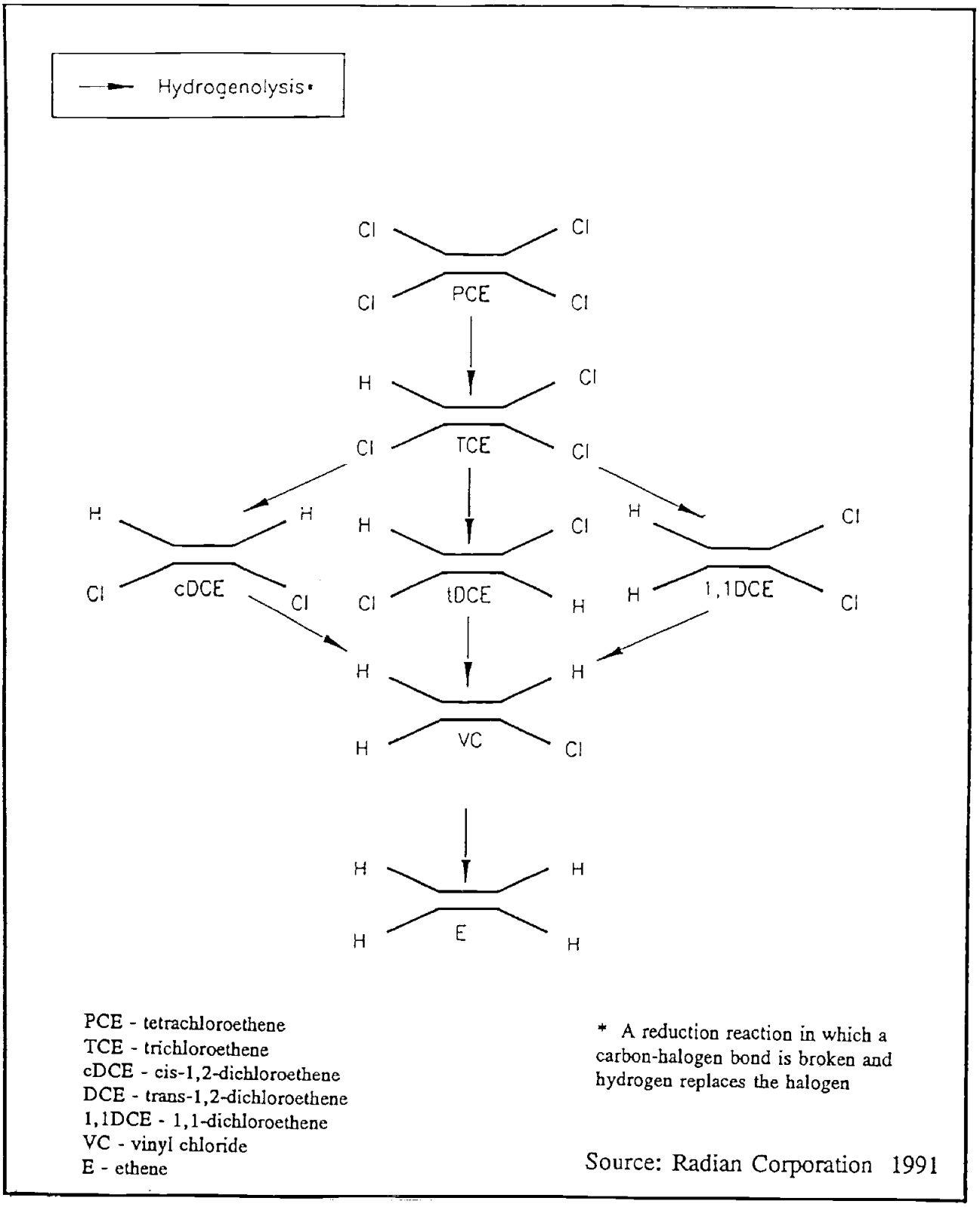

Figure 19. The chemical process called hydrogenolysis, which results in the breakdown of trichloroethene to a number of other compounds, including vinyl chloride

The halocarbon results at the north portion of the base suggest a possible source on the flightline; however, prior to this project no sources have been confirmed by dense non-aqueous phase liquids (DNAPL) characterization. The halocarbon results from the 1993 GMI Phase I and II AFP4 TCE project conducted south of Taxiway C and on the golf course are also not near any suspected sources and have little monitor well or other data nearby, except those wells installed near known sources of contamination on the west edge of the golf course (e.g., WP07, LF04, LF05, and FT09).

The source of the north TCE lobe could be interpreted from GMI data as being located around the Alert Apron in Area A (see Figure 15); however, monitor well data near the runway reveal values of 500 μg/l which correlate with values in that lobe. It is possible that the north lobe could be a slug of contaminants that have migrated from AFP4 allowing enough time and the right hydrogeologic conditions. Implementation of solute transport modeling, given aquifer parameters, could strengthen this possibility. However, due to the history of the widespread use of TCE at both AFP4 and CAFB, the potential for multiple sources exists, and, therefore, it is likely that one or more sources contribute to the plume. The presence of PCE at both the west and east ends of this lobe suggest the dual origin.

In the south lobe of the TCE plume, three sources are apparent on the flightline in addition to the known sources near the golf course, west of the WSA, the southwest corner of the WSA, and LF-03. The GMI TCE Phase I and II sampling area on the golf course is better supplemented than the other three sources by 1992 GMI results and the intermittent monitoring of wells installed in the area by Radian, ITC, and others. Results south of Farmers Branch formerly suggested that AFP4 was the source, but the waste burial area WP07 on CAFB also contributed to the plume. Data at location GMI18-148P suggests LF05 as a contributor. An alternative to the view of multiple additional sources would be that each individual "hot spot" is a slug that has migrated from AFP4. As previously suggested, mass transport modeling may be useful; otherwise, installation of additional monitoring wells upgradient of these potential sources might be necessary for confirmation.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The Phase I and II program of soil and water sampling, soil stratigraphic delineation, and SWL measurements at CAFB have led to the following conclusions:

(1) Groundwater contamination by TCE and some of its breakdown products is widespread on CAFB; however, in the areas studied to date there does not appear to have been migration outside the boundaries of CAFB, unless carried by Farmers Branch.

(2) The boundaries of the TCE plumes on CAFB have been generally defined to the north (except for a short portion along the north edge of the runway), east, and south (see Figure 15). However, elevated TCE values are open to the west along a major portion of the runway. It is apparent that the AFP4 plume has migrated onto CAFB. It is not clear whether anomalies on the CAFB side constitute three or four new (i.e. previously unidentified) sources or slugs which have migrated from AFP4 over time.

(3) Groundwater contamination by jet fuel is evident along portions of the fuel hydrant system on the flightline. Elevated levels of BTEX and TPH are co-existent and complementary in two of three major areas on the flightline. One of the major plume areas, on the Alert Apron, is defined in each direction for both BTEX and TPH; the second, on the South Apron is undefined to the southeast near Hangar 1402 for both BTEX and TPH; the third (TPH) plume is undefined to the west, south, and east; however, previous investigation in these directions did not include TPH analyses.

(4) BTEX was identified in the GMI 1993 south sampling area at three sites near the truck fill facility which is a block from the POL Tank Farm and Flightline Drainage Ditch. At that time, TPH analyses were not done, and so the identified fuel contamination has not been defined.

(5) Hydrocarbons were occasionally detected by smell and/or PID at locations where it could not be confirmed by analytical results. Locations at which visual, olfactory, and/or PID evidence of petroleum contamination exist at dry holes include: GMI18-02P (low PID only), GMI18-25P (PID), and GMI18-76P (PID/odor). Locations at which visual, olfactory, and/or PID evidence of petroleum contamination exist at sampled holes with ND results include: GMI18-06P (resampled at boring GMI18-02B), GMI18-07P (resampled at boring GMI18-01B), GMI18-12P (resampled at boring GMI18-05B), GMI18-182P, GMI18-188P, GMI18-202P (slight odor/PID), and GMI18-226P.

(6) Successful use of the cone penetrometer to sample water in the area around and to the west of Hangar 1050 was inconsistent because of isolated hard layers within the sediment column above true bedrock. Based on soil boring profiles, these hard layers are believed to have caused probe refusal in some locations before the water-bearing horizon was

reached. Soil boring operations sometimes encountered these hard layers without sample recovery; however, available samples and cuttings from this depth imply that the soil is comprised of a gravel layer of hard pebble-sized limestone fragments.

(7) At a few locations near the runway, hard, dry clays held the penetrometer back by friction against the rods, rather than by tip resistance; this prevented the introduction of PVC pipe into the hole, but was resolved by using a pre-punch tip after a CPT run was made. The pre-punch tip on the CPT rods opened the hole to a diameter such that the rods are not held by friction in the clays; GMF casing is then used on a third run in the hole to place the screen at the desired depth.

(8) The penetrometer worked well over the majority of the flightline where there were relatively few dry holes.

(9) The use of the electronically generated soil profiles to identify sand and gravel and, therefore, delineate channels in the subsurface cannot be accepted without some degree of uncertainty. Comparisons of soil descriptions with nearby cone profiles show varying degrees of correlation; however, this could reflect the inherent sedimentologic variations in the area.

(10) Based on the cone penetrometer profiles, water can be present in holes with a continuous section of fine-grained sediments, while some thick sand sections were dry holes. This suggests that small scale sedimentologic variations, not visible on the profiles, can influence fluid migration. Furthermore, contaminant plume migration does not necessarily depend on channels as preferential pathways, as can be seen in the TCE plume in the WSA area.

(11) Groundwater gradient direction measured in the north one-half of the base is to the east, and in the south one-half of the base groundwater flow is to the east-southeast, which is consistent with previous determinations. Groundwater gradient can be characterized as sloping gently over most of the flightline with one exception, a 1,000 to 3,000 foot-wide trend has a maximum gradient estimated at 0.02 feet per foot. This trend is oriented from north to south-southwest through the center of the base (see Map 3 in the pocket in the back of this report).

5.2 Recommendations

(1) Certain areas of the base have data gaps which, if filled, might refine the plume boundary by moving it up to 500 feet. Additional sampling should be considered, but is not strongly recommended in these areas:

(a) west and southwest of GMI18-108P (5.89 μg/l DCE) to evaluate LF03 as a source of this area of the plume (see Figure 16);

(b) north end of the runway to define the open end of the TCE plume (see Figure 15);

(c) vicinity of GMI18-074P, GMI18-081P, GMI-116P, GMI18-076P, and GMI-115P will answer two questions; is the 4.26 μg/l TCE at GMI18-080P connected to the rest of the plume and, is TPH present in the soil and groundwater at 76P at Taxiway D 195;
(d) along the east fence of the WSA and on Taxiway 180 where dry holes resulted in data gaps;
(e) Rogner Drive from the undefined BTEX plume at the truckfill facility release when data from contractors at CAFB might define this fuels release;
(f) east side of Taxiway D where olfactory evidence of fuels occurred at GMI18-76P; and
(g) GMI18-202P and GMI18-226P where visual and olfactory evidence of fuels exists.

(2) Additional sampling in these areas could move plume boundaries up to 1000 feet; each of these areas either has shallow bedrock (above the water table) or has layers impenetrable to the cone penetrometer; therefore, drilling by conventional drill rig with hollow-stem augers is advisable:

(a) south, east, and west sides of the TPH plume at Hangar 1050 (see Figure 17) and
(b) east of Hangar 1402 where the BTEX and TPH plume is undefined (see Figure 18).

(3) Implementation of simulated mass transport models might determine if the possibility of migration of slugs of contaminants, such as exist on CAFB, could occur from a variety of potential sources (given appropriate estimated parameters).

(4) In the event that characterization of fluviatile channel deposits requires supplementary lithologic data, areas of uncertainty may be infilled with a moderate number of widely spaced borings; with a decrease in spacing where lithologic discrepancies between borings and CPT logs occur. Describe the soil profile and continue sampling and analyses of groundwater where it occurs.

(5) Depth to actual bedrock and occurrence of basal channel deposits are integral bits of information which would supplement and confirm the CPT data. Uncertainties or discrepancies occur where it is not certain that bedrock has been encountered, and where CPT plots do not agree with the visible observation of the soil. The other ambiguity of CPT data is the interpretation of it, and, therefore, the need for a visual soil profile for the purpose of developing reliable interpretation methods. It is evident that what is seen on soil logs, such as grain sizes, depths of similar grain-sized sediments within the column, the occurrence of basal or extraformational gravel, fossils, desiccation cracks, root beds, or other structures that would be characteristic of channels, point bars, or floodplains in a meandering stream depositional environment does not necessarily correlate precisely with the interpretation of CPT log patterns.

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7.0 ACRONYMS AND ABBREVIATIONS

AFP4	Air Force Plant No. 4
BCA	Base Conversion Agency
BTEX	benzene, toluene, ethyl-benzene, and xylenes
CAFB	Carswell Air Force Base
cps	centimeters per second
CPT	cone penetrometer
Cr	chromium
DCA	dichloroethane
DCB	dichlorobenzene
DCE	dichloroethene
DCP	dichloropentene
DHL	DHL Analytical
DI	de-ionized
dl	detection limit
DNAPL	dense non-aqueous phase liquid
EPA	Environmental Protection Agency
ESE	Environmental Science & Engineering
FDTA	fire department training area
Fm	Formation
ft	foot/feet
GC	gas chromatograph
GMI	Geo-Marine, Inc.
GS	ground surface
H&A	Hargis & Associates
HNu	a photo-ionization detector for organic vapors
IR	infrared
IT	International Technology Corporation
IRP	Installation Restoration Program
JE	Jacobs Engineering Corporation
JP-4	jet fuel
LF	landfill
MCL	maximum contaminant level
μg/l	micrograms per liter
ml	milliliters
MSDS	material safety data sheet
msl	mean sea level
ND	non-detect
OVA	organic vapor analyzer
PCE	tetrachloroethene
PID	photoionization detector
POL	petroleum, oil, and lubricants
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
QA	quality assurance
QC	quality control
SHERP	Safety, Health, and Emergency Response Plan
SOW	scope of work

SWDL	Southwestern Division Laboratory
TCA	trichloroethane
TCE	trichloroethene
TD	total depth
TNRCC	Texas Natural Resource Conservation Commission
TOC	total organic carbon
TOX	total organic halides
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
VC	vinyl chloride
VOA	volatile organic analysis
VOC	volatile organic compound
WP	waste burial area

APPENDIX A

Meeting Notes and Records of Communication

GMI RECORD OF COMMUNICATION

Copies To: File, LYLE, LOUISE, HUBERT

Project Name:/Number: Groundwater Sampling (Fuels) / 1114-055

X Telephone Call ____ In Person Interview

Date: 4/15/94 Time: 3:45

Contact Name: JOE FIELDER

Title:/Affiliation: CARSWELL AFB BASE OPS.

Contact Telephone Number:/Extension: (817) 782-5541

GMI Employee: T. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

Mr. Quevedo was gone for the day. Mr. Fielder was familiar with the sampling project and was able to answer questions concerning the flightline.

Sampling Operations will absolutely not be allowed to be performed on the flightline during ORI TRAINING exercise. EXERCISE WILL END MAY 7th or 8th.

FLOURESCENT SURVEYORS FLAGGING MAY BE USED AS LONG AS IT IS NOT NEXT TO THE FLIGHTLINE. PAINT CAN BE USED TO MARK EITHER STAKES OR LOCATIONS ON CONCRETE AND ASPHALT.

UTILITIES PERSONNEL WILL NOT BE ALLOWED ON THE FLIGHTLINE DURING TRAINING EXERCISES. THEREFORE ONLY 7 days BEFORE EXERCISES BEGIN (APRIL 30), AND POSSIBLY DURING THE LAST 3 days May 6, 7 & 8.

ACTION RECOMMENDED OR TAKEN

ELLIOT Smith (BCA) MIGHT HAVE HAD THE OPPORTUNITY TO BEGIN UTILITY CLEARANCE BEFORE April 18. IF SO, THIS will ALLOW 2 weeks for them before EXERCISES, OTHERWISE, GMI will NEED TO SCHEDULE sampling later than May 9th.

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To: file: LCW, LLD, HST

Project Name:/Number: (FUELS) GROUNDWATER SURVEY 1114-055

X Telephone Call ___ In Person Interview

Date: 4-15-94 Time: 9:45

Contact Name: Roy QUERETARO

Title:/Affiliation:

Contact Telephone Number:/Extension: (817) 782-5541

BASE OPERATIONS

GMI Employee: T. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

301ST ORI 29th of April through 7th or 8th of May.

GAVE HIM AN ESTIMATED DATE OF MAY 9 TO DO FLIGHTLINE TRAINING FOR THE ENTIRE FIELD CREW AND BEGIN PHASE I PENETROMETER WORK ON THE FLIGHTLINE.

DEBBIE FITZGERALD (USACE) AND TONY Mills (GMI) ARE SCHEDULED FOR EARLY FLIGHTLINE TRAINING ON TUESDAY MORNING TO MARK SAMPLE LOCATIONS.

MR. QUERETARO EXPLAINED THAT IT WOULD BE BEST NOT TO BEGIN DURING THE EXERCISES.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

MEMO

TO: Files

FROM: L. Delano, L. Winnette, & T. Mills

DATE: 4/15/94 (revised 5/31/94)

RE: Carswell AFB Groundwater Survey (fuels) Pre-Work Meeting/GMI Project No. 1114-055

A meeting to review Scope of Work (SOW) tasks, discuss project procedures, and enhance communication between participants was held in Building #1215 at CAFB on April 14, 1994. The meeting was co-chaired by Dwayne Ford and Debbie Fitzgerald, technical managers with the U.S. Army Corps of Engineers (USACE), and attended by Lyle Winnette, Tony Mills, and Louise Delano of Geo-Marine, Inc. (GMI); Rene Moradel (industrial hygienist) with the USACE; Frank Grey, Bobby Hernandez, and Elliott Smith (for Alan Flolo) of the Base Conversion Agency (BCA); Steve Cliff (for Roy Querertero) of Base Operations (Base Ops); and Chief McCarthy of the Navy.

Because the people present represented a variety of backgrounds as well as different reasons for being invited to attend, Debbie Fitzgerald gave a brief overview of the project's purpose and the two-phase format in which it was to be accomplished. Then the SOW was discussed in detail so that any questions or possible ambiguities could be resolved.

Issues and/or questions raised included the following:

(1) Flightline Training: its importance, the need to schedule it in advance, and the need to both check-in and check-out with Base Ops. **each day** of flightline activity. The three USACE representatives will do the training with GMI personnel and subs; GMI will be responsible for scheduling the training and notifying them.

(2) Military exercises are scheduled late April-early May which may impact activities on the flightline. GMI will check on this with Base Ops. and schedule around them if need be. GMI will keep USACE representatives apprised of any resultant problems meeting the SOW schedule.

(3) Tank removal will occur at approximately the same time in an overlapping area. Debbie Fitzgerald will find out when the work will be done, and GMI will schedule sites in the area to coordinate with it. Attachment 1 of the SOW shows three locations of particular interest which should be sampled first, if possible.

(4) The order of importance of the samples to be taken is BTEX, chlorinated solvents, and TPH. Therefore, in areas with limited water the two VOAs should be filled first and then the one-liter bottle. GMI will check with the lab for the **minimum** amount needed for a TPH analysis.

(5) The VOA samples will be preserved with ice only, while the TPH samples will be acidized. The holding time for the VOA samples, therefore, is only seven days which means these samples must go to the lab(s) the day they are taken. GMI will make necessary arrangements for same-day delivery.

(6) Drum storage will continue to be at the former radar station because it is less visible. The need to properly dispose of all drums within 90 days was reiterated by USACE personnel.

(7) Elliott Smith stated that his office could immediately start utility clearance (which will take approximately two weeks to complete) using the site location maps prepared by USACE. He also stated that utility clearance could be obtained for up to 90 days.

(8) The importance of surface restoration on holes in asphalt and concrete was stressed. Cold mix will be used at the asphalt locations, and the upper two feet of concrete locations will be filled with concrete per the SOW. Elliott Smith will check and approve all concrete location restorations.

(9) Frank Grey said he had been receiving regular calls from the EPA and requested that any EPA inquiries be referred to him. USACE personnel will present Phase I results at the next BCT meeting.

Dwayne Ford closed the meeting with a review of the various action items discussed.

GMI RECORD OF COMMUNICATION

Copies To: FILE: LCW, LLD, HST

Project Name:/Number: Groundwater Sampling (Fuels) / 1114-055

X Telephone Call ____ In Person Interview

Date: 4-18-94 Time: 8:05

Contact Name: ALAN FLOLO

Title:/Affiliation: ENGINEERING TECHNICIAN CARSWELL AFBCA

Contact Telephone Number:/Extension: (817) 731-8973 EXT. 18

GMI Employee: T. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

INFORMED A. FLOLO OF PLANS FOR OBTAINING BASE PASSES AND FLIGHTLINE CLEARANCE. BRIEFED HIM ON THE MEETING THAT WAS HELD THURSDAY 4-14-94. PLANS FOR MEETING AT BASE OPS AT 0800 IS FINE WITH HIM.

INFO DISCUSSED ABOUT MEETING.

1) ELLIOTT SMITH HAS THE MAP WITH USACE APPROVED LOCATIONS.
2) SAMPLING SITES ARE DESIGNATED WITH G, A, C for GRASS, ASPHALT, CONCRETE. AREAS WILL BE STAKED OR PAINTED.
3) DATE SET FOR SAMPLING IS MAY 9. HE SAID UTILITIES SHOULD BE CLEARED BY THEN. THE LOCATORS WILL NOT BE WILLING TO BEGIN UNTIL LOCATIONS ARE MARKED.
4) ORDER OF CLEARENCE SHOULD BE: FIRST, ON FLIGHTLINE NEAR BASE OPS, THEN WORK SOUTHWARD.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To: file, LCW, LLD, HST

Project Name:/Number: GROUNDWATER SAMPLING (FUELS)/1114-055

___ Telephone Call X In Person Interview

Date: 4-19-94 Time: 8:00

Contact Name: DEBORAH FITZGERALD

Title:/Affiliation: TECHNICAL REPRESENTATIVE USACE

Contact Telephone Number:/Extension: (817) 334-3221

GMI Employee: T. Mills, H. Thompson

Title:/Department: HAZMAT

TOPICS DISCUSSED

DURING THE COURSE OF THE DAY, DISCUSSION INCLUDED:

1) DATE TO BEGIN PENETROMETER WORK FOR FUEL HYDRANT SYSTEM IS MAY 9, 1994. FLIGHTLINE TRAINING ALSO BEGINS THAT MORNING.

2) SAMPLE LOCATIONS MAY BE NUMBERED ACCORDING TO GMI (IRPMS) FORMAT WHICH WOULD INCLUDE USACE NUMBERS. ie GMI 18-37P.

3) MARKING LOCATIONS ON THE GROUND WITH RESPECT TO THE PROVIDED MAPS DO NOT REQUIRE ACCURATE MEASUREMENTS.

4) THE LOCATION OF THE KNOWN FUELS CONTAMINATION AT SPOT 35, (Location # C35 on map) WAS ACTUALLY AT LOCATION # C37. THIS WAS DETERMINED BY THE PRESENCE OF MONITORING WELLS NEAR THE TERMINAL WHICH WAS LABELLED C37 ON THE MAP. MS. FITZGERALD REQUESTED THAT LOCATIONS C37, C33, C34 be MOVED SUCH THAT THEY ARE IN POSITIONS DOWNGRADIENT (EAST) OF THE TERMINAL RELATIVE TO THEIR

ACTION RECOMMENDED OR TAKEN

MAP OF RELOCATIONS FOR C33, C34, C35 AND C37 IS INCLUDED.

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To:

Project Name:/Number:

____ Telephone Call ____ In Person Interview

Date:

Time:

Contact Name: DEBORAH FITZGERALD

Title:/Affiliation:

Contact Telephone Number:/Extension:

GMI Employee: T. Mills, H. THOMPSON

Title:/Department:

TOPICS DISCUSSED

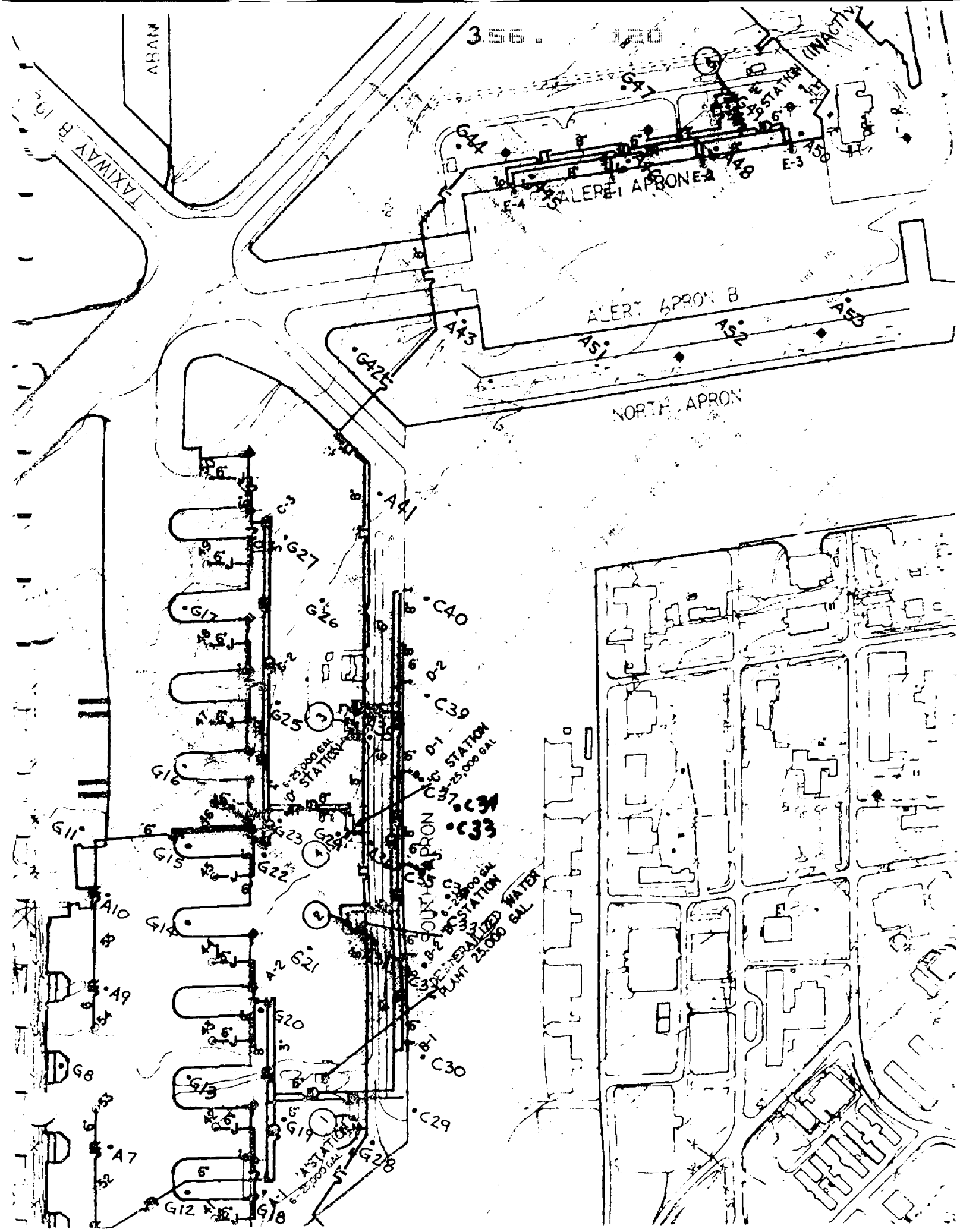
POSITION ON THE MAP. MILLS AND THOMPSON MEASURED C34 ROUGHLY 200' EAST OF THE TERMINAL, AND C33 60 FEET SOUTH FROM THERE. C37 WAS LOCATED APPROXIMATELY 14 FEET EAST OF THE TERMINAL.

5) Some of the sample points were marked in drainage ditches for optimal results near fuel line junctions. In case of difficulty in sampling from these areas, permission was granted to relocate away from the area as needed.

6) THOMPSON NOTED STANDING WATER IN THE "FILTER AND METER PITS" BETWEEN LOCATIONS 18 AND 25. THE DRAIN TO THESE PITS ARE PLUGGED. THE LOCATION OF THE OUTFALL HAS NOT YET BEEN DETERMINED.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills



TAXIWAY B
ALERT APRON
ALERT APRON B
NORTH APRON
SOUTH APRON
STATION (INACTIVE)
DEMINERALIZED WATER PLANT 25,000 GAL
A41
A43
A51
A52
A53
A48
A50
A49
A47
A44
A45
A46
A7
A9
A10
G11
G12
G13
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G17
G18
G19
G20
G21
G22
G23
G24
G25
G26
G27
G28
G42
G44
G47
C29
C30
C31
C33
C35
C37
C39
C40
E-1
E-2
E-3
E-4

GMI RECORD OF COMMUNICATION

Copies To: file, LCW, LLD

Project Name:/Number: GROUNDWATER SAMPLING (FNELS) / 1114-055

___ Telephone Call X In Person Interview

Date: 4-19-94 Time:

Contact Name: ROY QUERETARO

Title:/Affiliation:

Contact Telephone Number:/Extension: (817) 782-5541

BASE OPERATIONS

GMI Employee: T. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

1) MR. QUERETARO GAVE PERMISSION TO BRING THE RIG WITH US TO THE FLIGHTLINE TO TEST THE CONCRETE DRILL BIT.

2) DISCUSSED THE MAY 9, 1994 DATE FOR FLIGHTLINE TRAINING AND BEGINNING OF PENETROMETER WORK ON THE FLIGHTLINE.

3) RULES AND PROCEDURES FOR GETTING ACCESS TO THE FLIGHTLINE WILL CHANGE THROUGHOUT THE NEXT WEEK.

4) GMI (mills, THOMPSON) AND MS. FITZGERALD HAVE PERMISSION TO PROCEED TO THE FLIGHTLINE TO MARK LOCATIONS. OLD PASS IS STILL IN EFFECT. WILL NEED NEW ONE MAY 9.

5) NEW METHOD WILL INCLUDE A SYSTEM WHICH REQUIRES STOPPING BY CONTROL TOWER DAILY FOR A TAG OR FLAG WHICH SIGNIFIES THE DESIGNATION OF THE AREA YOU ARE ALLOWED TO BE IN. IE. RESTRICTED, UN-RESTRICTED, ETC. CHECK OUT AT END OF DAY.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

356. 122

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

May 5, 1994

Geotechnical Branch
Engineering Division

Mr. Lyle Winnette
Geo-Marine, Incorporated
550 East 15th Street
Plano, Texas 75074

Dear Mr. Winnette:

A review of Geo-Marine's update to the Safety, Health, and Emergency Response Plan for Phases I and II Ground-Water Sampling and Subsurface Soil Delineation of the Hydrant Fueling System, Carswell Air Force Base, has been conducted. It appears all of the questions and concerns identified during the review of the original submittal have been sufficiently addressed in the update and the accompanying cover letter. Please consider the referenced plan approved. Utilizing the approved plan, it is anticipated that on-site work for the Carswell Air Force Base ground-water survey will commence May 9, 1994. If there is any unexpected delay in the commencement of work at Carswell Air Force Base, please notify Mr. Dwayne Ford of our Hazardous Waste Management Section, telephone 817/334-9924.

Your cooperation in the transmittal of the Safety, Health, and Emergency response Plan for Phases I and II update is greatly appreciated. To help avoid future transmittal complications, please direct future correspondence or submittals to Mr. Ford at either of the following appropriate addresses:

Mail Deliveries:
U.S. Army Engineer District, Fort Worth
Corps of Engineers
ATTN: CESWF-ED-GH (Dwayne Ford)
P.O. Box 17300
Fort Worth, TX 76102-0300

Other Deliveries:
U.S. Army Engineer District, Fort Worth
Corps of Engineers
ATTN: CESWF-ED-GH (Dwayne Ford)
Room 7A37
819 Taylor Street
Fort Worth, TX 76102-0300

Sincerely,

C. T. Coomes, Jr. for
R. Terry Coomes, P.E.
Chief, Engineering Division

Copy Furnished:

CESWF-PL-RE (Tim Dawson)

CESWF-ED-GH
SUBJECT: Meeting Minutes for Phase I Presentation, Ground-Water Survey for Hydrant Fueling System, Carswell Air Force Base (CAFB), Contract No. DACA63-93-D-0014, Delivery Order No. 055

CF(w/encl):
CESWF-ED-GH (Dwayne Ford)
CESWF-ED-GH (Randy Niebuhr)
CESWF-PL-RE (Tim Dawson)
CESWF-PM-J (Peggy Grubbs)
AFBCA/OL-H (Frank Grey)
USEPA-GH-ET (Gary Baumgarten)
Geo-Marine, Inc. (Lyle Winnette)

NAME	ORGANIZATION	PHONE NUMBER
Dwayne Ford	COE (ED-GH)	(817) 334-9924
Debbie Fitzgerald	CESWF-ED-GH	(817) 334-3221
Randy Niebuhr	COE	817 334-3223
Jim Dawson	COE	- 2095
Lyle Winnett	GMI	(214) 423-5480
GARY A BAUMGARTEN	EPA, DALLAS	(214) 655-6749
Frank Grey	AFBCA, Carswell	(817) 731-8973, Ext 1
Tony Mills	GMI	(214) 423-5480

356 125

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

June 28, 1994

Geotechnical Branch
Engineering Division

Geo-Marine, Incorporated
ATTN: Mr. Lyle Winnette
550 East 15th Street
Plano, Texas 75074

Dear Mr. Winnette,

Reference Contract No. DACA63-93-D-0014, Delivery Order No. 055, Ground-Water Survey for Carswell Air Force Base. The approximately 150 sample locations for the Phase II sampling agreed to during the June 23, 1994, Phase I presentation are approved. Five soil borings will be added to the statement of work, and a modification to the delivery order will be negotiated as soon as possible.

If you have questions about proceeding with the delivery order, please contact Mr. Dwayne Ford, telephone 817-334-9924.

Sincerely,

for Melvin S. Green

R. Terry Coomes, P.E.
Chief, Engineering Division

CF:
CESWF-PL-RE (Tim Dawson)

CESWF-ED-GH (200-1a)

28 June 1994
Fitzgerald/rg/4-3221

MEMORANDUM THRU

CESWF-ED-GH

CESWF-ED-G

FOR FILES

SUBJECT: Meeting Minutes for Phase I Presentation, Ground-Water Survey for Hydrant Fueling System, Carswell Air Force Base (CAFB), Contract No. DACA63-93-D-0014, Delivery Order No. 055

1. The Phase I presentation for the subject contract was made by Geo-Marine, Inc., from 1400-1600 hours on 23 June 1994, at the office of the Corps of Engineers, Fort Worth District. A list of attendees is enclosed.

2. Phase I sampling results for total petroleum hydrocarbons (TPH), total purgeable halocarbons, and total benzene, toluene, ethylbenzene, and xylenes (BTEX) were presented to the group by Mr. Lyle Winnette, Project Manager for Geo-Marine. Each attendee received a handout with contoured concentrations for each of the three parameters and a table summarizing the concentrations detected at each sample location. Contoured concentrations were also presented on display boards. A working display board showing all previous Geo-Marine data for trichloroethene (TCE) concentrations from the Air Force Plant 4 (AFP4) ground-water surveys was also used to illustrate how the most recent CAFB data ties in with AFP4 TCE plume. It was not possible to delineate CAFB as a separate source of TCE contamination from the data obtained to date.

3. The approximately 150 proposed sample locations for the Phase II field work were shown on the working display board. All attendees participated in adjusting the locations to come up with a comprehensive plan to close all TCE and petroleum hydrocarbon contours, as well as to determine if a break occurs between the AFP4 TCE plume and any of the TCE plumes identified on CAFB.

4. In determining the Phase II sample locations, it was agreed the locations should not concentrate on identifying point sources of fuel releases along the hydrant fueling system, but should focus on delineating the extent of the JP4 plume generated by the system. It was also agreed five soil borings should be added to the Phase II statement of work to investigate two areas along the hydrant fueling system where no water was encountered during Phase I sampling. Other proposed locations included the western edge of CAFB to better define the nature of TCE contamination migrating from AFP4, the northeast portion of CAFB which appears to be in a cross-gradient rather than downgradient direction from the TCE source on AFP4, the southwest area of CAFB where no TCE data have been gathered to date, and the area where the hydrant fueling system pipeline first enters CAFB.

CESWF-ED-GH
SUBJECT: Meeting Minutes for Phase I Presentation, Ground-Water Survey for Hydrant Fueling System, Carswell Air Force Base (CAFB), Contract No. DACA63-93-D-0014, Delivery Order No. 055

5. Actions are as follows.

a. Fort Worth District verbally approved the approximately 150 Phase II sample locations as they were discussed and laid out during this meeting. A formal letter of approval will be sent to Geo-Marine within 5 days.

b. Geo-Marine will provide the Corps with a copy of the proposed Phase II sample locations as they were agreed to and approved in this meeting.

c. Geo-Marine will transfer the proposed Phase II sample locations to a set of CAFB utility maps to facilitate laying out the locations with respect to utility lines and accessibility.

d. Geo-Marine will begin staking locations as soon as possible to accelerate utility clearances. Allen Flolo is the point of contact with the Base Conversion Agency (BCA) for beginning the Phase II clearances. Accessibility to the western area of CAFB is not anticipated to be a problem.

e. The Corps will mod the delivery order to add five soil borings to the Phase II sampling. No other changes are needed.

f. The Corps will check the current underground storage tank removal contract for removing the hydrant fueling system tank stations to see if Station C is scheduled for removal. Phase I petroleum hydrocarbon data indicate this station to be a predominant source for the JP4 contaminant plume identified in this area. Tank removals are to begin sometime within the next 2 weeks. The Corps will notify Geo-Marine when the removals begin to see if Phase I data agree with the condition of the tanks observed during removal.

g. The Corps will provide Geo-Marine with data obtained from ground-water monitoring performed at Spot 35 to supplement the final report for this contract.

h. Geo-Marine will notify the Corps when to schedule a pre-work meeting to begin the Phase II sampling. The Corps will then coordinate with BCA to schedule the meeting at CAFB.

i. The Corps will provide minutes of the meeting to all attendees.

6. The Corps POC for the actions described above is Mr. Dwayne Ford, CESWF-ED-GH, telephone 817-334-9924, FAX 817-334-2991.

Deborah C Fitzgerald

Encl

Deborah C. Fitzgerald
CESWF-ED-GH

June 30, 1994

U.S. Army Corps of Engineers, Fort Worth District
819 Taylor Street/ P.O. Box 17300
Attn: CESWF-ED-GH/Deborah Fitzgerald
Fort Worth, Texas 76102-0300

Ms. Fitzgerald:

Please find enclosed one copy of the proposed sampling location map for Phase II Groundwater Survey for the Hydrant Fueling System, Carswell AFB, Contract No. DACA63-93-D-0014, Delivery Order No. 055. In addition to the 150 proposed Phase II sampling locations, an additional 50 alternate sampling locations and 5 soil borings were marked on the map. If you have any questions, please call me at (214) 423-5480.

Sincerely,

Lyle Winnette
Project Manager

GMI #1114-055

FACSIMILE TRANSMITTAL HEADER SHEET

For use of this form, see AR 25-11; the proponent agency is ODISC4

COMMAND/ OFFICE	NAME/ OFFICE SYMBOL	OFFICE TELEPHONE NO. (AUTOVON/Comm.)	FAX NO. (AUTOVON/Comm.)
FROM: Dwayne Ford Corps of Engineers	CESWF-ED-GH	(817) 334-9924	(817) 334-2991
TO: Lyle Winnette - Geo-Marine		(214) 423-5480	(214) 422-2736

CLASSIFICATION	PRECEDENCE	NO. PAGES (Including this Header)	DATE-TIME	MONTH	YEAR	RELEASER'S SIGNATURE
U		2	5-1530	July	94	C. Dwayne Ford

REMARKS

Lyle,

Here is the agenda for the Phase II Pre-Work Meeting. Please feel free to call if there are any questions. Thanks - Dwayne

Space Below For Communications Center Use Only

DA FORM 3918-R, JUL 90 DA FORM 3918-R, AUG 72 IS OBSOLETE

PAL
for
CAFB Groundwater Survey
Pre-Work Meeting

Date: 7 July 1994
Time: 1000 hours
Place: Carswell Air Force Base
Bldg 1215, Large Conference Room

PURPOSE: Review Phase II tasks and discuss procedures

AGENDA:

1. Sign-in sheet
2. Introductions
3. Brief review of Phase II tasks
4. Address specific Phase II issues
   a. Flightline access/clearance
   b. Sample locations, including soil borings (utility maps)
   c. Digging permits
   d. Mobile lab set-up and logistics
   e. Drum storage and disposal
   f. Survey
   g. Plugging requirements
   h. Safety
   i. Schedule (including soil borings)
   j. Final Report (date, format, content)
5. Hydrant fueling system removal
6. BCT meeting support
7. Geo-Marine questions/issues
8. CAFB/BCA questions/issues
9. Review action items

LIMIT: 2 hours

If there are any questions regarding the pre-work meeting agenda, please contact Dwayne Ford (817/334-9924) or Debbie Fitzgerald (817/334-3221).

CESWF-ED-GH (200-1a)

8 July 1994
Ford/je/4-9924
CDF

MEMORANDUM THRU

CESWF-ED-GH

CESWF-ED-G

FOR FILES

SUBJECT: Pre-Work Meeting for Phase II of Delivery Order No. 55, Contract No. DACA63-93-D-0014, Ground-Water Survey, Carswell Air Force Base, Texas (CAFB)

1. A pre-work meeting was held at Bldg 1215, Carswell AFB, on 7 July 1994, from 1000 to 1130 hours. The PAL and an attendance sheet are enclosed.

2. Project Phase II issues were discussed as follows.

a. Flightline Access/Clearance

(1) It is believed that most of the personnel working on Phase II have already had the flightline training. Since the DCP work is being subcontracted out, it is possible that personnel other than those who performed the Phase I DCP work will be assigned to Phase II, and may need to be cleared on flightline activities.

(2) Navy and Marine personnel will be moving aircraft to CAFB beginning 1 August and runway, taxiway, and flightline traffic will probably increase substantially. Access needs to be coordinated with the appropriate Navy and Marine personnel at that time. Until then, Roy Quartero remains the POC.

(3) There are no base exercises that anyone is aware of for the next 6 months.

(4) For operations within 250 feet of the runway, personnel must remain in contact with the control tower. Radios are available for this purpose.

ACTION: Geo-Marine will coordinate with Base Operations for scheduling any necessary flightline training.

b. Sample Locations and Digging Permits

(1) Geo-Marine has staked and/or painted nearly all of the proposed sample locations; the remaining locations, including the soil borings, will be marked today. It was recommended that in the future a unique paint color or perhaps "GMI" be used to mark locations since there are several organizations currently marking work locations on the base.

(2) The flightline locations will be cleared first, followed by the runway and taxiway locations, in order to complete work in those areas prior to

the increased use by Navy and Marines starting 1 August.

(3) It does not appear that the Perry Williams, Inc. tank removal at Stations A, B, and D will interfere with Phase II work. The tanks at Station A were excavated this week.

(4) If the work requires that any utilities be turned off, BCA should be given 1 or 2 days advance notice.

ACTION: Geo-Marine will provide a map with proposed locations to BCA ASAP to expedite clearances and digging permits.

d. Mobile Lab Set-Up and Logistics - It may be possible to position the lab at either the location used last year during the AFP4 investigation, in one of the hangars, or at Bldg. 4205 (air conditioning possibly available). Proximity to sampling, electrical power, and temperature will be considered in selecting mobile lab location.

ACTION: Geo-Marine will select the location for the mobile laboratory and obtain the necessary clearance.

e. Drum Storage and Disposal

(1) Drums will be stored in the same area used for Phase I. According to the SOW, the drums are to be removed within 90 days of the sampling period which generated the waste.

(2) CAFB personnel had asked during the Phase I work if a generic drum label could be used until analysis results about the contents of the drum were received.

ACTION: Geo-Marine will check on using a generic label for the drums until receipt of analysis results. The label should include the company name, sampling locations, date, etc.

f. Survey - Surveying will be done at the end of Phase II sampling. Geo-Marine currently has bid requests out for the surveying task.

g. Plugging Requirements - Phase I plugging procedures were acceptable and will be continued for Phase II.

h. Safety - Other than the possibility of increased air traffic, operating near the runway/taxiway, and the heat, there were no additional safety concerns for the Phase II work.

i. Schedule

(1) The availability of DCP equipment indicates that 18 July would

probably be the earliest possible date to start actual sampling. CAFB personnel performing utility clearances and digging permits are saturated with work preparatory to the Navy/Marine move in August. To compensate, clearances on the sampling locations will probably occur in stages, with the clearances trying to stay at least 30 locations ahead of the sampling effort. The sooner information required for clearances is provided, the better.

(2) Due to the base exercise at the beginning of Phase I, the Phase I Presentation was held 13 days later than originally scheduled in the Delivery Order. Geo-Marine suggested that the remaining schedule tasks be adjusted to the actual Phase I Presentation date, i.e., the Final Report would be due 13 days later than that originally scheduled in the Delivery Order (24 November instead of 11 November).

(3) Geo-Marine did not believe that the additional five soil borings would affect the overall schedule, i.e., it might change the end date for sampling, but shouldn't affect the due date for the Draft Final Report.

j. Final Report - There were no questions or issues concerning the format of the Final Report, content, or due dates. Geo-Marine was encouraged to contact CESWF if any questions do arise.

k. Hydrant Fueling System Removal - The USTs at Station A have been excavated. Stations B and D will be demolished by PWI in the next few weeks. Station C will be removed along with the rest of the hydrant fueling system by Metcalf & Eddy beginning in August or September. Initial indications are that the removal work will not interfere with the ground-water survey.

l. BCT Meeting Support - A BCT meeting is scheduled for 14 July 1994. Exact time is unknown, but Frank Grey said that a letter had been sent to CESWF with the meeting details. CESWF support at the BCT meeting was requested.

m. BCA Questions/Issues - There were no questions from BCA about the Phase II effort. BCA provided maps to Geo-Marine and CESWF illustrating the different cantonment areas of the base.

n. Geo-Marine Questions/Issues - The physical location of some of the sample locations identified in the Phase I Presentation were clarified. It was agreed that the five soil boring locations could be as close to the DCP locations as practical. Some initial sampling sequence ideas were discussed, and it was agreed that CESWF should contact Geo-Marine early next week about the desired sequence.

ACTION: CESWF will consider sampling sequences and contact Geo-Marine by 12 July with a recommended sampling order.

3. If there are any questions or issues regarding the Phase II effort, BCA and

CESWF-ED-GH
SUBJECT: Pre-Work Meeting for Phase II of Delivery Order No. 55, Contract No. DACA63-93-D-0014, Ground-Water Survey, Carswell Air Force Base (CAFB)

Geo-Marine are encouraged to contact Dwayne Ford at (817) 334-9924 or Debbie Fitzgerald at (817) 334-3221.

C. Dwayne Ford
DWAYNE FORD
Civil Engineer

Encls
as

CF (w/encls):
CESWF-PM-J (Peggy Grubbs)
CESWF-PL-RE (Tim Dawson)
AFBCA (Frank Grey)
Geo-Marine, Inc. (Lyle Winnette)

PAL
for
CAFB Groundwater Survey
Pre-Work Meeting

Date: 7 July 1994
Time: 1000 hours
Place: Carswell Air Force Base
Bldg 1215, Large Conference Room

PURPOSE: Review Phase II tasks and discuss procedures

AGENDA:
1. Sign-in sheet
2. Introductions
3. Brief review of Phase II tasks
4. Address specific Phase II issues
   a. Flightline access/clearance
   b. Sample locations, including soil borings (utility maps)
   c. Digging permits
   d. Mobile lab set-up and logistics
   e. Drum storage and disposal
   f. Survey
   g. Plugging requirements
   h. Safety
   i. Schedule (including soil borings)
   j. Final Report (date, format, content)
5. Hydrant fueling system removal
6. BCT meeting support
7. Geo-Marine questions/issues
8. CAFB/BCA questions/issues
9. Review action items

LIMIT: 2 hours

If there are any questions regarding the pre-work meeting agenda, please contact Dwayne Ford (817/334-9924) or Debbie Fitzgerald (817/334-3221).

Groundwater Survey Pre work mtg 7/07/94

Name	Agency	Phone #
Alan Flolo	AFBCA	731-8973 x 18
DAVE SHUPP	301/DOB	7531
Al Griner	CRA- CARETAKER MAINT.	377-8065
Elliot Smith	AFBCA/QAE	731 8973 Ex1.
Frank Key	AFBCA/OL-H	731-8973 ext 17
Louise Delano	Geo-Marine Inc.	214-423-5480
Tony Mills	GEO-MARINE, INC.	214-423-5480
DWayne Ford	COE	(817)334-9924

MEMO

TO: File, B. Scalf, & L. Winnette

FROM: L. Delano & T. Mills

DATE: 7/07/94

RE: Pre-Work Meeting for Phase II of Carswell AFB Groundwater Survey (fuels)
GMI Project No. 1114-055

A meeting to review Scope of Work (SOW) tasks, discuss project procedures, and enhance communication between participants was held in Building #1215 at CAFB on July 7, 1994. The meeting was chaired by Dwayne Ford, technical manager with the U.S. Army Corps of Engineers (USACE), and attended by Tony Mills and Louise Delano of Geo-Marine, Inc. (GMI); Frank Grey, Alan Flolo, and Elliott Smith of the Air Force Base Conversion Agency (AFBCA); Dave Shupp of Base Operations (Base Ops); and Al Griner of the Carswell Redevelopment Authority (CRA). Debbie Fitzgerald (COE) and Roy Querertero (Base Ops) were out of town, and invited Marine and Navy personnel were unable to attend.

Dwayne Ford gave a brief overview of the anticipated Phase II activities. Following the prepared agenda, the following issues were discussed:

(1) Flightline access/clearance: GMI personnel have the necessary clearance; however, clearance and training for sub-contract concrete coring and penetrometer field crew will need to be scheduled at the beginning of the field work. Dave Shupp (Base Ops) pointed out that the transition to Navy personnel would start around August 1; aircraft activity will increase at that time, and procedures may change.

(2) Utility clearance is handled by different agencies in different areas of the base. All are short-handed, and GMI is not the only company requesting a digging permit. Therefore, it would be helpful if a map, which includes priorities, could be distributed to the relevant agencies as soon as possible. Alan Flolo supplied a map showing the different areas of responsibility. He will be responsible for copying and distributing the map. Tony Mills estimated that a complete map of sampling locations with prioritization would be available early next week.

(3) There are several options for the mobile lab set-up location. GMI will check on the locations and arrange for the most convenient one which is available.

(4) Drums of soil boring cuttings, well development water, and decontamination water will continue to be stored at the former radar site south of White Settlement Road. Dwayne Ford pointed out that some of the GMI drums now there are past the SOW stipulated 90 days. It was agreed that GMI will change the drum label format.

(5) Metcalf and Eddy will be removing hydrant fueling system in August and/or September. They will also remove the six tanks from Station C (tanks from stations A, B, and D are currently being removed). There is very little overlap between these work areas, and it is not anticipated that there will be logistic problems between the two operations. Where pipes go under concrete runways, the soil will be tested and the piping filled and abandoned in place provided the soil is clean.

(6) Frank Grey has a BCT meeting July 14 which will include discussion of the TCE plume. Debbie Fitzgerald and Dwayne Ford will provide support.

(7) Five soil borings, which will be used to better assess the subsurface (including the depth to bedrock) and from which soil and water will be sampled, have been added to the SOW. Dwayne Ford anticipates that the modification will be completed soon

(8) Field operations were unavoidably delayed in Phase I of this project by training exercises on the base. This resulted in the Phase I presentation occurring approximately two weeks later than originally scheduled. GMI suggested that the actual presentation date be used as a starting date for the remainder of this investigation so that all future key dates will also be two weeks later than original; Dwayne Ford agreed. Dwayne Ford asked if the addition of five soil borings was anticipated to impact the schedule; Gmi replied that it might delay the completion of field activities a few days, but it should not impact the due date of the draft report.

Dwayne Ford closed the meeting with a review of the various action items discussed.

GMI RECORD OF COMMUNICATION

Copies To: FILE, LCW, LLD

Project Name:/Number: CARSWELL G.W. SURVEY-TEST / 1114-055

___ Telephone Call X In Person Interview

Date: 7/7/94 Time: 12:00

Contact Name: MIKE BOTWIN

Title:/Affiliation: ENVIRONMENTAL ENGINEER CAFBCA

Contact Telephone Number:/Extension: 817-731-8973, ext 19

GMI Employee: TONY MILLS, LOUISE DELAND

Title:/Department: ~~HAZMAT~~

TOPICS DISCUSSED

TALKED TO MR. BOTWIN CONCERNING PROPER LABELLING OF DRUMS. DECIDED THAT A BLANK LABEL, "NOTICE" LABEL, WOULD BE OK. SHOULD INCLUDE ACCUMULATION DATE, DESCRIPTION OF CONTENTS, ALAN FLOOD'S NAME AND TELEPHONE NUMBER, LOCATION IT WAS DERIVED FROM.

THE DRUMS OF WATER THAT ARE TO BE TREATED AT IT NEED TO BE TESTED FIRST BECAUSE HIGH LEVELS OF CONTAMINANTS COULD damage THE FILTERS. ALSO, THE WATER MUST BE CLEAN. WE TOLD HIM AN IT PERSON MENTIONED THAT AN ADDITIONAL FILTER WOULD NEED TO BE INSTALLED FIRST. A VACUUM TRUCK WOULD HAVE TO EMPTY THE DRUMS (NOT SLUDGE INCLUDED) AND RUN WATER THROUGH TREATMENT PLANT. MR. BOTWIN WANTS TO TEST FOR METALS, FUELS (TPH), AND TCE. GMI MIGHT BE REQUIRED TO PAY FOR FILTERS IF THEY BECOME DAMAGED.

ACTION RECOMMENDED OR TAKEN

USE BLANK LABEL. IF NOT, USE PAINT PEN FOR DRUMS. GET DRUMS OF WATER ANALYZED. RECOMMENDED WE COMPOSITE FROM EACH DRUM. ONE SAMPLE FOR EACH TYPE OF WATER, development water, decon water, purge water.

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To: LCW, LLD, FILES

Project Name:/Number: PHASE II CARSWELL G.W. SURVEY / 1114-055

___ Telephone Call Y In Person Interview

Date: 8/11/94 Time: 1200

Contact Name: ALAN FLOLO

Title:/Affiliation: ENGINEERING TECHNICIAN / CAFBGA

Contact Telephone Number:/Extension: (817)731-8973 EXT. 18

GMI Employee: T.C. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

MR. FLOLO BROUGHT NEWS FROM THE AF PERSONNEL DOING UTILITY CLEARANCE. NUMBER 244 NEEDS TO BE MOVED TO THE 3RD PARKING SPACE. DO NOT DO 249, SINCE NO ONE HAS OK'D THIS LOCATION (IT WAS NOT INCLUDED ON THE MAP)

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To: LCW, LCD, FILES

Project Name:/Number: PHASE II CARSWELL GW. SURVEY / 1114-055

___ Telephone Call X In Person Interview

Date: 8/24/94 Time: 0910

Contact Name: ALAN FLOLO

Title:/Affiliation: ENGINEERING TECH / CAFBCA

Contact Telephone Number:/Extension: (817) 731-8973 / 18

GMI Employee: T.C. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

MR. FLOLO RECEIVED 1-61 KEY TO WEAPONS STORAGE AREA. GAVE GEO-MARINE PERMISSION TO STORE BENTONITE AND CLEAN (USED) PVC AT BLDG 1401 IF WE AGREE TO MOVE IT UPON REQUEST. MR. FLOLO WAS INFORMED THAT DHL MOBILE LAB WILL REMAIN IN THE HANGAR FOR A SHORT TIME BEFORE IT IS TRANSPORTED BACK TO AUSTIN.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To: LCW, LLD, HST, FILE

Project Name:/Number: CARSWELL GW SURVEY / 1114-055

X Telephone Call ____ In Person Interview

Date: 9/08/94 Time: 13:40

Contact Name: ALAN FLOLO

Title:/Affiliation: ENGINEERING TECHNICIAN CARSWELL AFBCA

Contact Telephone Number:/Extension: (817)731-8973 / 18

GMI Employee: Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

MR. FLOLO WILL CONFIRM WITH THE CRA WHETHER SOIL BORING LOCATIONS HAVE BEEN CLEARED FOR UTILITIES.

HANGAR 1401 IS A GOOD PLACE TO PARK A TRAILOR AND RIG OR OTHER EQUIPMENT.

GMI CAN USE THE SAME DECON AREA ON THE FLIGHTLINE THAT HAS BEEN USED BEFORE. (BLDG 4155).

PLAN TO MEET ALAN FLOLO AT HIS OFFICE AT 8:00 A.M. TUESDAY, SEPT. 12 FOR FLIGHTLINE TRAINING AND BASE PASSES.

MR. FLOLO WILL BEGIN TO GET THE DIGGING PERMIT COMPLETED FOR PRIORITY AREAS 3 AND 5, APPROXIMATELY 50 LOCATIONS.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

GMI RECORD OF COMMUNICATION

Copies To: LCW, LLD, FILE

Project Name:/Number: CARSWELL G.W. SAMPLING (FUELS) / 1114-055

✓ Telephone Call ____ In Person Interview

Date: 10/13/94 Time: 2:00 pm

Contact Name: ALAN FLOLO

Title:/Affiliation: ENGINEERING TECHNICIAN CARSWELL AFBCA

Contact Telephone Number:/Extension: (817) 731-8973

GMI Employee: MILLS

Title:/Department: HAZMAT

TOPICS DISCUSSED

MR. FLOLO WILL BE READY TO ASSIST ALL PERSONNEL INVOLVED IN THE PROJECT IN ACQUIRING FLIGHTLINE AND BASE PASSES. FUGRO, DHL, AND GEO-MARINE WILL MEET AT THE GATE AT 8:00 AM., MONDAY, OCT 17.

SM&P WILL HAVE ALL LOCATIONS CLEARED FOR UTILITIES BY MONDAY.

EAGLE CONSTRUCTION IS IN THE PROCESS OF SCHEDULING DISPOSAL OF WATER AT THE IT PLANT. SCOTT POYNOR IS EVALUATING THE USGS CONTRACT, SAMPLE RESULTS ETC, THEN WILL CONTACT US ON WHAT WILL BE DONE ABOUT THE SOILS. FLOLO IS AWARE THAT IT IS IN EAGLES HANDS AND THAT DISPOSAL

~~ACTION RECOMMENDED OR TAKEN~~

MIGHT NOT TAKE PLACE PRIOR TO ~~NOV.~~ OCT 25.

Signature Tony C. Mills

3.56 144 FYI

BS
LLD
TM

DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

September 28, 1994

HQ AFBCA/OL-H
1 Warehouse Road
Carswell AFB, TX 76127-5000

Lyle Winnette
Geomarine, Inc.
550E 15th Street
Plano, TX 75074

Dear Mr. Winnette,

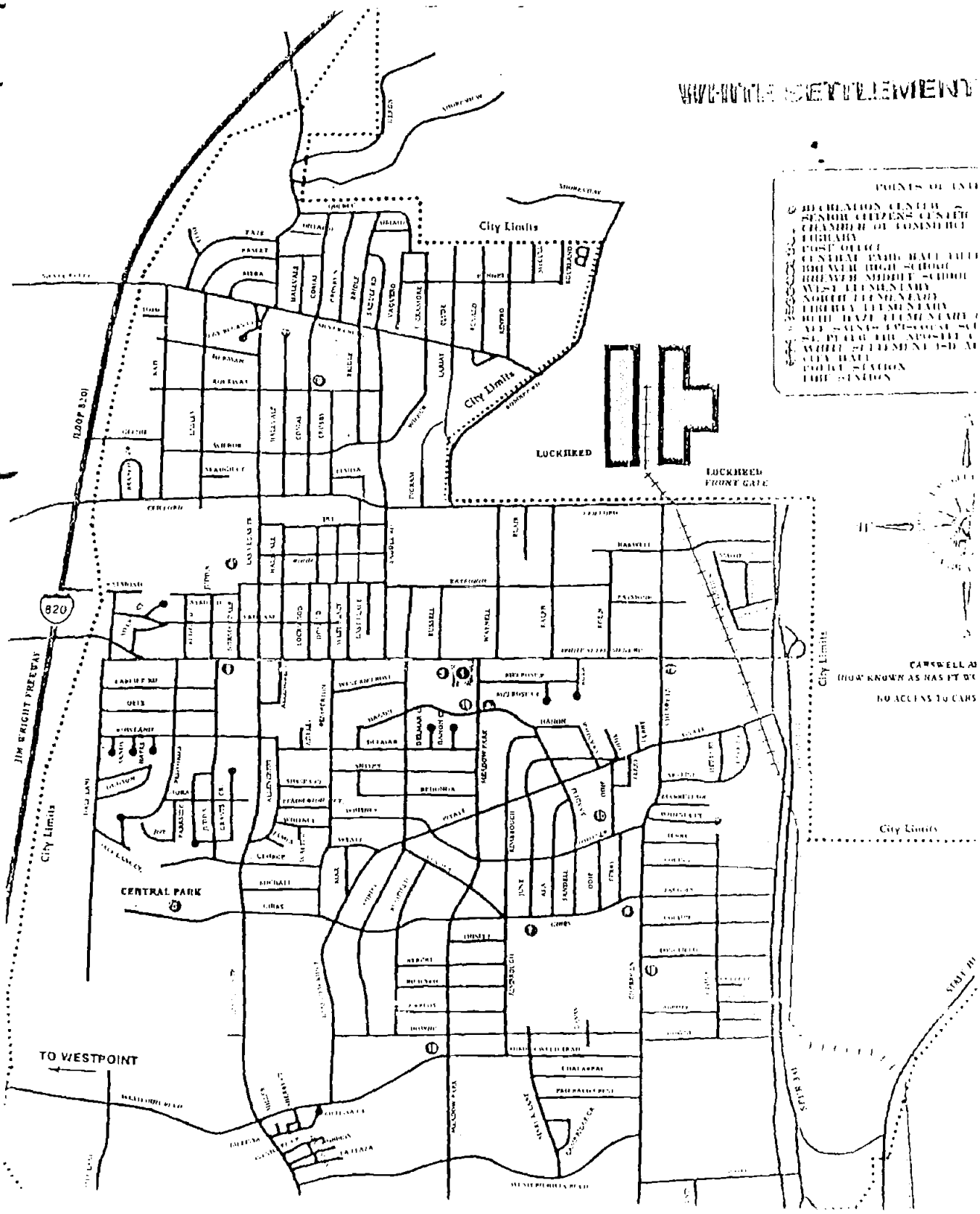
This is a notice to inform you that there is a meeting of the Carswell AFB Restoration Advisory Board Meeting scheduled for 7:00 P.M., Wednesday, October 12, 1994. The meeting will take place at the White Settlement Senior Citizens' Center, located at 8211 White Settlement Road (map enclosed).

Attached you will find an agenda for the meeting. Items to be discussed include the Carswell AFB Installation Restoration Program, the Environmental Compliance Program and the Natural Resources Program. Following the presentation, there will be time for discussion and questions.

If you have questions, please contact me at (817) 731-8973, ext. 17.

Sincerely,

Frank G. Grey, Jr., P. E.
Chief Environmental Engineer


WHITE SETTLEMENT
City Limits
LOCKHEED
LOCKHEED FRONT GATE
820
JIM WRIGHT FREEWAY
CENTRAL PARK
TO WESTPOINT
City Limits

RESTORATION ADVISORY BOARDMEETING
12 OCTOBER 1994, 7:00 P.M.
WHITE SETTLEMENT SENIOR CITIZENS CENTER

I. INTRODUCTIONS

II. REVIEW OF PAST MEETING

III. CARSWELL AFB INSTALLATION RESTORATION PROGRAM

(a) Ongoing projects
(b) Upcoming Remediation projects

IV. CARSWELL AFB ENVIRONMENTAL COMPLIANCE PROGRAM

(a) Current status
(b) Future compliance requirements

V. CARSWELL NATURAL RESOURCES PROGRAM

VI. OPEN DISCUSSION

VII. CONCLUSION

GMI RECORD OF COMMUNICATION

Copies To: FILE : LCW, LLD

Project Name:/Number: 1114/055 CARSWELL GROUNDWATER SURVEY

X Telephone Call ___ In Person Interview

Date: 2-3-95 Time: 1100 am.

Contact Name: DWAYNE FORD

Title:/Affiliation: TECHNICAL REPRESENTATIVE USACE - FORT WORTH

Contact Telephone Number:/Extension: 817-334-9924

GMI Employee: T. MILLS

Title:/Department: HAZMAT

TOPICS DISCUSSED

HOW TO ILLUSTRATE WHICH SETS (WHAT PROJECT PHASES) OF DATA ARE ON PLUME MAPS. WHAT TO DO WITH ISOLATED TPH VALUES AT MONITORING WELLS (TPH MAP).

RECOMMENDATIONS: INCLUDE NEW SAMPLING AREAS OR RECOMMEND TO MOVE TOWARD REMEDIAL ACTION. NAVY will decide WHAT TO DO. TPH - PUT A MARKER FOR MW'S with the concentration rather than the contour. PUT A DOTTED LINE SHOWING BOUNDARY OF ALLAYED TPH PLUME MAPS SHOULD HAVE IN LEGEND (1992, 1993, 1994 GMI data) and cover it in the text. ON ISOLATED AREAS, contour and include a * SHOWING WHERE THE >ND LOCATIONS ARE AND INCLUDE DESCRIPTION IN LEGEND.

ACTION RECOMMENDED OR TAKEN

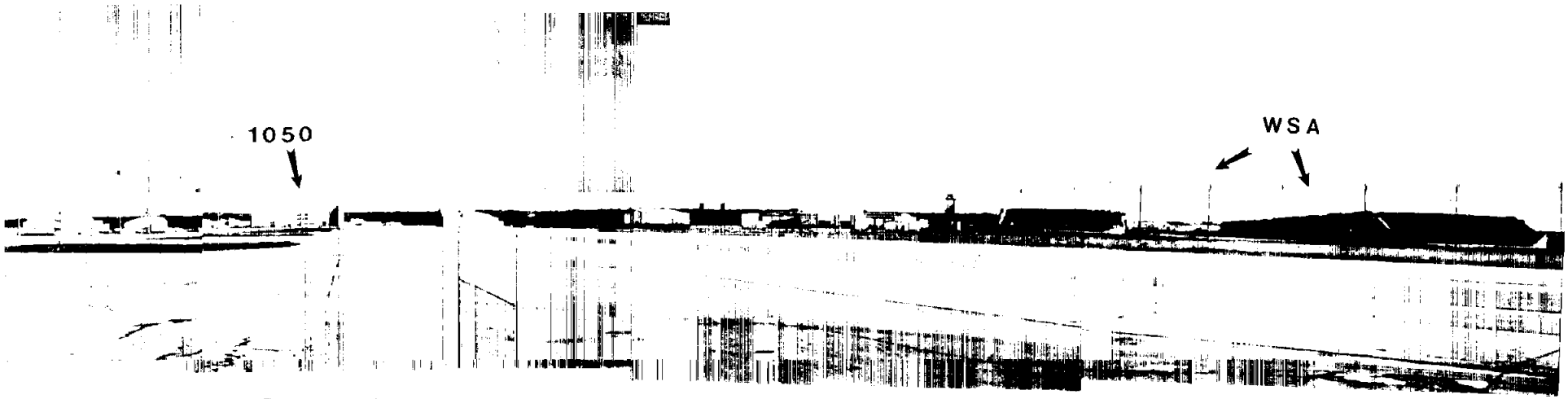
YESTERDAY 2-2-95 AT CAFB - GEOPROBE DEMONSTRATION: MR. FORD ADDRESSED THESE ISSUES CONCERNING REPORT.

1) ADD DETECTION LIMITS TO TABLE 2 IN FIRST ROW.
2) GMI IS NOT REQUIRED TO INCLUDE "ADDITIONAL" DATA FROM OTHER CONTRACTORS.

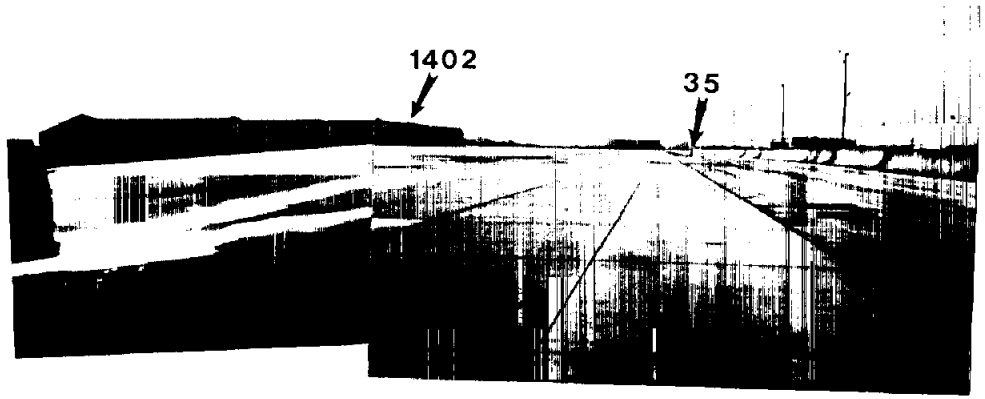
Signature Tony C. Mills

APPENDIX B

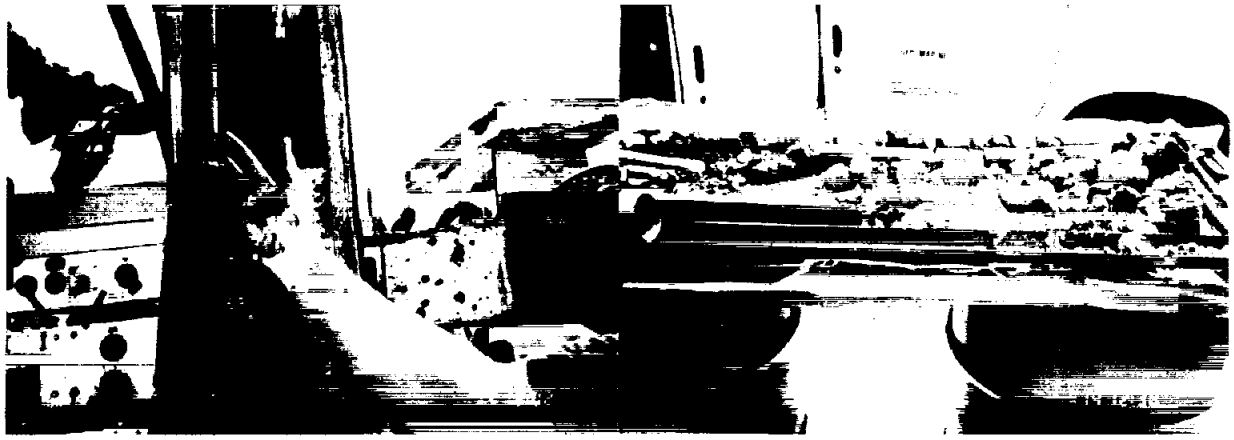
Site Photographs



Panorama view of Taxiway 180 with WSA on the right (arrow), and Hangar 1050 on the left (arrow). Taxiway 180 is oriented toward the southeast. Low levels of TPH were detected here, and the TCE plume crosses this are to the south. TPH was also detected near Hangar 1050.

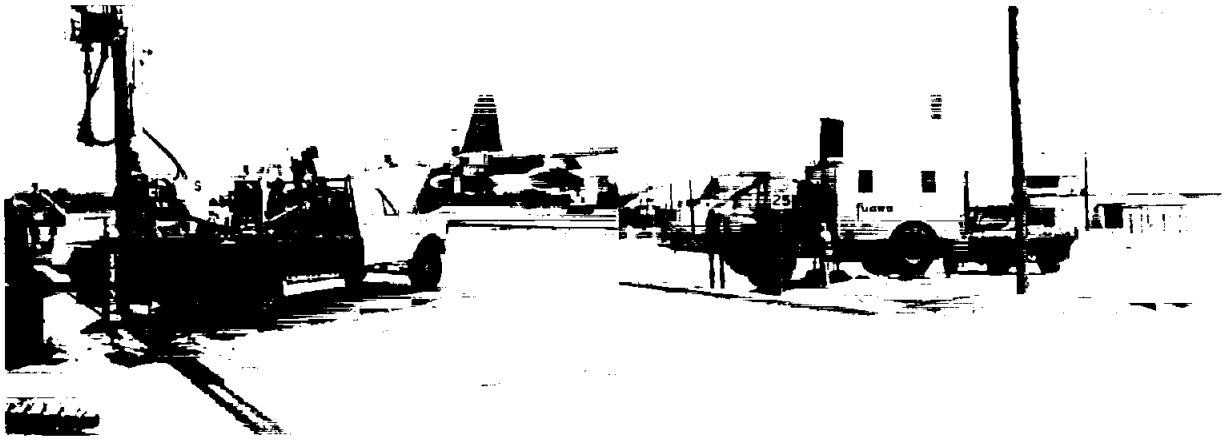


Panorama of the South Apron area looking to the southeast. Most of the BTEX contamination was found in this area which is downgradient from the hydrant fueling system. Spot 35 (arrow) is where fuels were initially detected in the groundwater. The approximate eastern limit of the BTEX and TPH plume is behind Hangar 1402 (arrow).



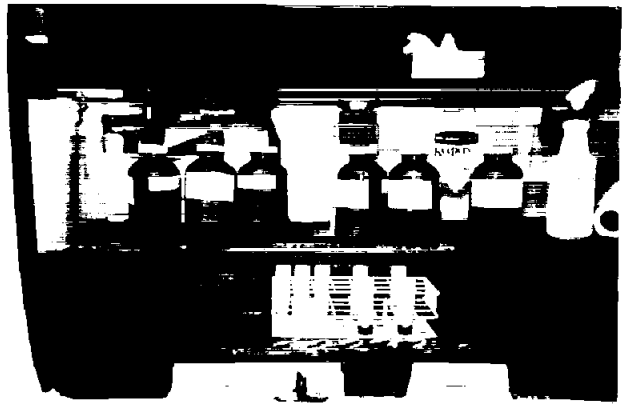
Free product on the drillstem at borehole location GMI18-04B.

The cored interval from ground surface to 27 feet at boring location GMI18-01B. The upper part of the core is to the rear.



The drill rig set up and drilling a soil boring at location GMI18-01B on the flightline.

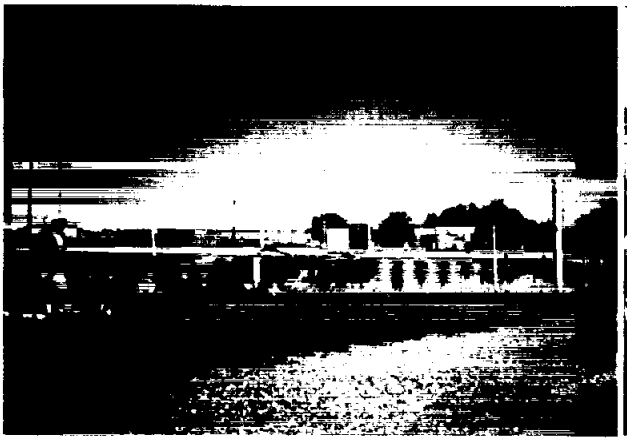
The penetrometer buggy set up at location GMI18-243P near the flight operations tower.



Sample bottles of water collected for TPH, BTEX, and halocarbon analyses.

Looking north from penetrometer location GMI18-110P toward GMI18-109P; a typical location on unpaved surface.

Hydrocarbons are visible on the PVC pipe from GMI18-184P. Pipe has been deconned and will be disposed of by incineration.



Drums of soil and decon water stored temporarily at the former radar station.

Decon water is pumped through a sediment filter into a skid unit for transportation to the on-site treatment plant.

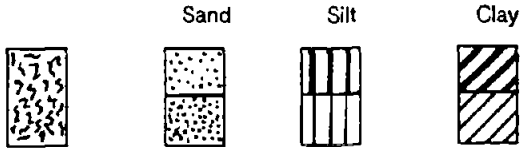
Decon water being pumped into the treatment plant; however, soap content interfered with the process, and an alternate disposal method was used.

APPENDIX C

Cone Penetrometer Plots

Key To Soil Classification and Symbols

SOIL TYPE
(Shown in Symbol Column)



Predominant Type Shown Heavy

SAMPLE TYPE
(Shown in Samples Column)

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS (Major portion Retained on No. 200 Sieve)
Includes (1) clean gravels and sand described as fine, medium or course, depending on distribution of grain sizes (2) silty or clayey gravels and sands and (3) fine grained low plasticity soils (PI < 10) such as sandy silts. Condition is rated according to relative density, as determined by lab tests or estimated from resistance to sampler penetration.

Descriptive Term	Penetration Resistance*	Relative Density
Loose	0 - 10	0 to 40%
Medium Dense	10 - 30	40 to 70%
Dense	30 - 50	70 to 90%
Very Dense	Over 50	90 to 100%

* Blows/Foot, 140# Hammer, 30" Drop

FINE GRAINED SOILS (Major Portion Passing No. 200 Sieve)
Includes (1) inorganic and organic silts and clays, (2) sandy, gravelly or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests for soils with PI $\geq$ 10.

Descriptive Term	Cohesive Shear Strength Tons/Square Foot
Very Soft	Less Than 0.125
Soft	0.125 to 0.25
Firm	0.25 to 0.50
Stiff	0.50 to 1.00
Very Stiff	1.00 to 2.00
Hard	2.00 and Higher

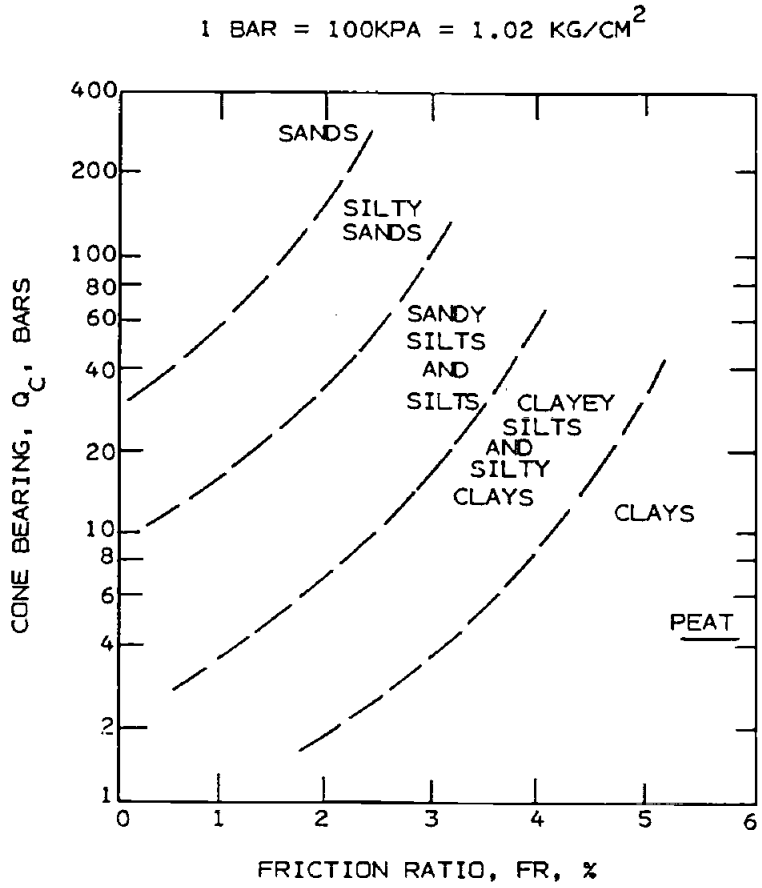
Note: Slickensided and fissured clay may have lower unconfined compressive strengths than shown above because of planes of weakness or shrinkage cracks; consistency ratings of such soils are based on hand penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

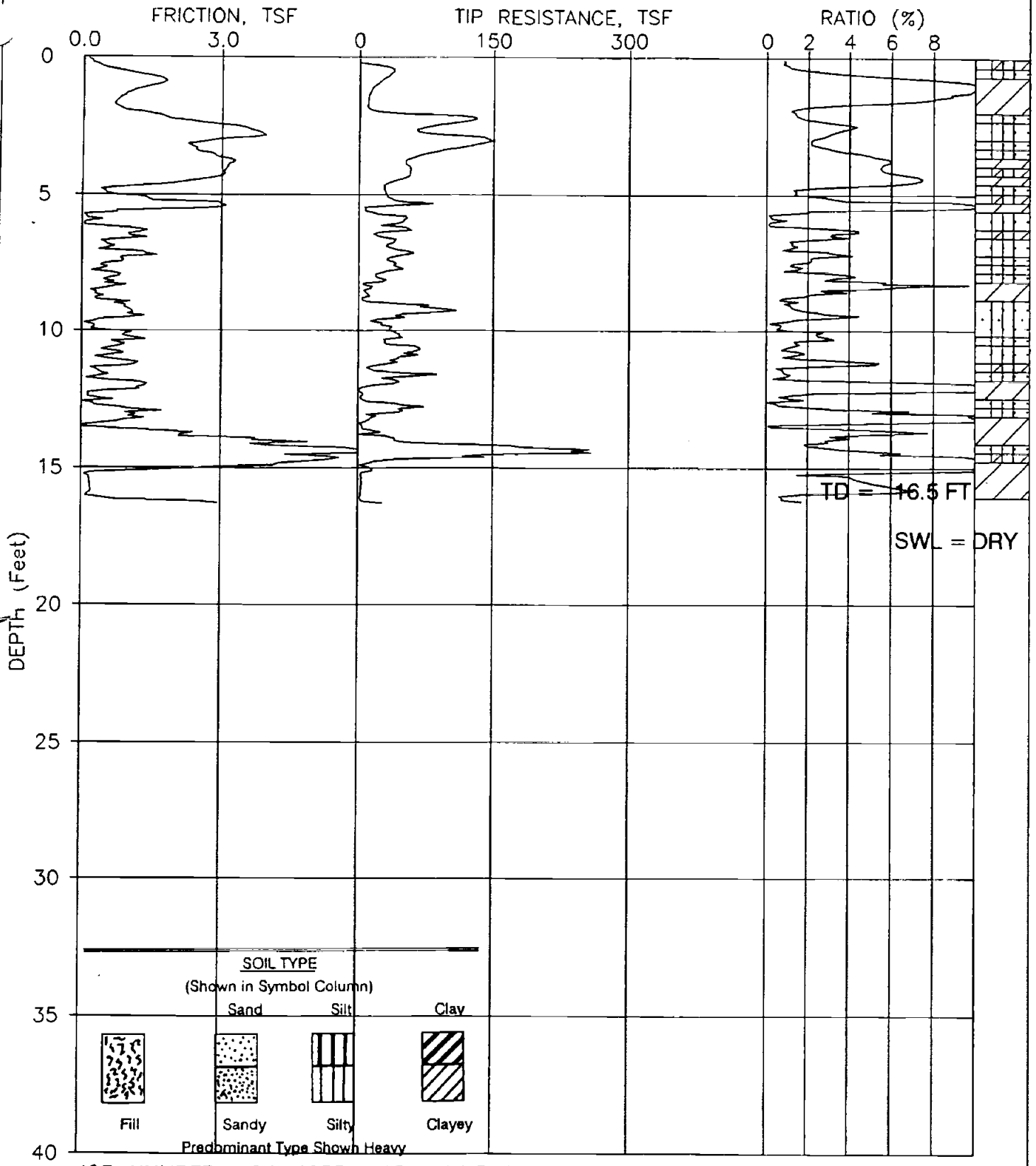
Parting:	paper thin in size
Seam:	1/8" to 3" thick
Layer:	greater than 3"
Fissured:	containing shrinkage cracks, frequently filled with fine sand or silt, usually more or less vertical
Sensitive:	pertaining to cohesive soils that are subject to appreciable loss of strength when remolded
Interbedded:	composed of alternate layers of different soil types
Laminated:	composed of thin layers of varying color and texture
Calcareous:	containing appreciable quantities of calcium carbonate
Well Graded:	having wide range in grain sizes and substantial amounts of all intermediate particle sizes
Poorly Graded:	predominantly of one grain size, or having a range of sizes with some intermediate size missing
Flocculated:	pertaining to cohesive soils that exhibit a loose knit or flakey structure
Slickensided:	having inclined planes of weakness that are slick and glossy in appearance.

Degree of Slickensided Development

Slightly Slickensided:	slickensides present at intervals of 1' to 2', soil does not easily break along these plates
Moderately Slickensided:	slickensides spaced at intervals of 1' to 2', soil breaks easily along these planes
Extremely Slickensided:	continuous and interconnected slickensides spaced at intervals of 4" to 12', soil breaks along the slickensides into pieces 3" to 6" in size
Intensely Slickensided:	slickensides spaced at intervals of less than 4", continuous in all directions; soil breaks down along planes into nodules 1/4" to 2" in size.



CAMPANELLA AND ROBERTSON CLASSIFICATION CHART



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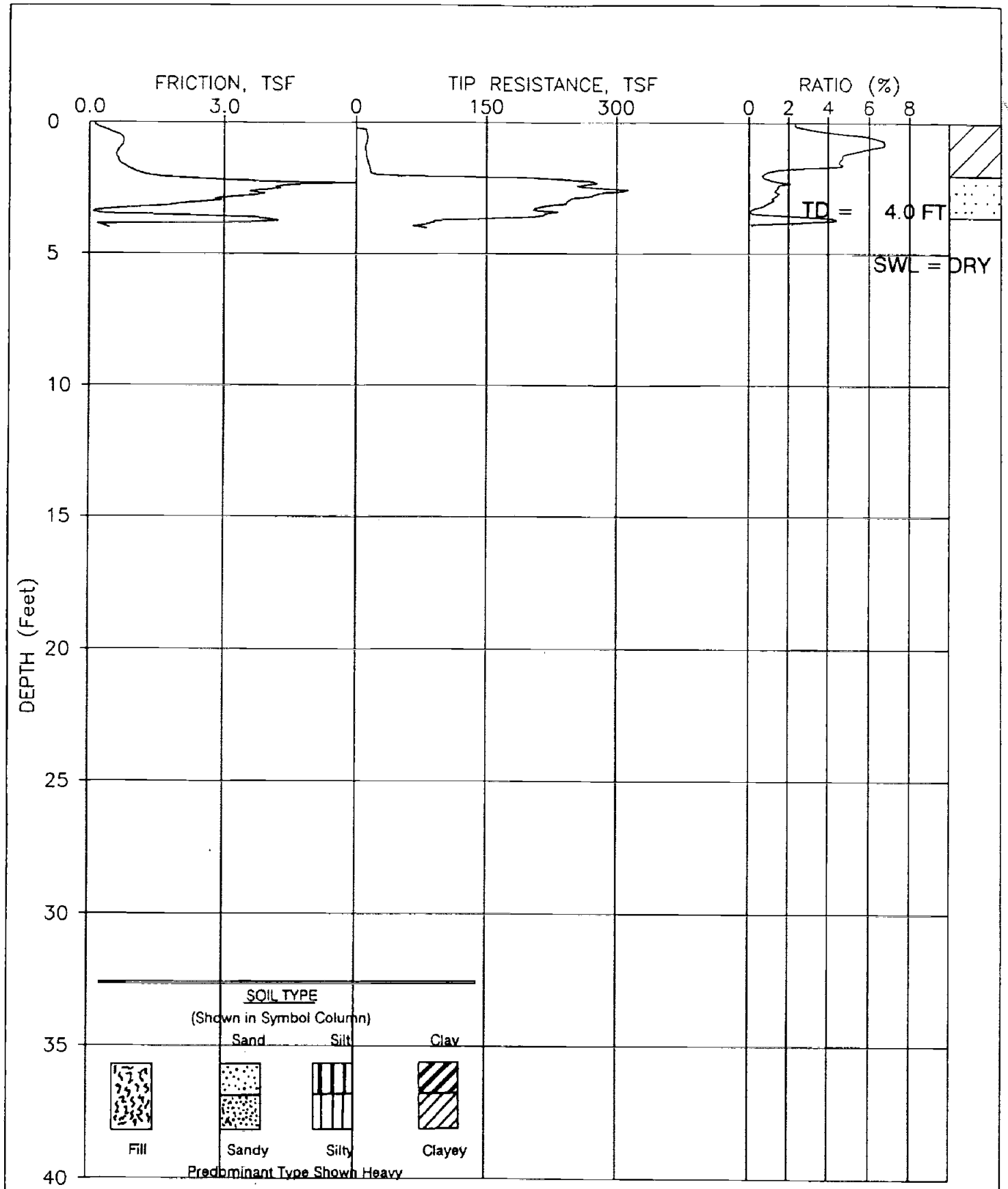
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



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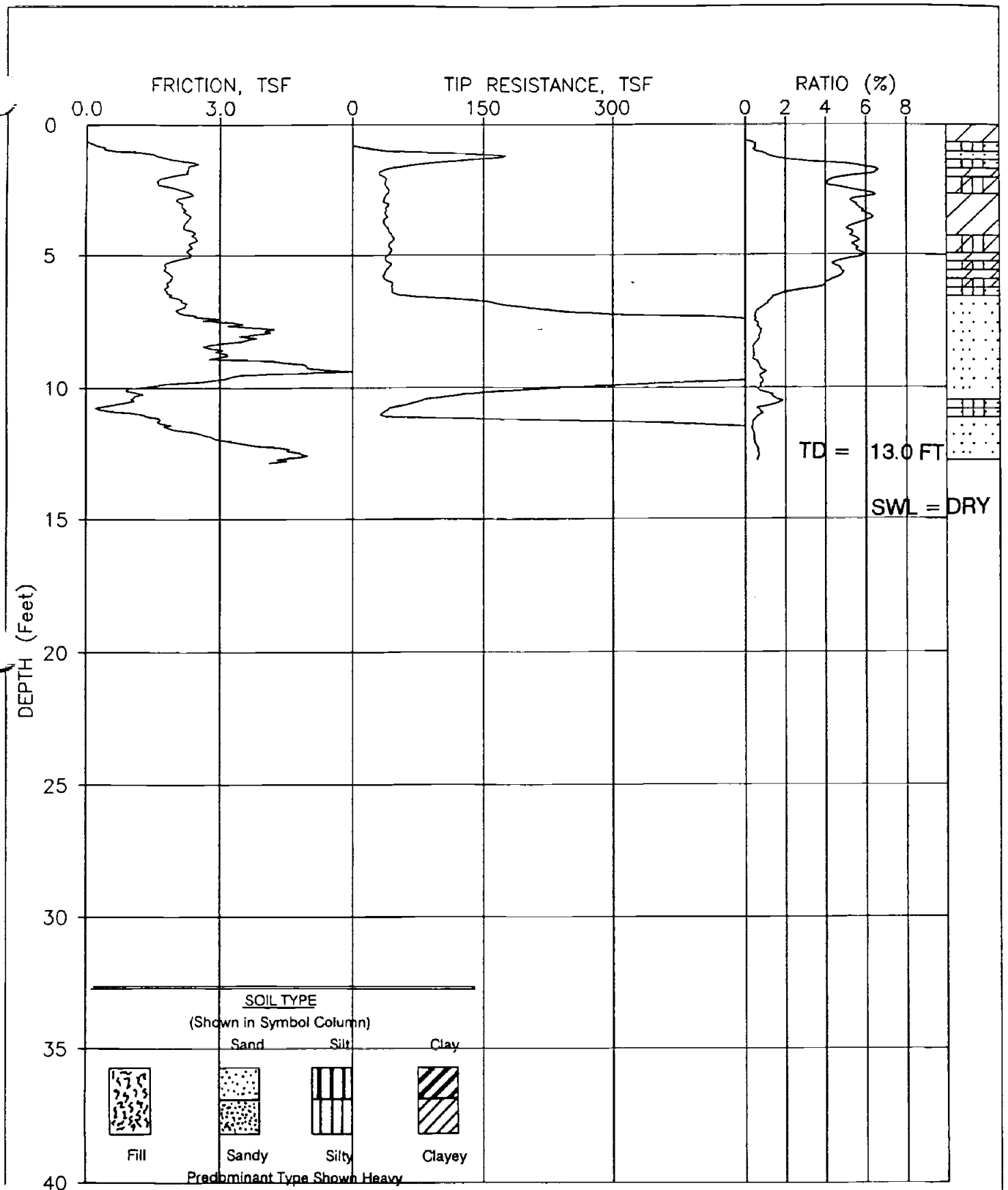

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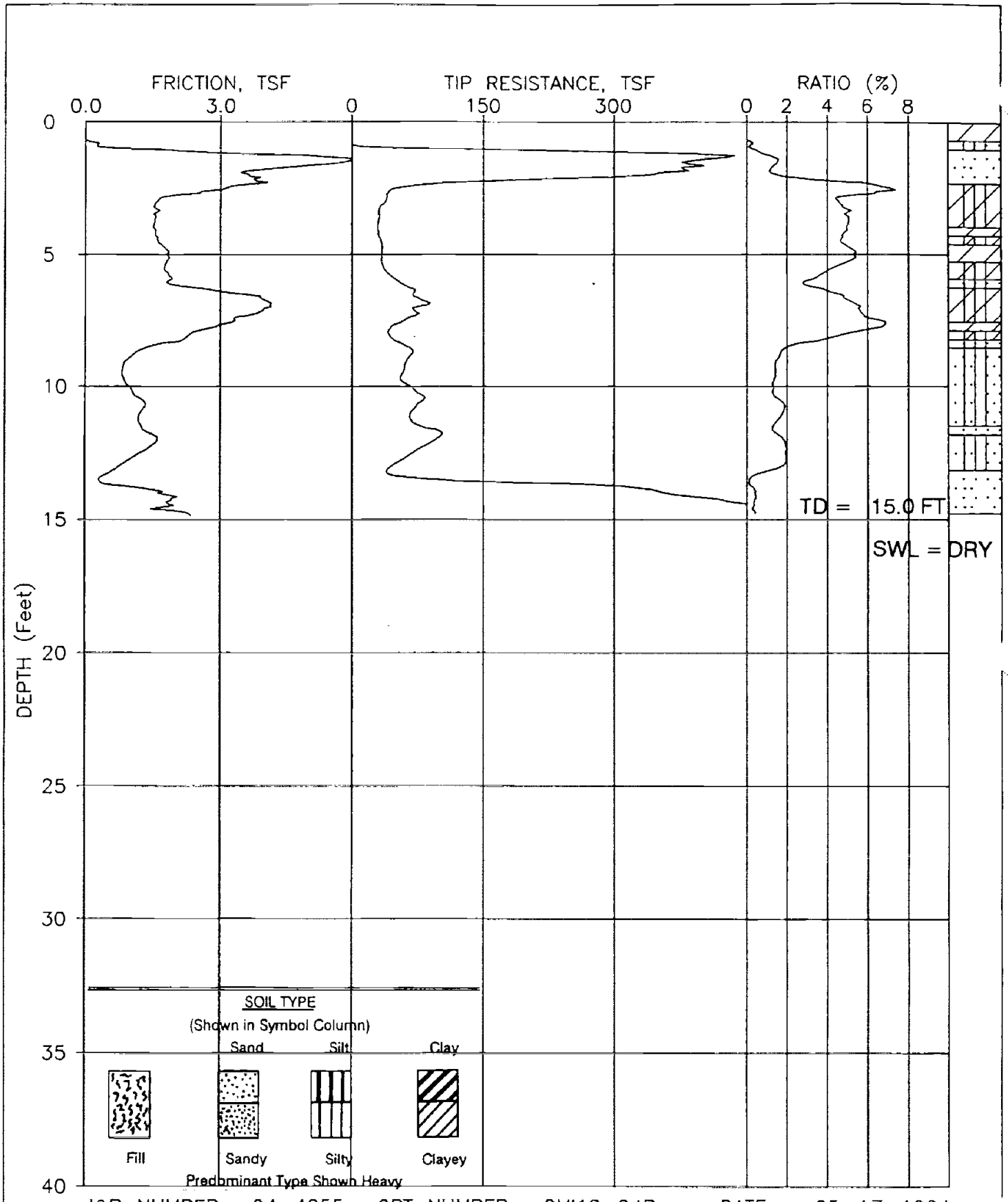

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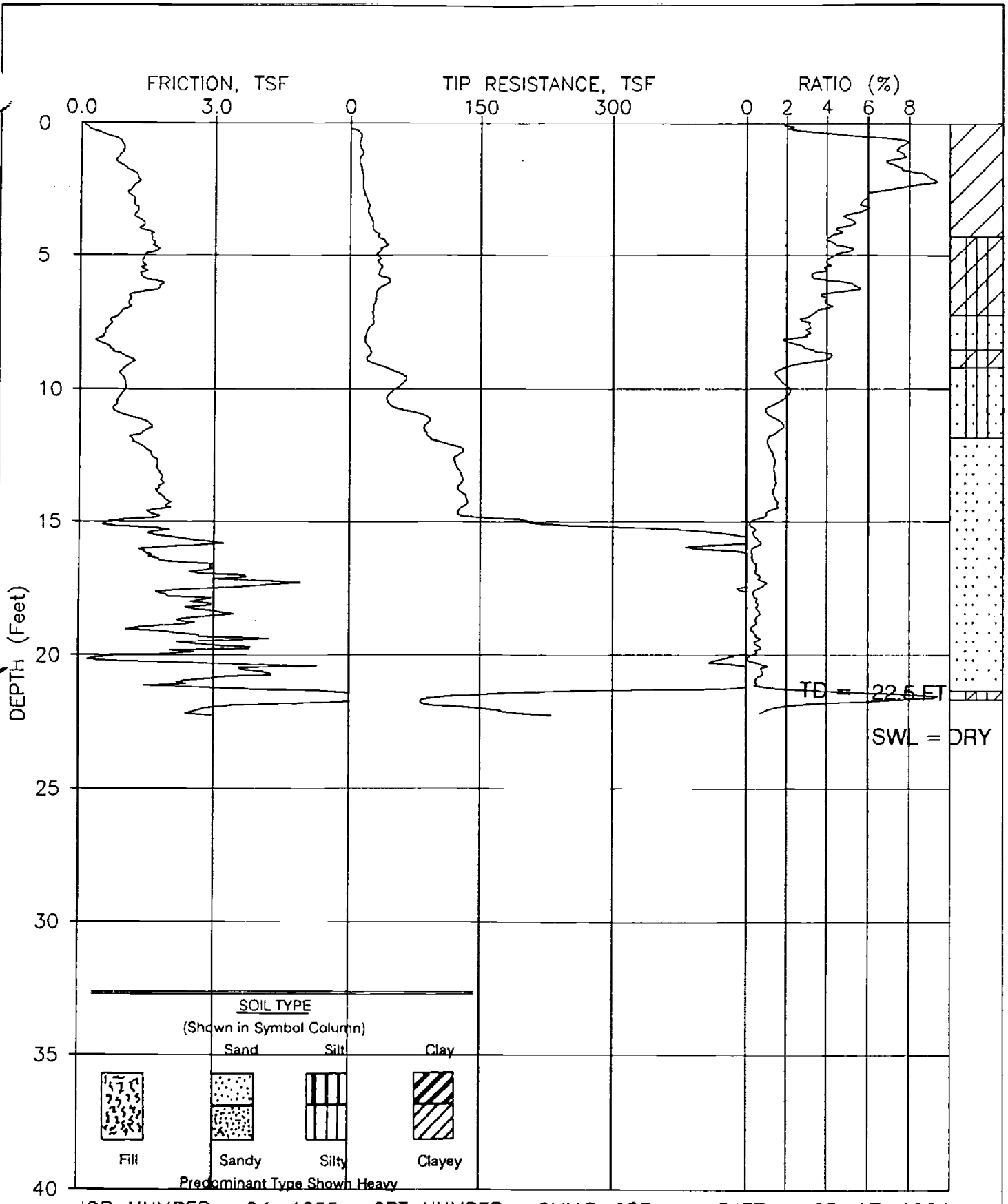

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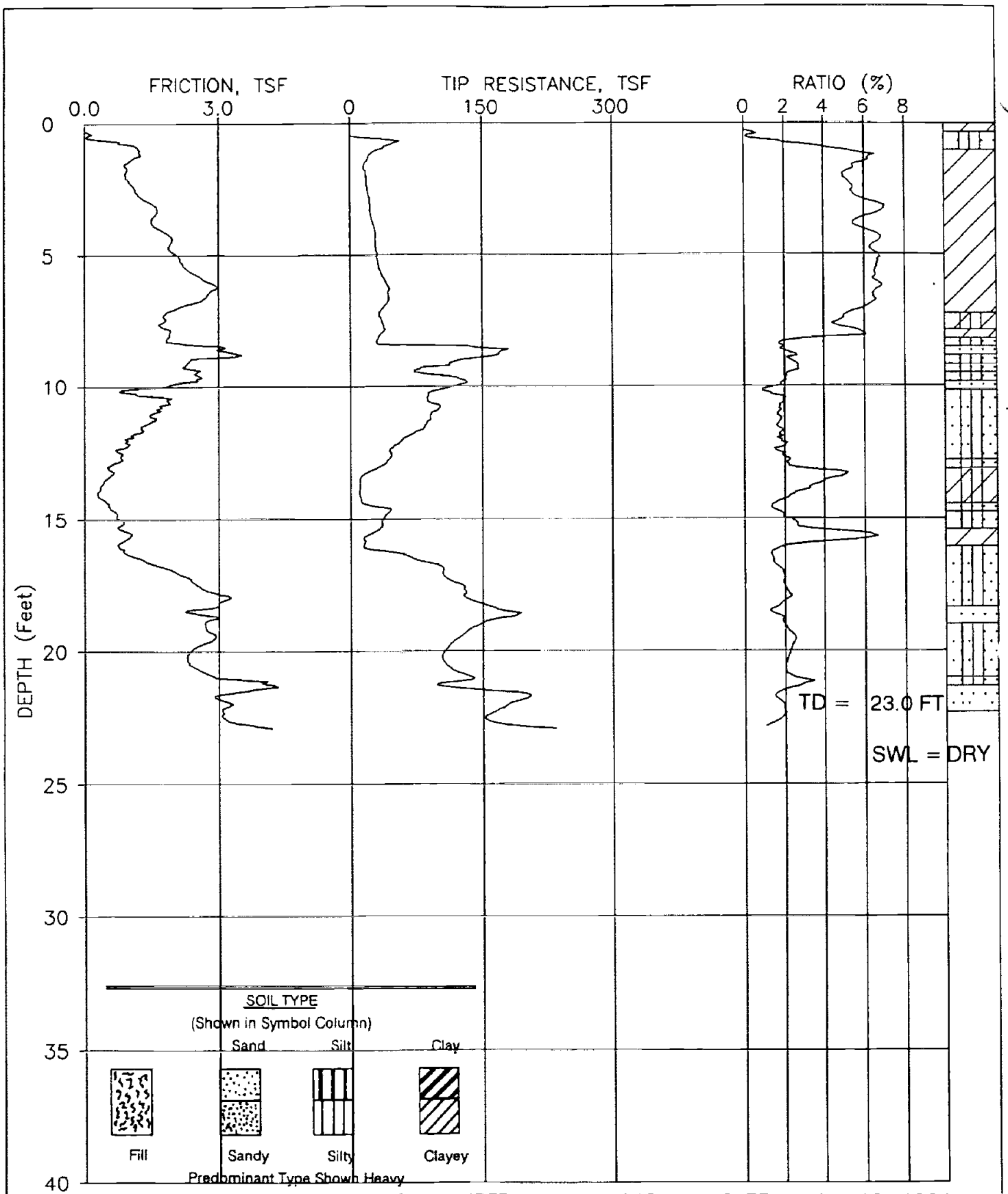

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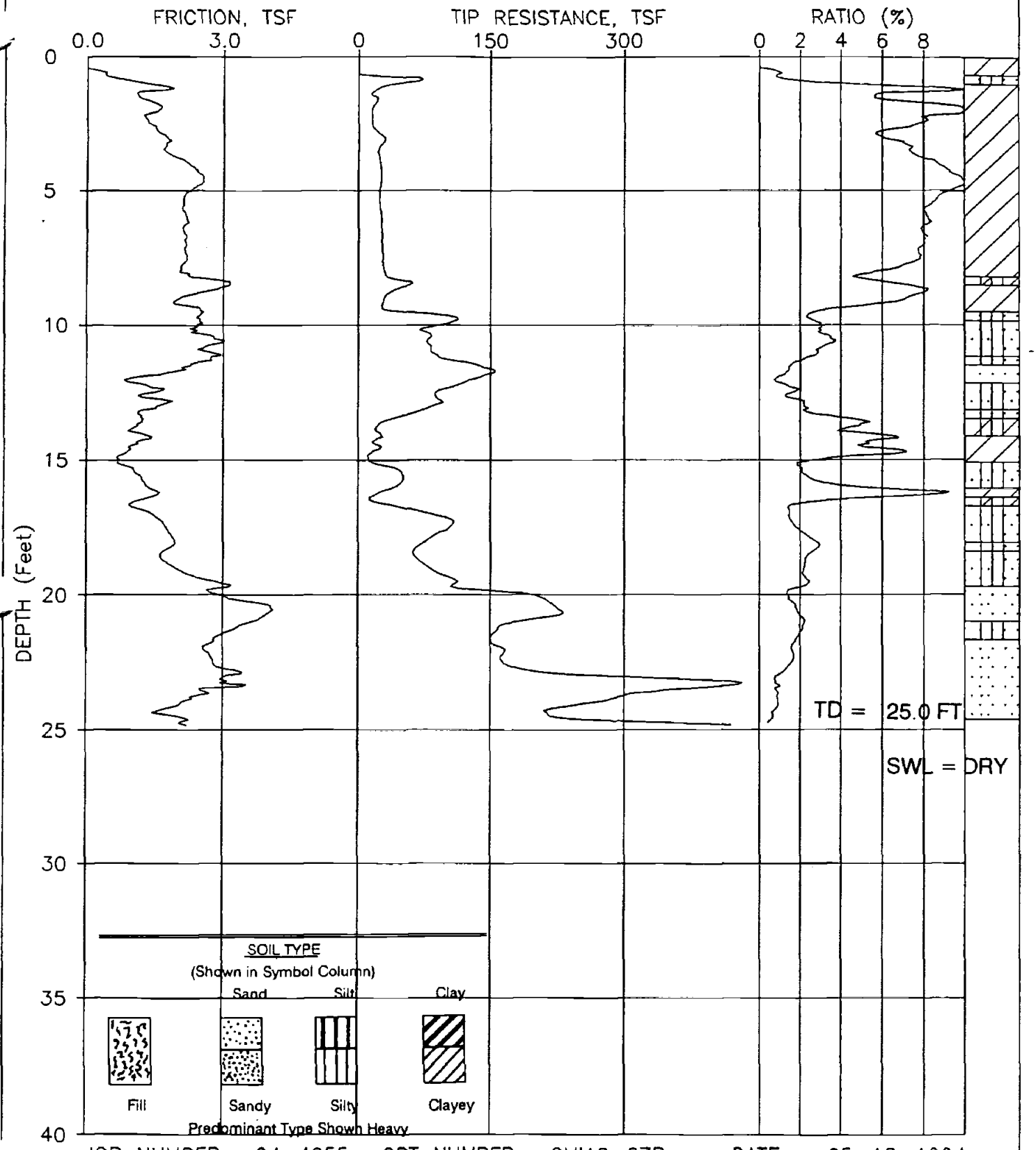

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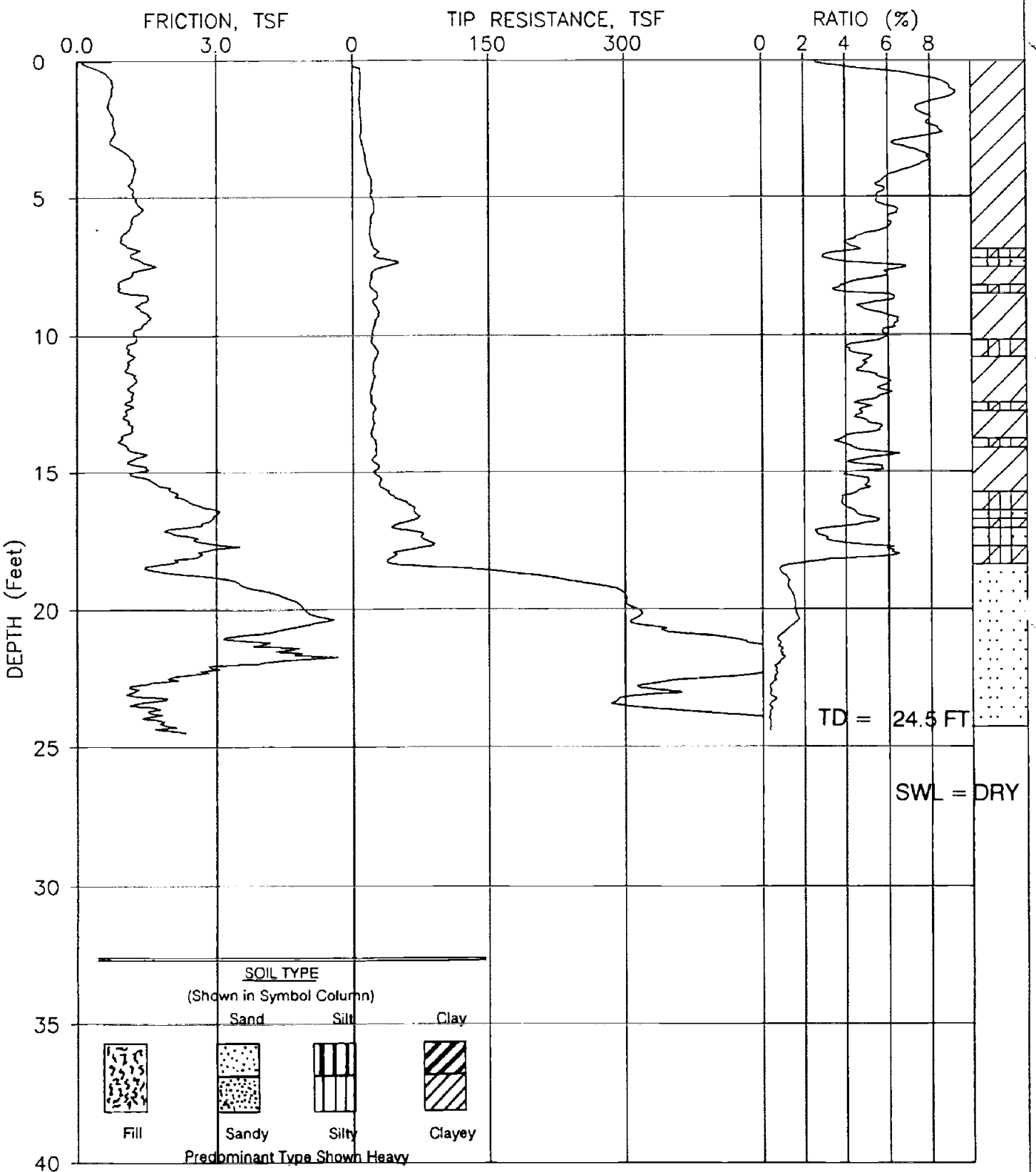

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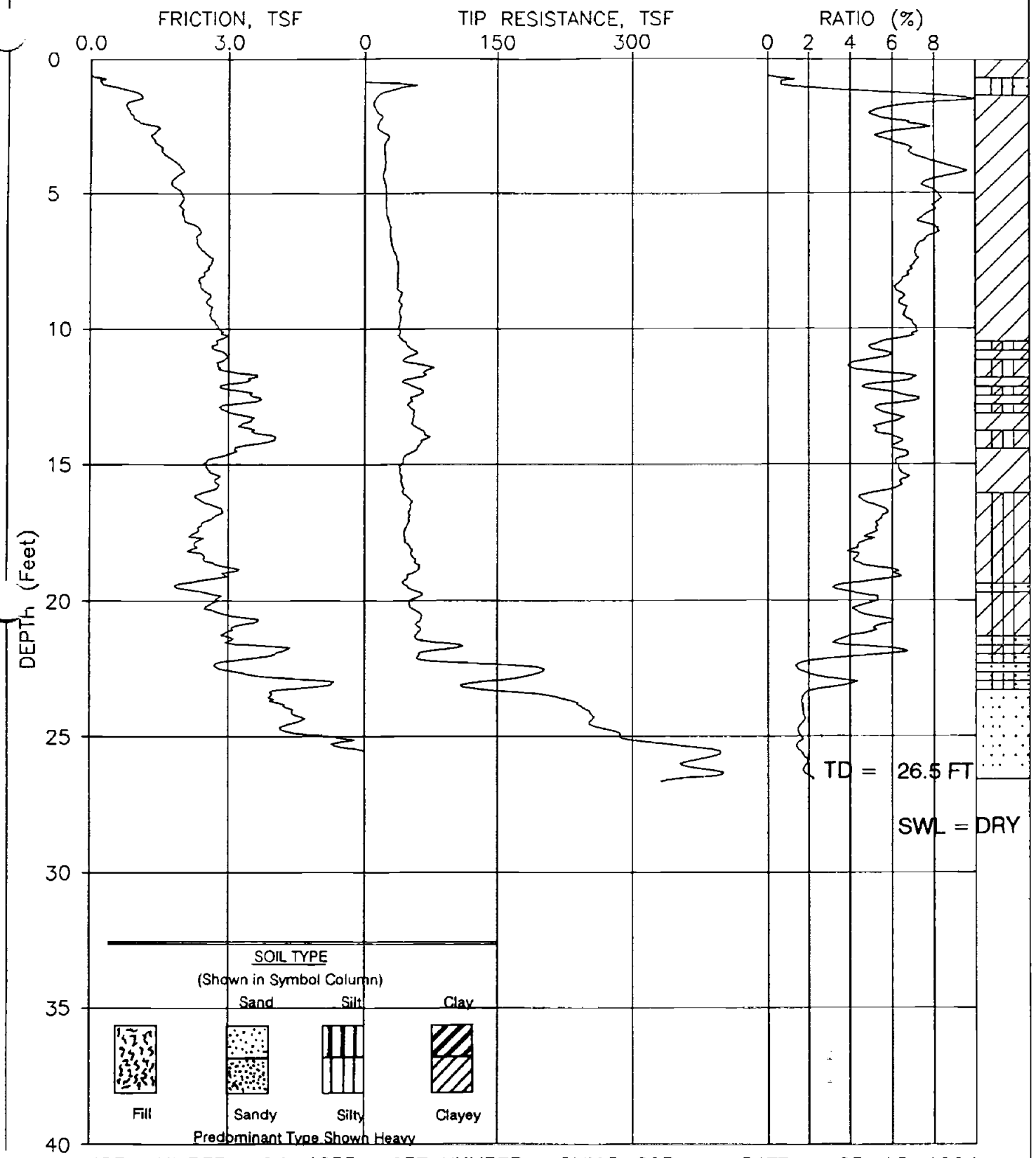

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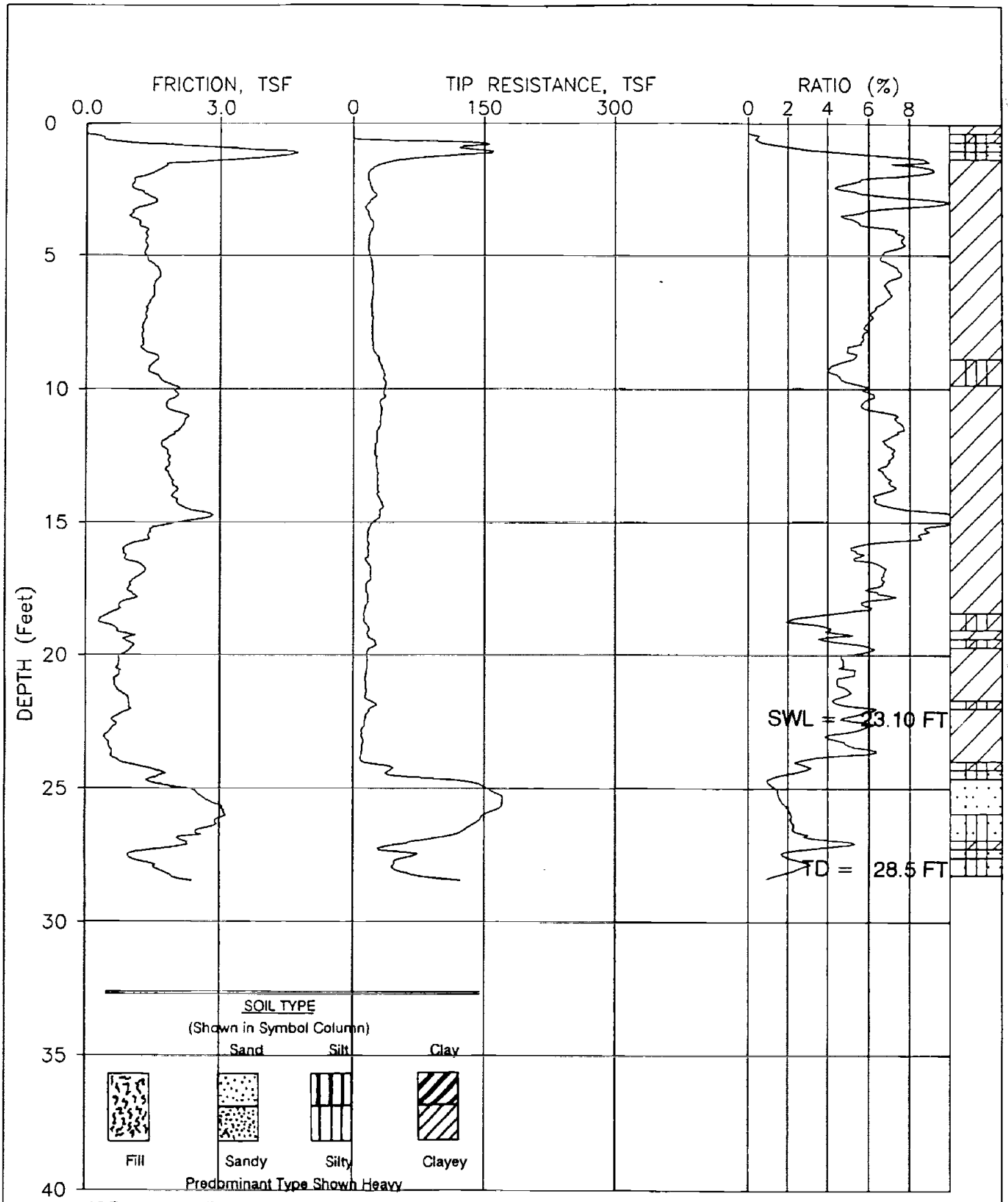

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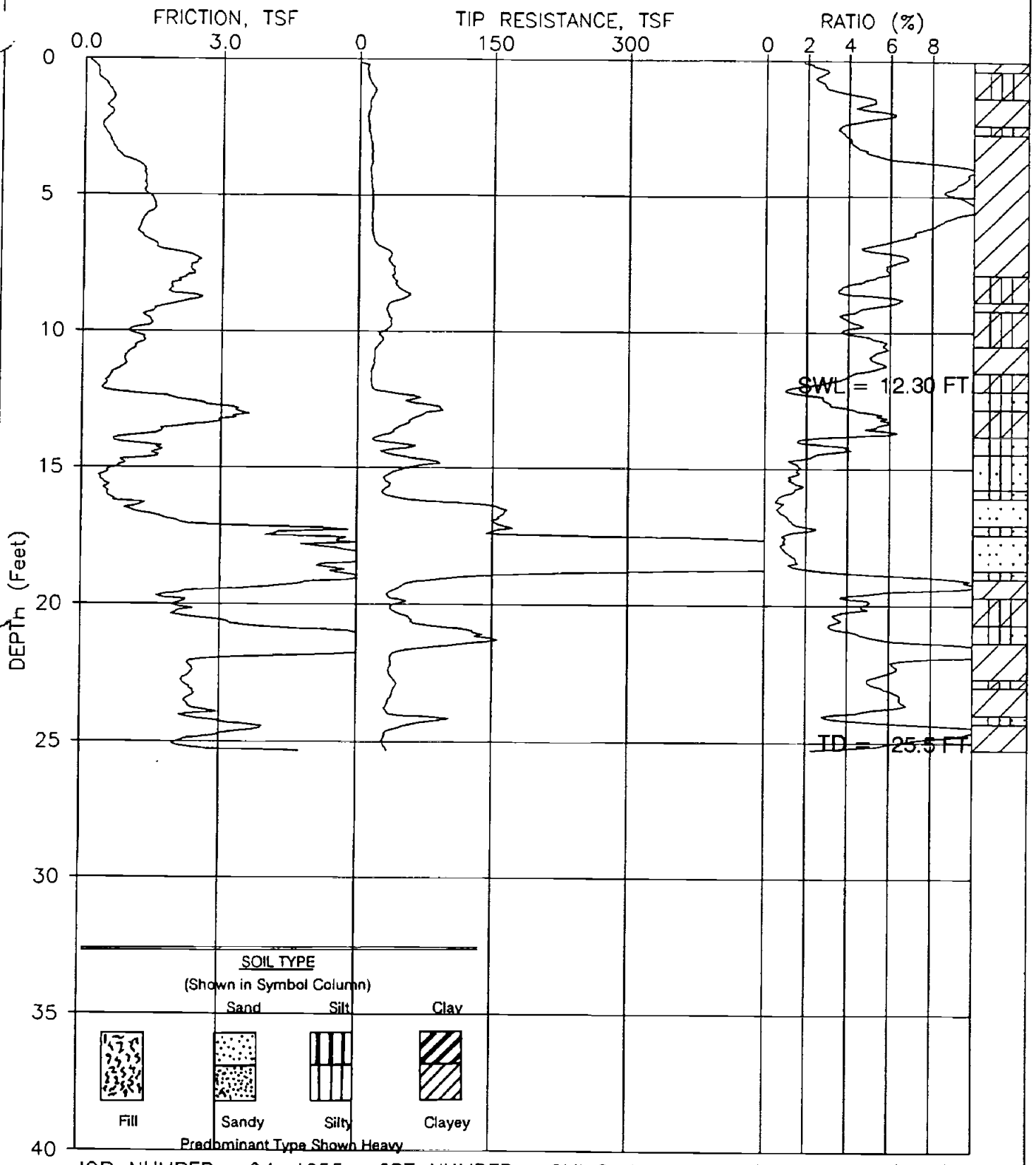

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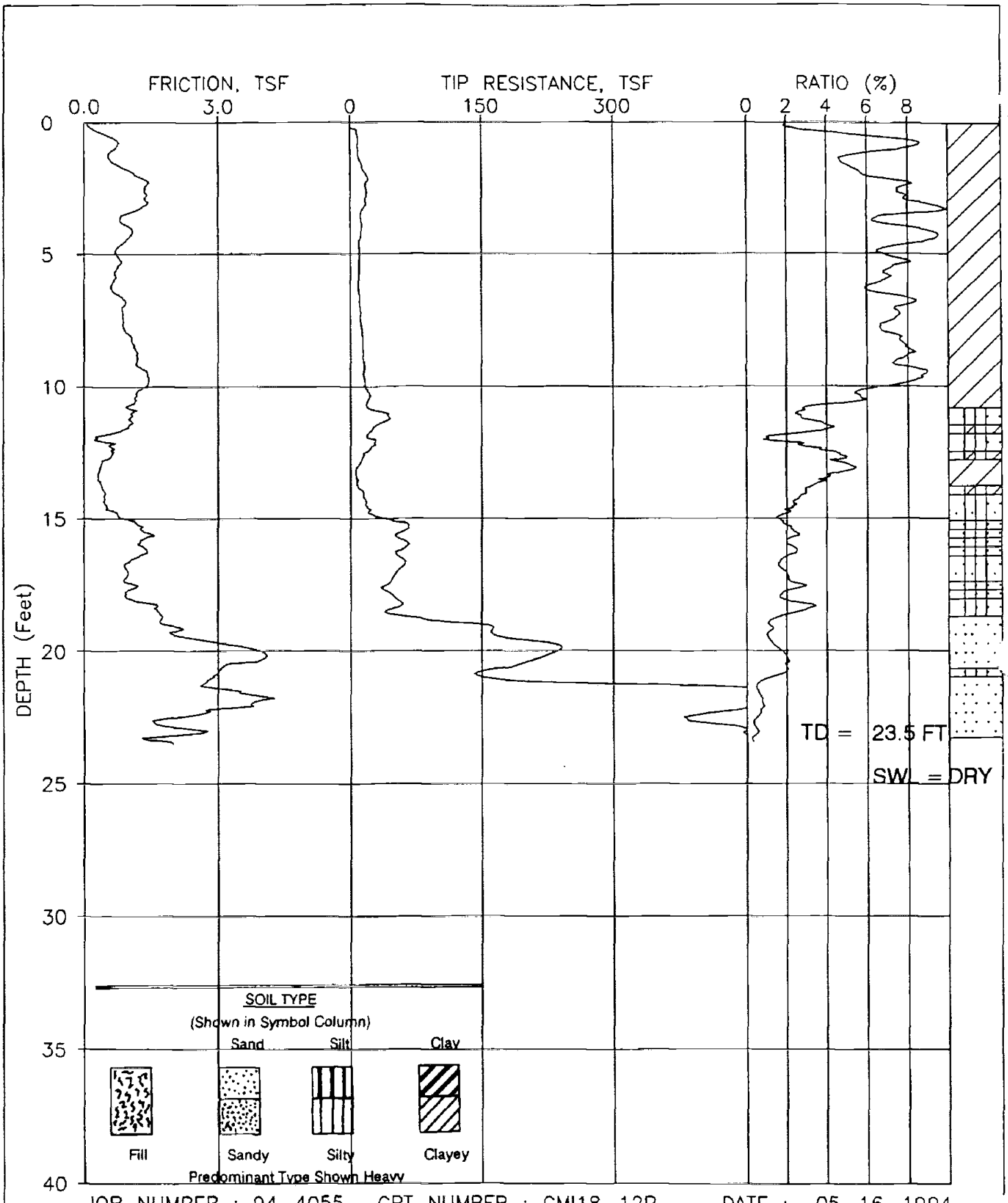

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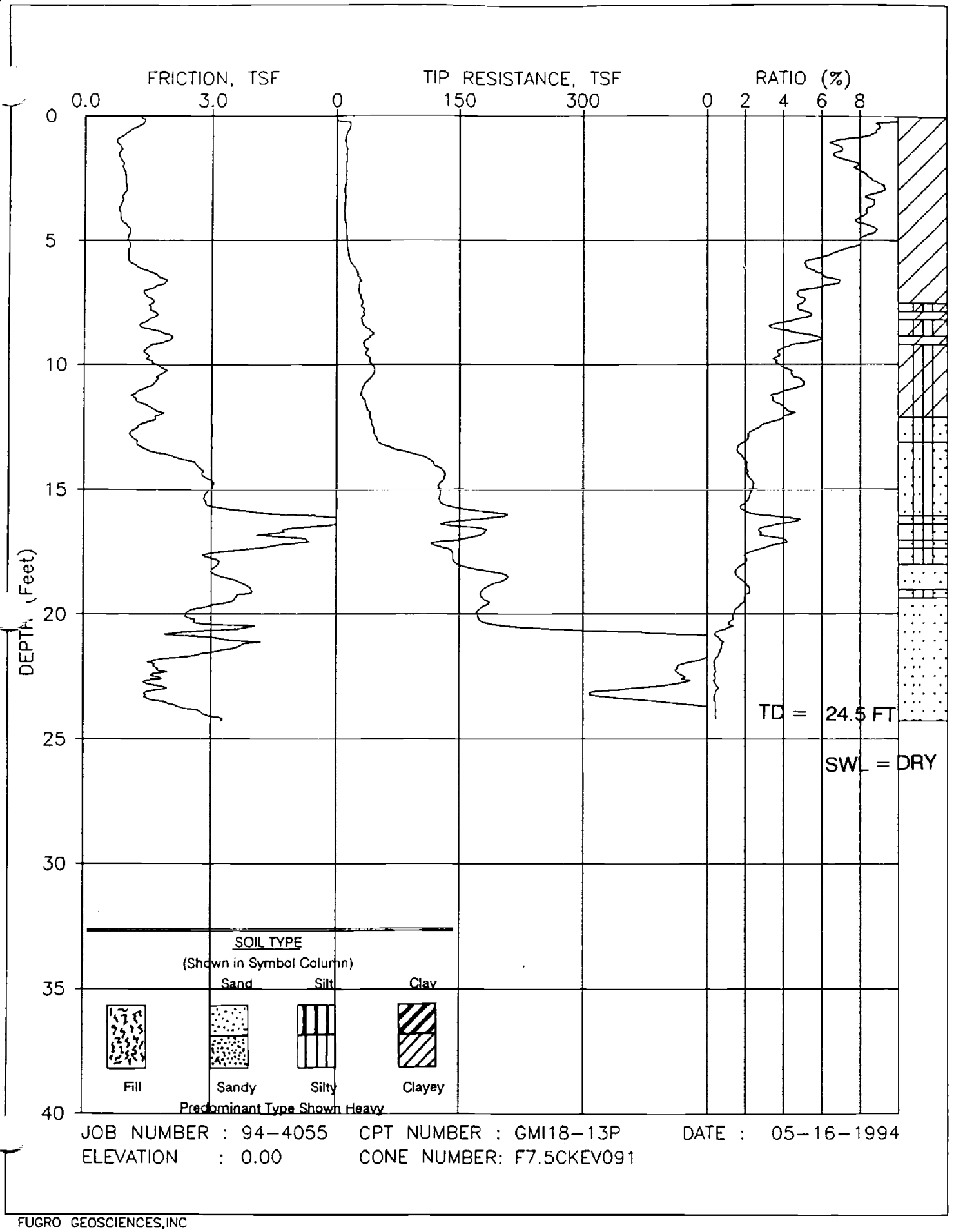

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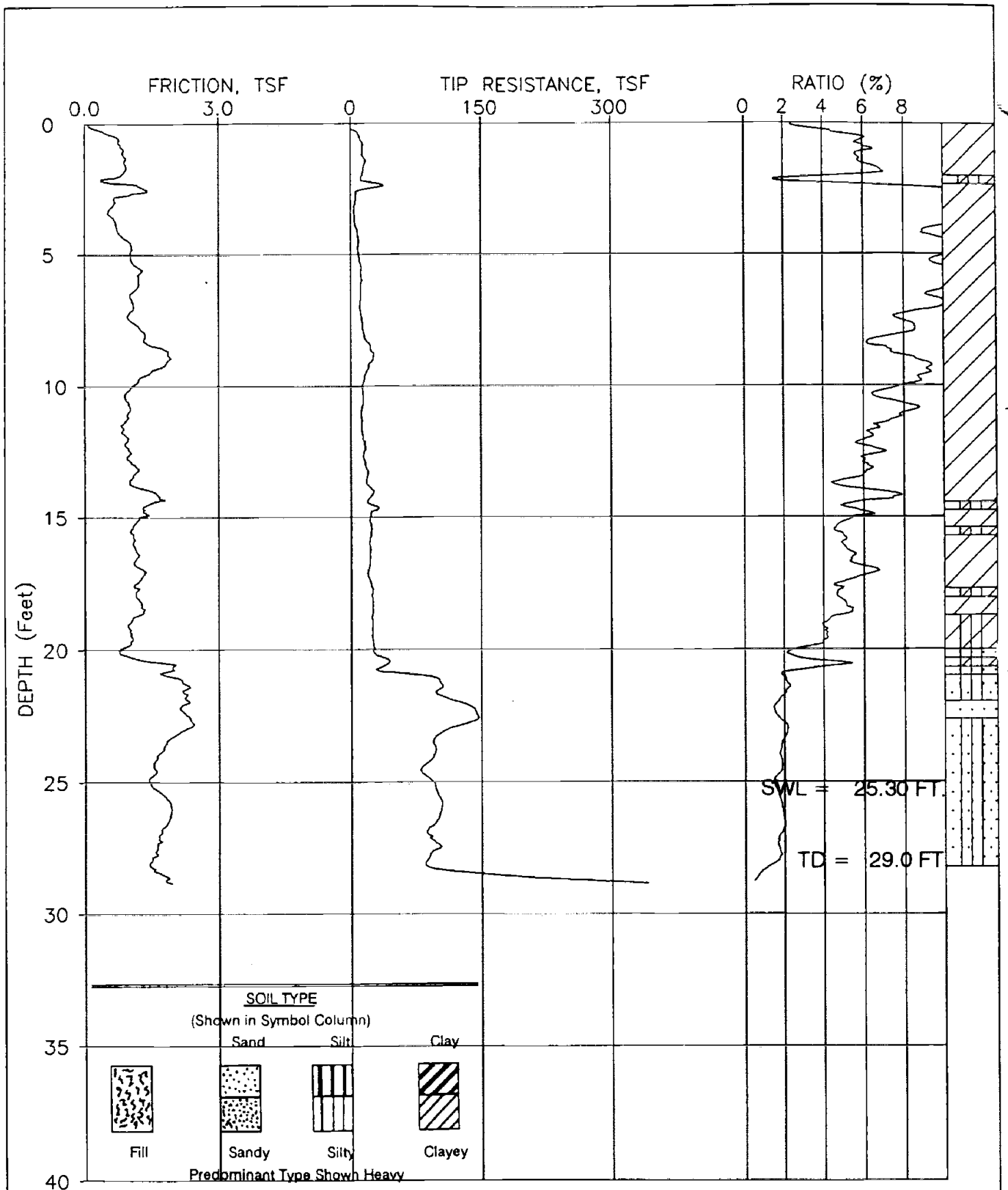

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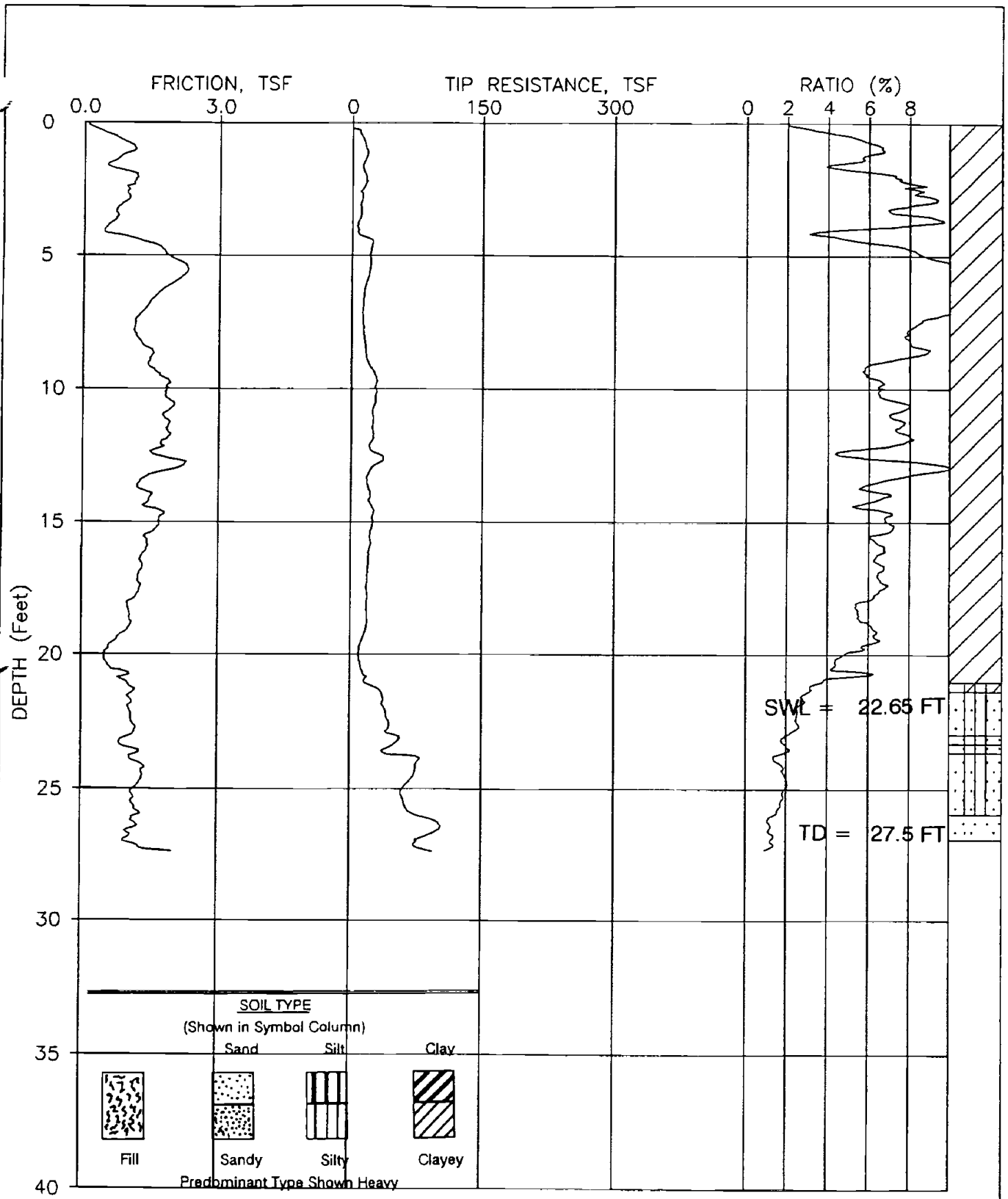

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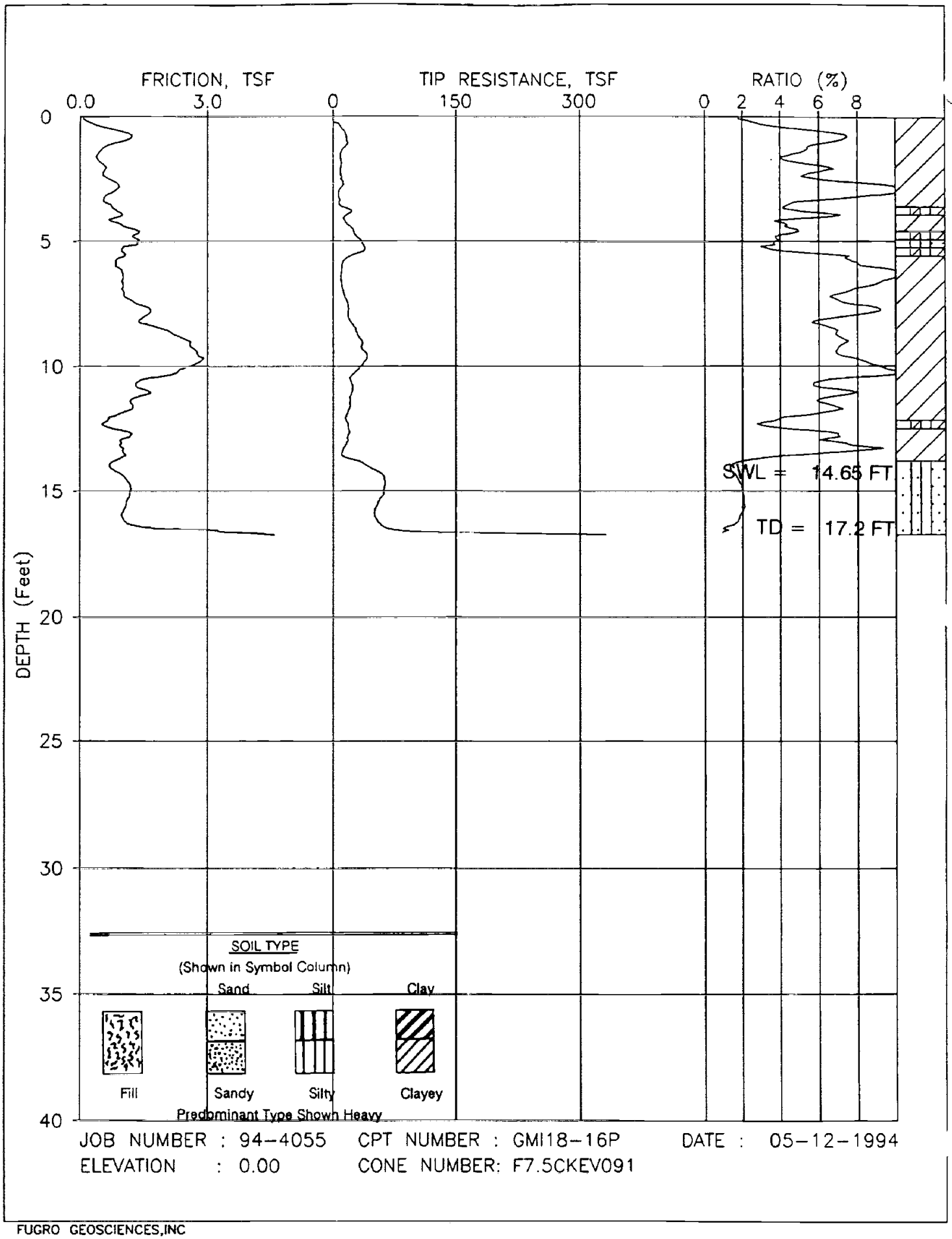
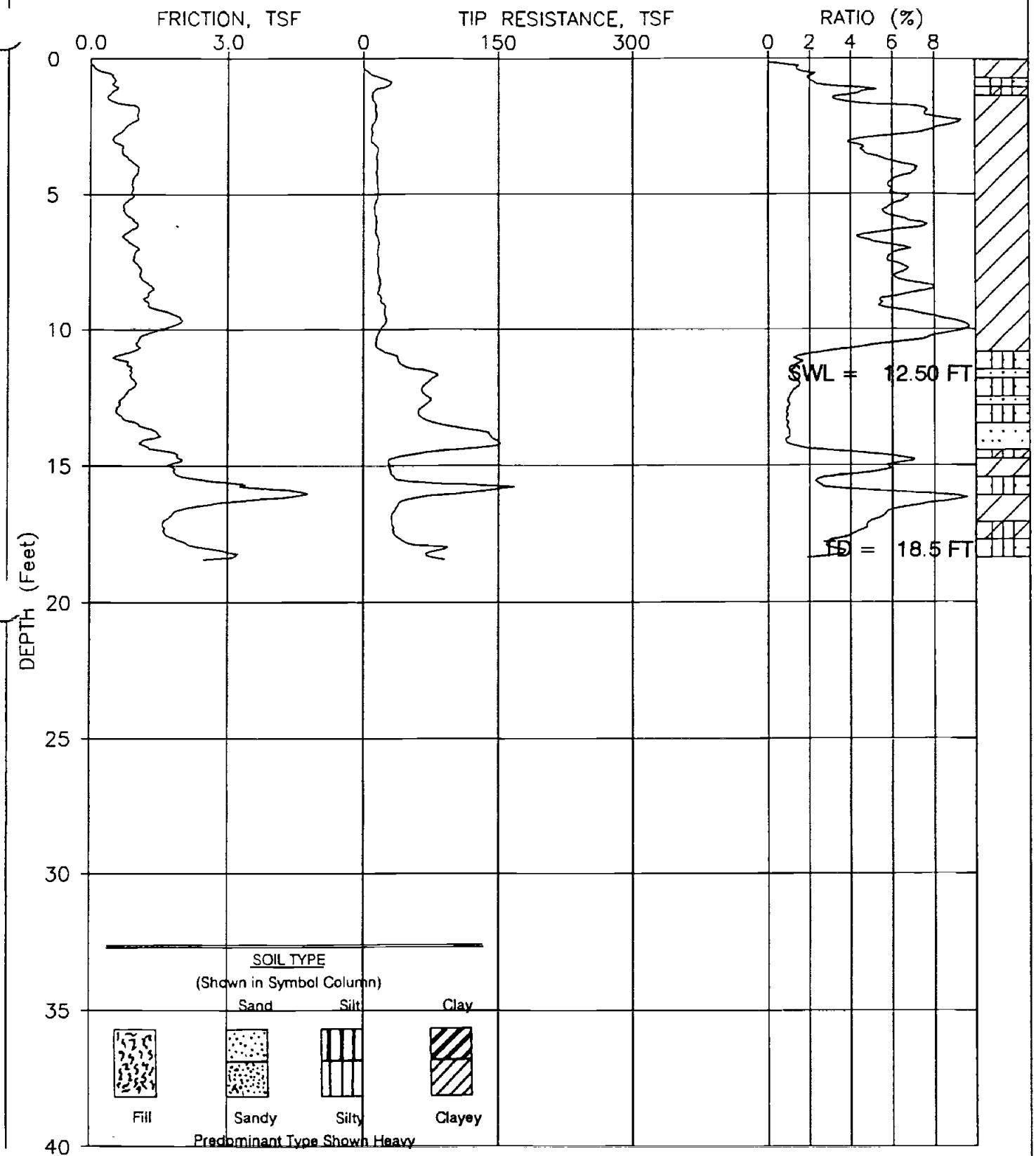
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



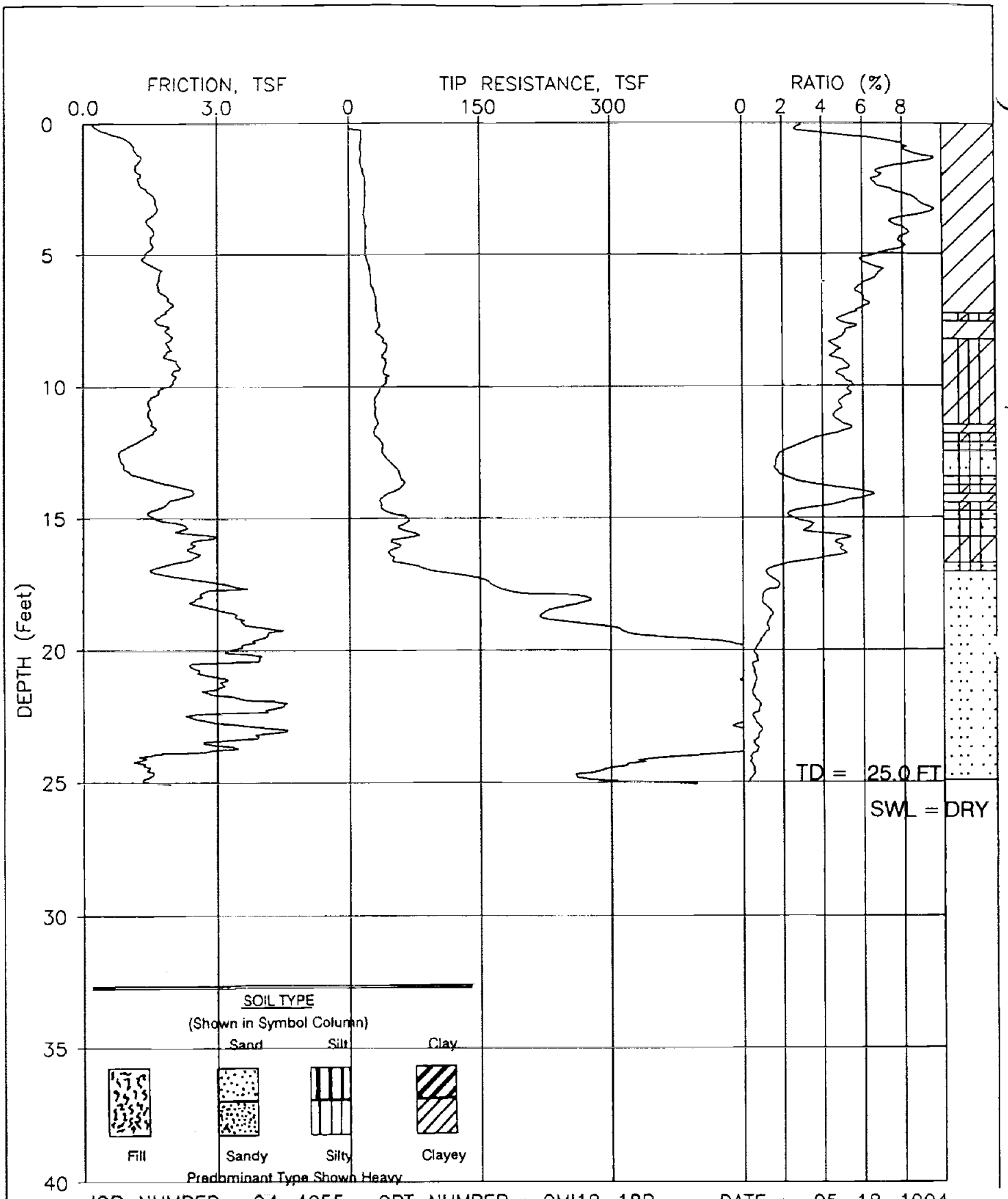
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-16P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-17P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-18P DATE : 05-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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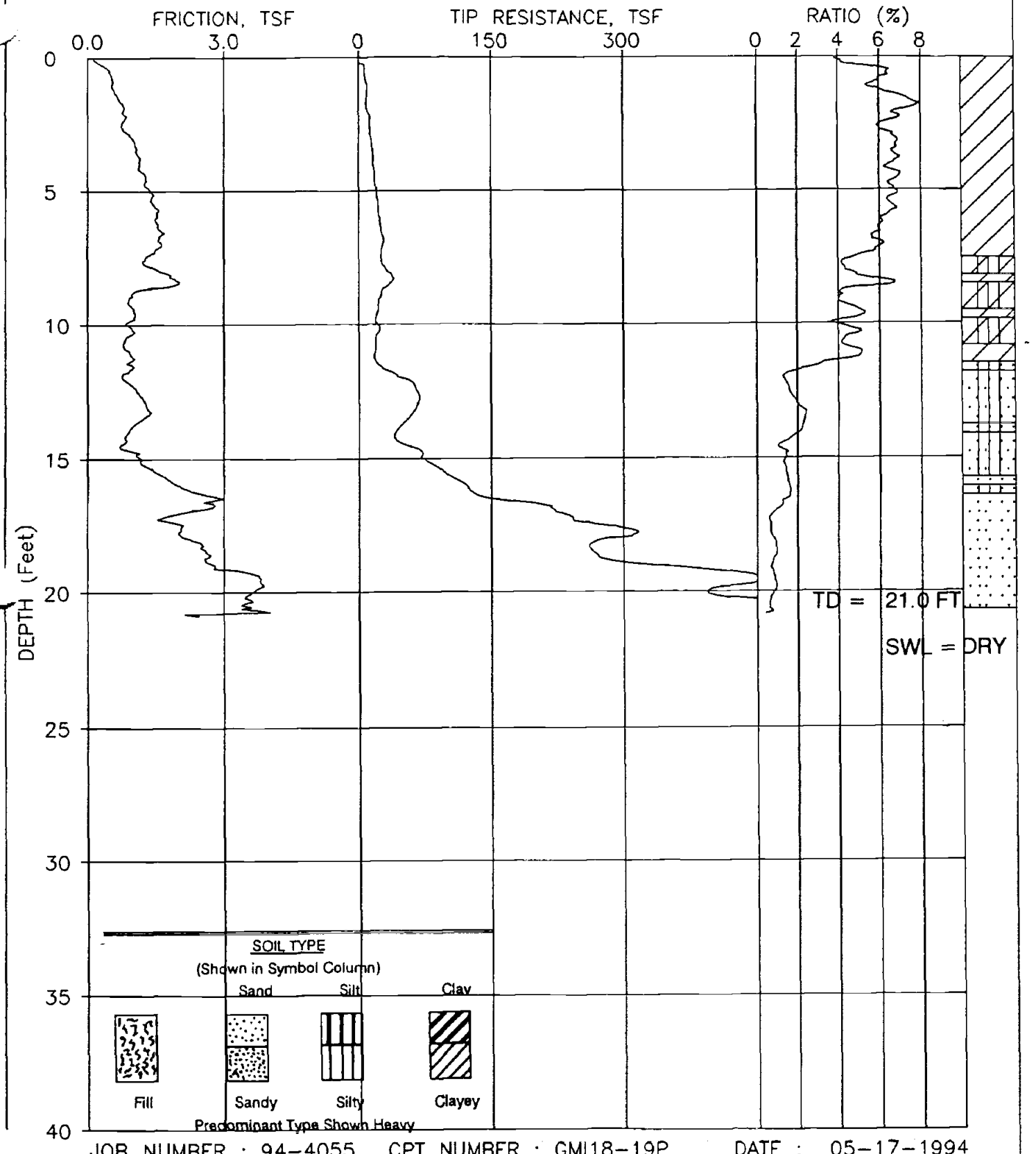
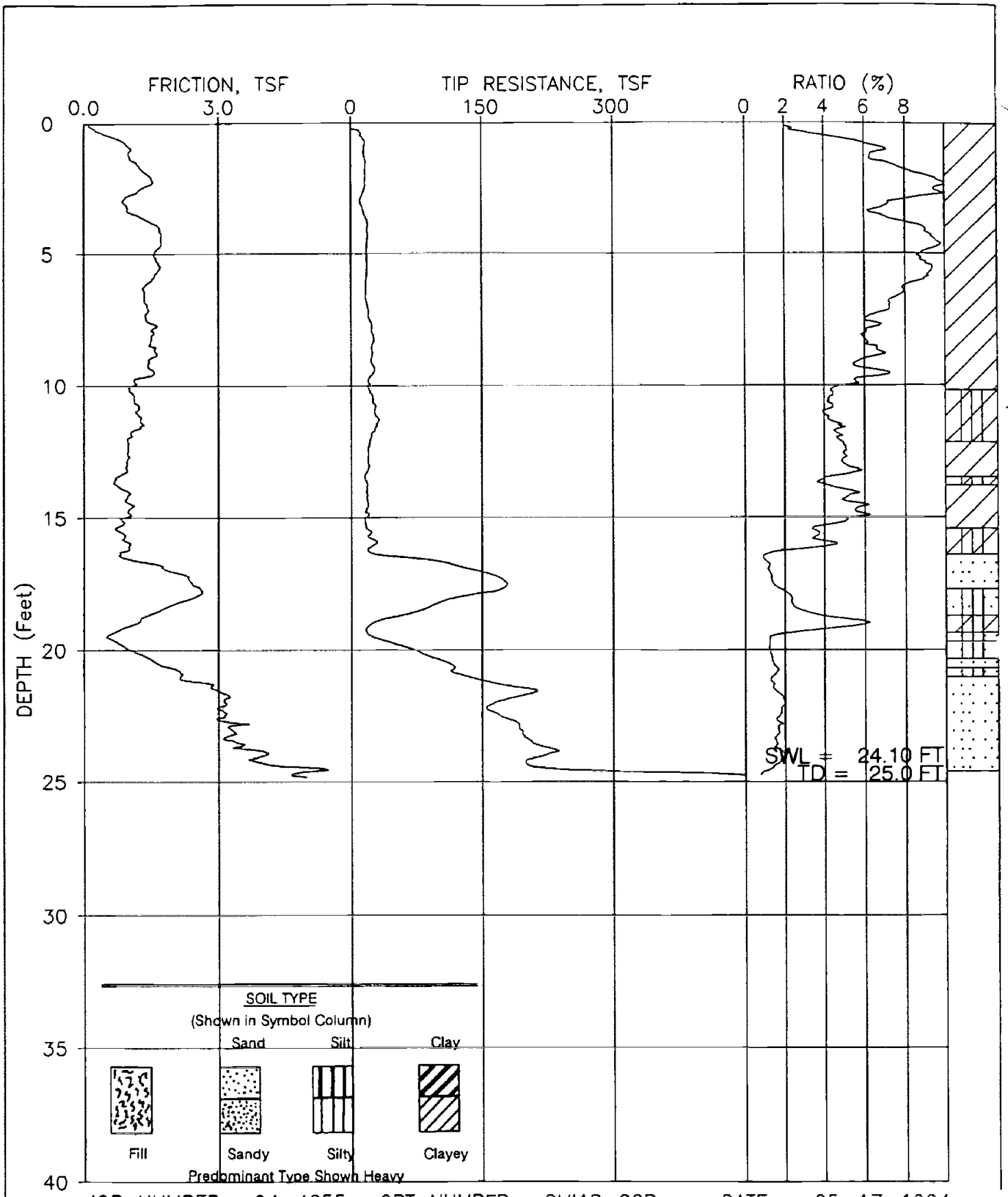


JOB NUMBER : 94-4055 CPT NUMBER : GMI18-19P DATE : 05-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-20P DATE : 05-17-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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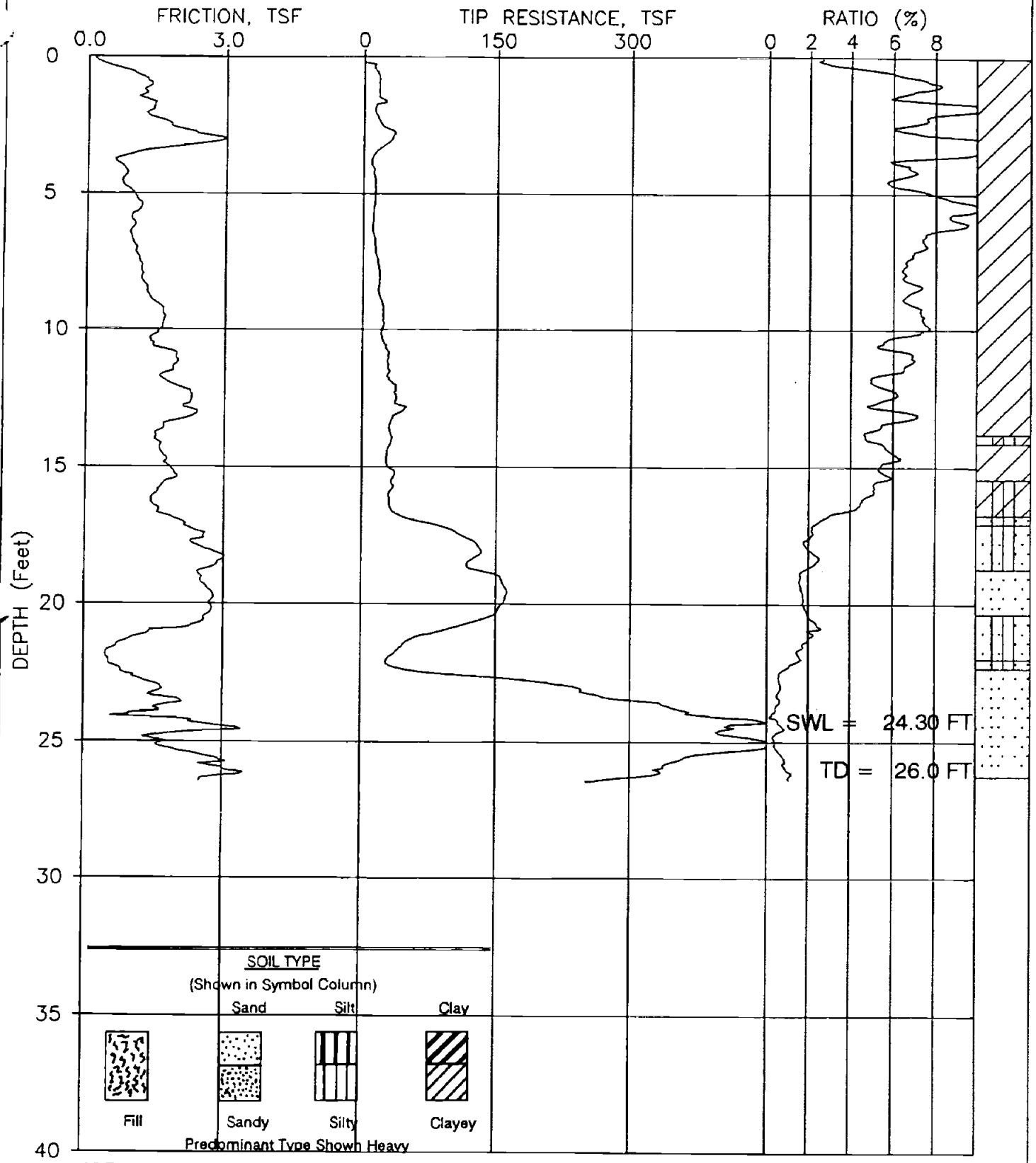
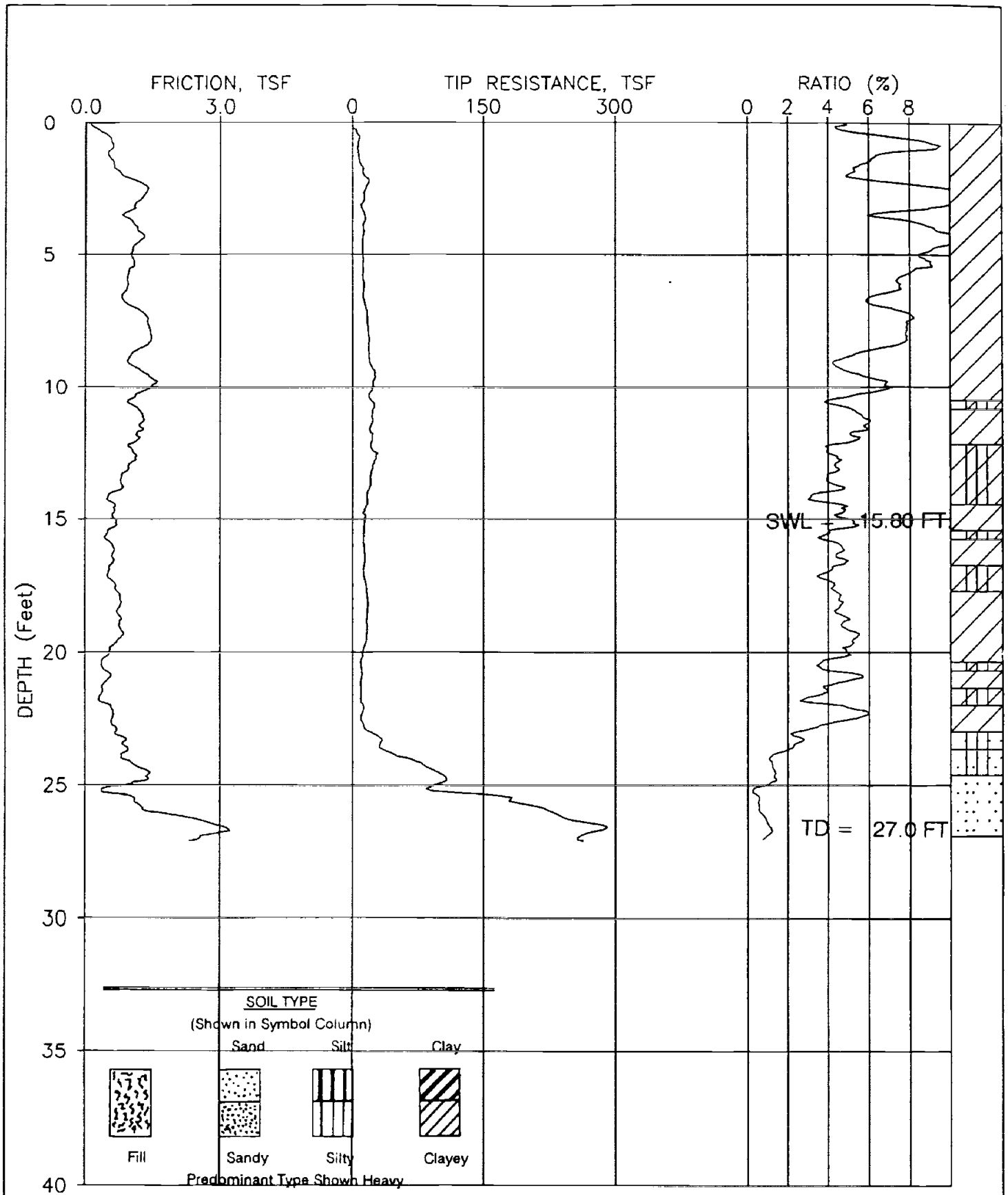


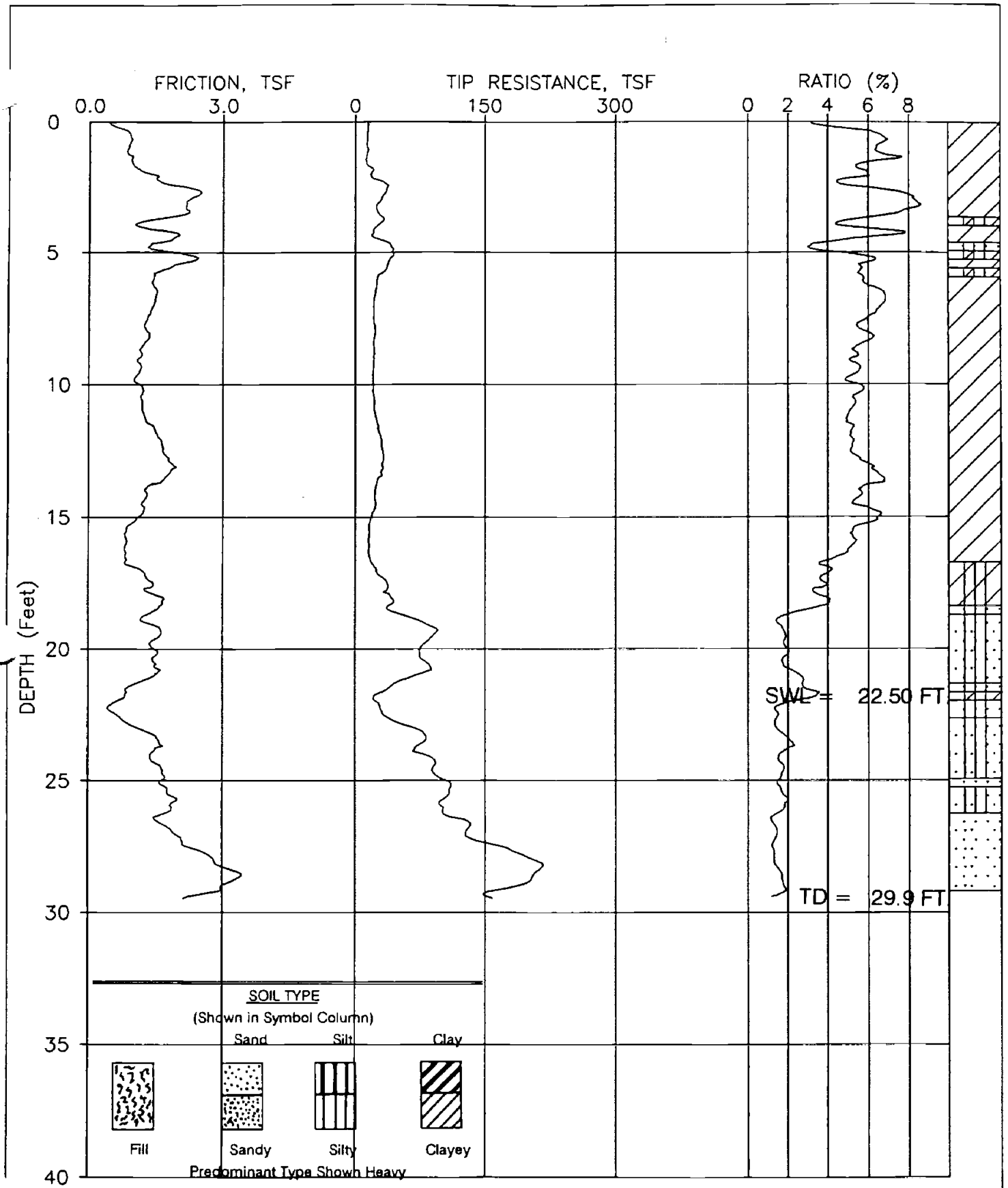
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-21P DATE : 05-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



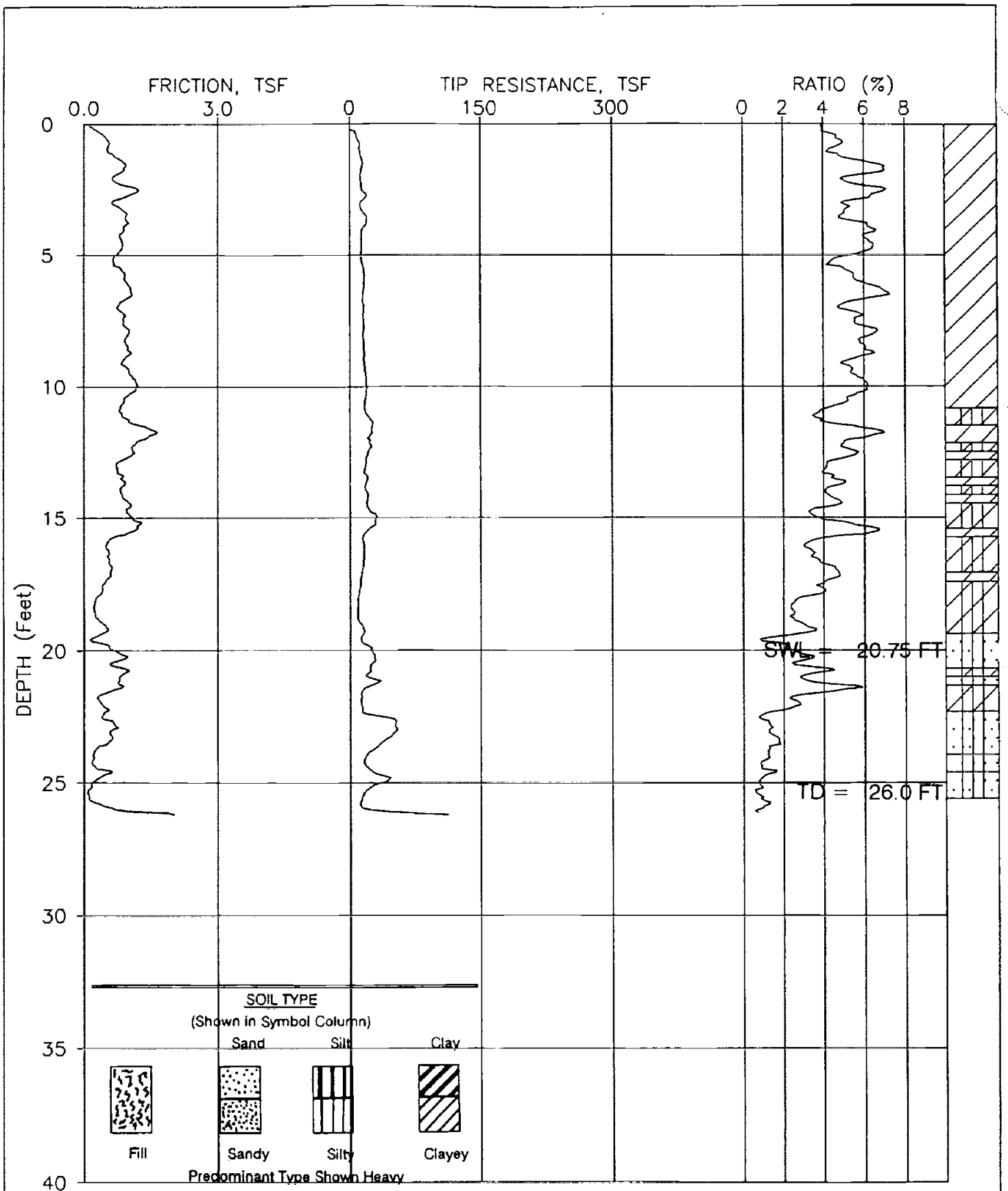
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-22P DATE : 05-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-23P DATE : 05-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

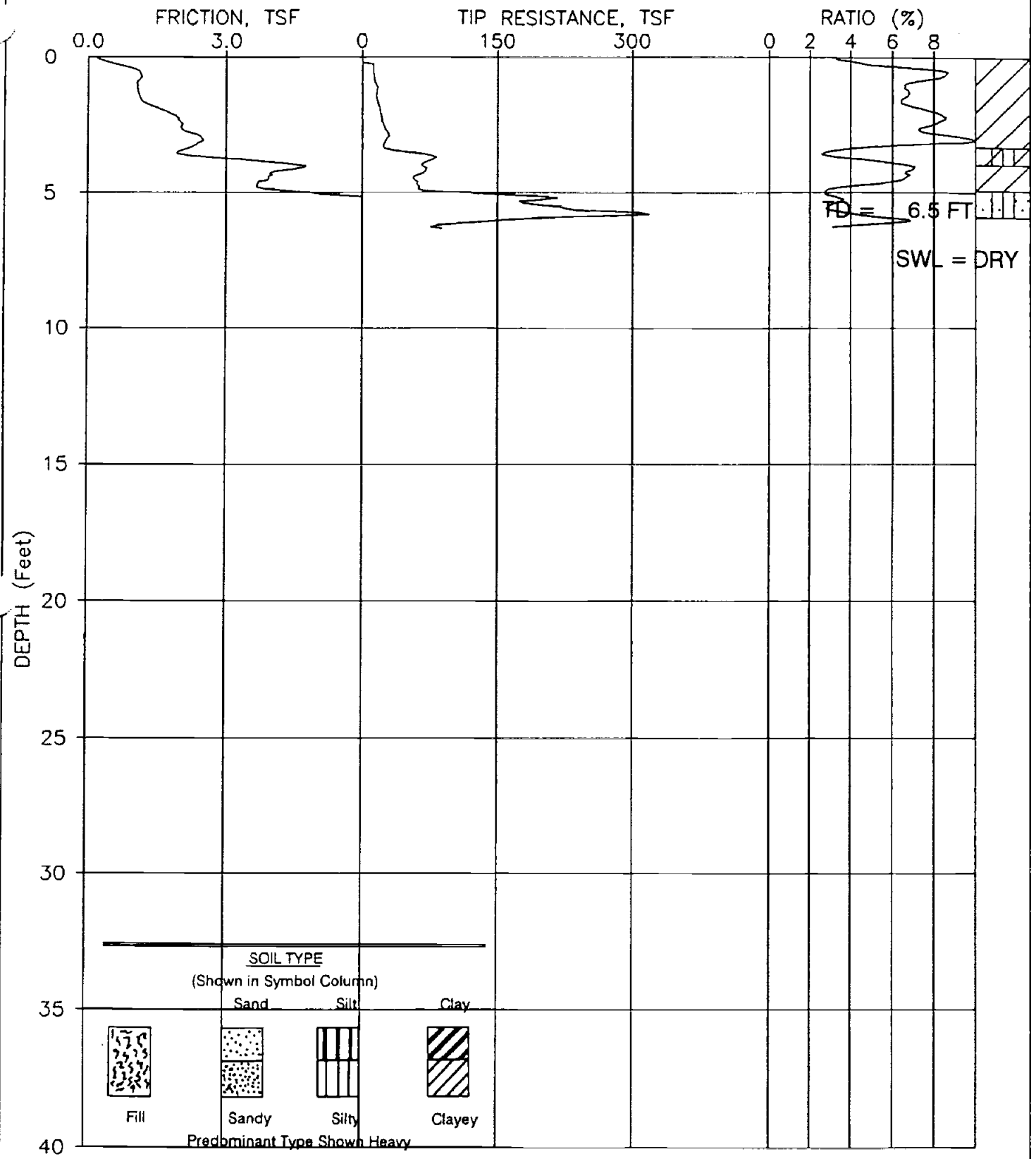
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-24P DATE : 05-18-1994

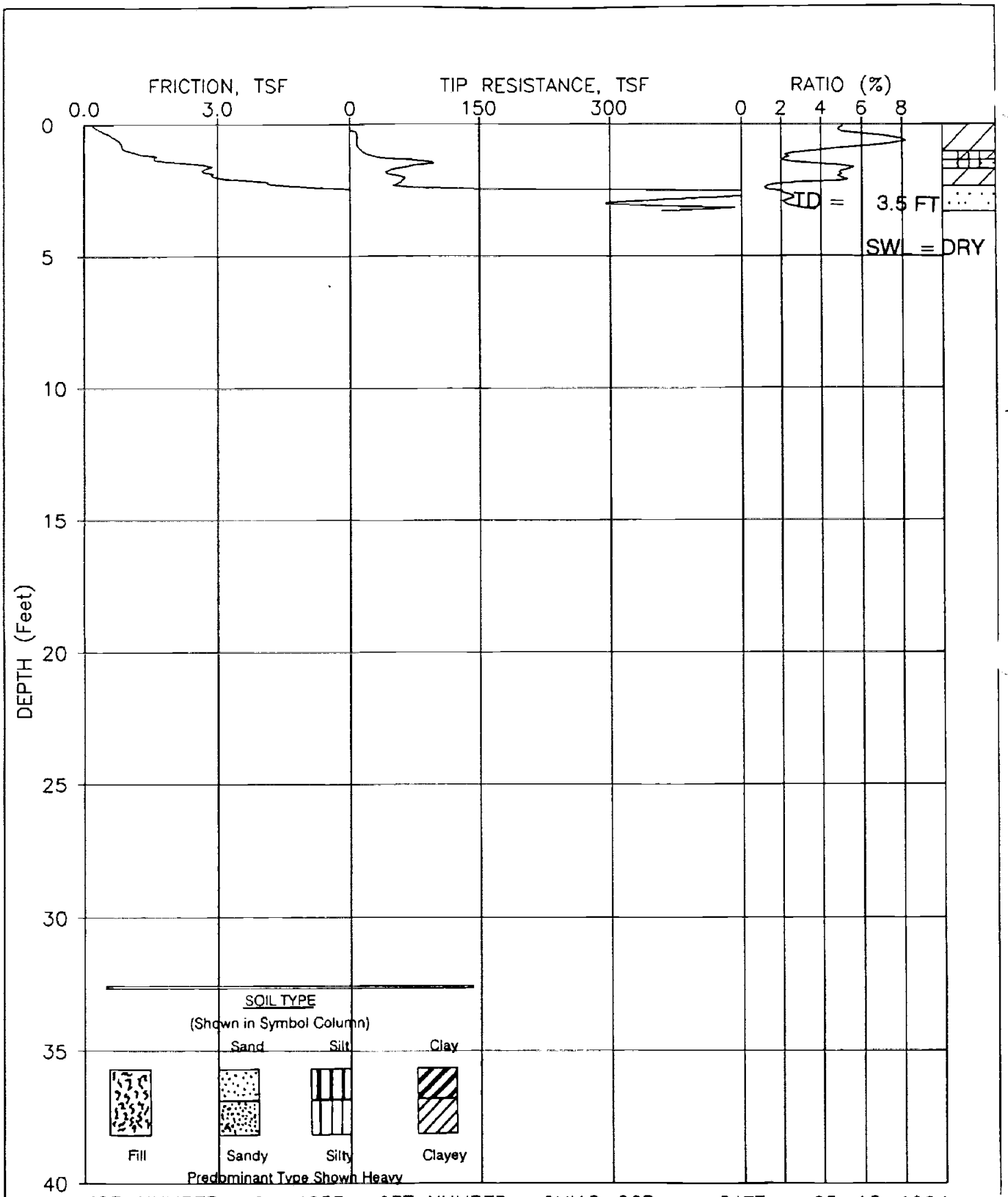
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-25P DATE : 05-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

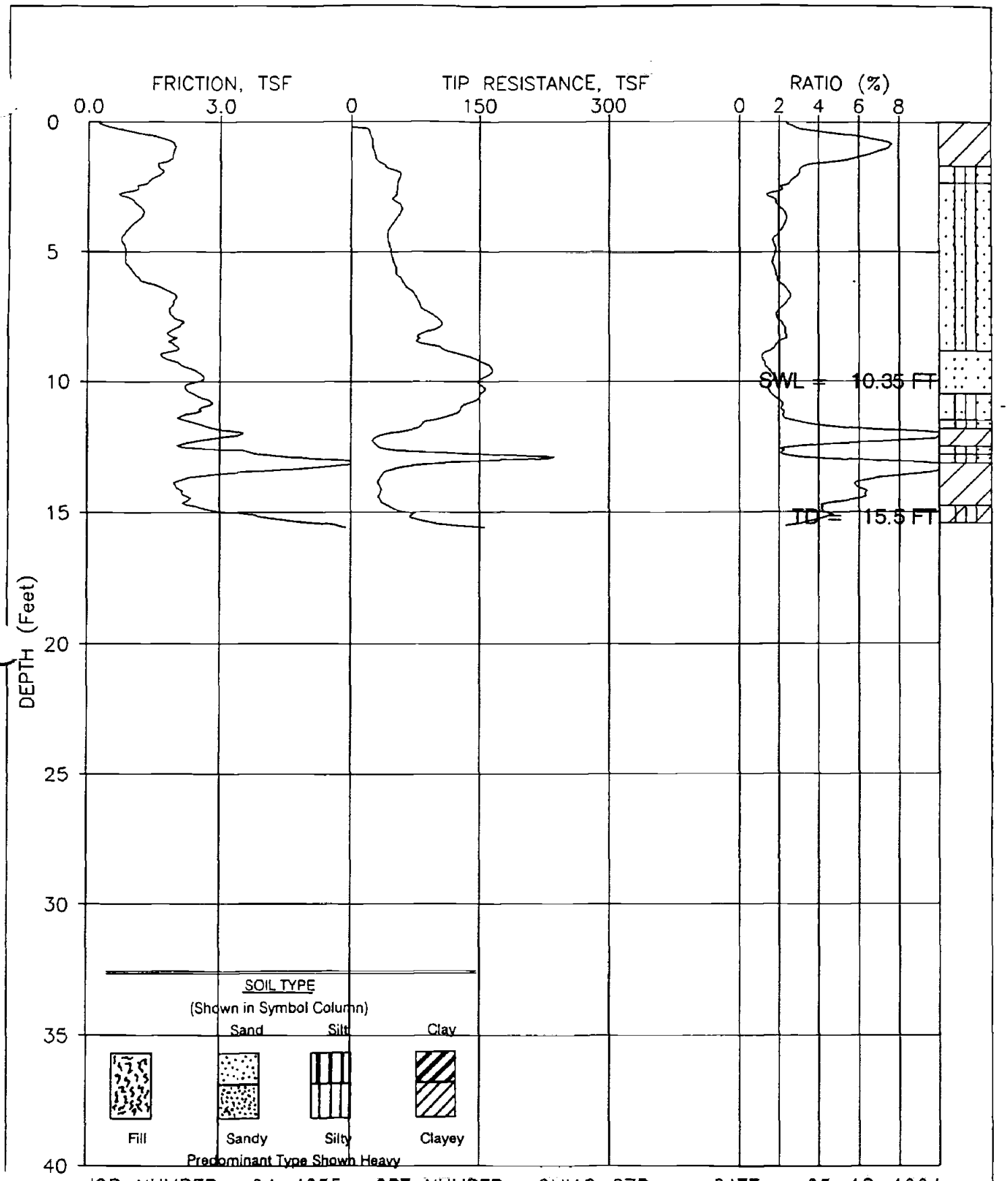
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-26P DATE : 05-18-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

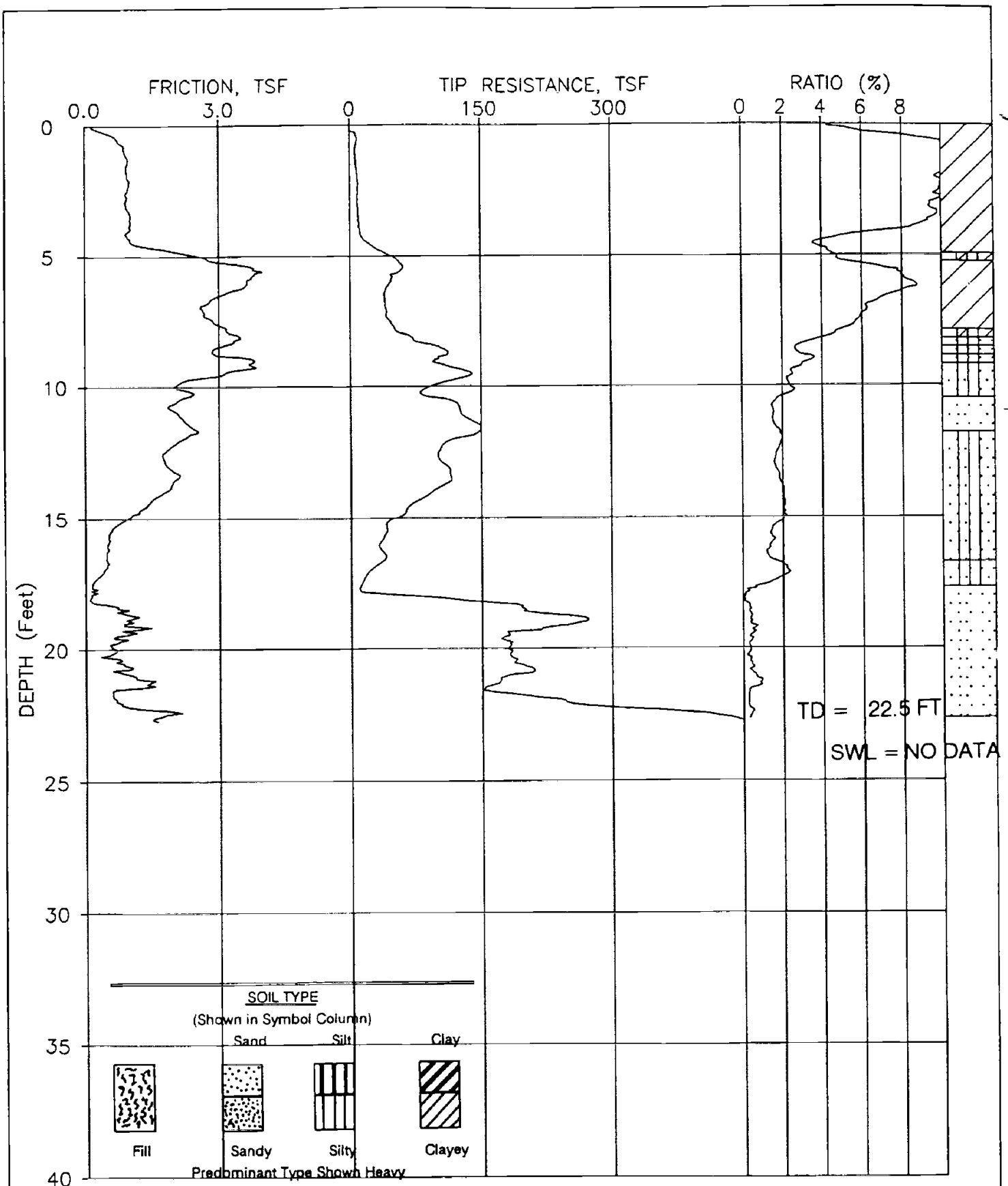
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-27P DATE : 05-18-1994

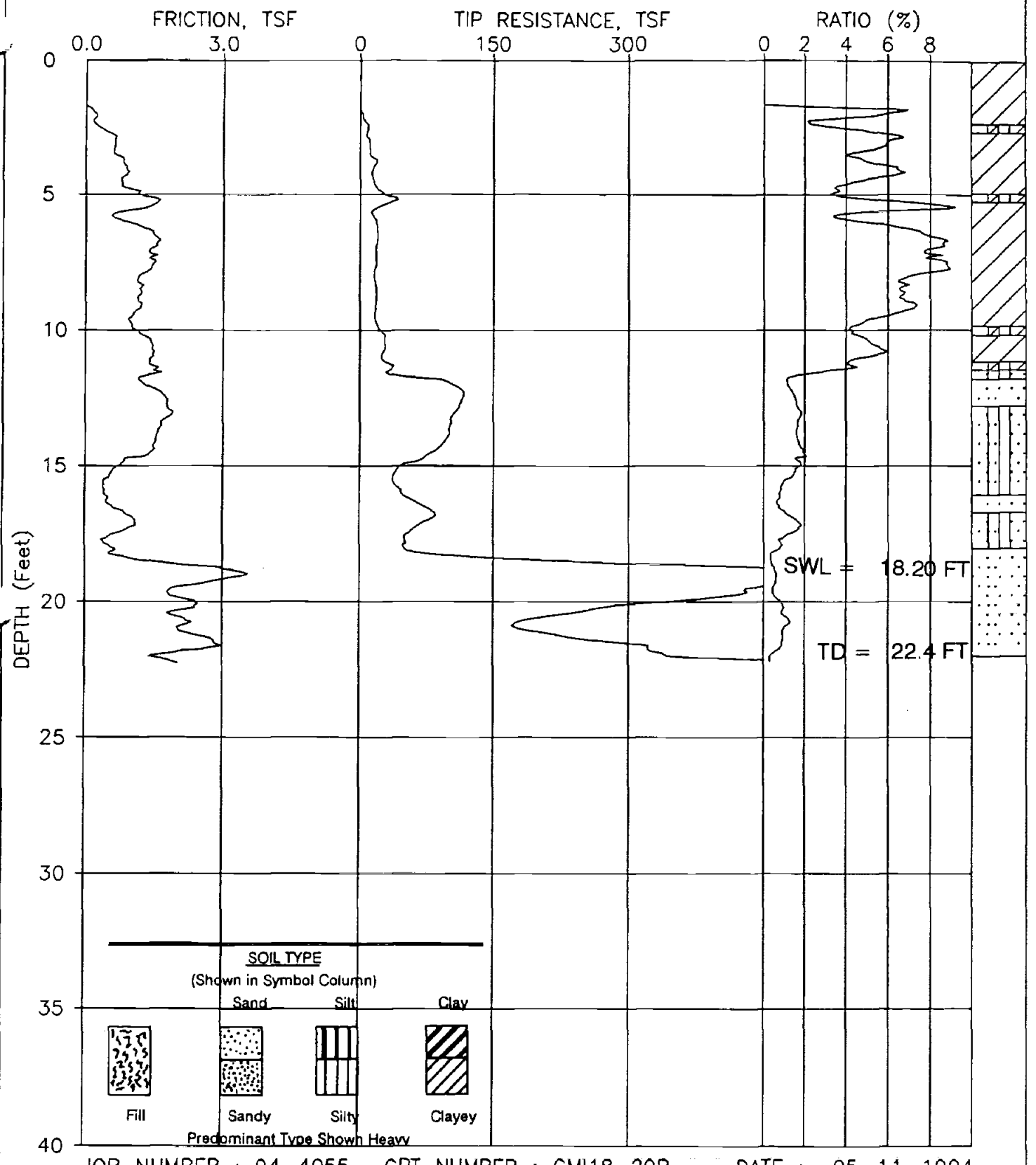
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



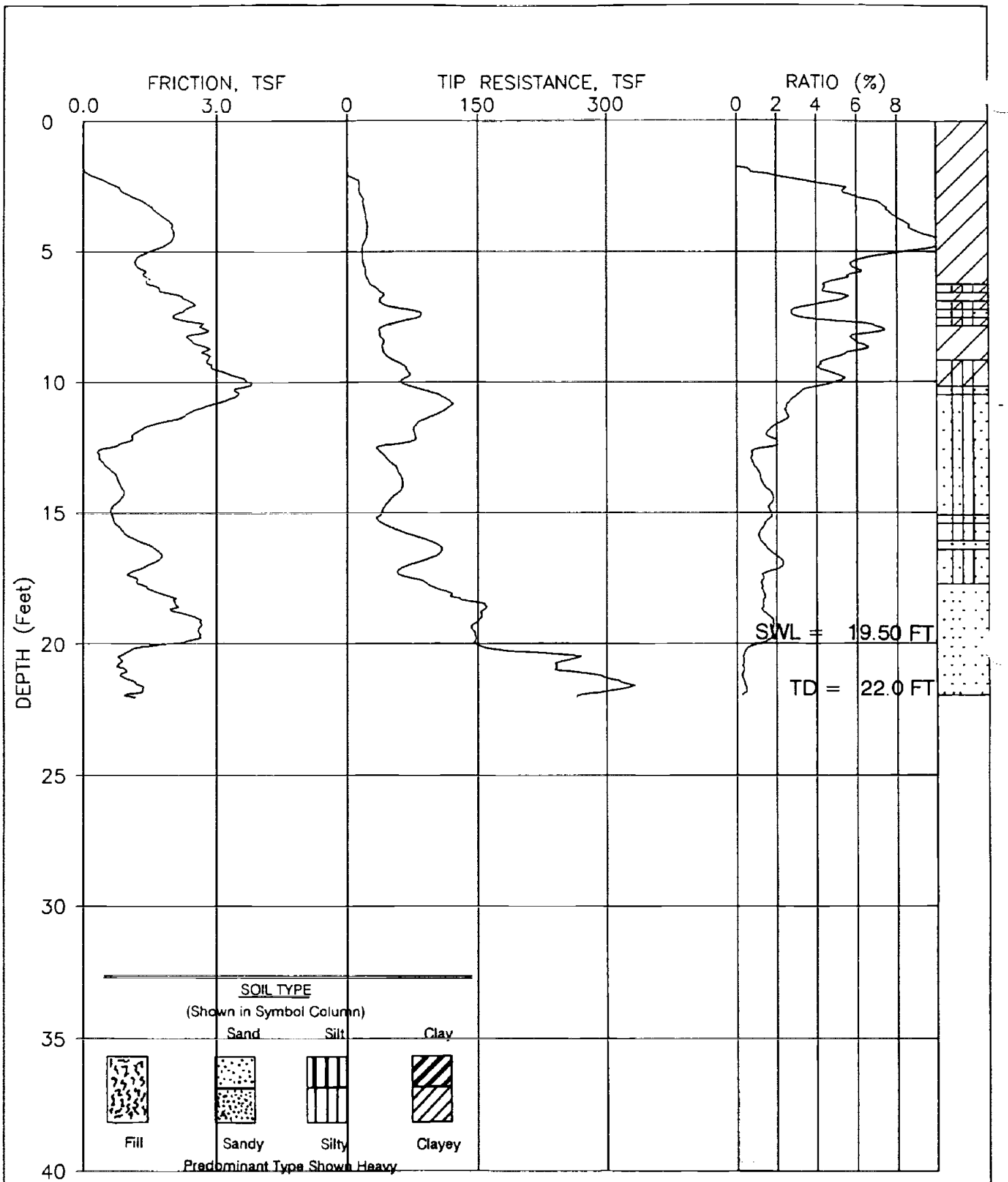
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-28P DATE : 05-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



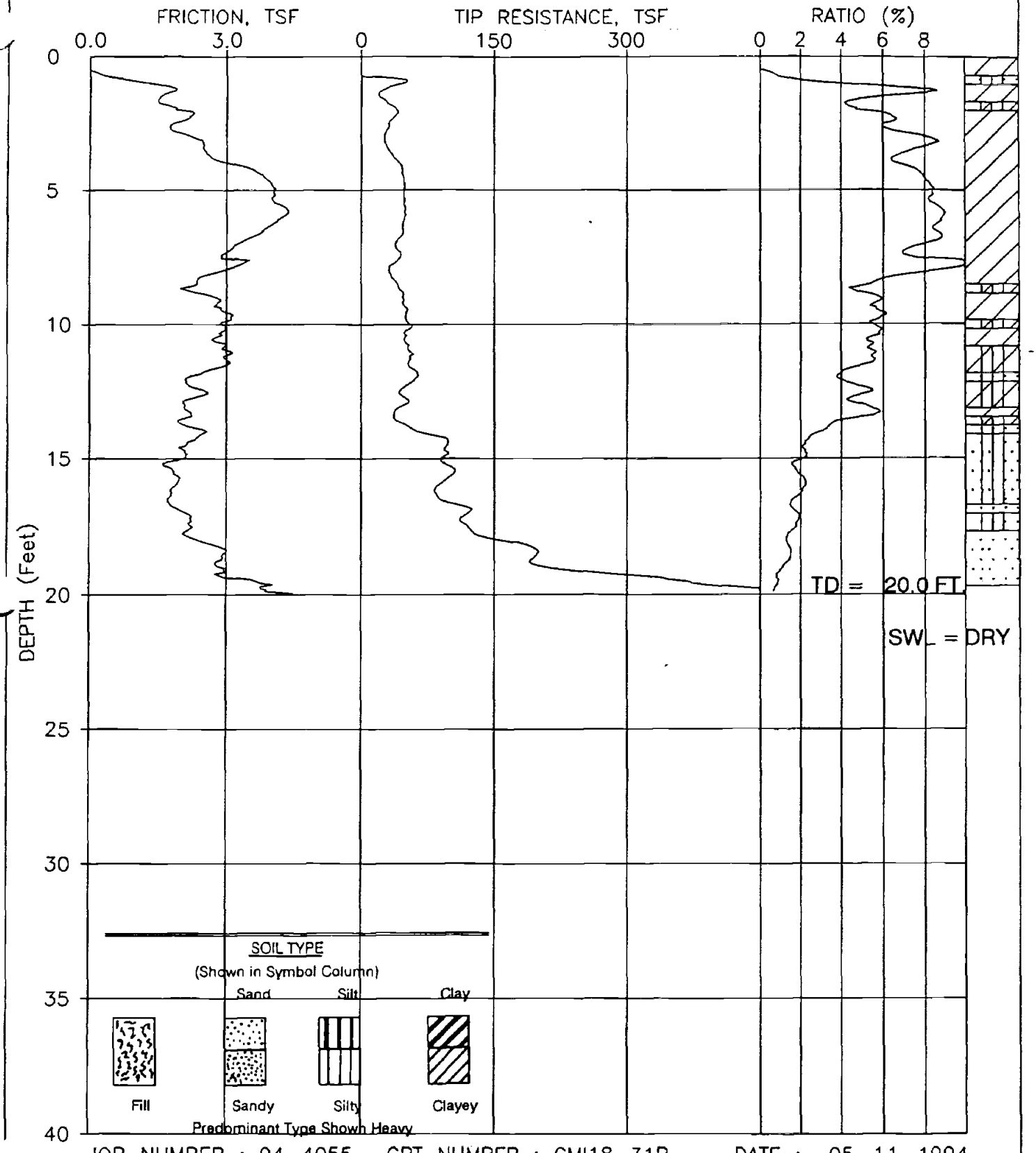
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-29P DATE : 05-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



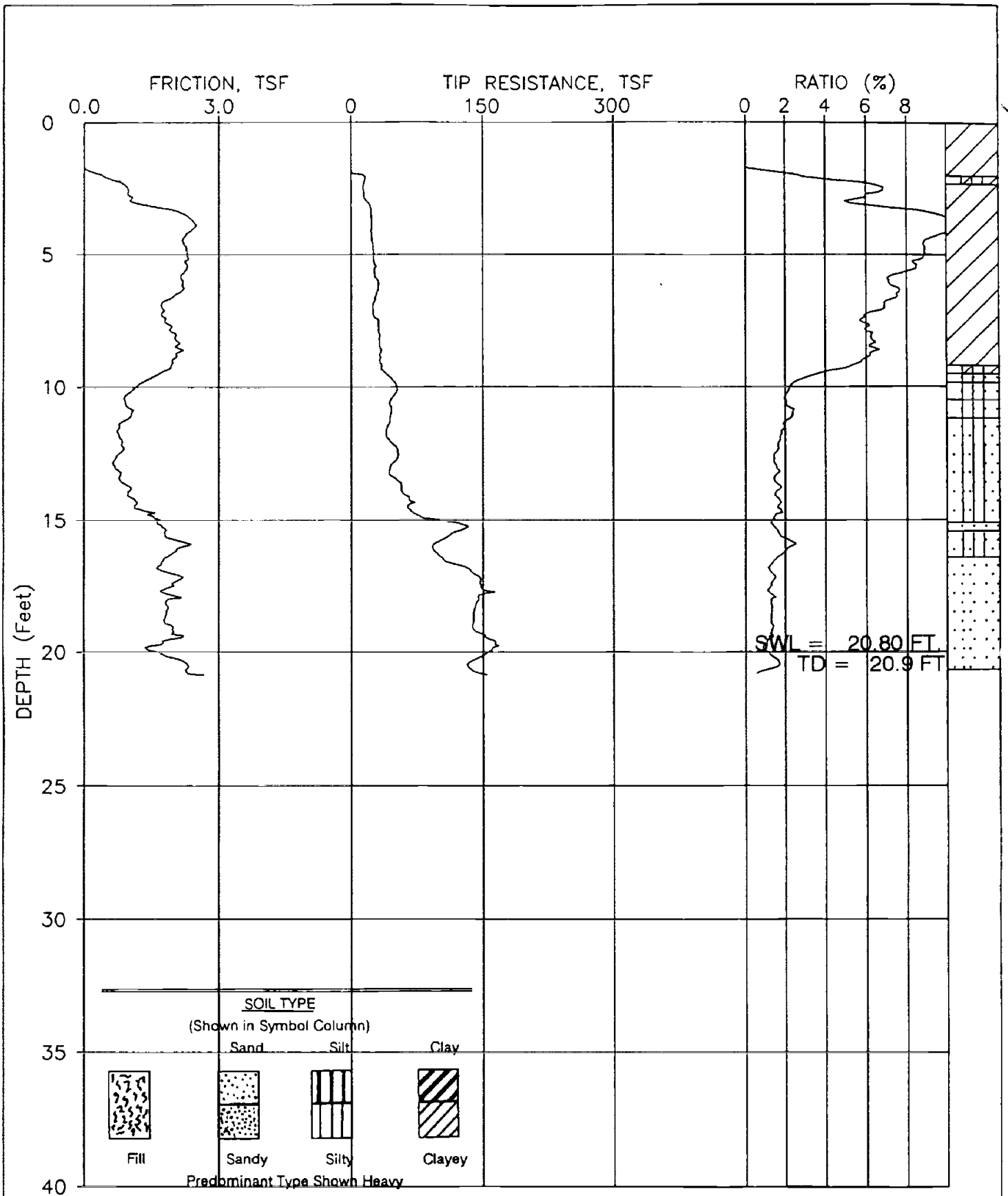
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-30P DATE : 05-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



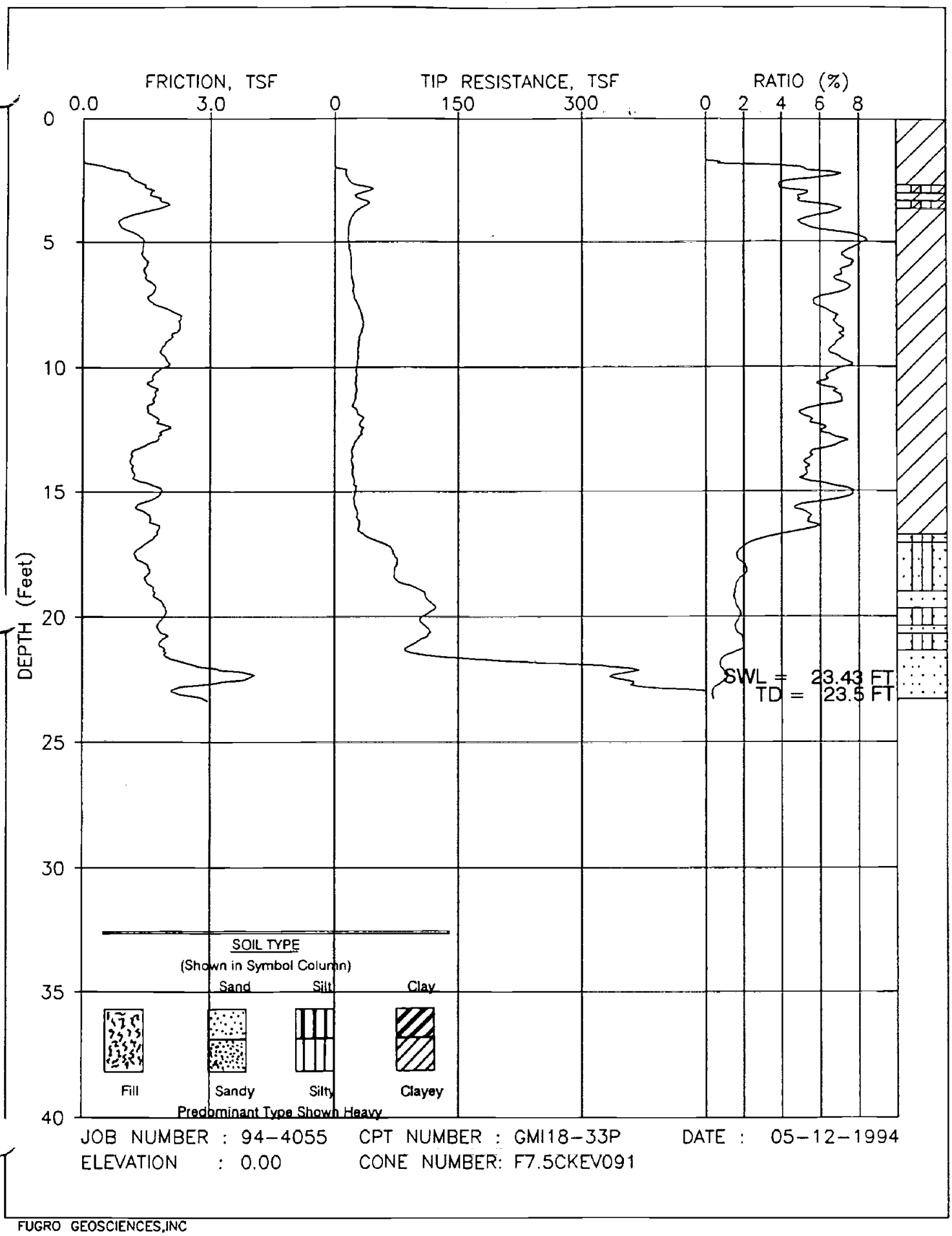
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-31P DATE : 05-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



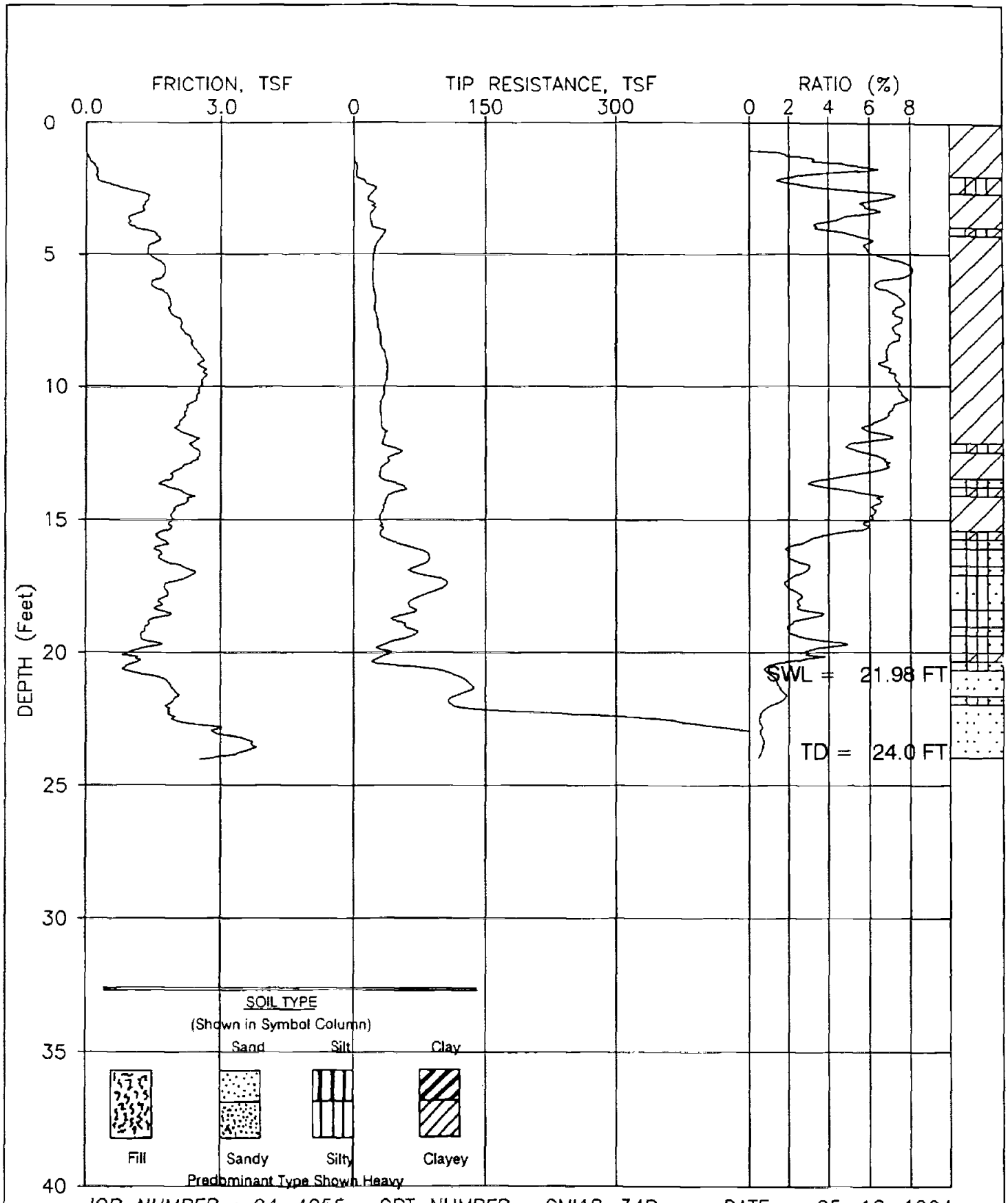
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-32P DATE : 05-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



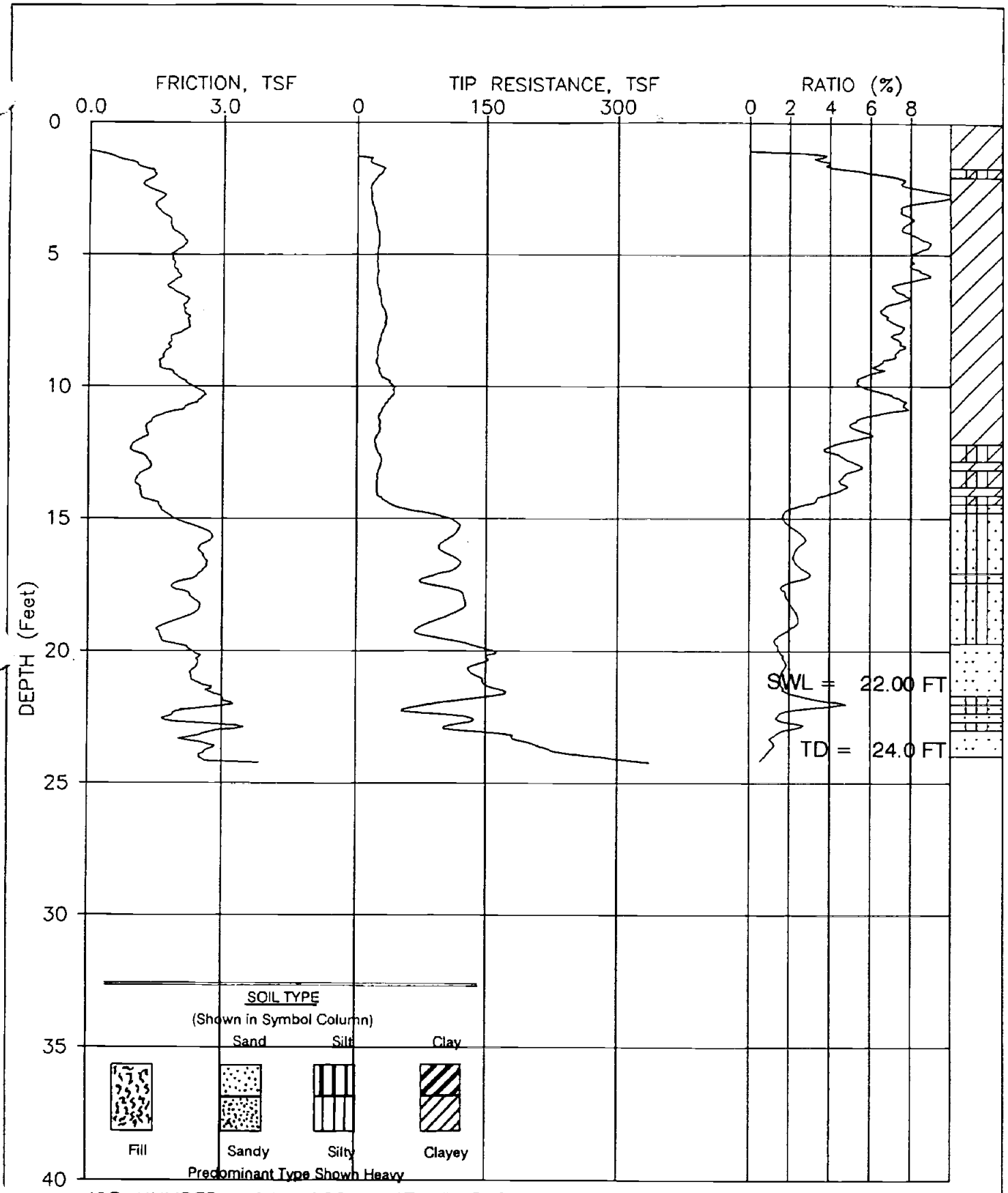
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-33P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



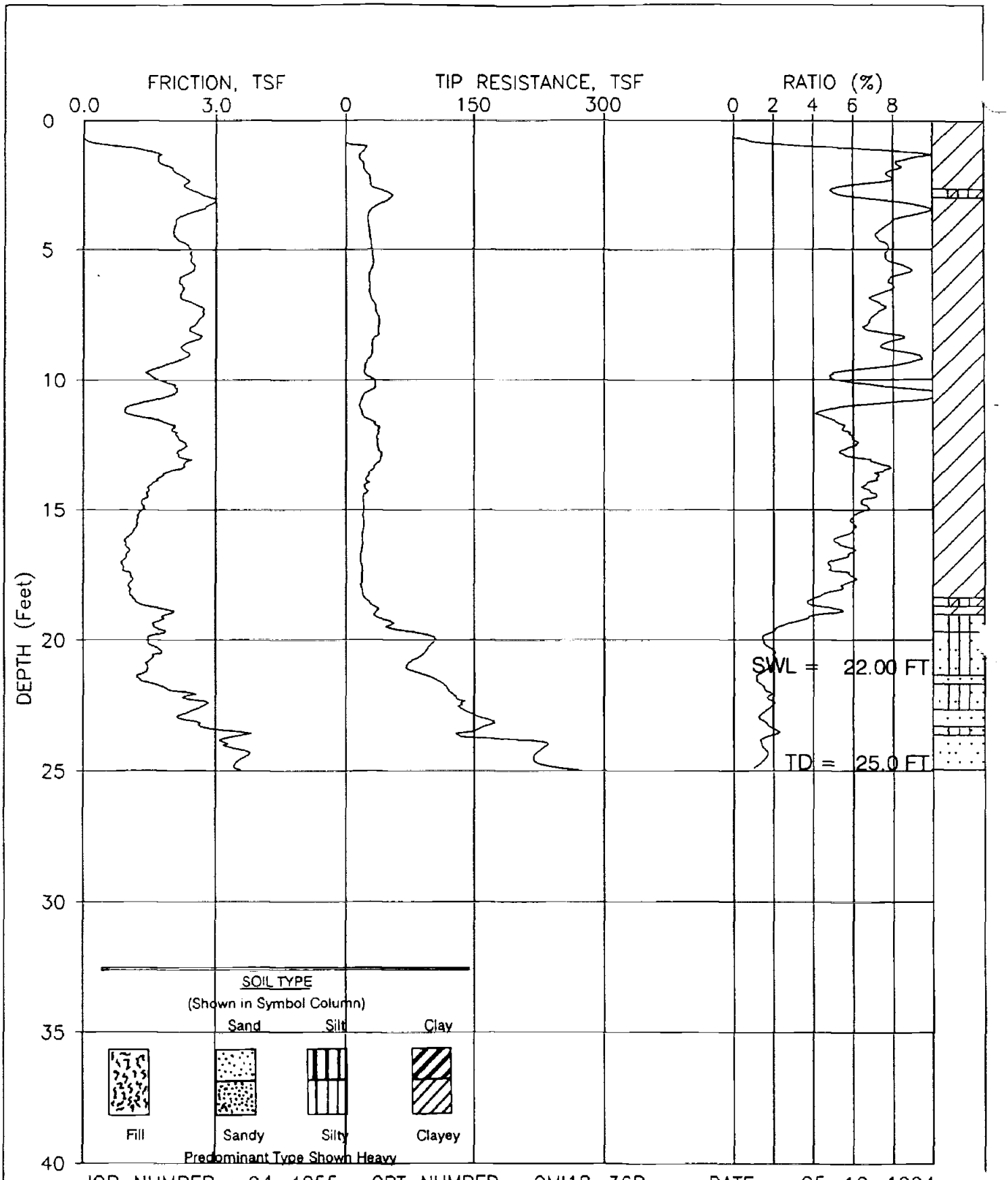
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-34P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



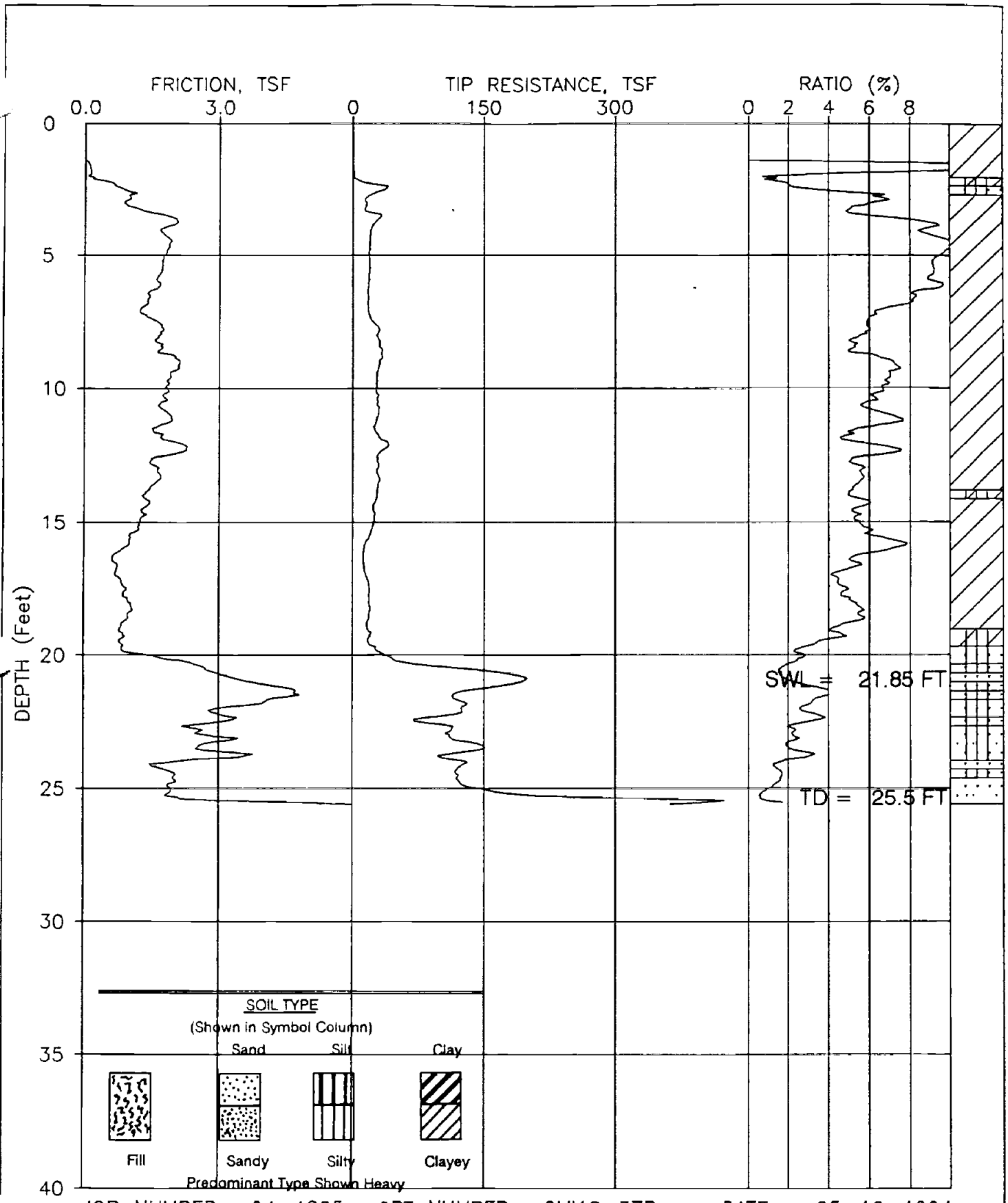
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-35P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-36P DATE : 05-10-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

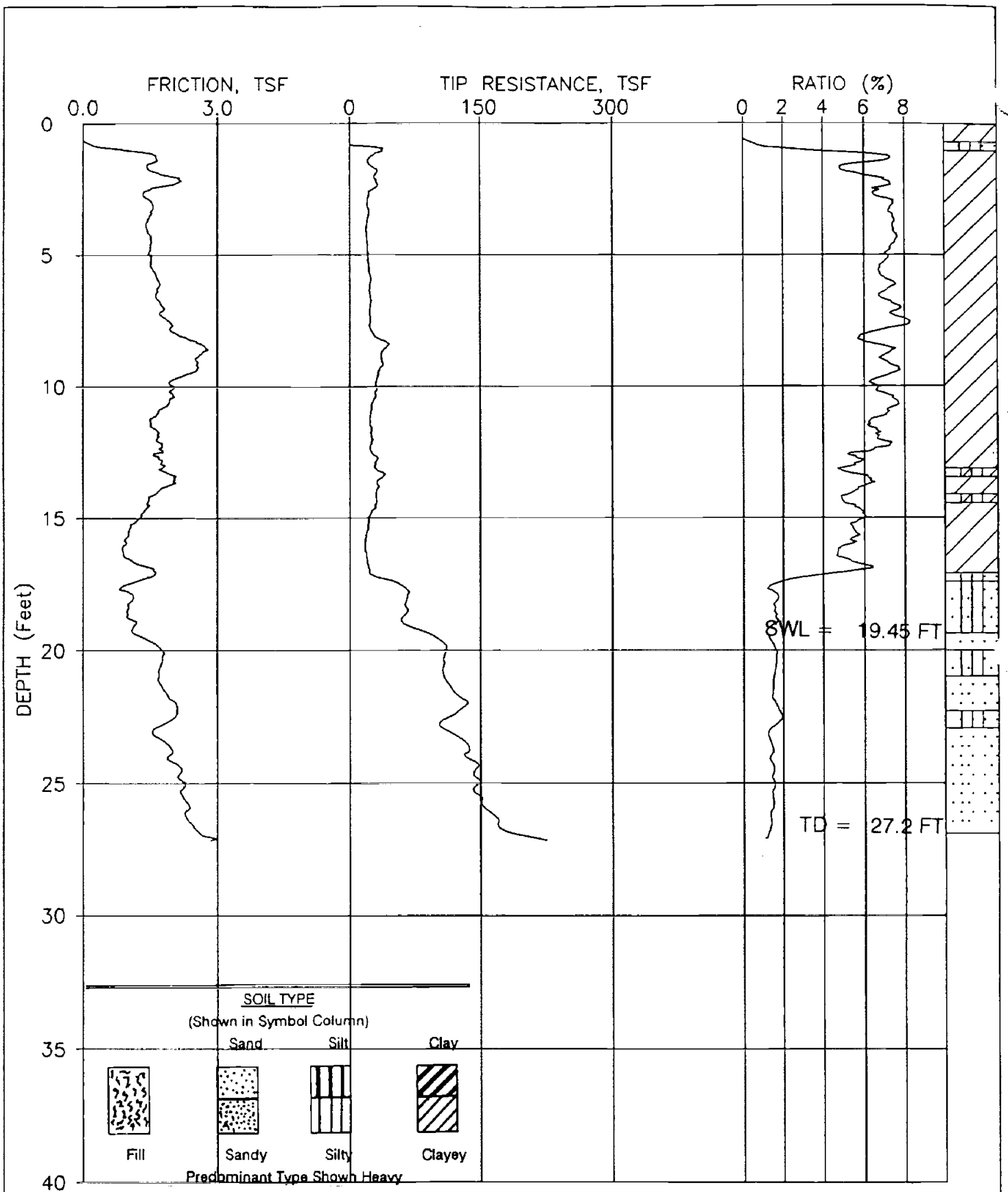
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-37P DATE : 05-10-1994

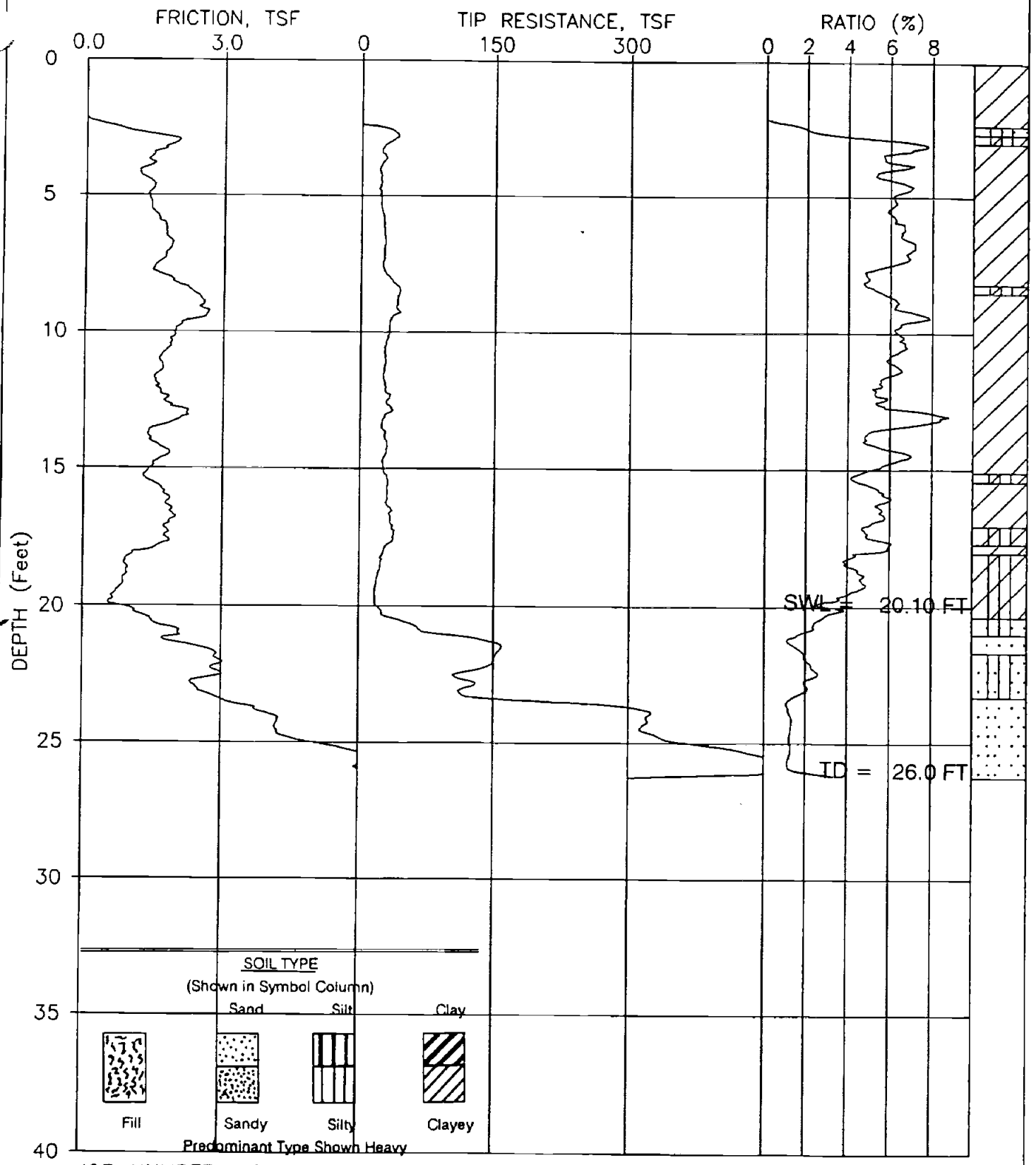
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



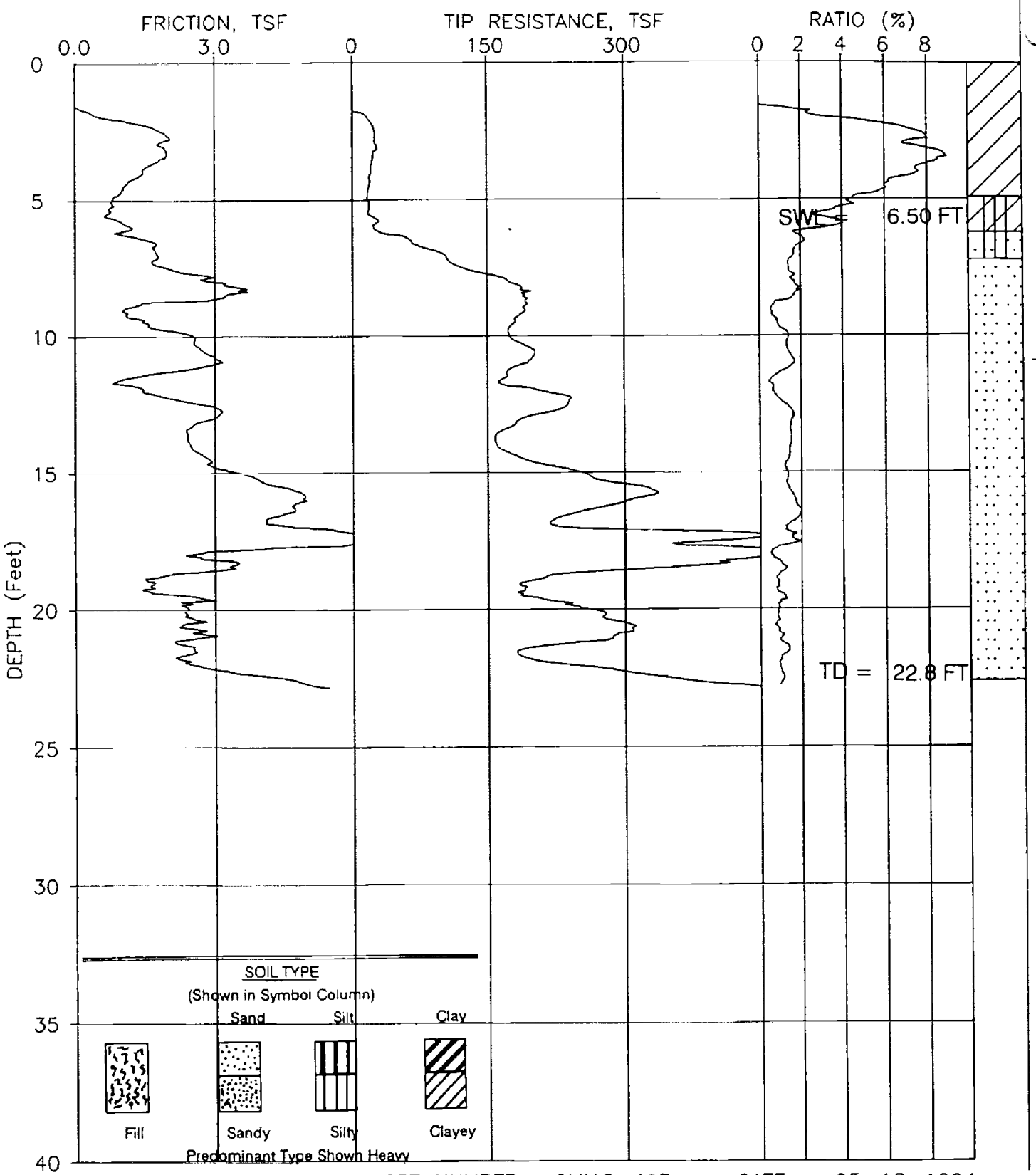
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-38P DATE : 05-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



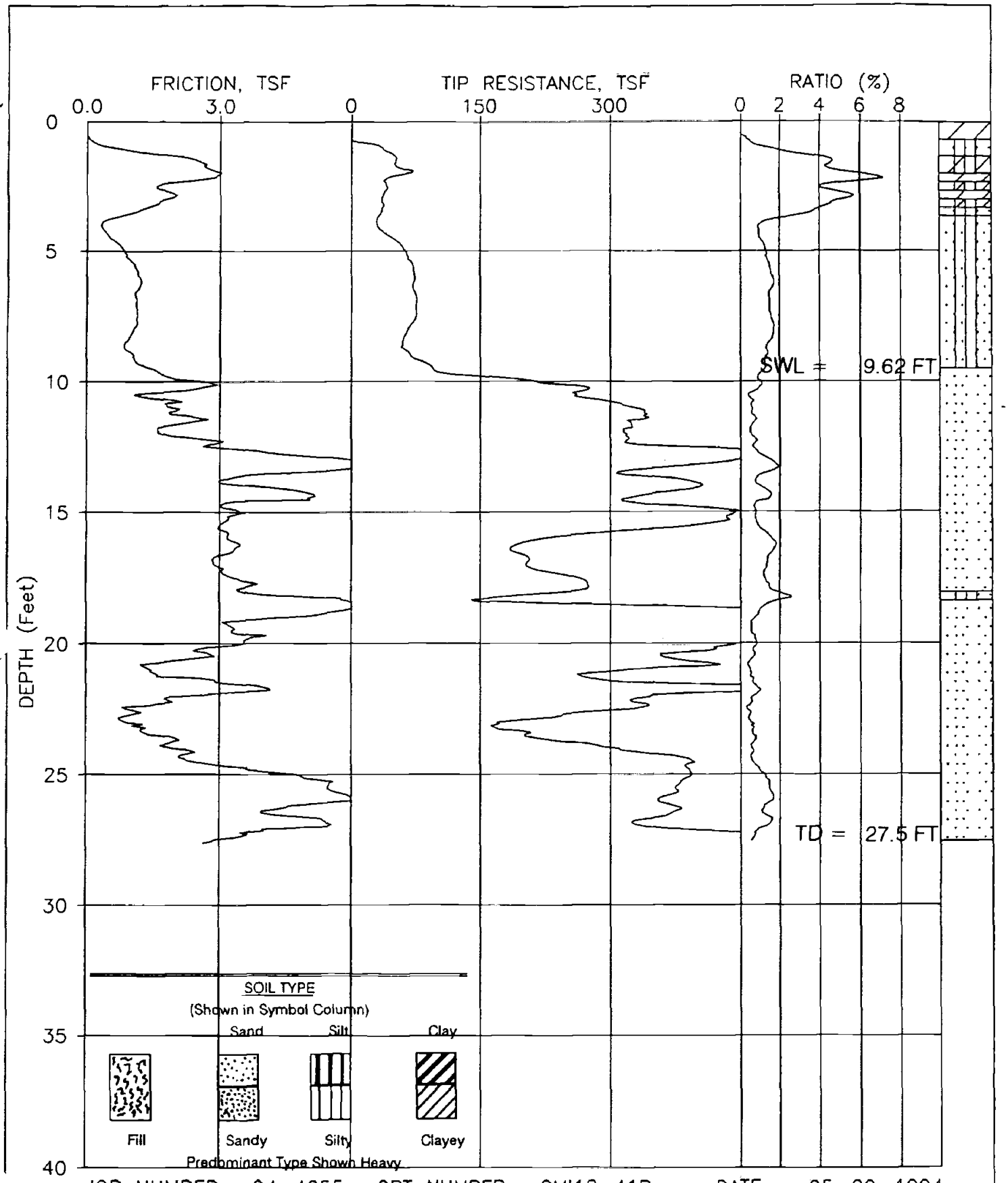
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-39P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



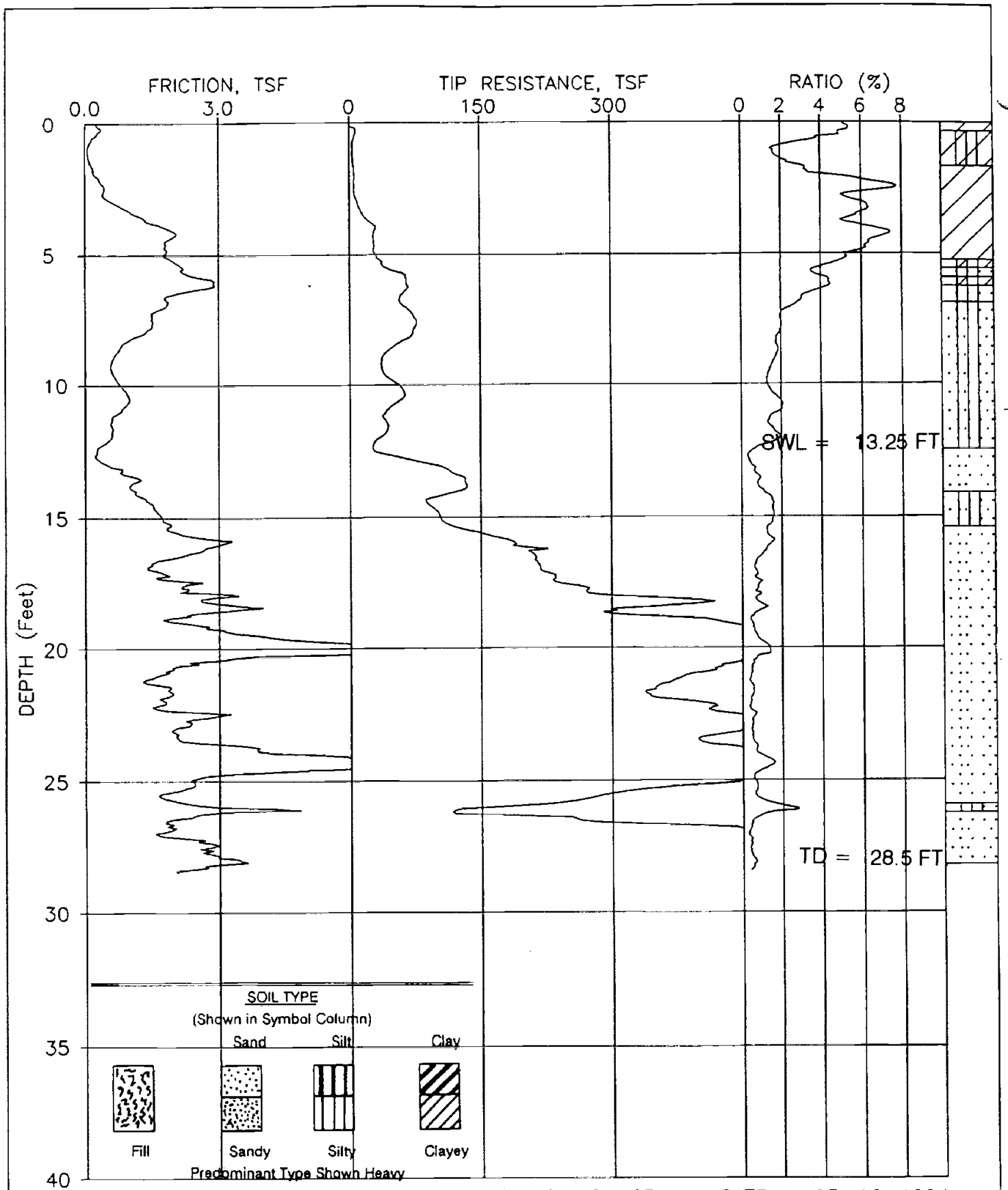
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-40P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



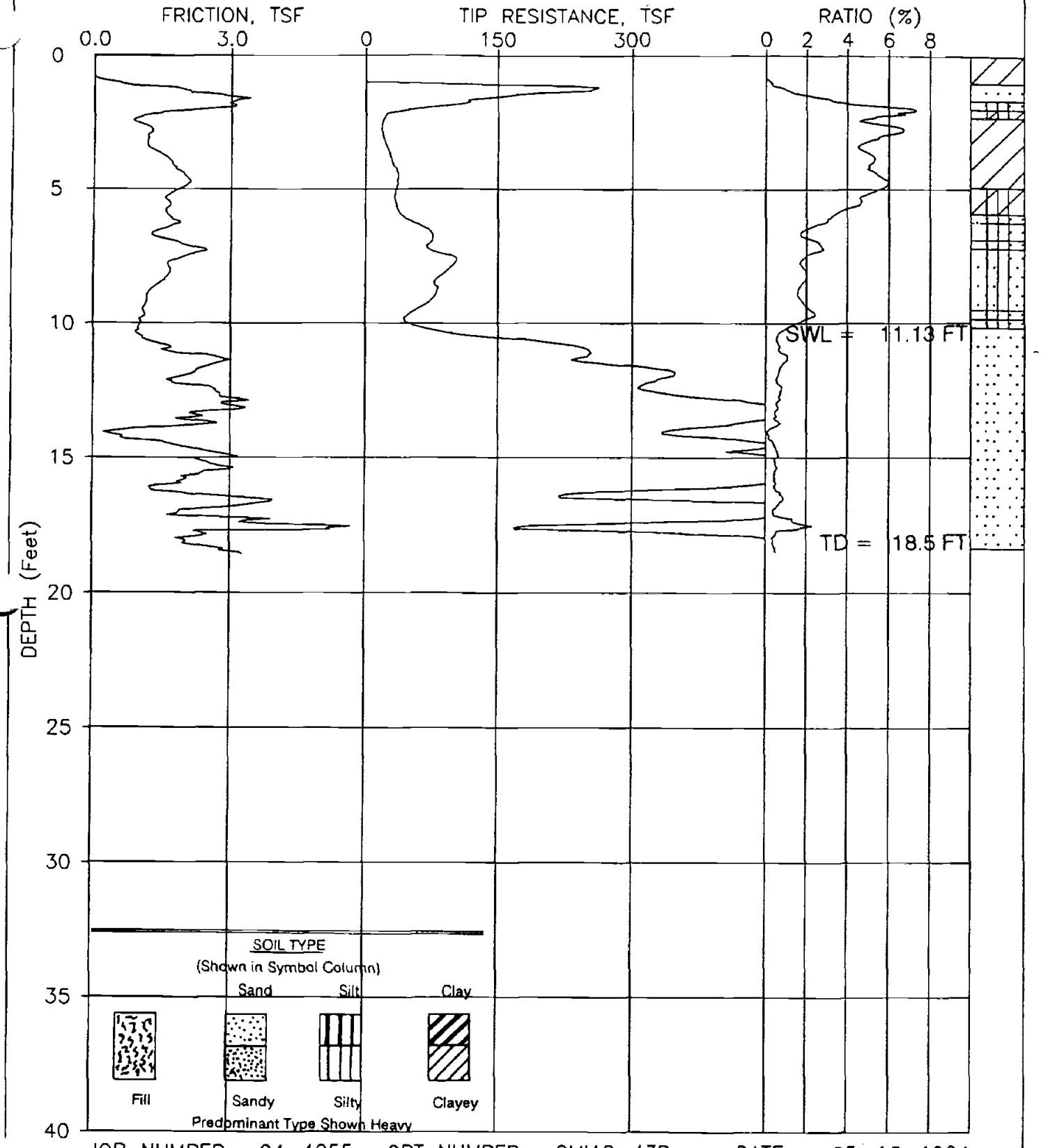
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-41P DATE : 05-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



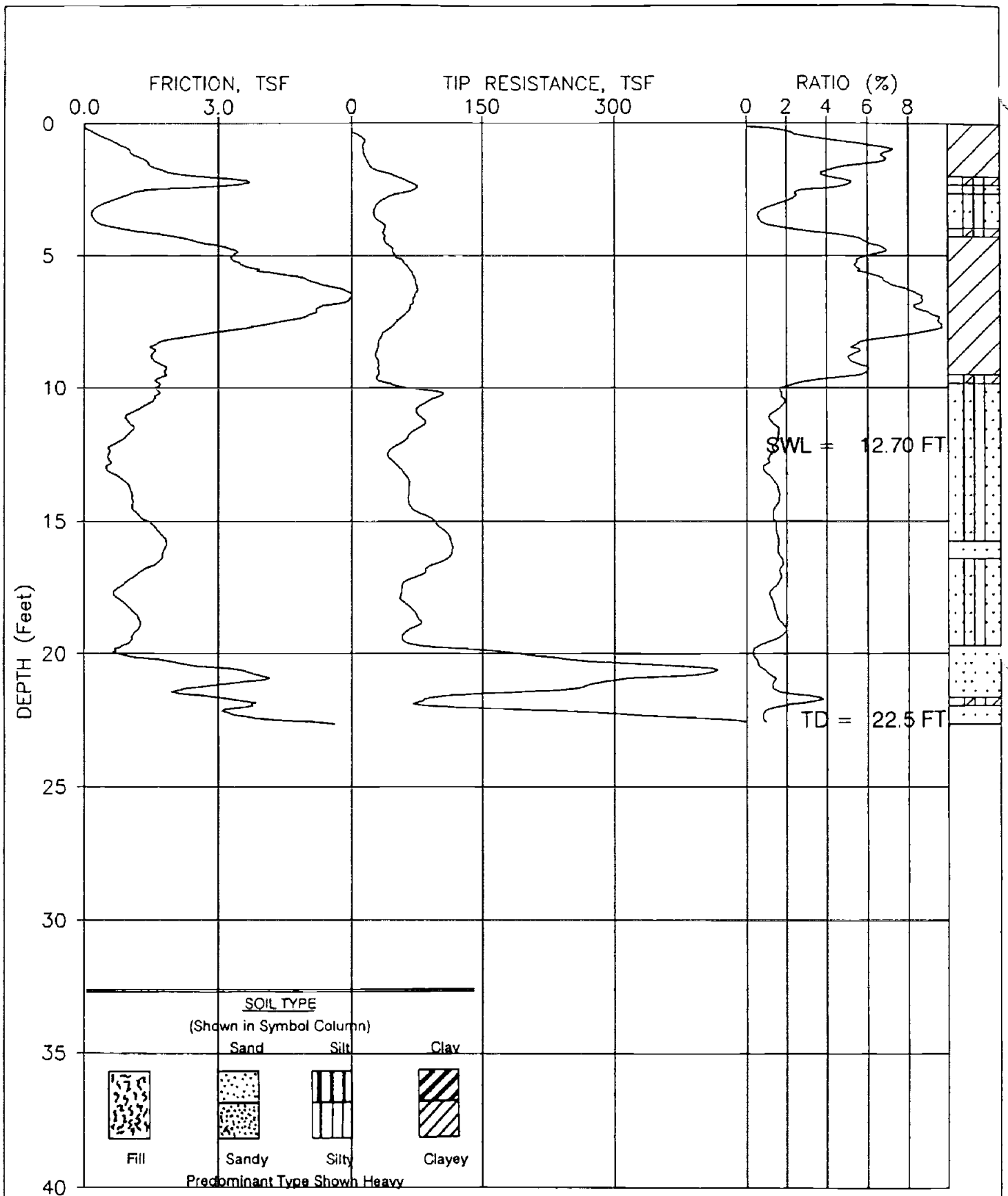
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-42P DATE : 05-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-43P DATE : 05-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

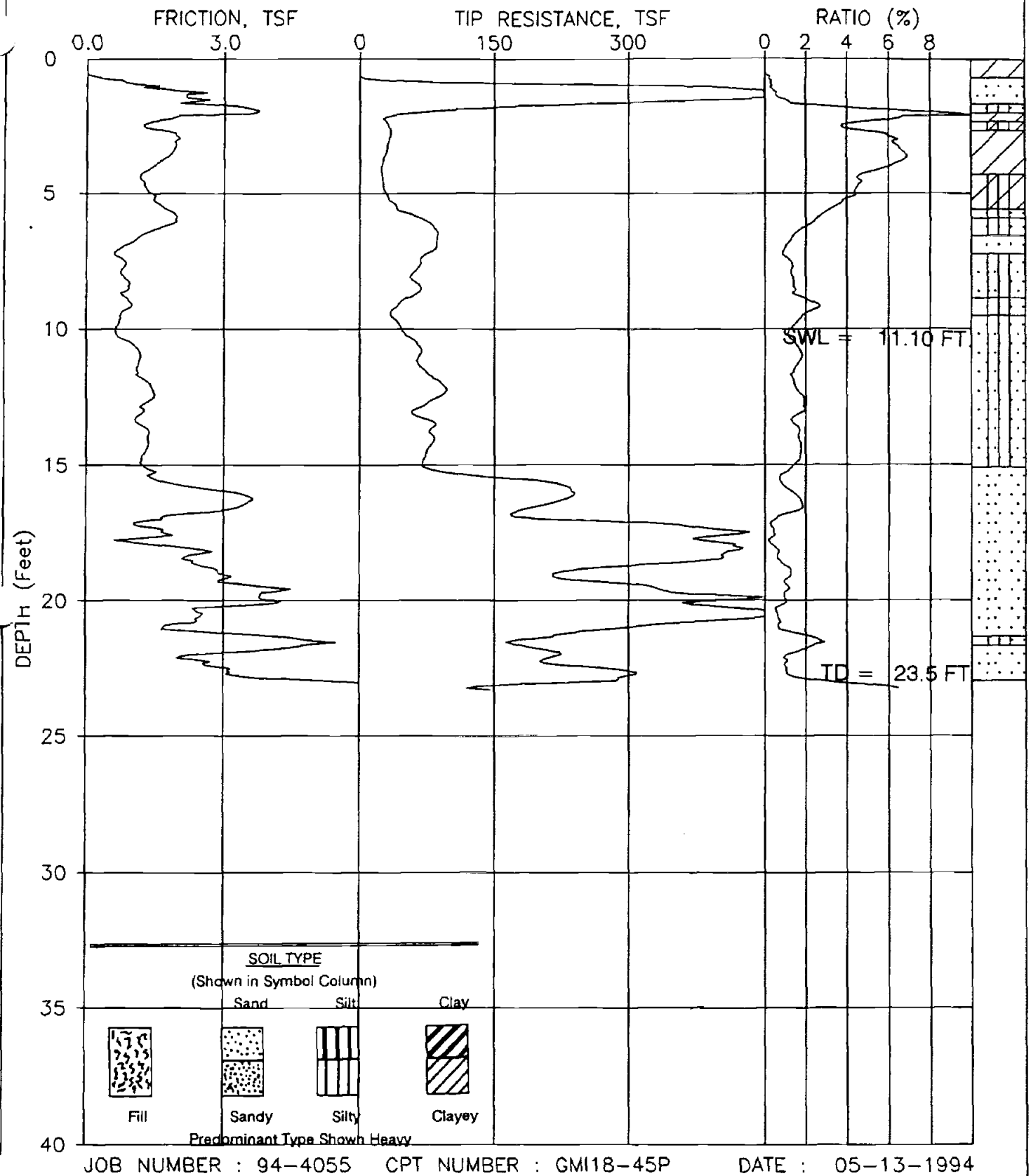
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-44P DATE : 05-12-1994

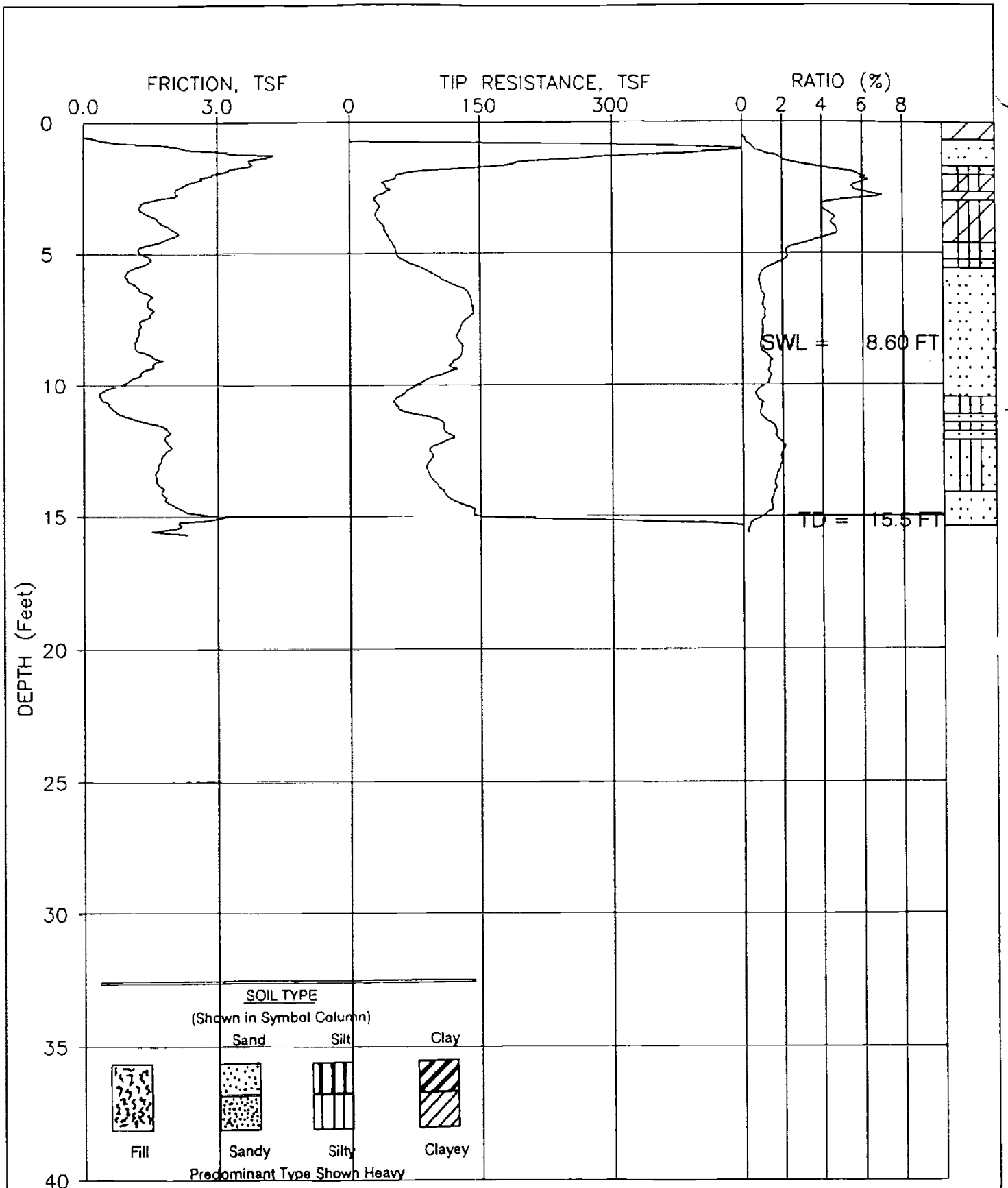
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



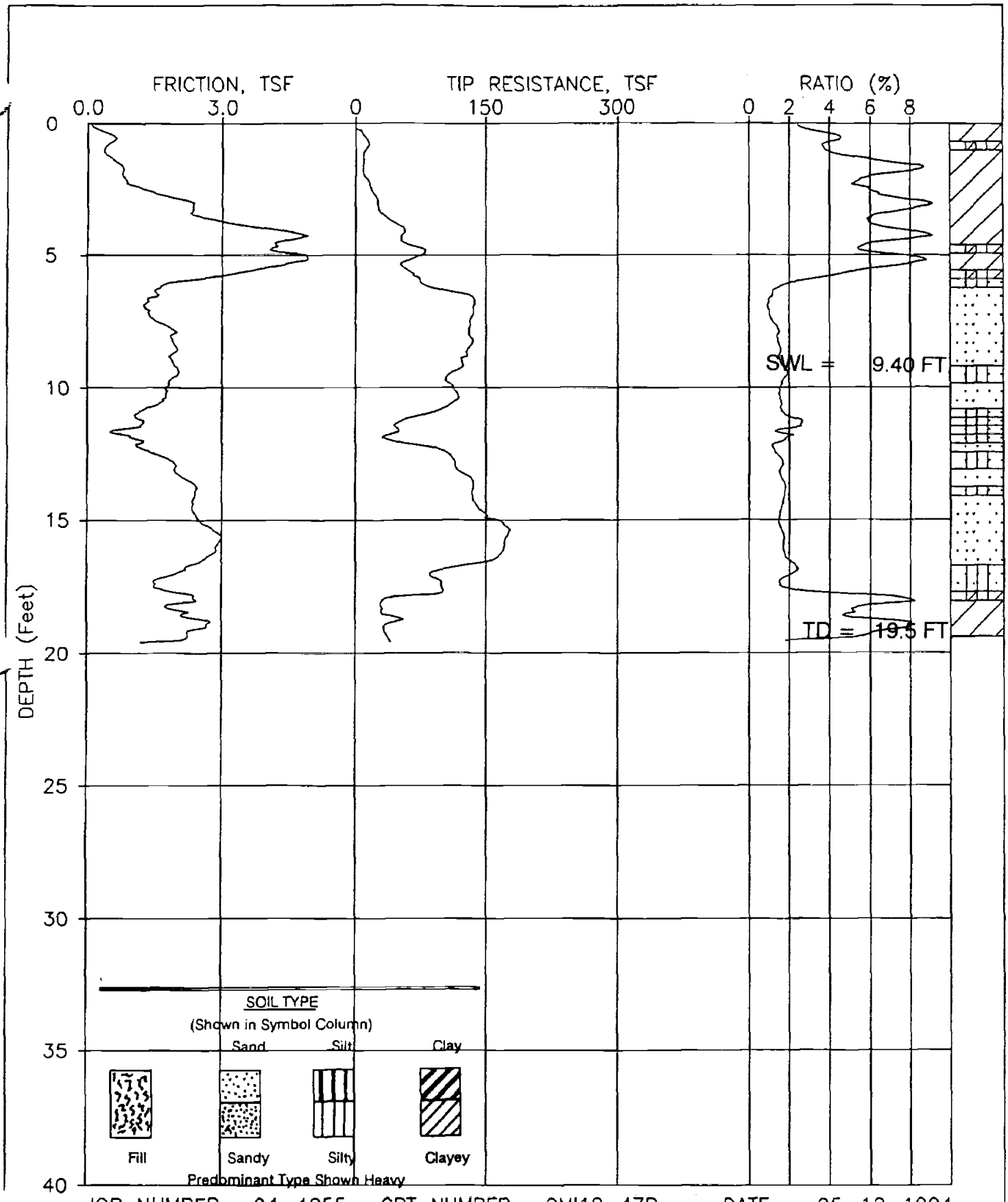
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-45P DATE : 05-13-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



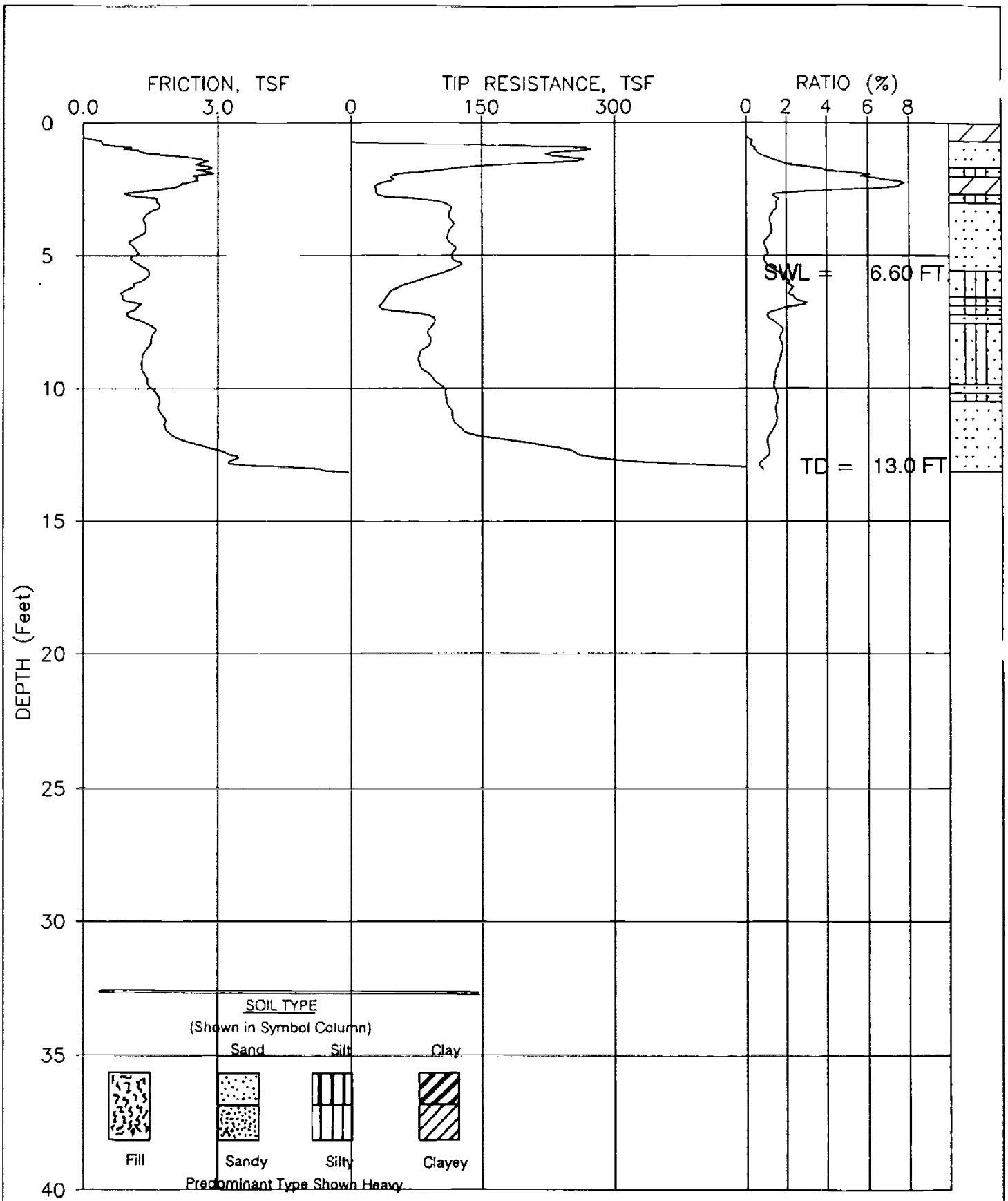
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-46P DATE : 05-13-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-47P DATE : 05-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-48P DATE : 05-13-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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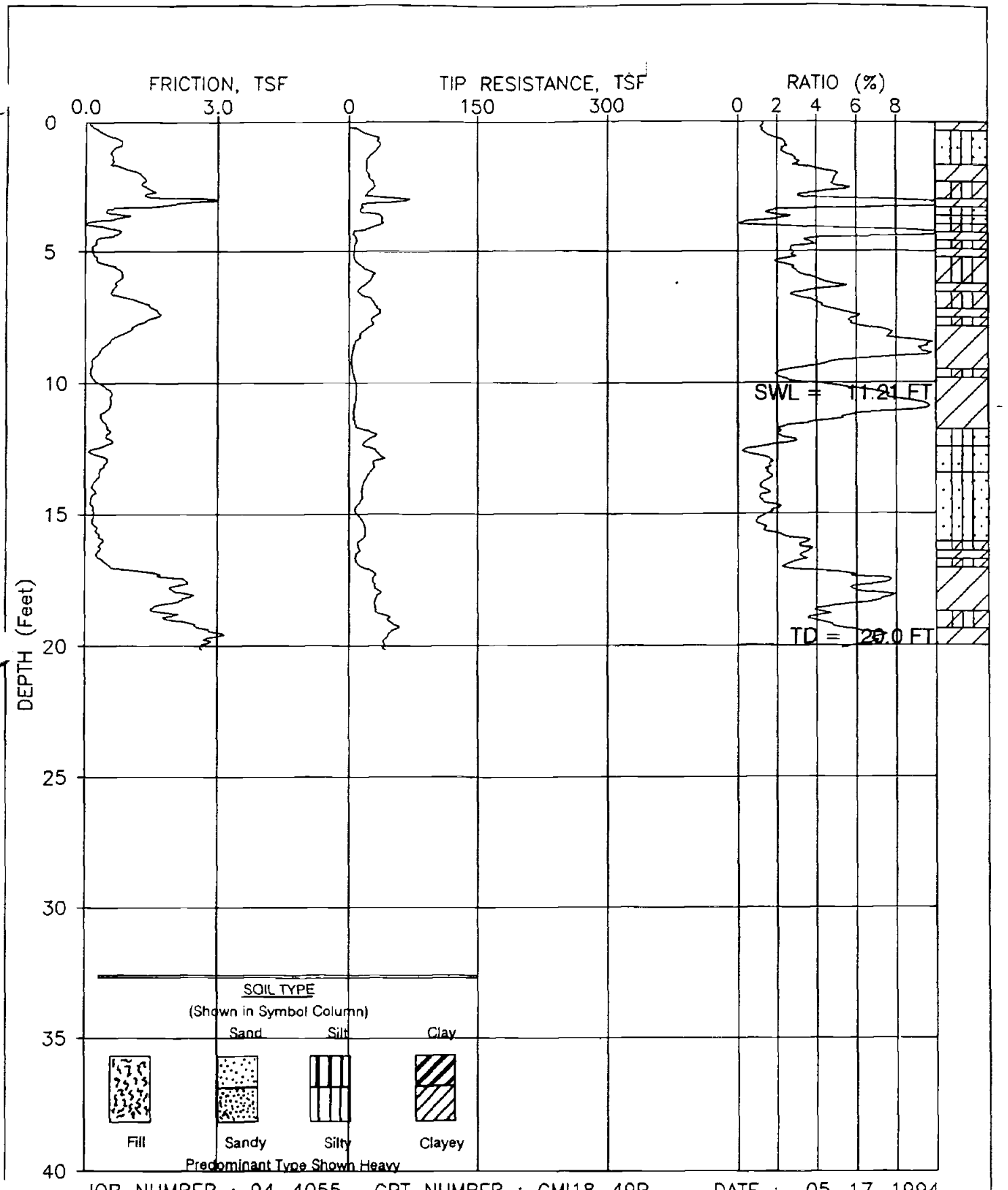

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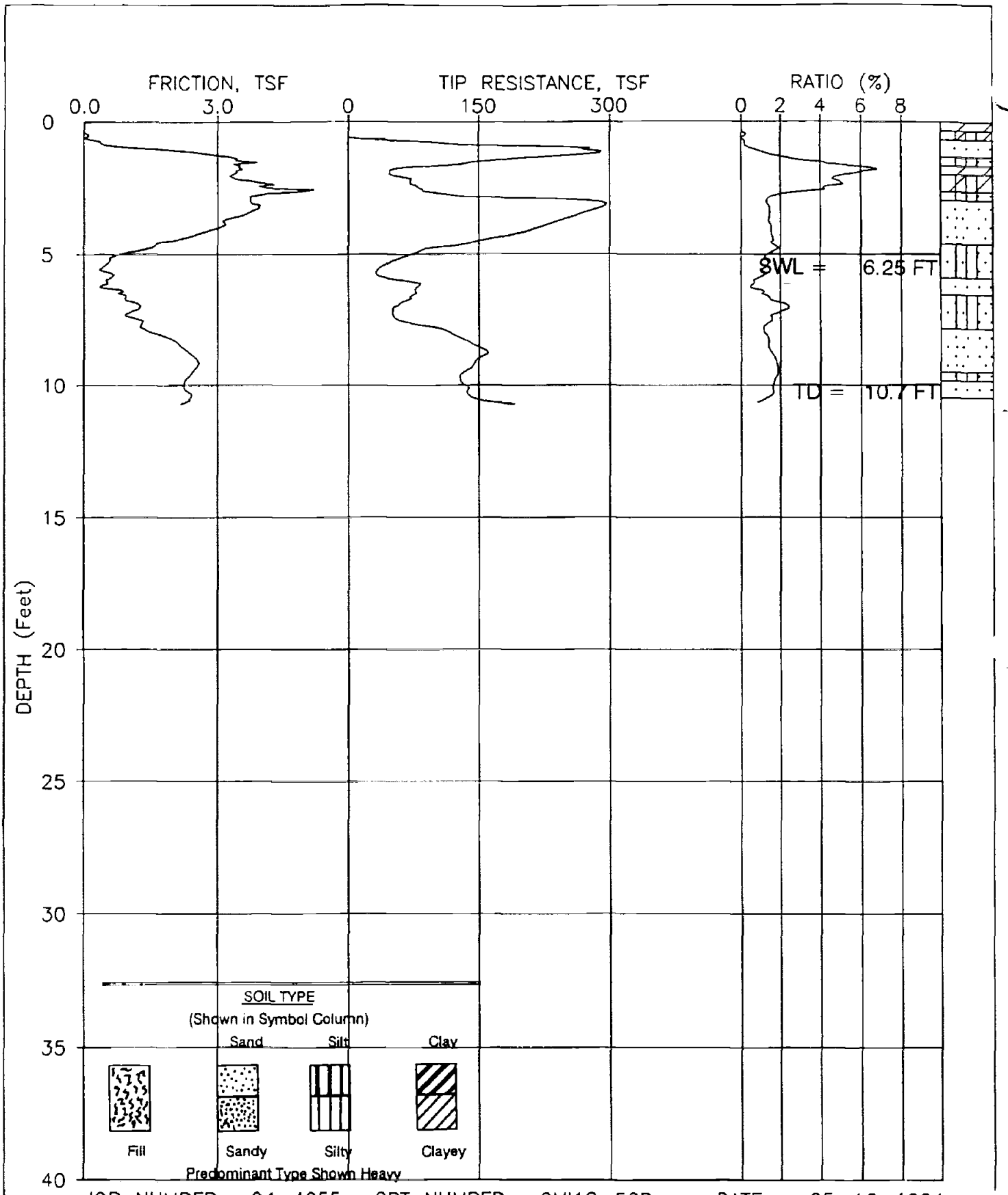
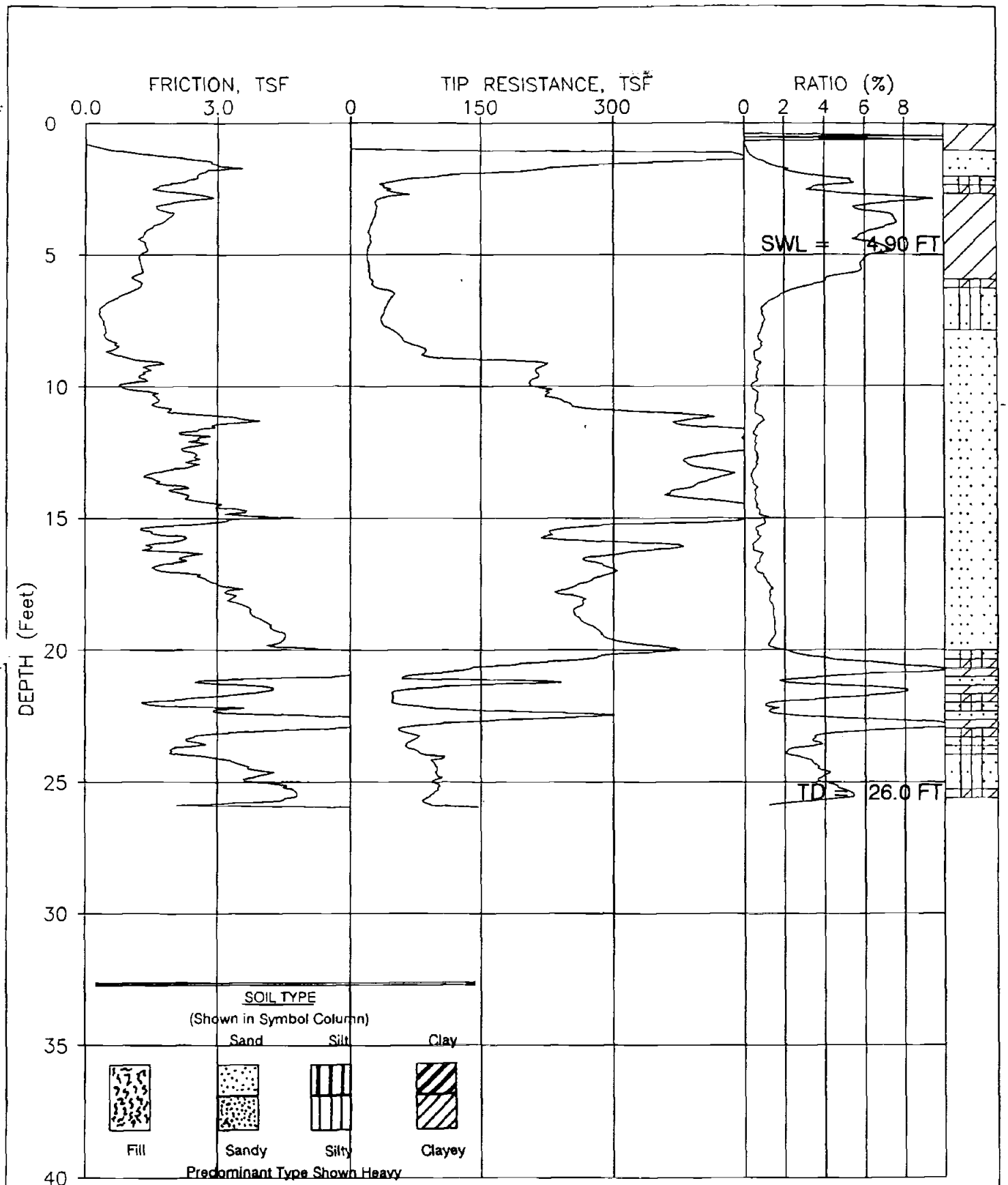
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



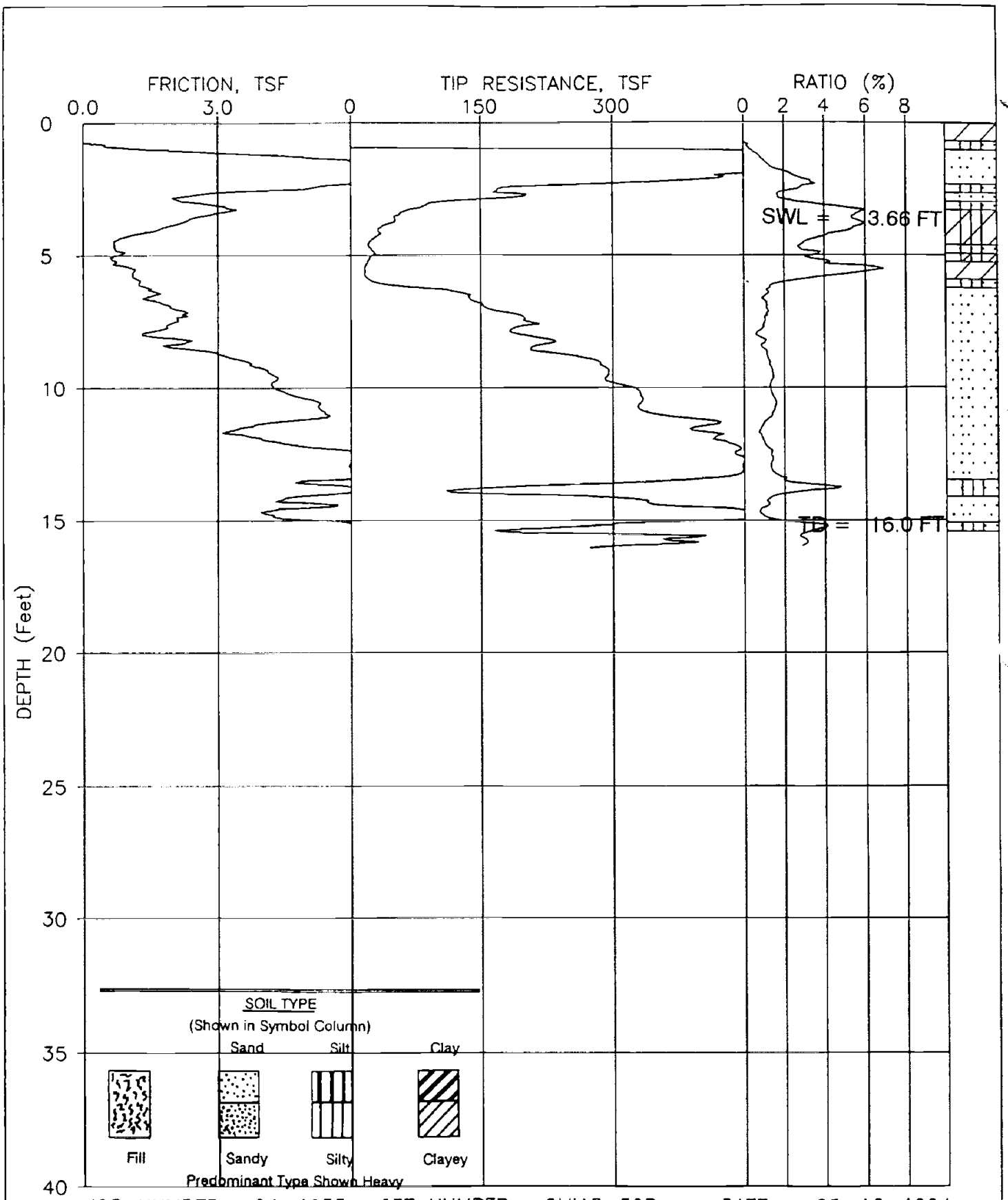
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-50P DATE : 05-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



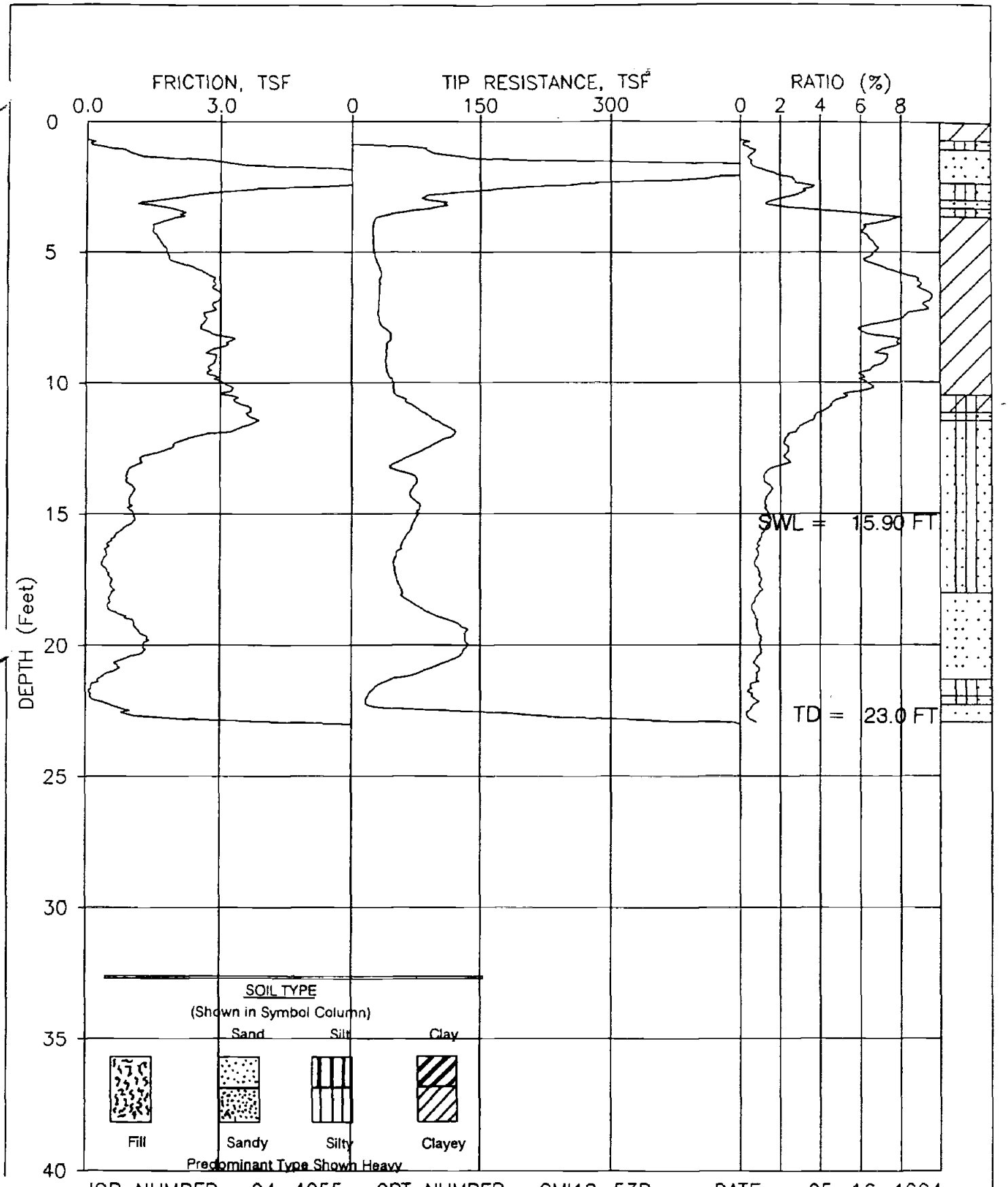
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-51P DATE : 05-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



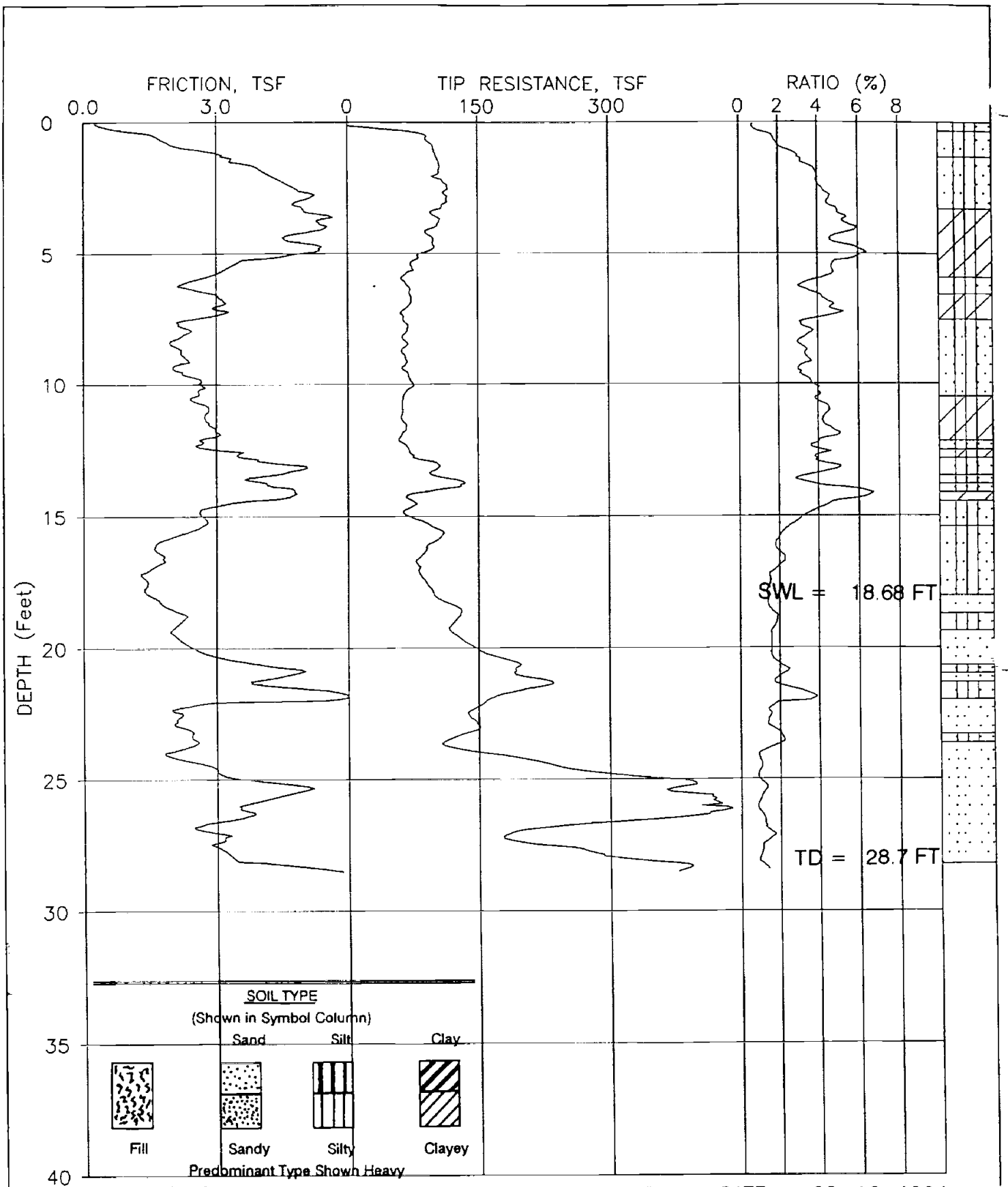
JOB NUMBER : 94-4055 CPT NUMBER : GMI18-52P DATE : 05-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4055 CPT NUMBER : GMI18-53P DATE : 05-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

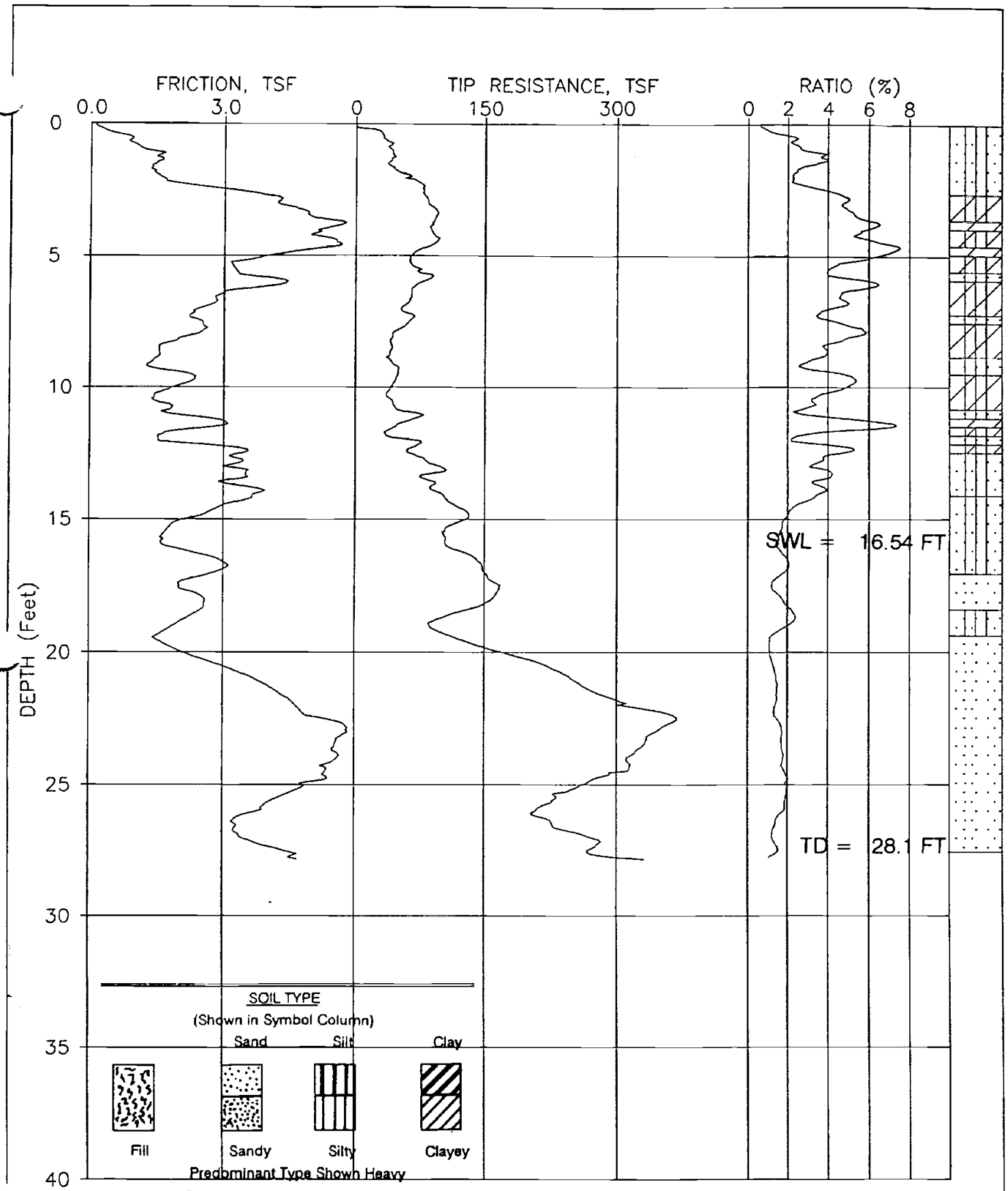
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-54P DATE : 08-16-1994

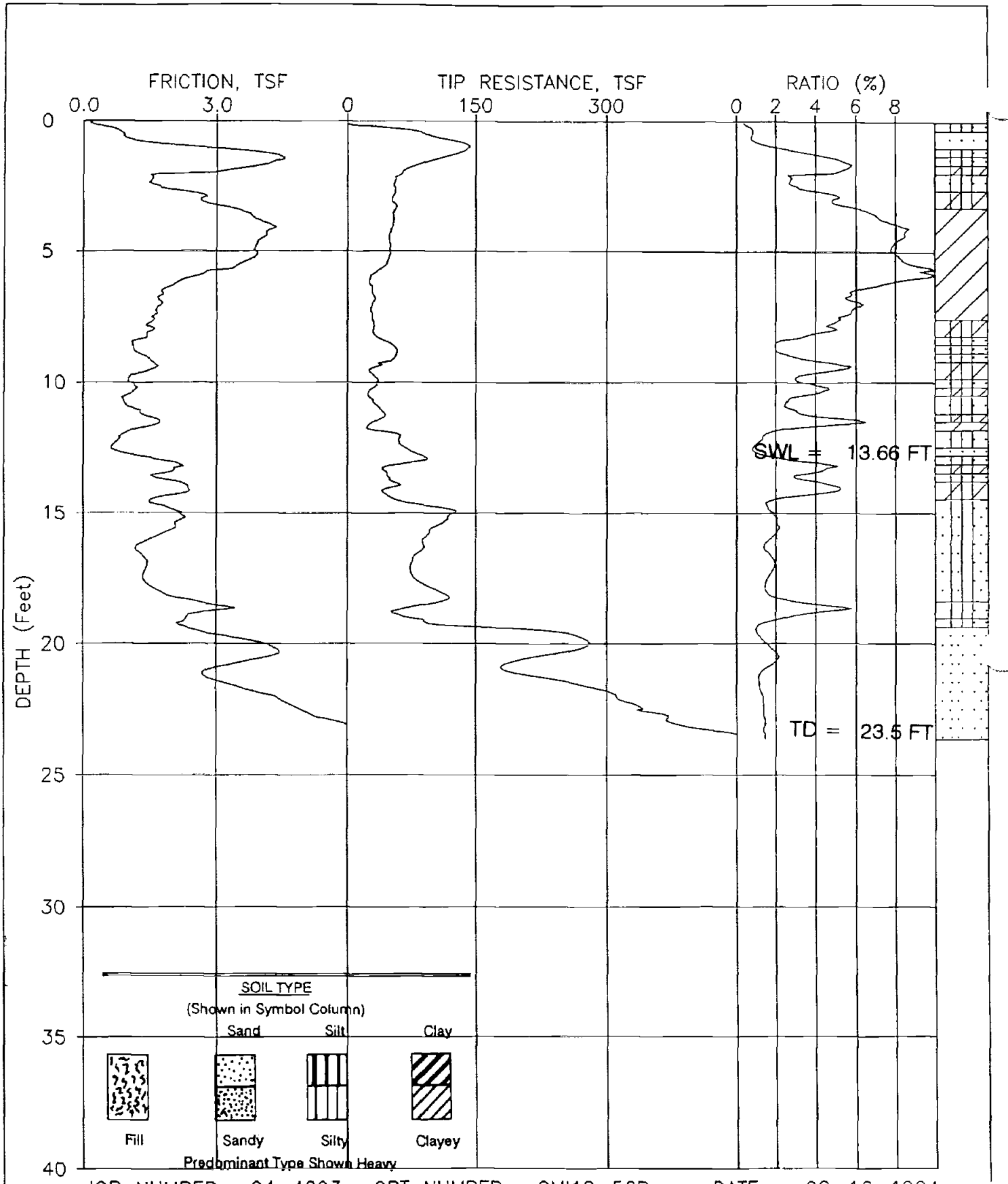
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



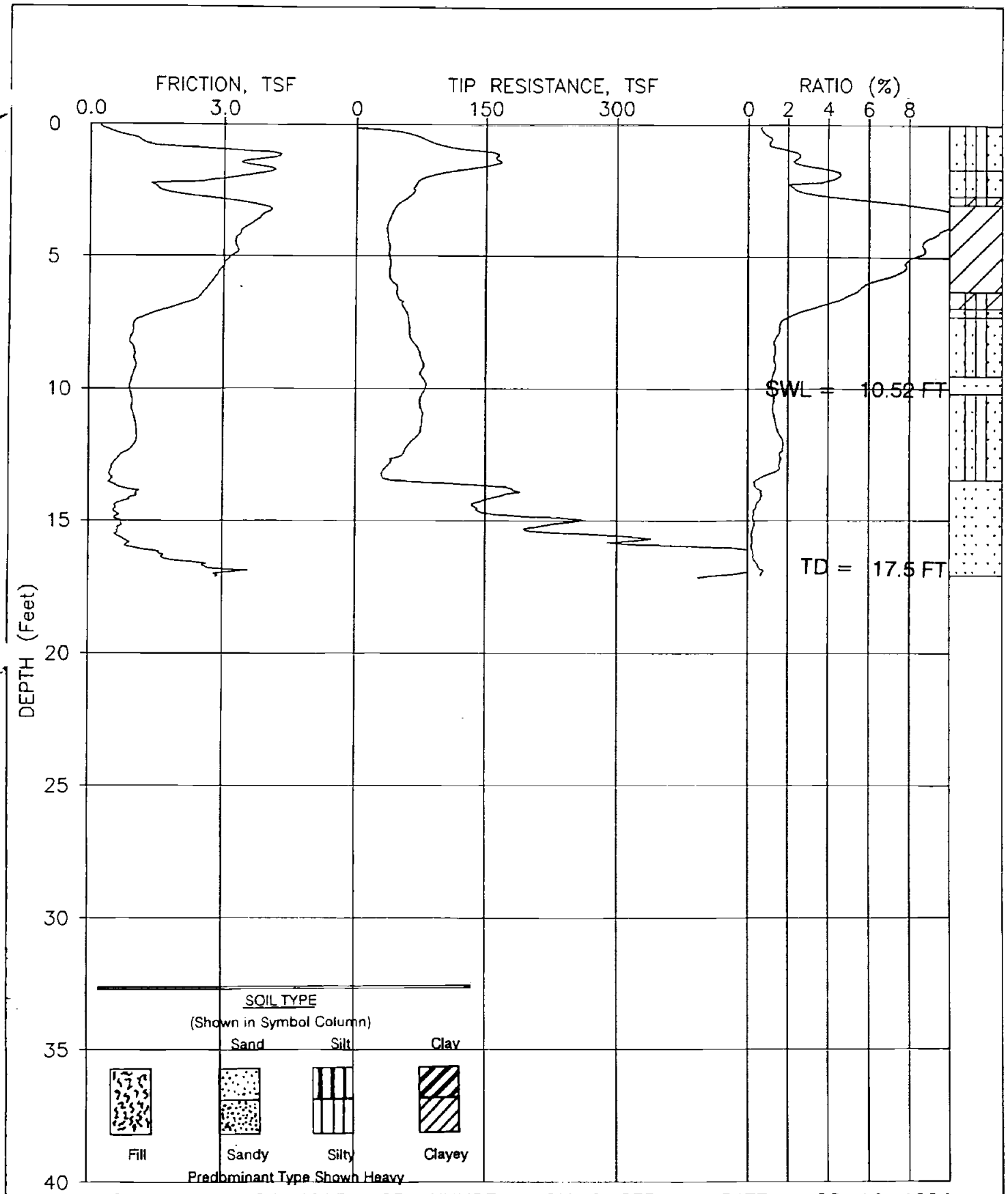
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-55P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



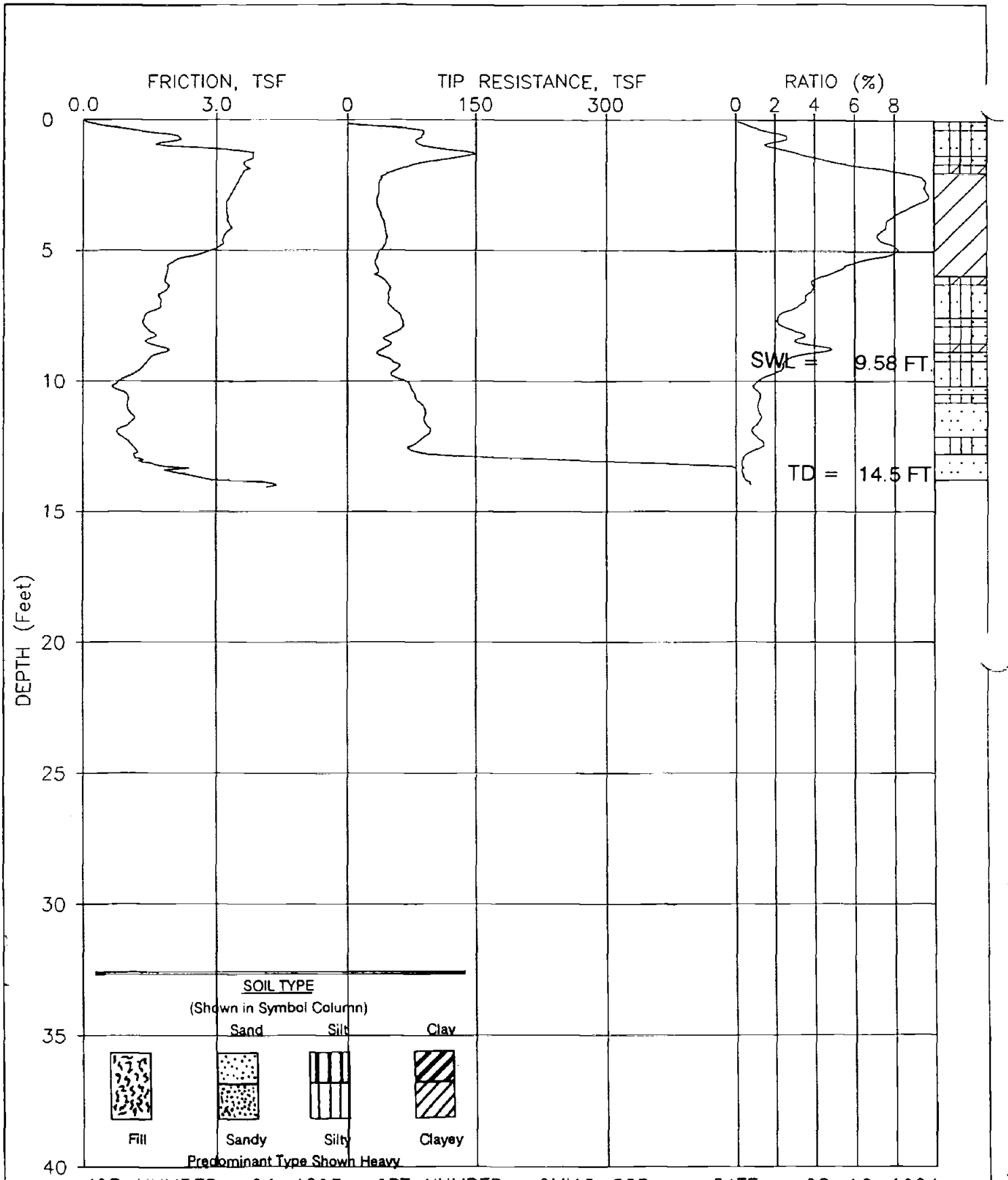
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-56P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



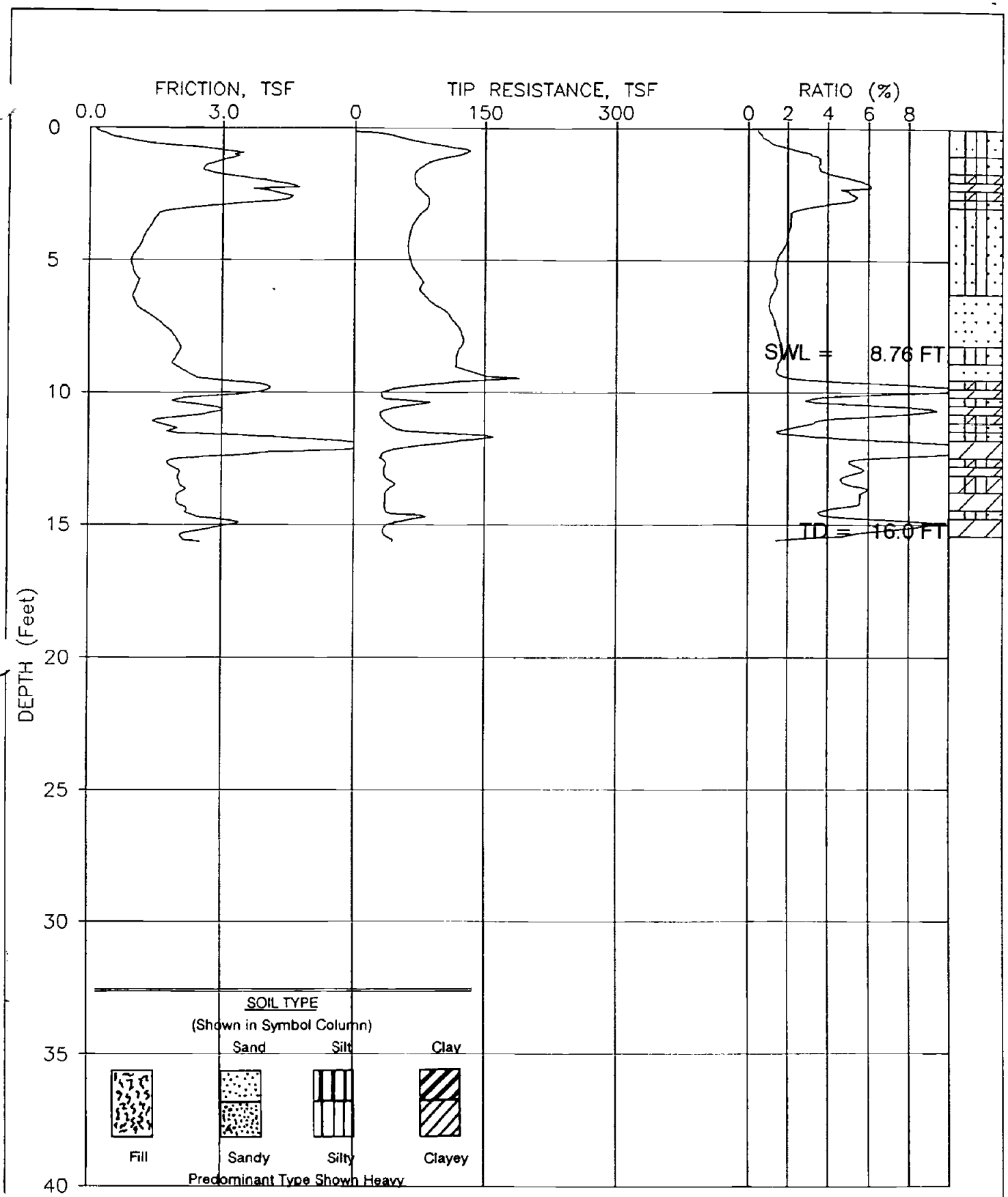
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-57P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



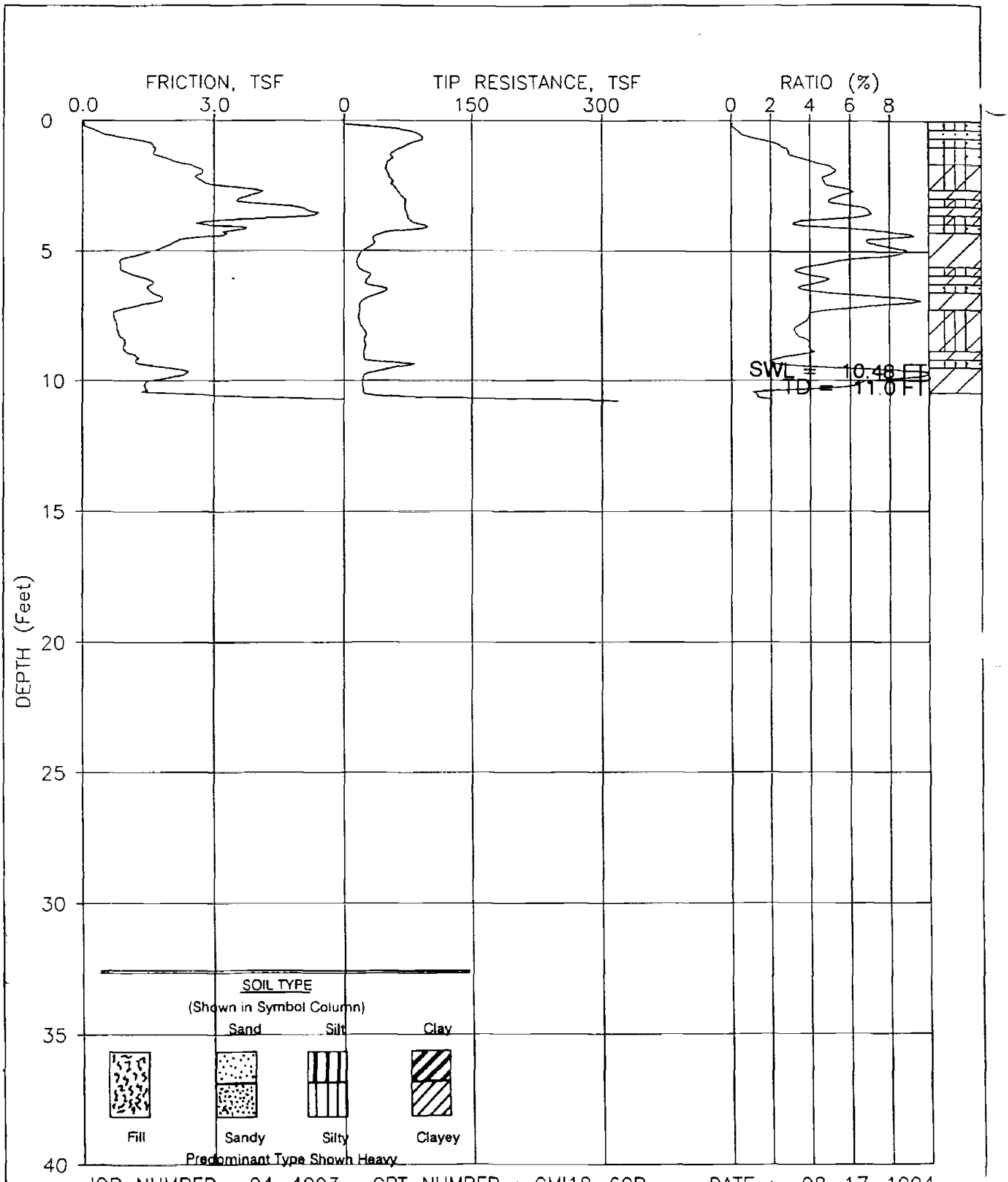
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-58P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



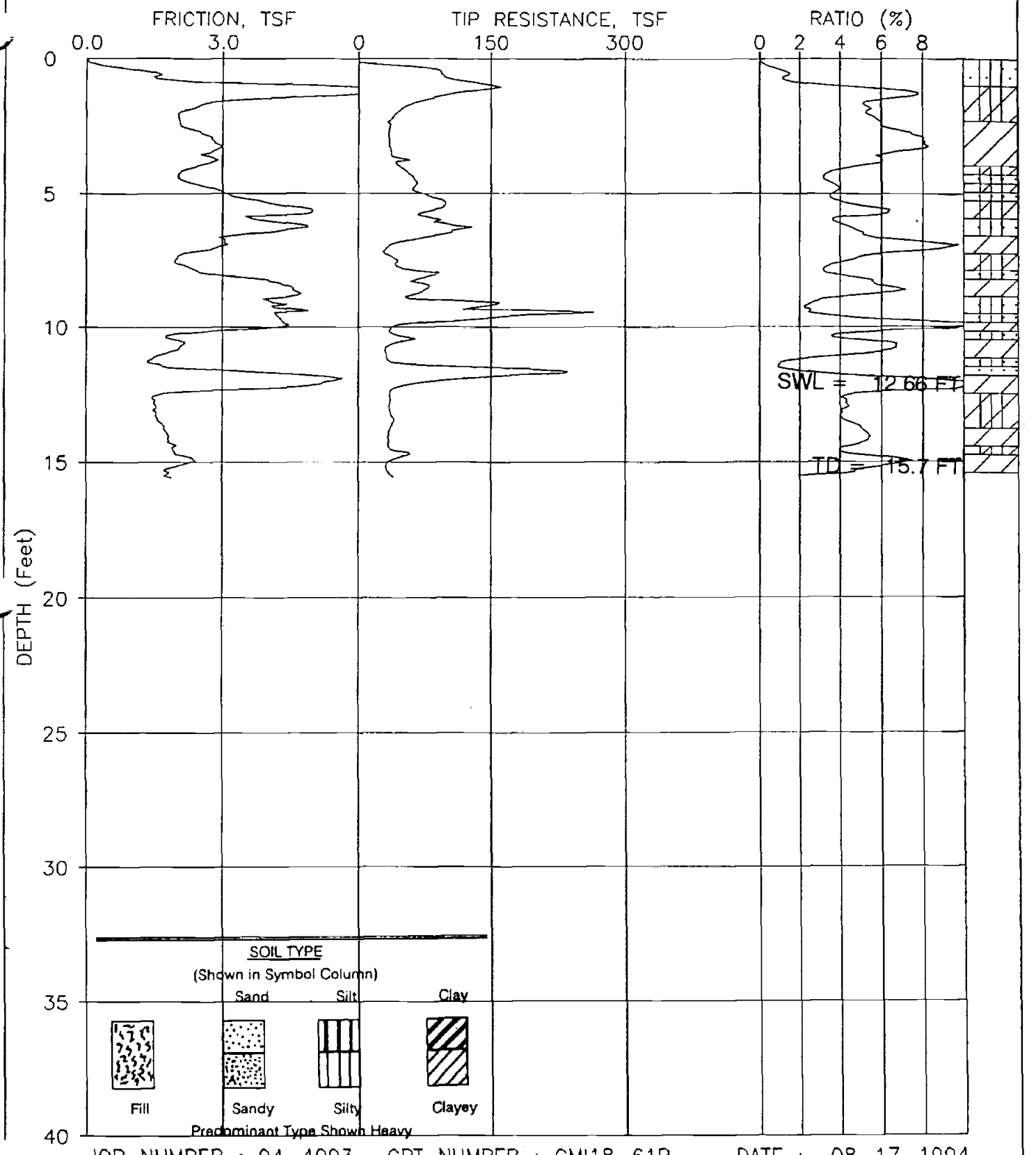
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-59P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



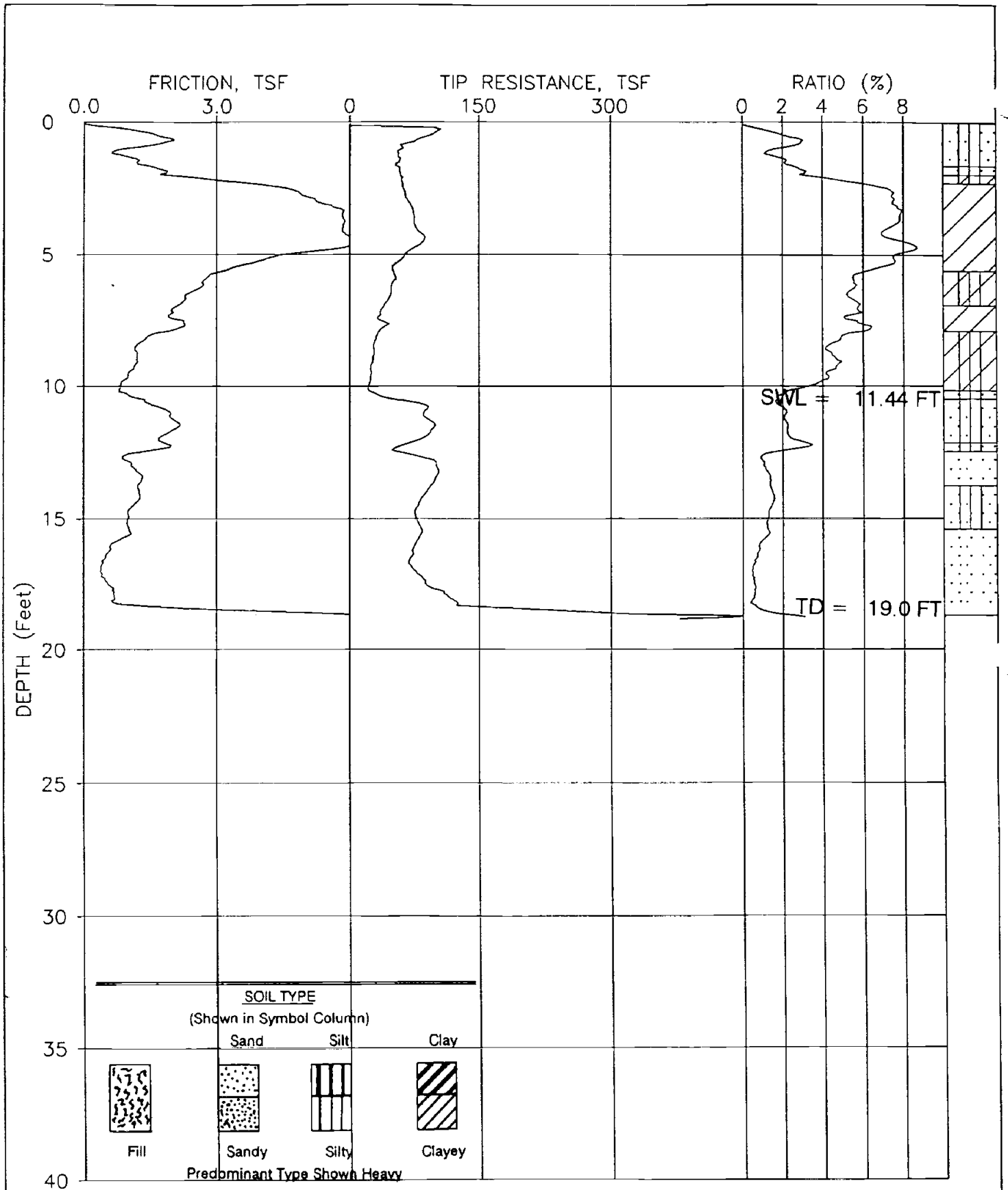
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-60P DATE : 08-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-61P DATE : 08-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



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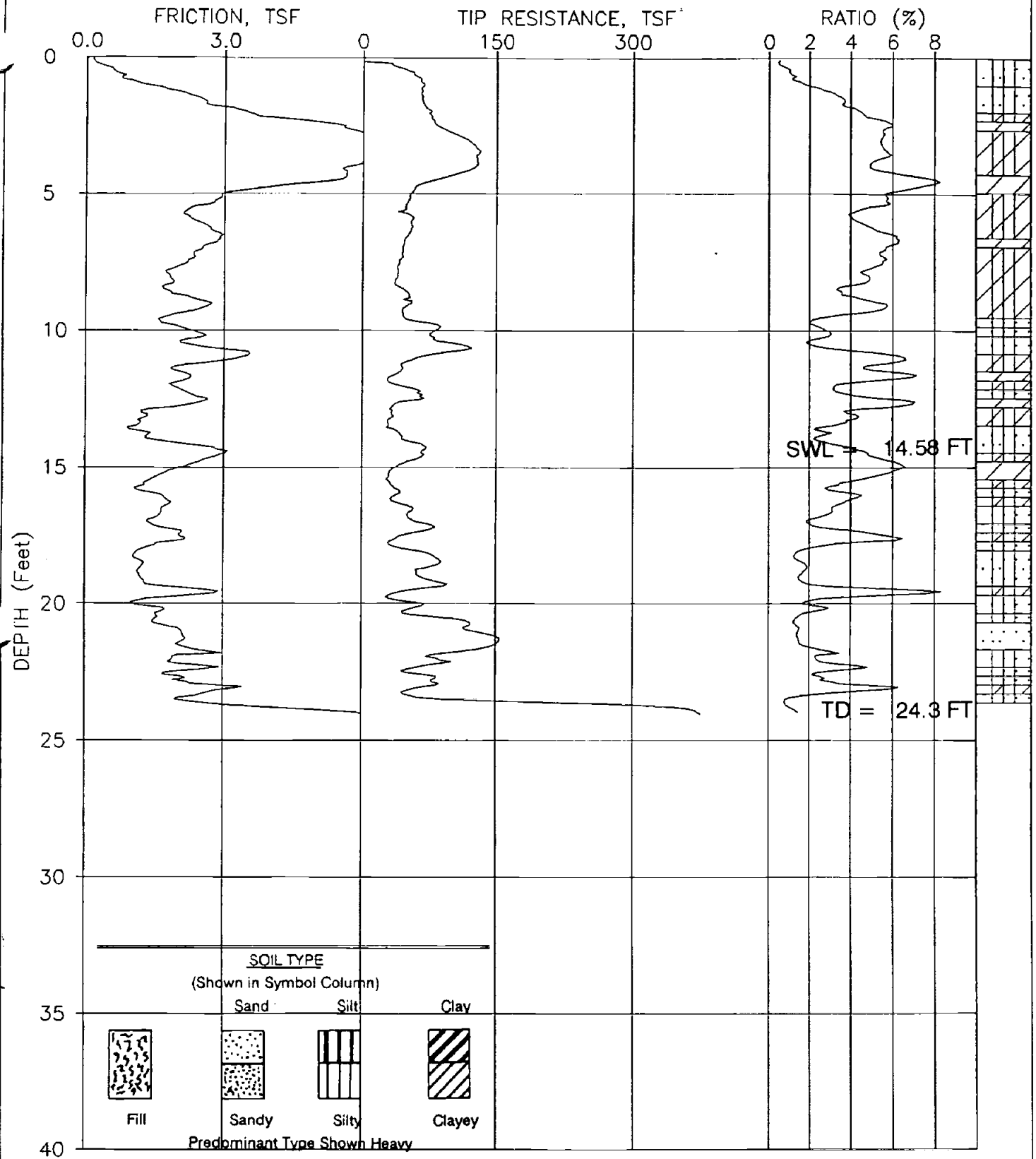
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

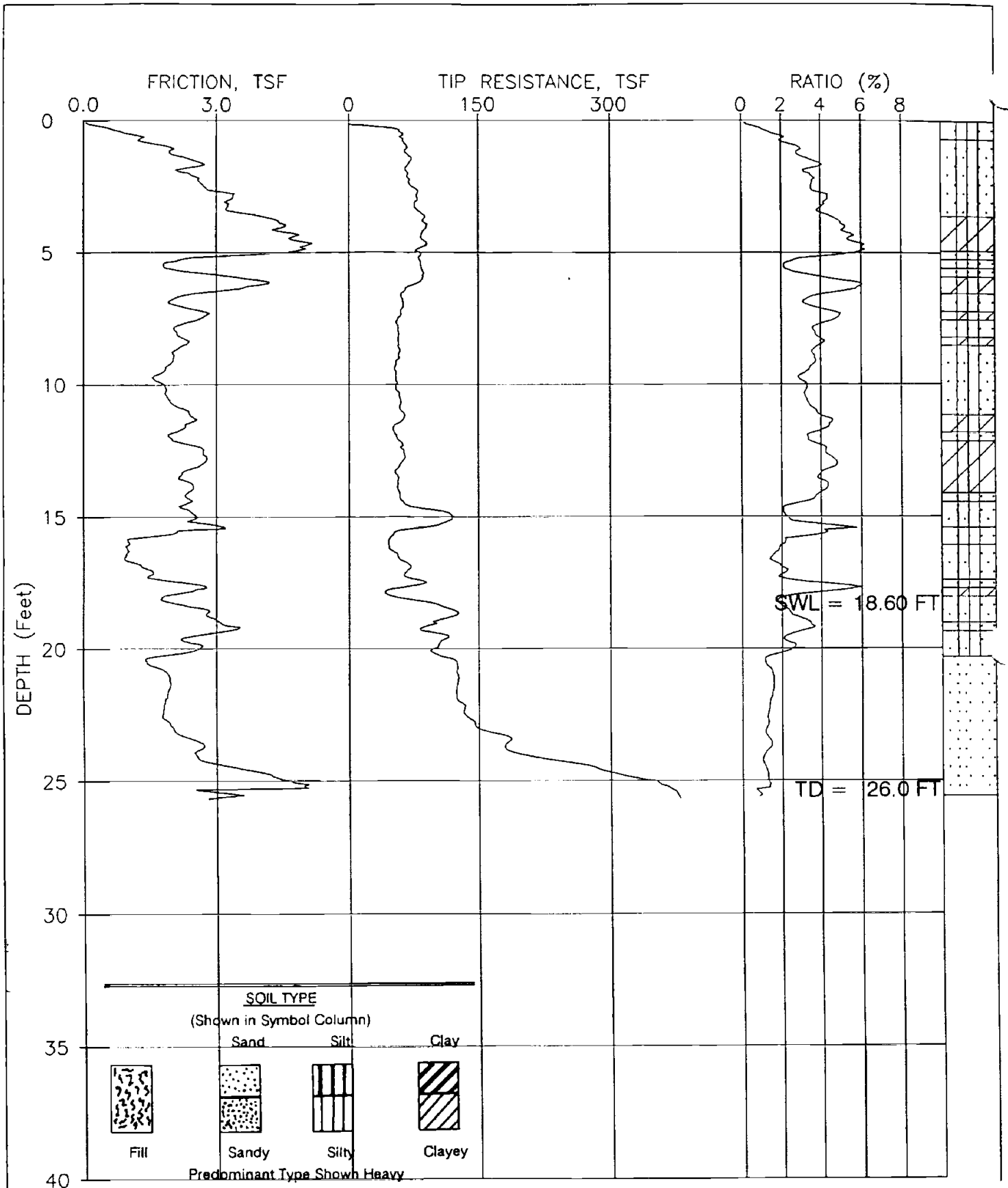
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-63P DATE : 08-17-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



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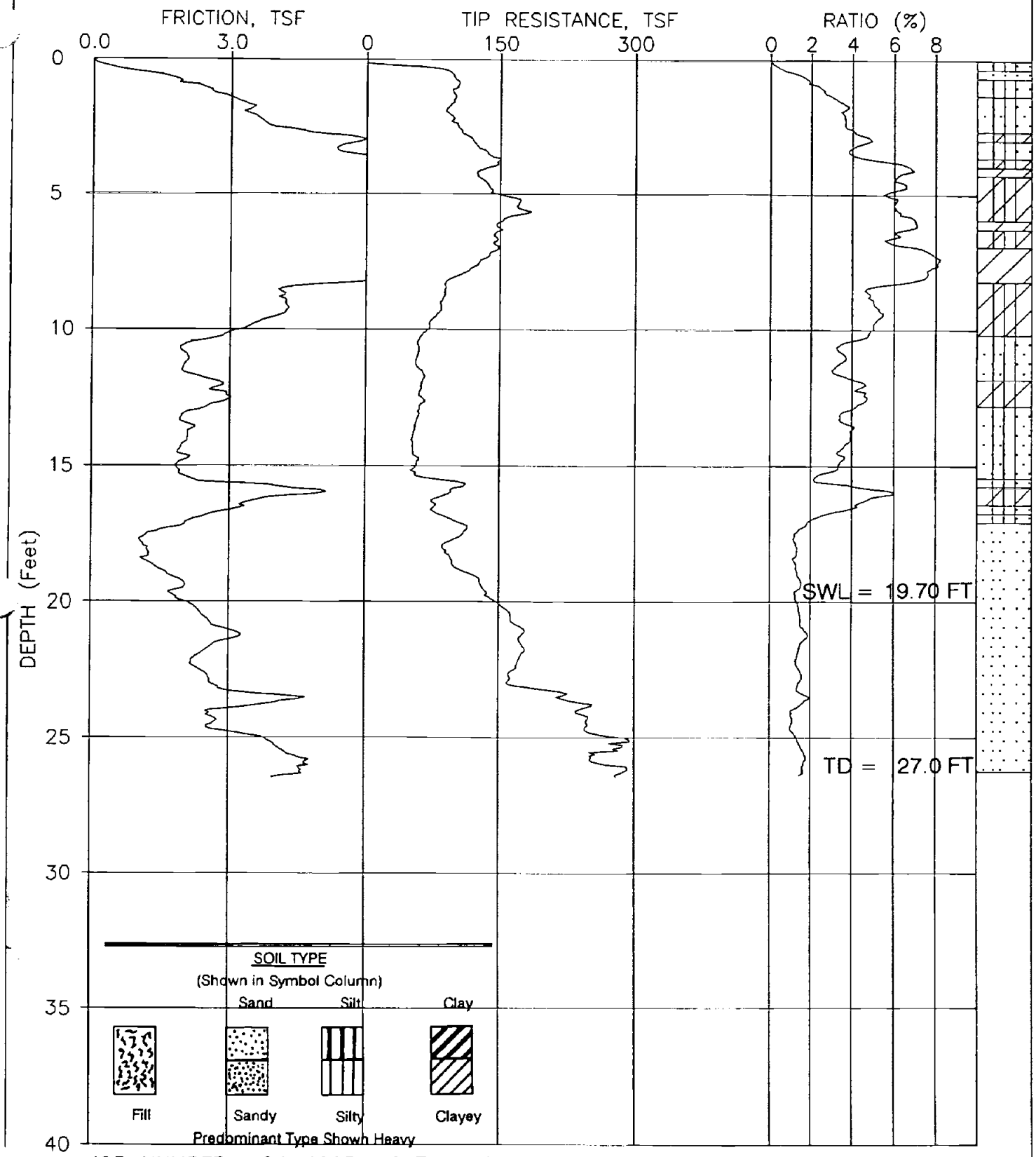
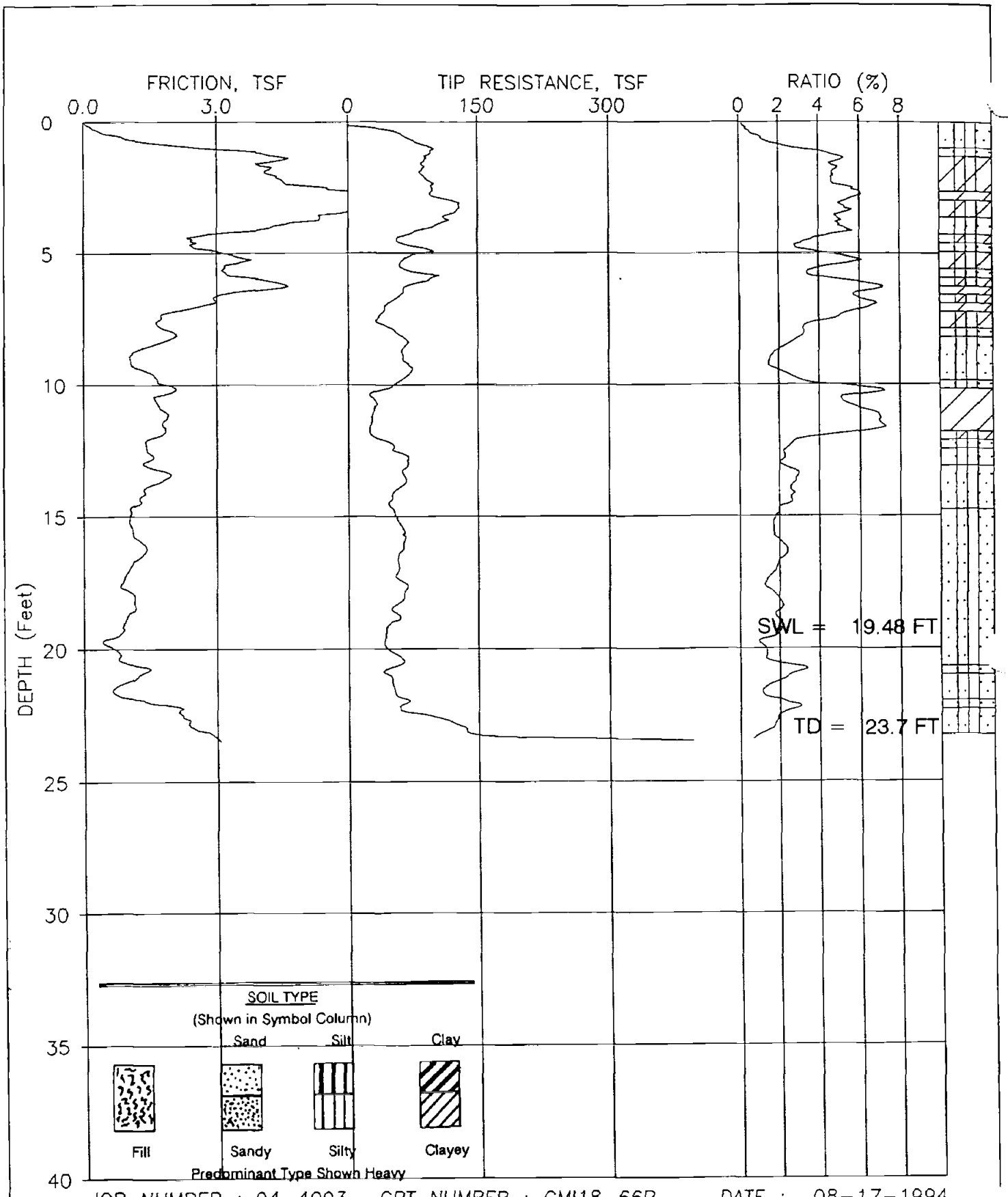
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-65P DATE : 08-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

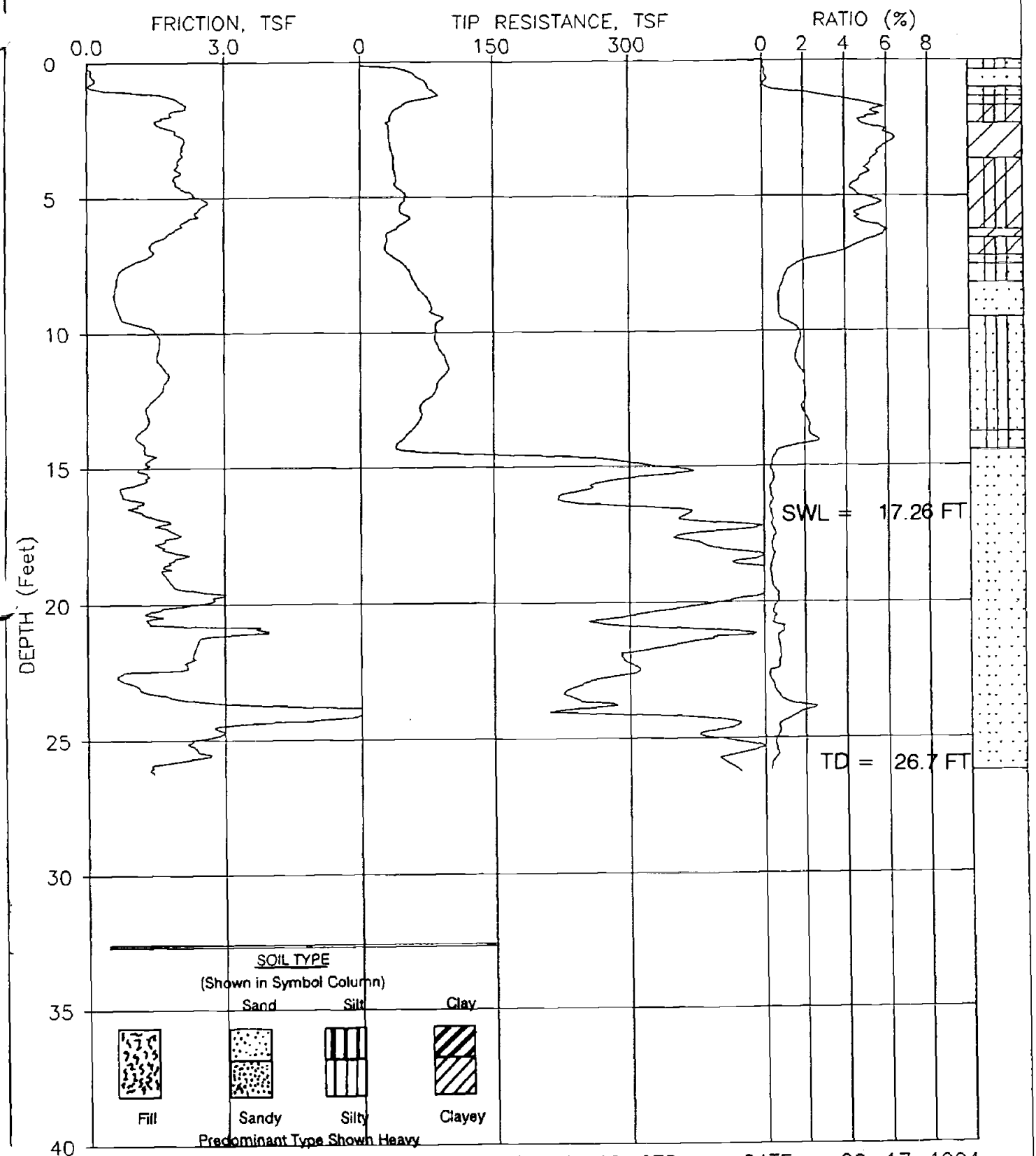
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-66P DATE : 08-17-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



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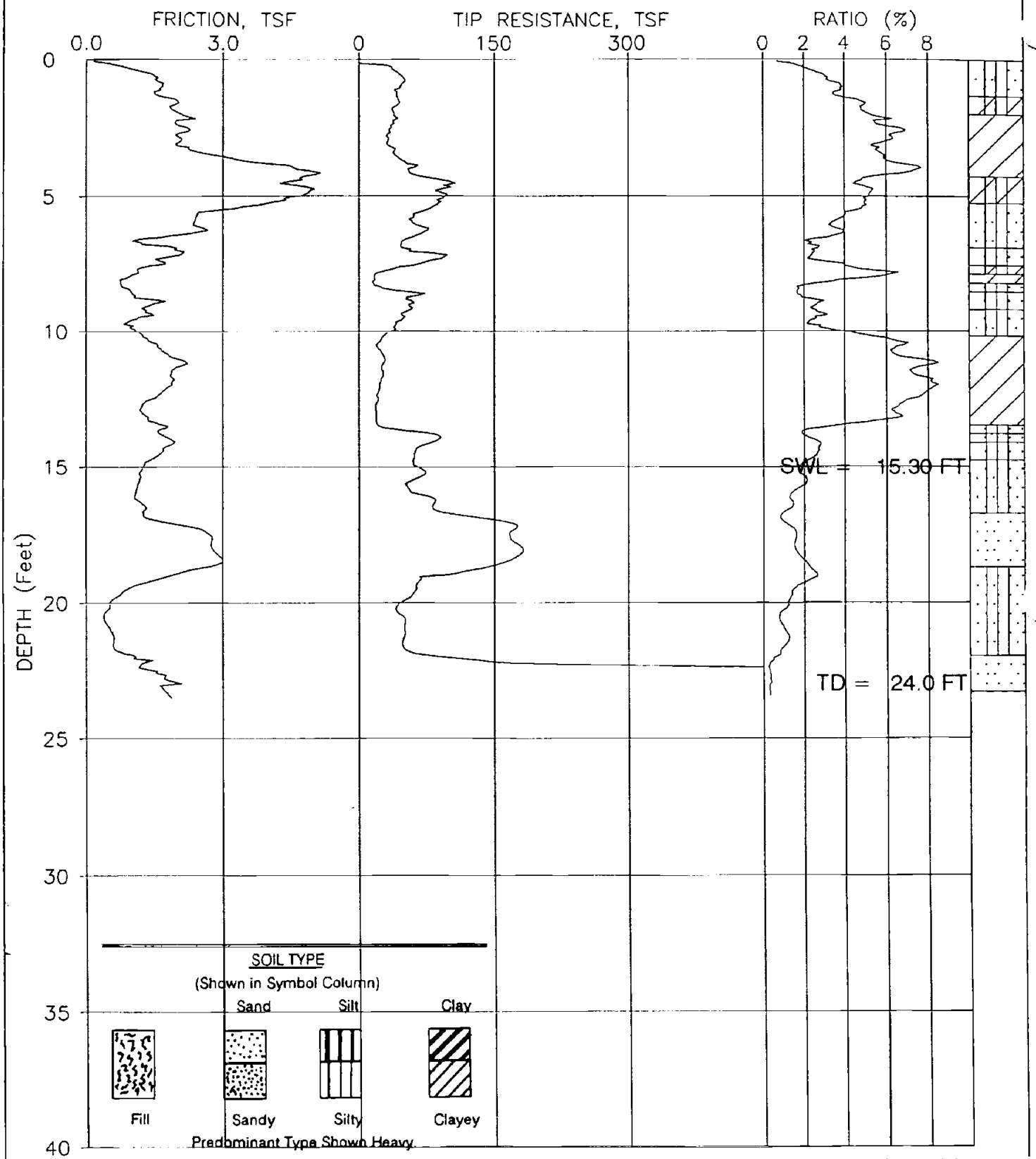
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

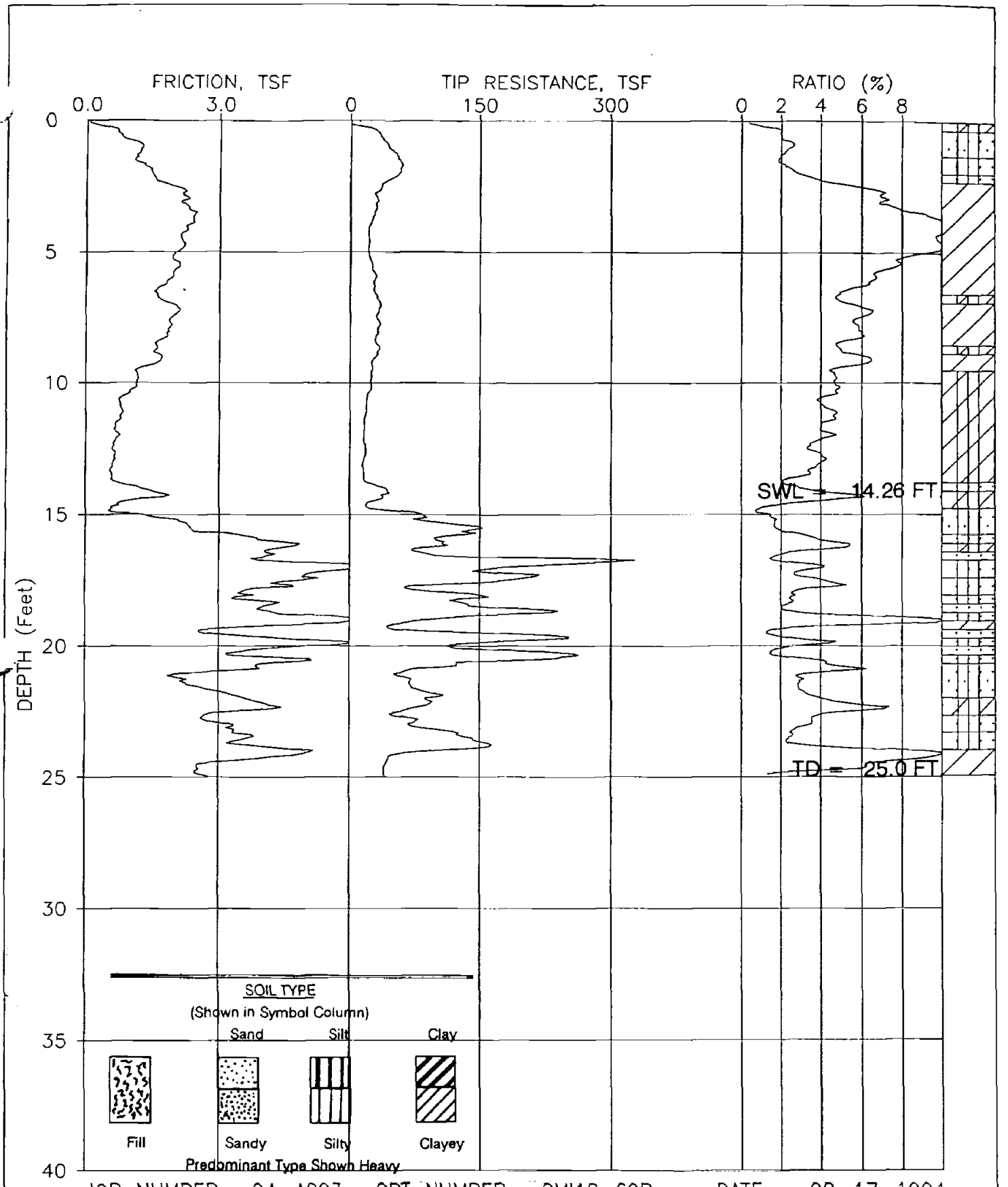
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-68P DATE : 08-17-1994

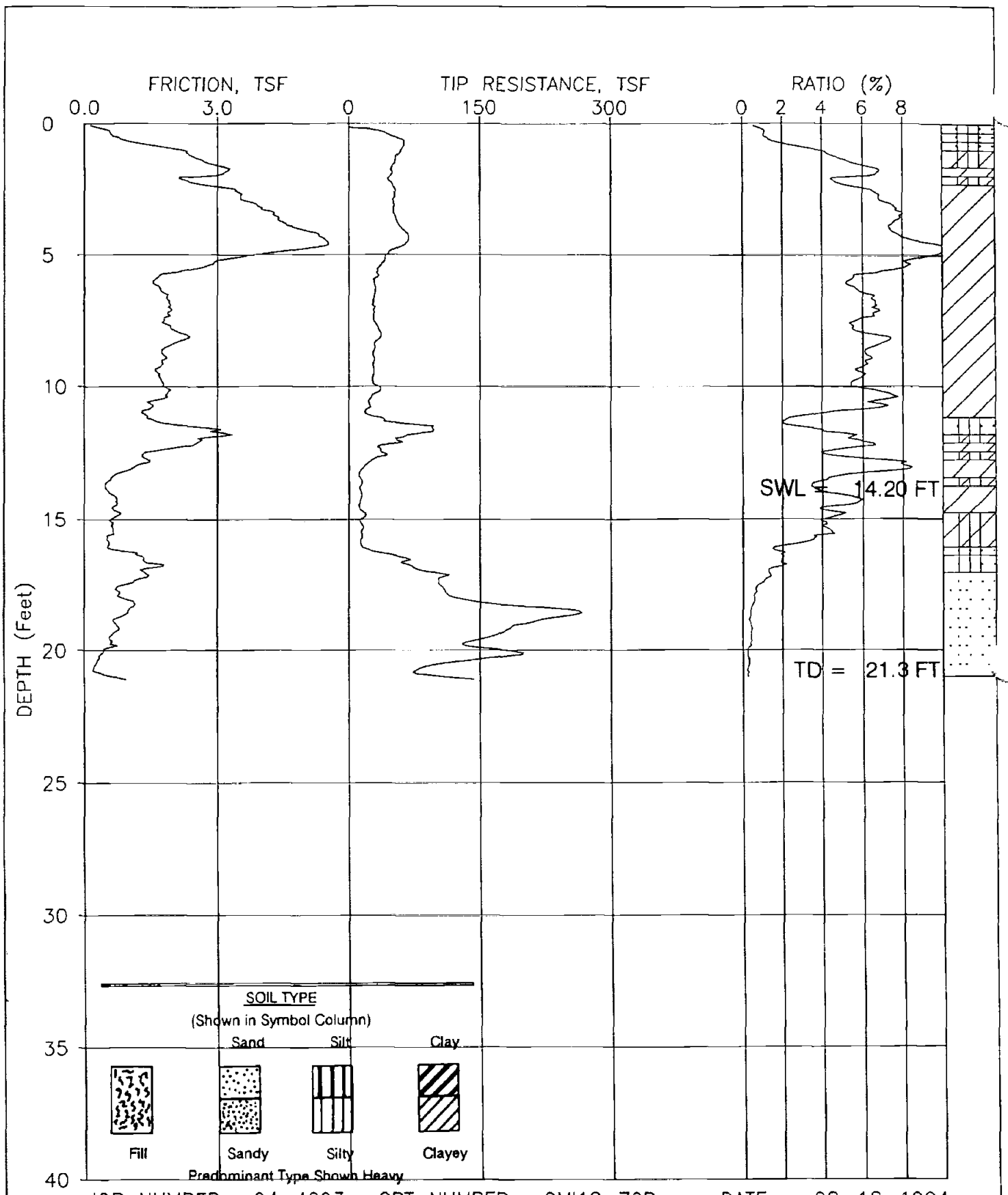
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



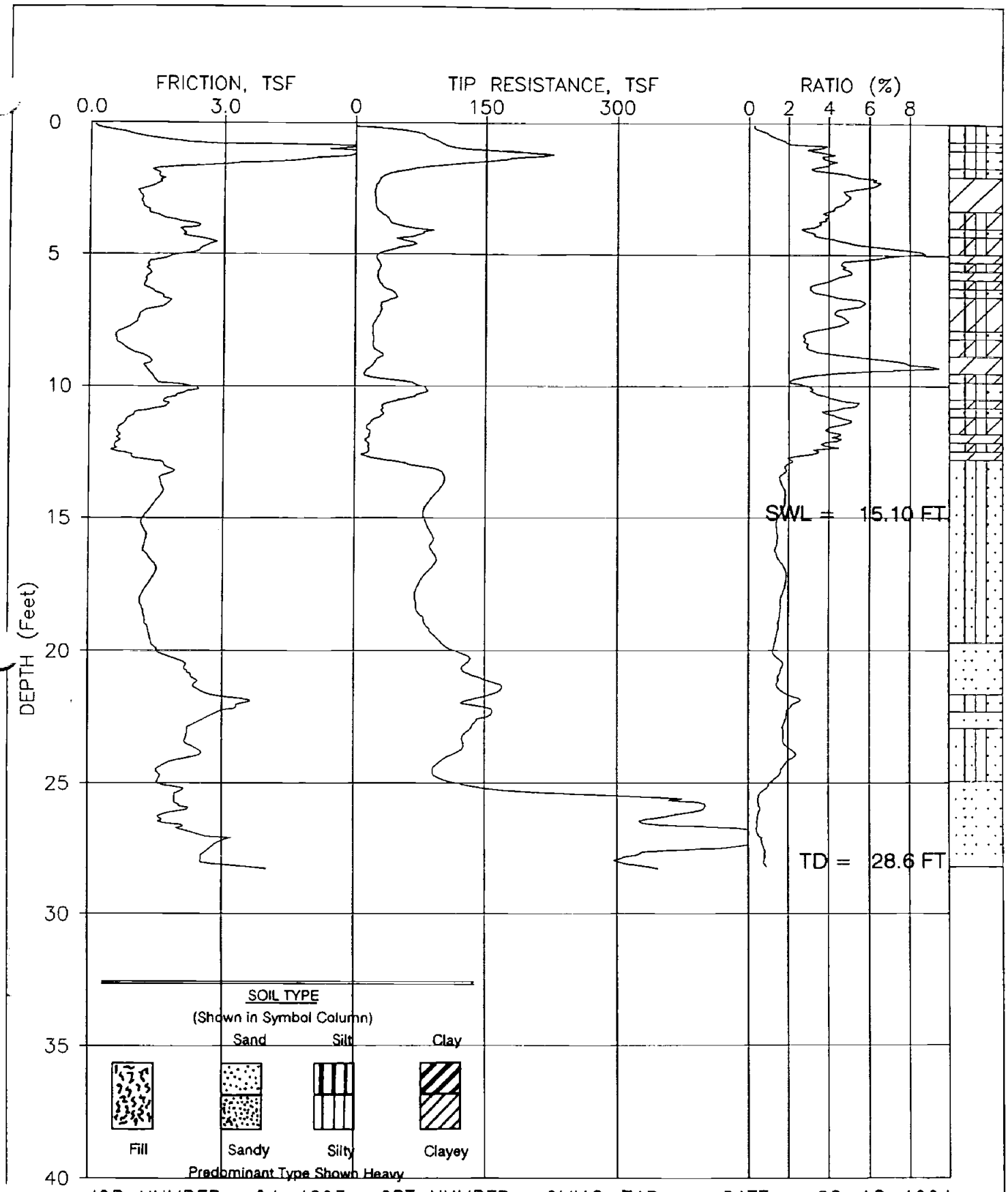
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-69P DATE : 08-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



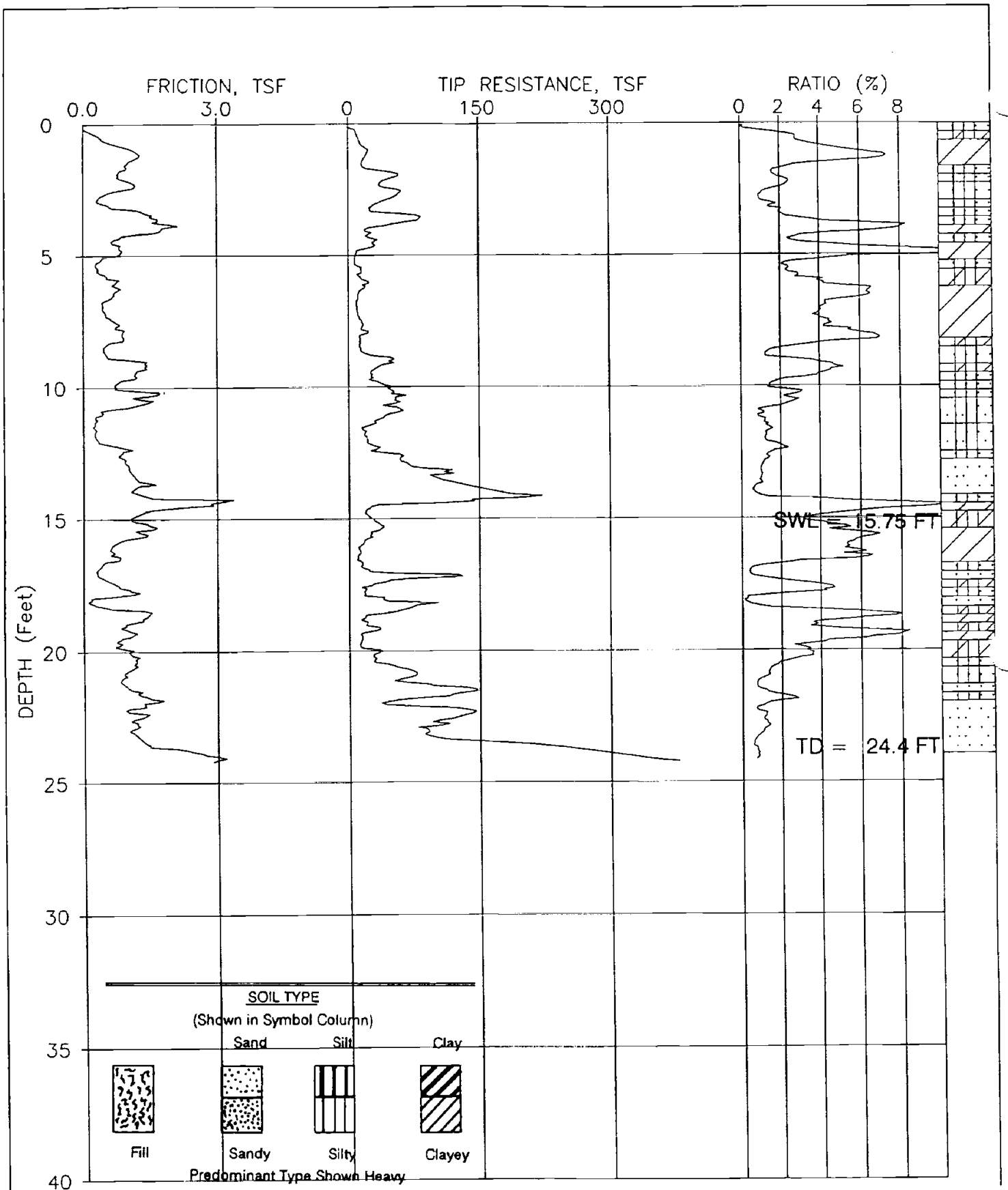
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-70P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-71P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

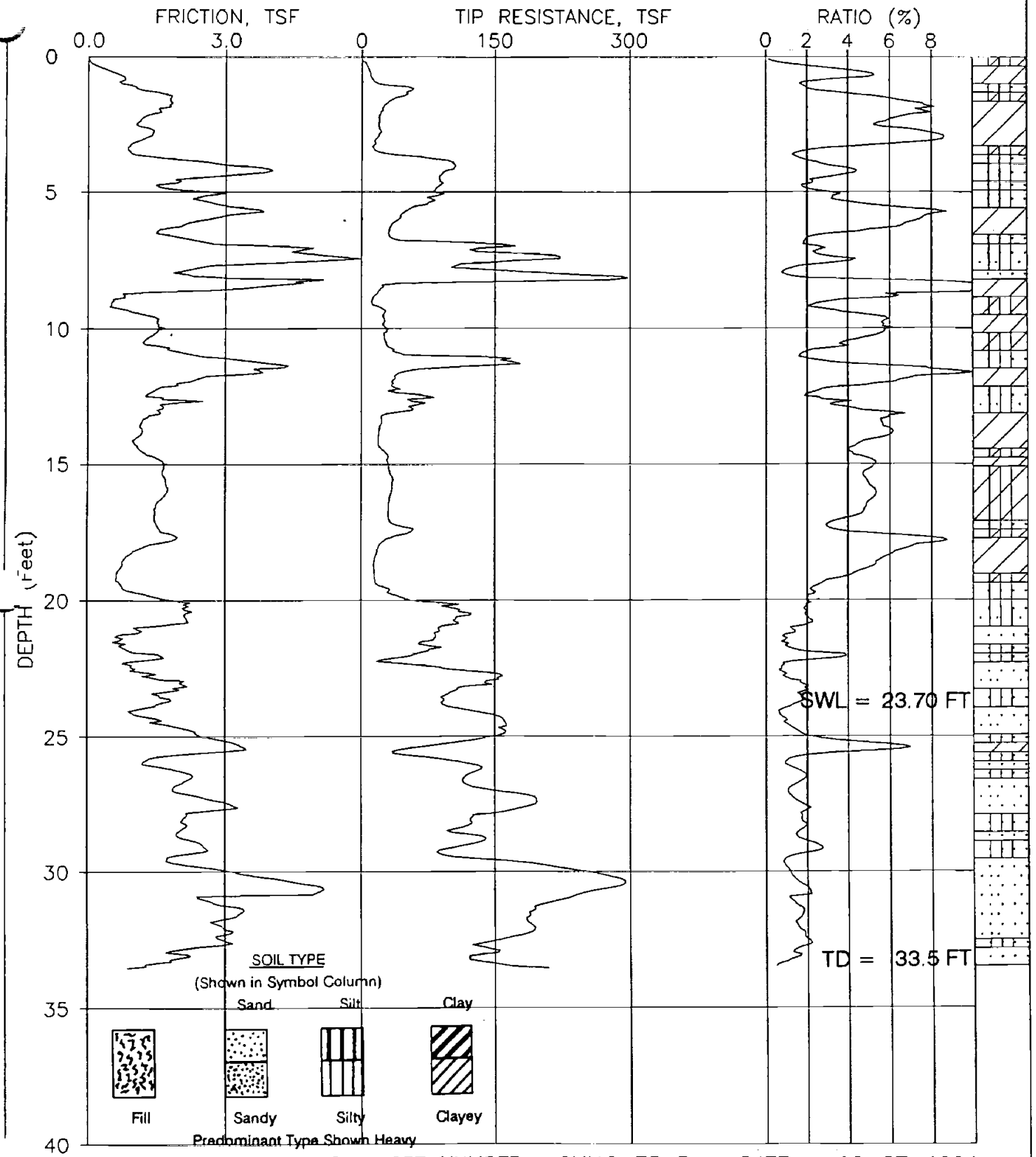
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-72-P DATE : 10-27-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-73-P DATE : 10-27-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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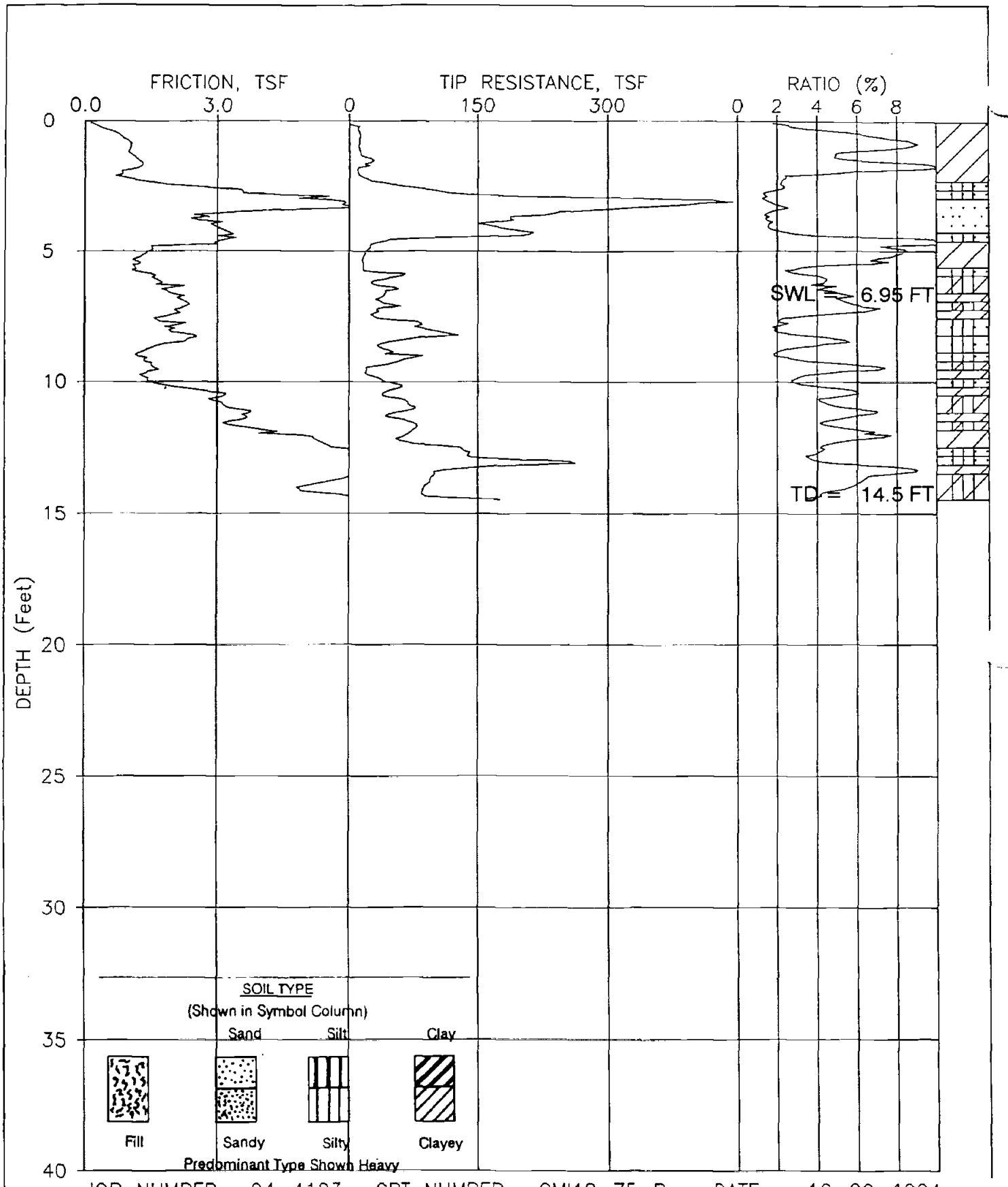
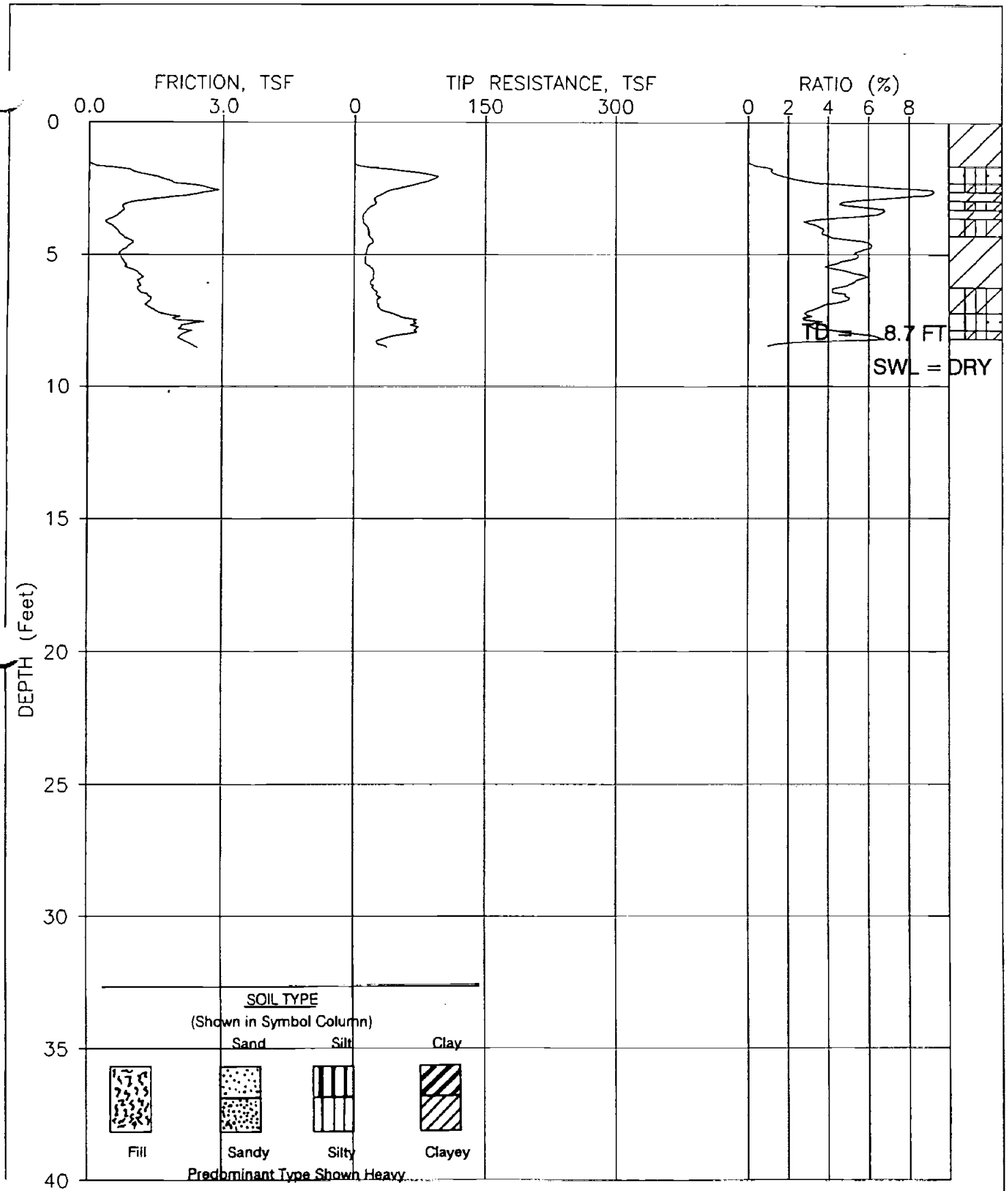


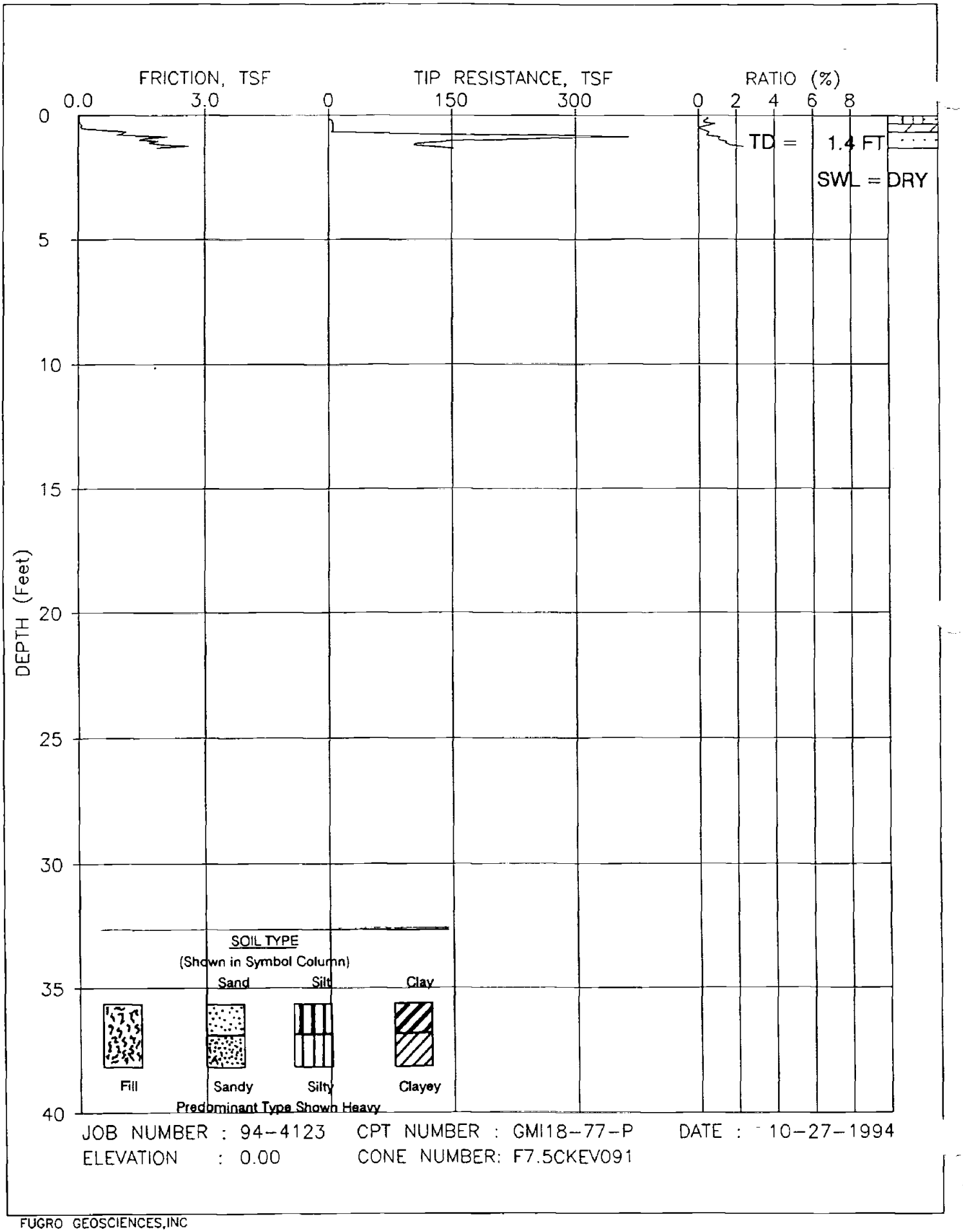
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-75-P DATE : 10-20-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



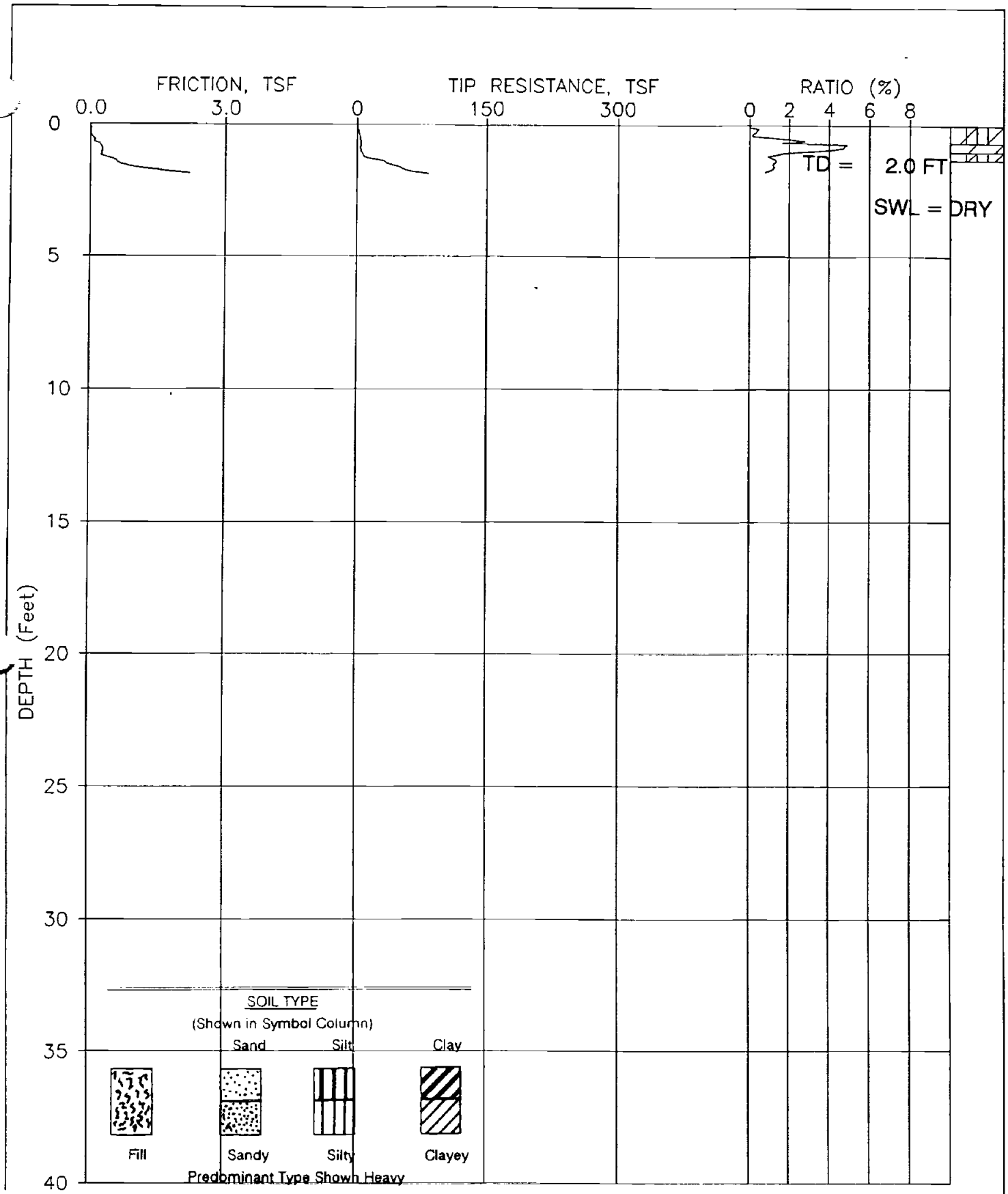
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-76-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-77-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-78-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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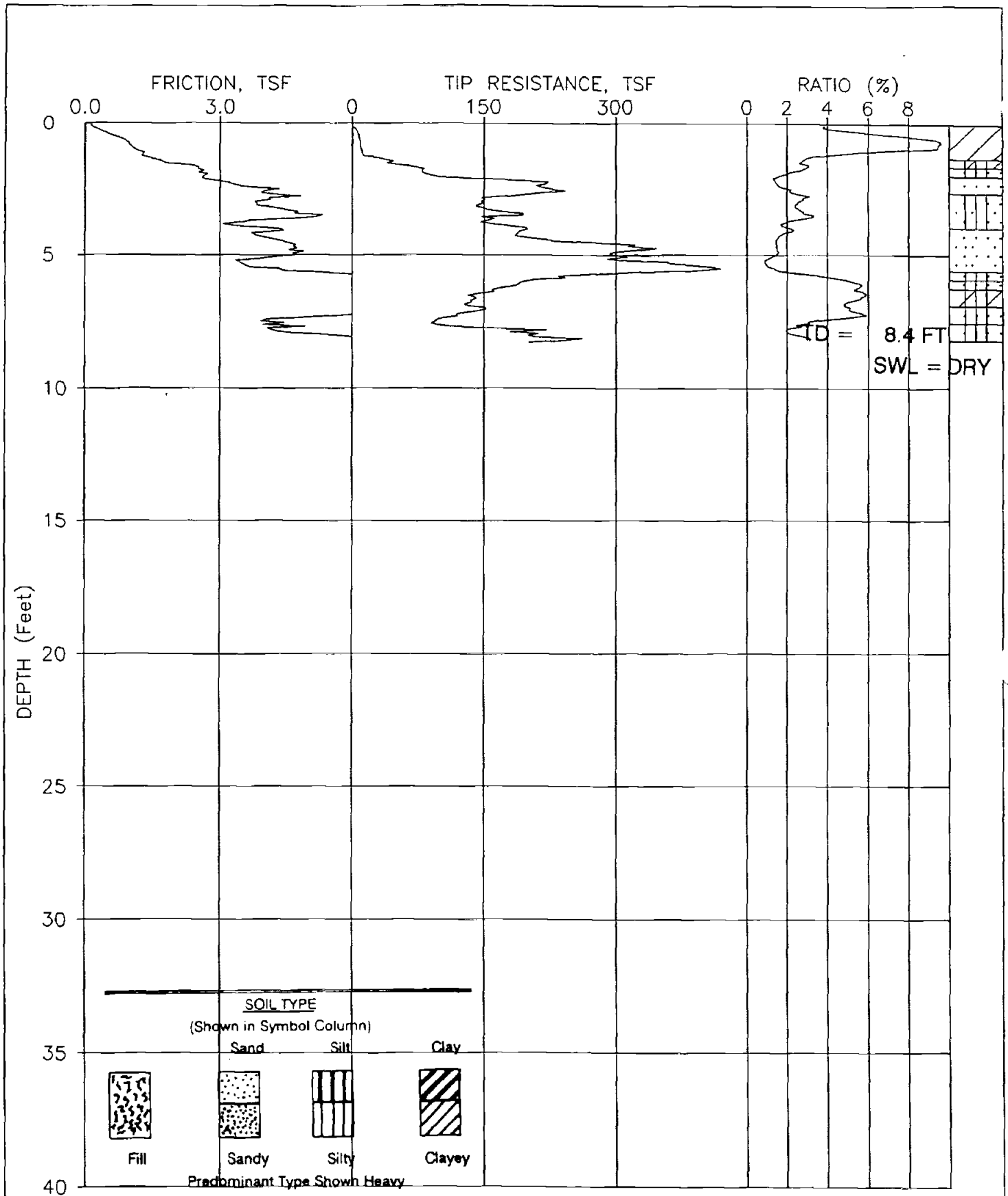
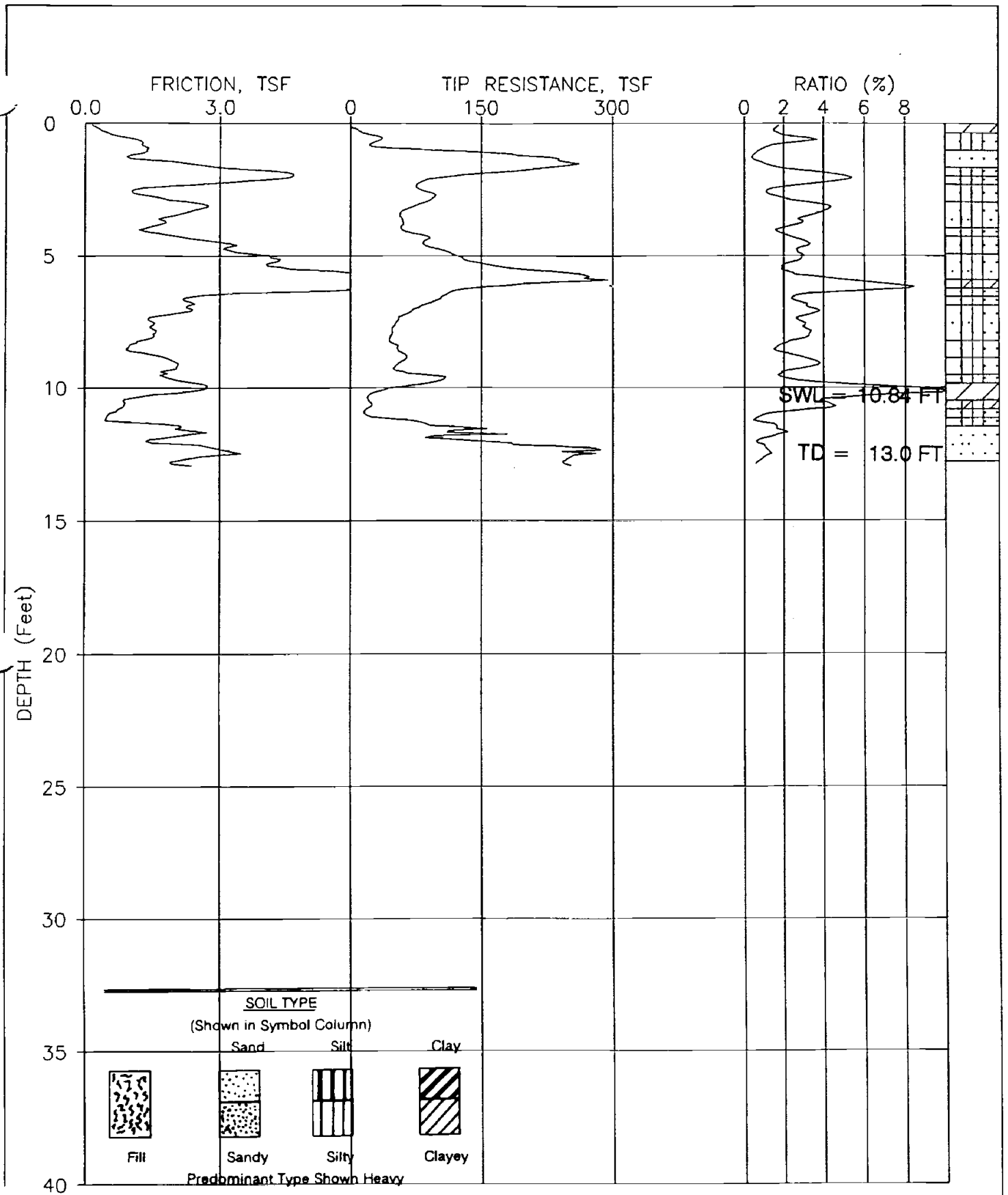


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-79-P DATE : 10-21-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-80-P DATE : 10-20-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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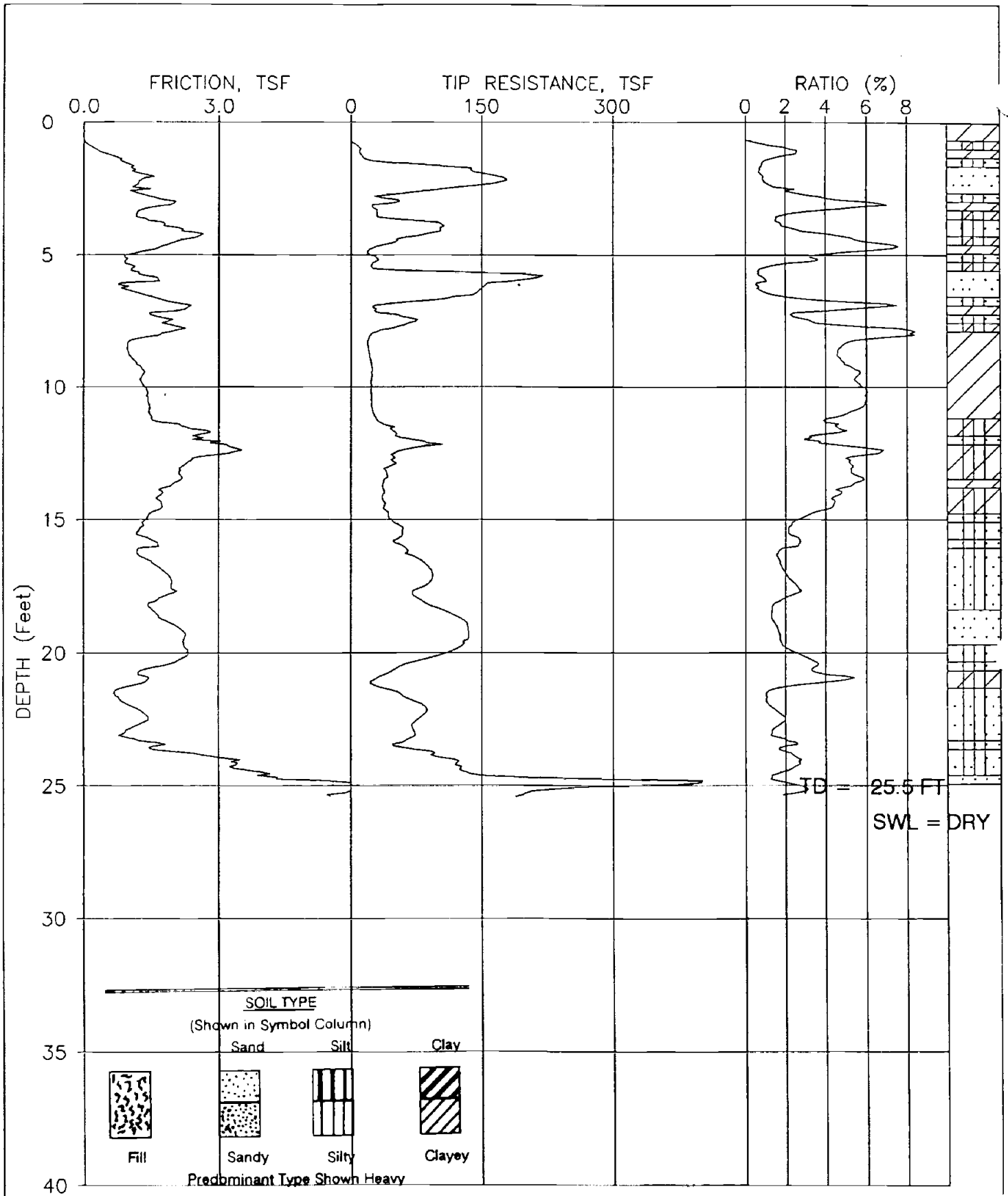
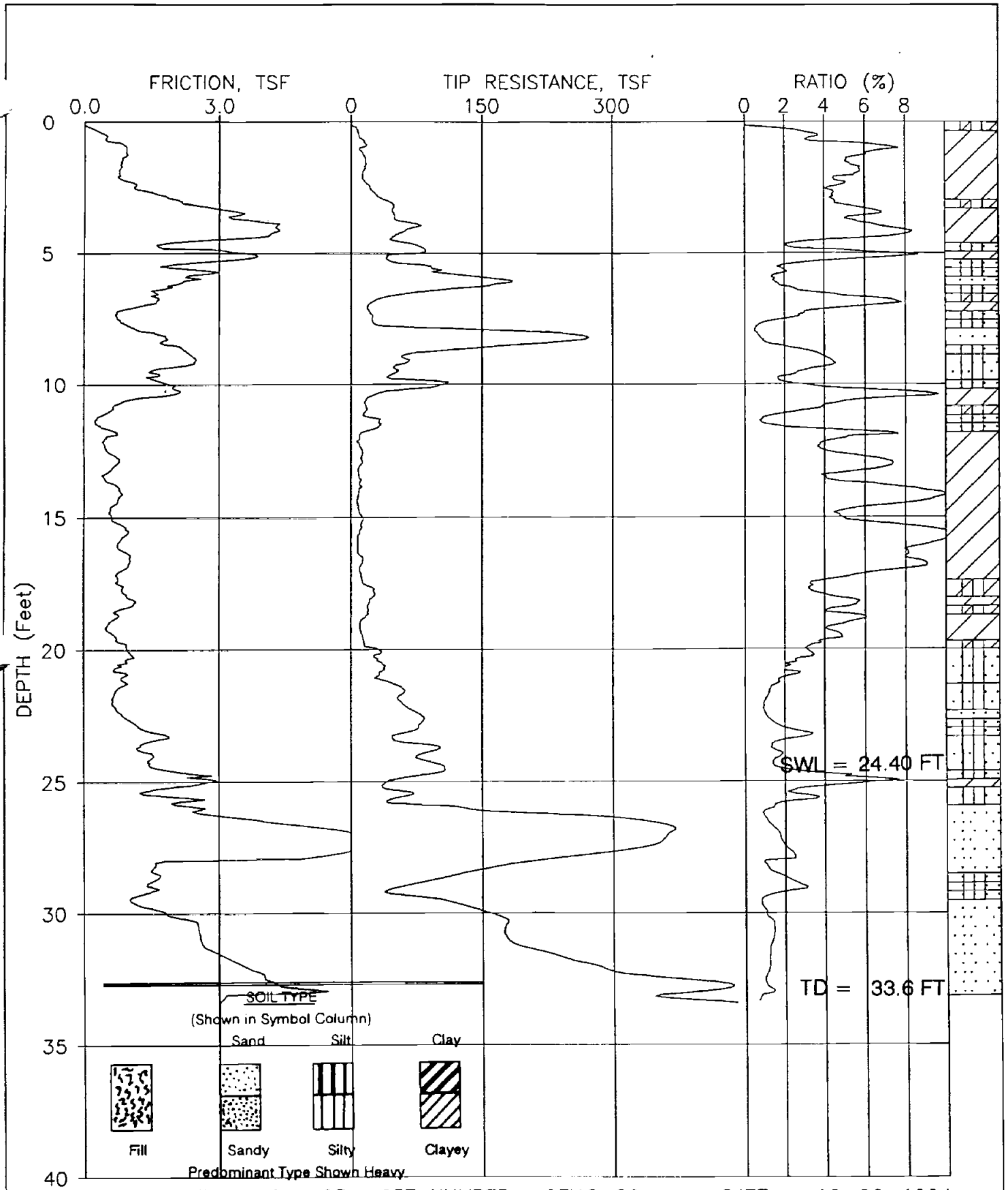


JOB NUMBER : 94-4123 CPT NUMBER : GFI18-81 DATE : 10-20-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

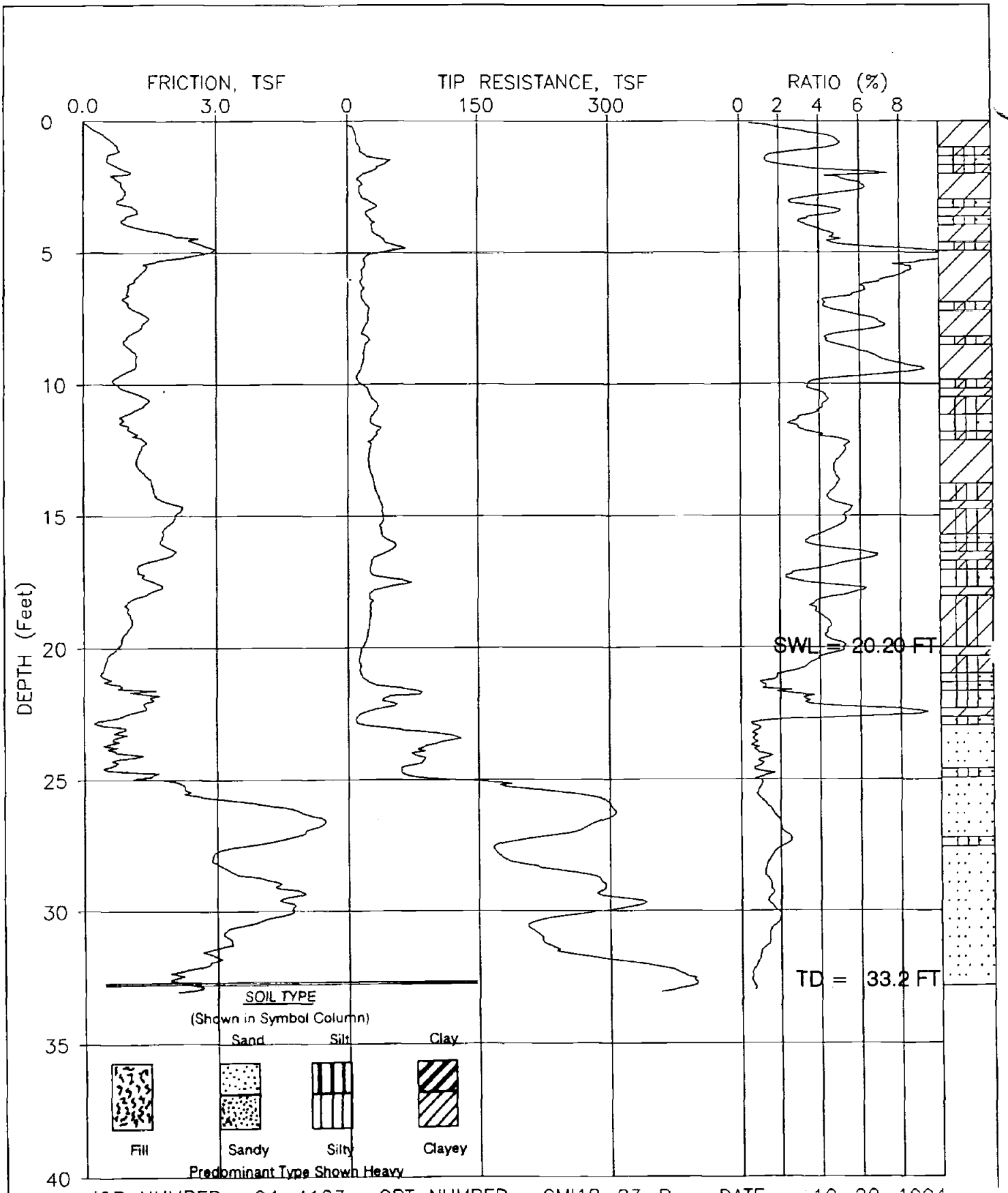
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GFI18-82 DATE : 10-20-1994

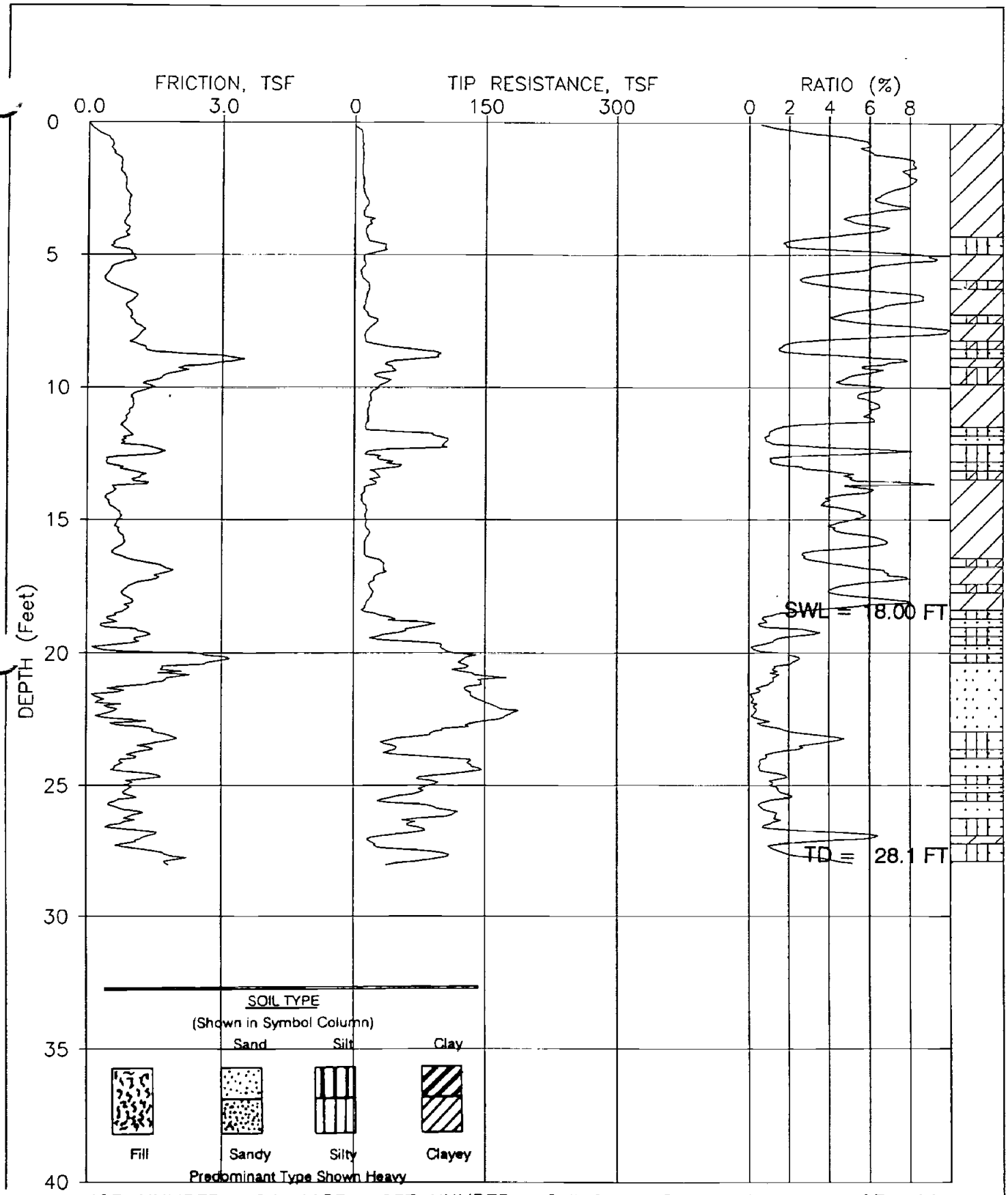
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-83-P DATE : 10-20-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-84-P DATE : 10-27-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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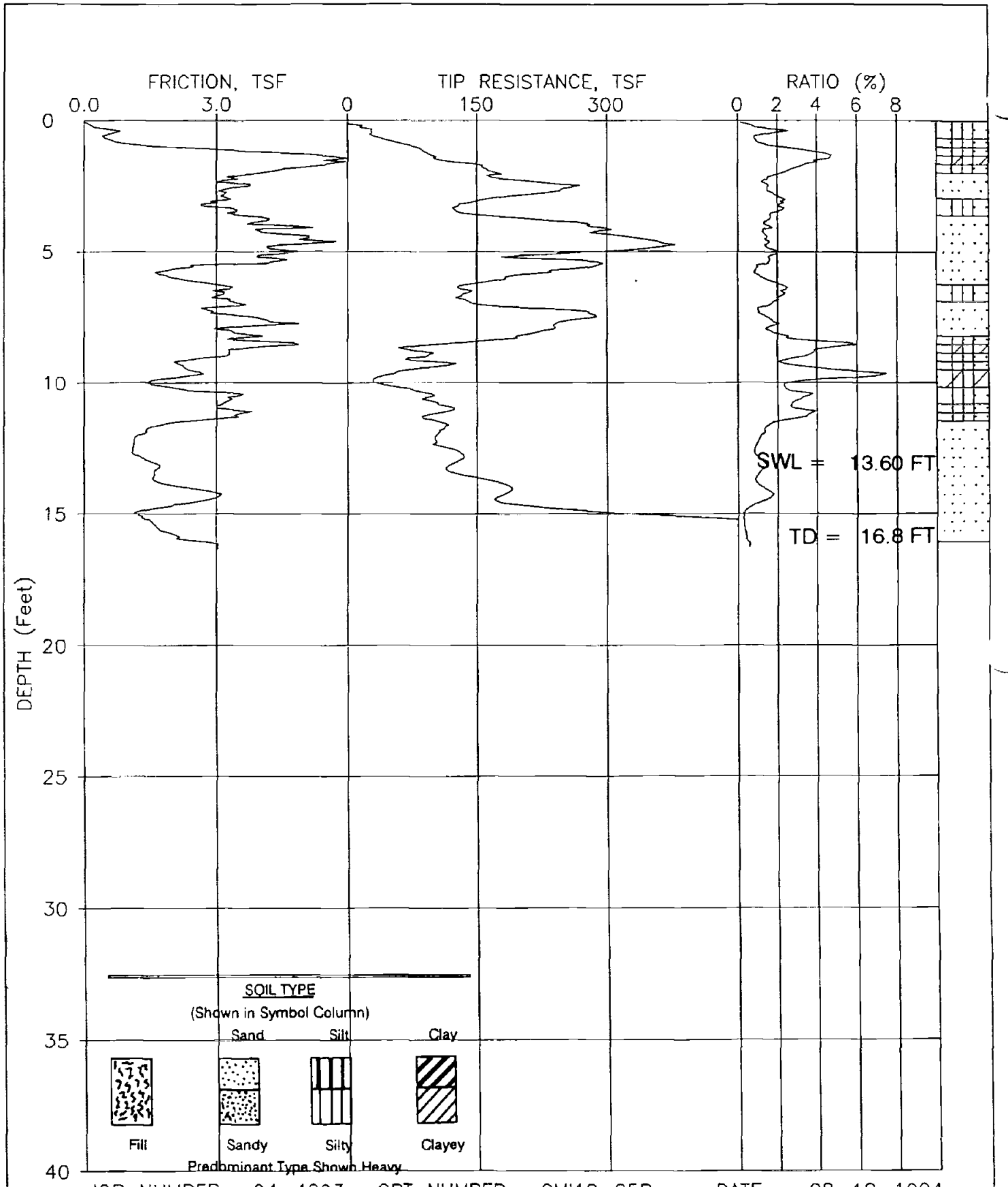

JOB NUMBER : 94-4093 CPT NUMBER : GMI18-85P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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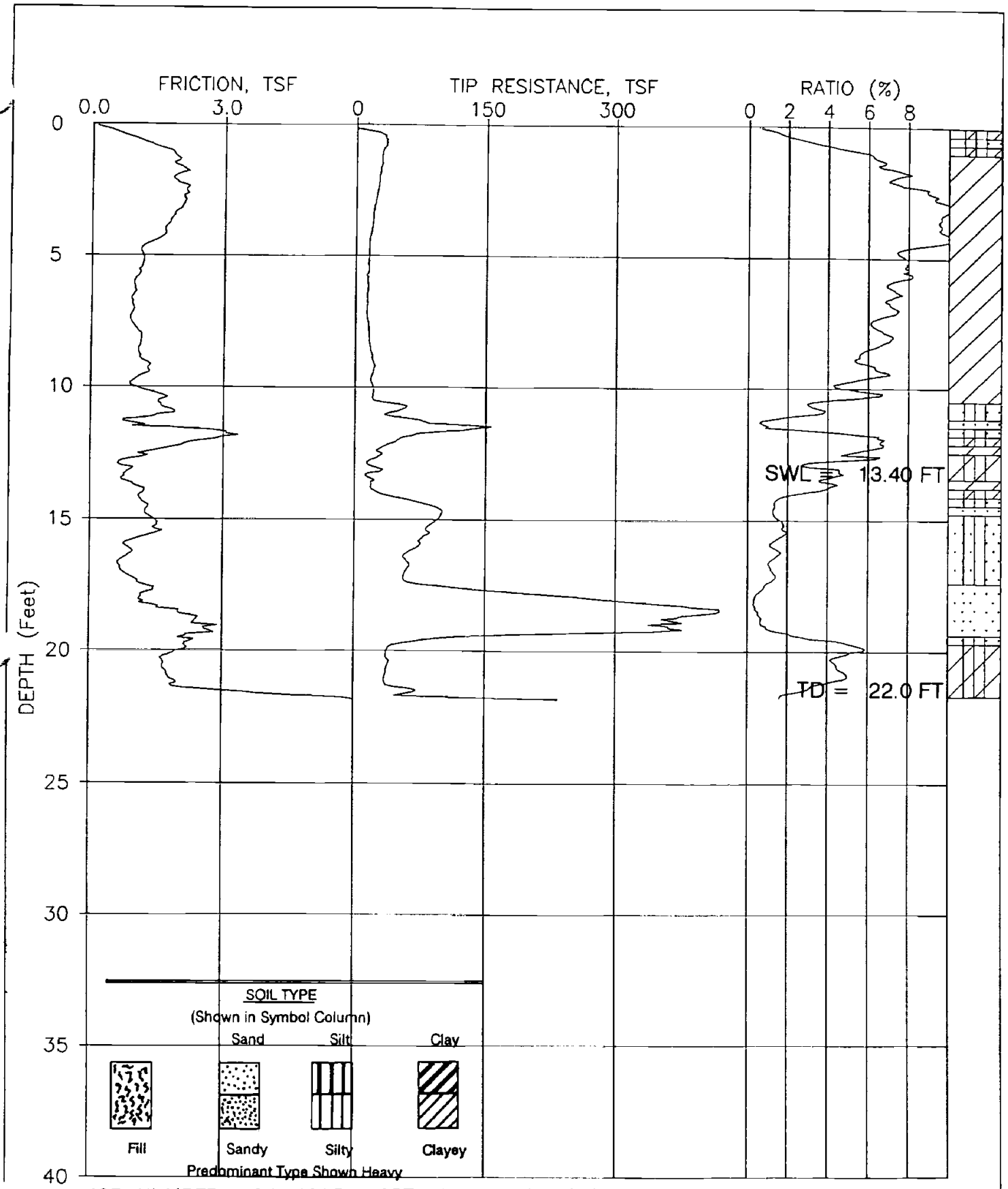

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ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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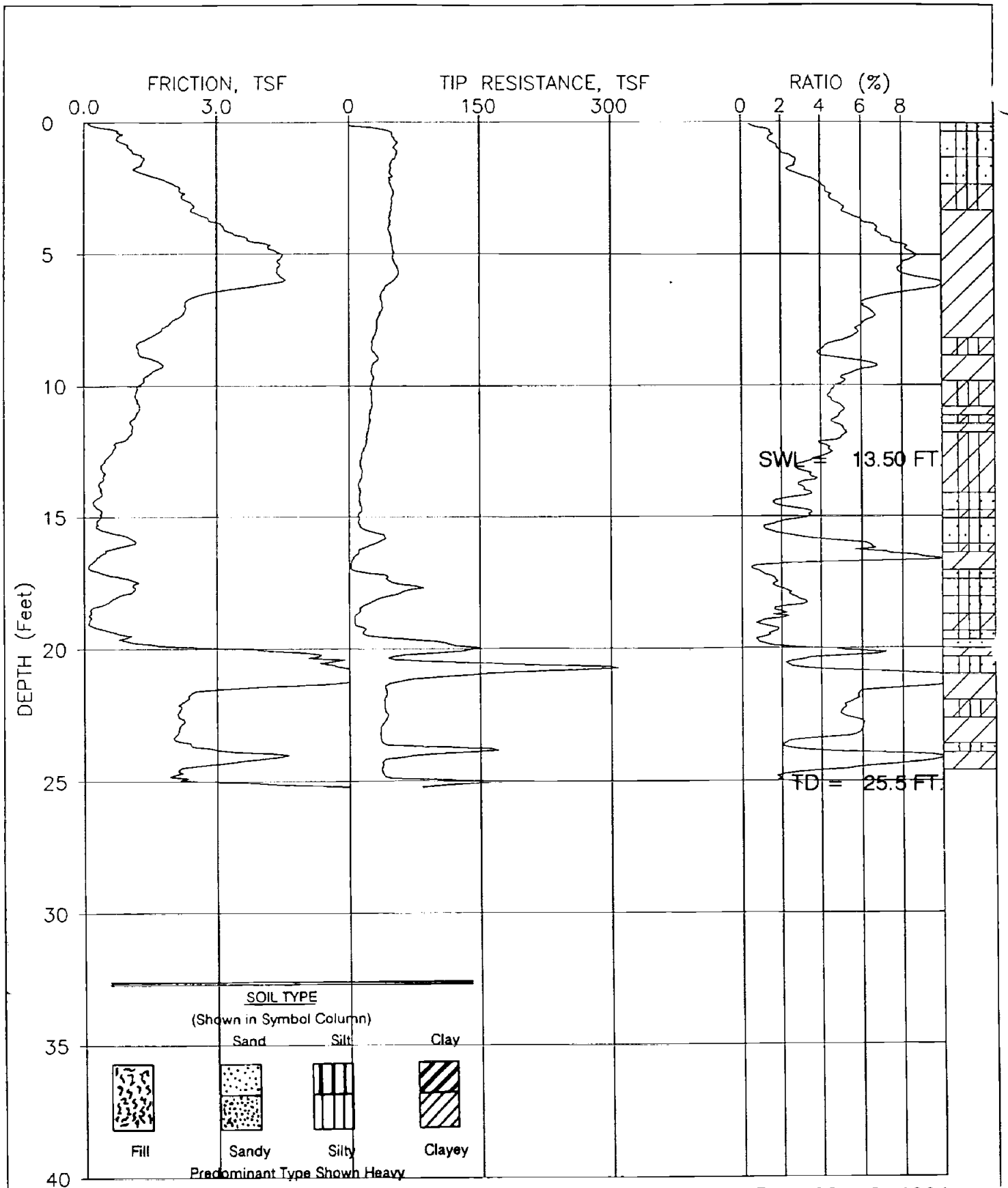

JOB NUMBER : 94-4093 CPT NUMBER : GMI18-87P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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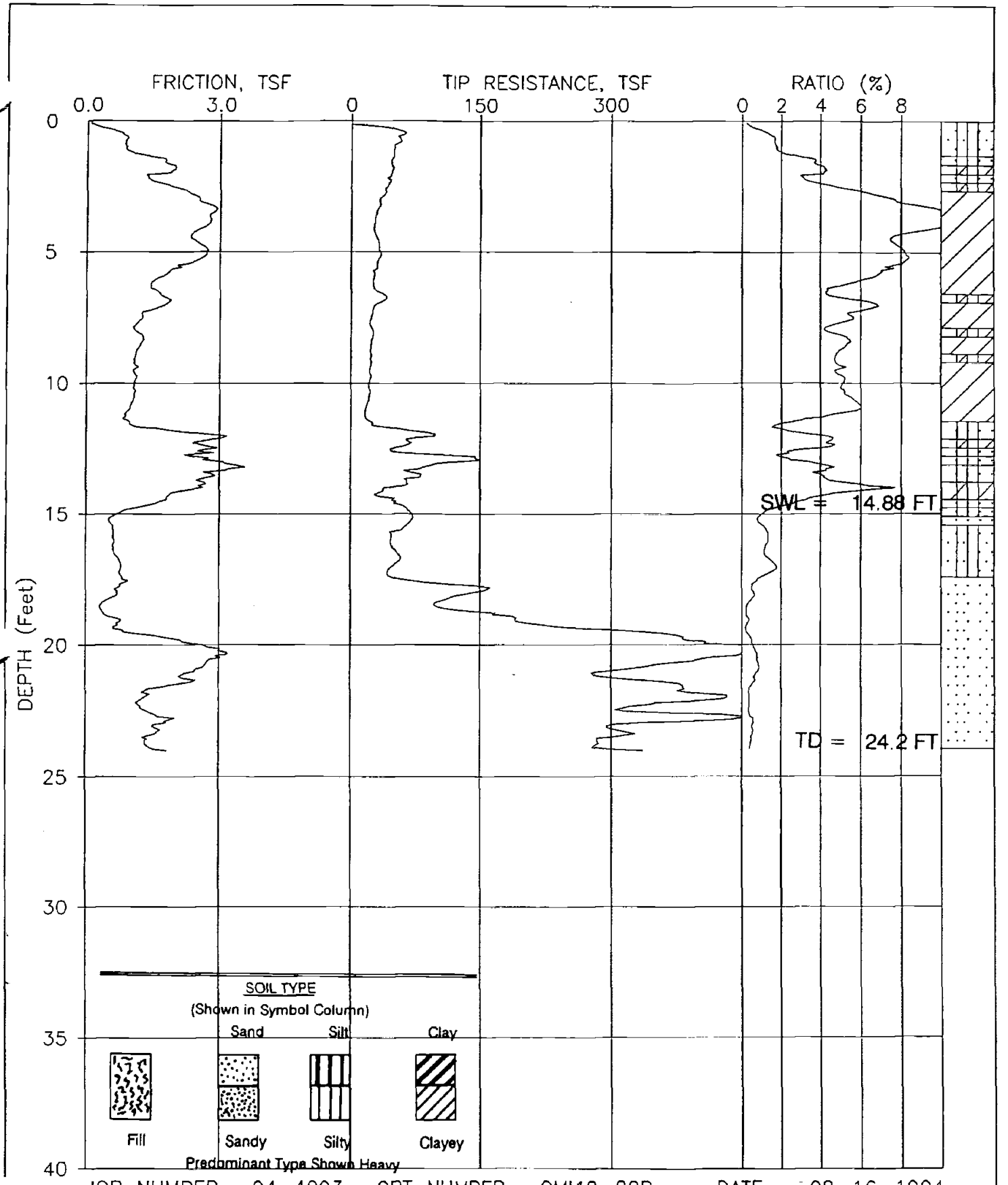

JOB NUMBER : 94-4093 CPT NUMBER : GMI18-88P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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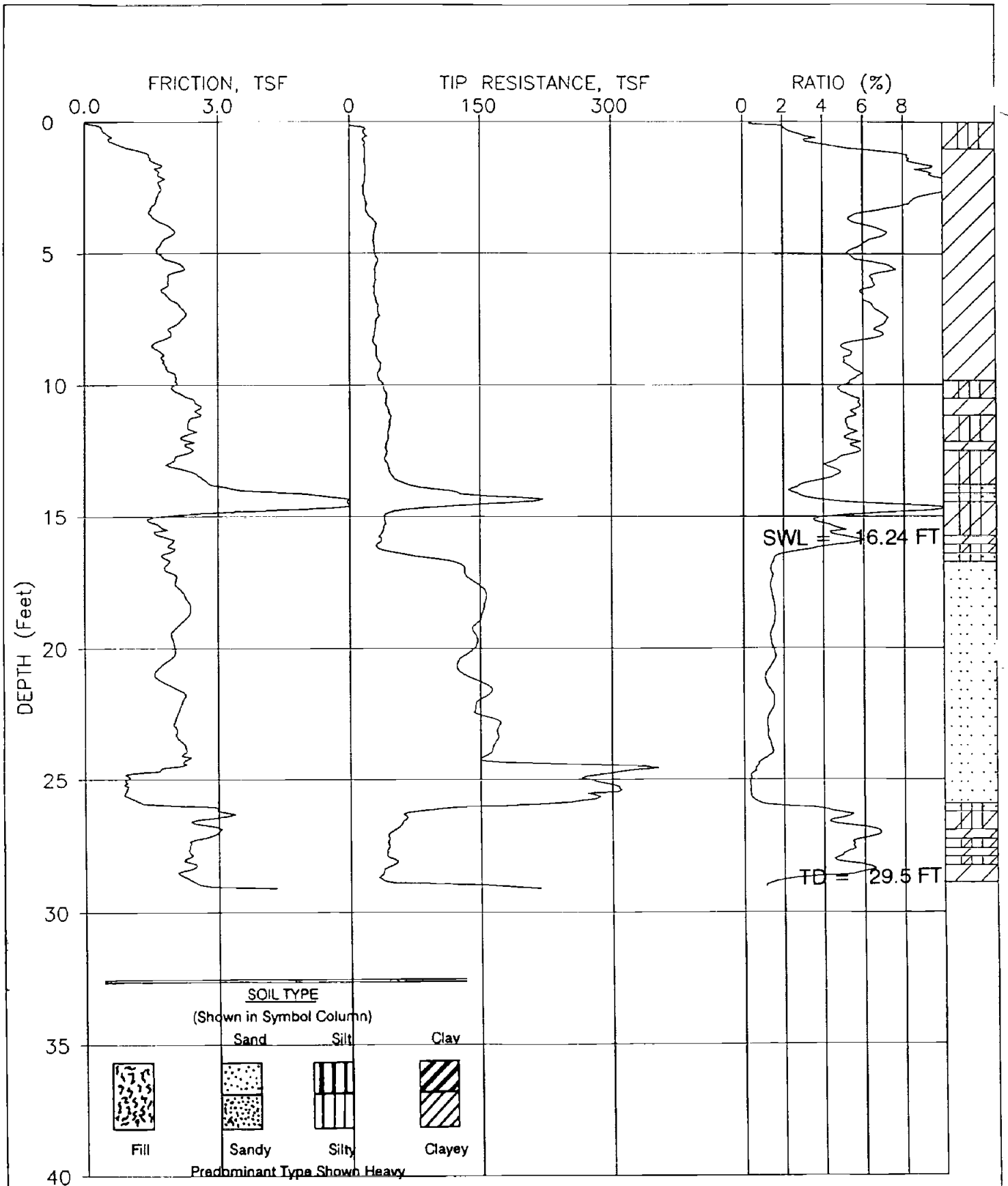
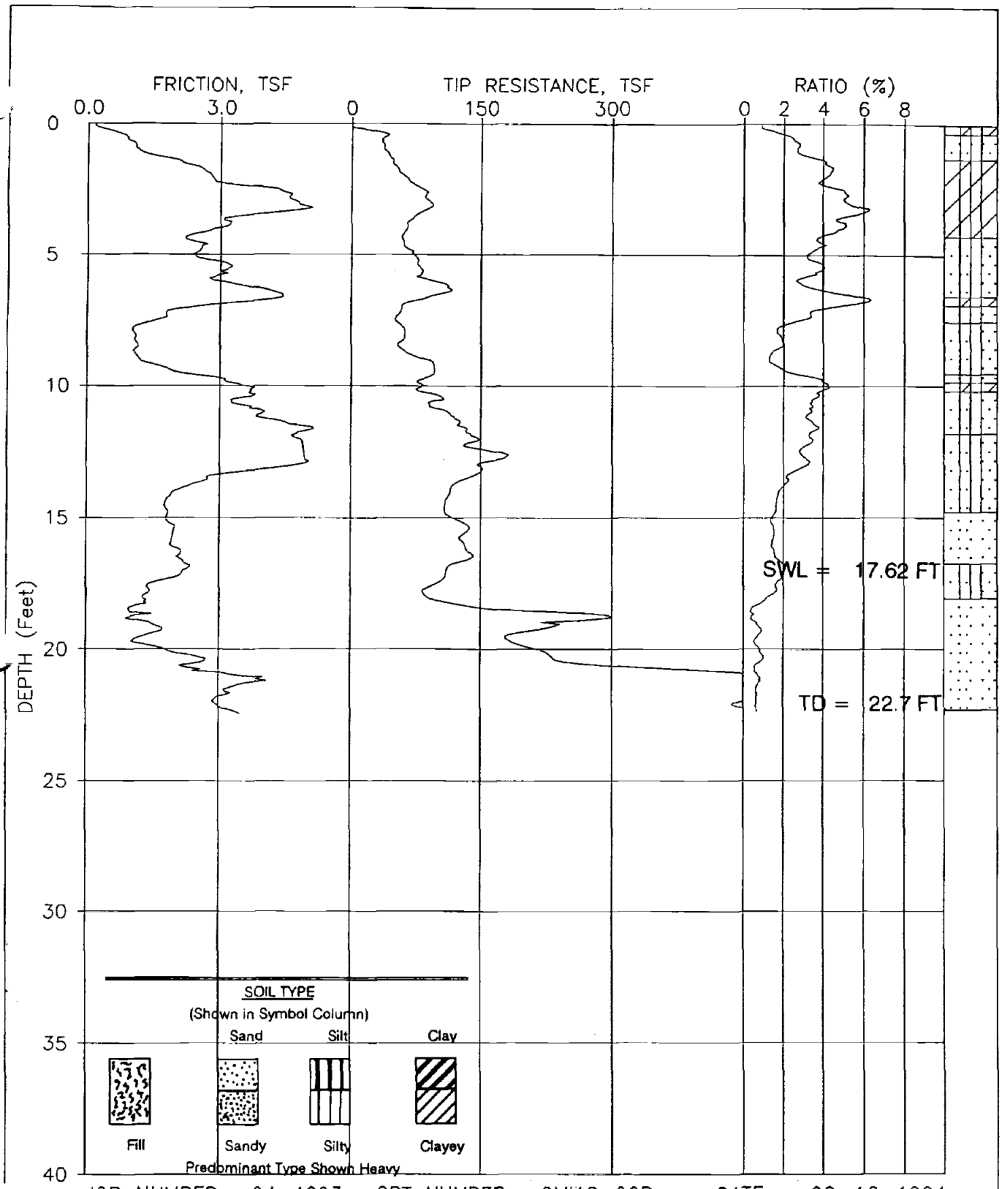


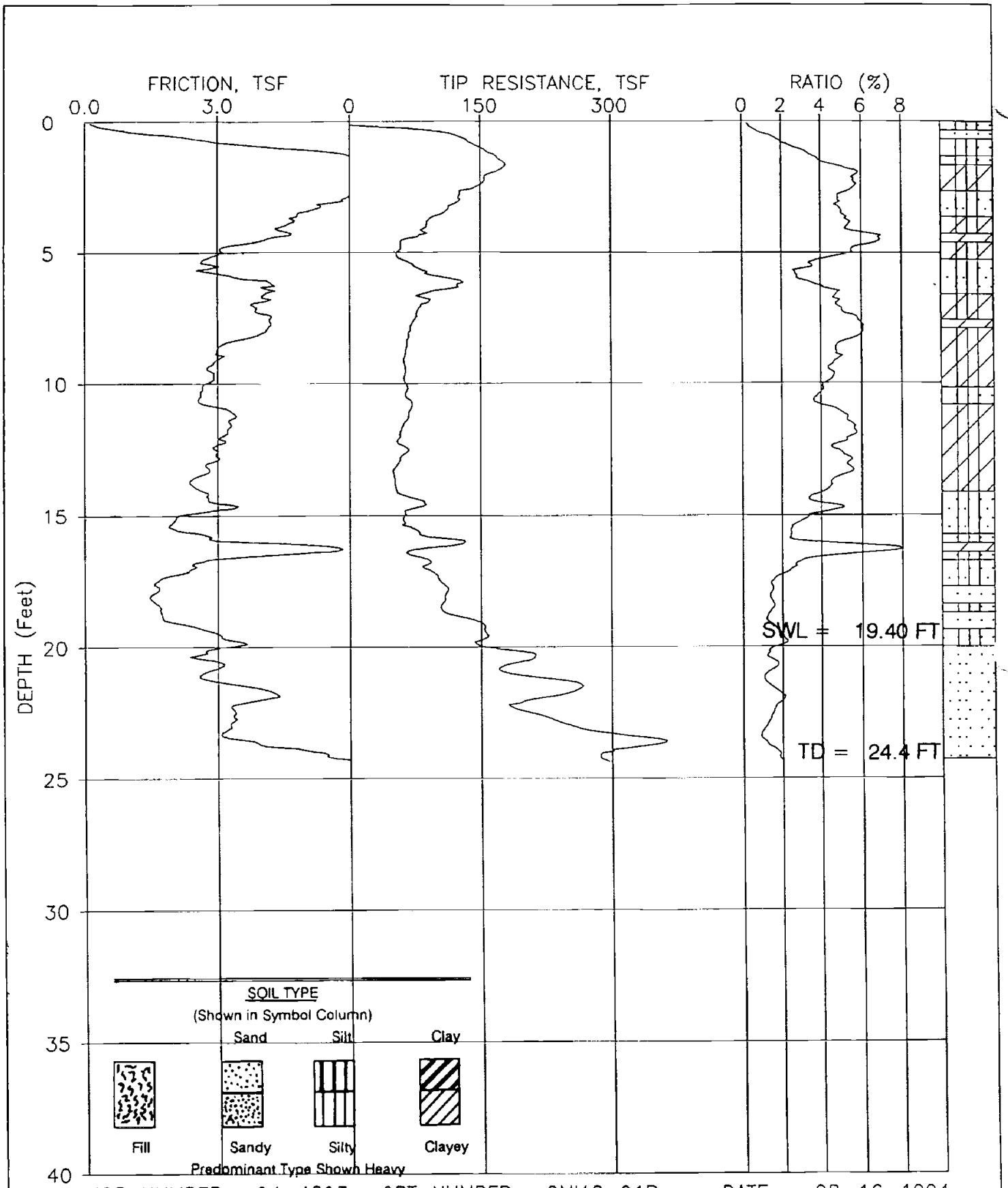
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-89P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-90P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-91P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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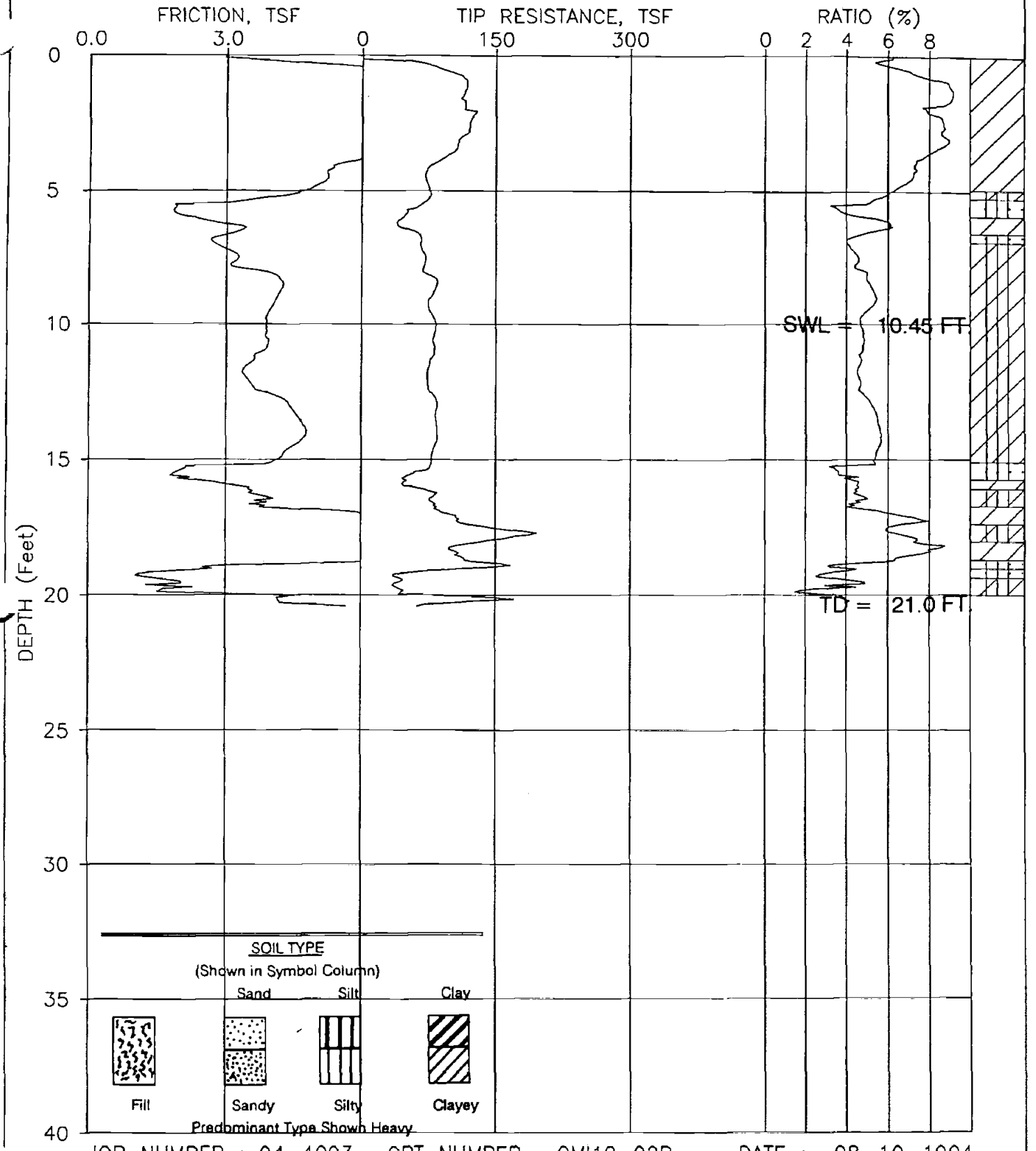

JOB NUMBER : 94-4093 CPT NUMBER : GMI18-92P DATE : 08-19-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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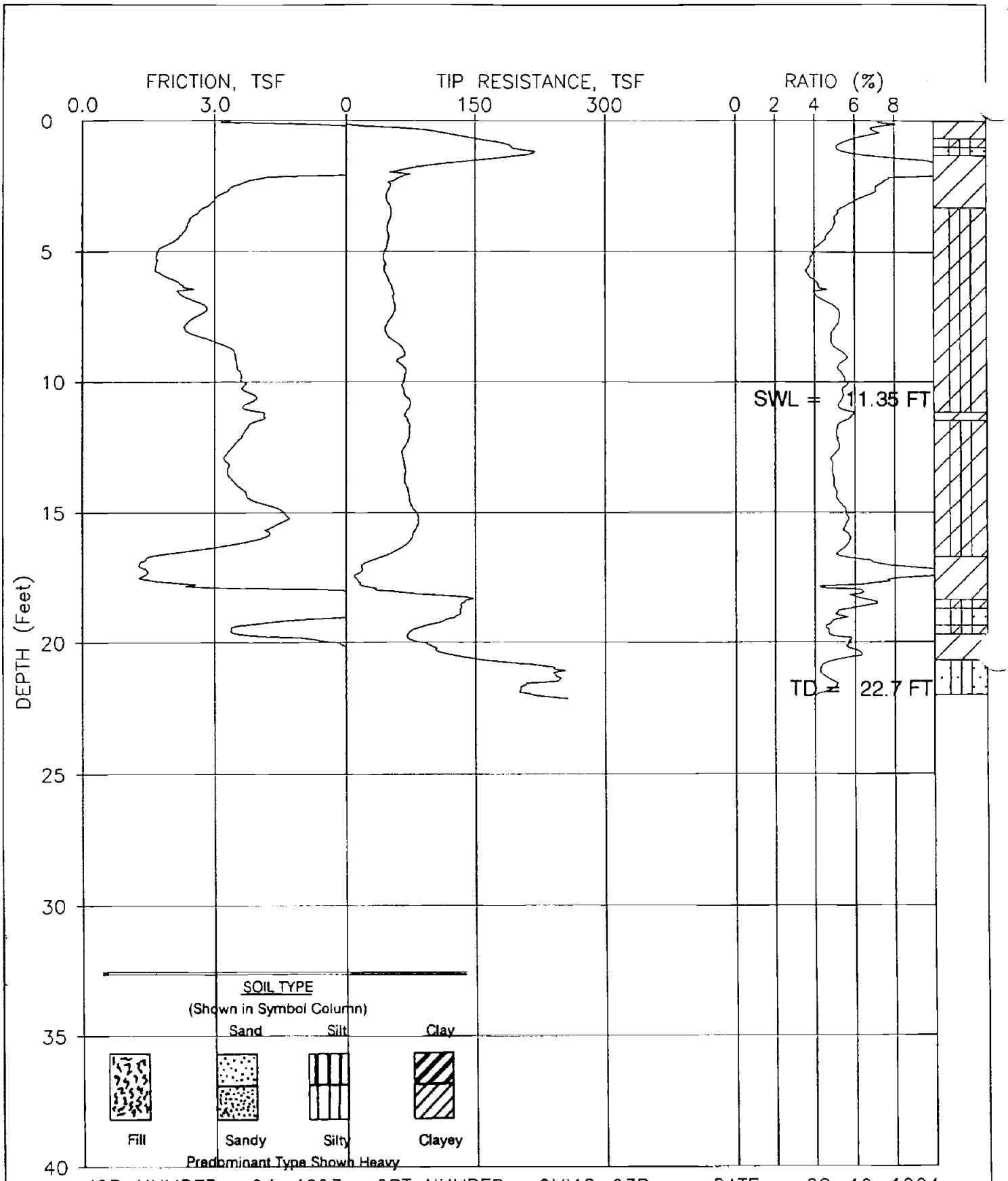
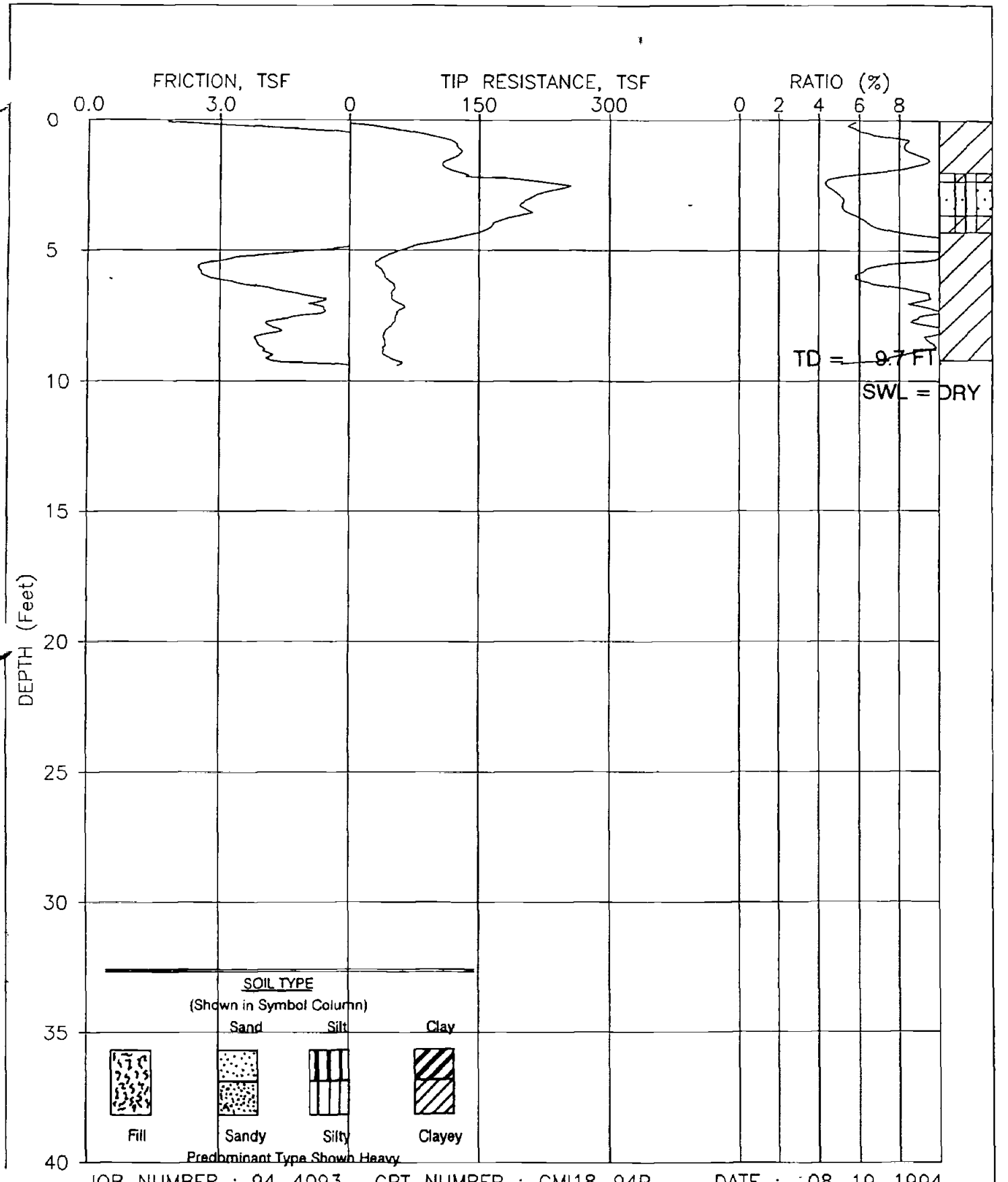


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-93P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-94P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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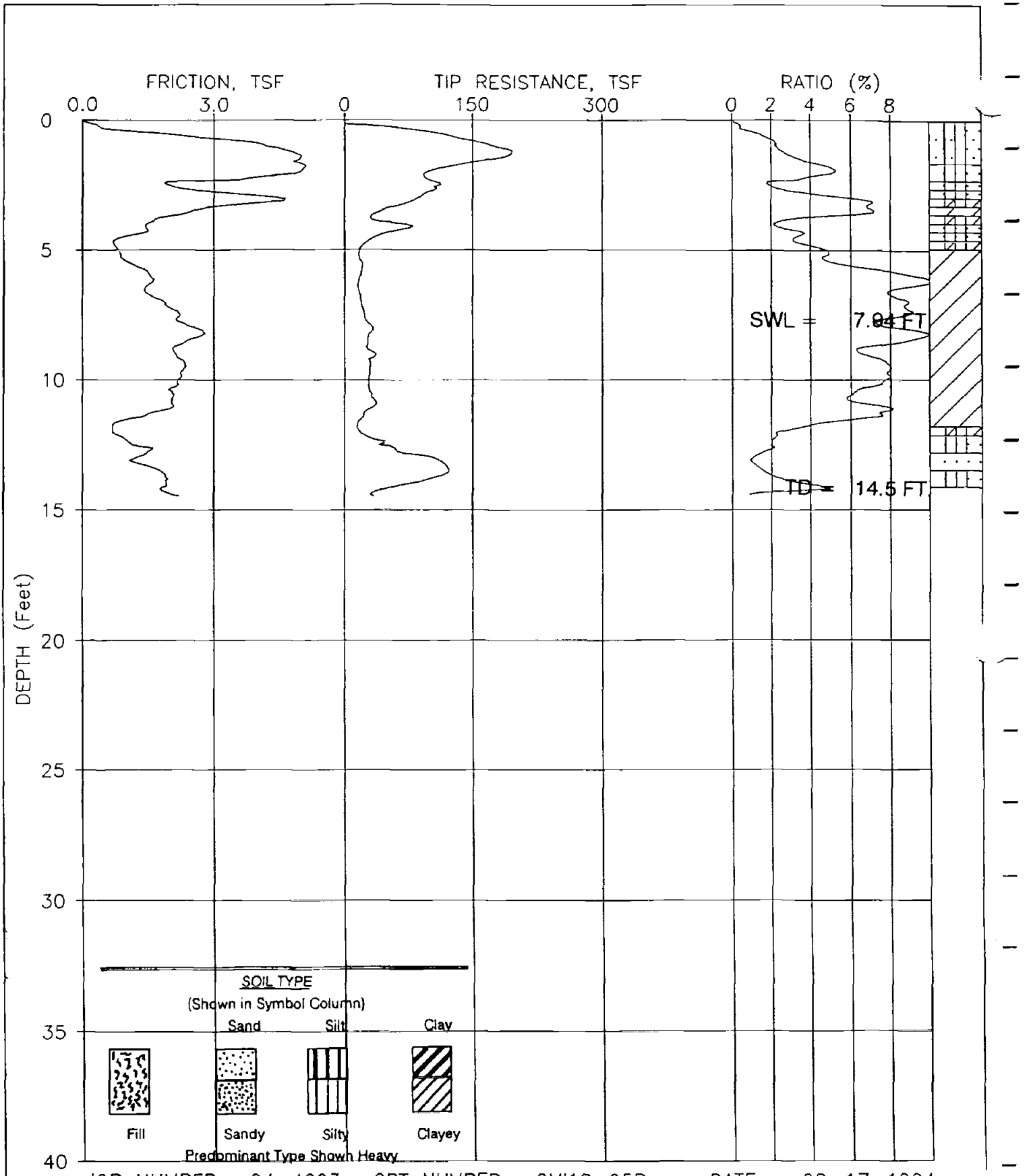
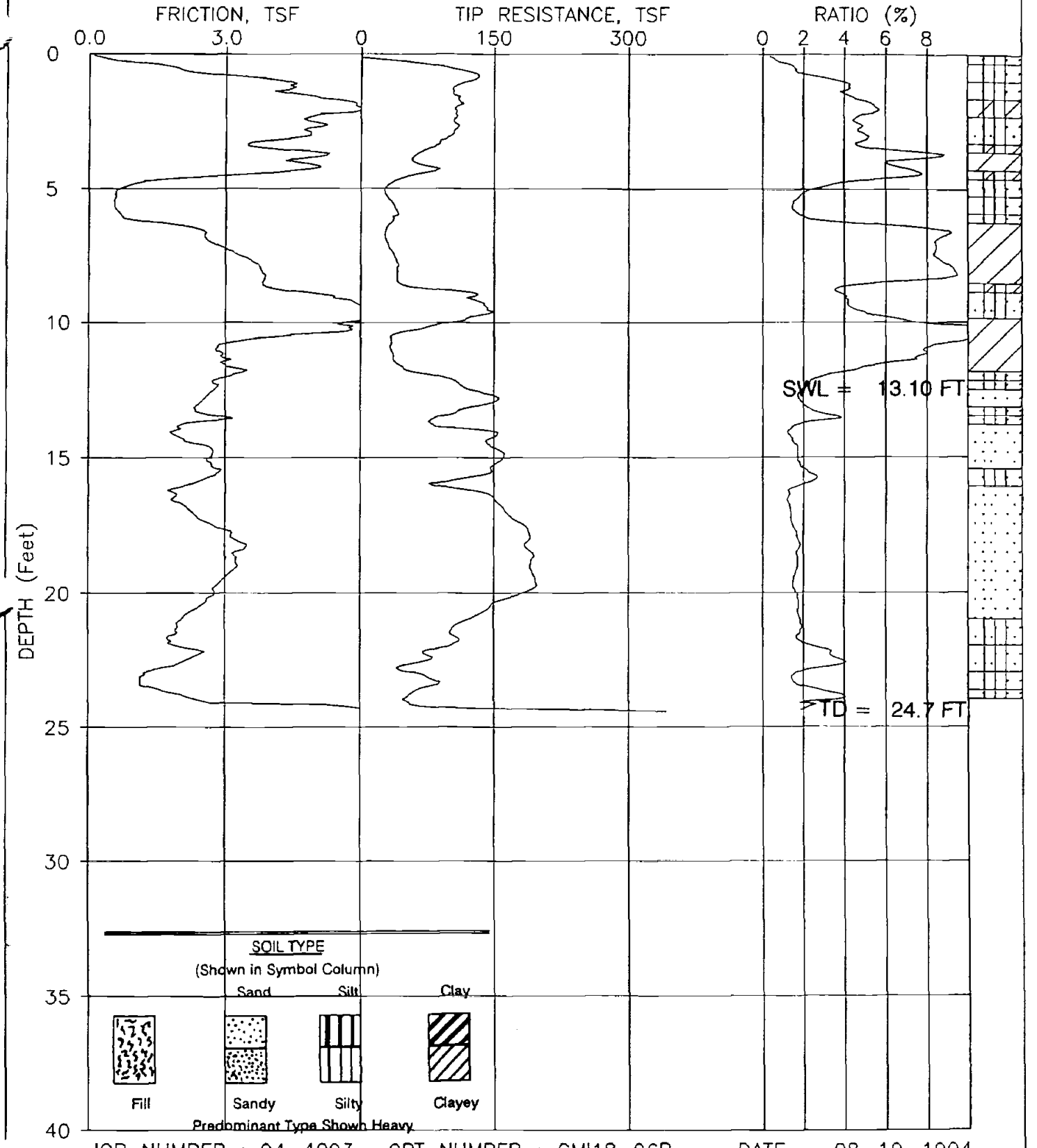


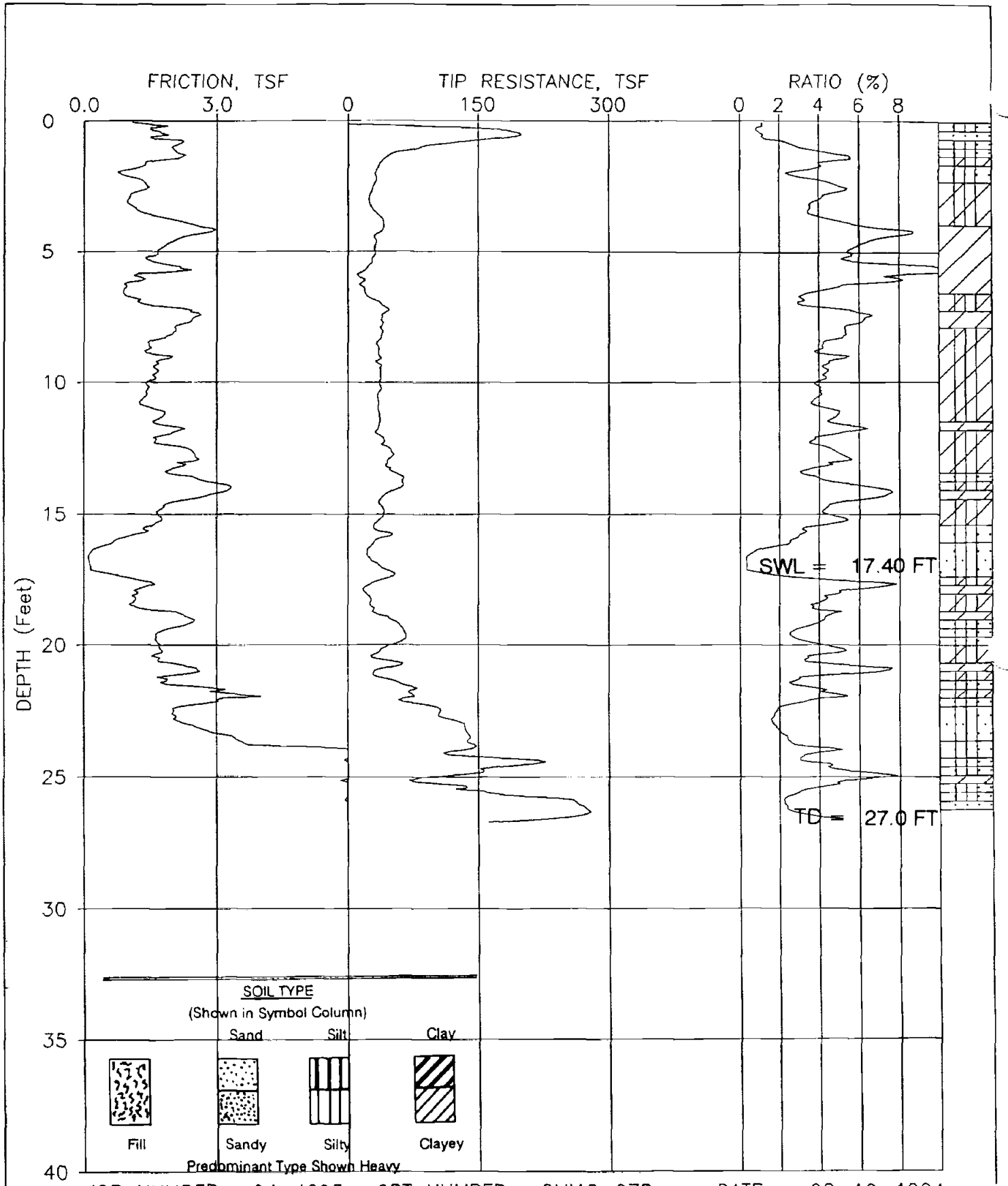
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-95P DATE : 08-17-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-96P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

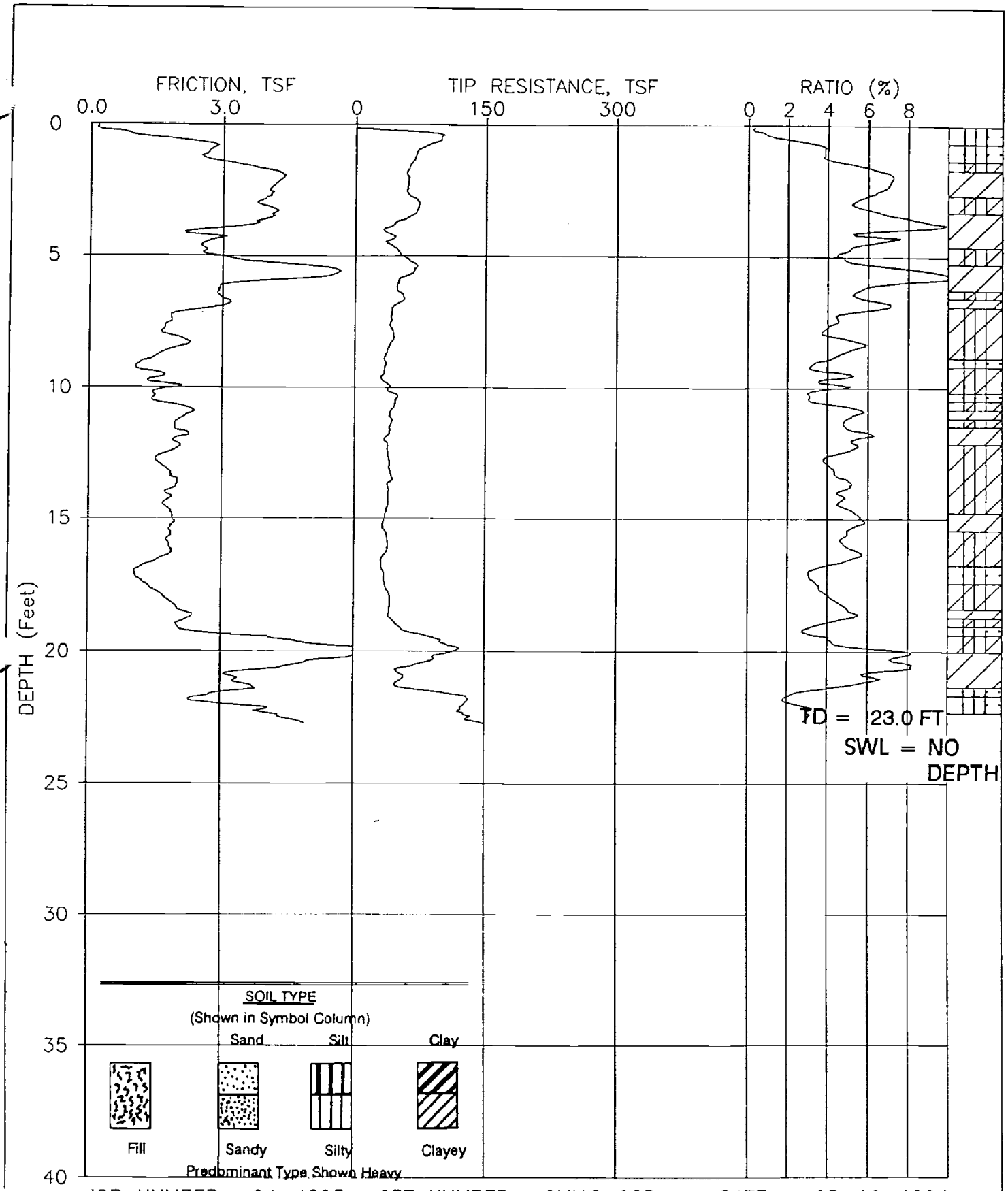
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-97P DATE : 08-19-1994

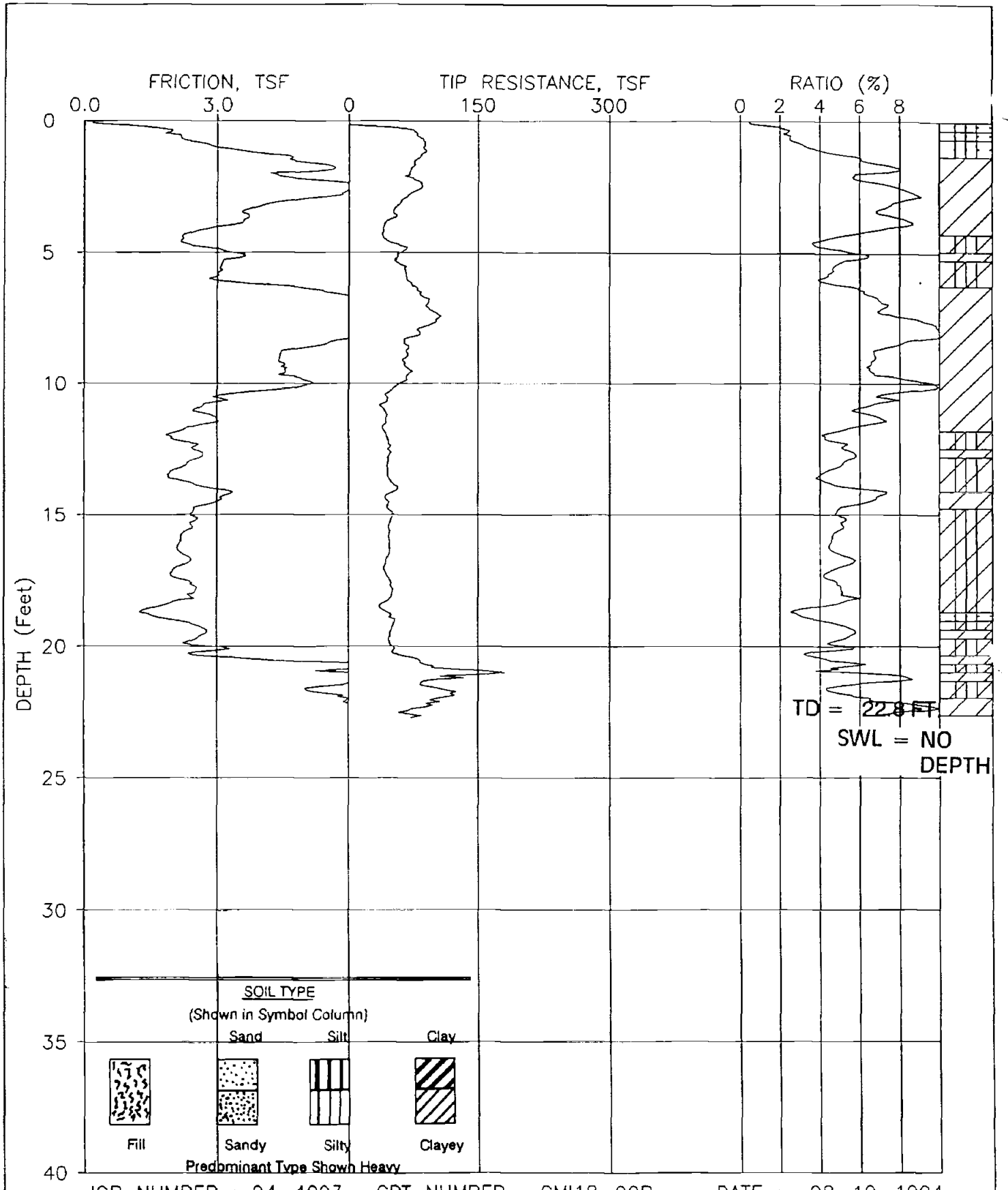
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



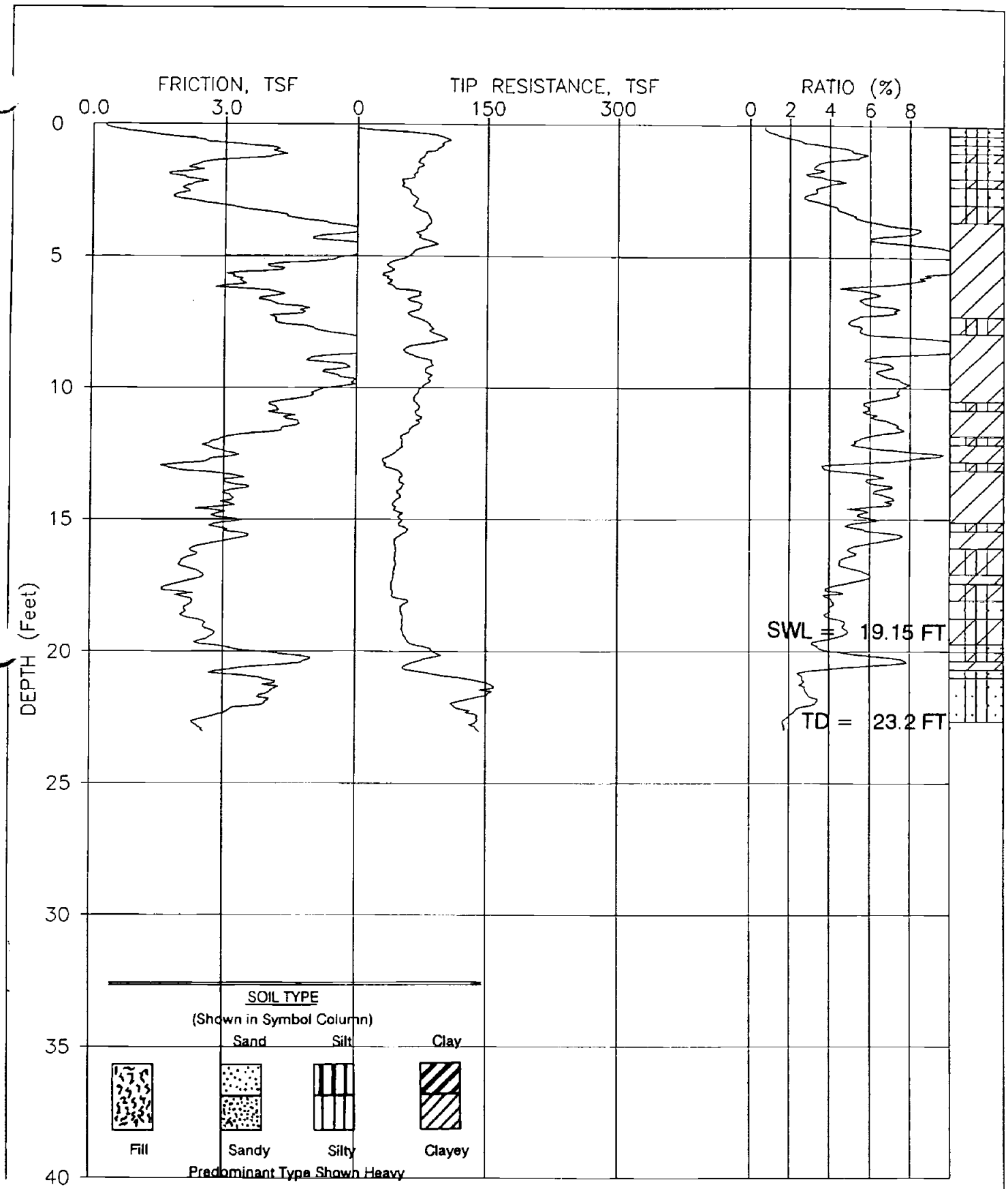
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-98P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



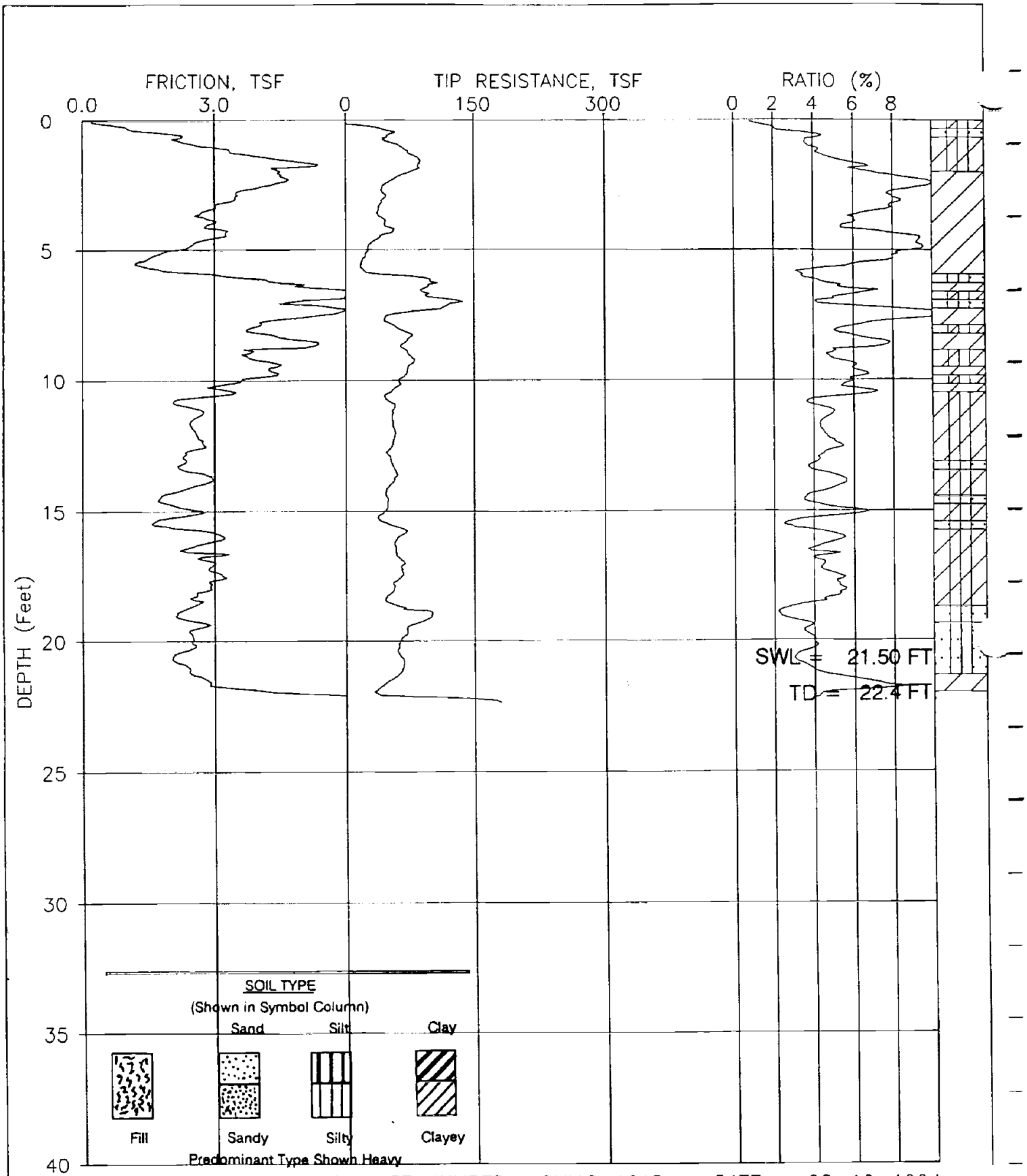
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-99P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



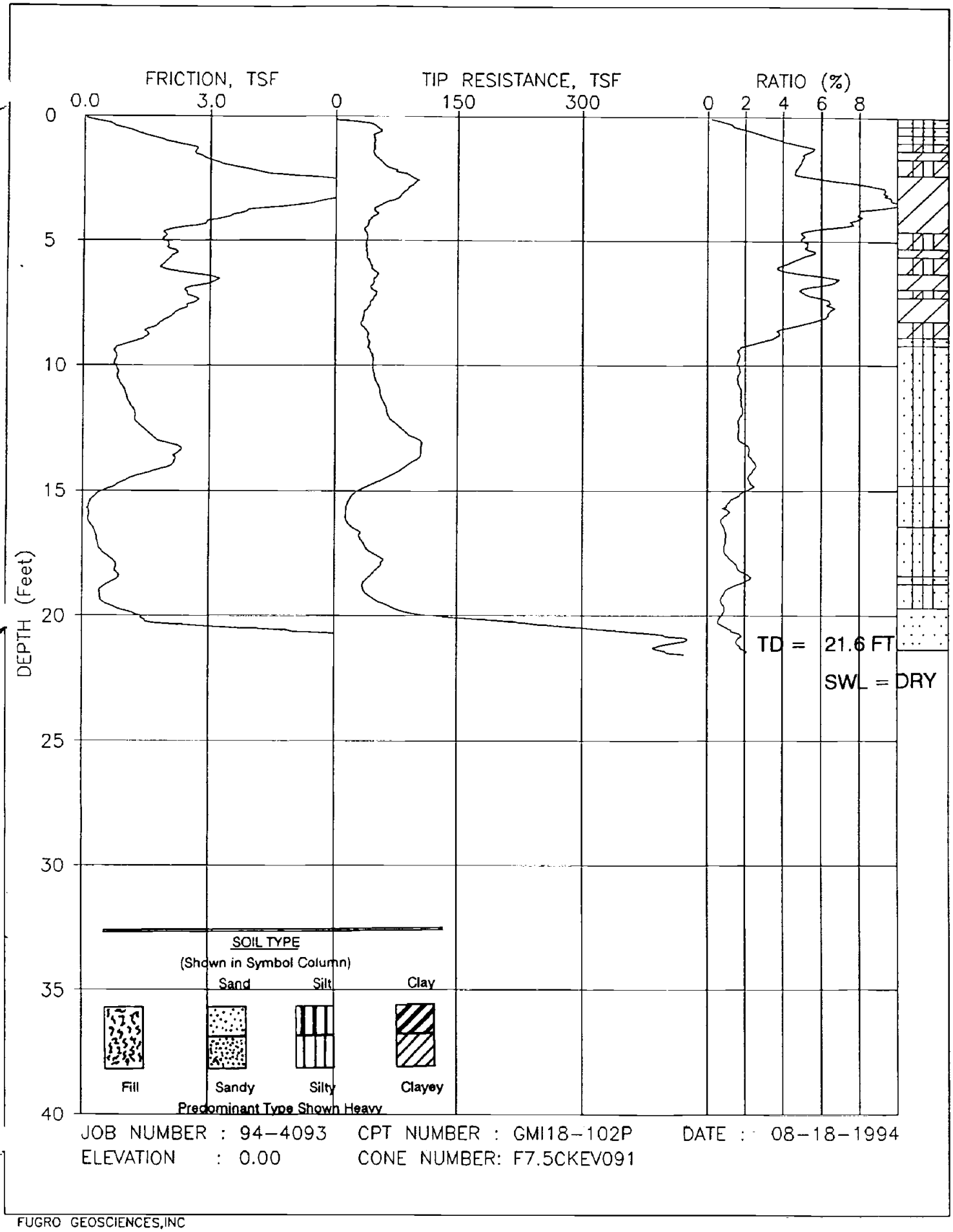
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-100P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



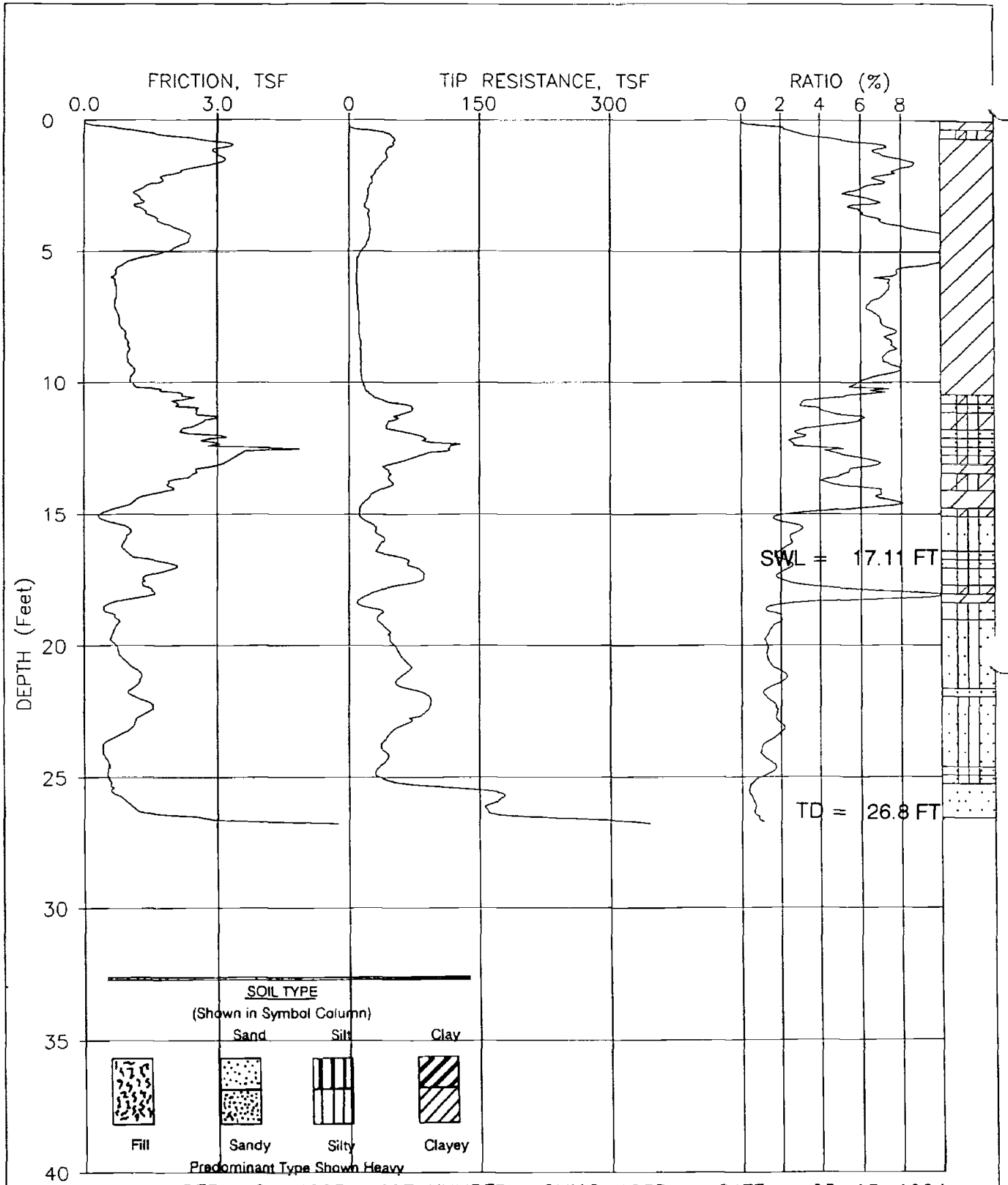
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-101P DATE : 08-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



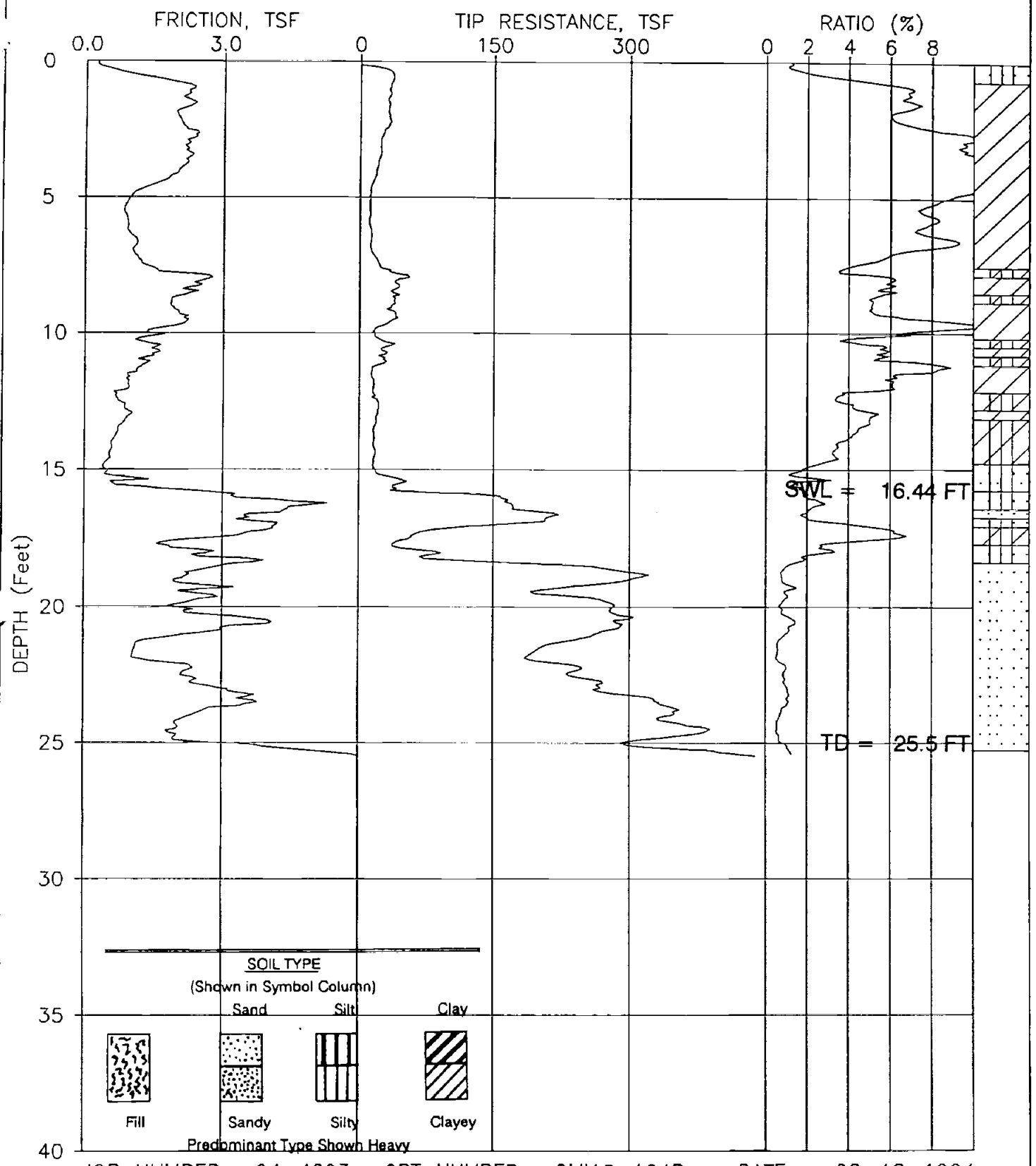
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-102P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



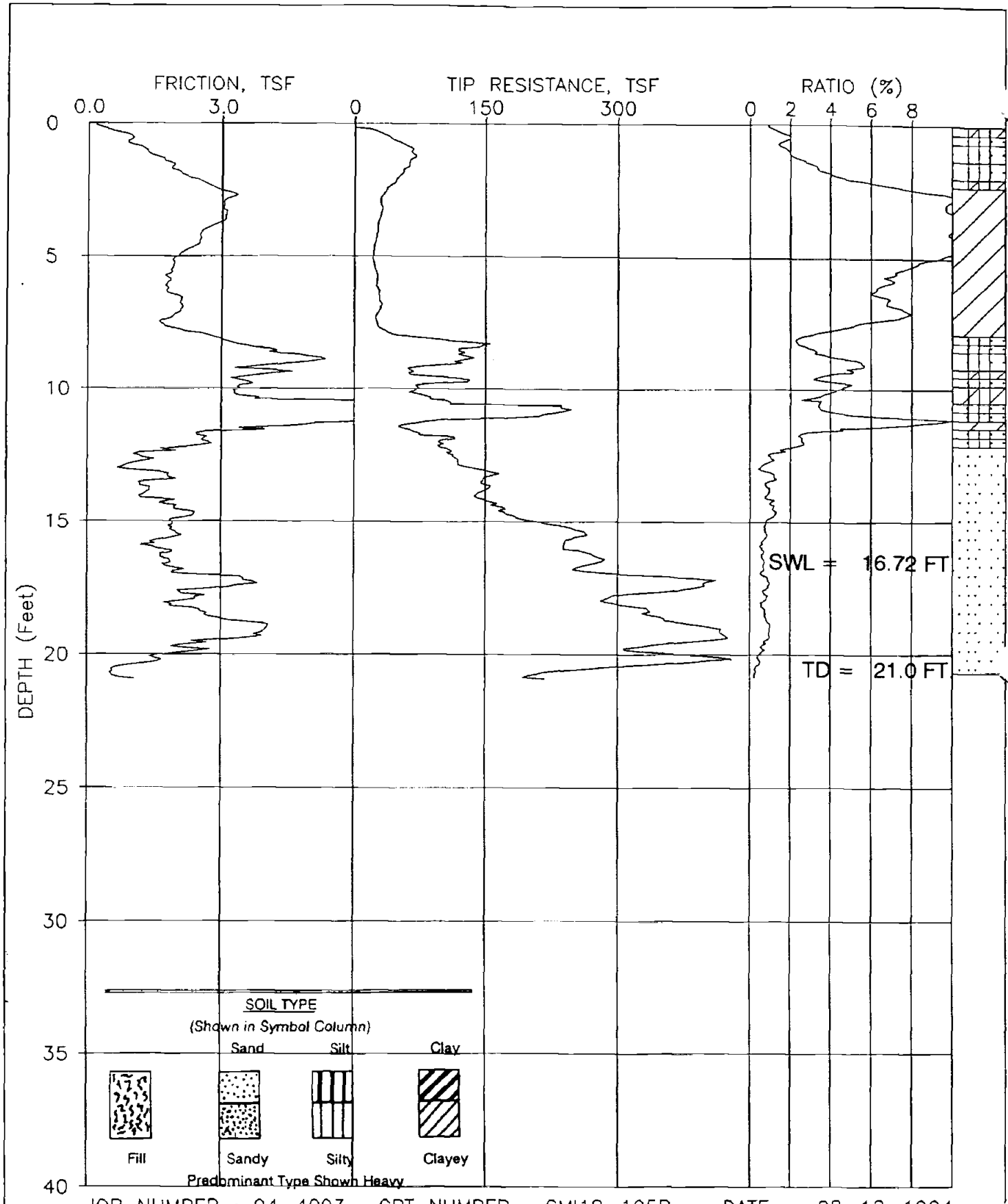
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-103P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



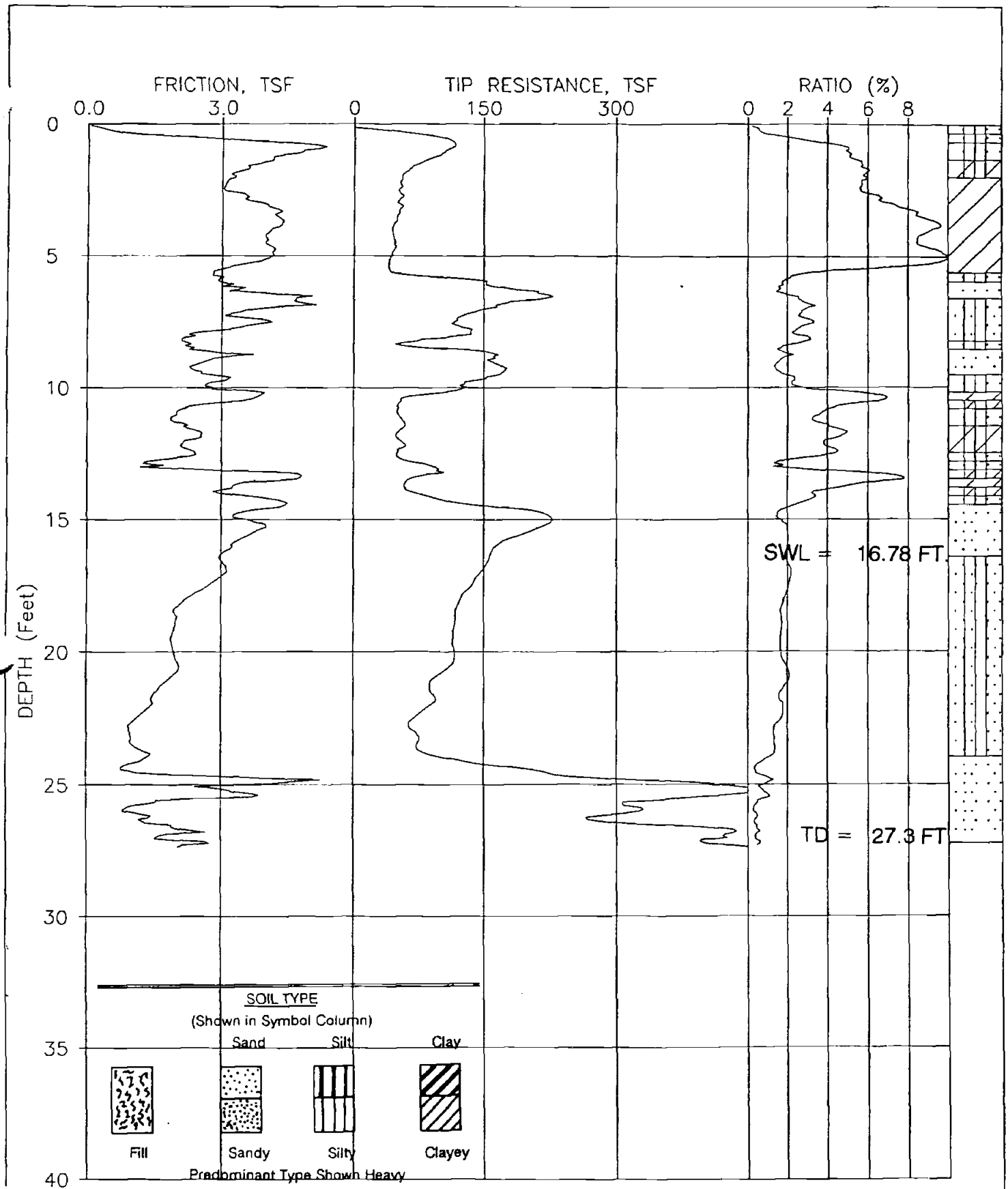
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-104P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



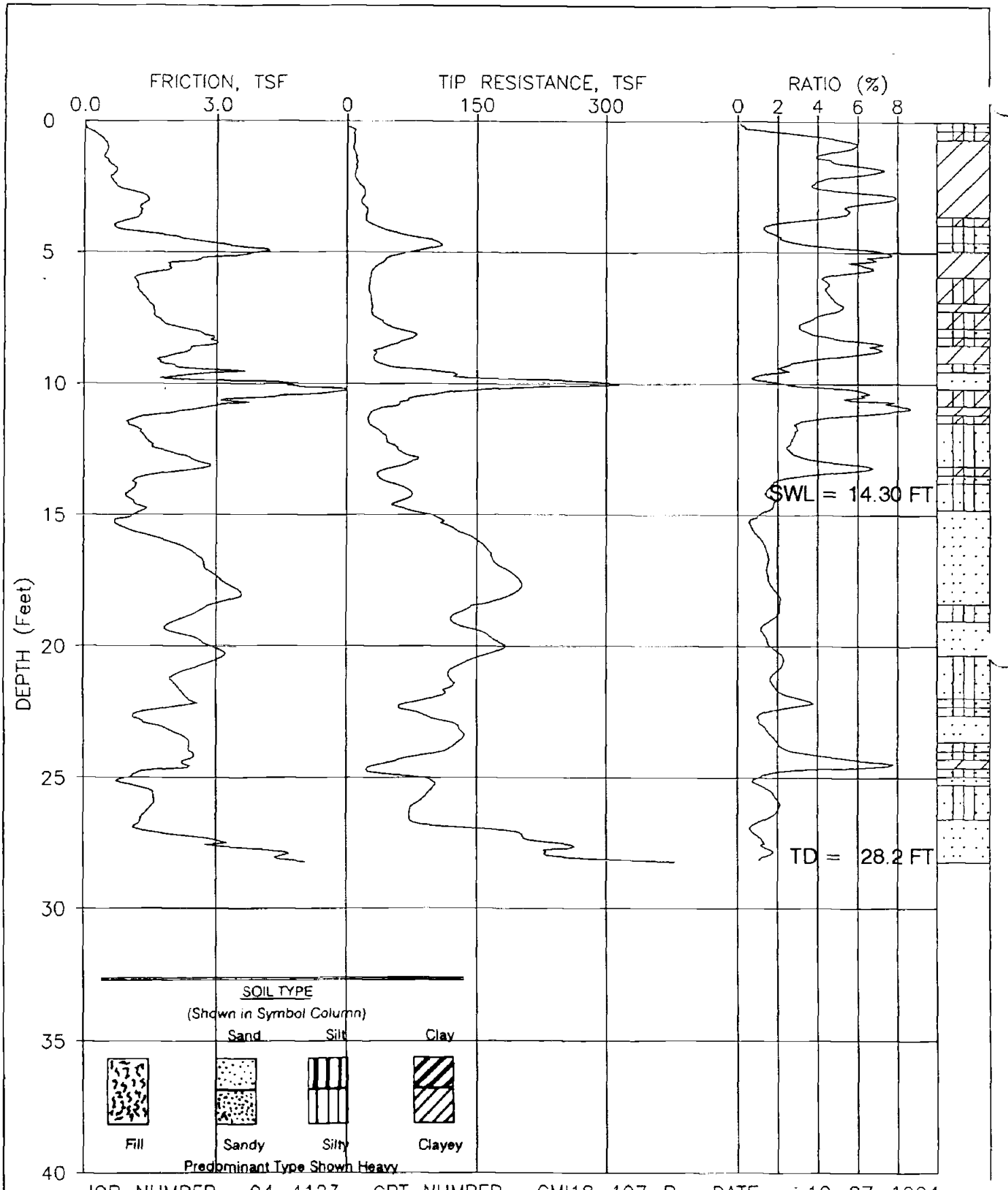
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-105P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



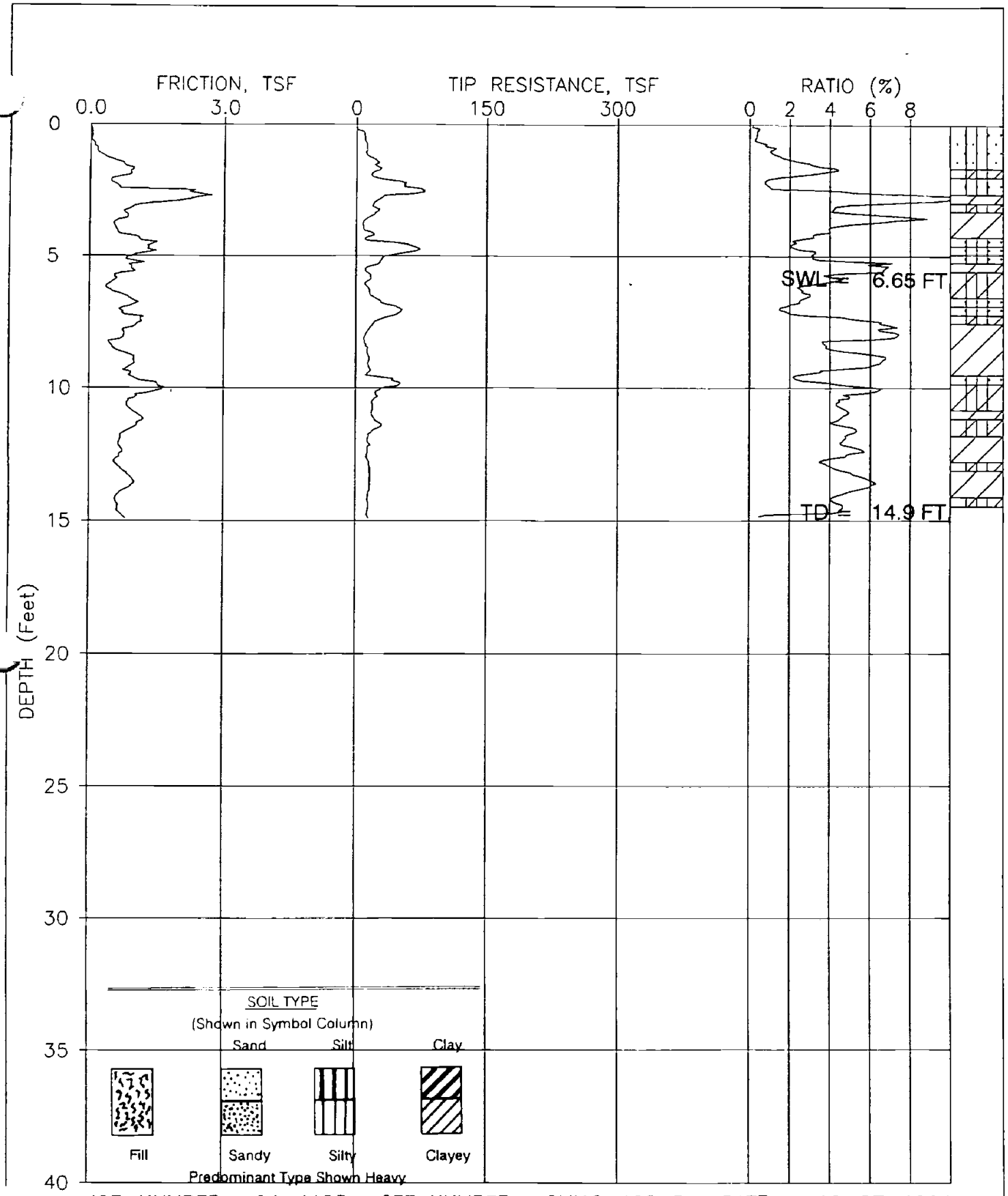
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-106P DATE : 08-18-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



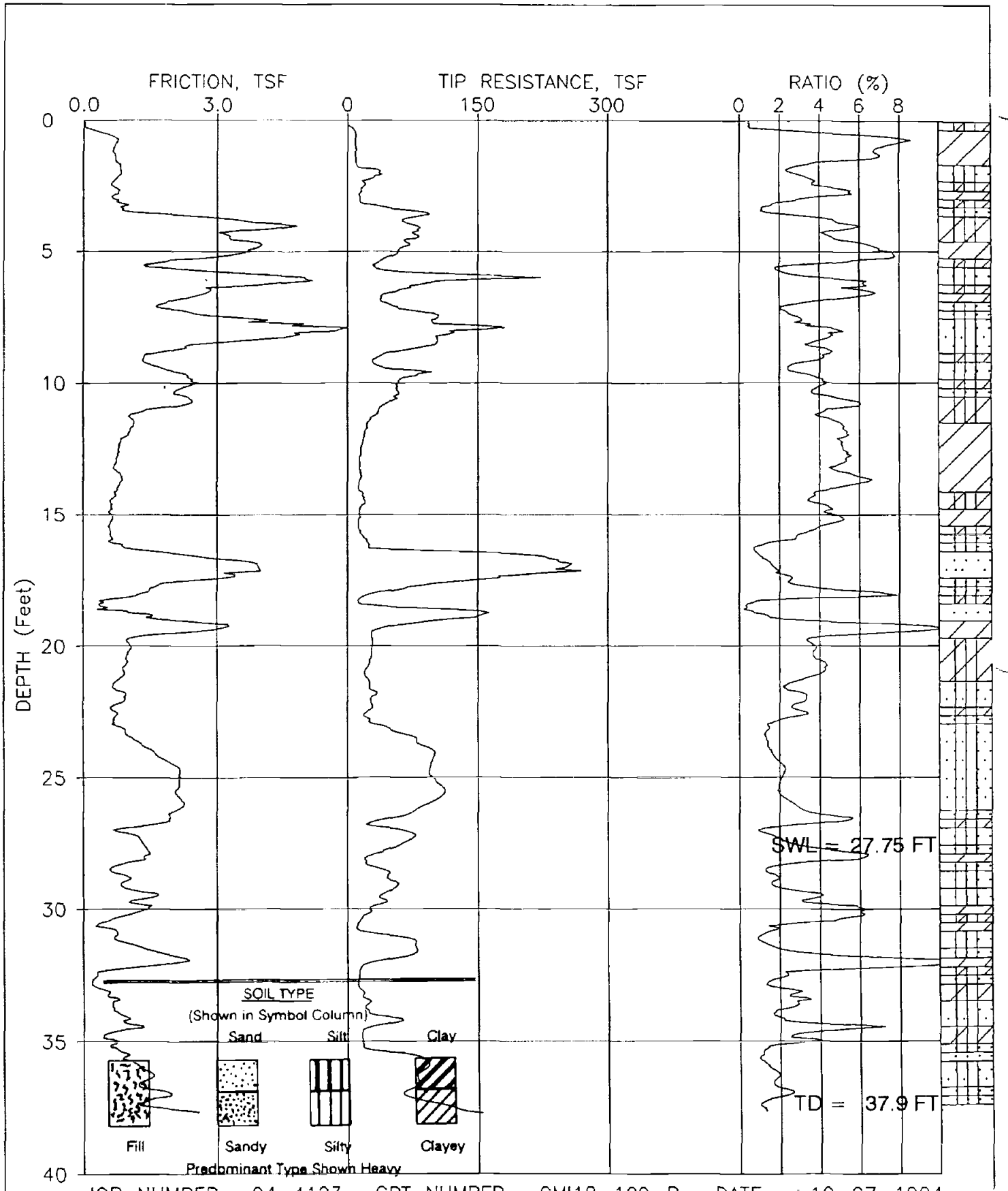
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-107-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



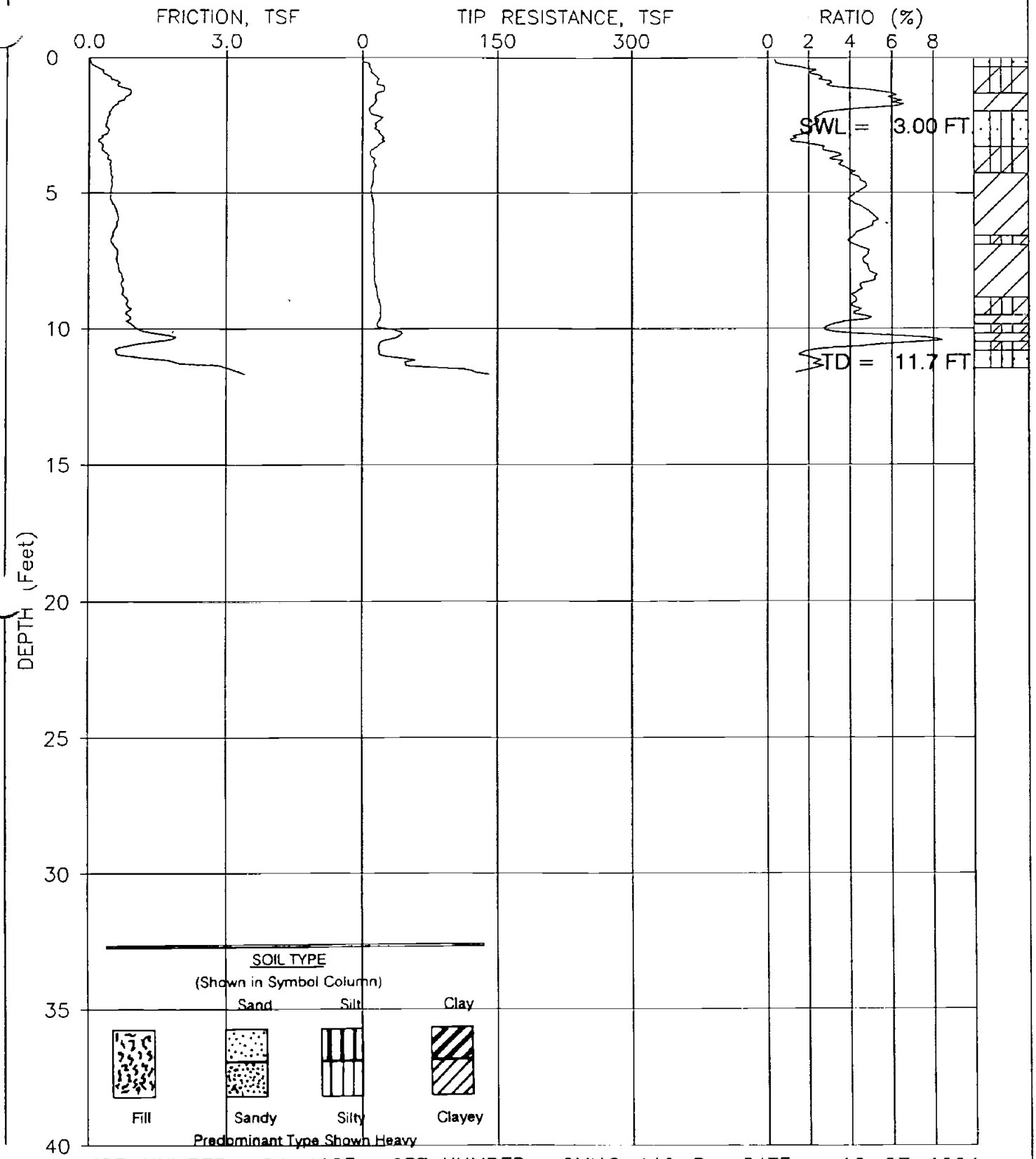
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-108-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



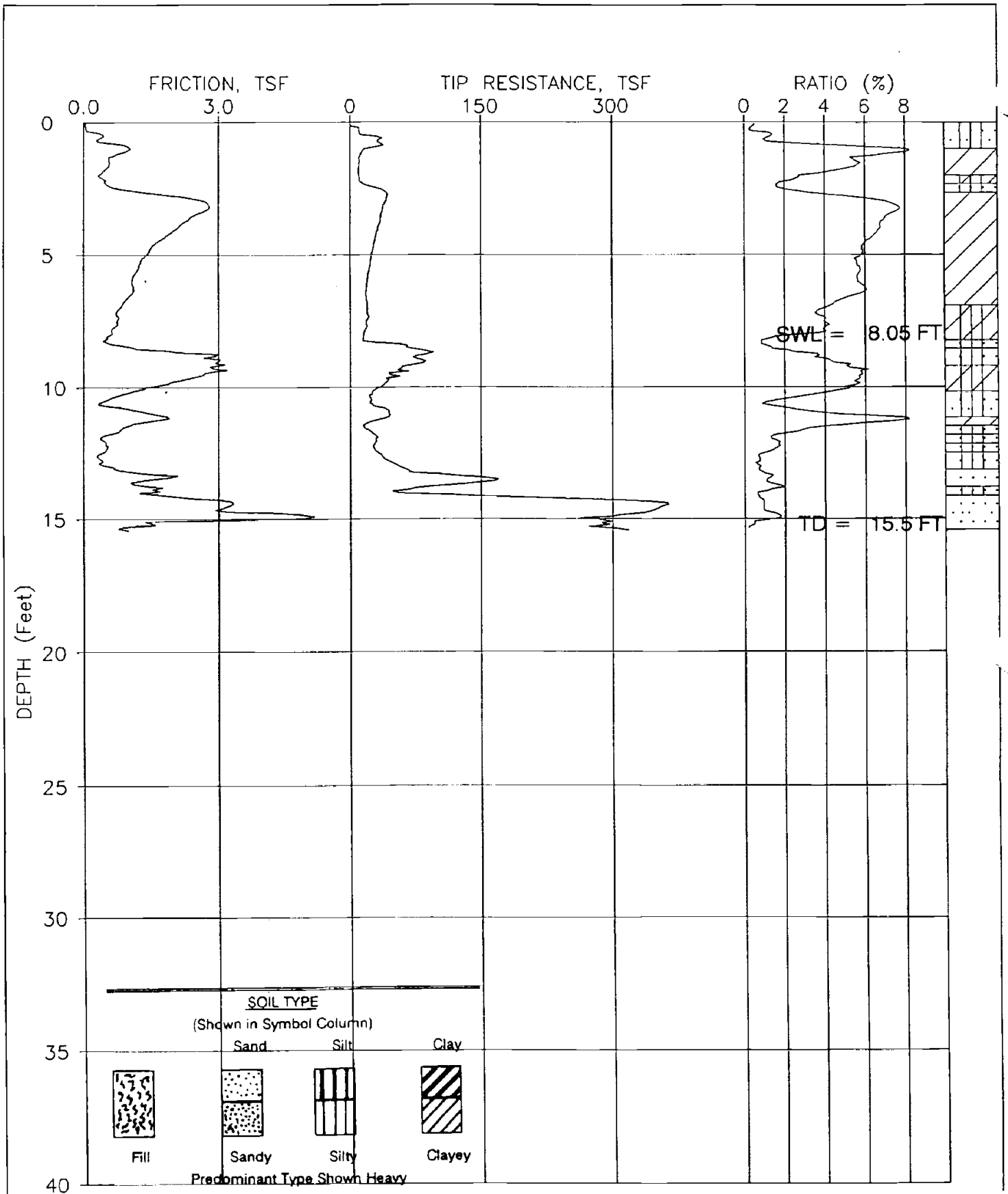
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-109-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



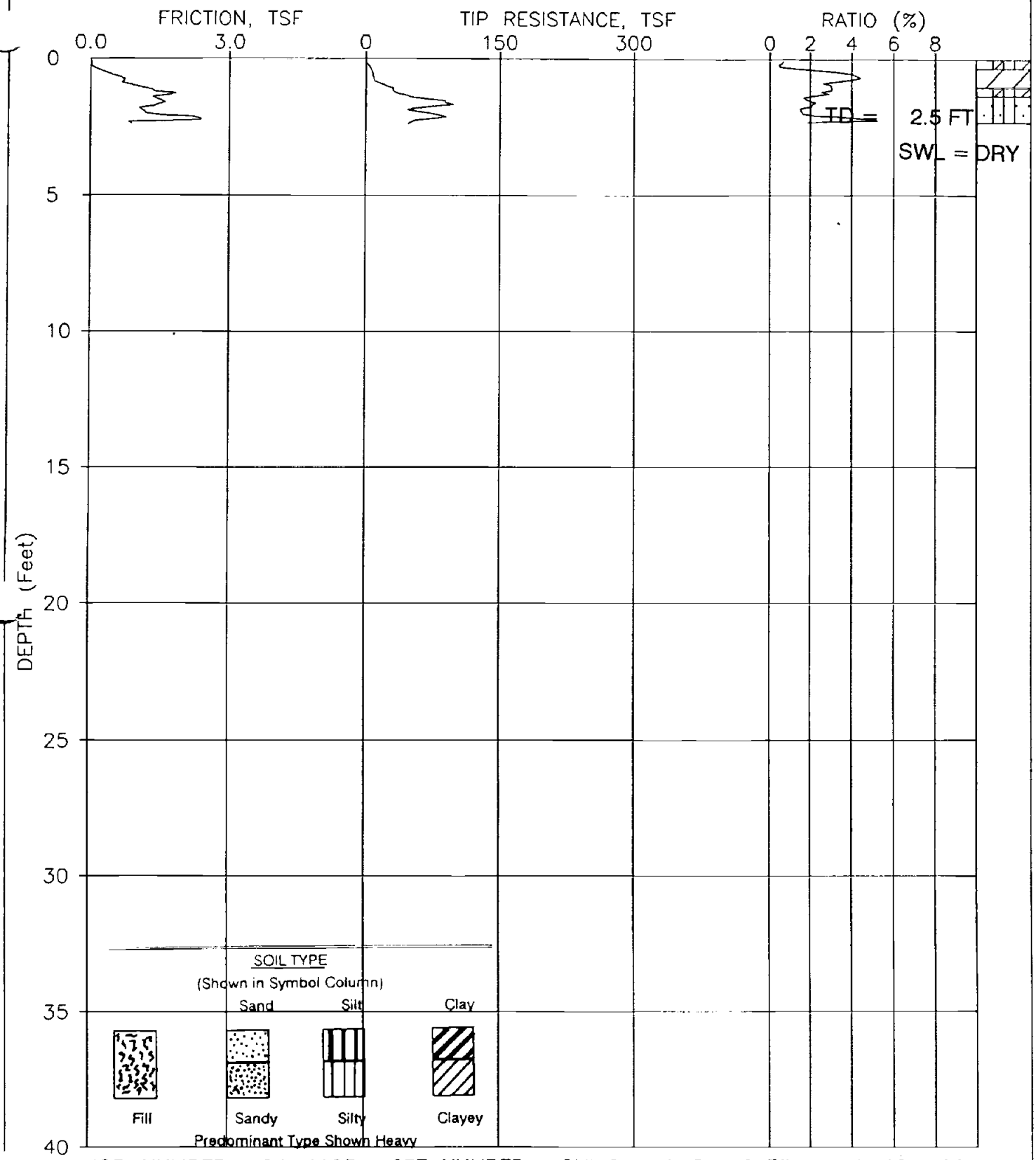
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-110-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



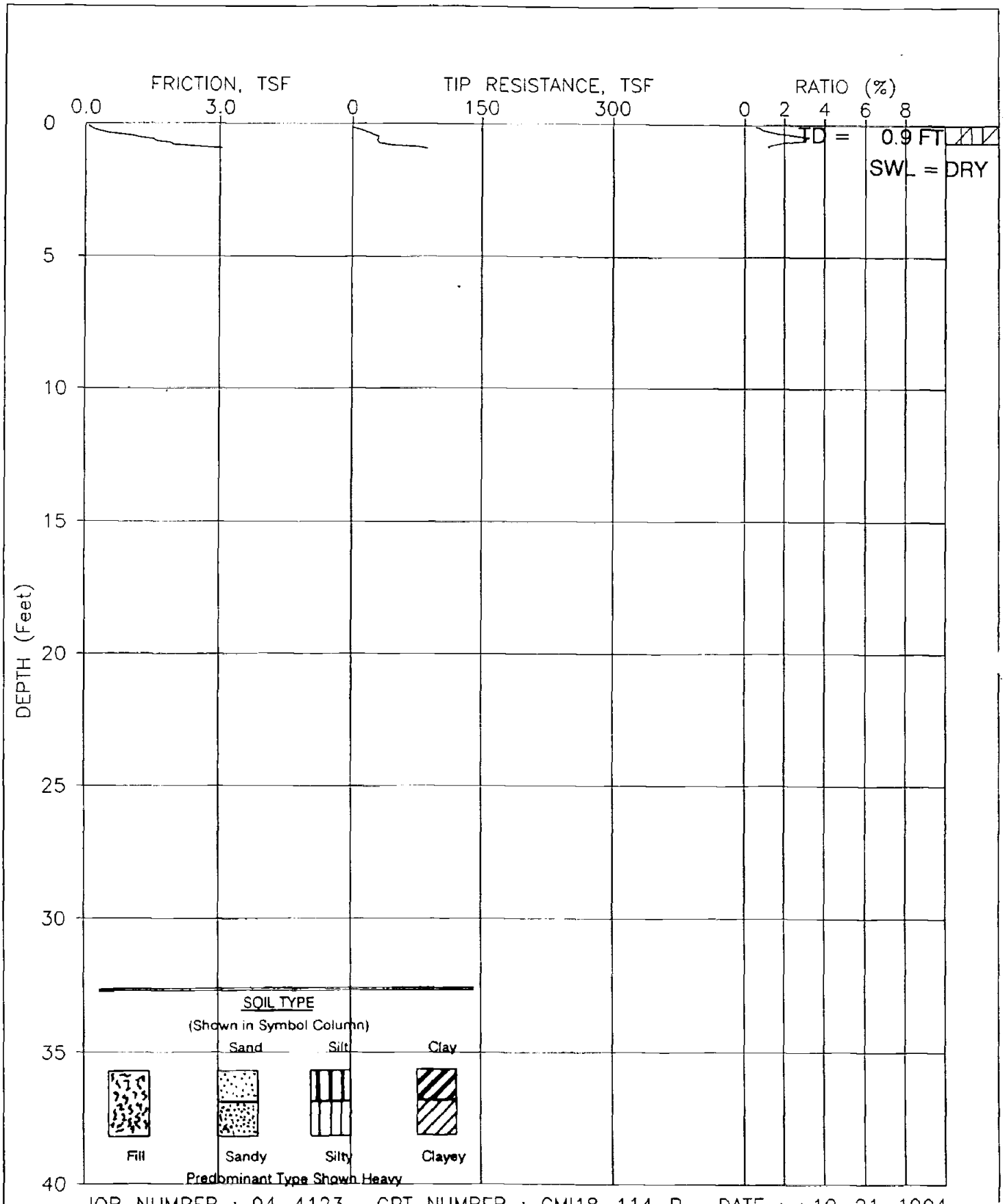
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-111-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



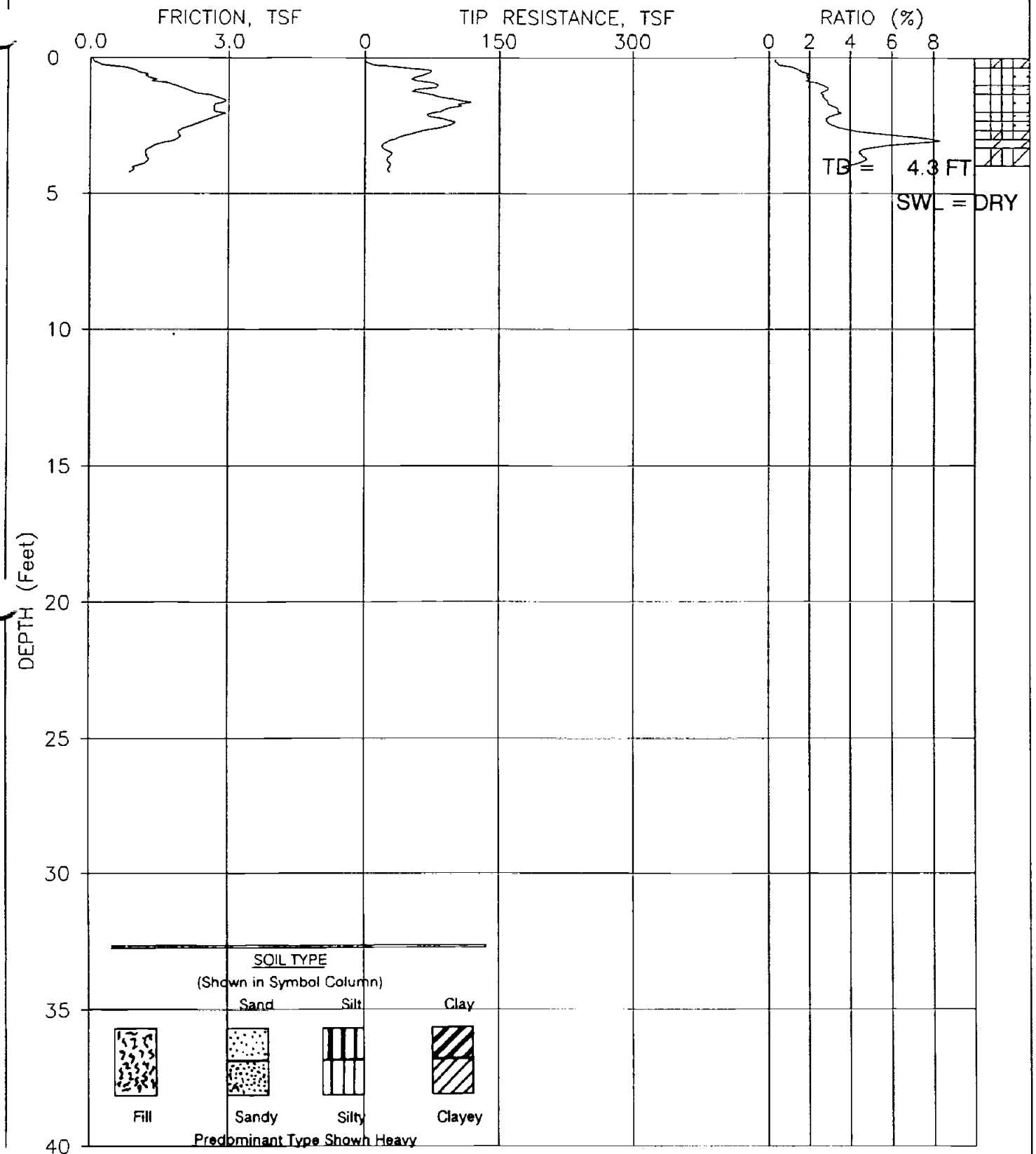
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-112-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



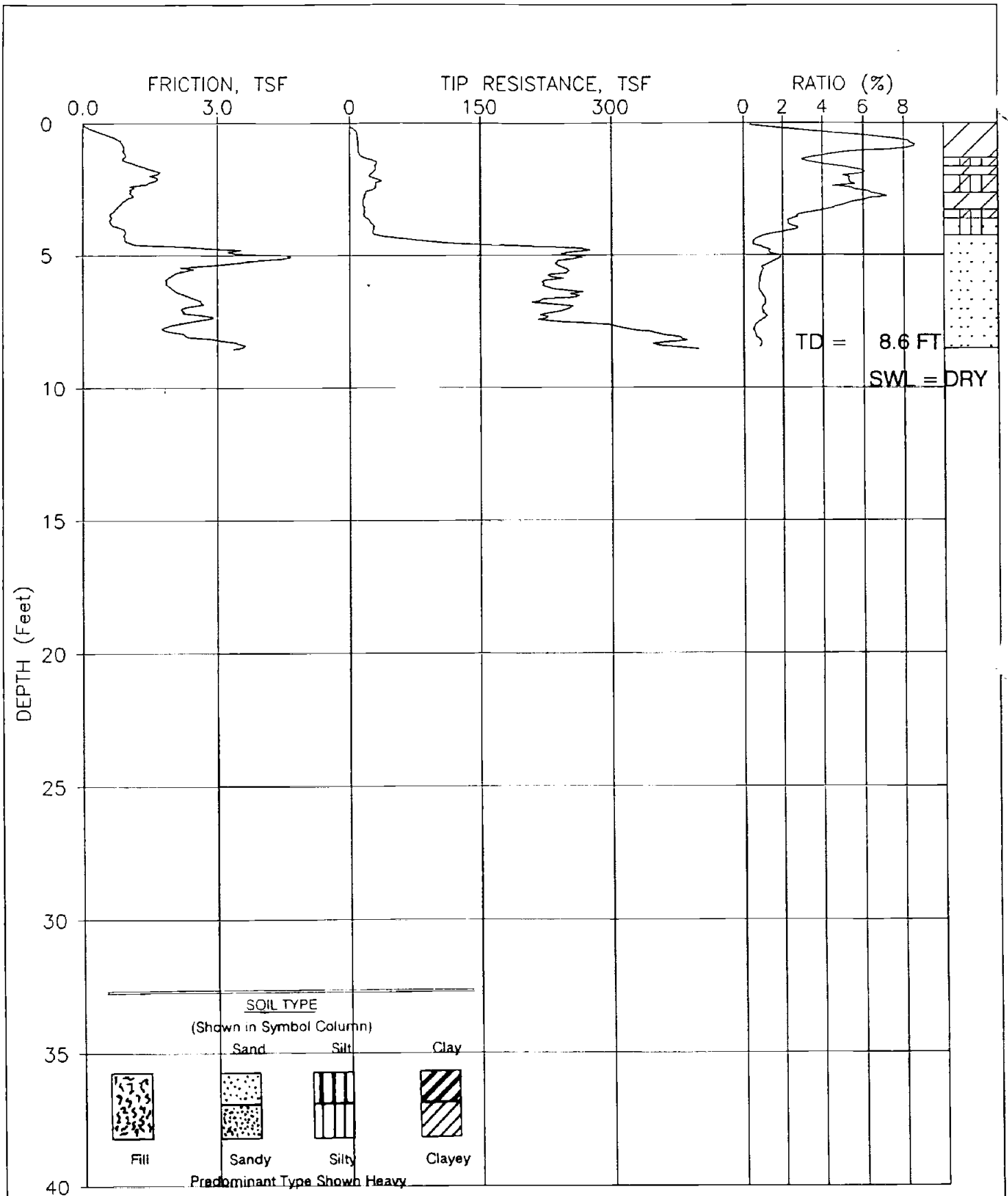
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-114-P DATE : 10-21-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



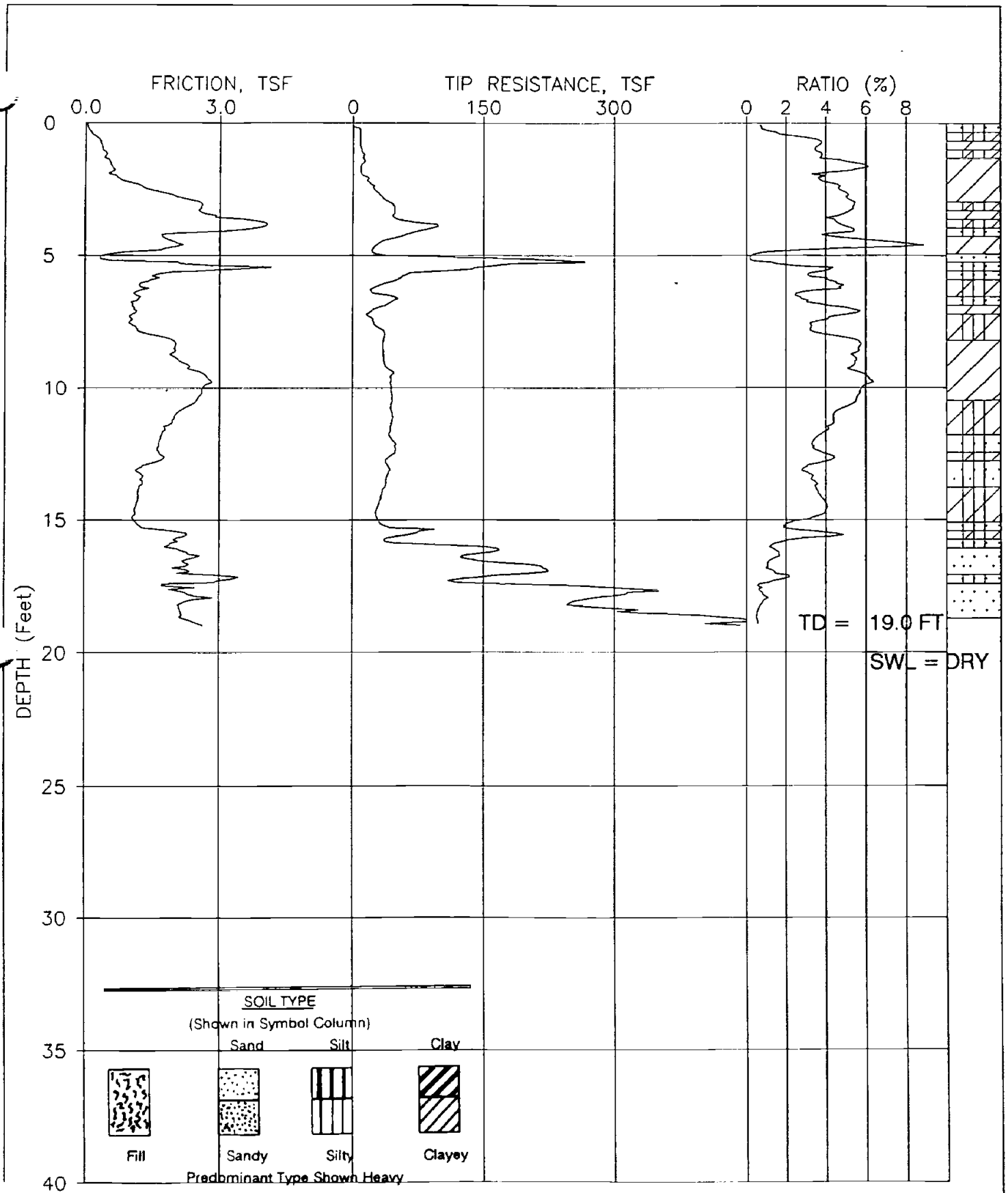
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-115-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



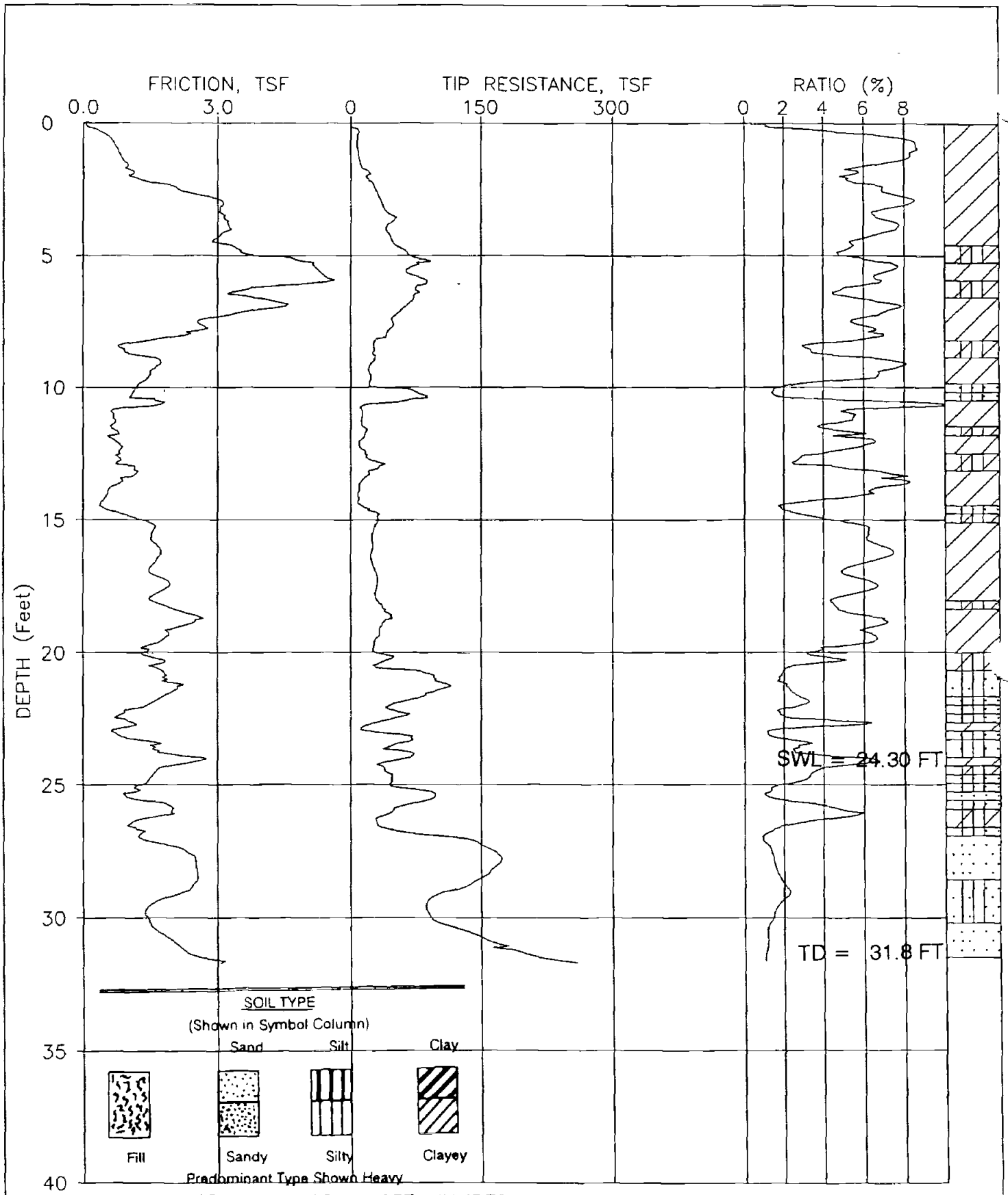
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-116-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



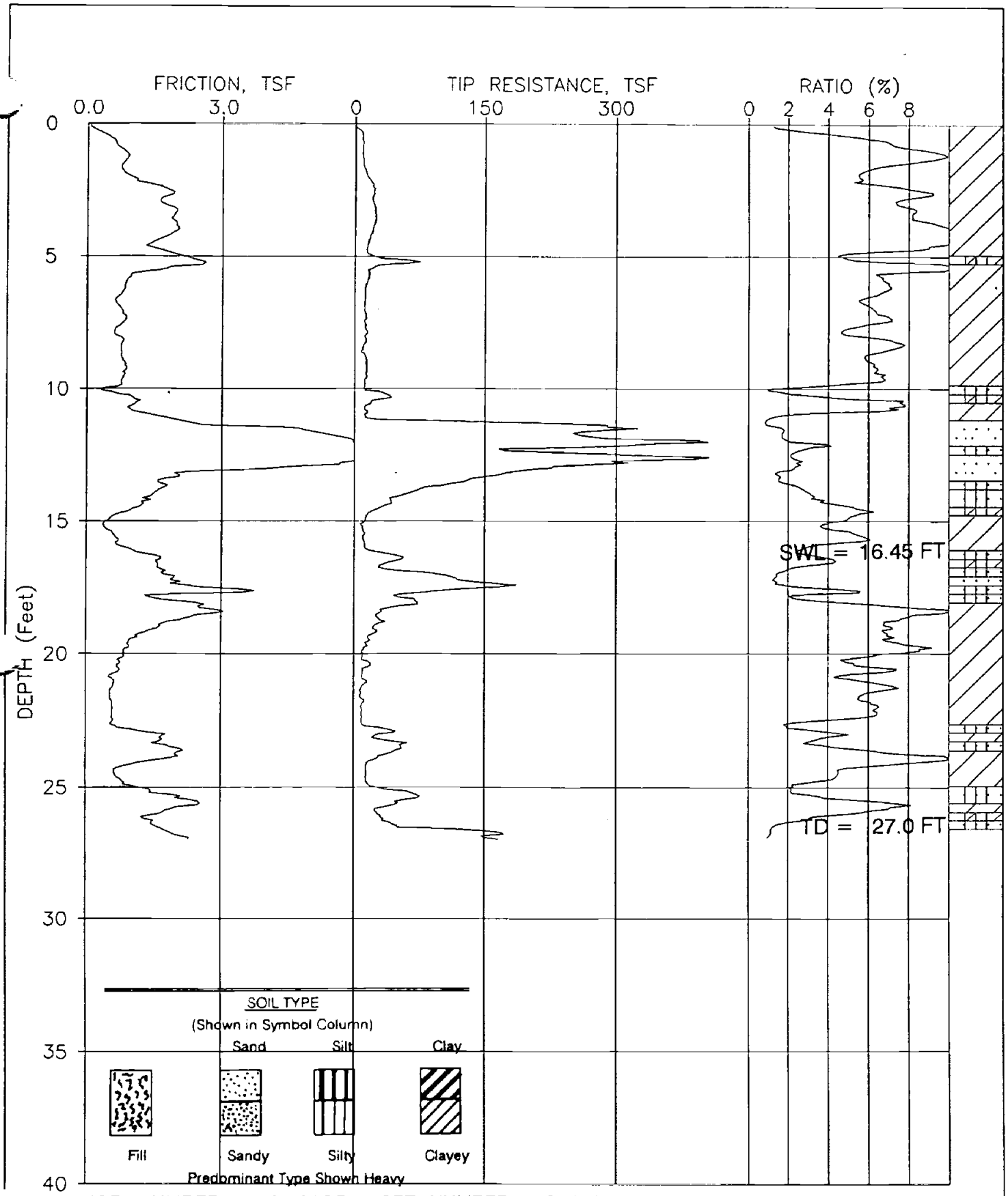
JOB NUMBER : 94-4123 CPT NUMBER : GFI18-117P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



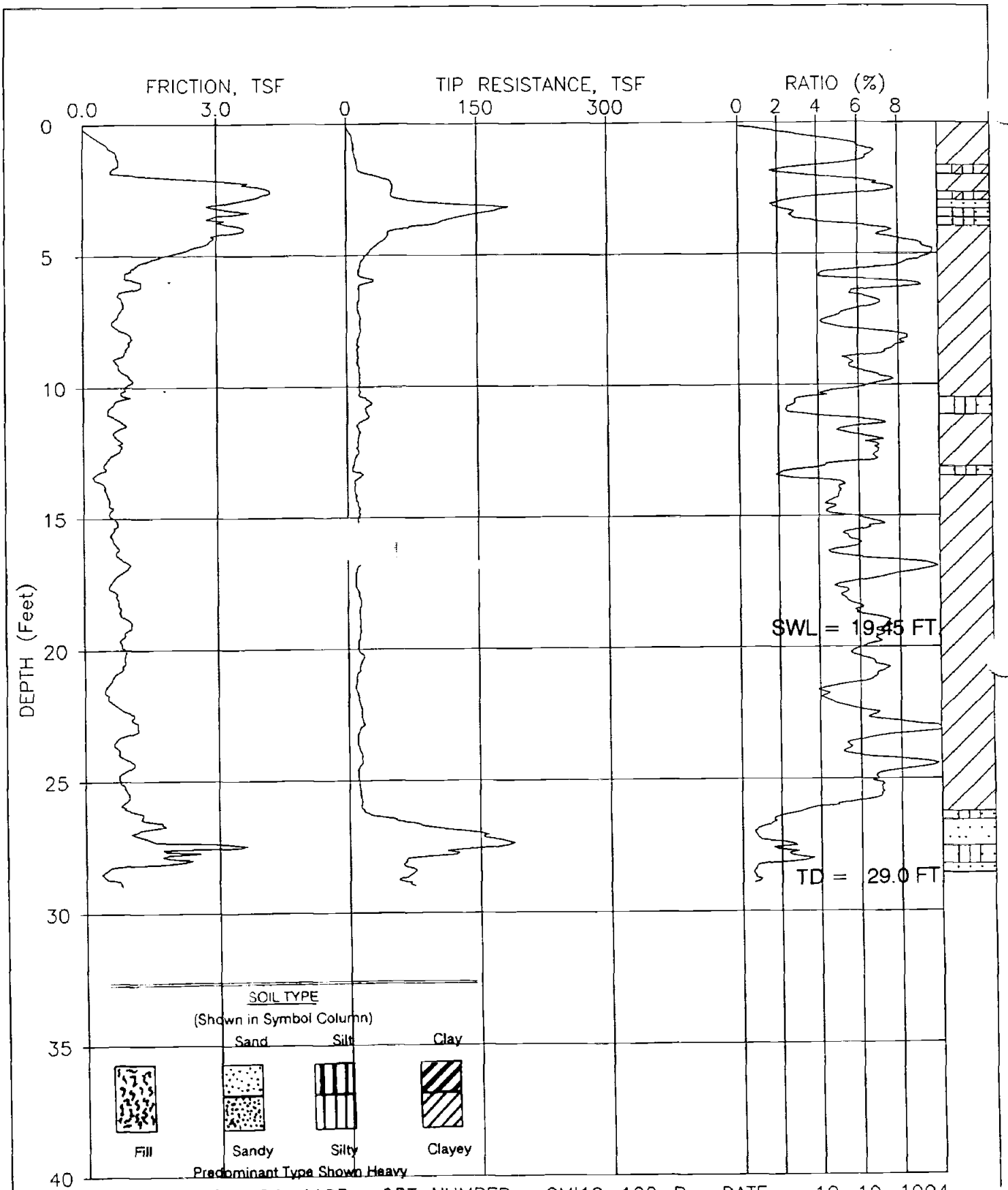
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-118-P DATE : 10-19-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-119-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

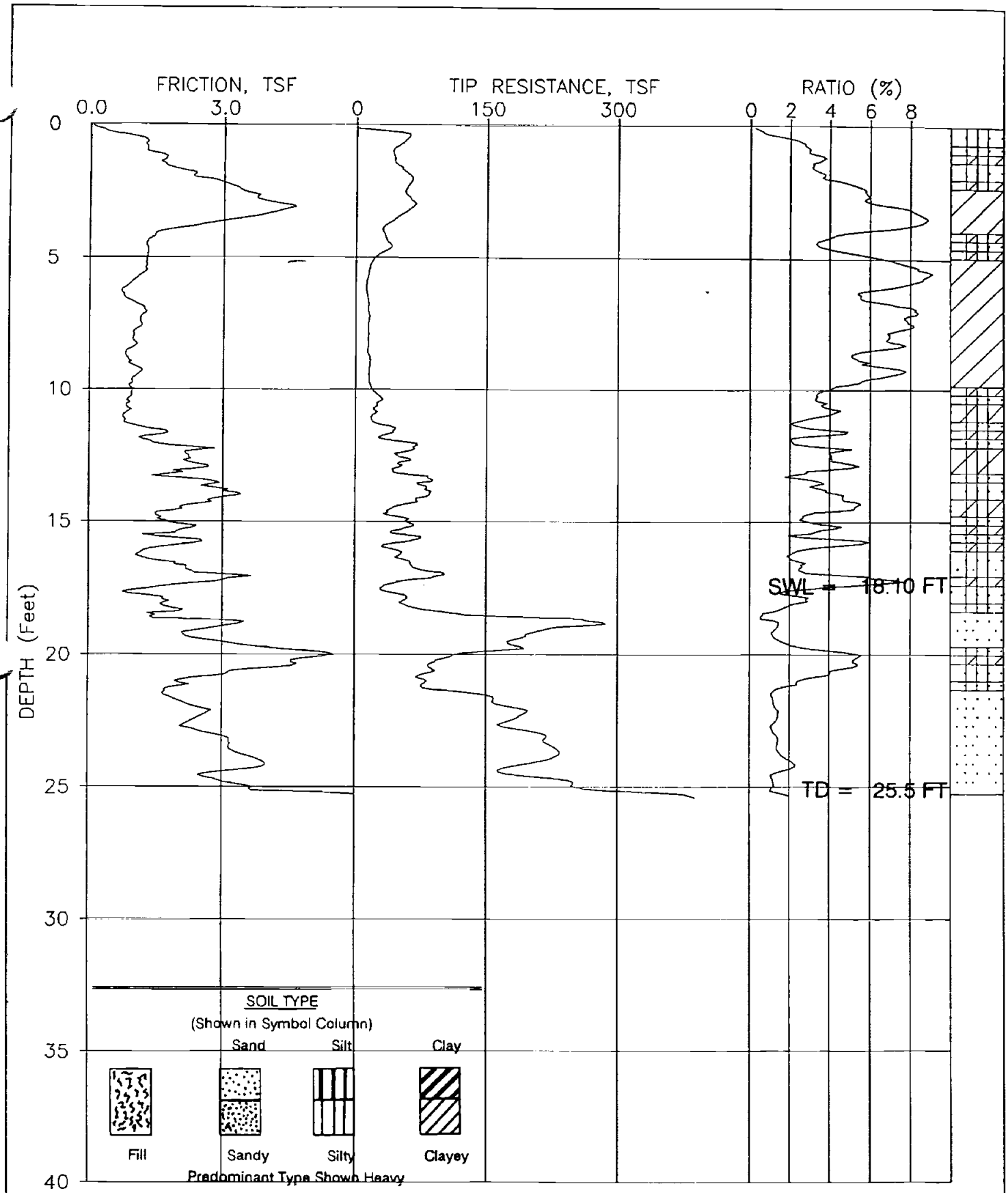
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-120-P DATE : 10-19-1994

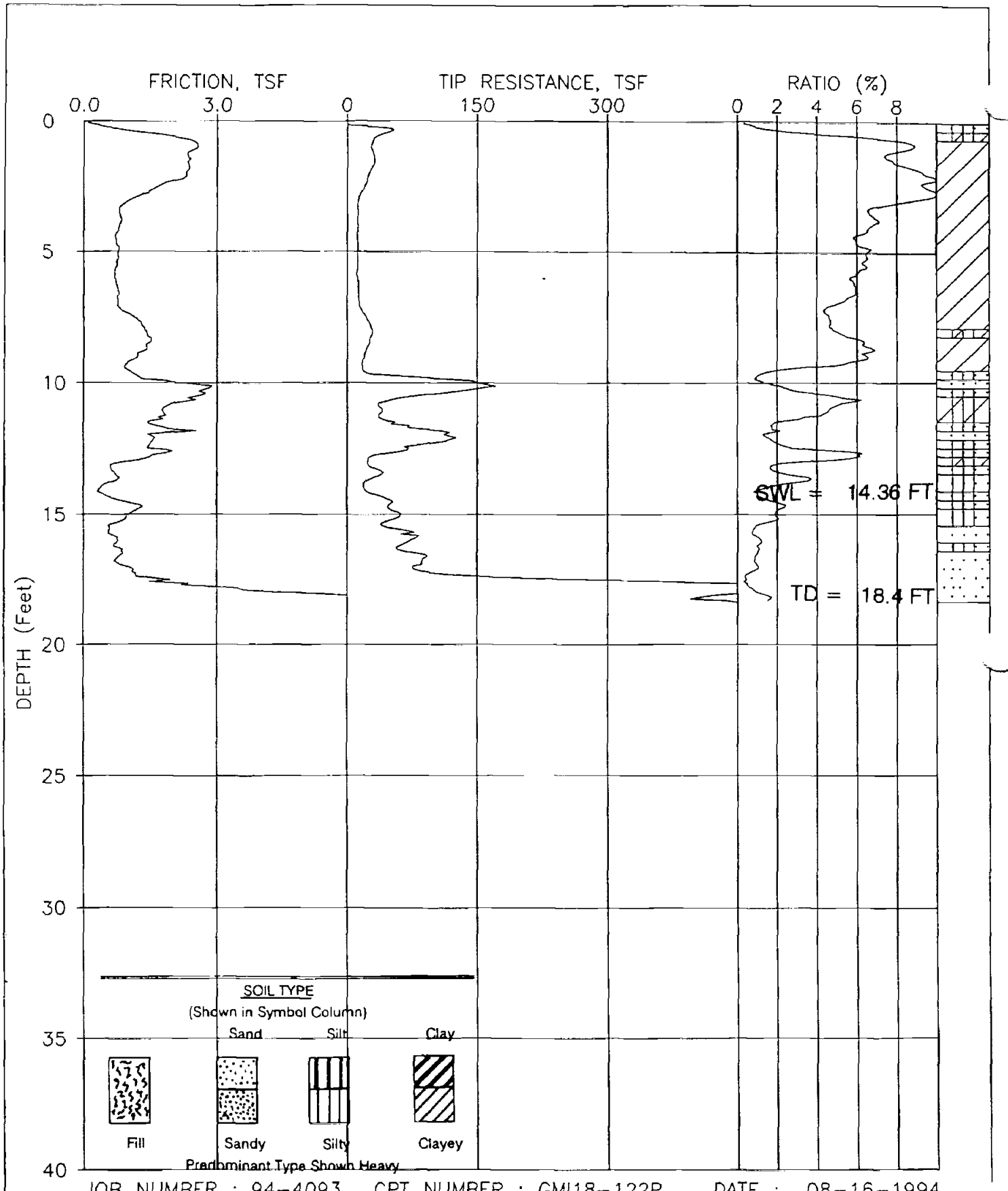
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



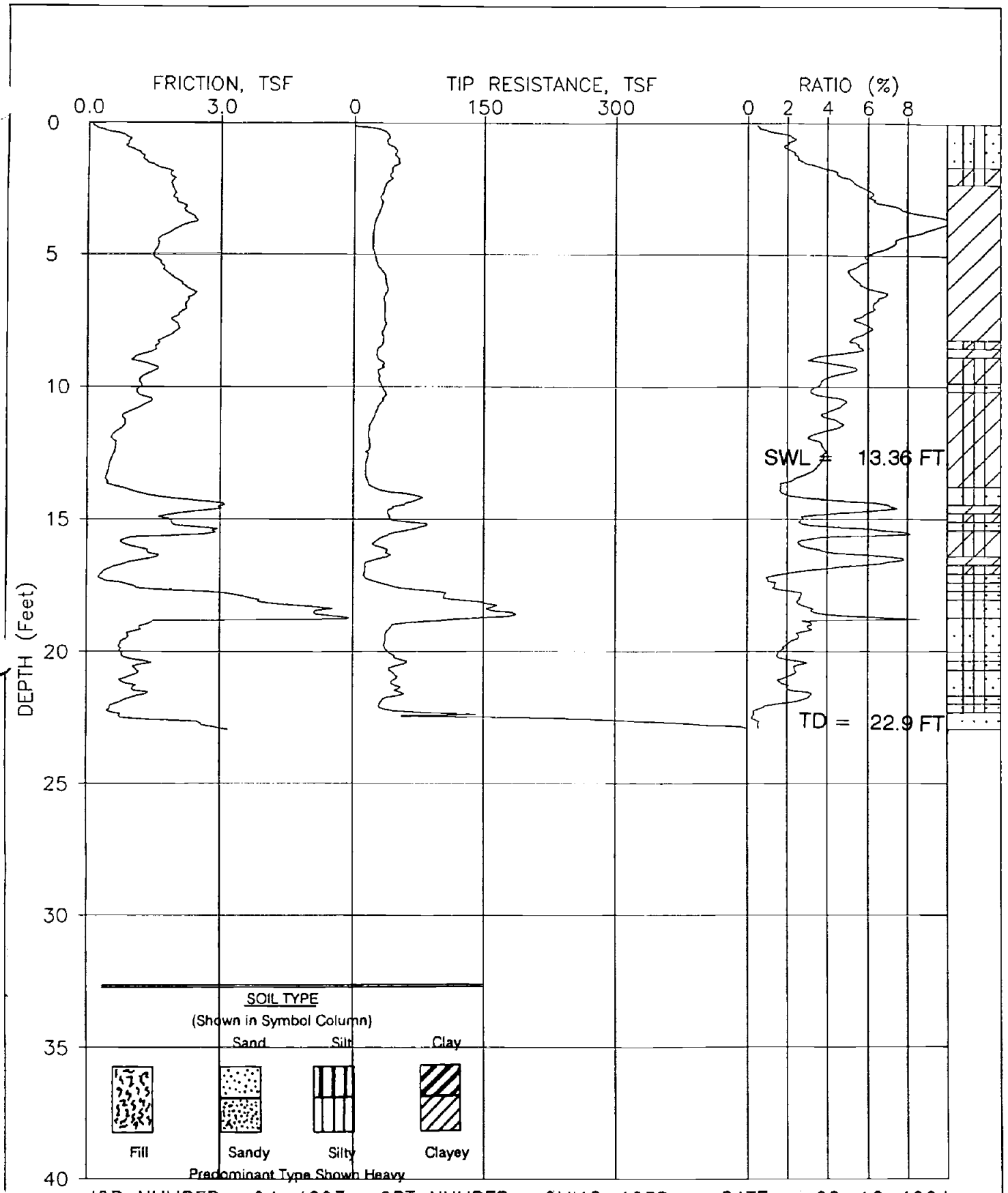
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-121P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



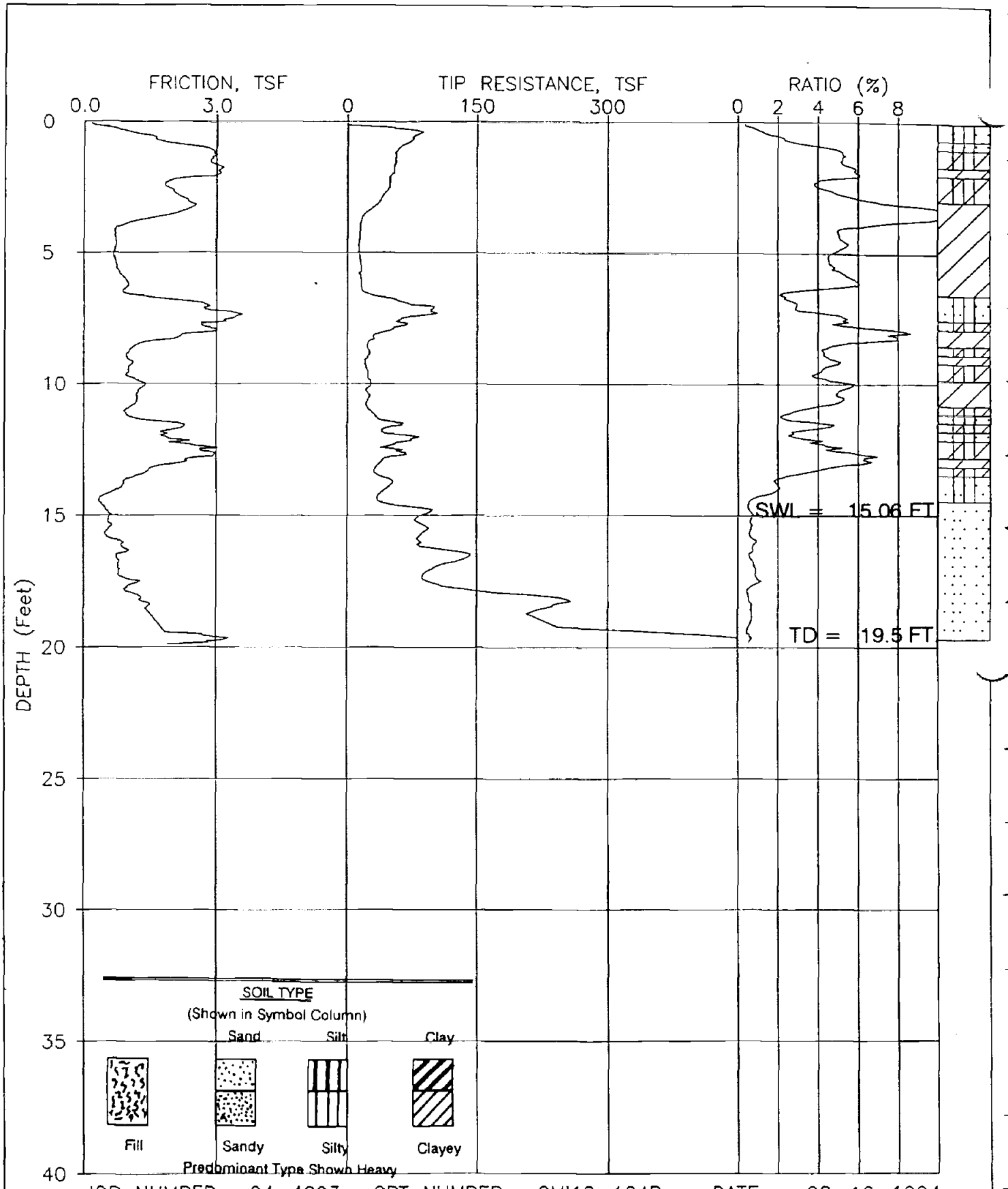
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-122P DATE : 08-16-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080



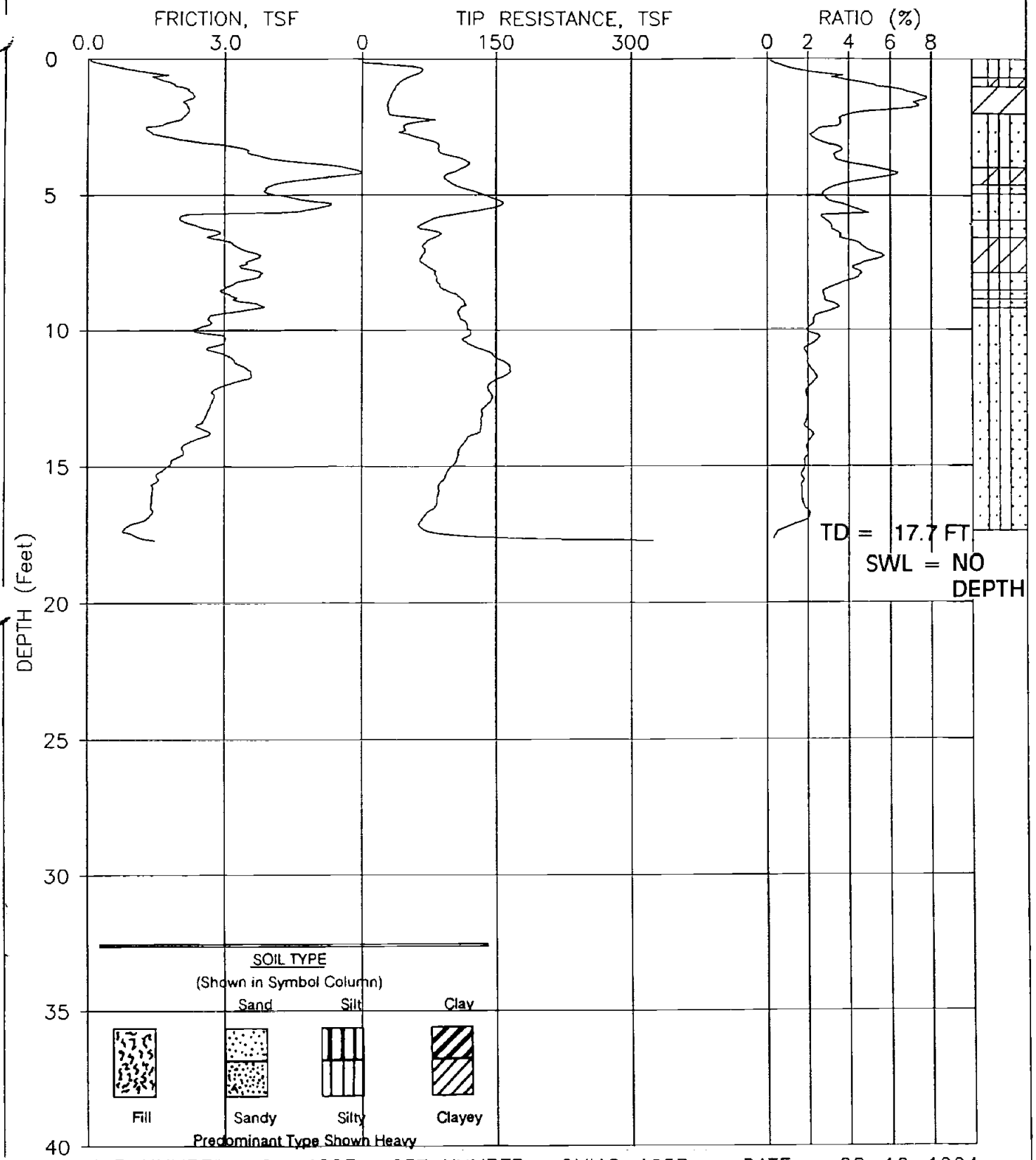
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-123P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



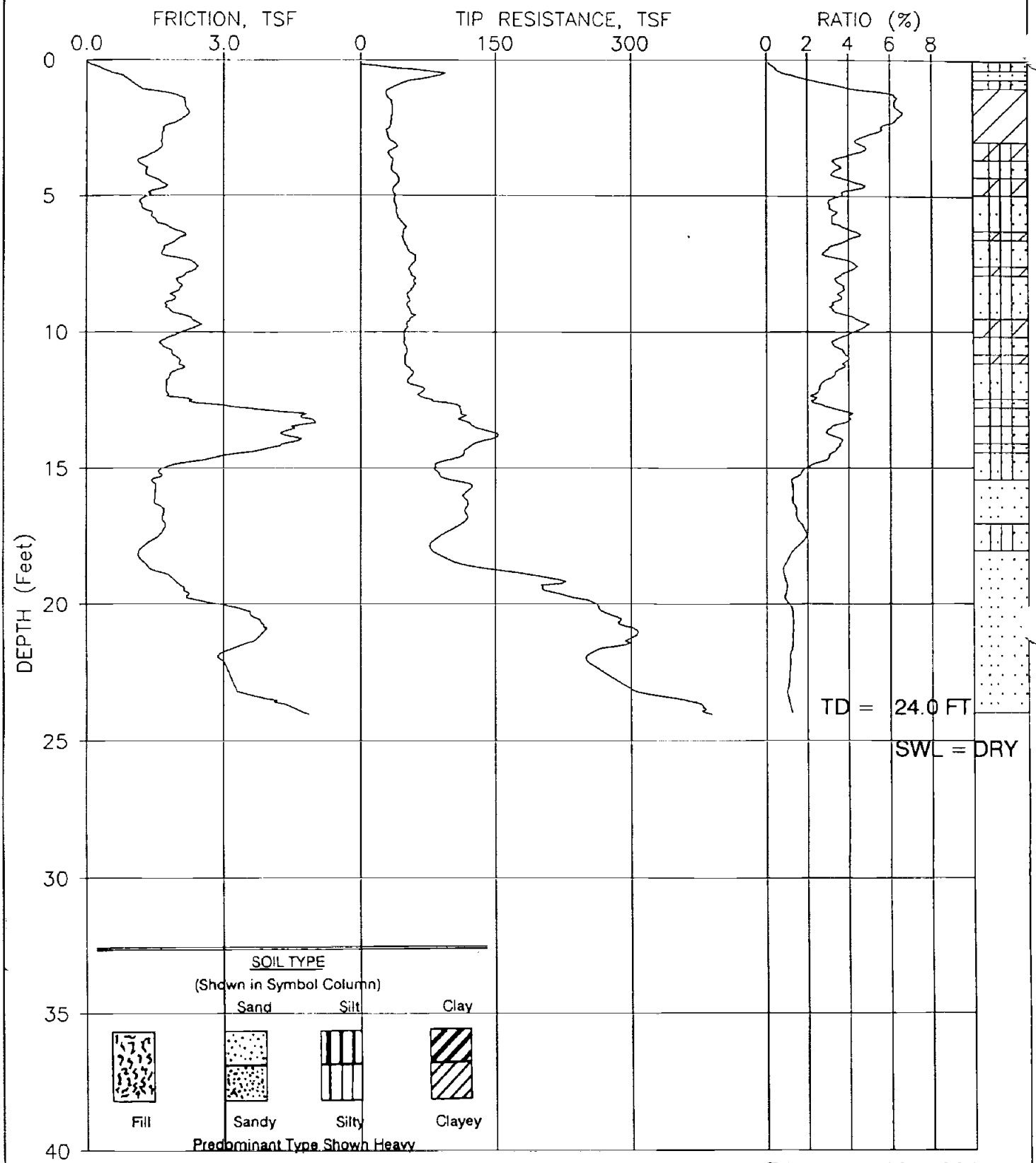
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-124P DATE : 08-16-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



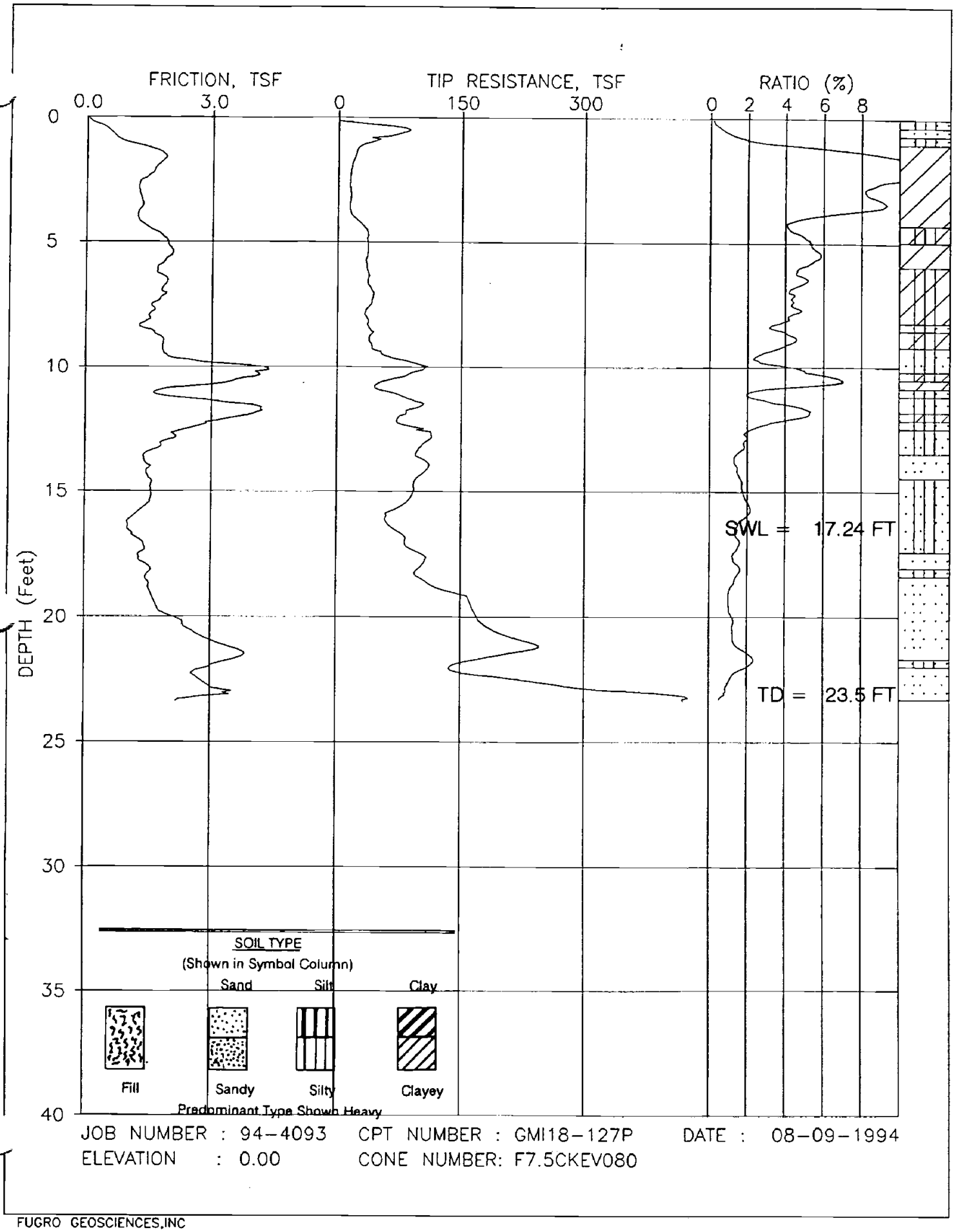
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-125P DATE : 08-10-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



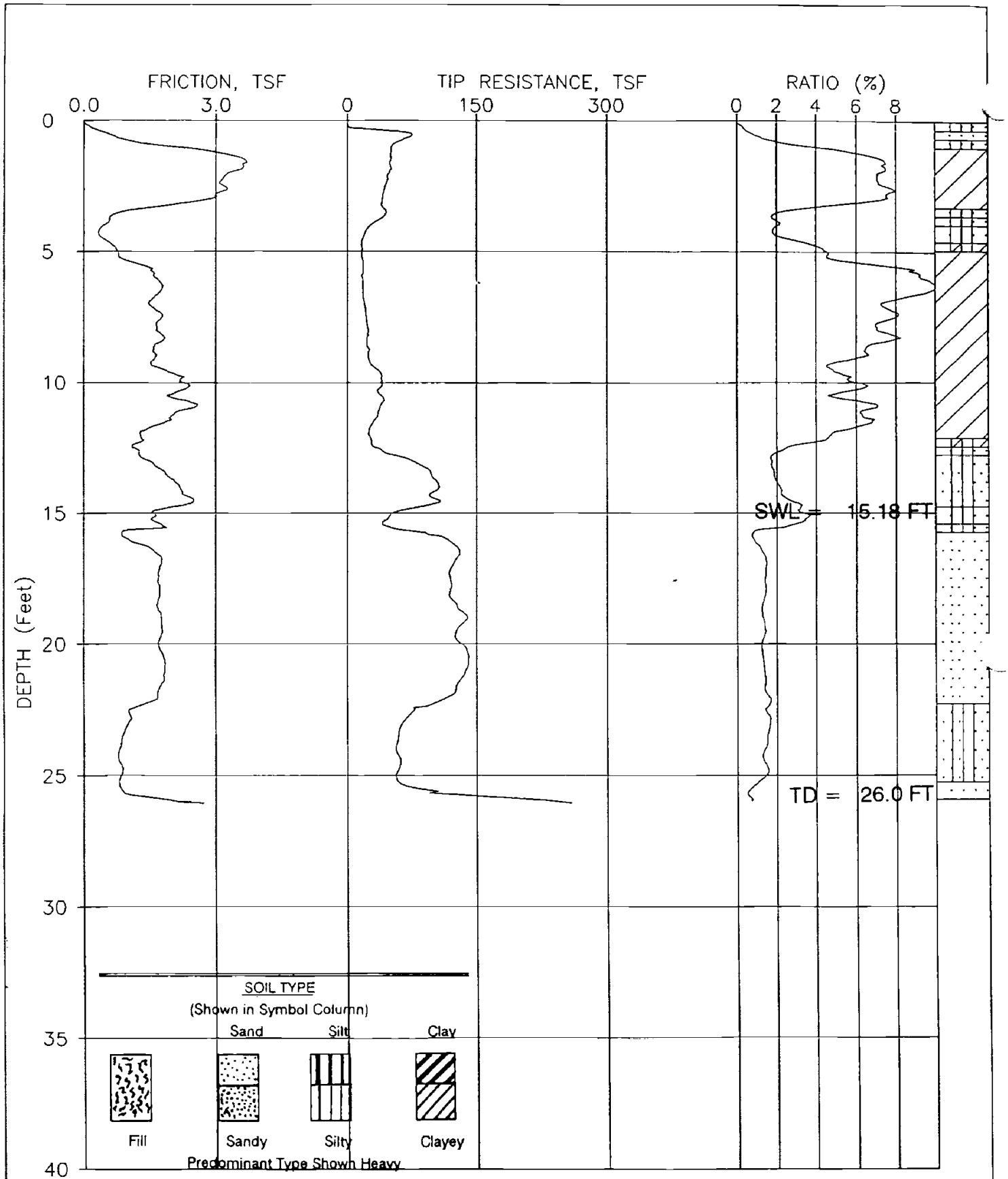
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-126P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



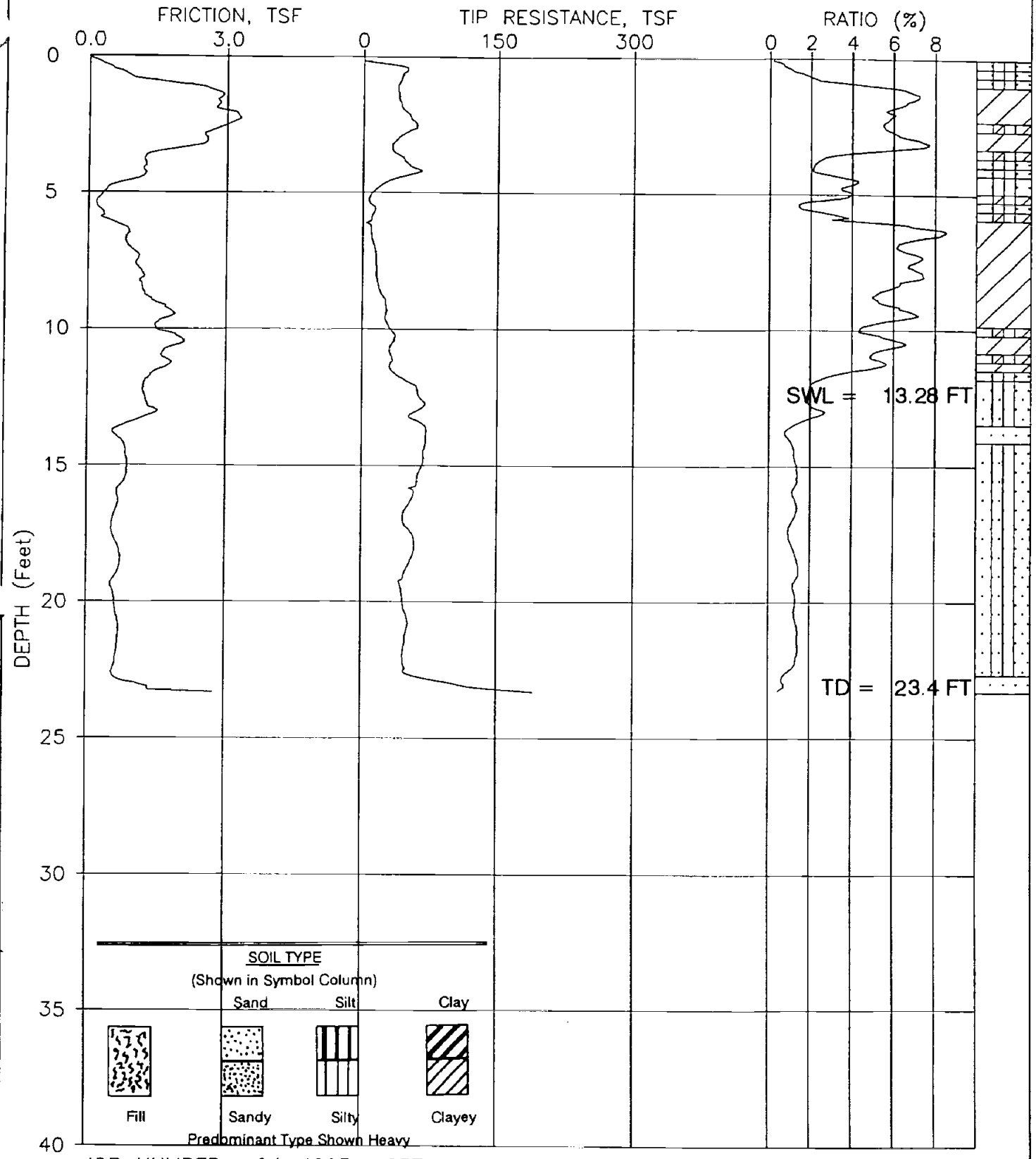
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-127P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



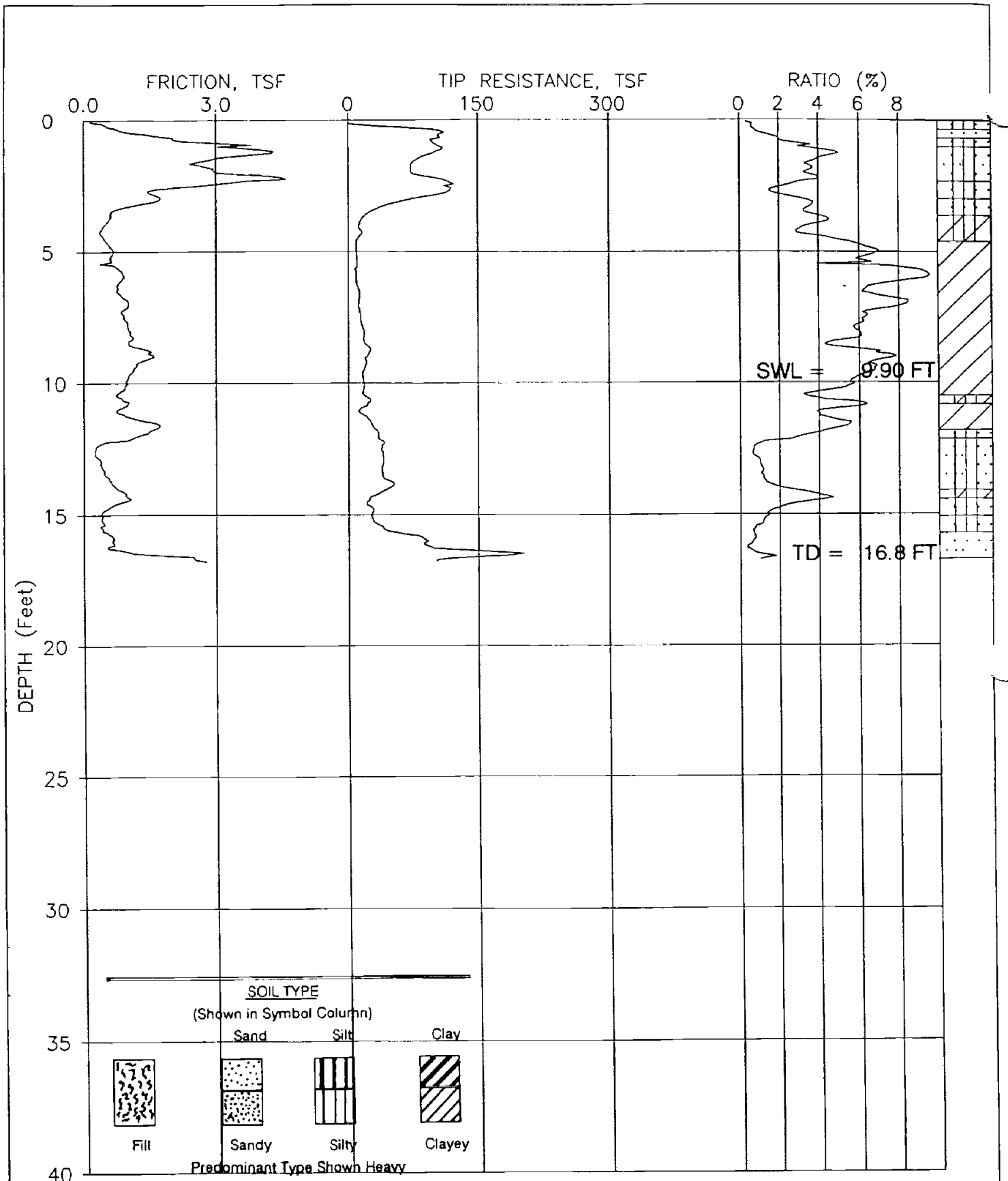
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-128P DATE : 08-10-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-129P DATE : 08-10-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

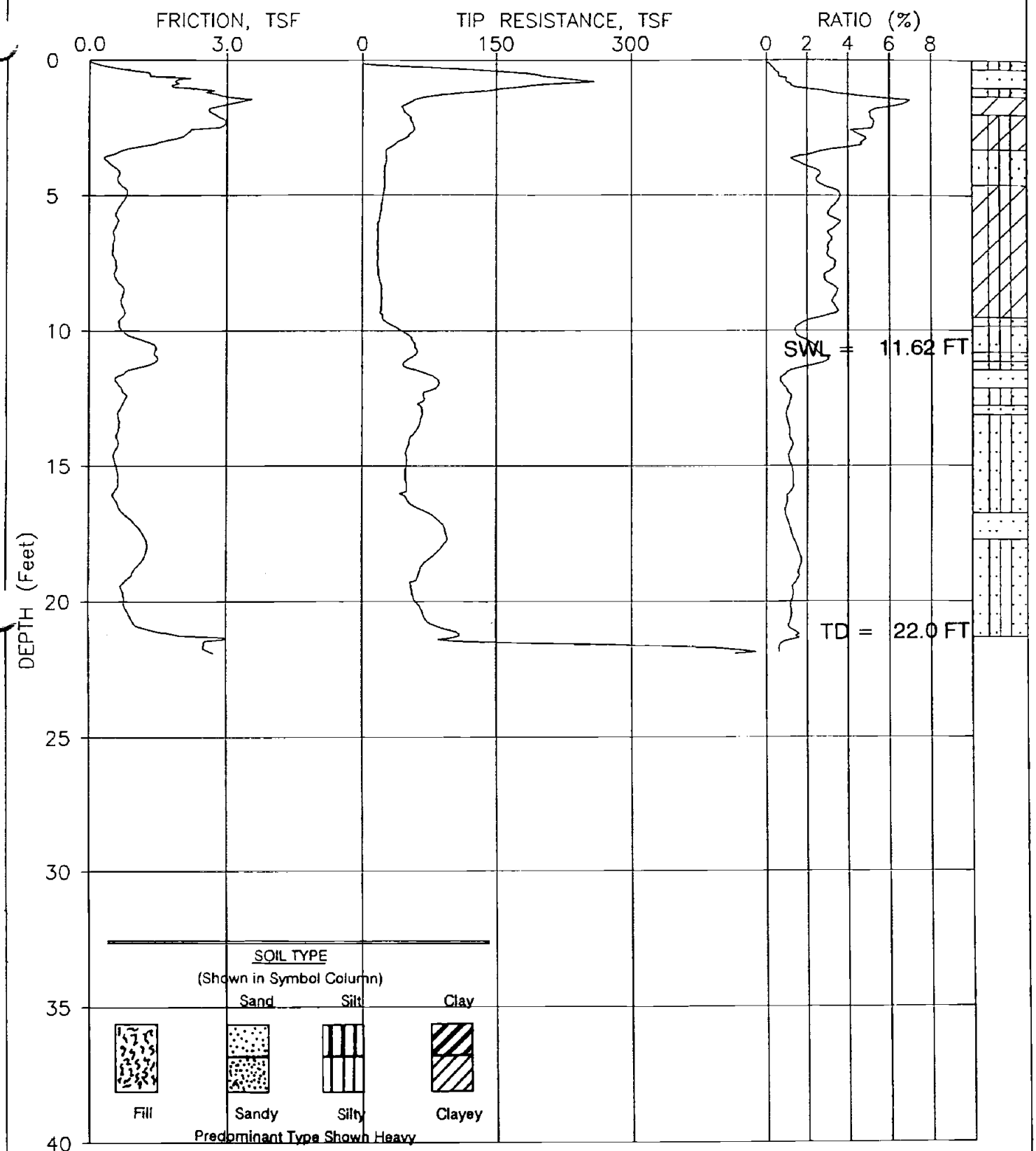
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-130 DATE : 08-11-1994

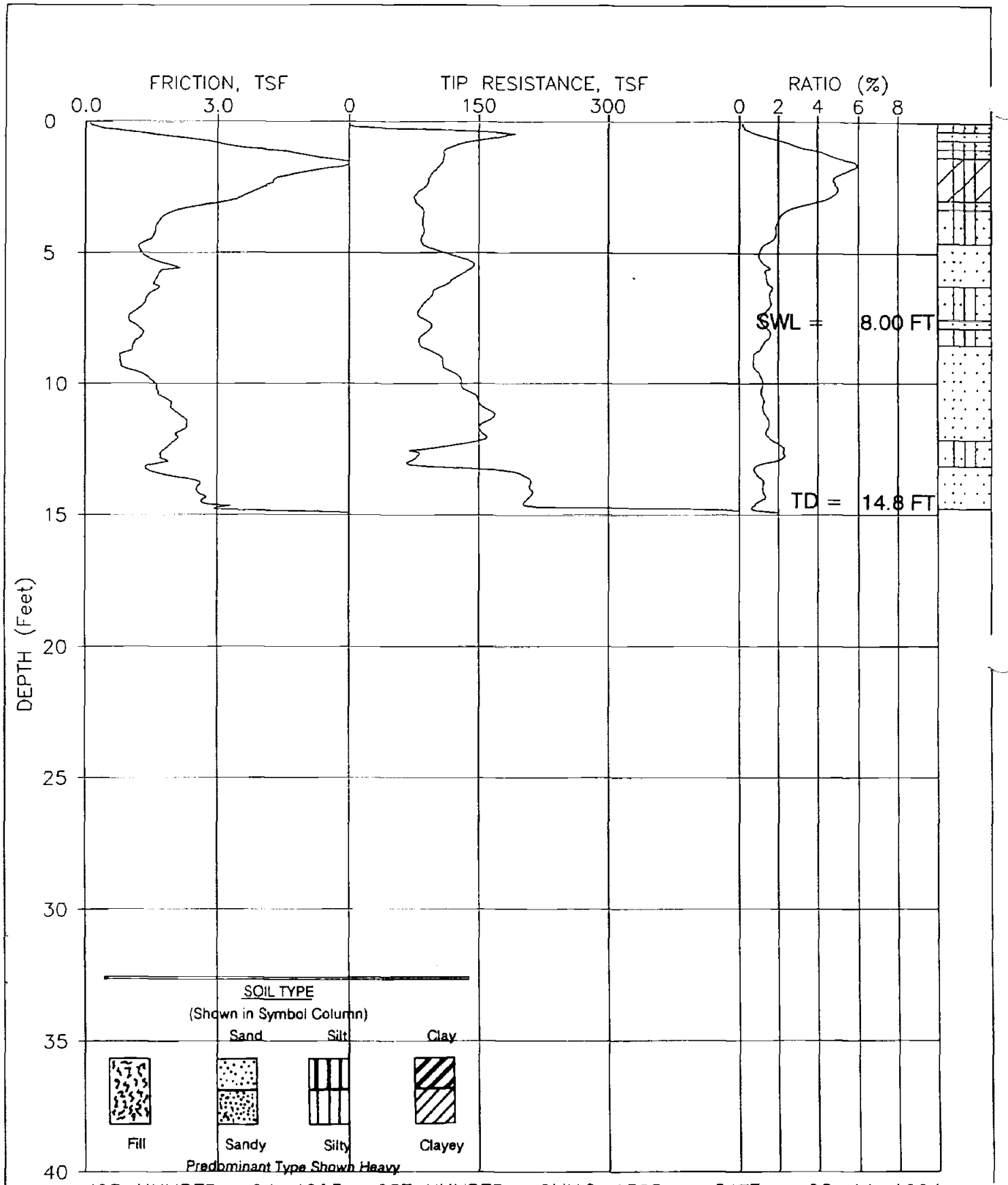
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



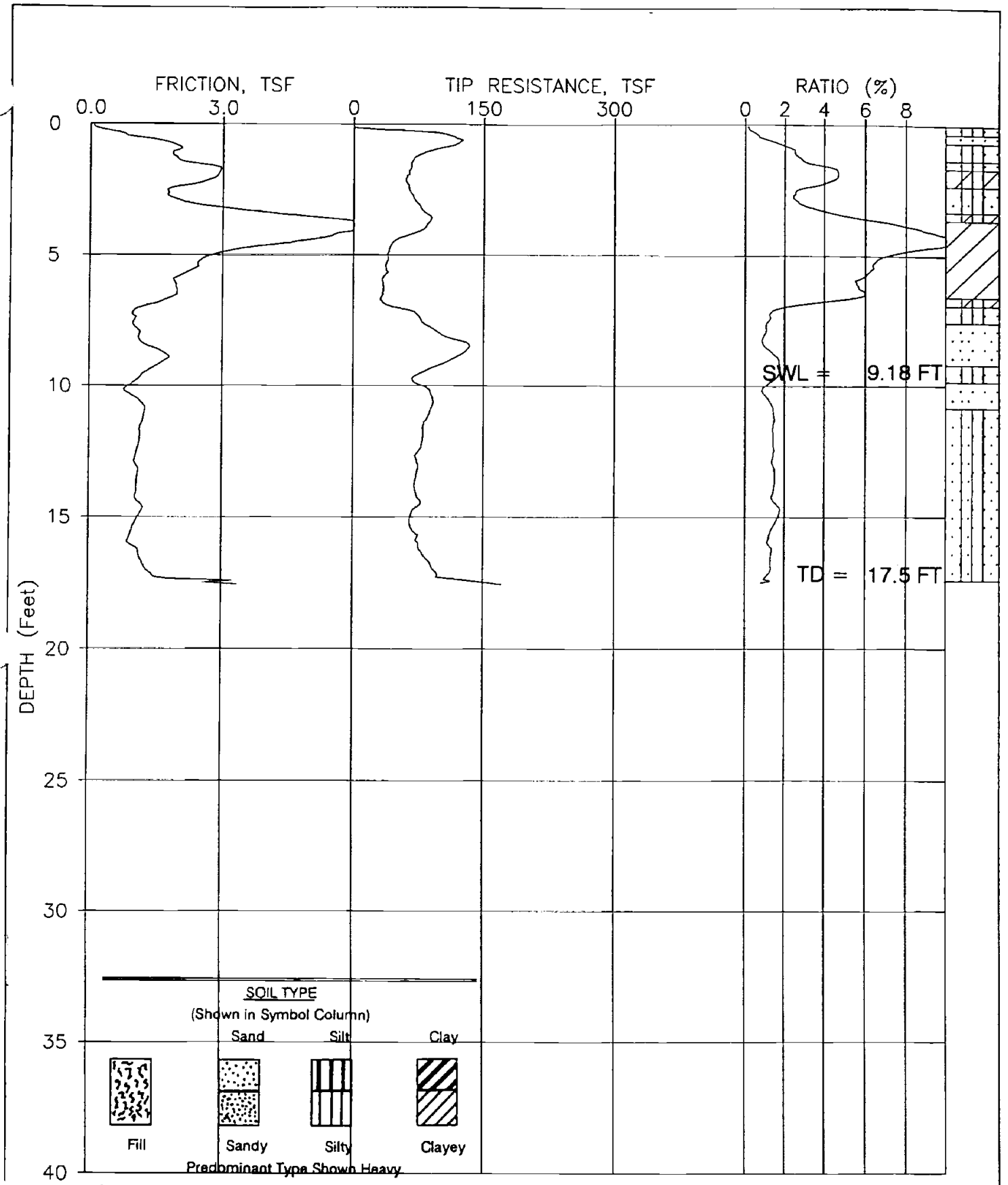
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-131P DATE : 08-10-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



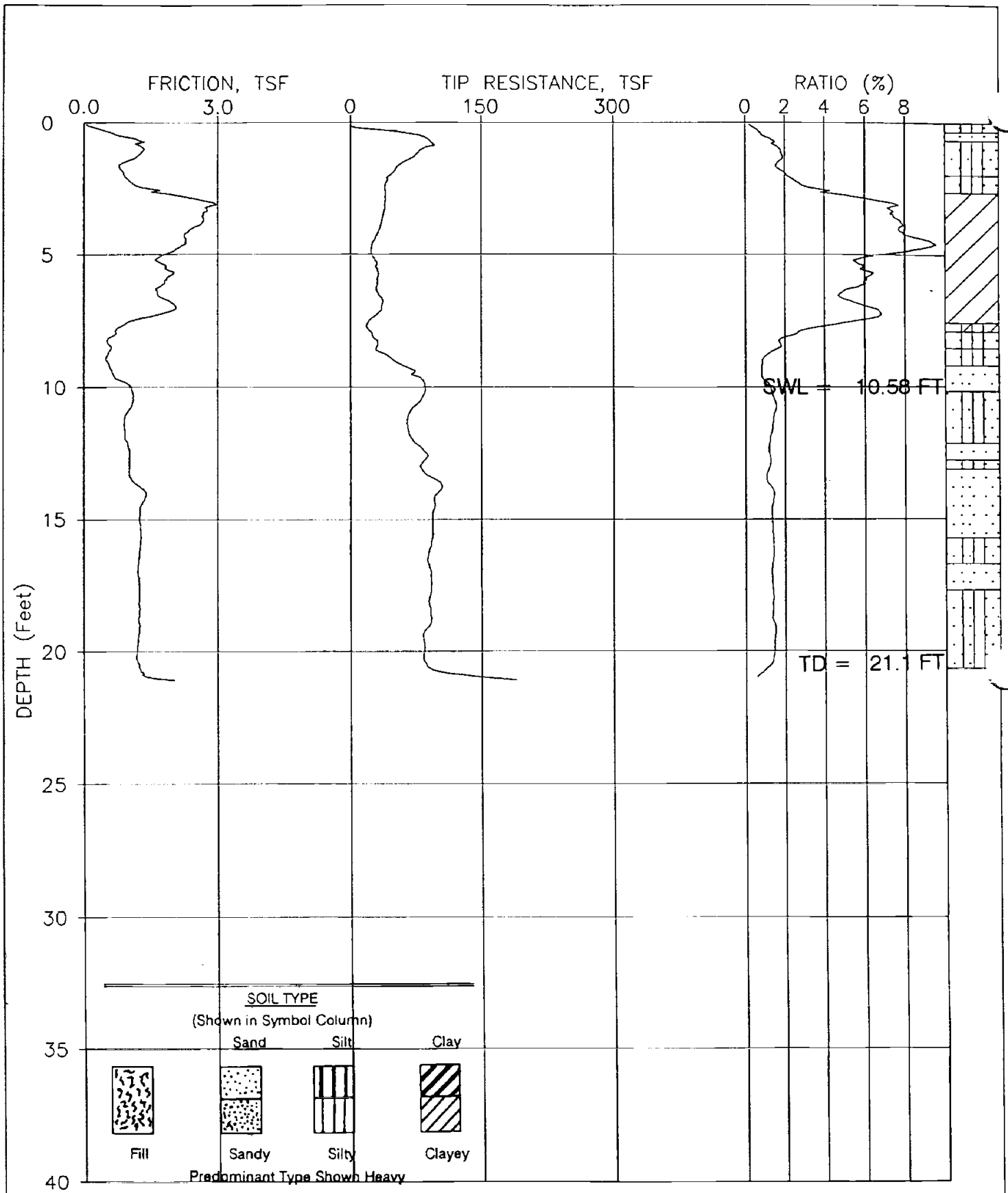
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-132P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-133P DATE : 08-10-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

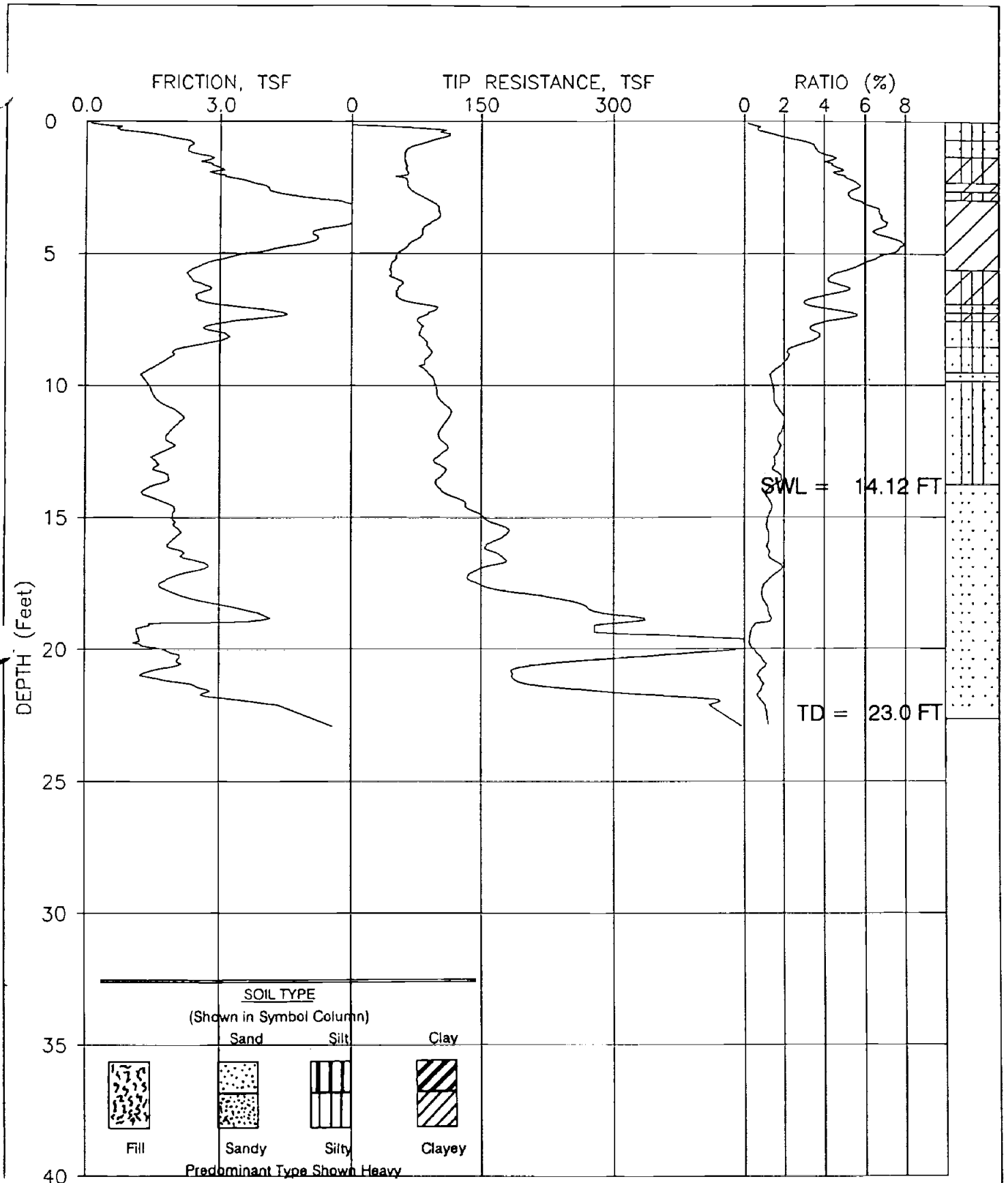
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-134P DATE : 08-11-1994

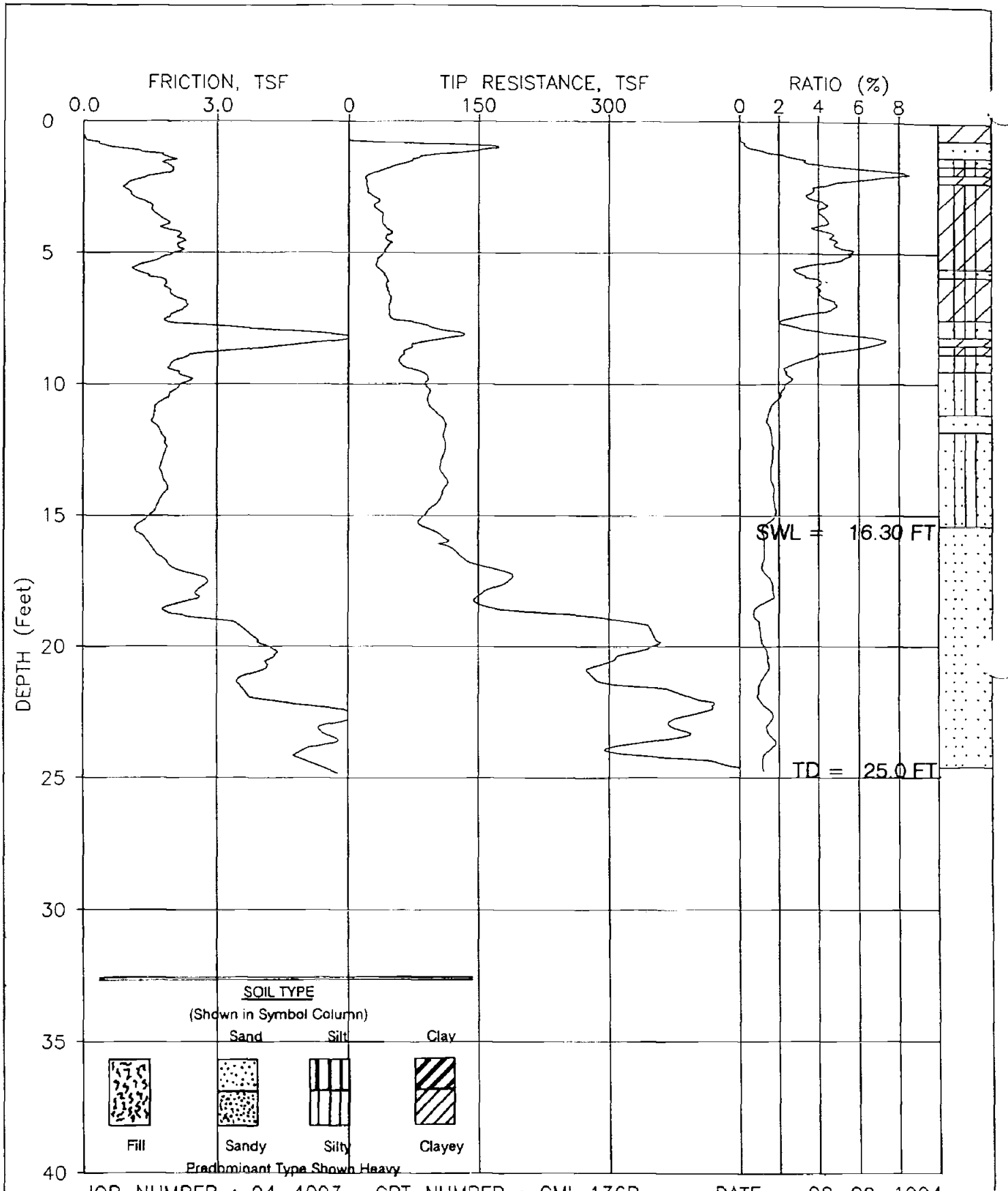
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



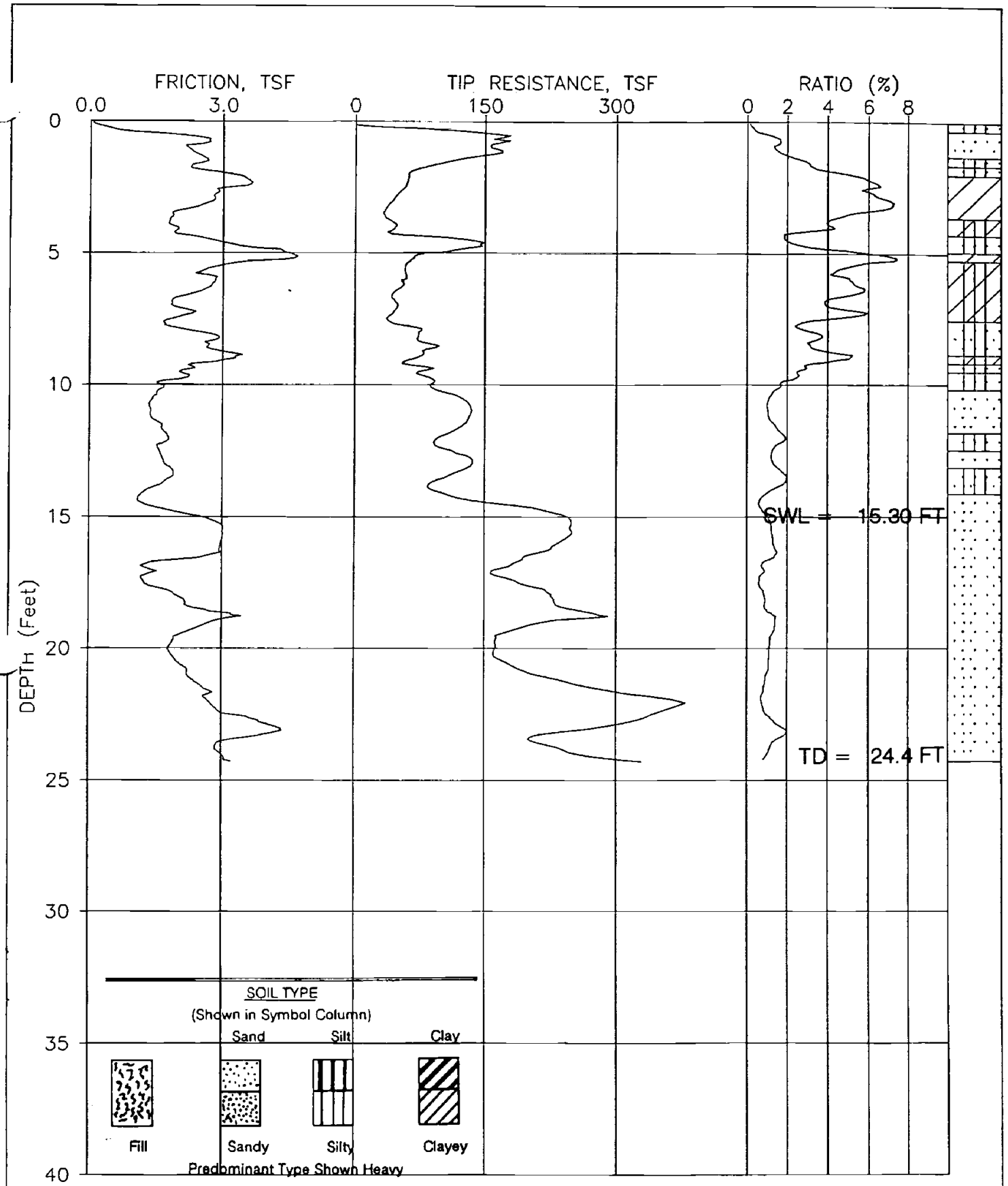
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-135P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



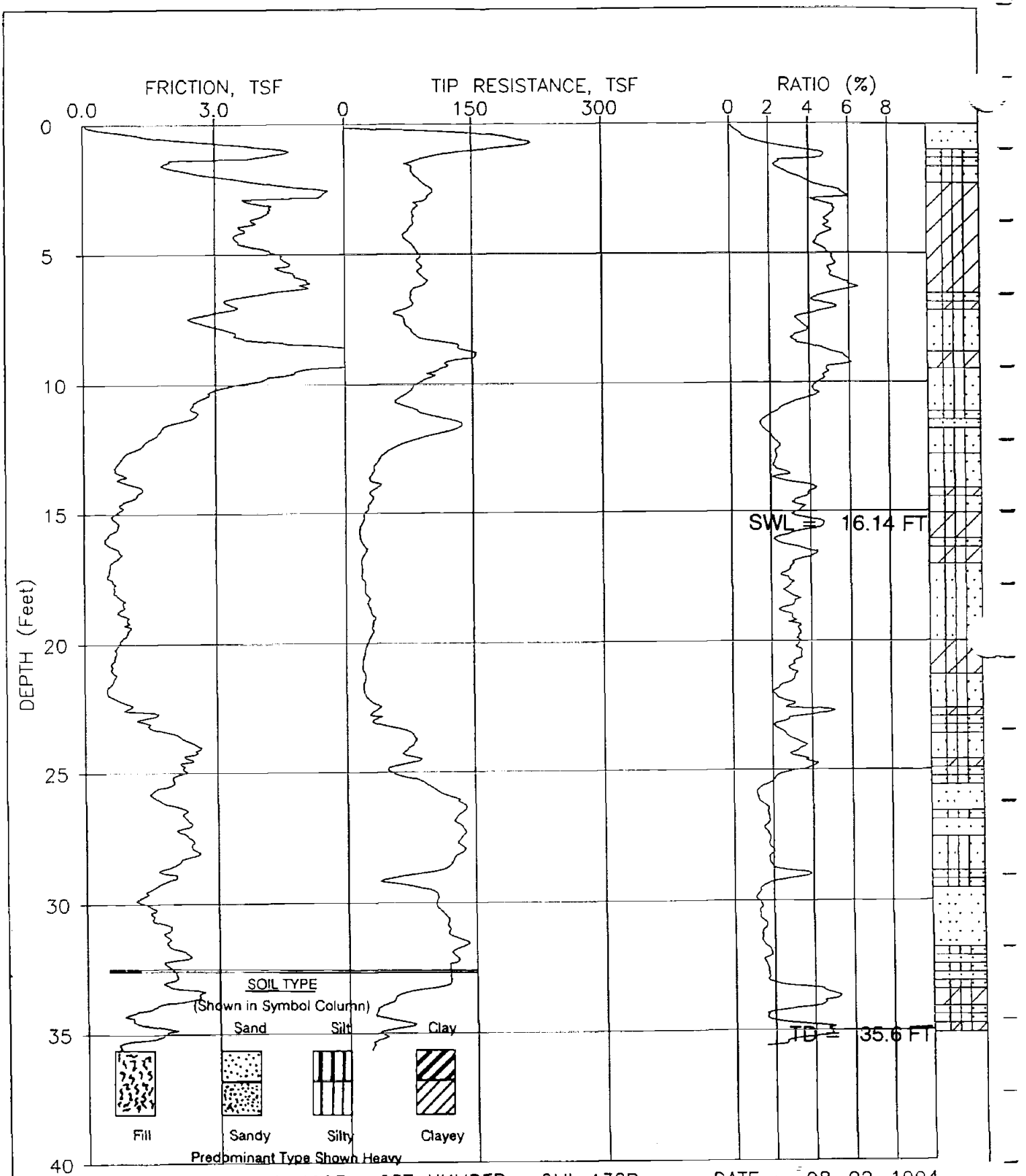
JOB NUMBER : 94-4093 CPT NUMBER : GMI-136P DATE : 08-02-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



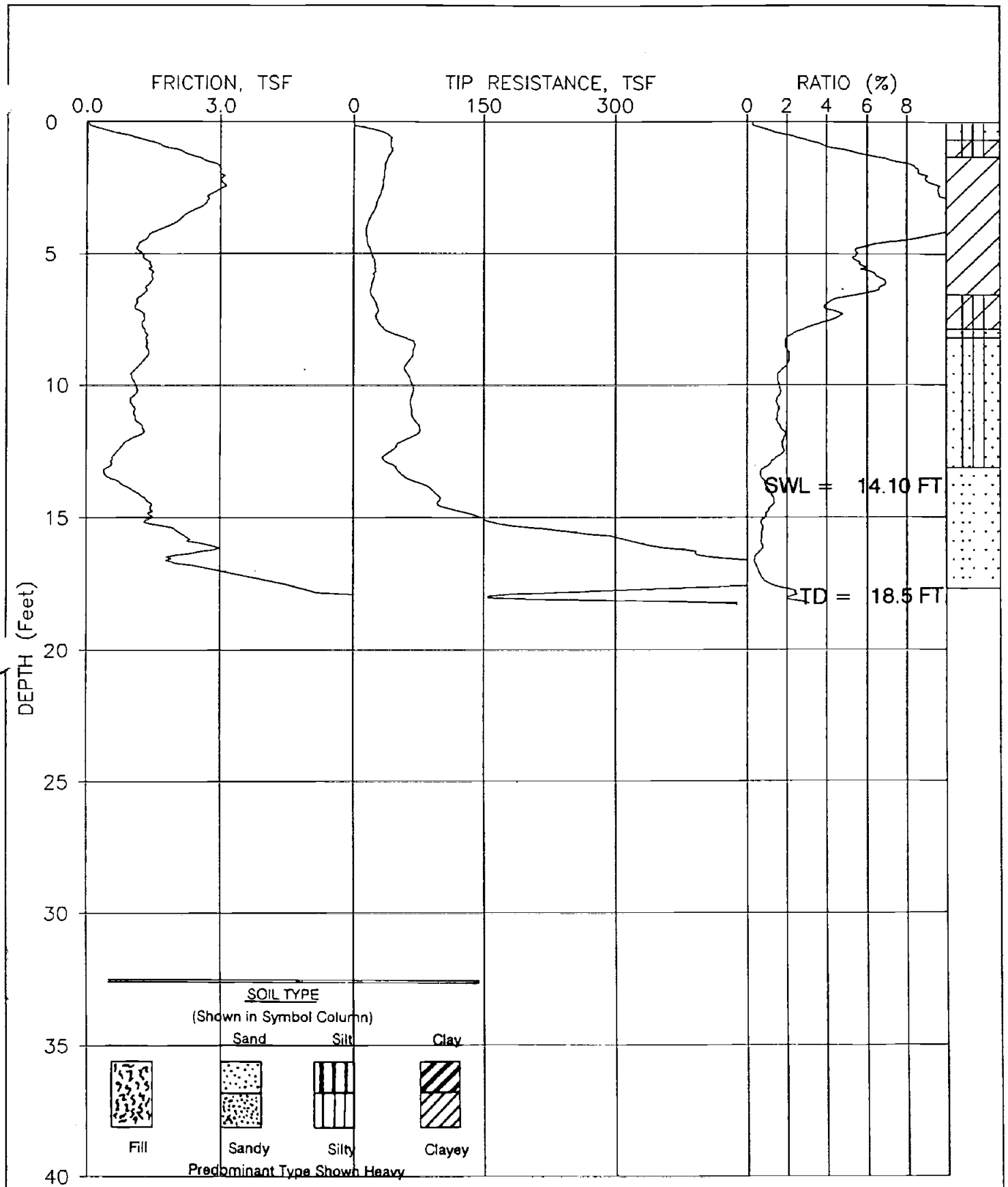
JOB NUMBER : 94-4093 CPT NUMBER : GMI-137P DATE : 08-02-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



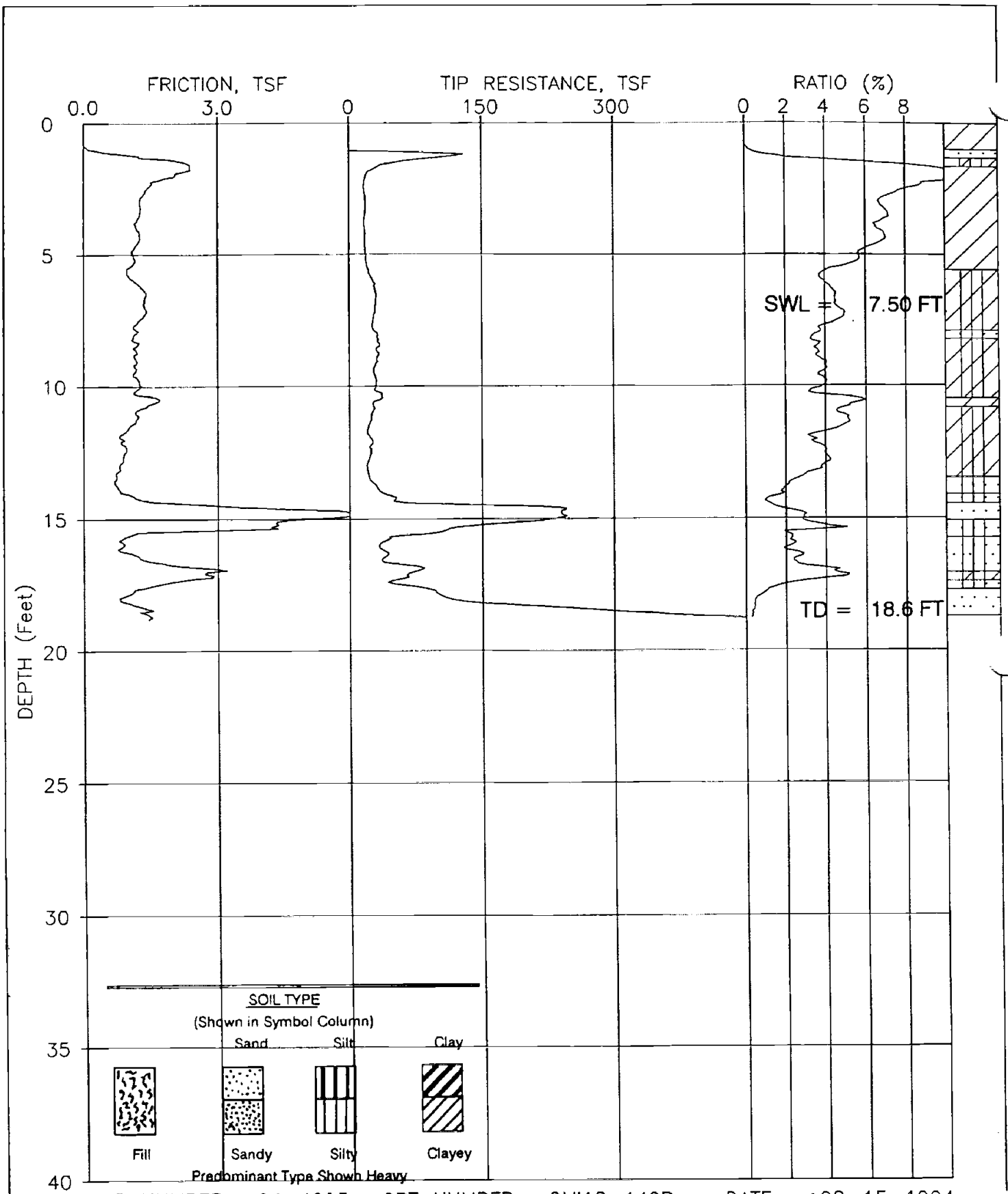
JOB NUMBER : 94-4093 CPT NUMBER : GMI-138P DATE : 08-02-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



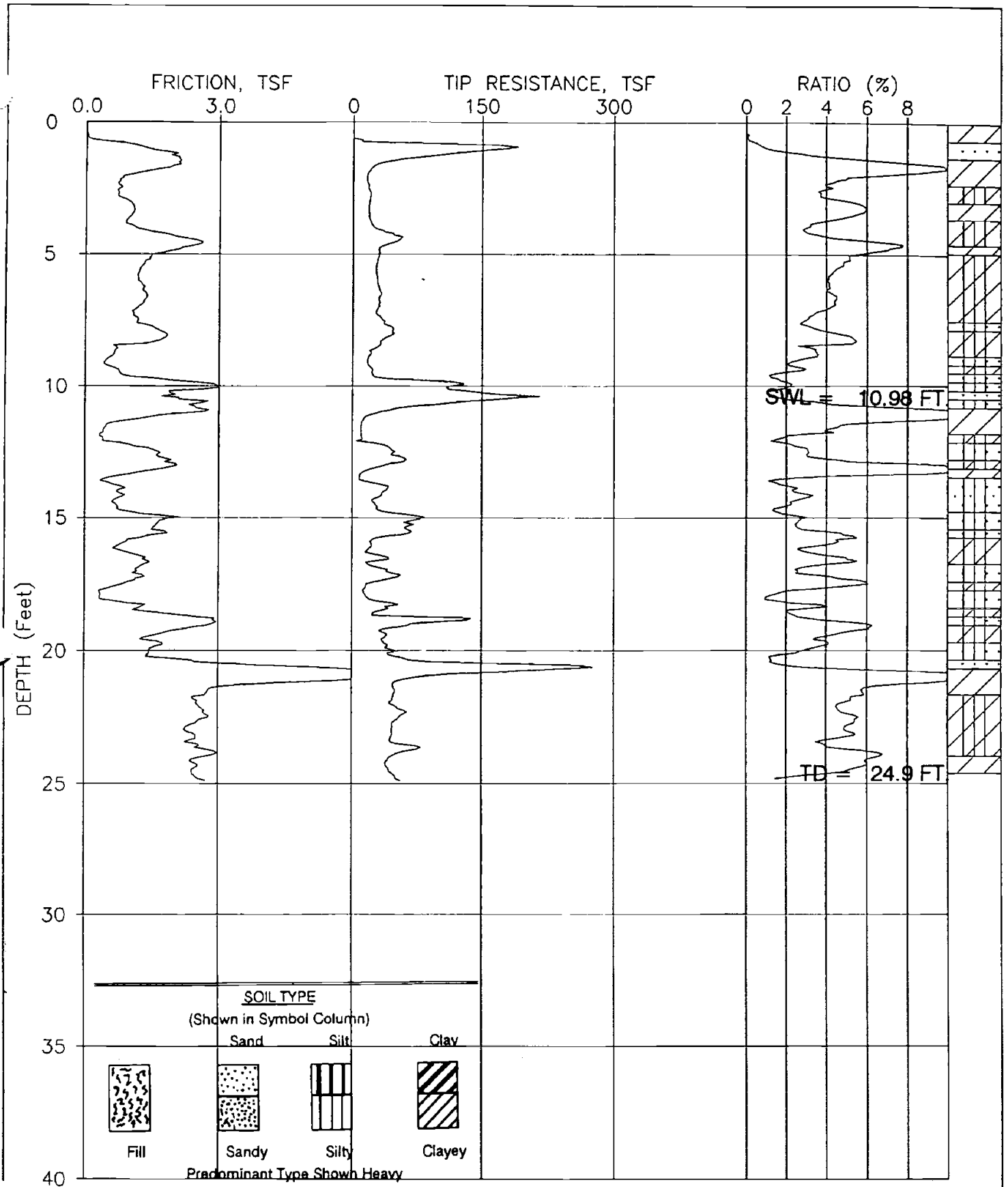
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-139P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



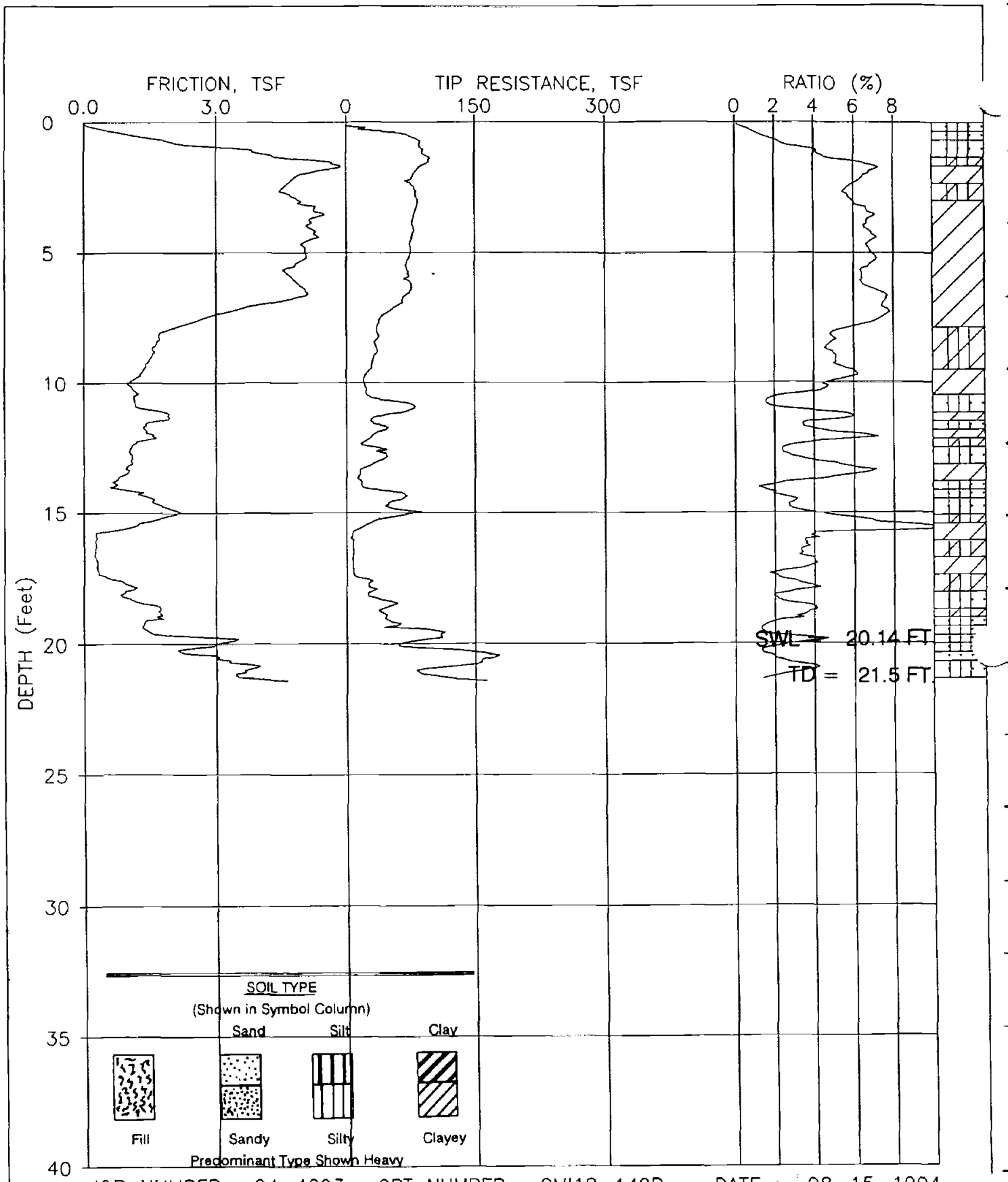
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-140P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



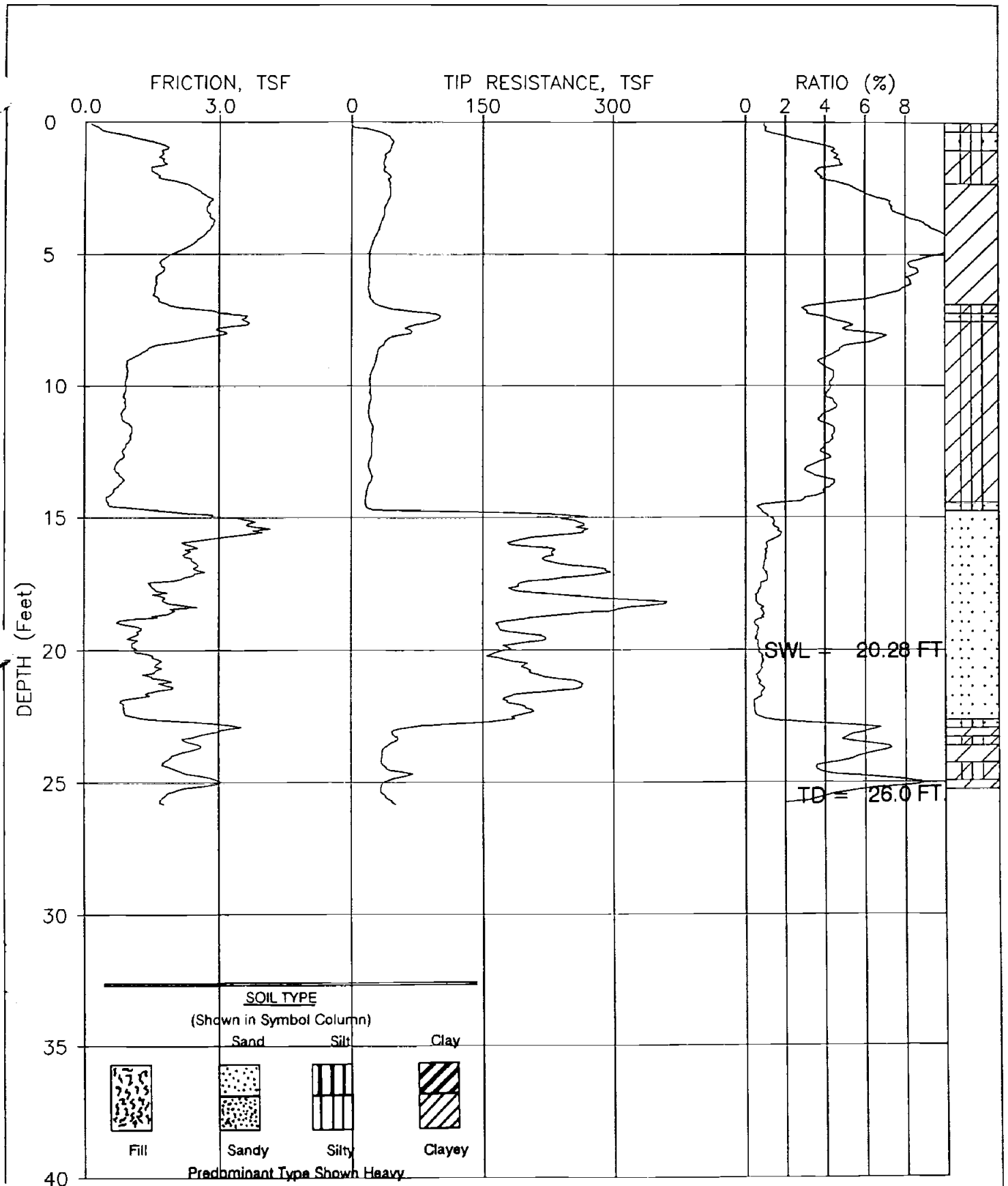
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-141P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



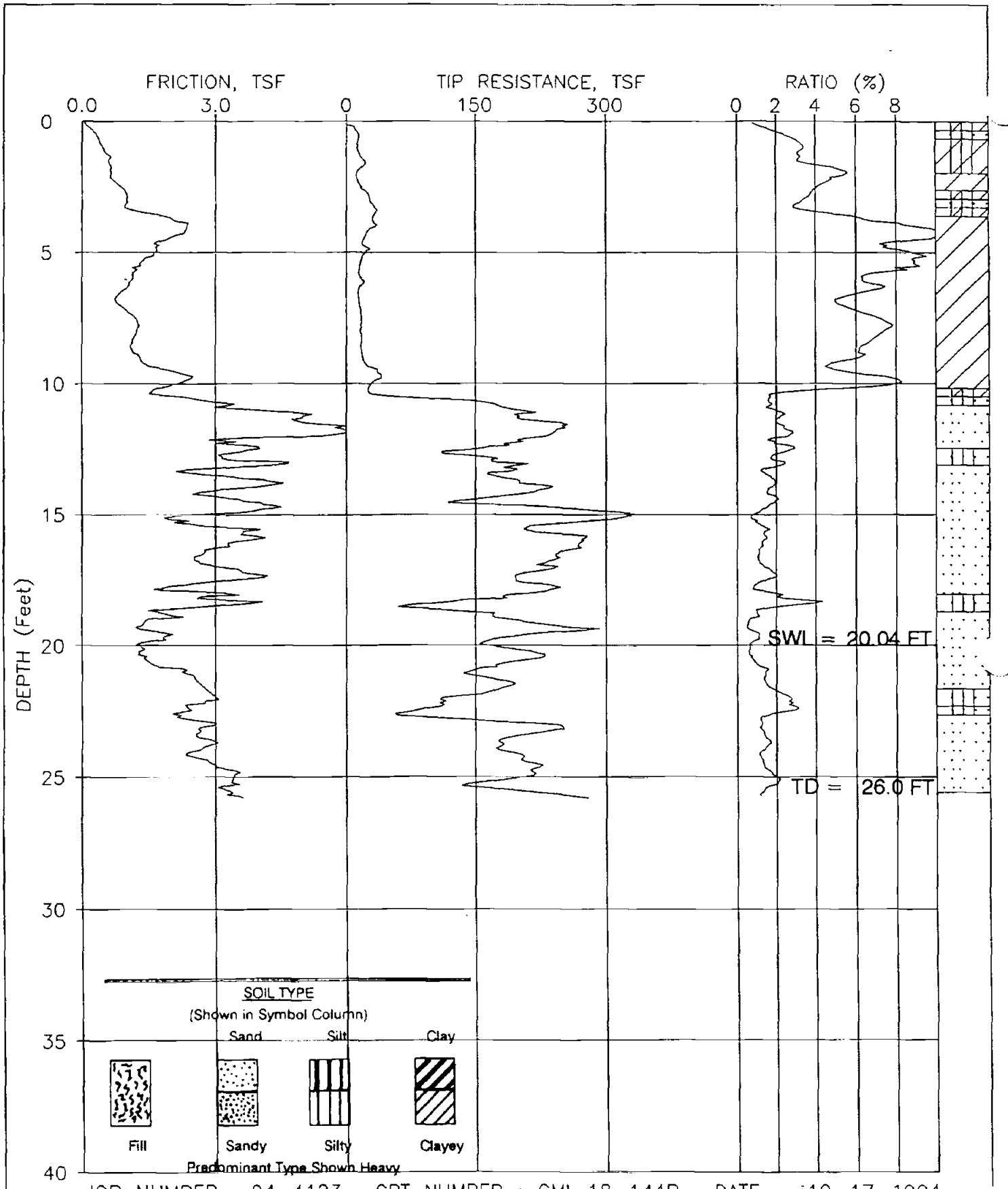
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-142P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

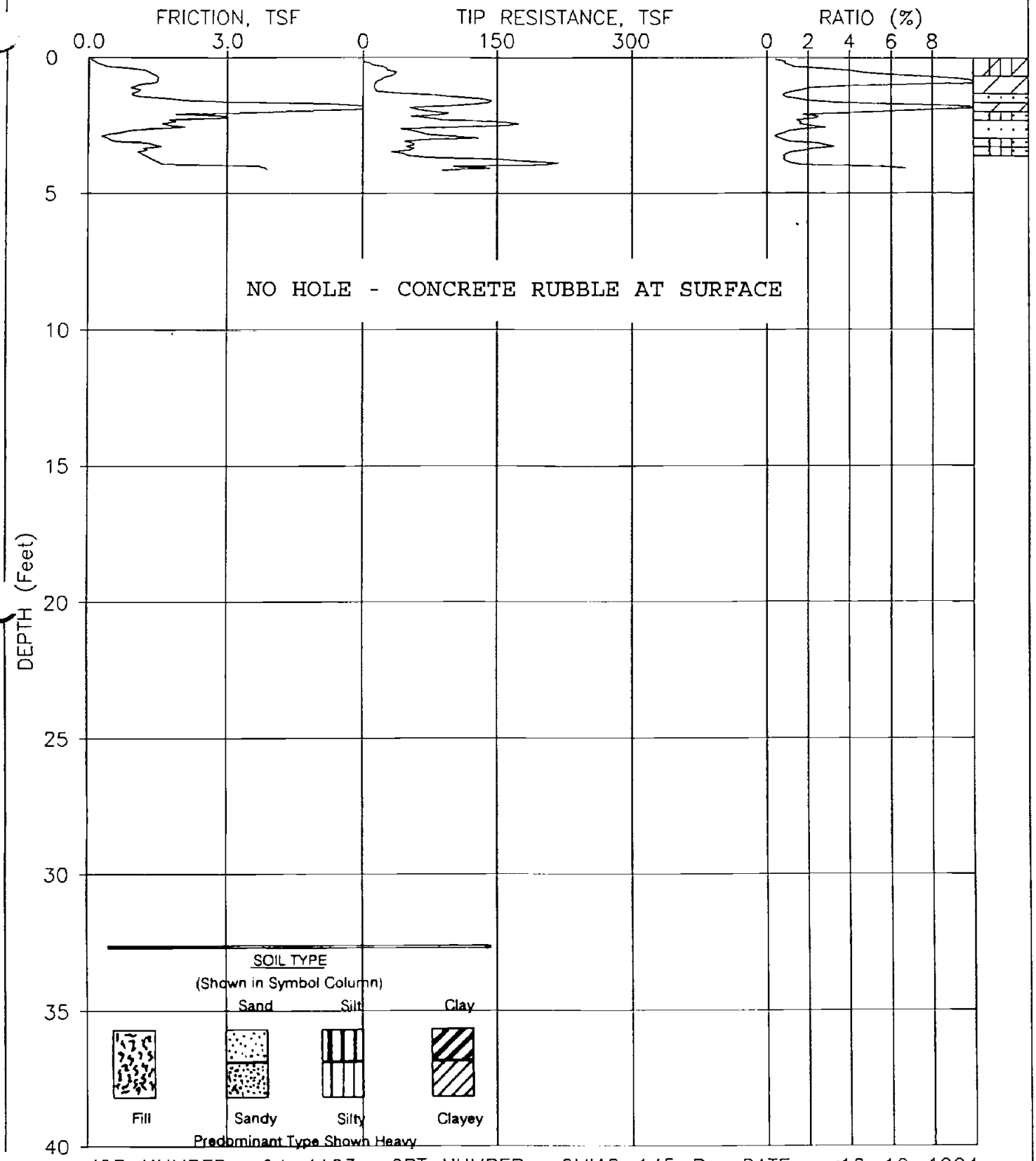


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-143P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

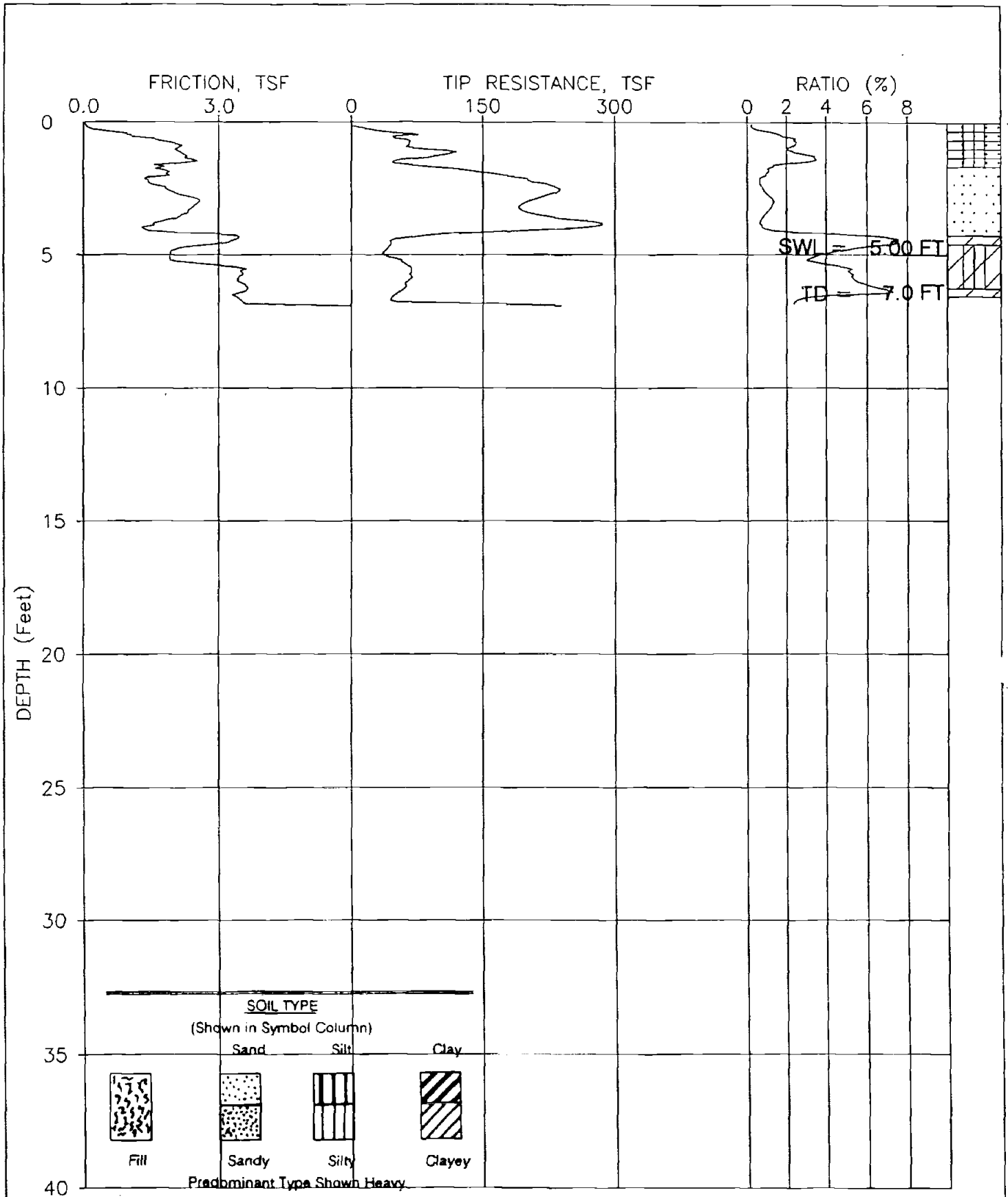


JOB NUMBER : 94-4123 CPT NUMBER : GMI-18-144P DATE : 10-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

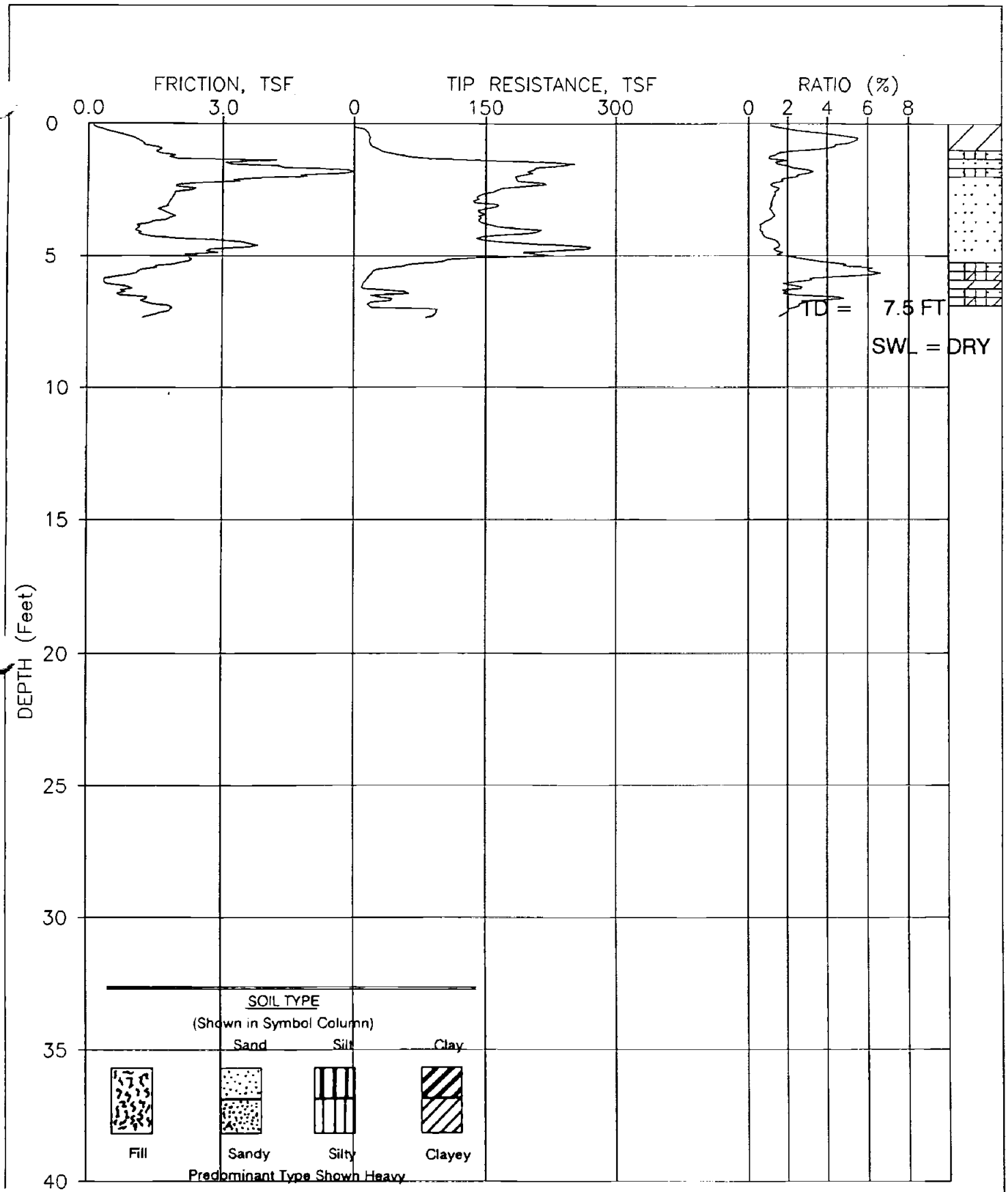


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-145-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

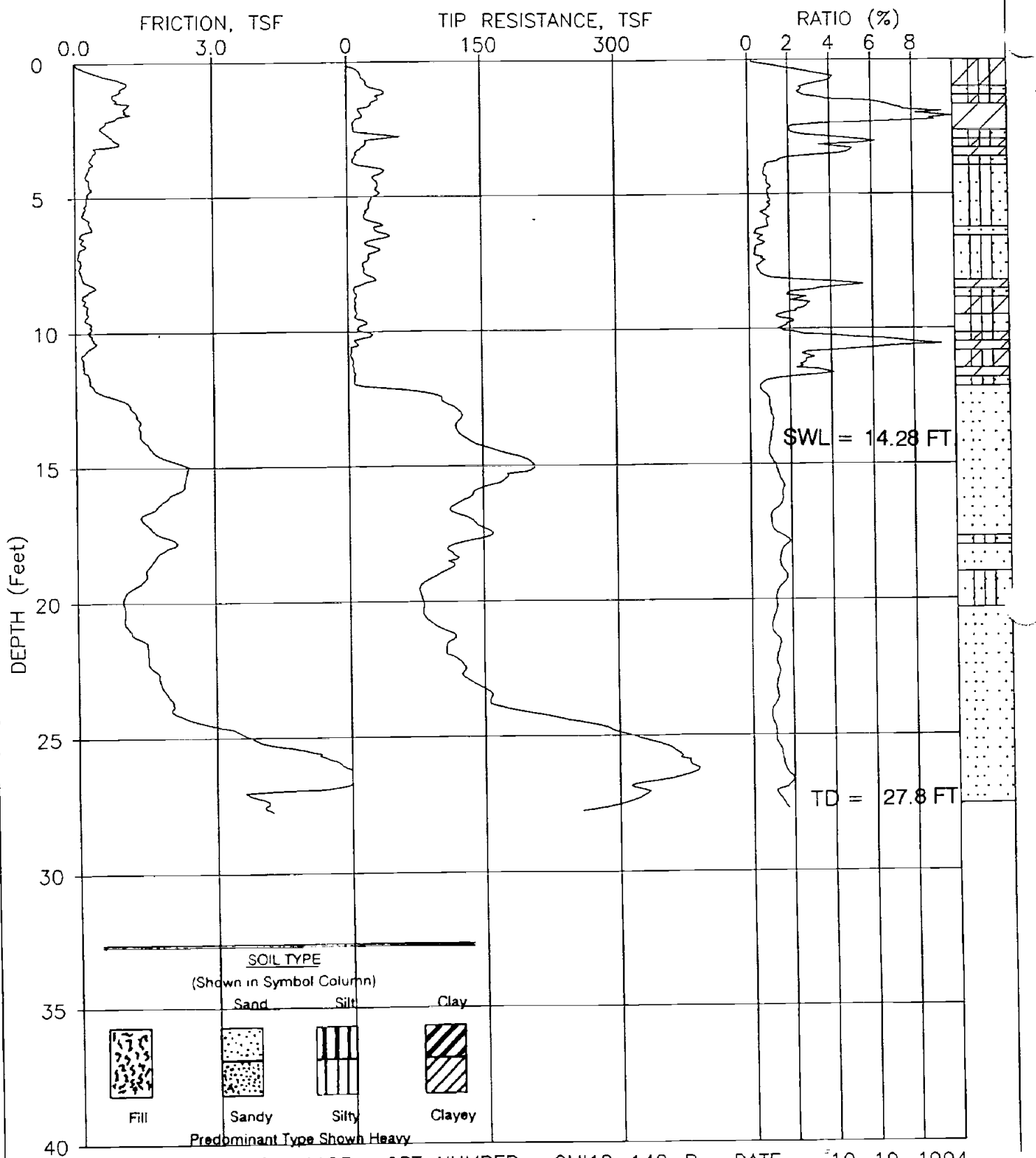


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-146-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091



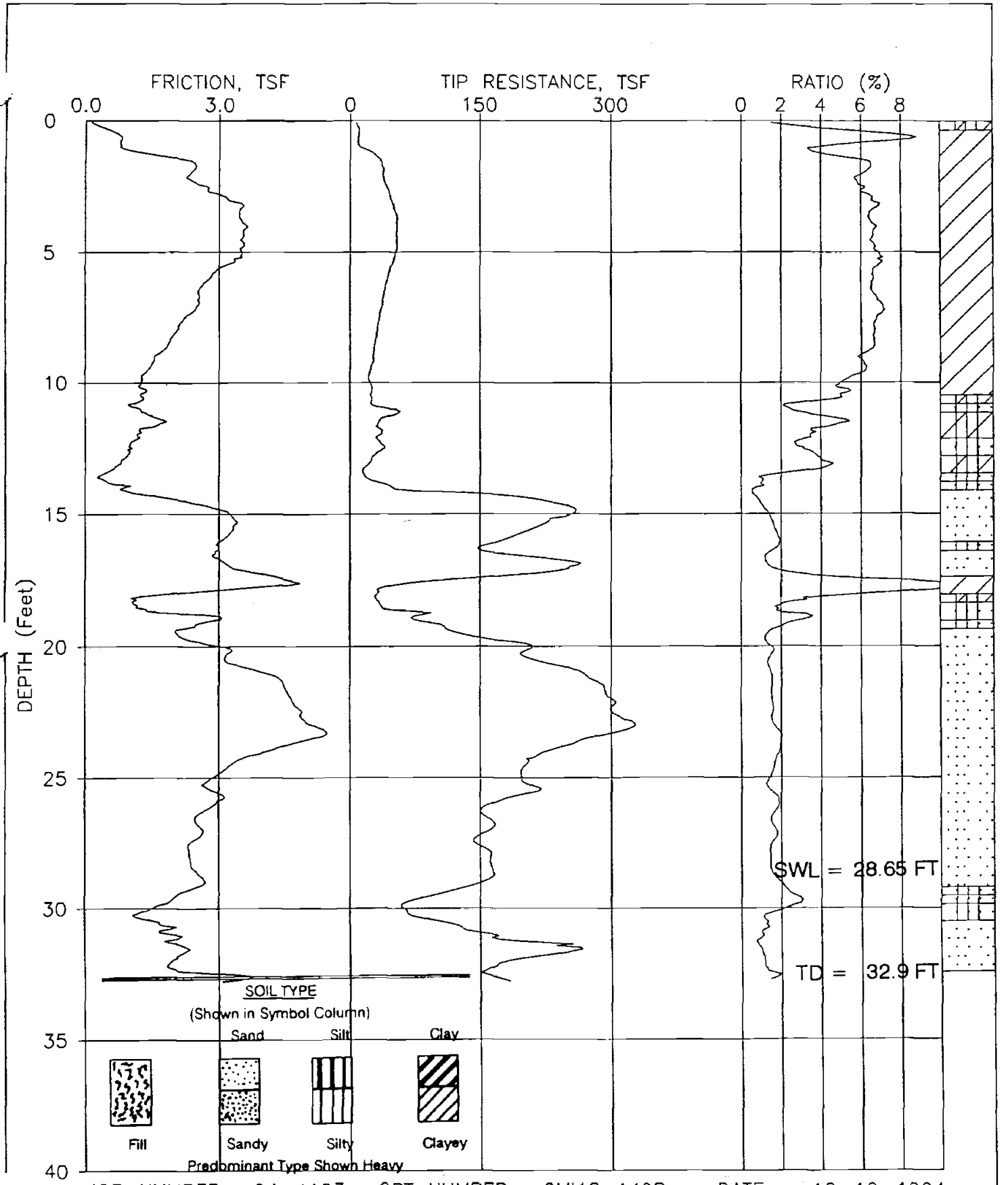
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-147-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



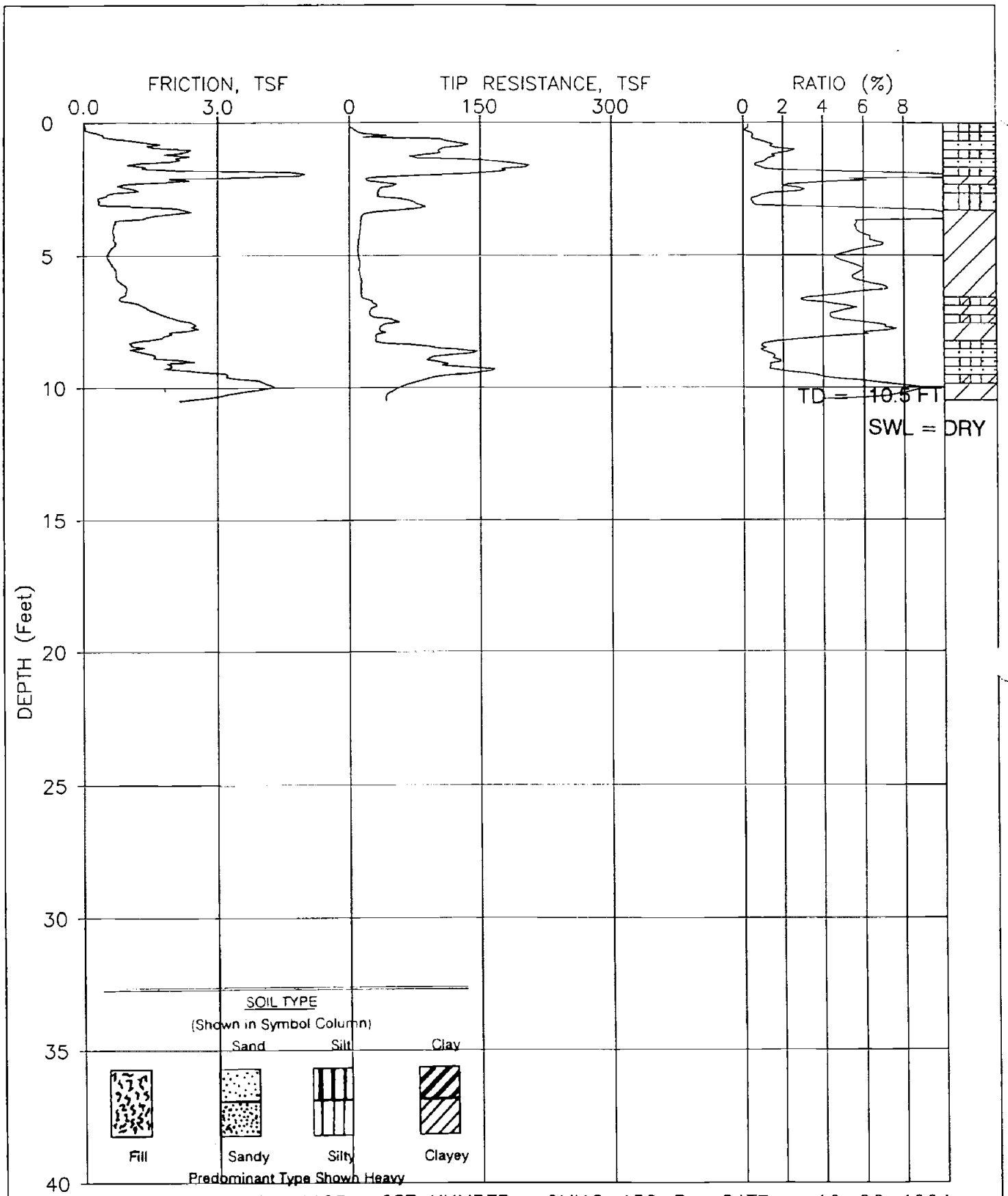
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-148-P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

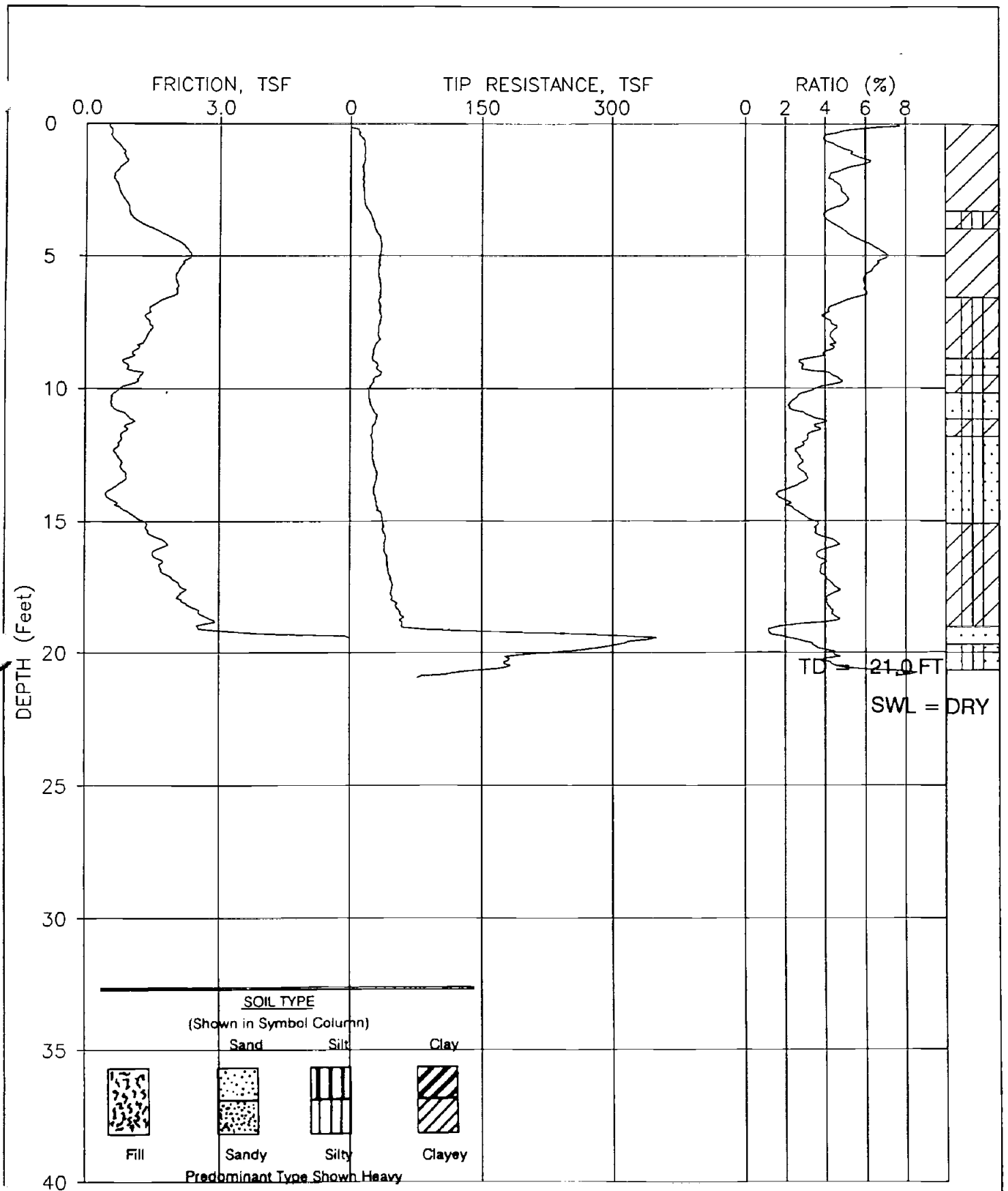


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-149P DATE : 10-19-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

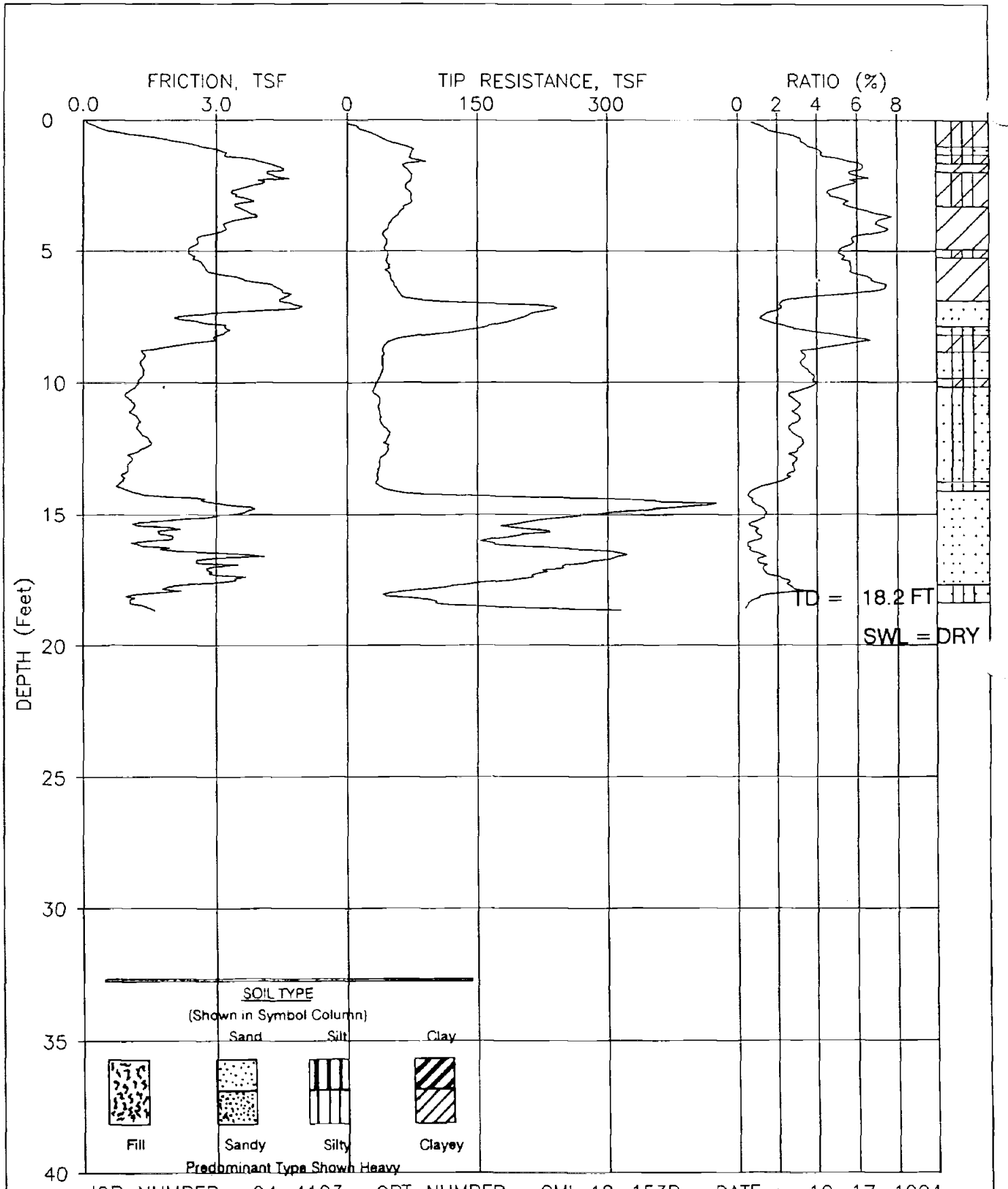


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-150-P DATE : 10-26-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

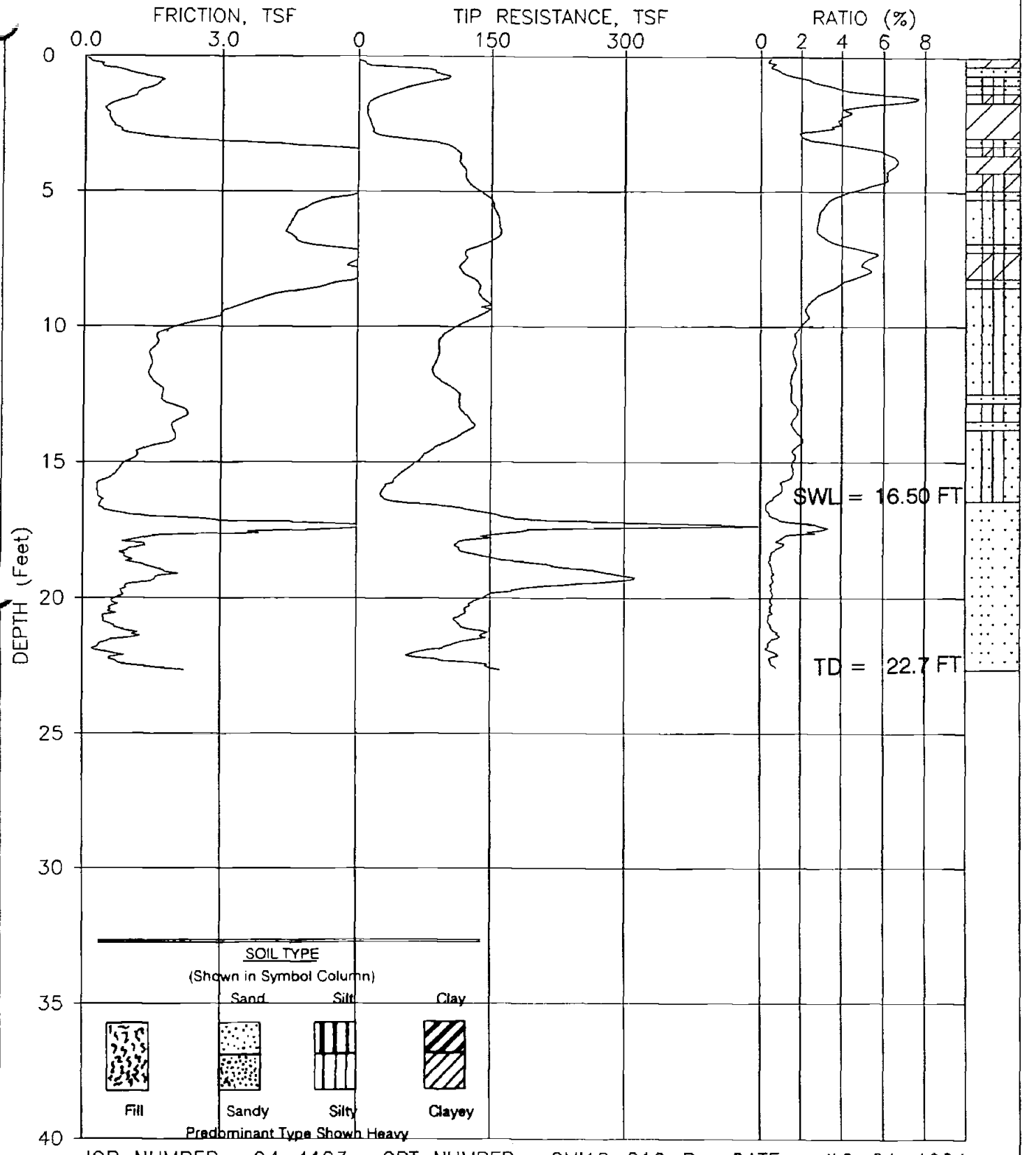


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-151-P DATE : 10-27-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

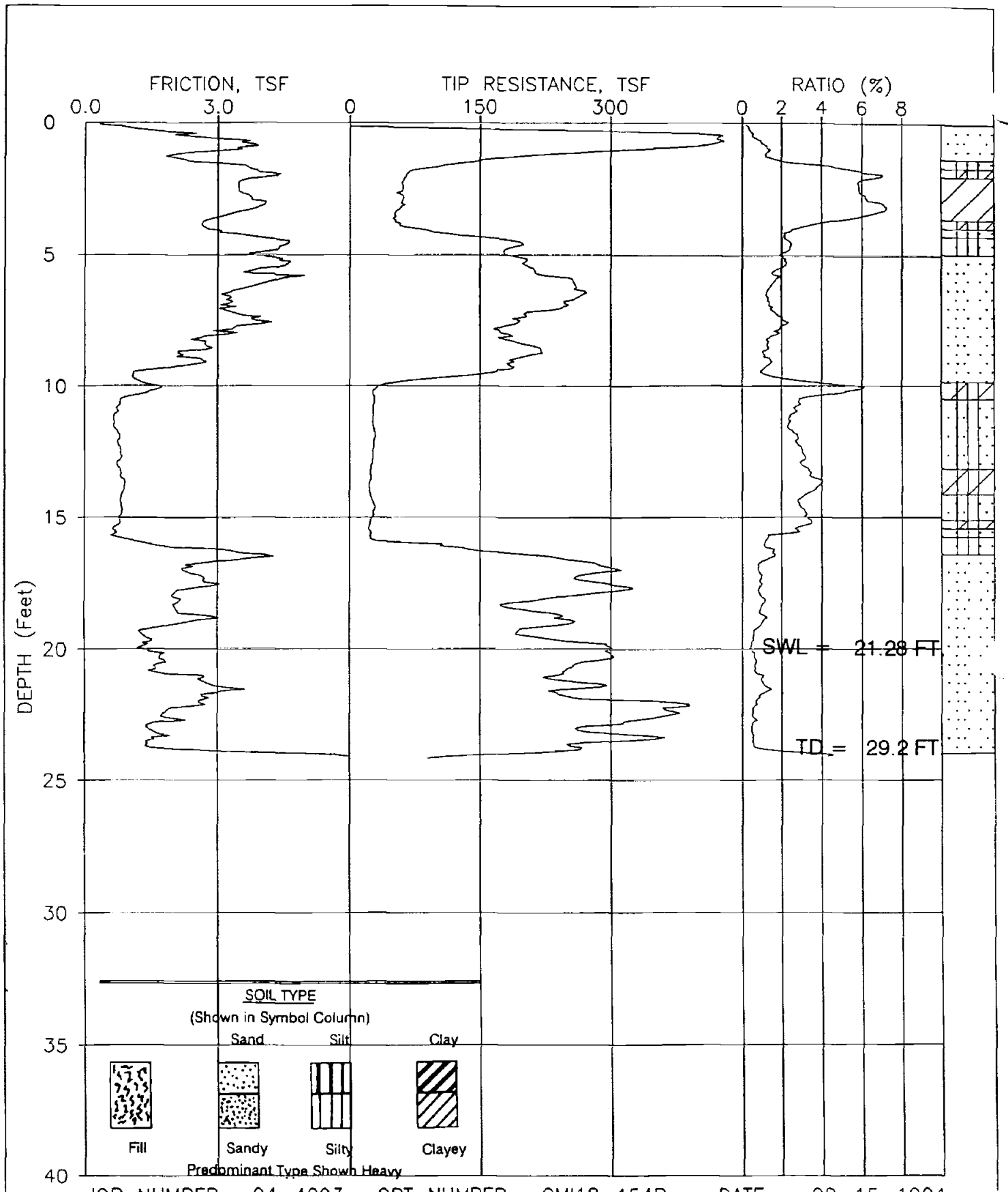


JOB NUMBER : 94-4123 CPT NUMBER : GMI-18-153P DATE : 10-17-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-216-P DATE : 10-21-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

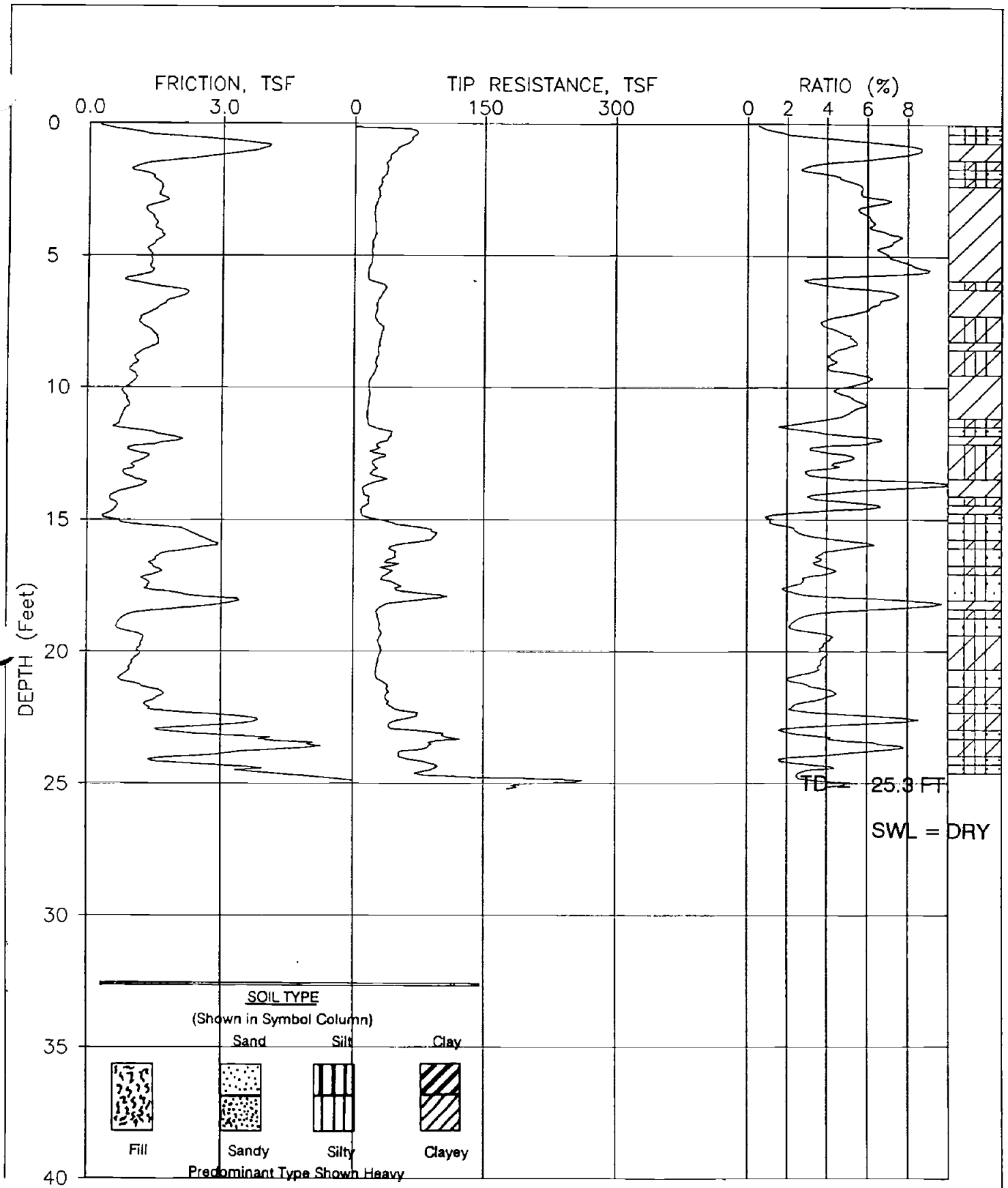
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-154P DATE : 08-15-1994

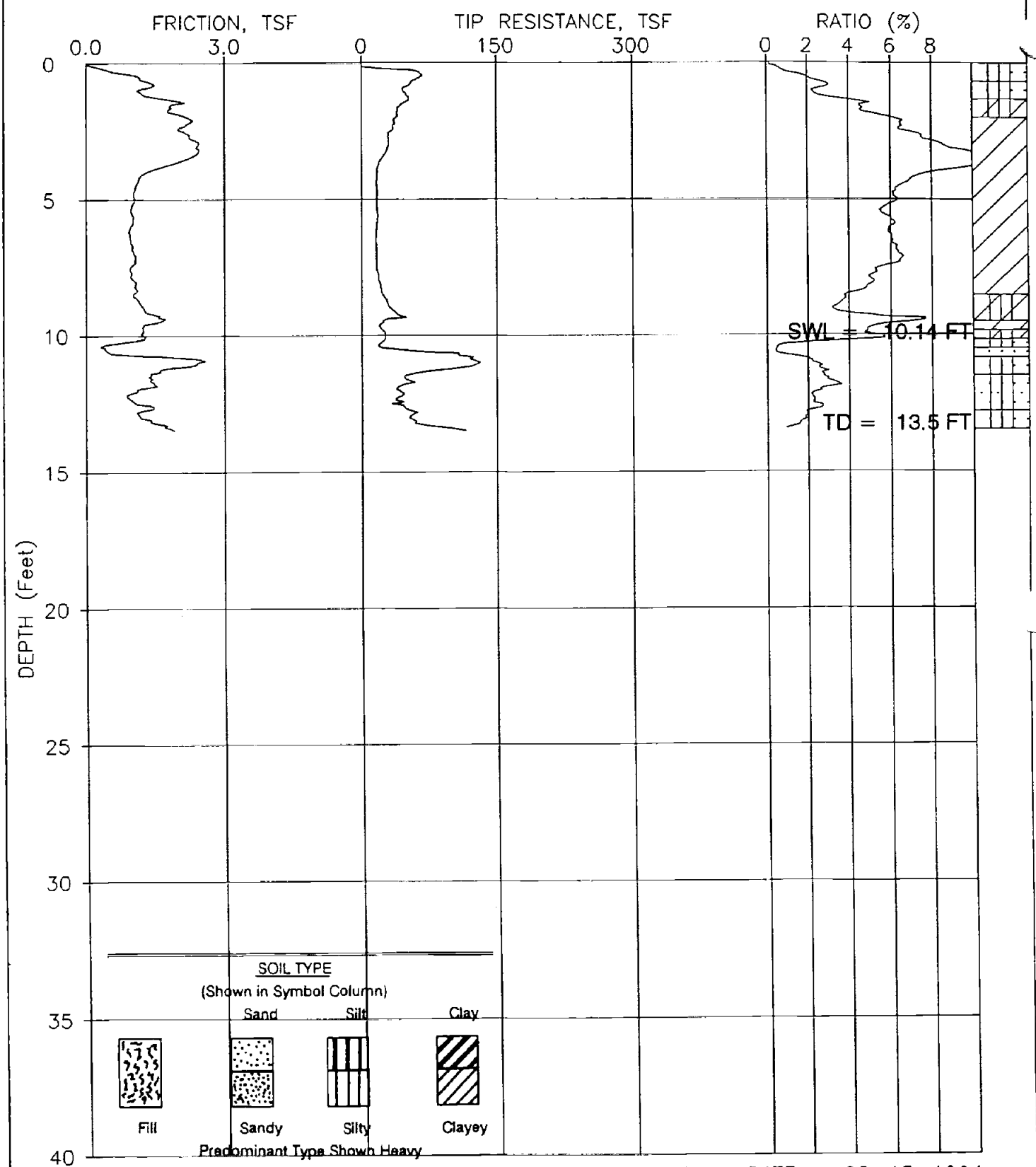
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



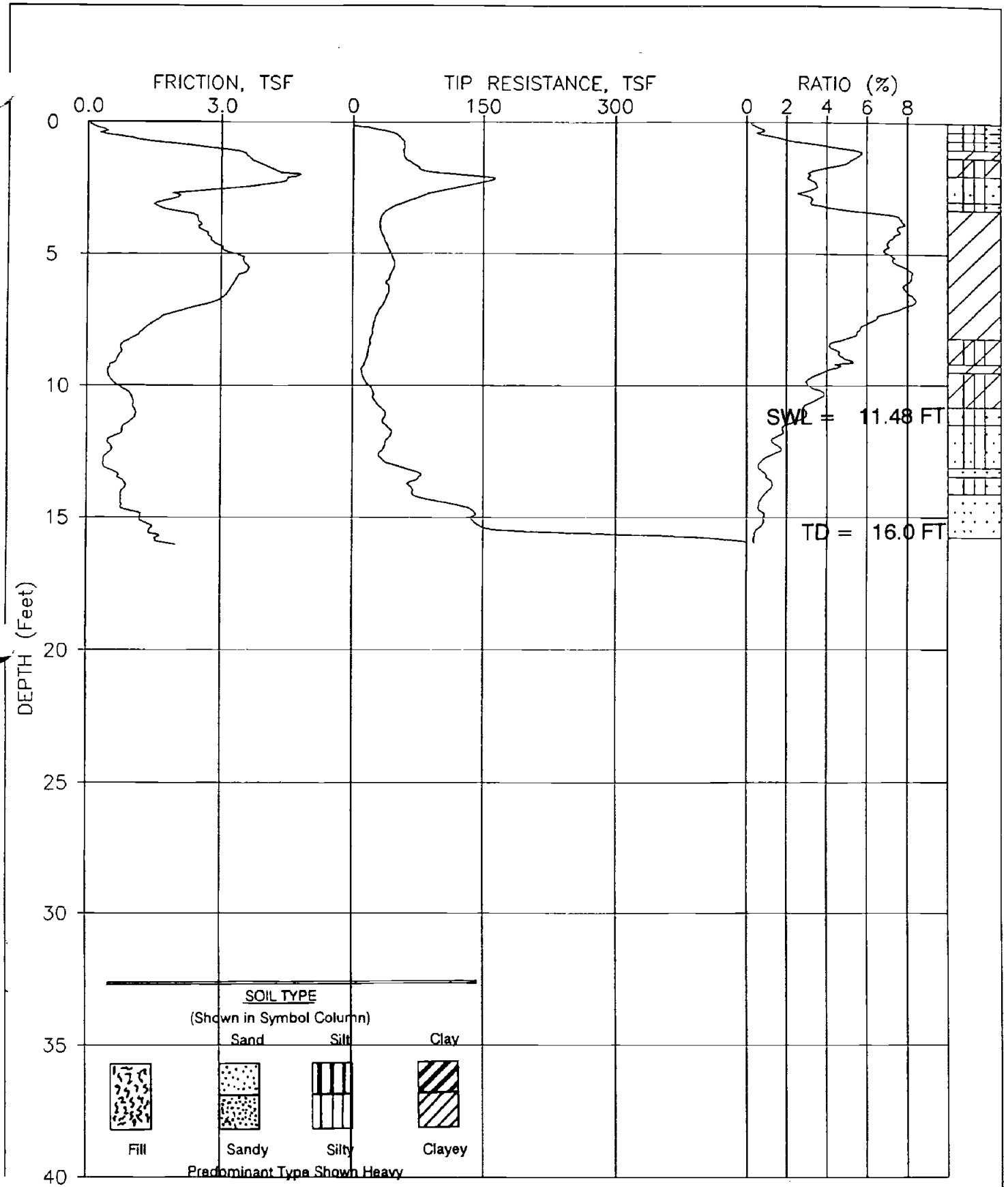
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-155P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



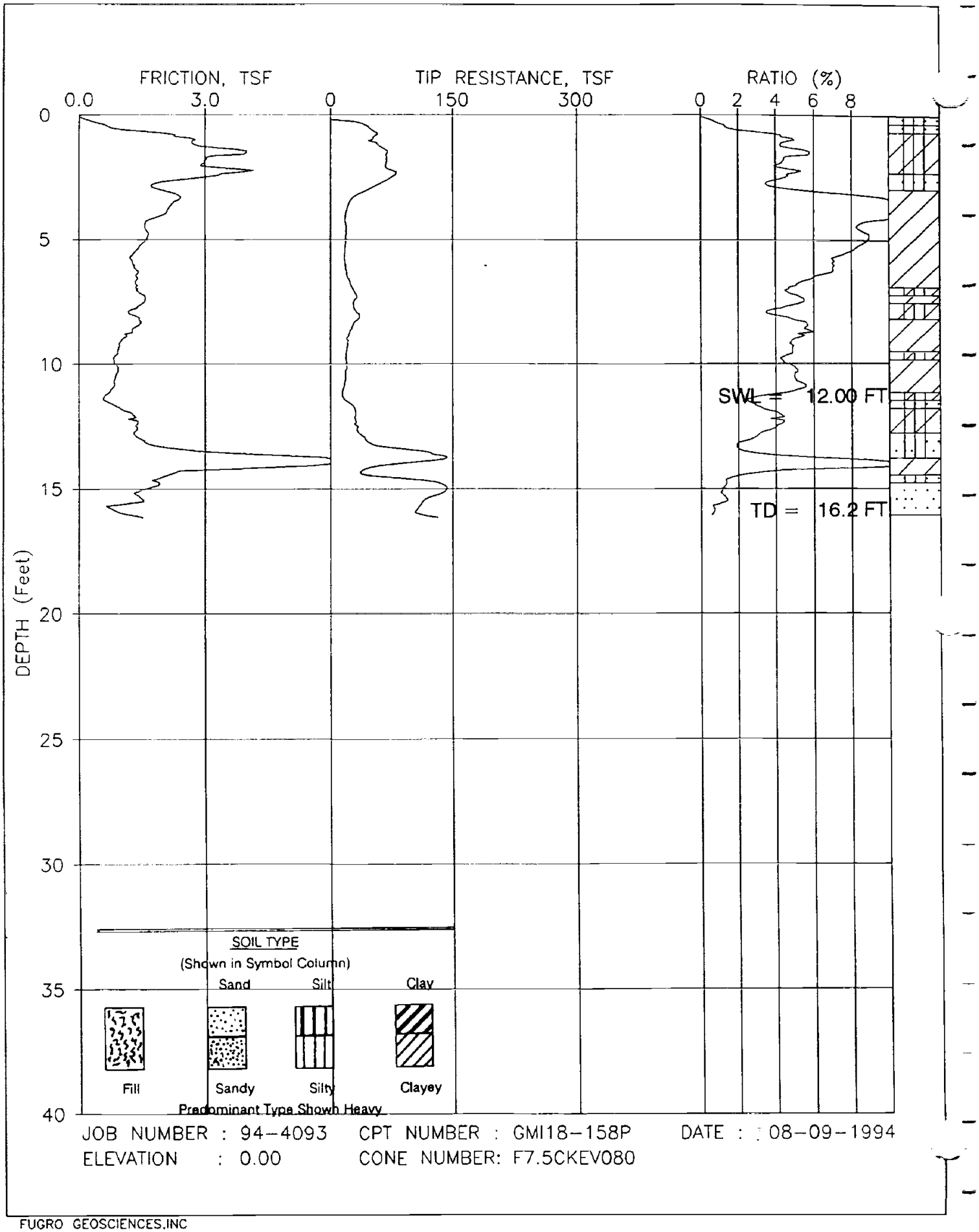
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-156P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



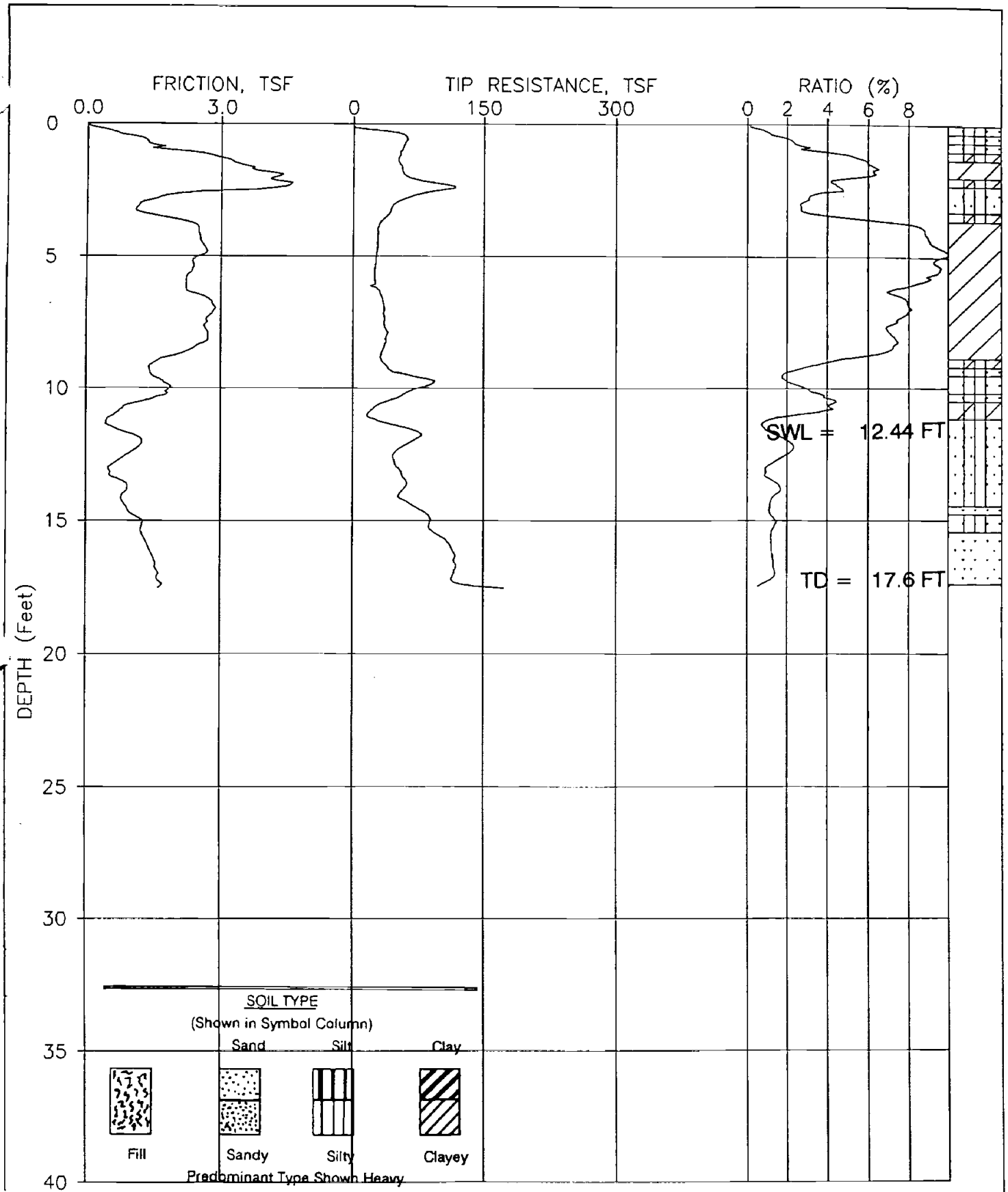
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-157P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



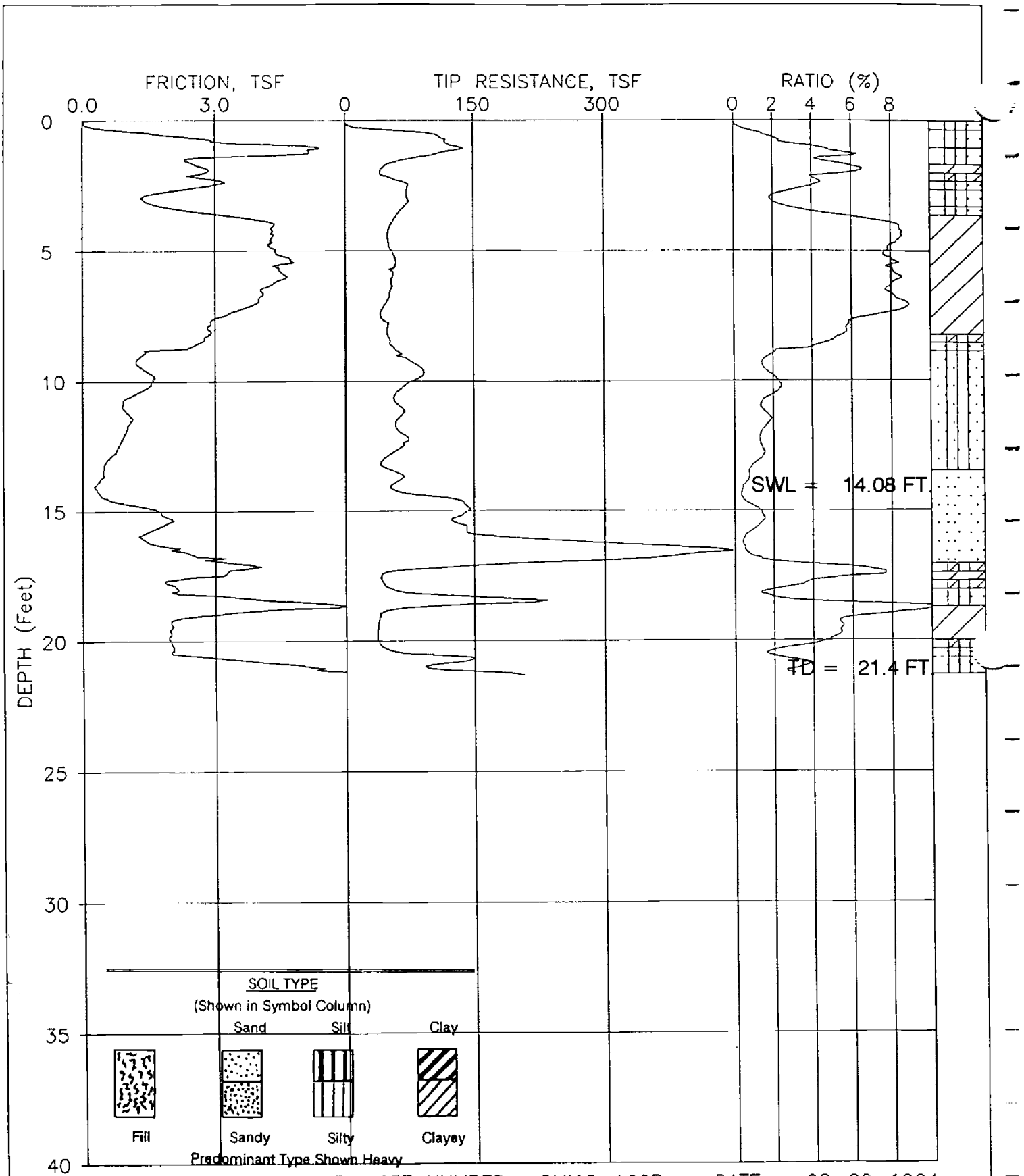
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-158P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



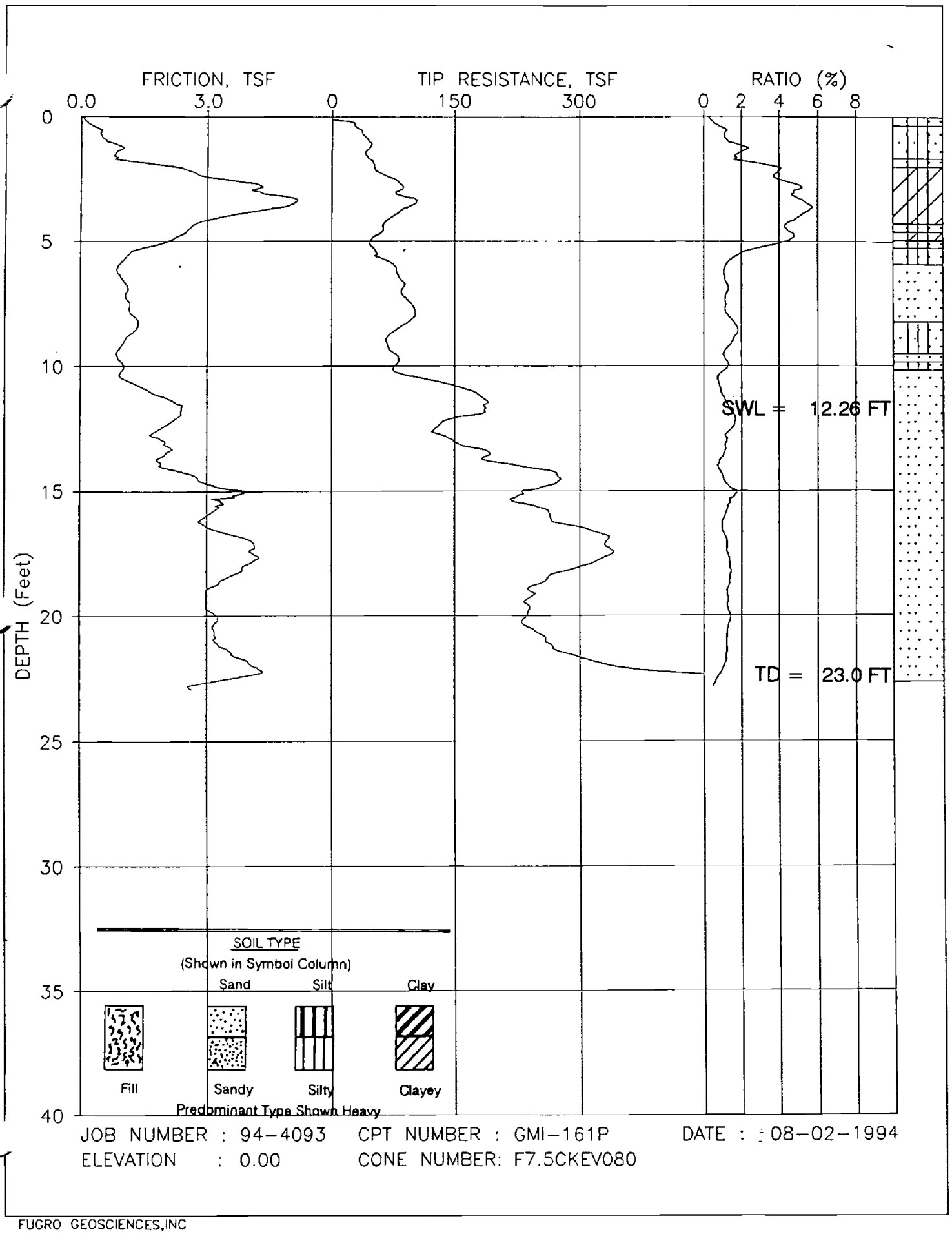
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-159P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



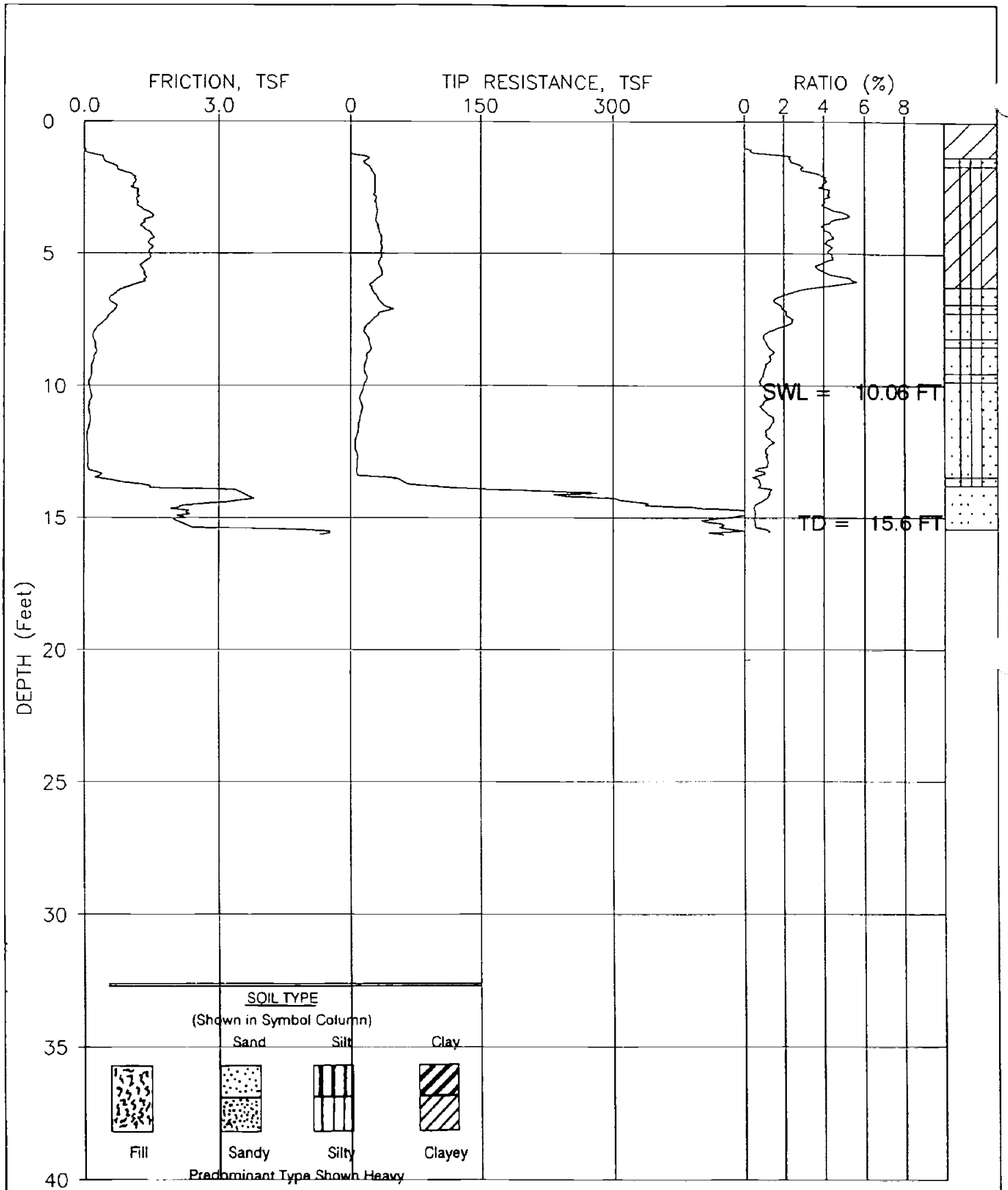
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-160P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



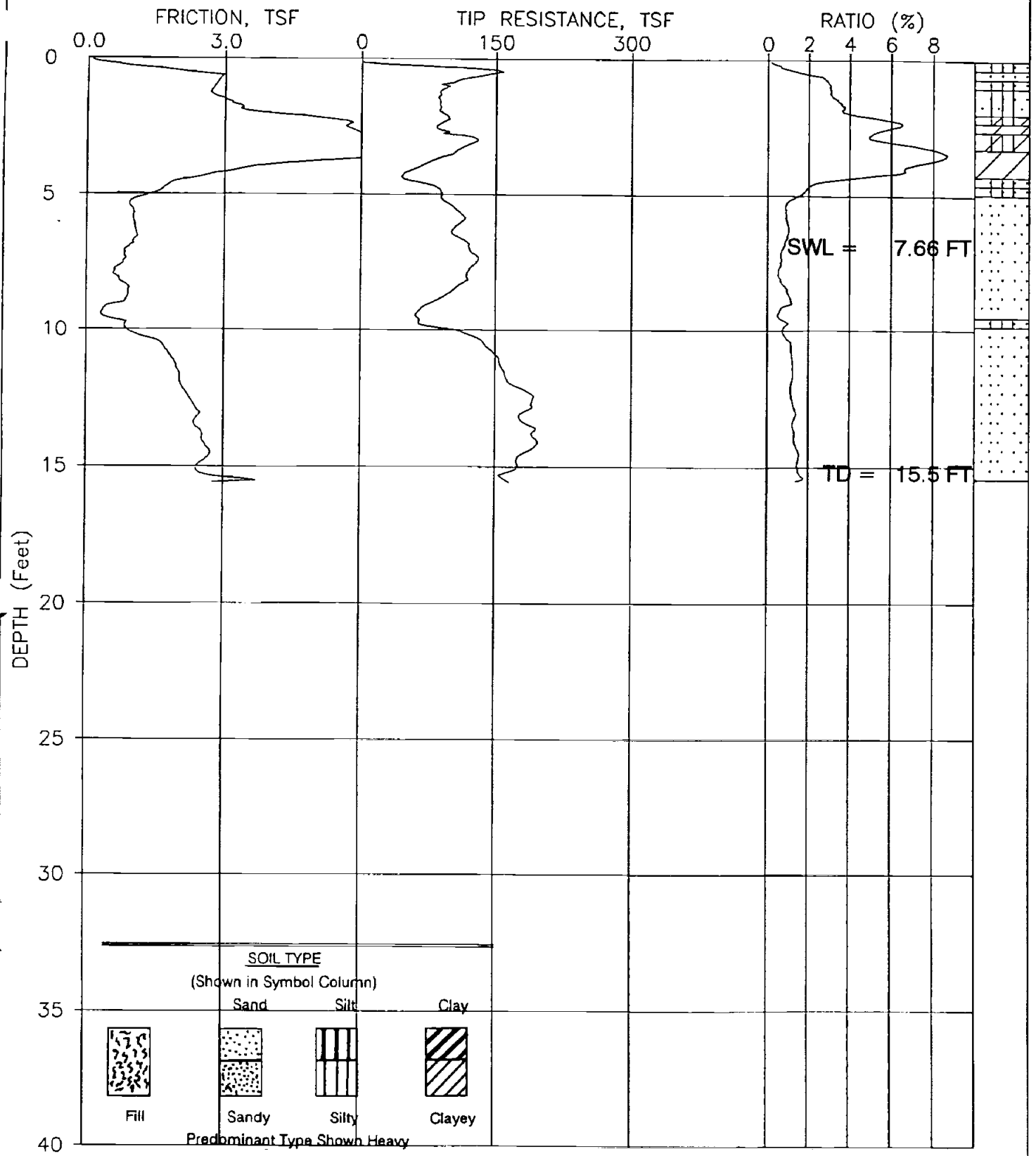
JOB NUMBER : 94-4093 CPT NUMBER : GMI-161P DATE : 08-02-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



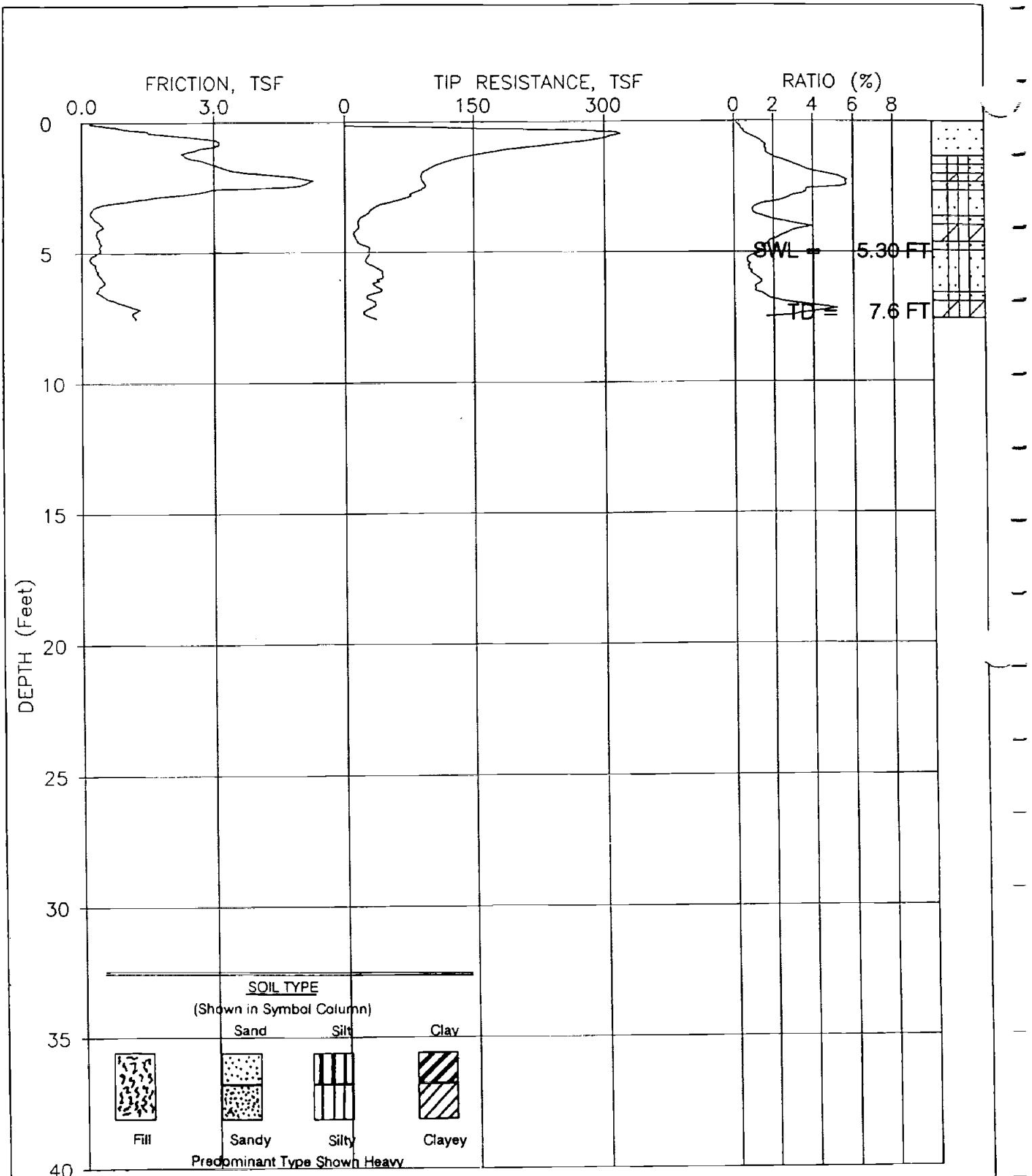
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-162P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



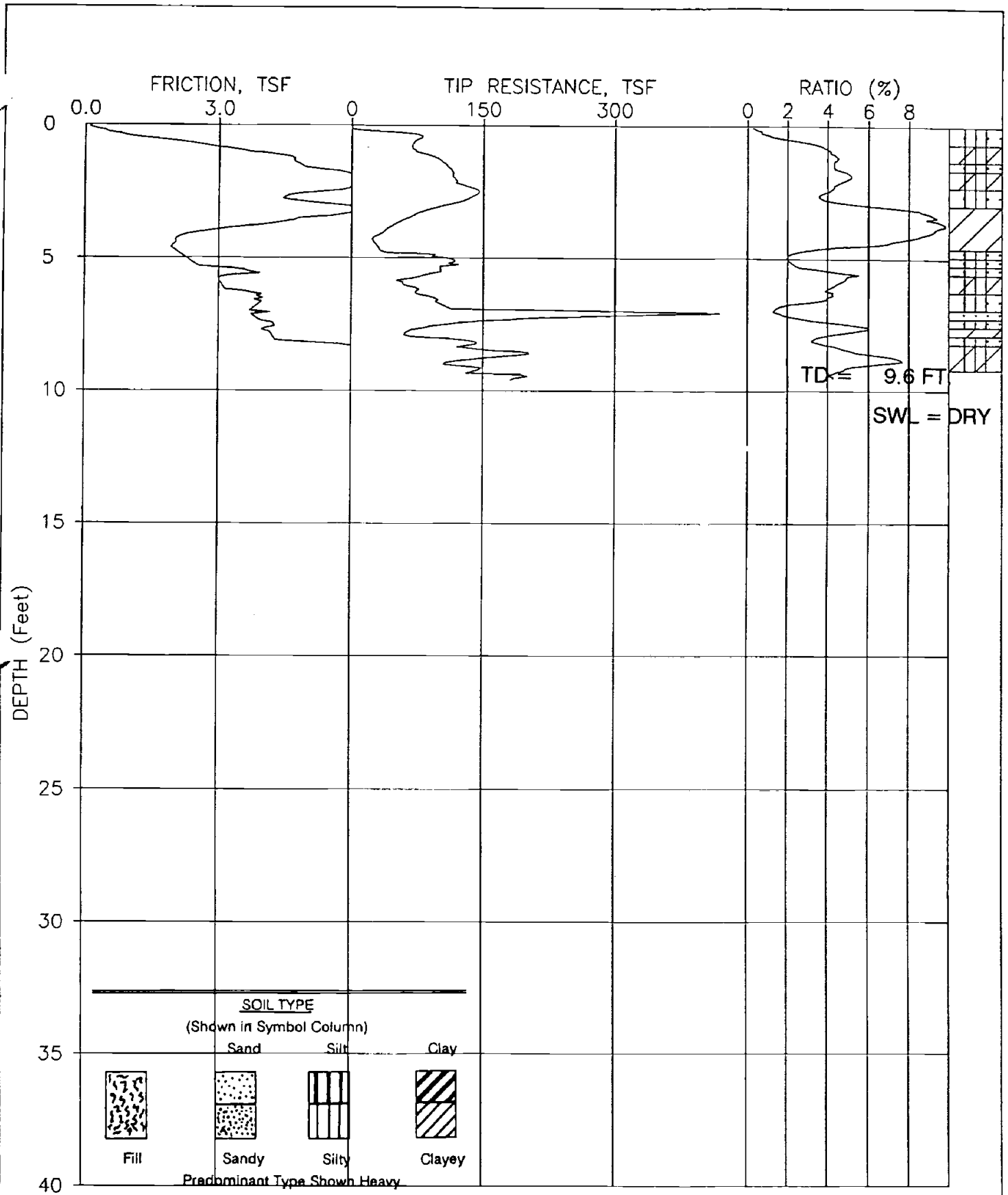
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-163P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



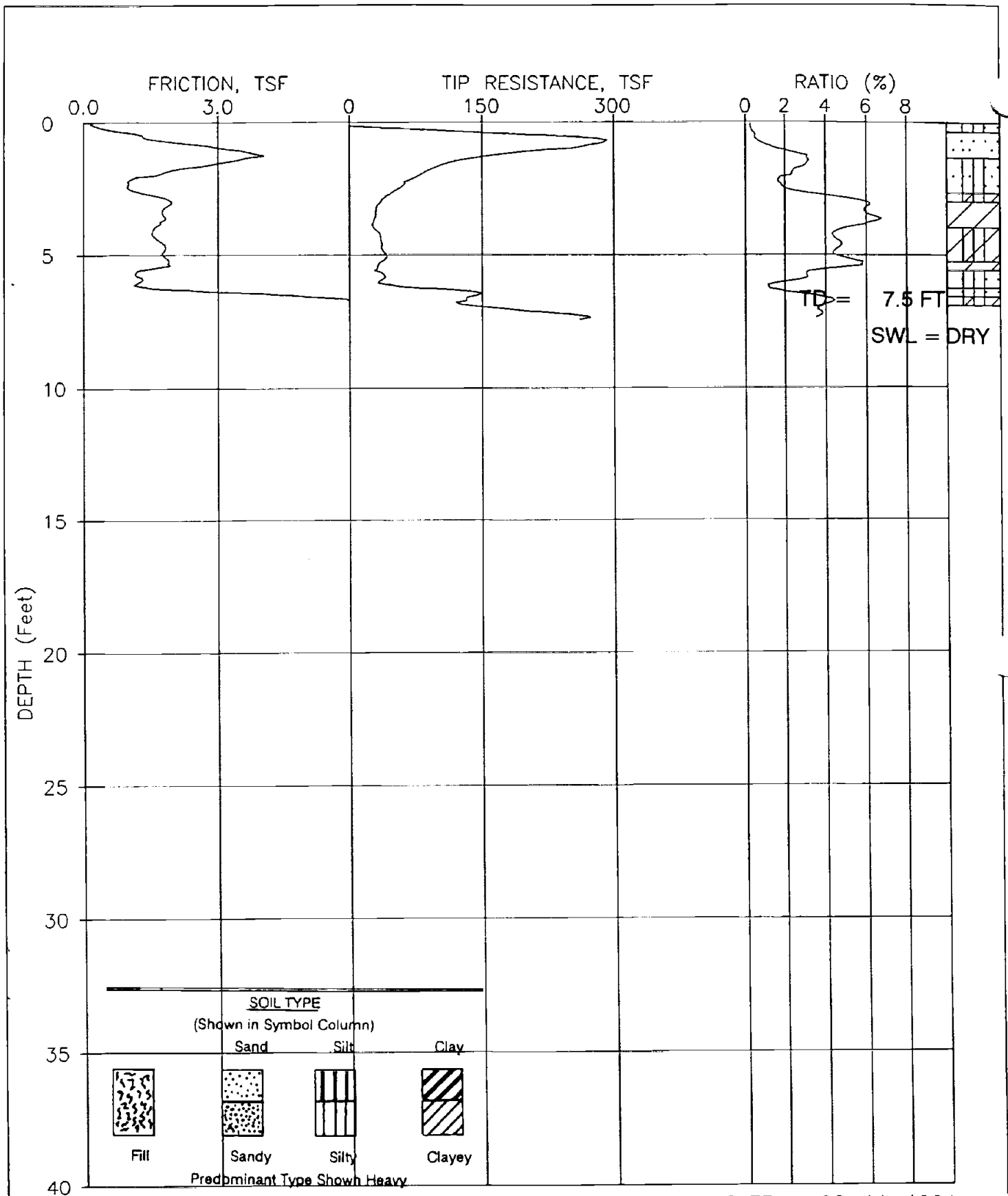
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-164P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



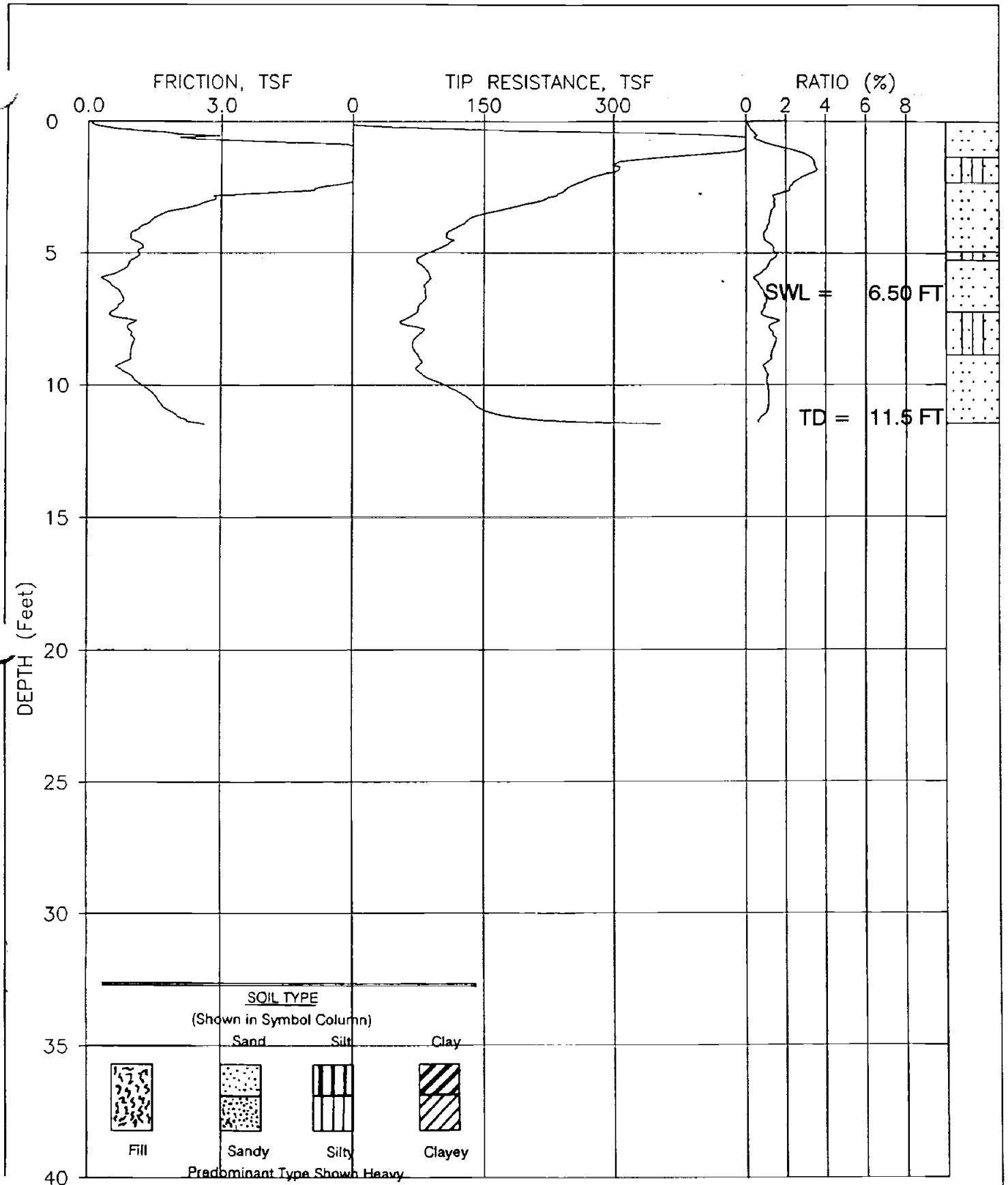
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-165P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-166P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-167P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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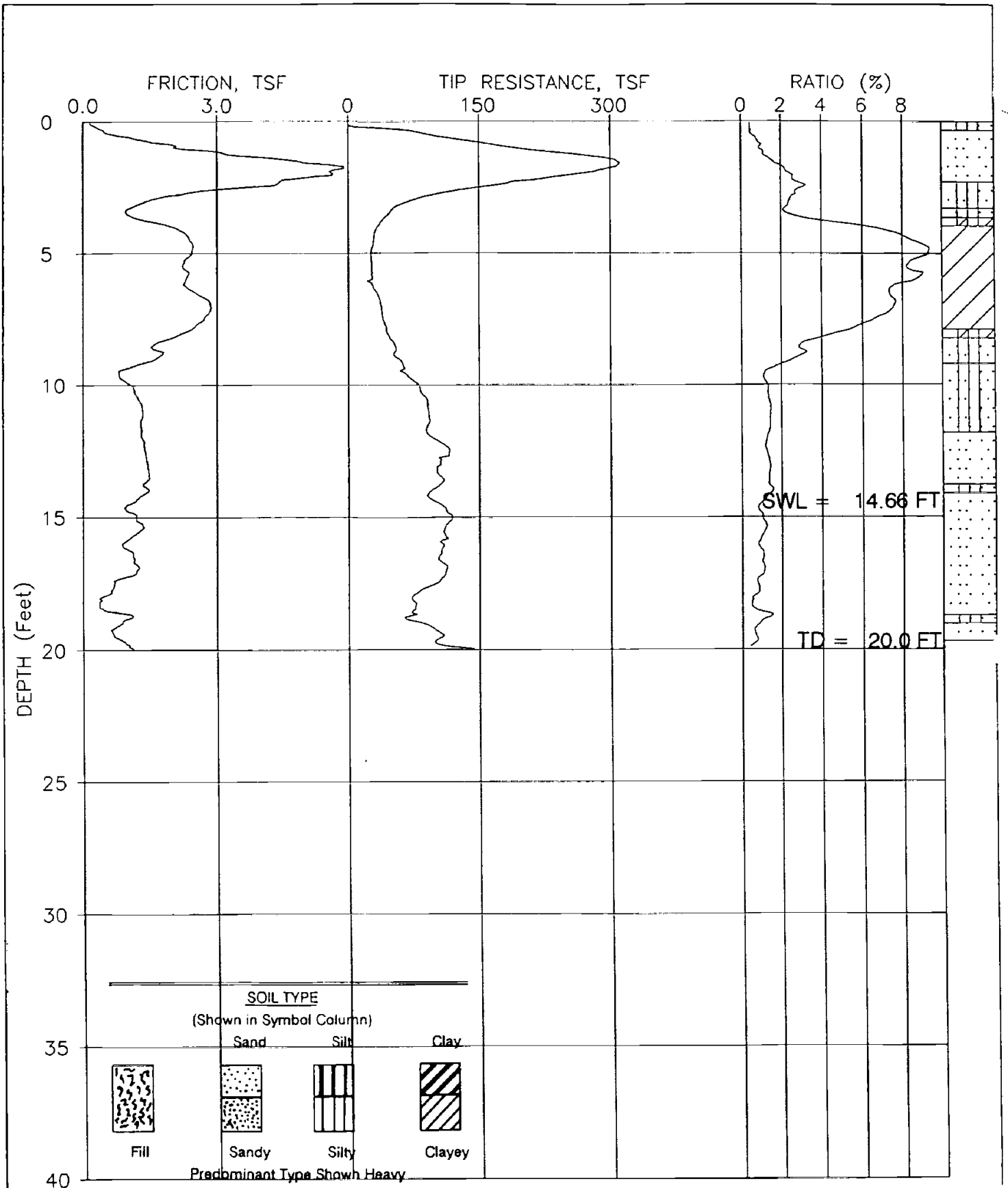
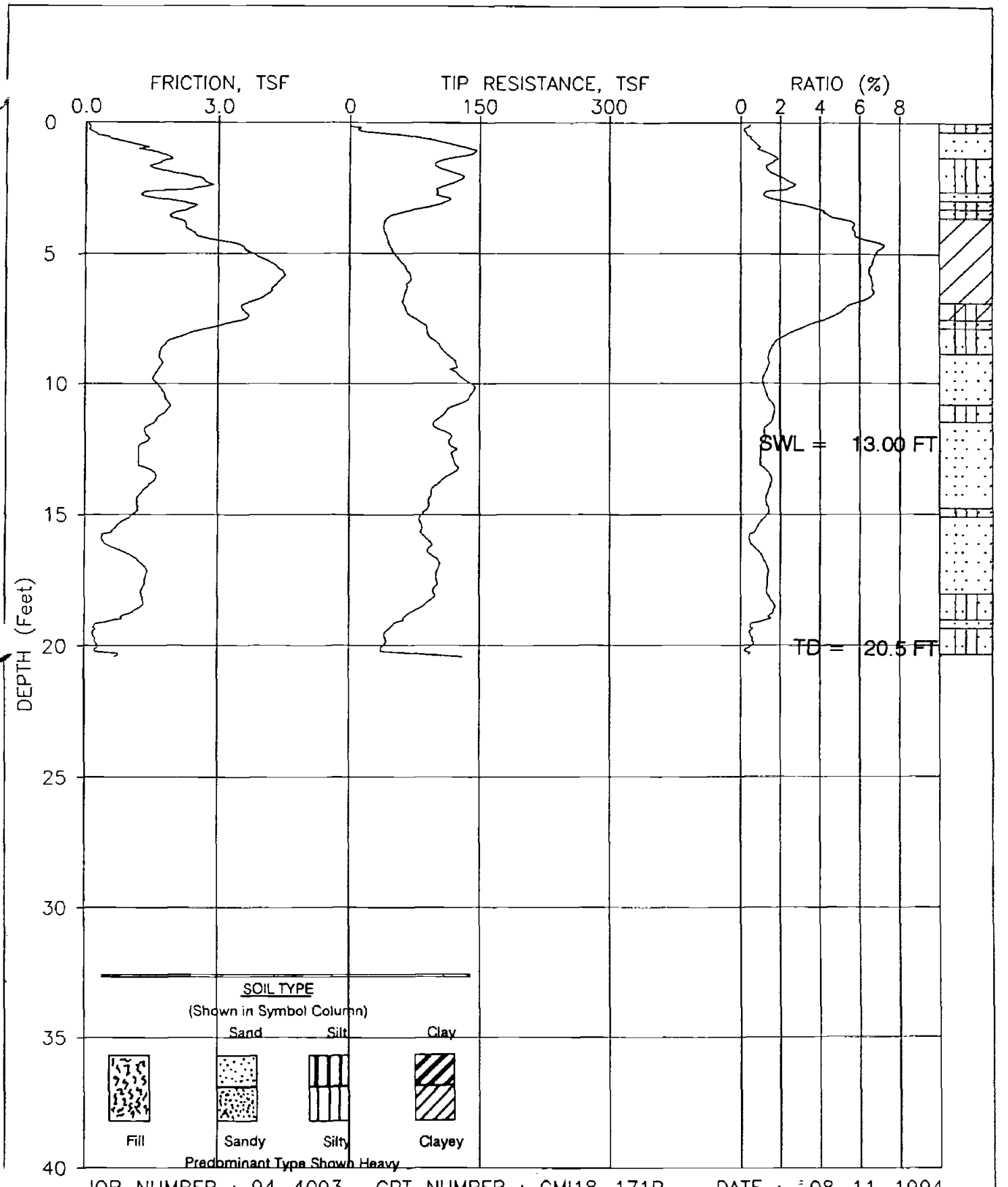


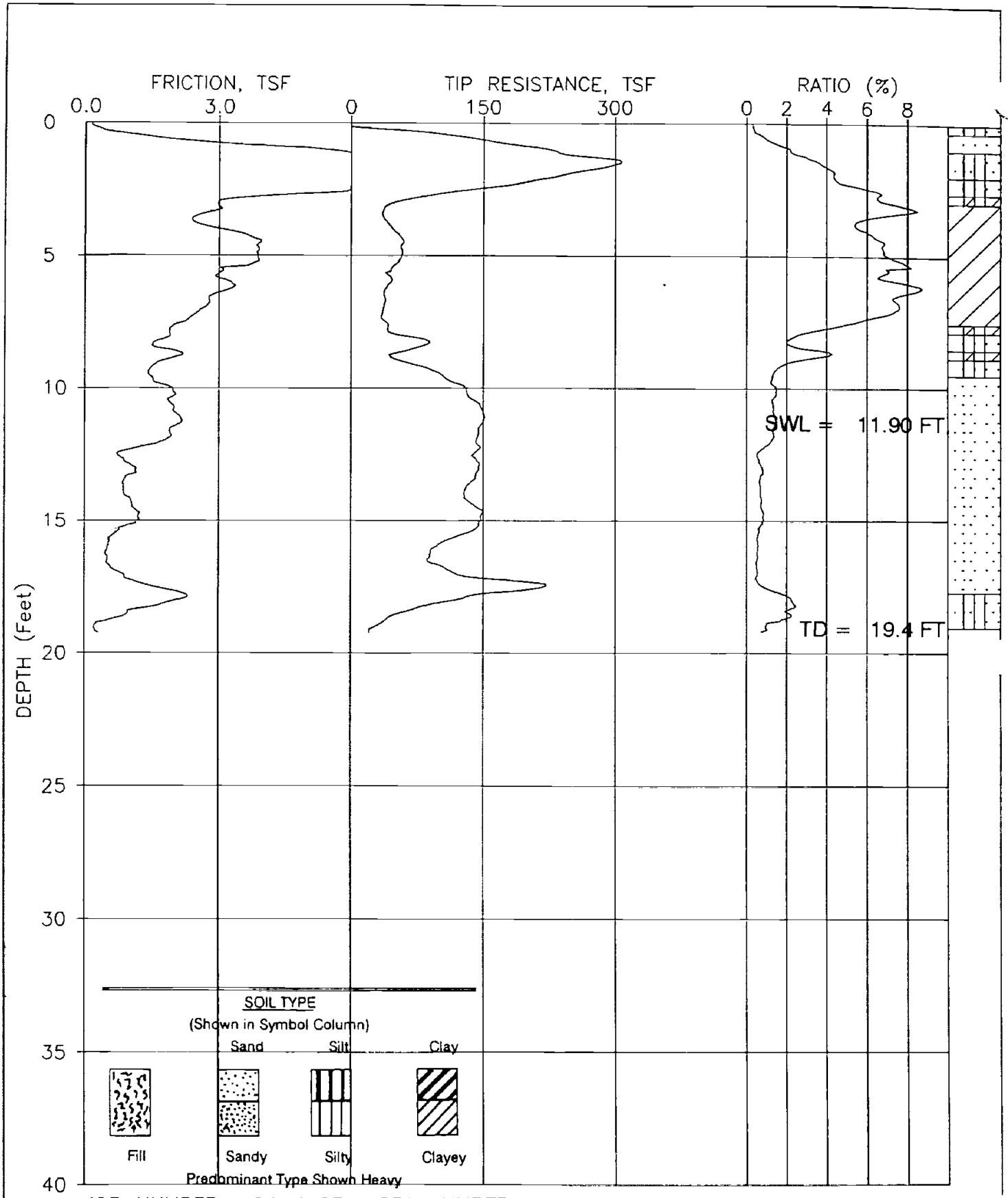
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-169P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



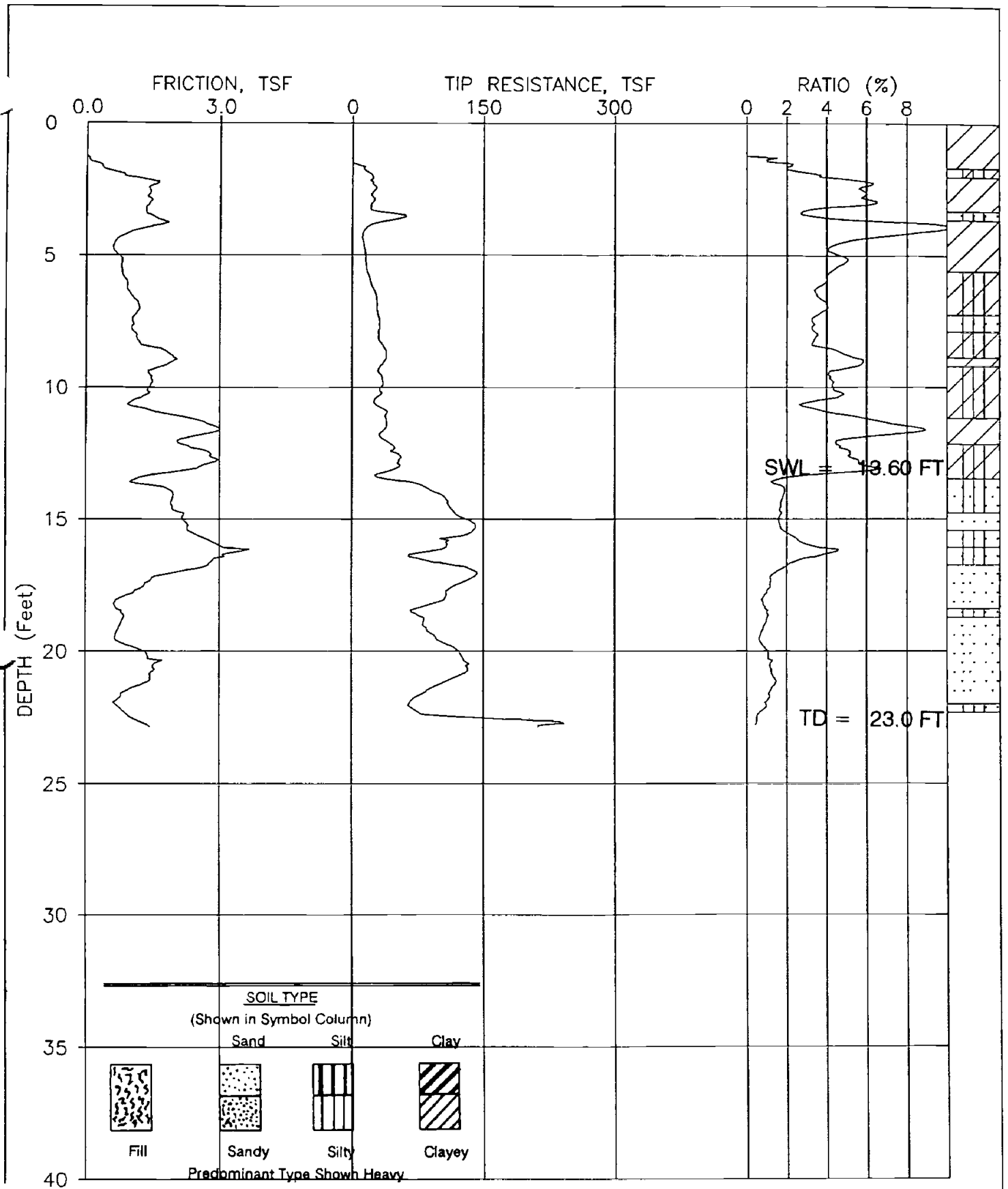
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-171P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



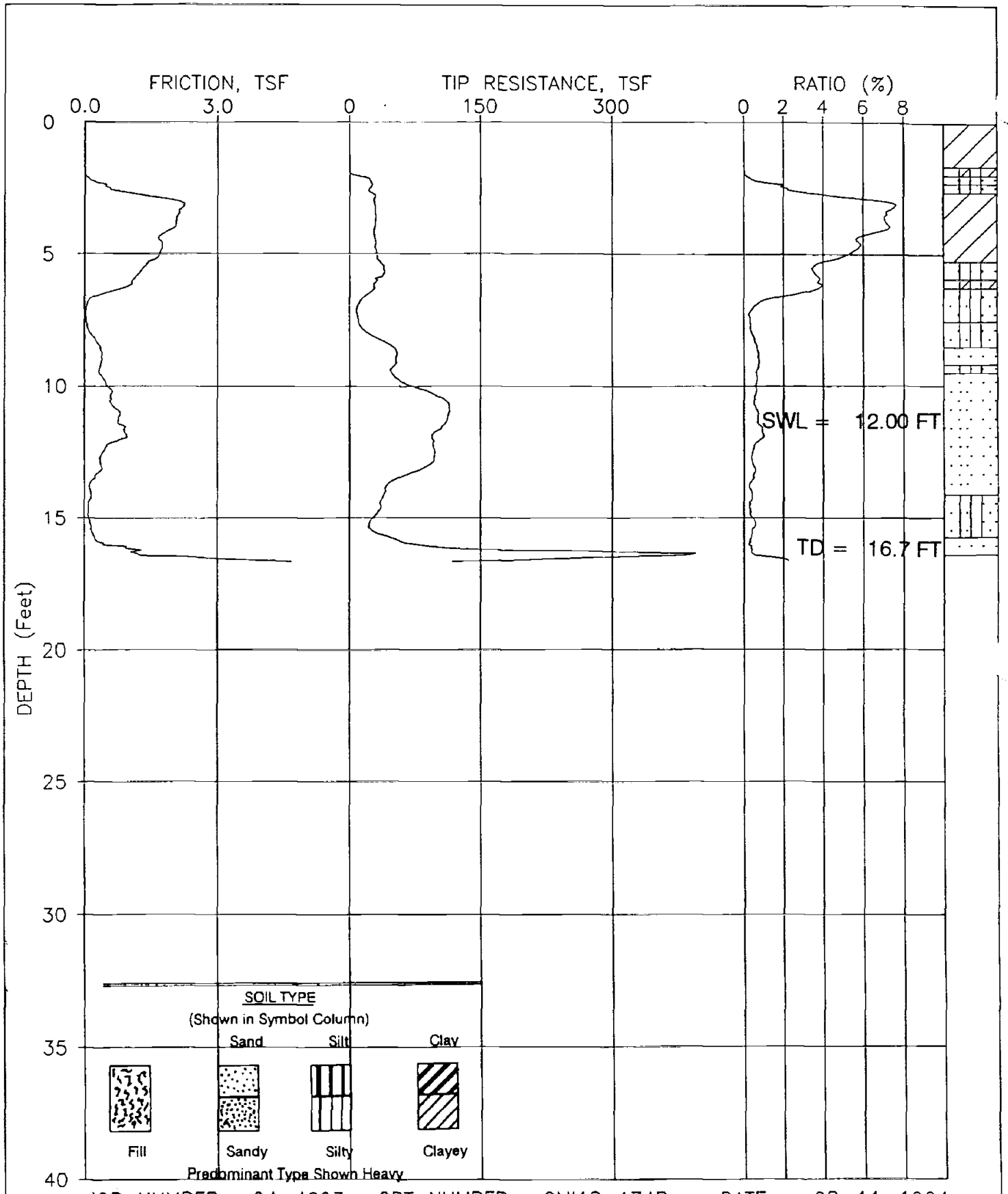
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-172P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



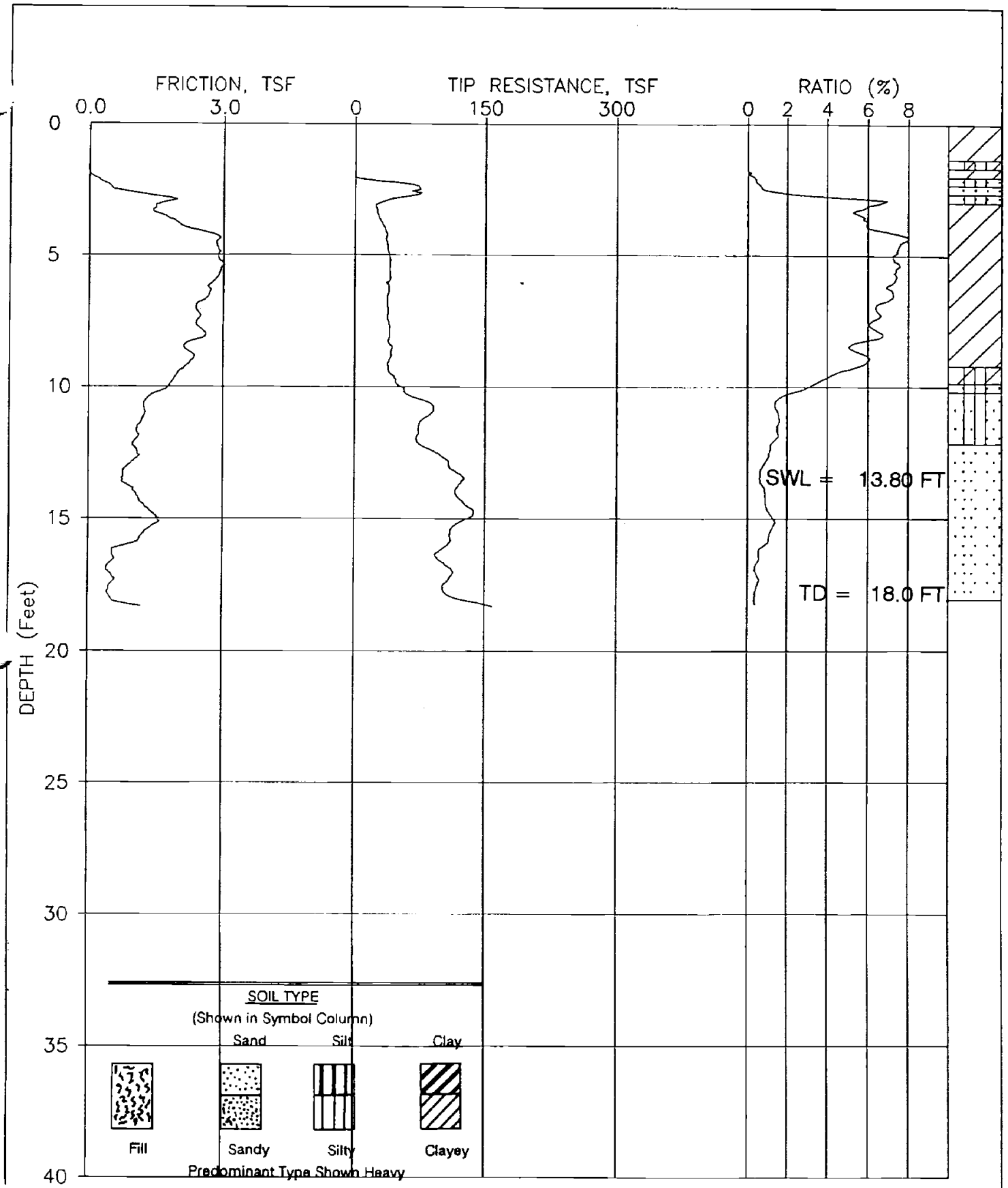
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-173P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



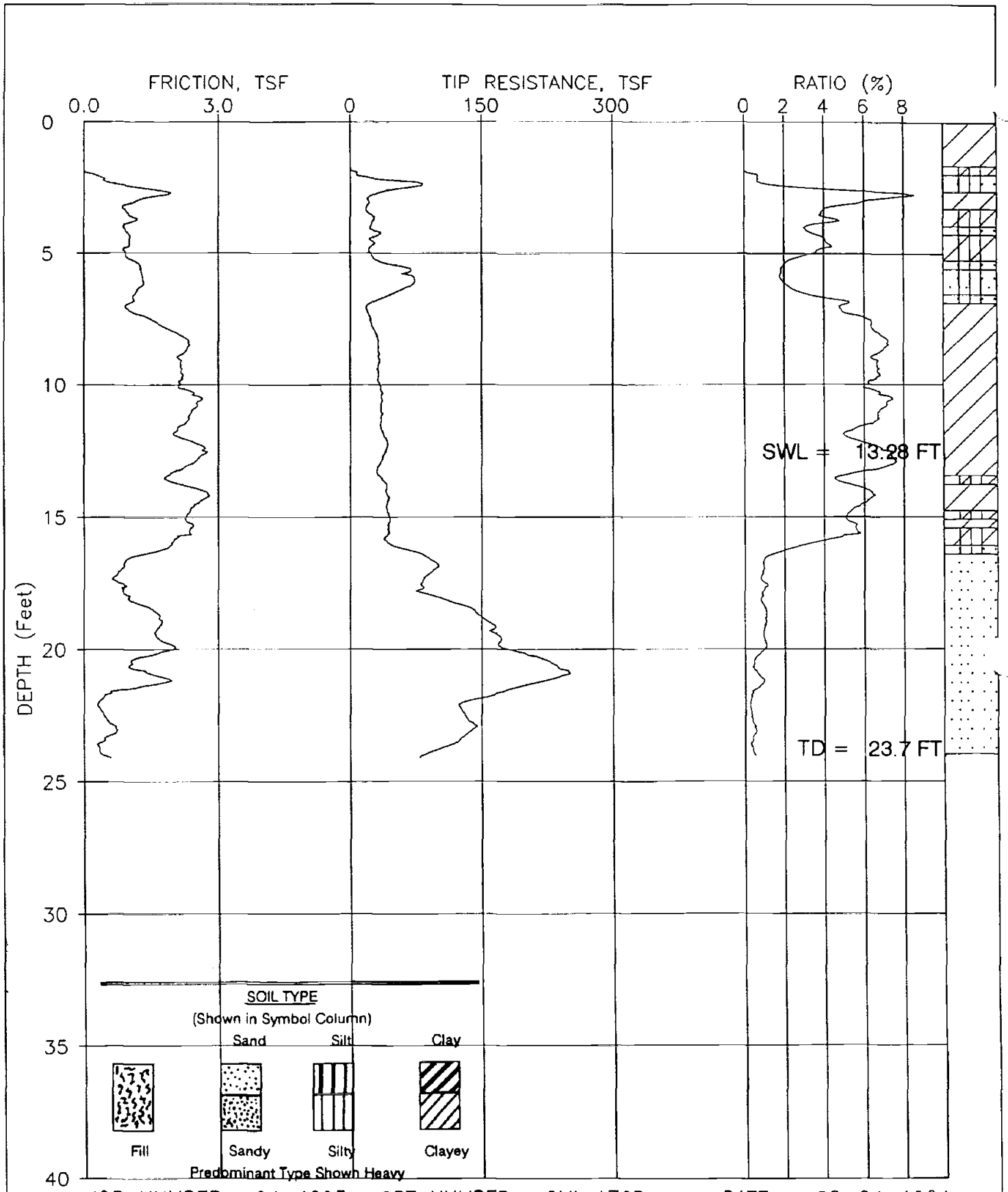
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-174P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



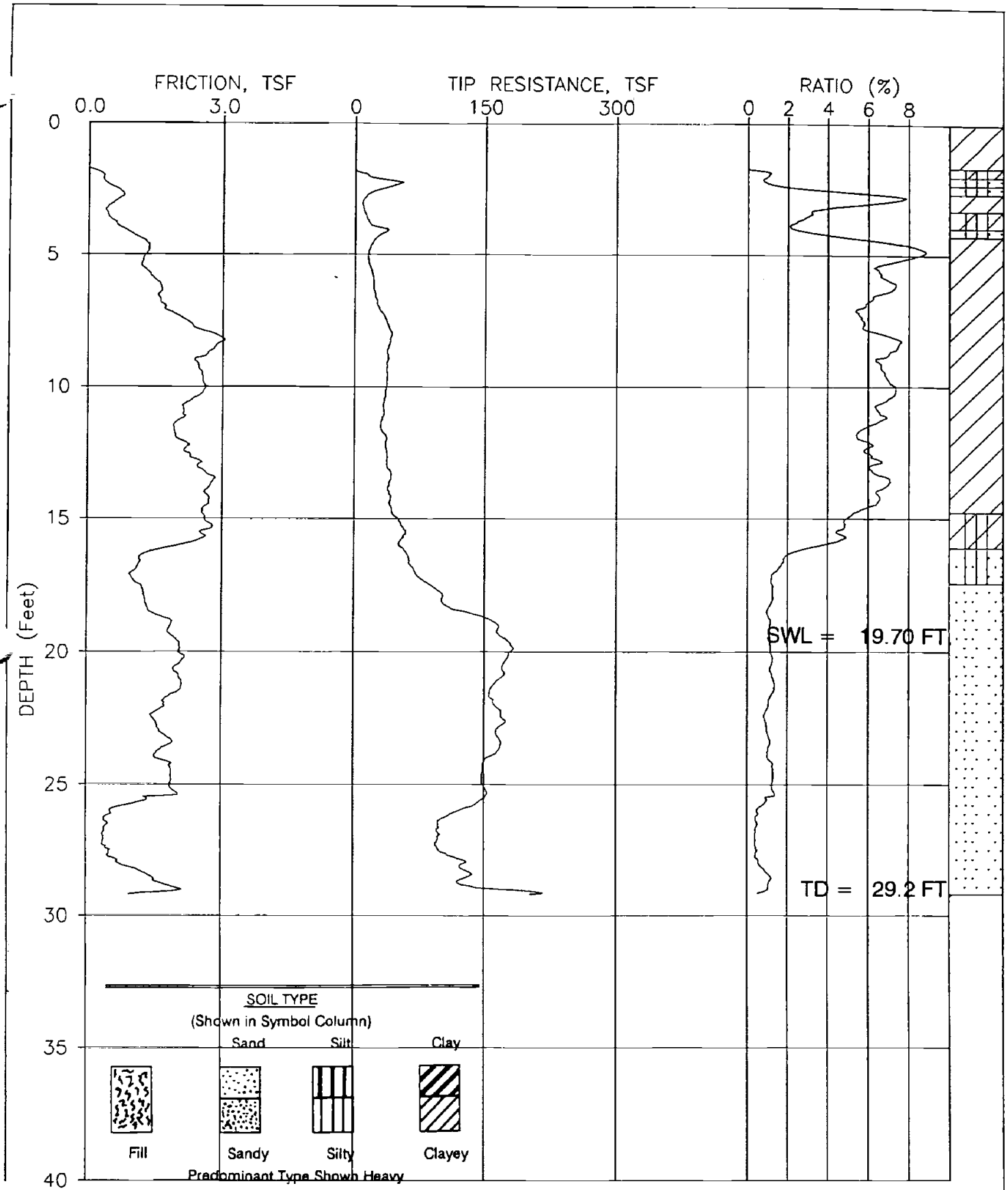
JOB NUMBER : 94-4093 CPT NUMBER : GMI-175P DATE : 08-04-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



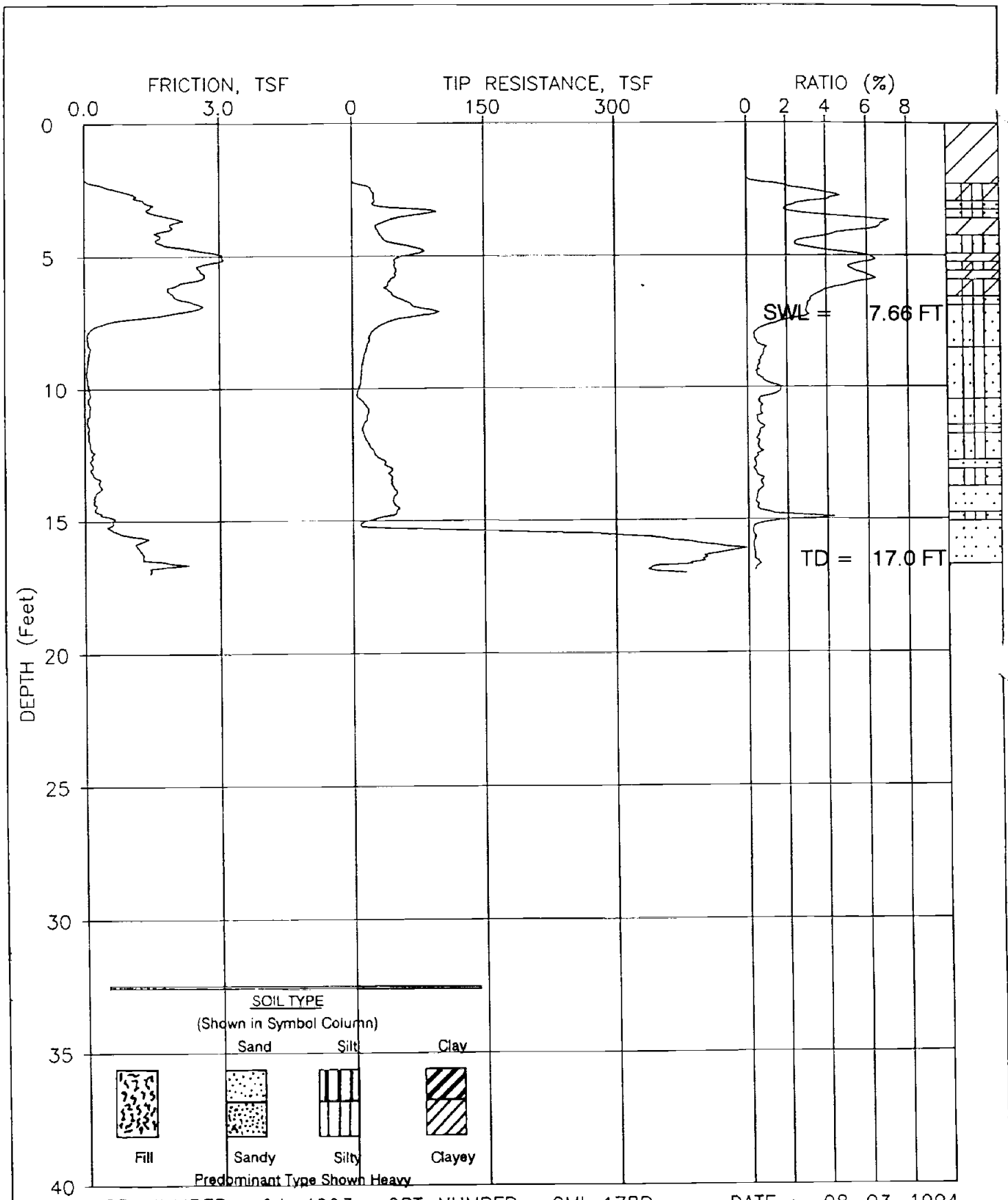
JOB NUMBER : 94-4093 CPT NUMBER : GMI-176P DATE : 08-04-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-177P DATE : 08-04-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

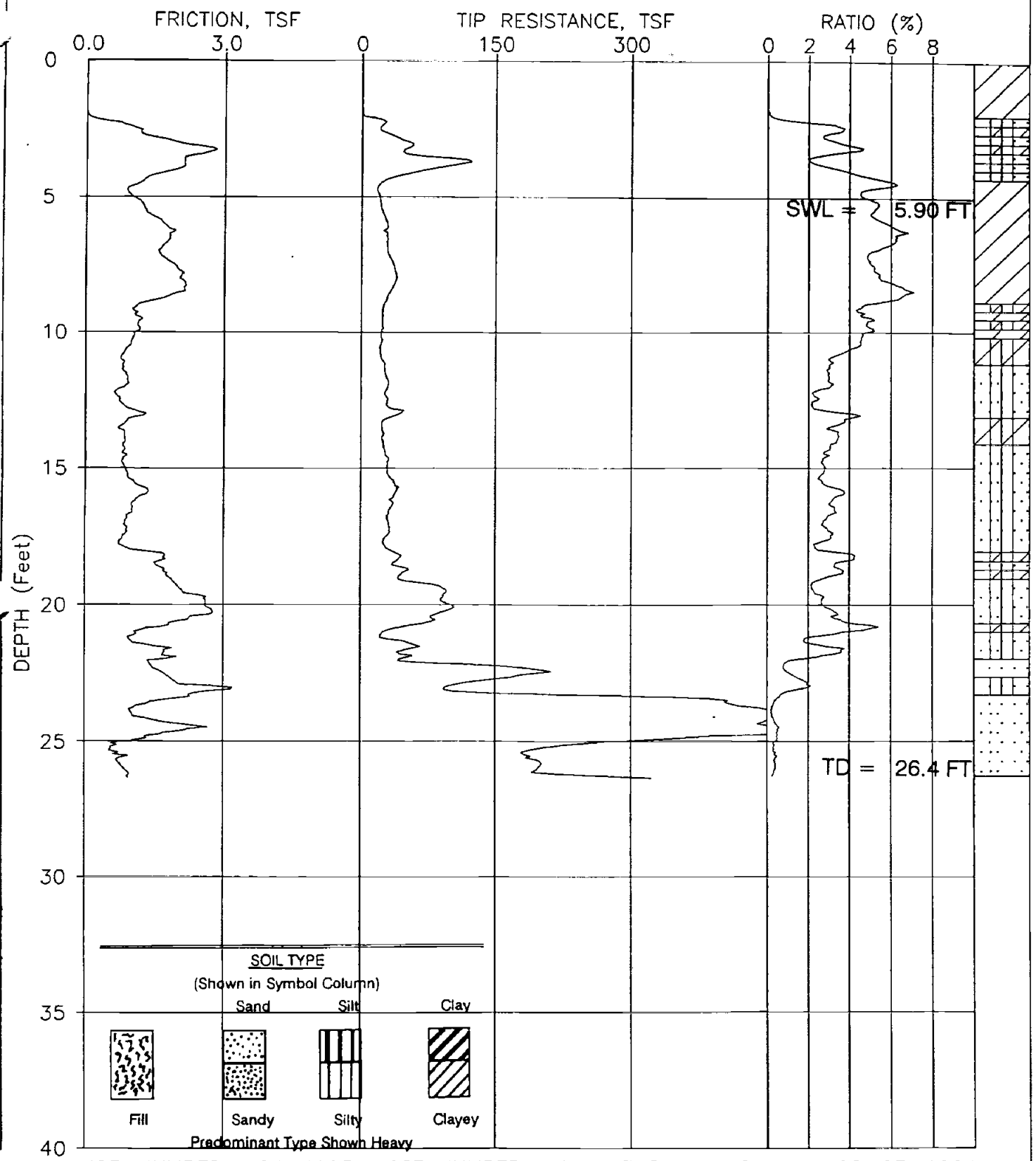
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-178P DATE : 08-03-1994

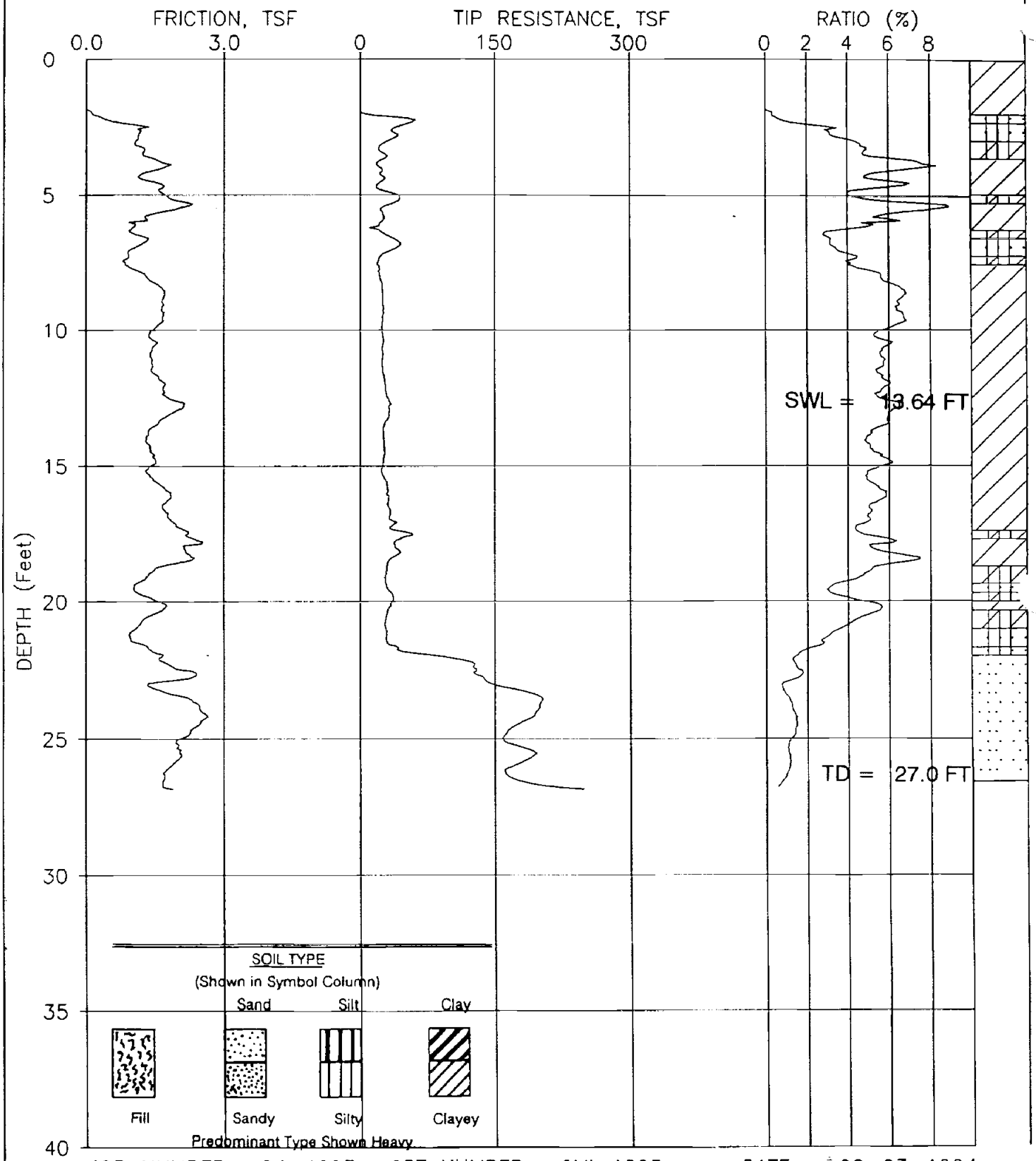
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

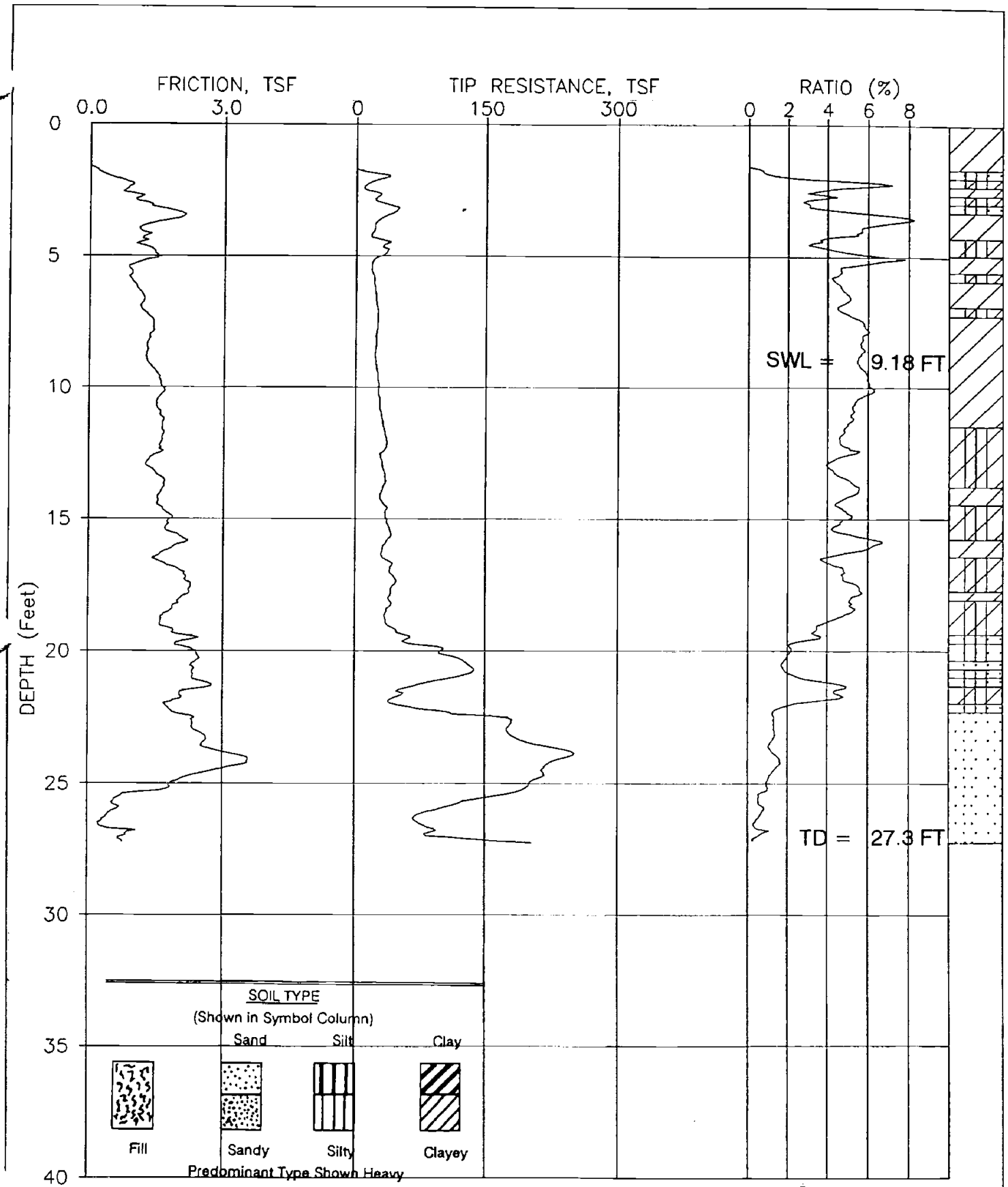


JOB NUMBER : 94-4093 CPT NUMBER : GMI-179P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

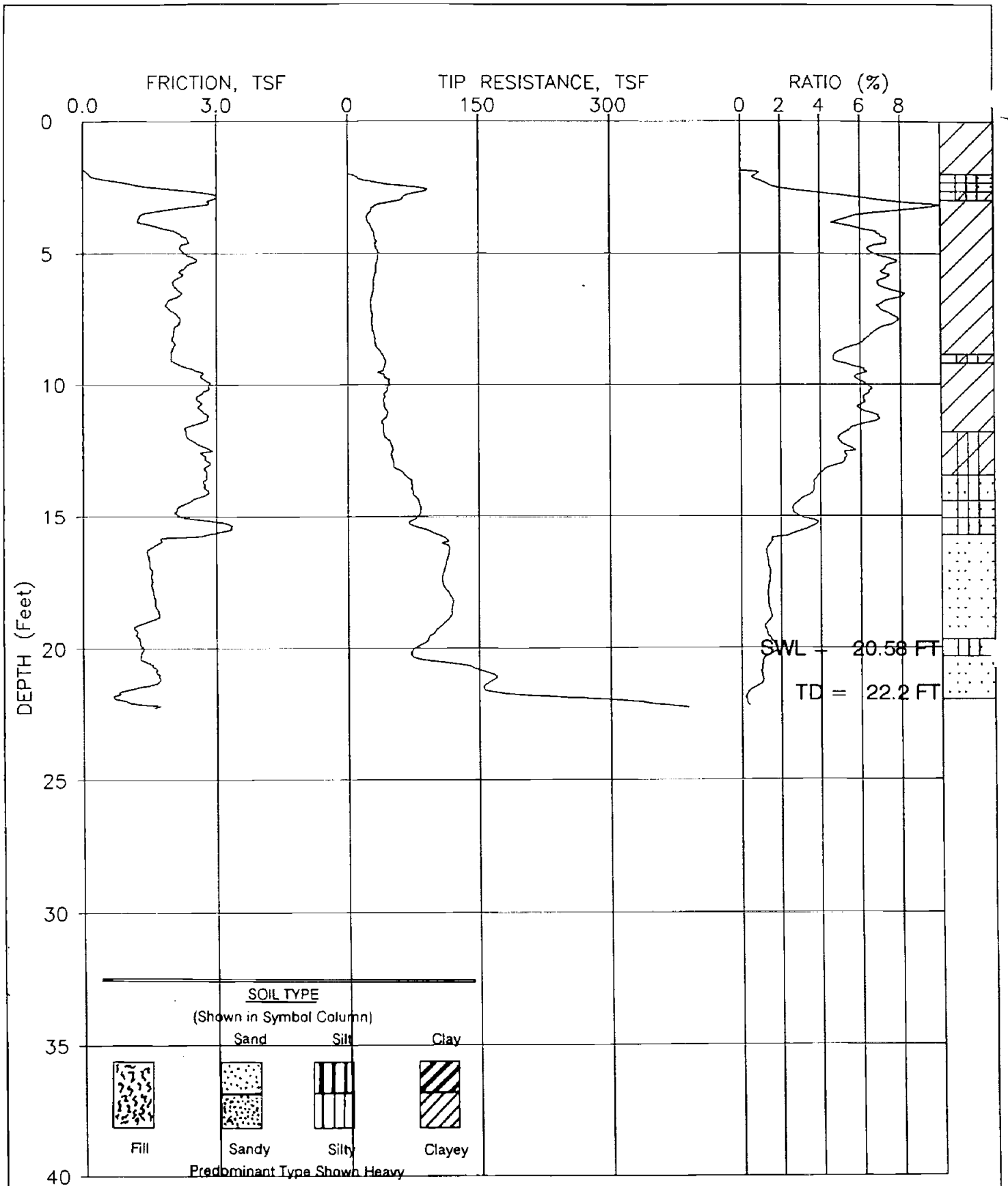


JOB NUMBER : 94-4093 CPT NUMBER : GMI-180P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080



JOB NUMBER : 94-4093 CPT NUMBER : GMI-181P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

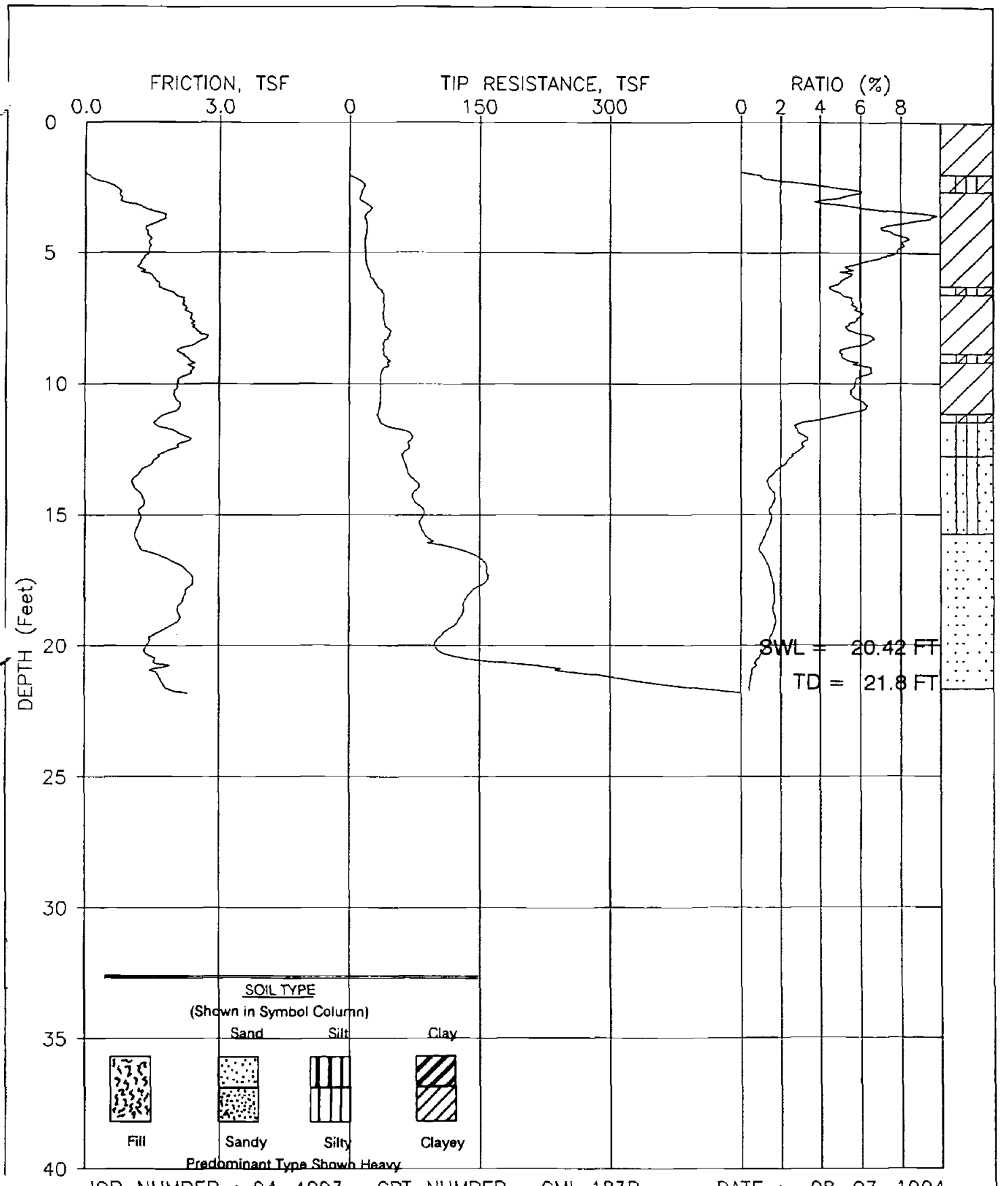
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-182P DATE : 08-03-1994

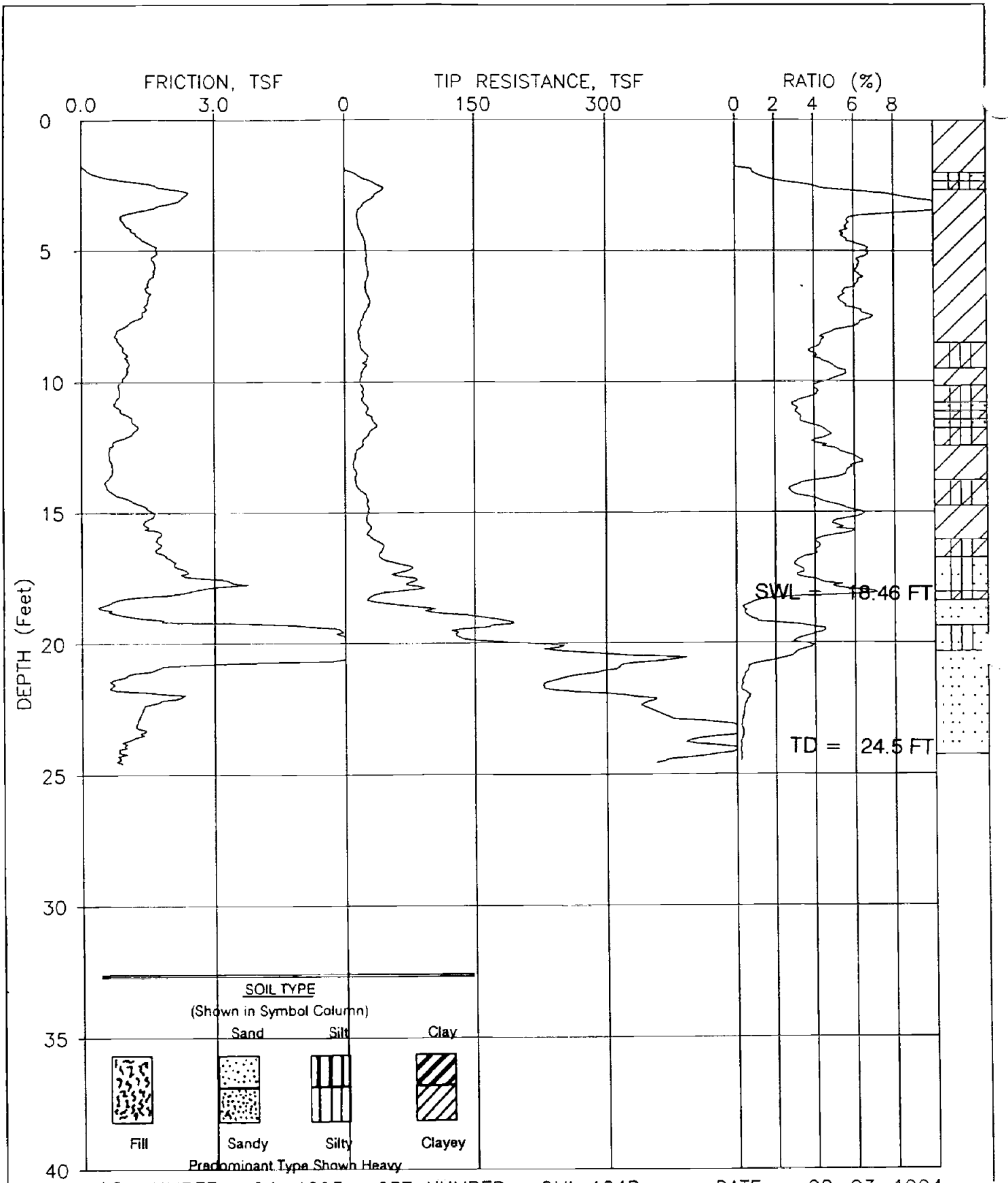
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



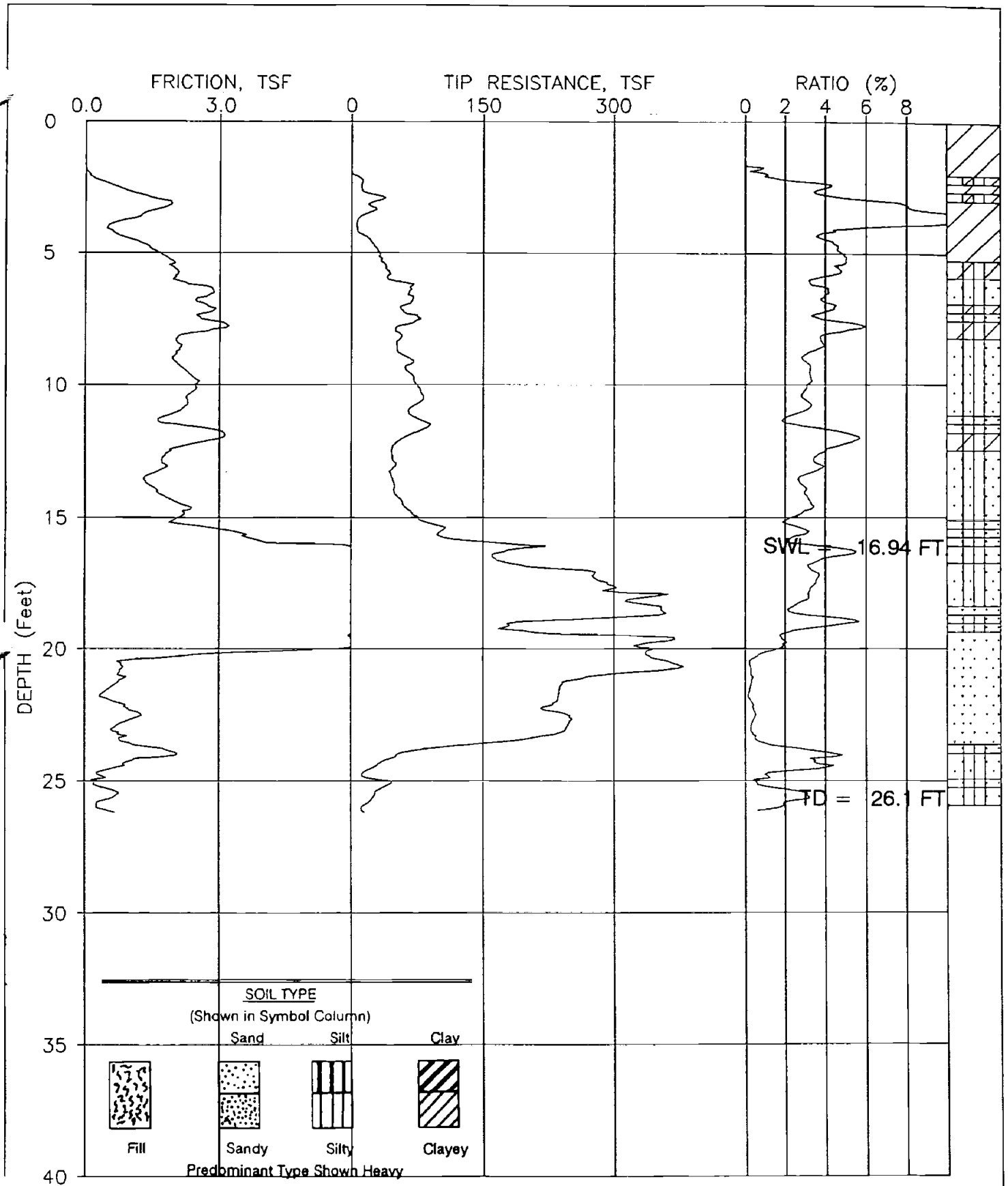
JOB NUMBER : 94-4093 CPT NUMBER : GMI-183P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



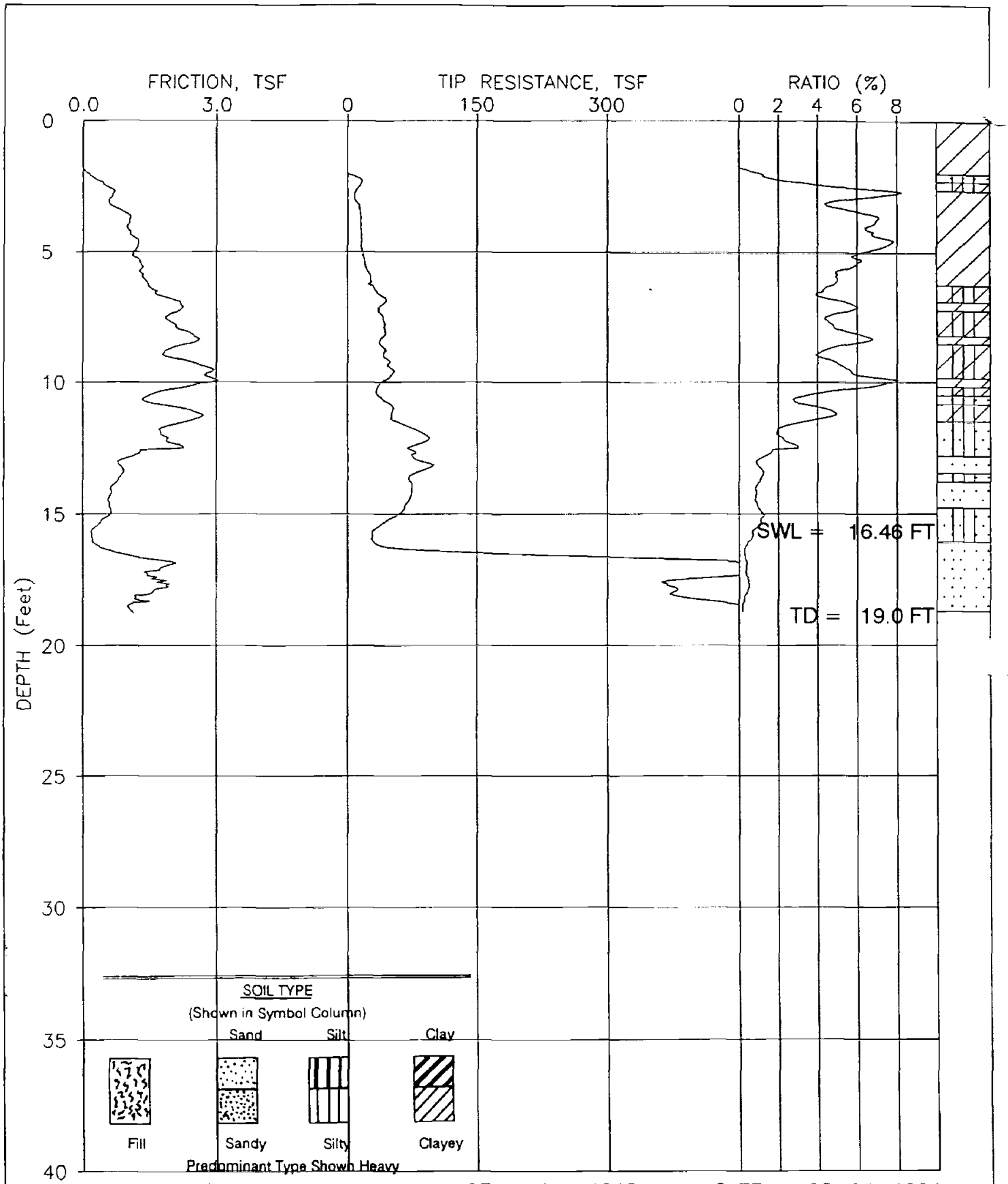
JOB NUMBER : 94-4093 CPT NUMBER : GMI-184P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



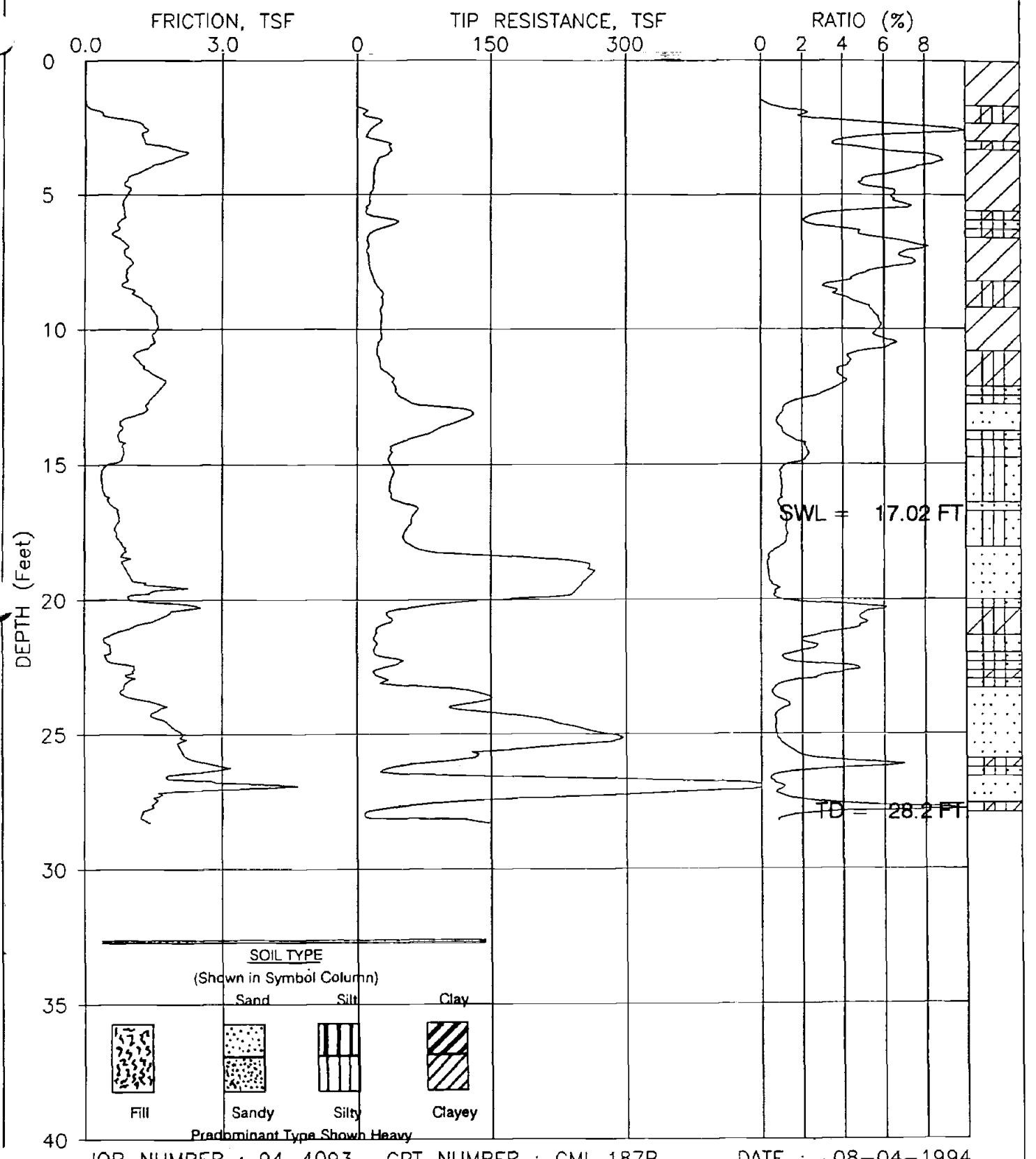
JOB NUMBER : 94-4093 CPT NUMBER : GMI-185P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-186P DATE : 08-04-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

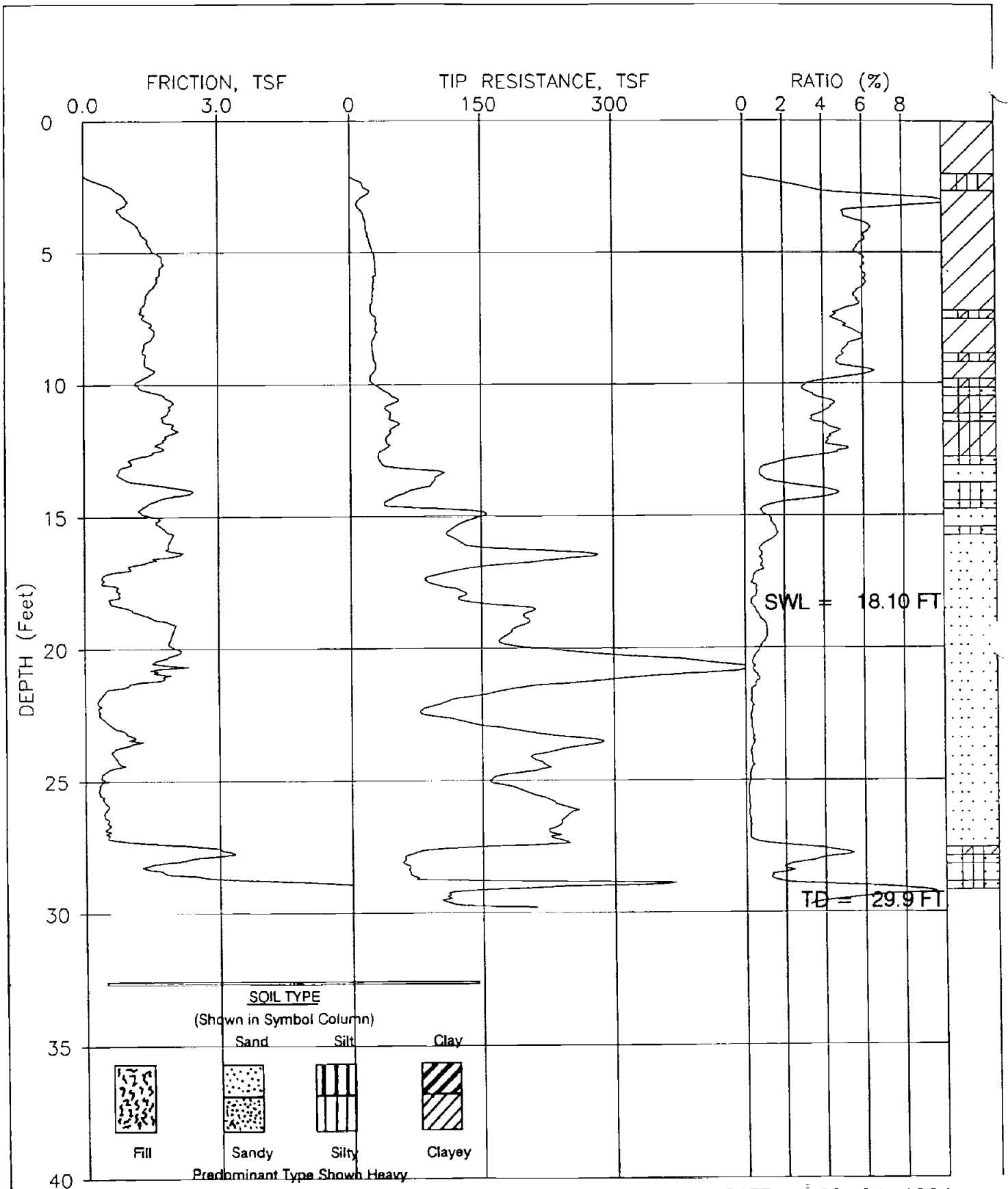
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-187P DATE : 08-04-1994

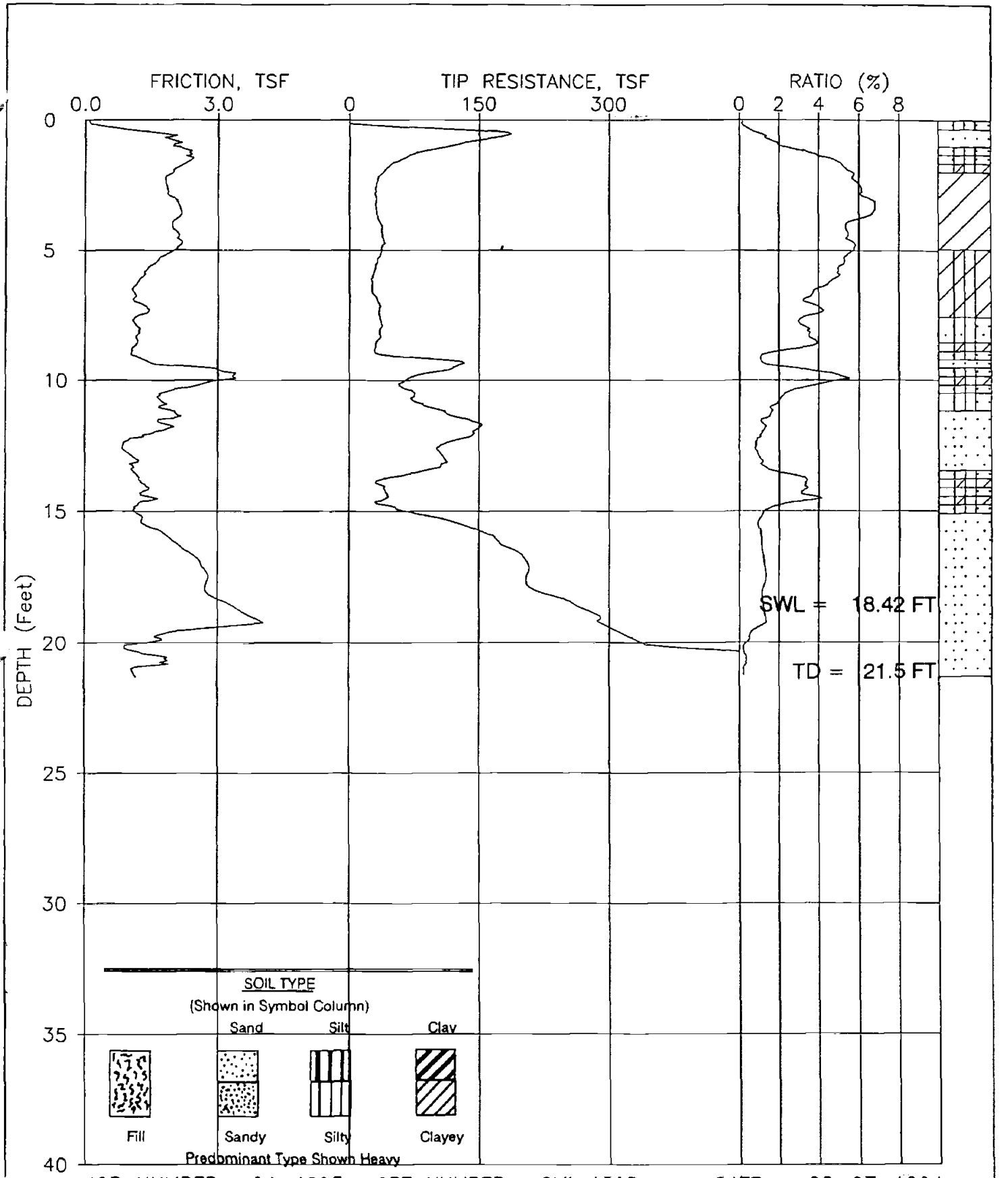
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-188P DATE : 08-04-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

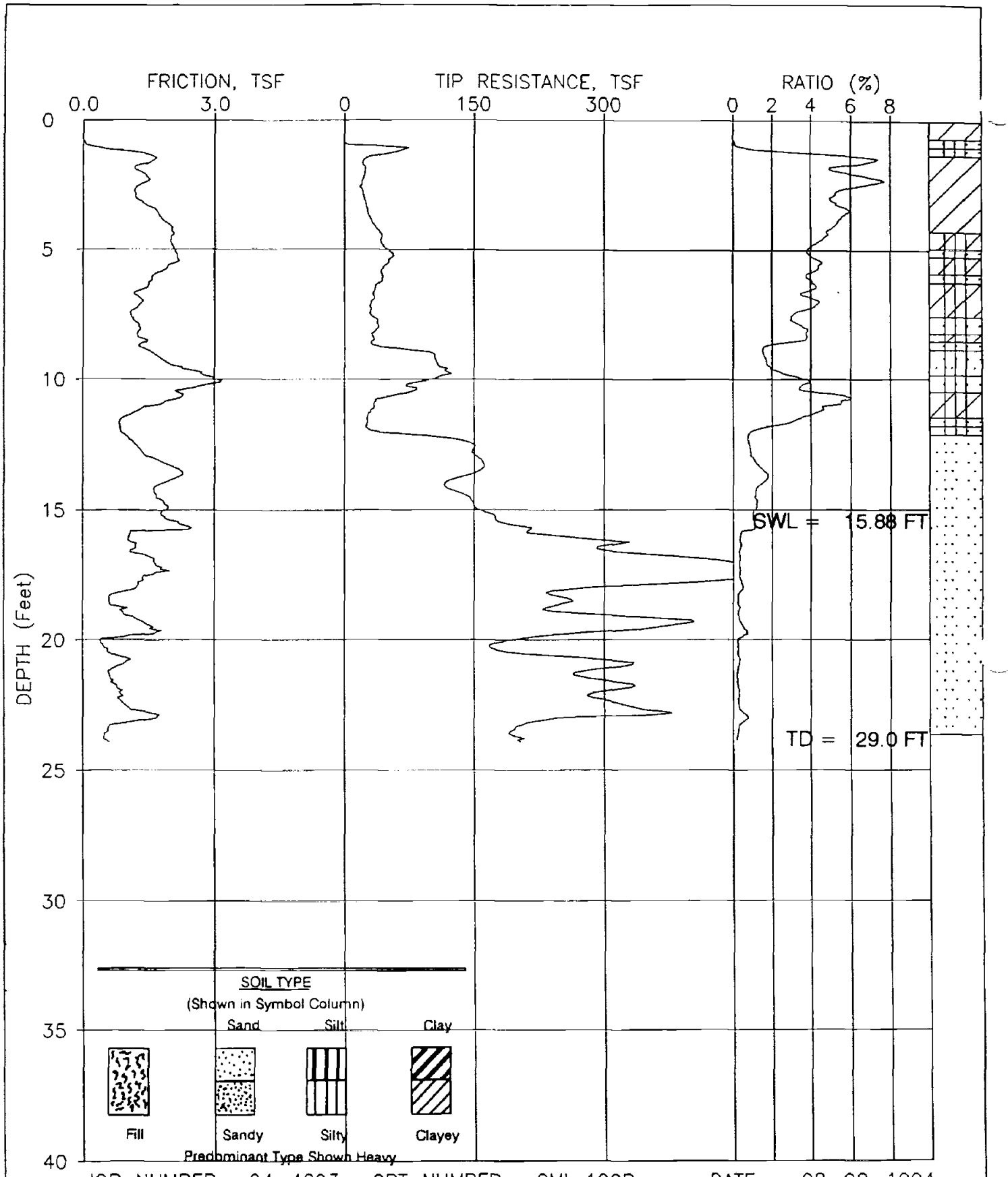
FUGRO GEOSCIENCES,INC



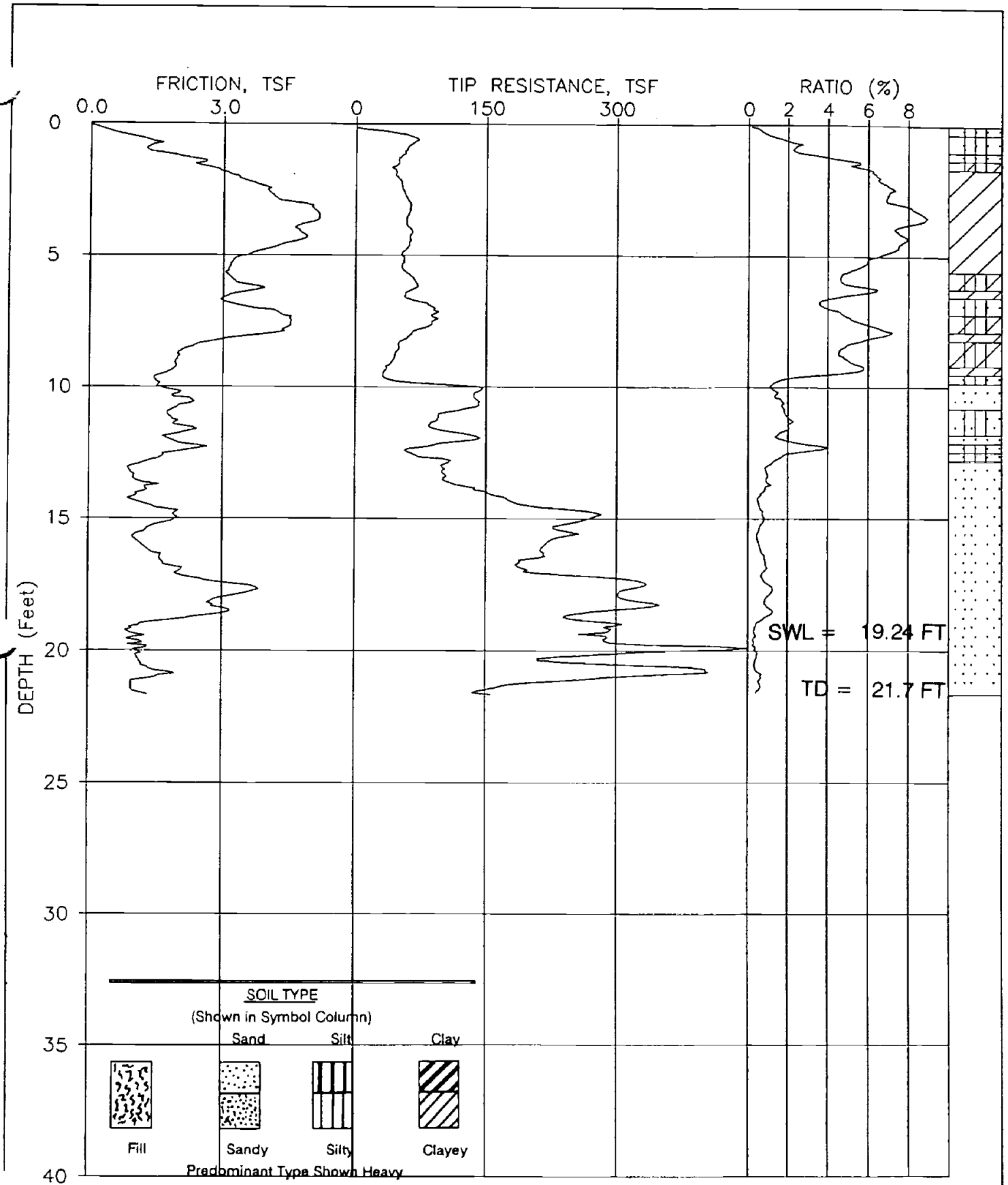
JOB NUMBER : 94-4093 CPT NUMBER : GMI-189P DATE : 08-07-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

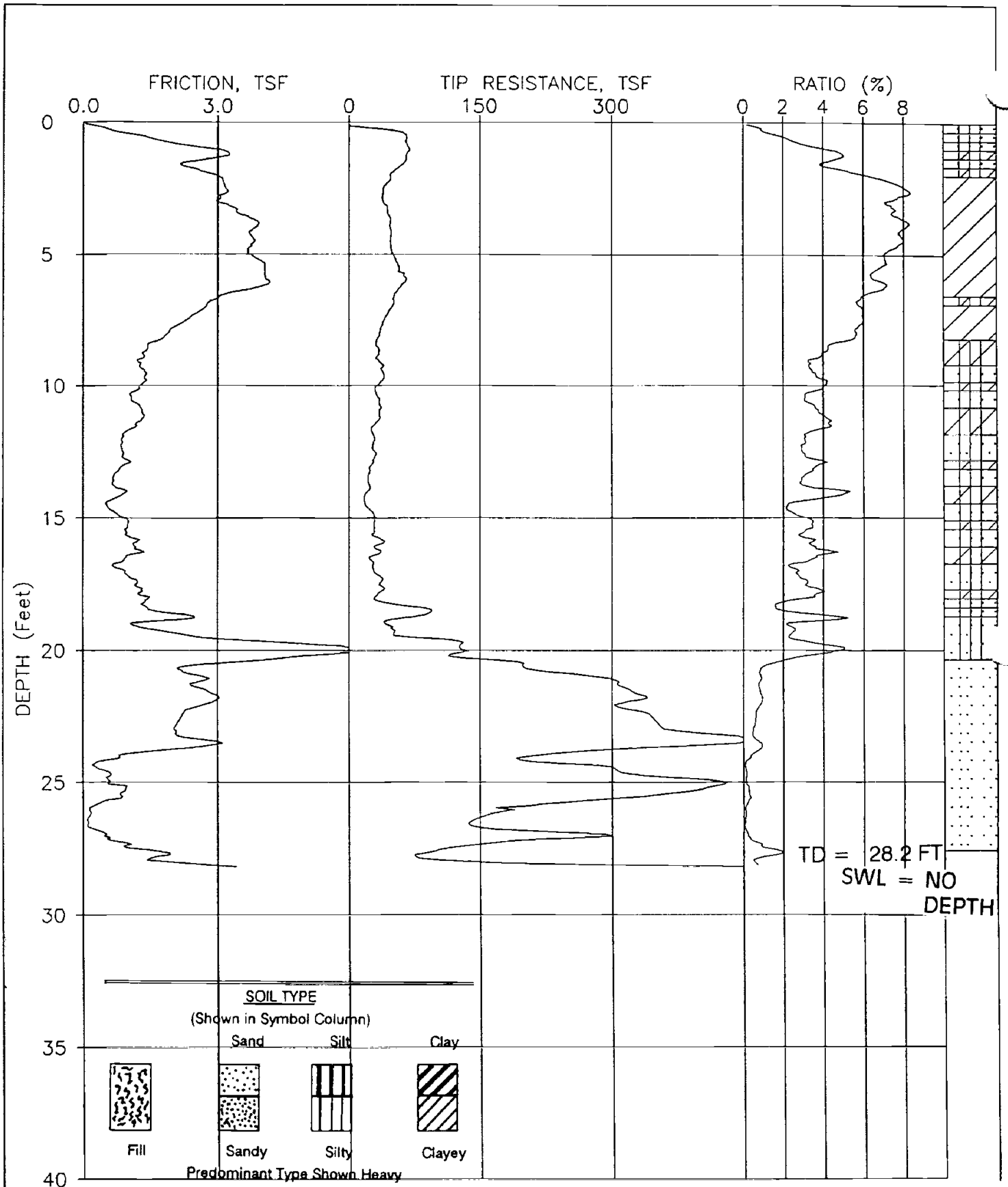


JOB NUMBER : 94-4093 CPT NUMBER : GMI-190P DATE : 08-08-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080



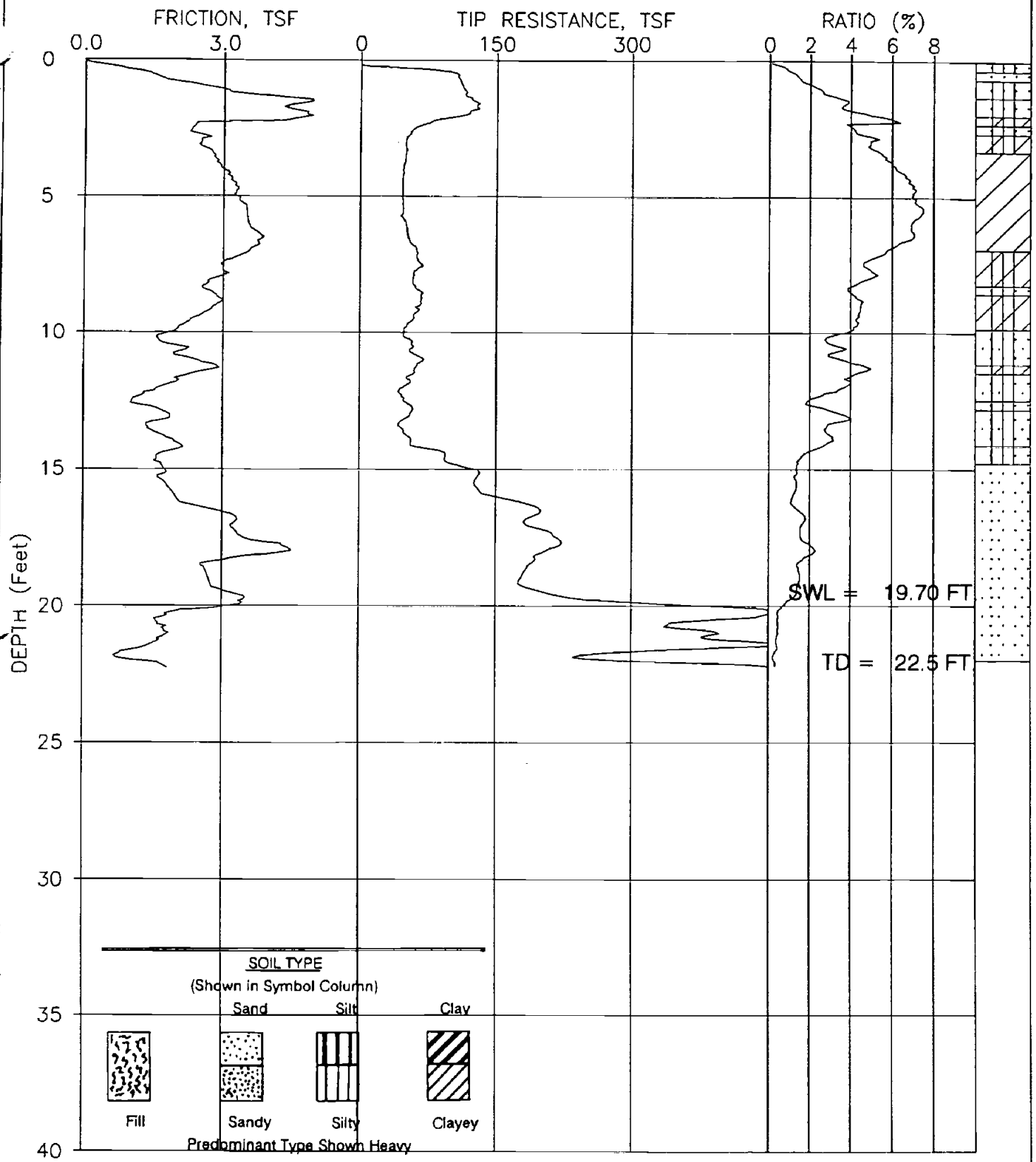
JOB NUMBER : 94-4093 CPT NUMBER : GMI-191P DATE : 08-08-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-192P DATE : 08-08-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

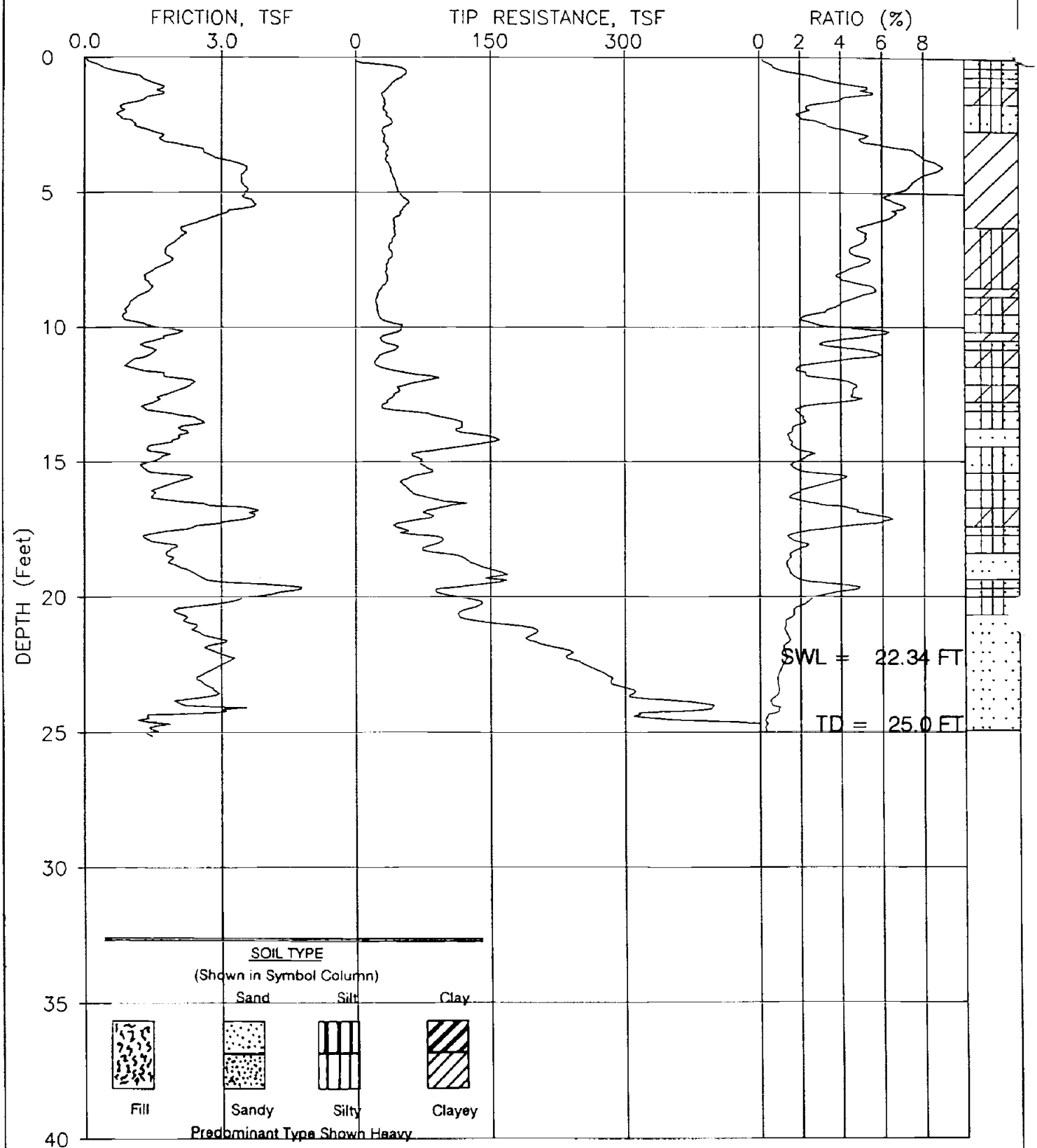
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI-193P DATE : 08-07-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-194P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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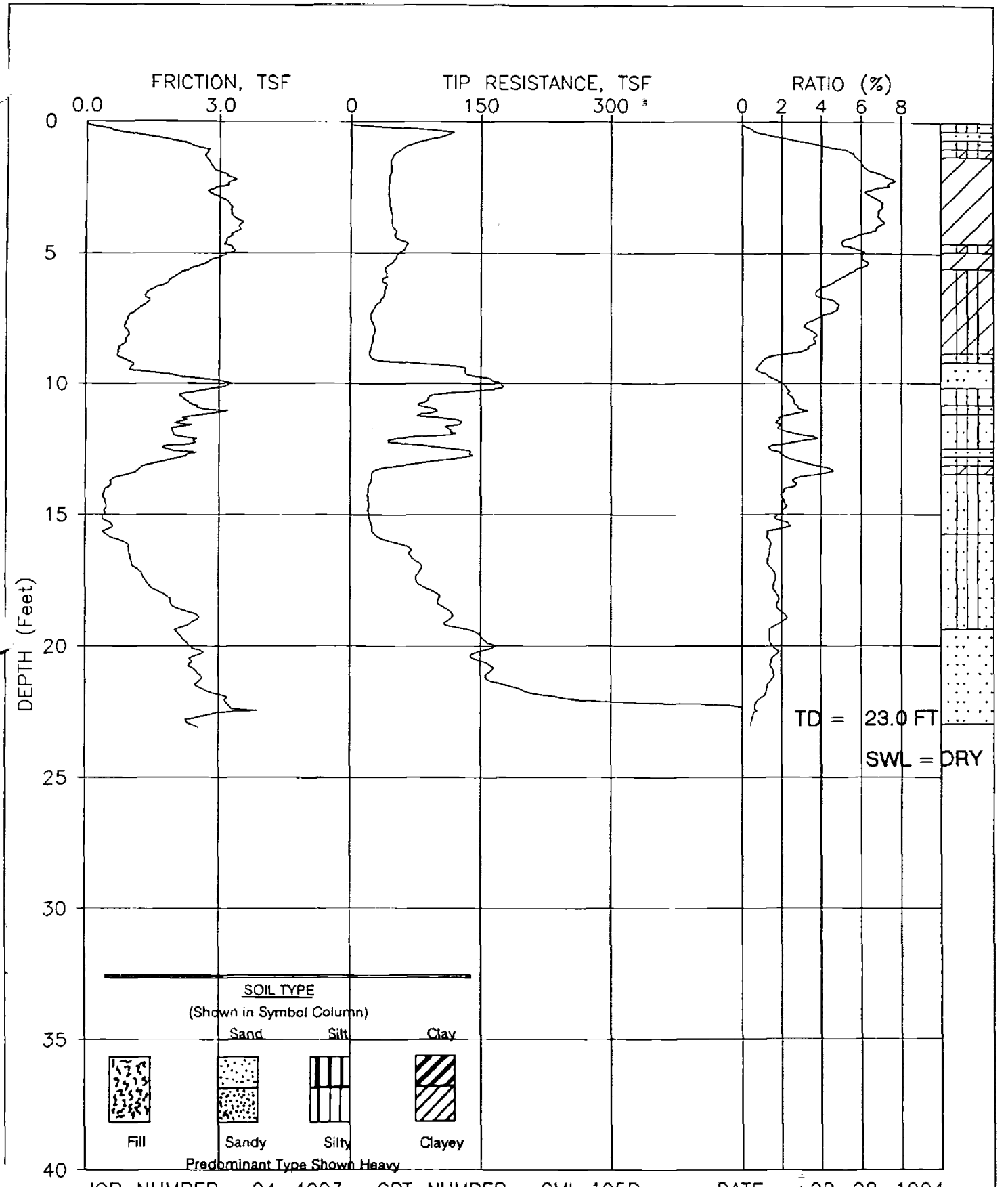
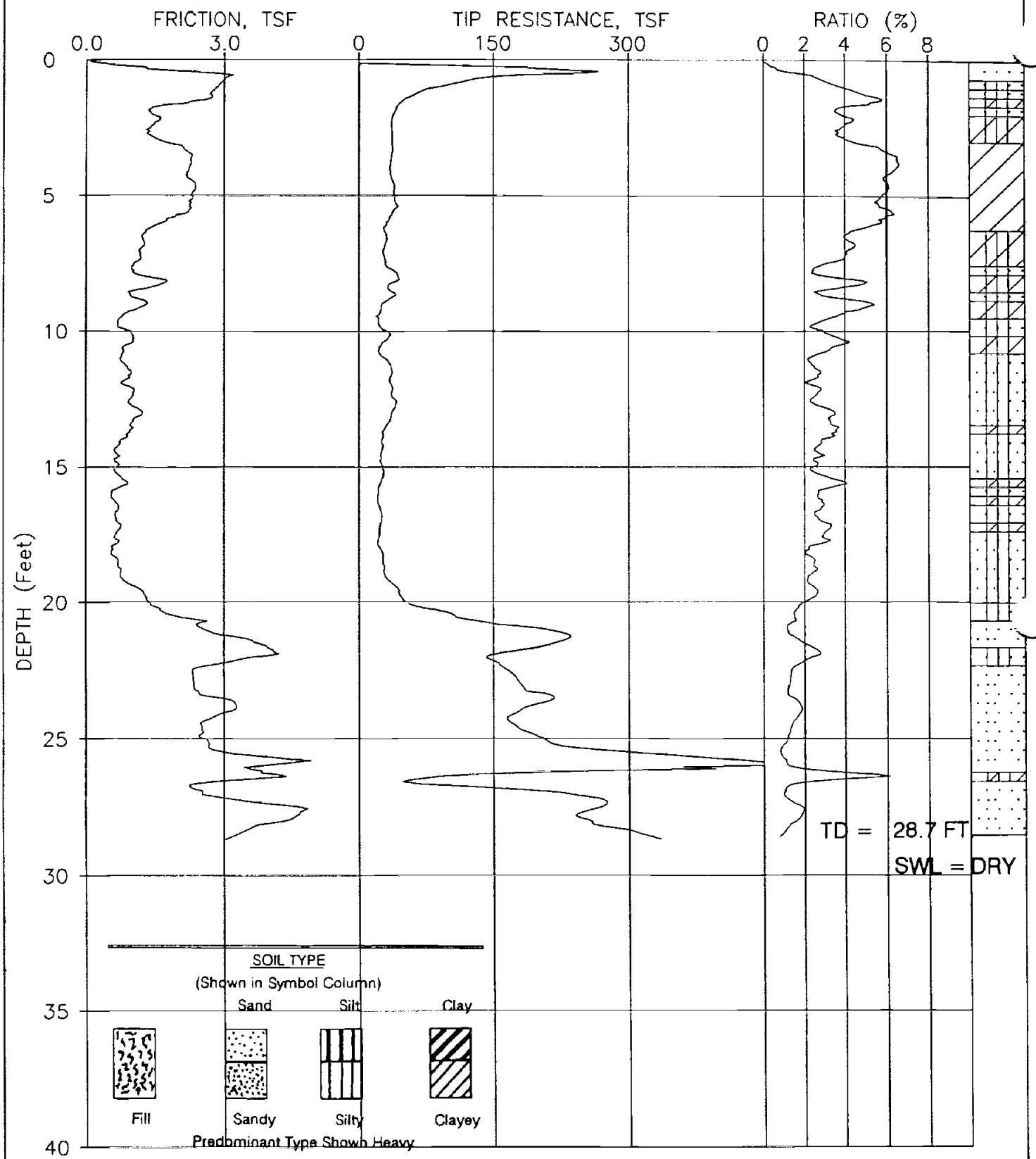


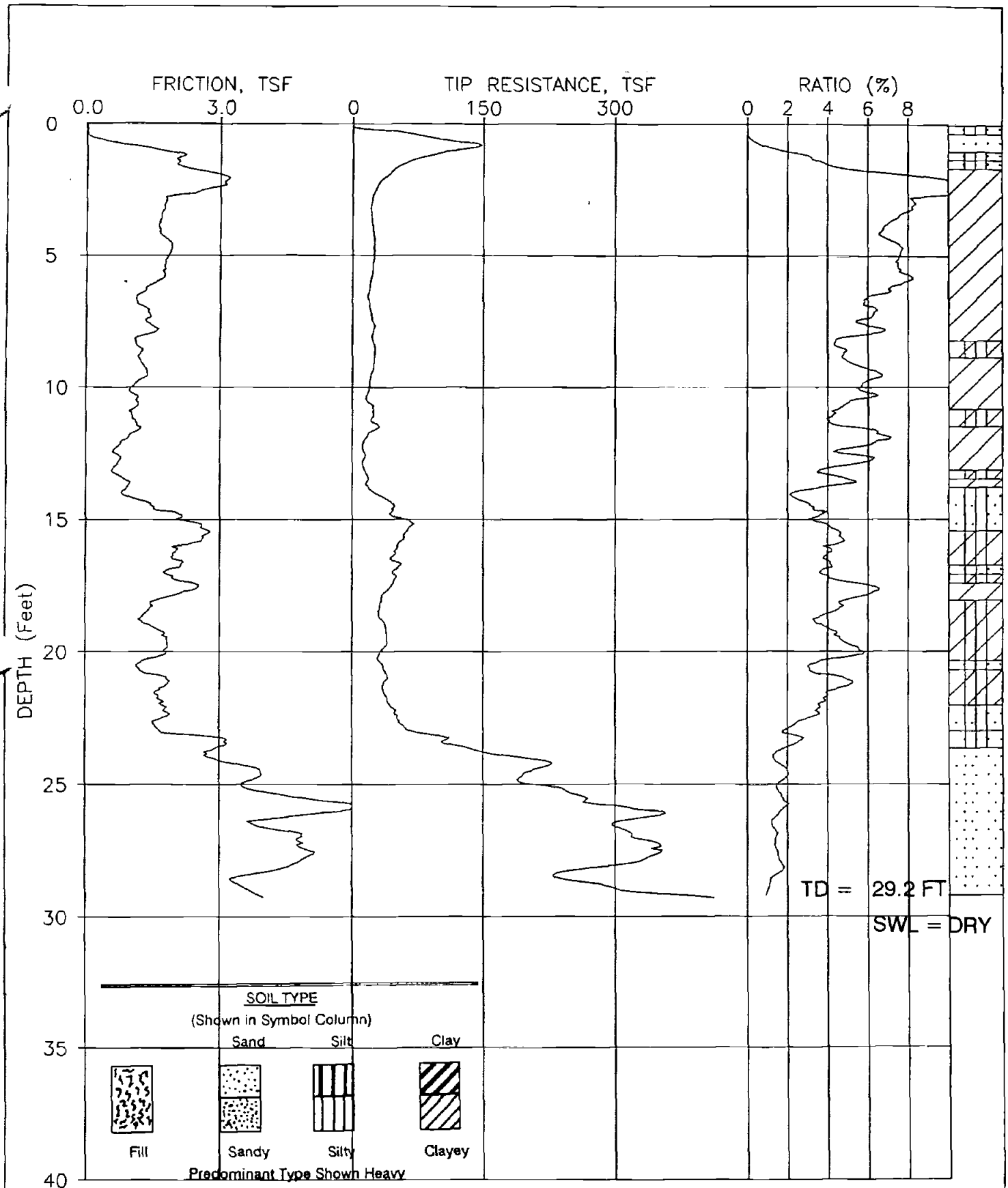
JOB NUMBER : 94-4093 CPT NUMBER : GMI-195P DATE : 08-08-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



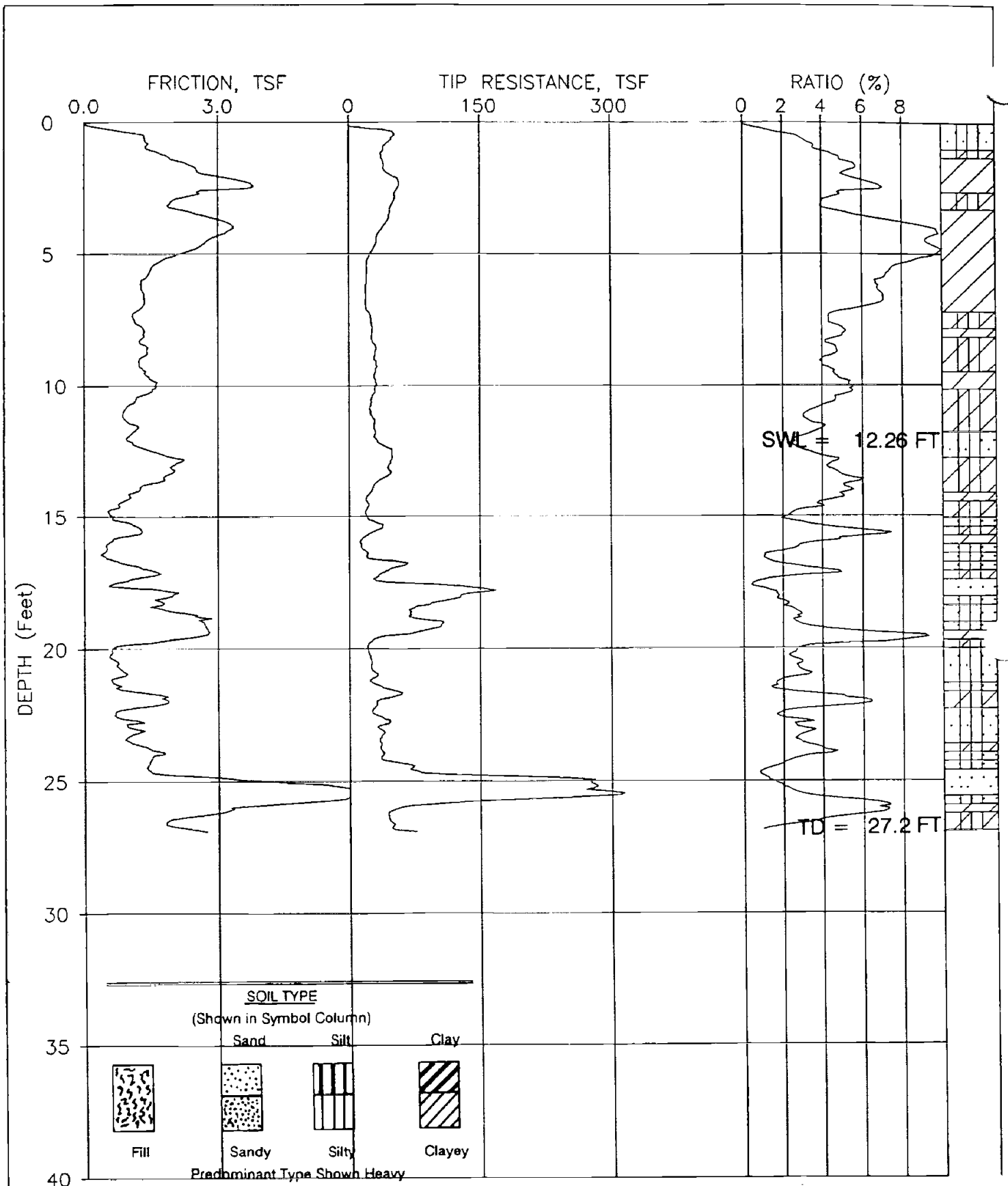
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-196P DATE : 08-08-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-197P DATE : 08-09-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

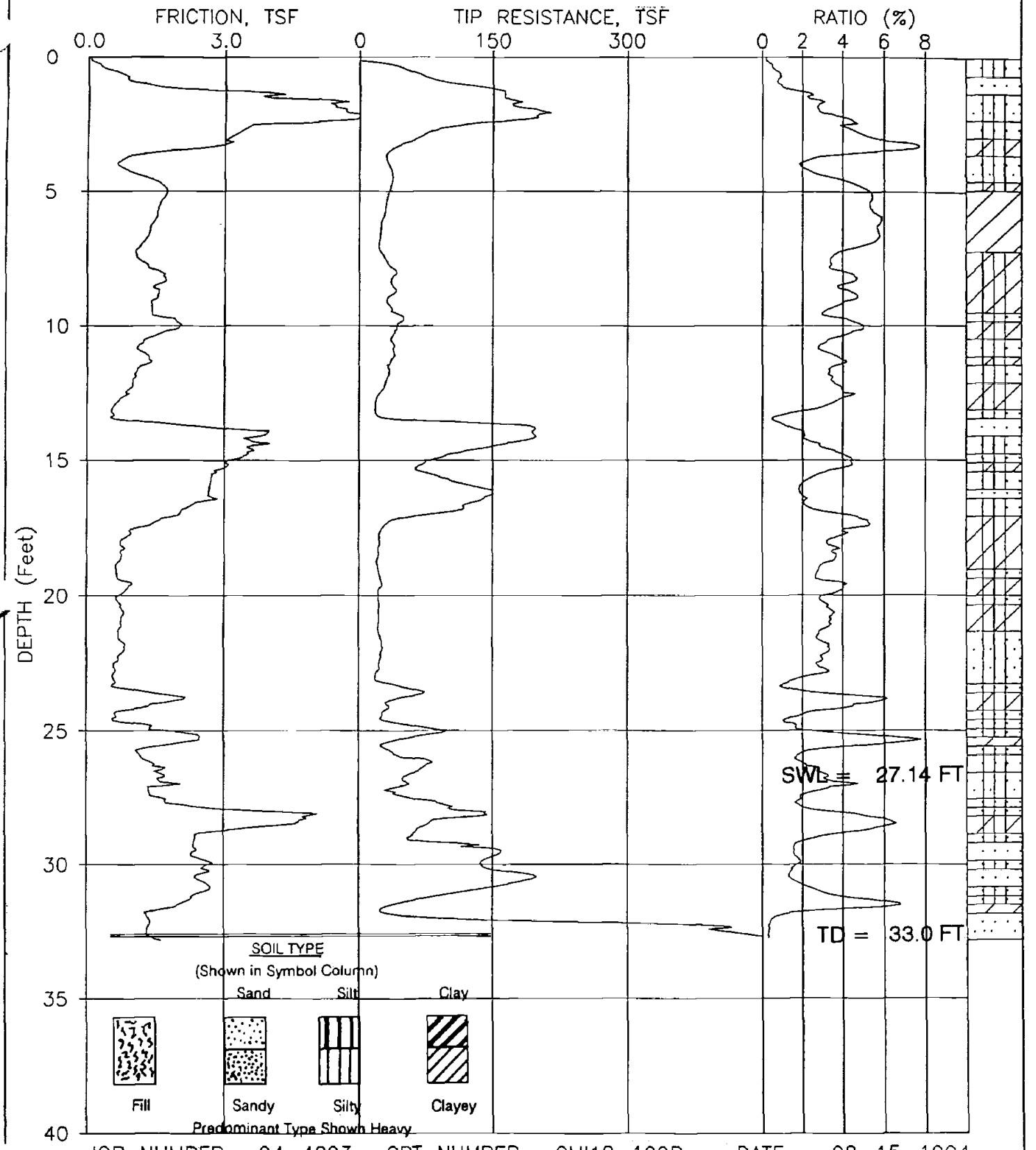
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-198P DATE : 08-09-1994

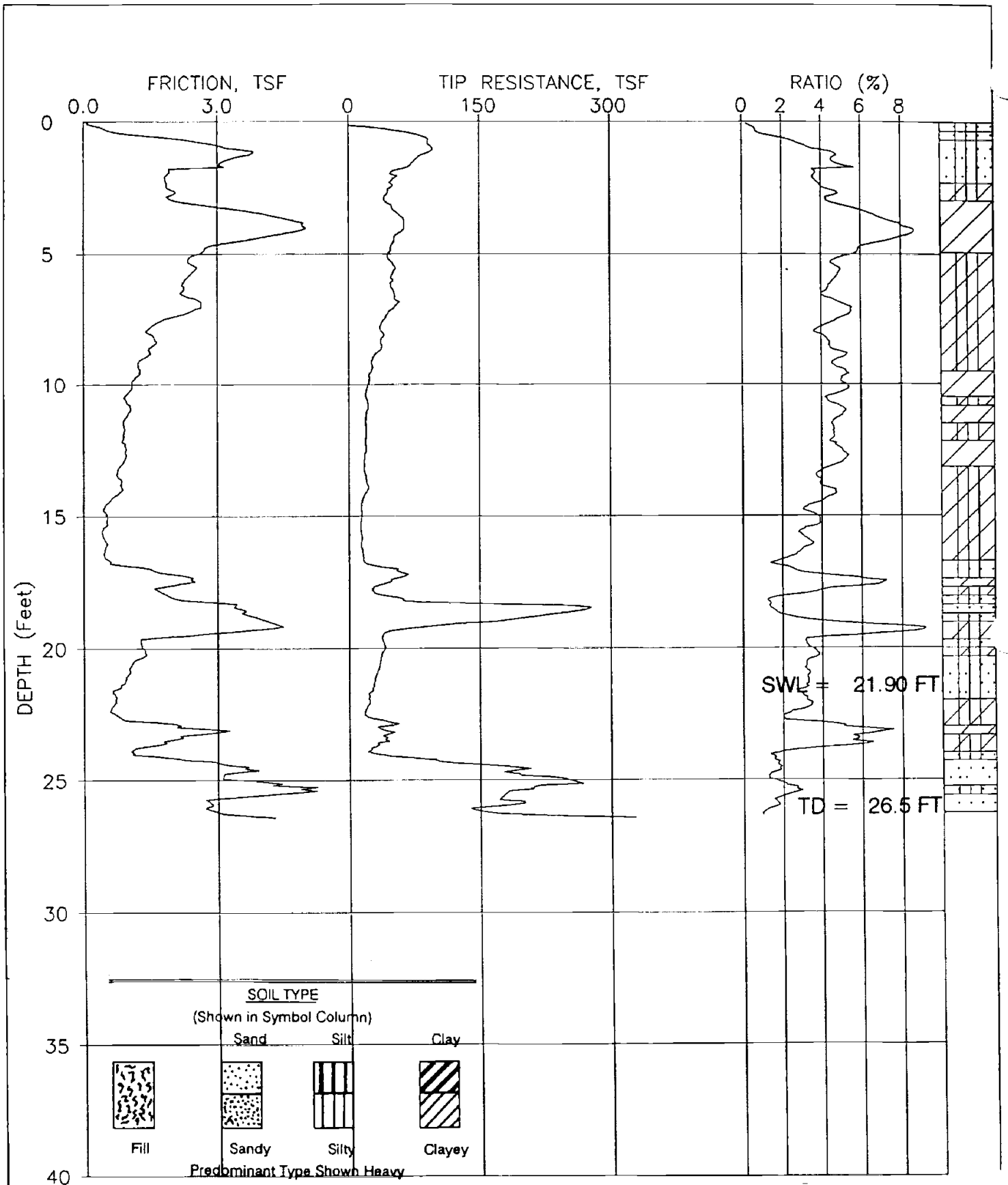
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-199P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-200P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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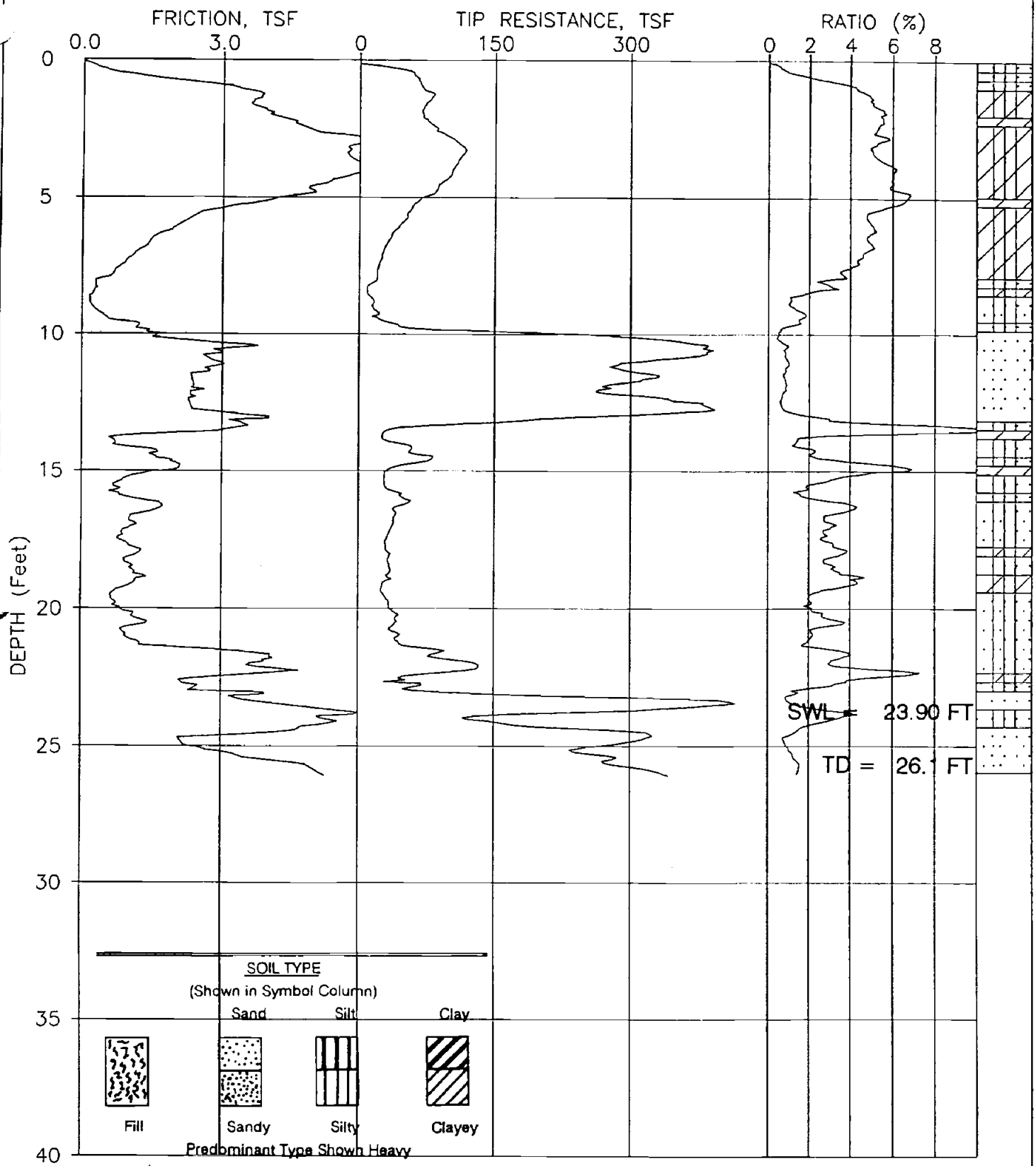
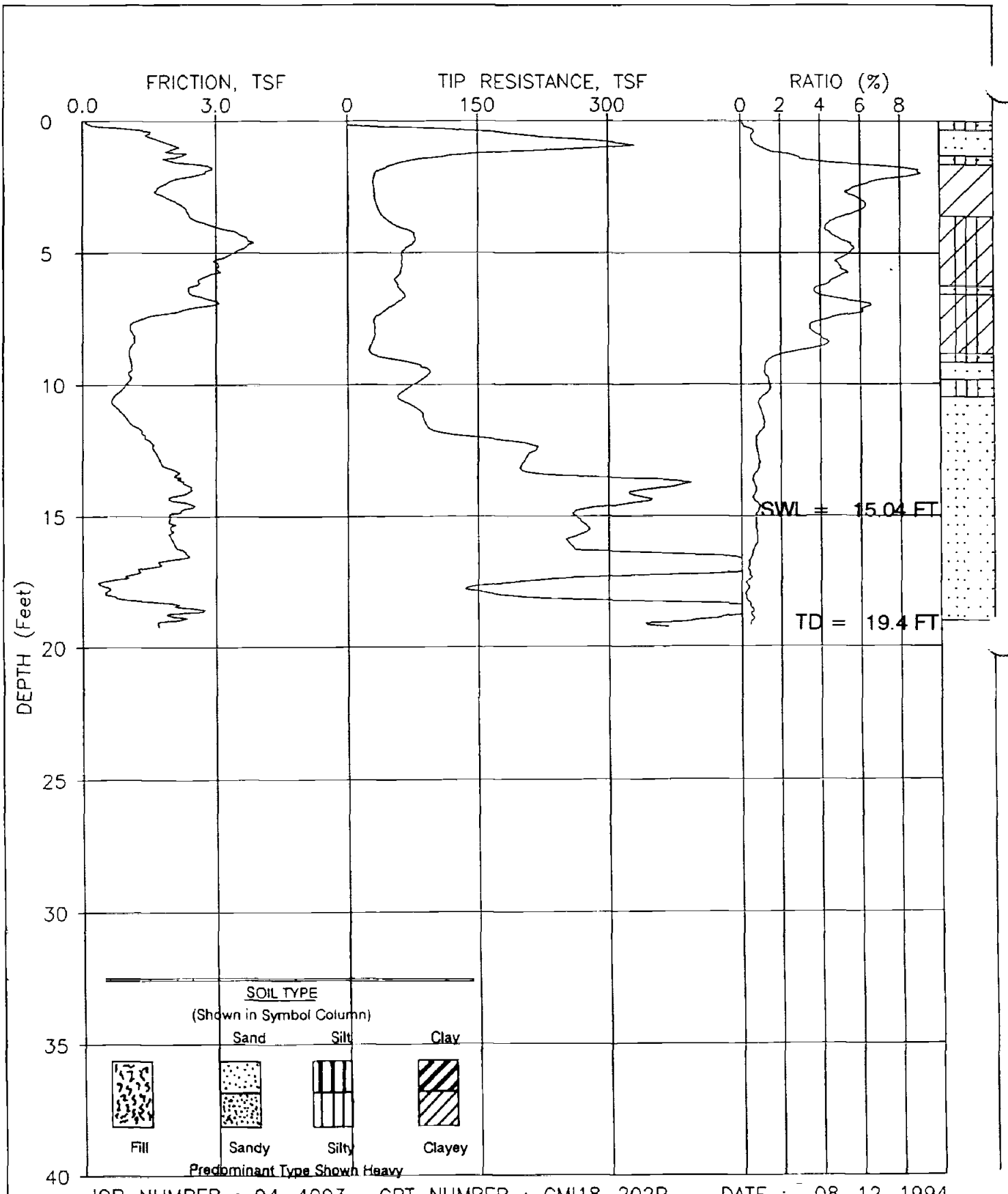


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-201P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-202P DATE : 08-12-1994

ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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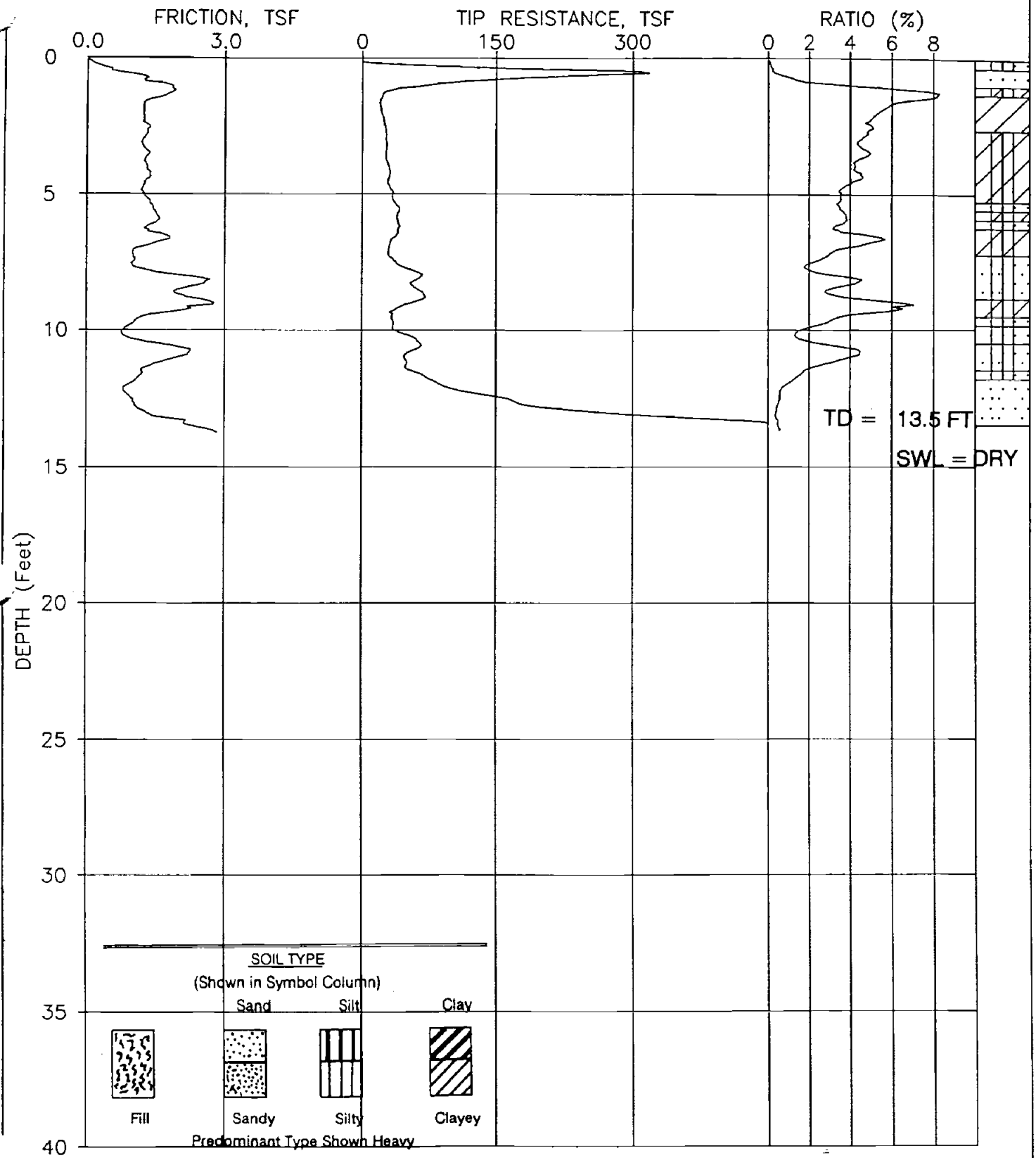

JOB NUMBER : 94-4093 CPT NUMBER : GMI18-203P DATE : 08-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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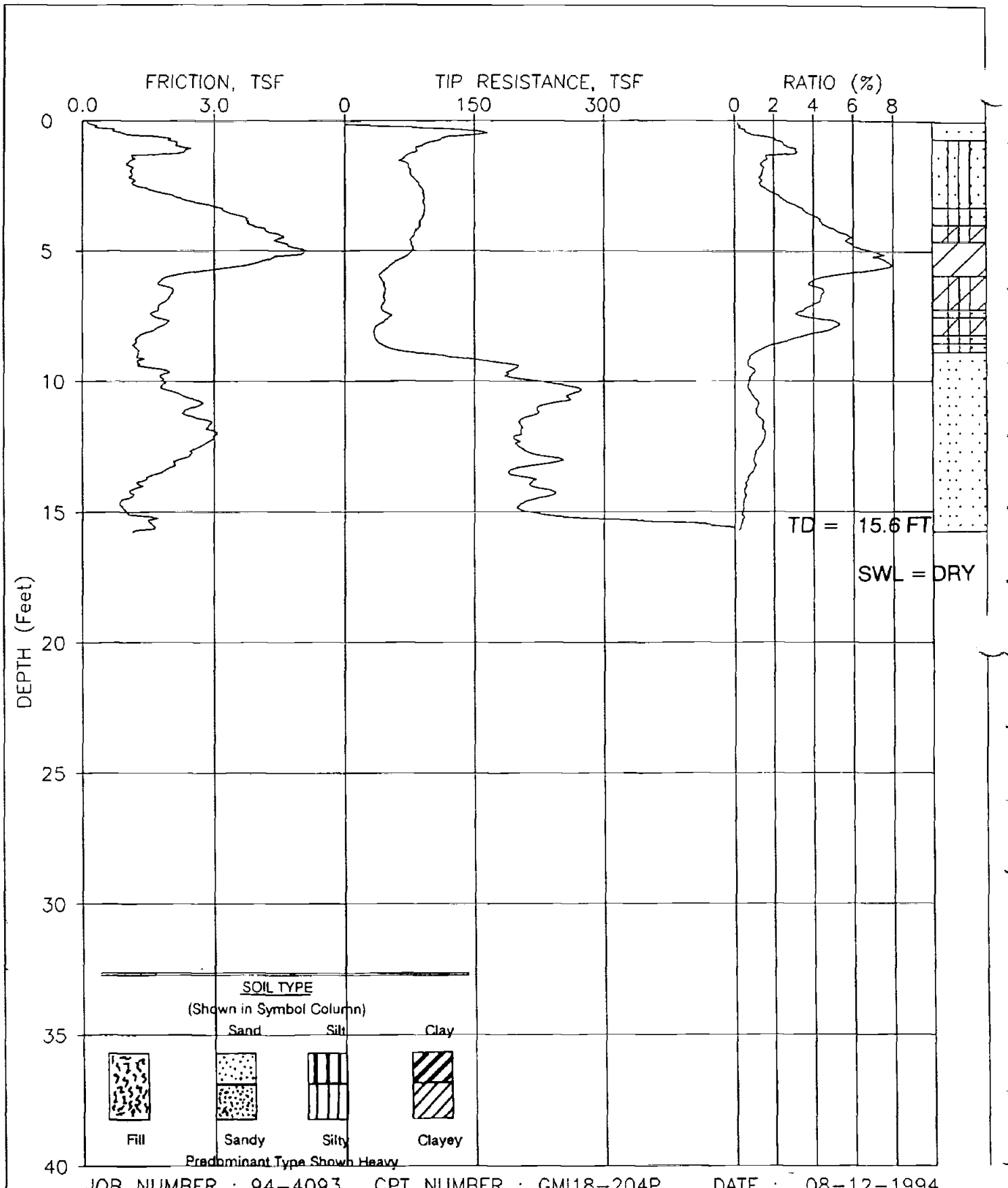
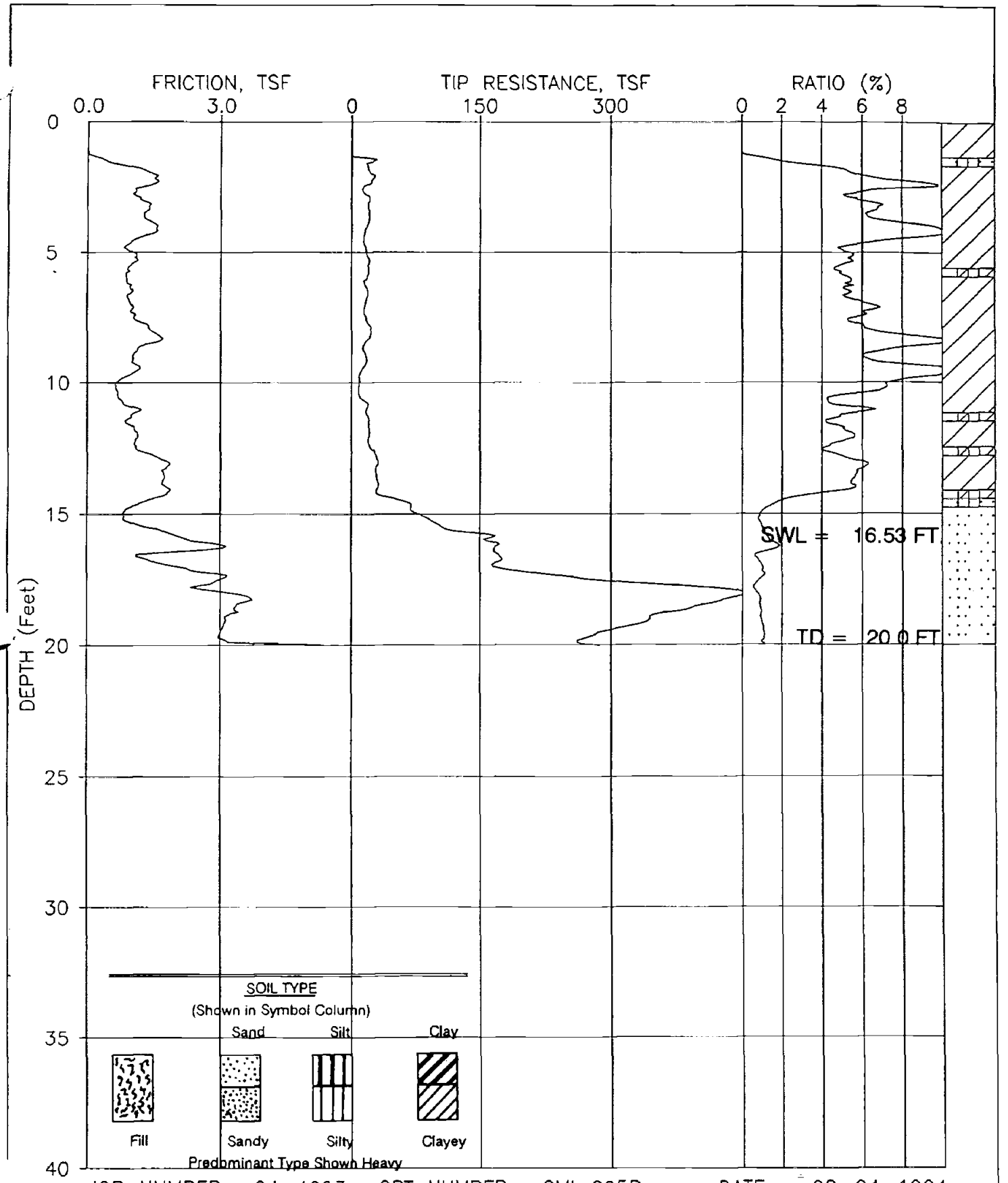


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-204P DATE : 08-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080



JOB NUMBER : 94-4093 CPT NUMBER : GMI-205P DATE : 08-04-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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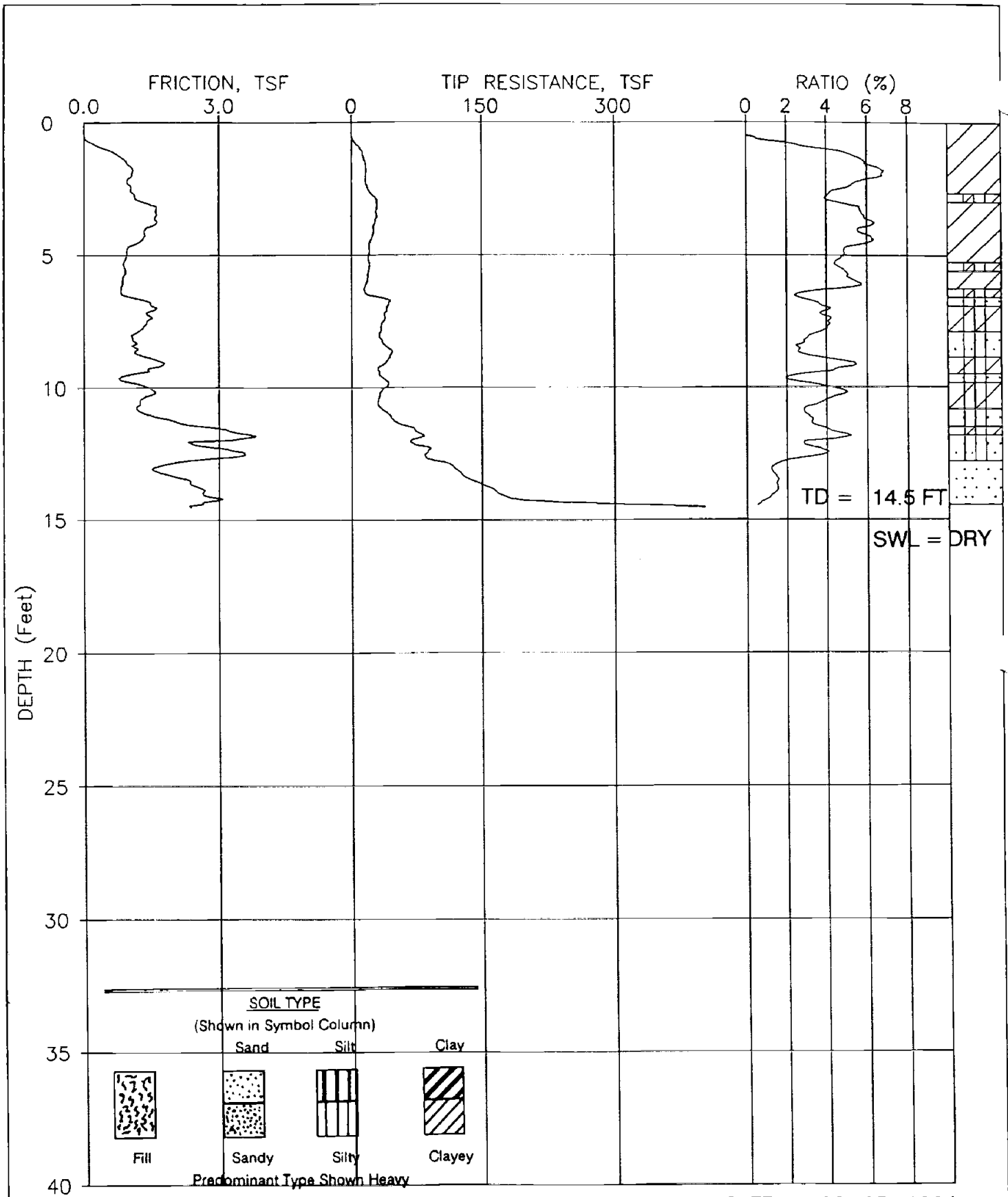

JOB NUMBER : 94-4093 CPT NUMBER : GMI-206P DATE : - 08-05-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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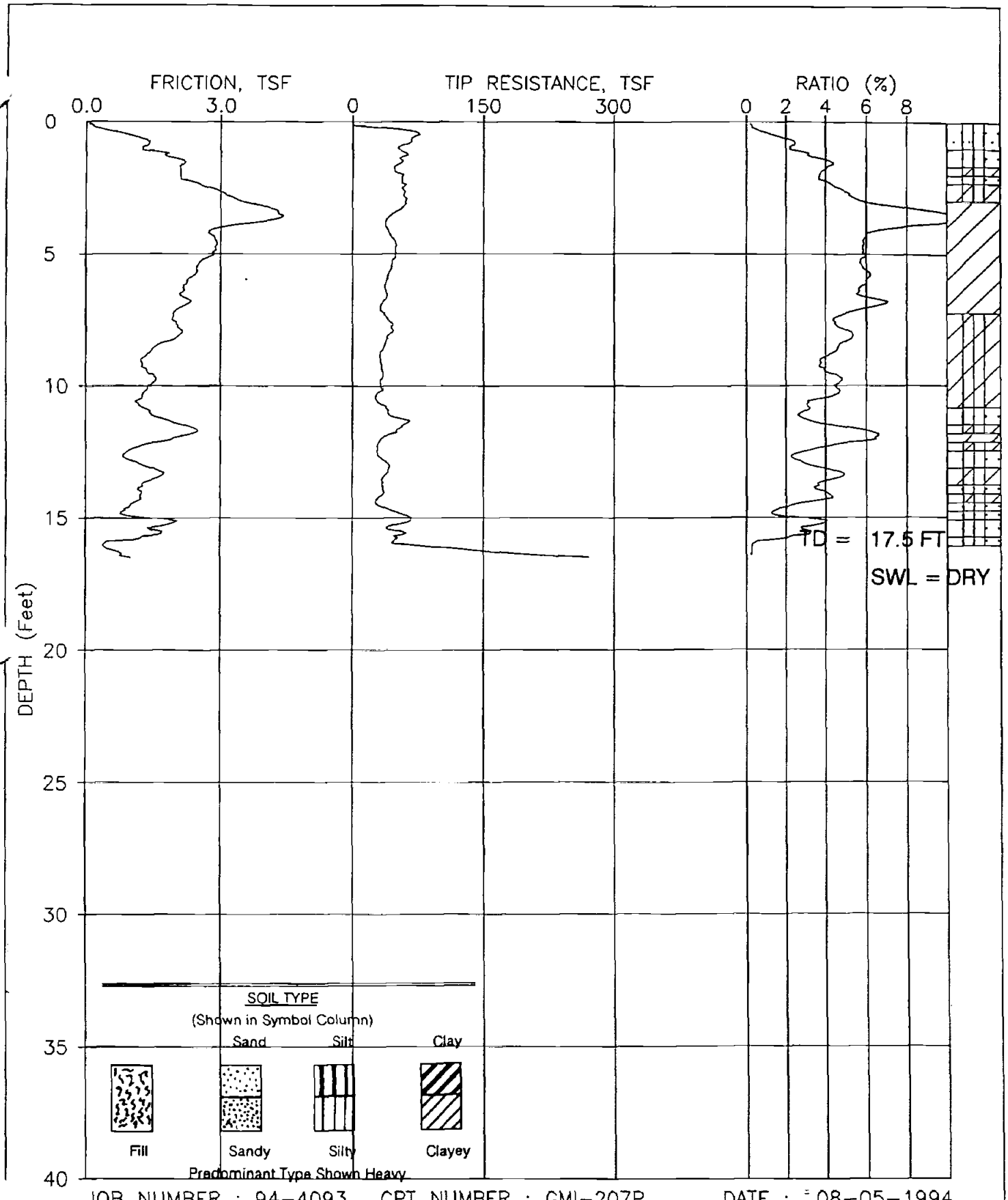

JOB NUMBER : 94-4093 CPT NUMBER : GMI-207P DATE : 08-05-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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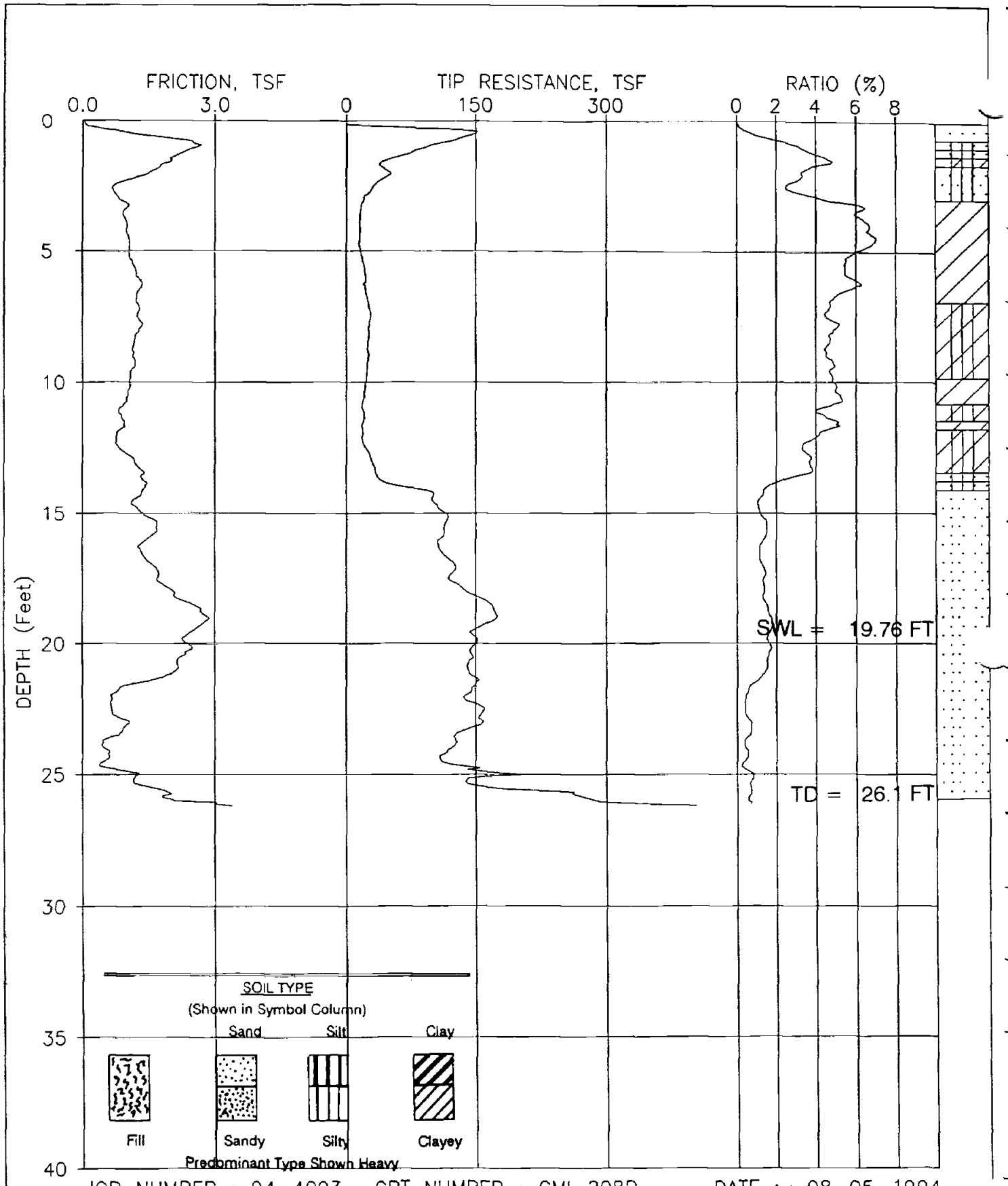

JOB NUMBER : 94-4093 CPT NUMBER : GMI-208P DATE : 08-05-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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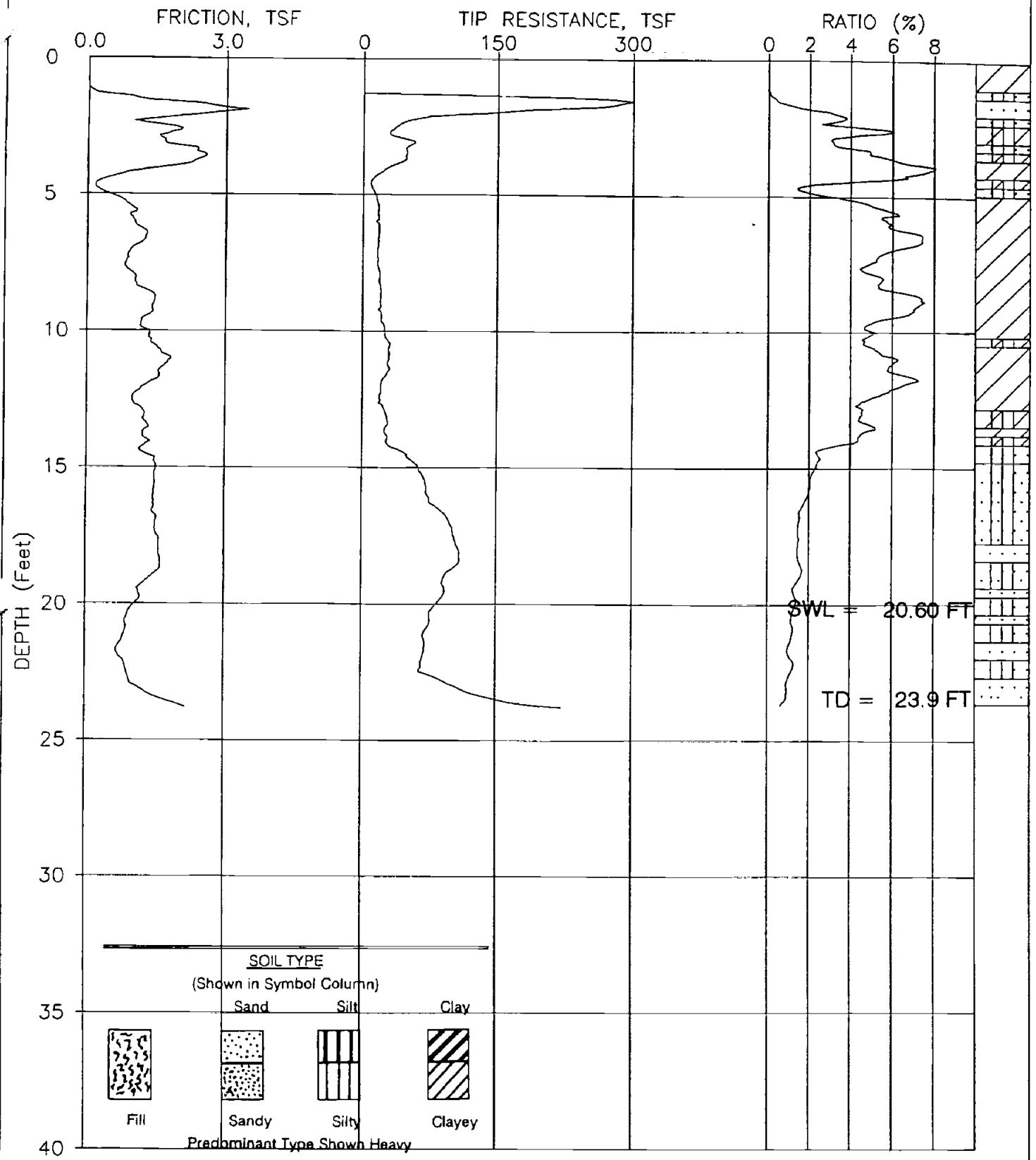

JOB NUMBER : 94-4093 CPT NUMBER : GMI-209P DATE : 08-05-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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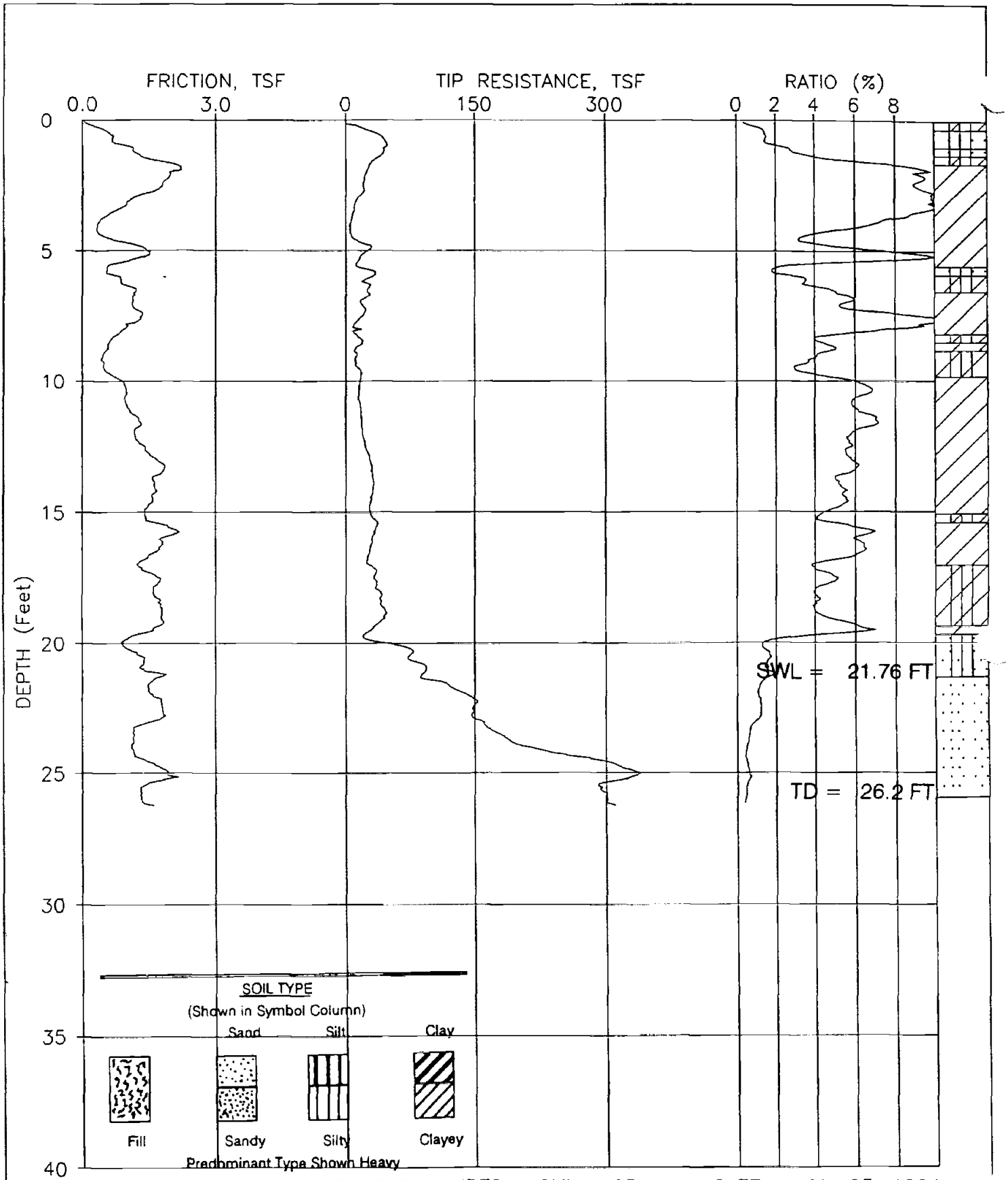

JOB NUMBER : 94-4093 CPT NUMBER : GMI-210P DATE : 08-05-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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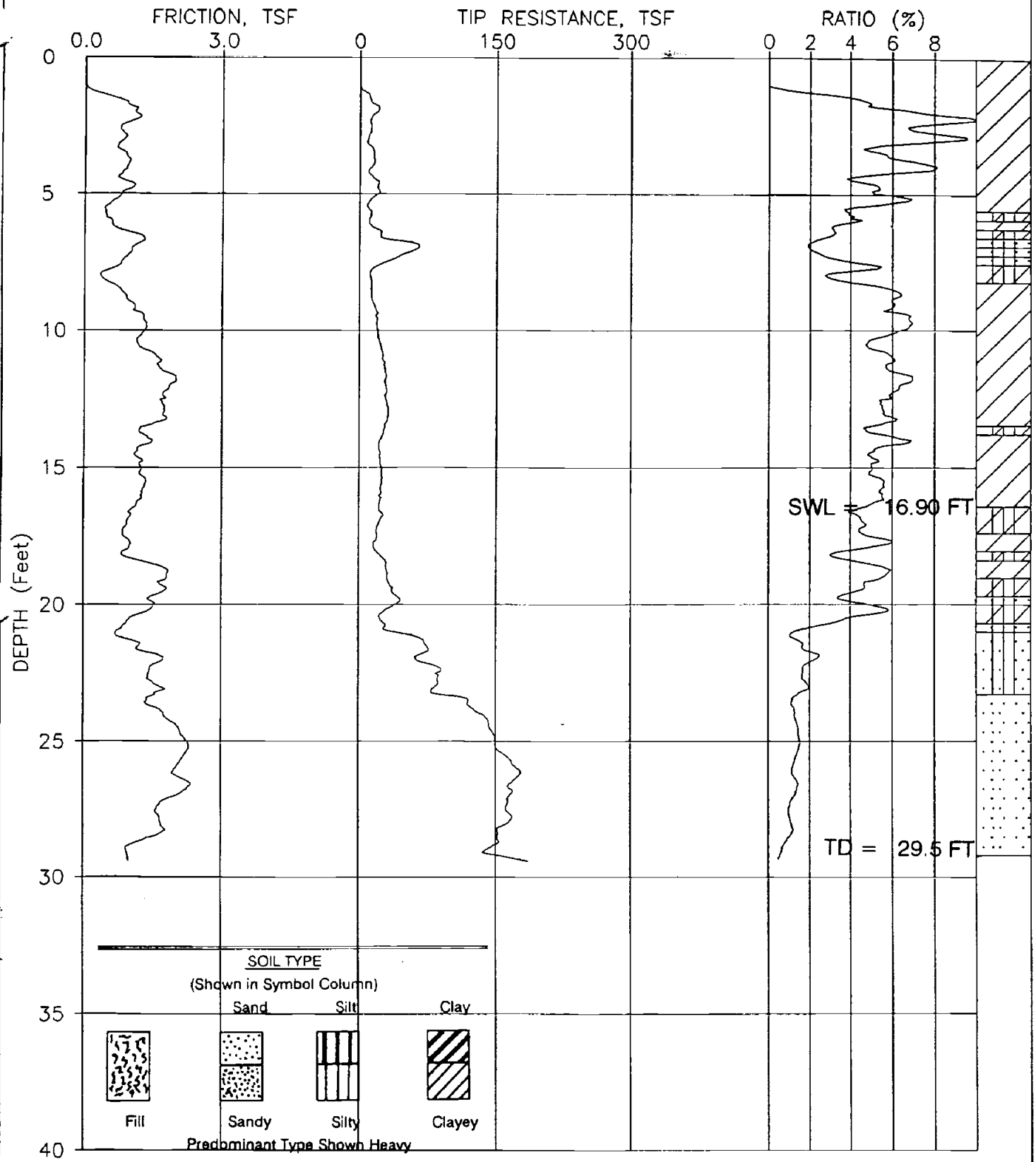
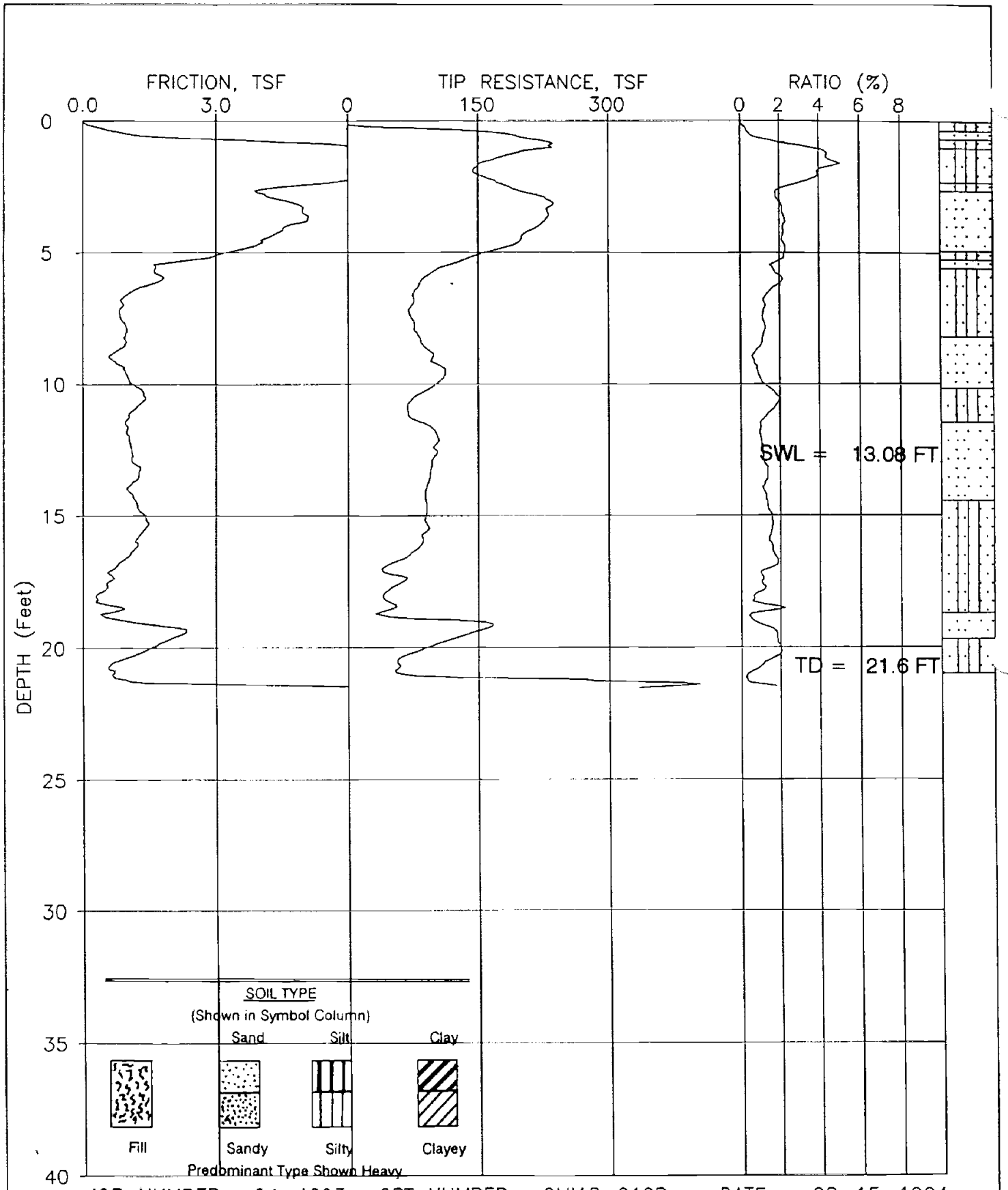


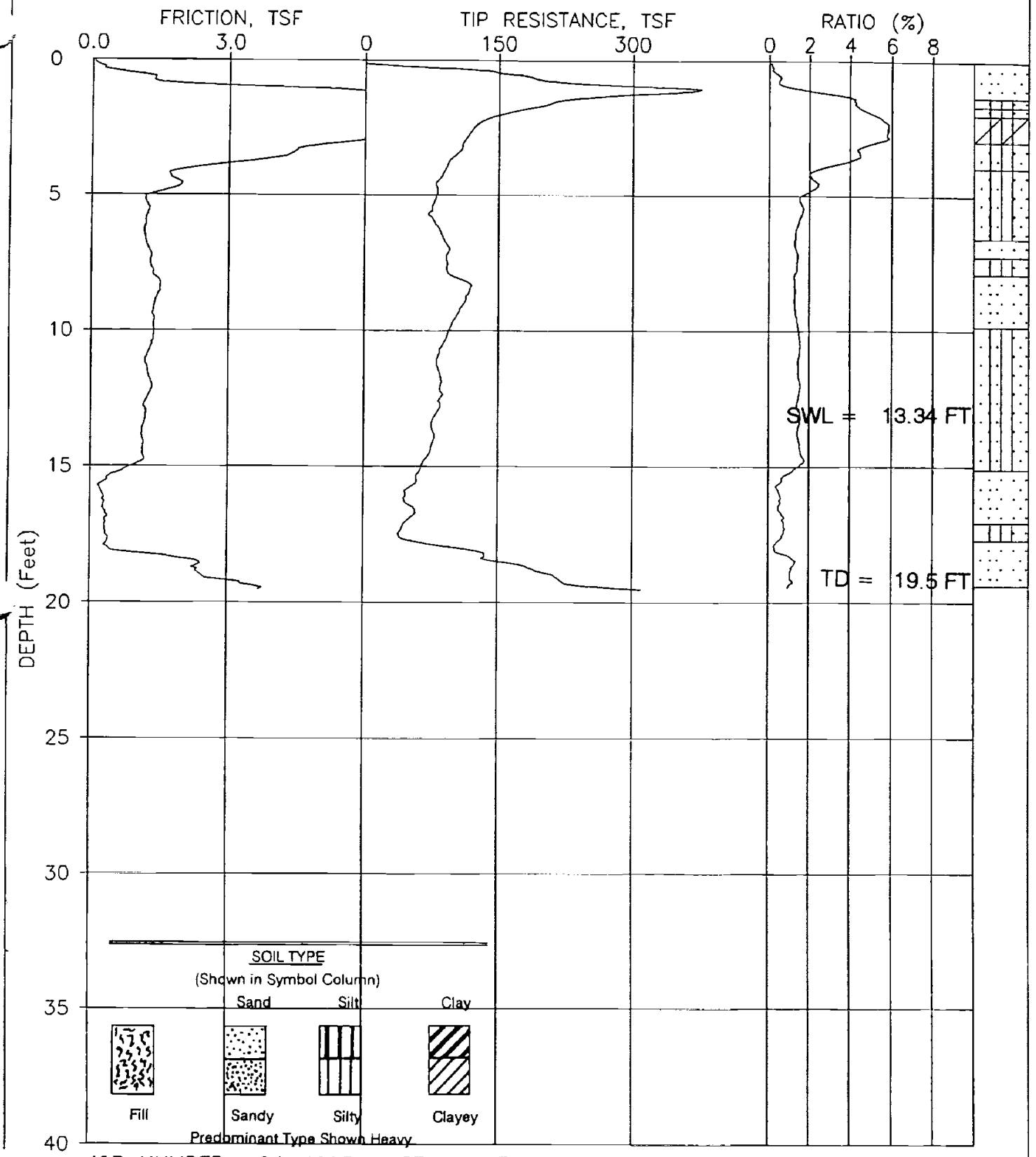
JOB NUMBER : 94-4093 CPT NUMBER : GMI-211P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-212P DATE : -08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-213P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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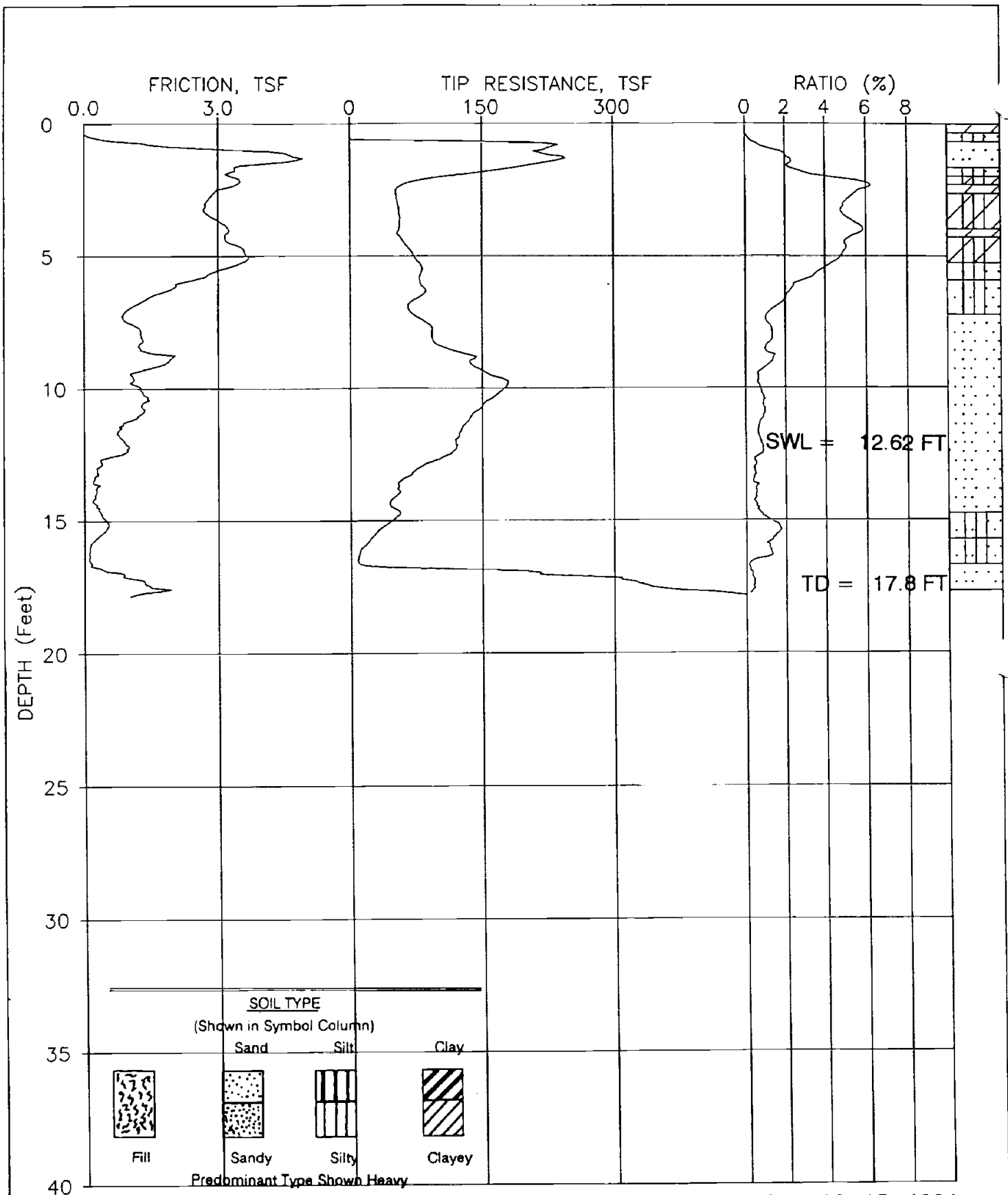
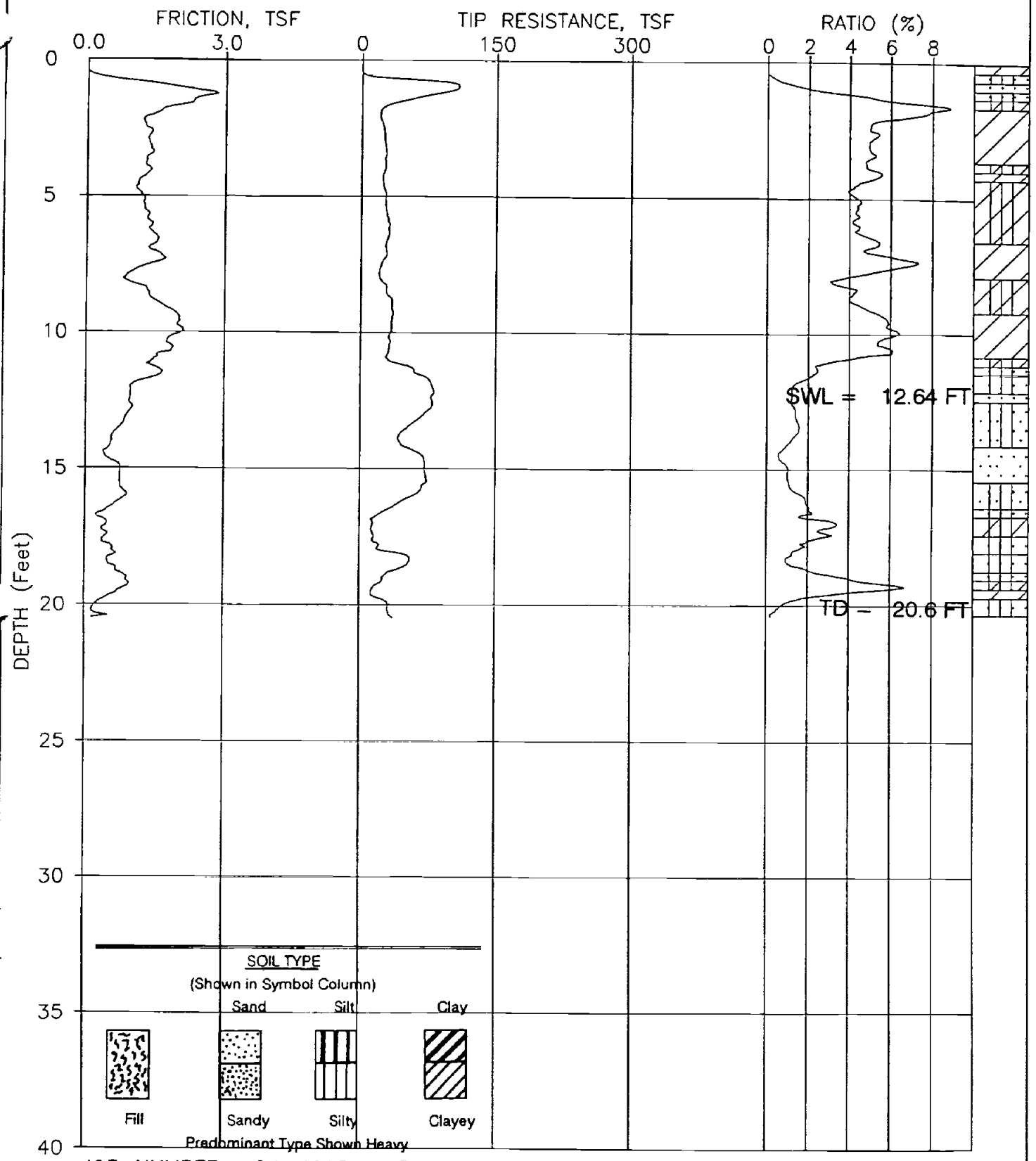


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-214P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-215P DATE : 08-15-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

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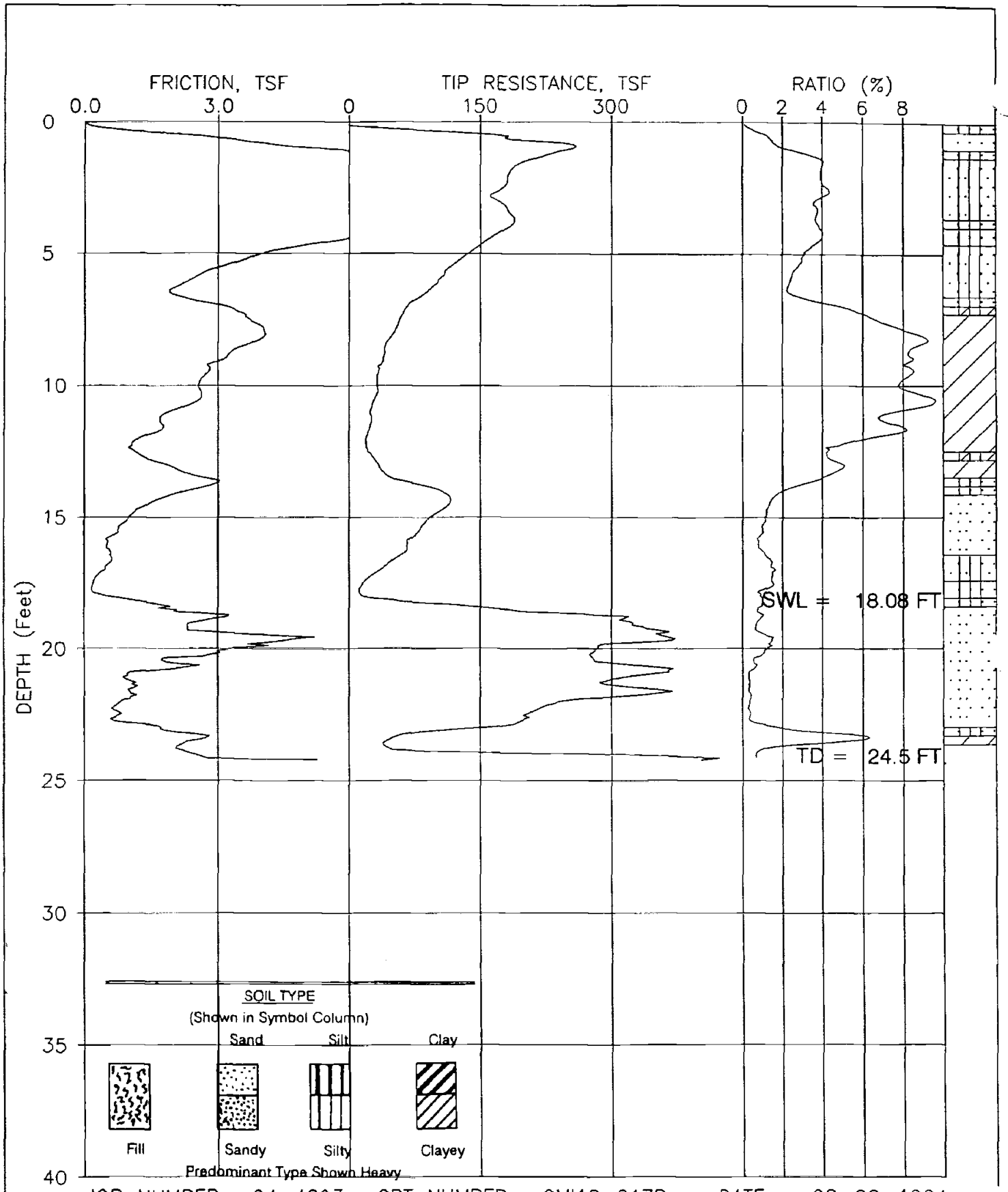

JOB NUMBER : 94-4093 CPT NUMBER : GMI18-217P DATE : 08-22-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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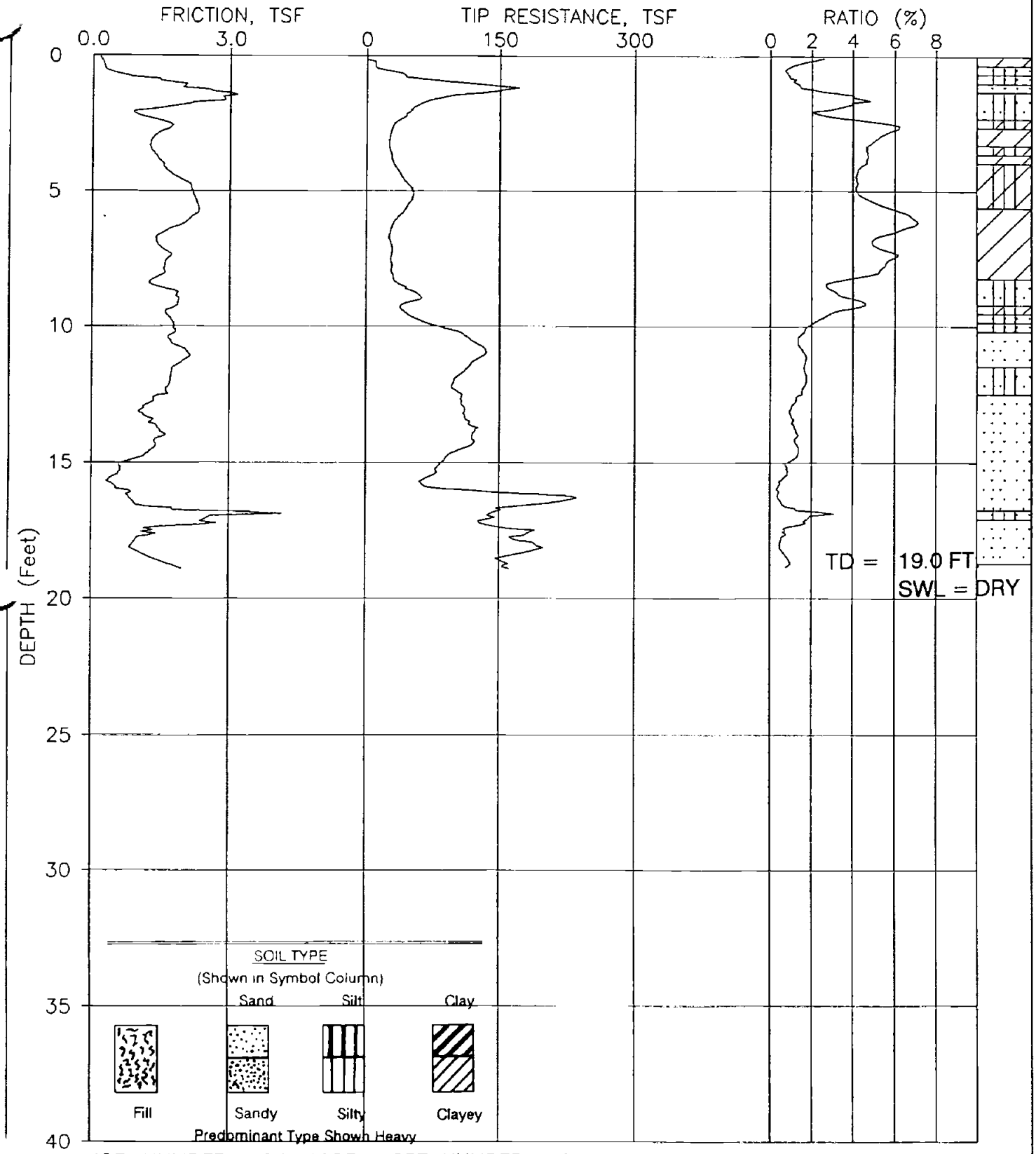
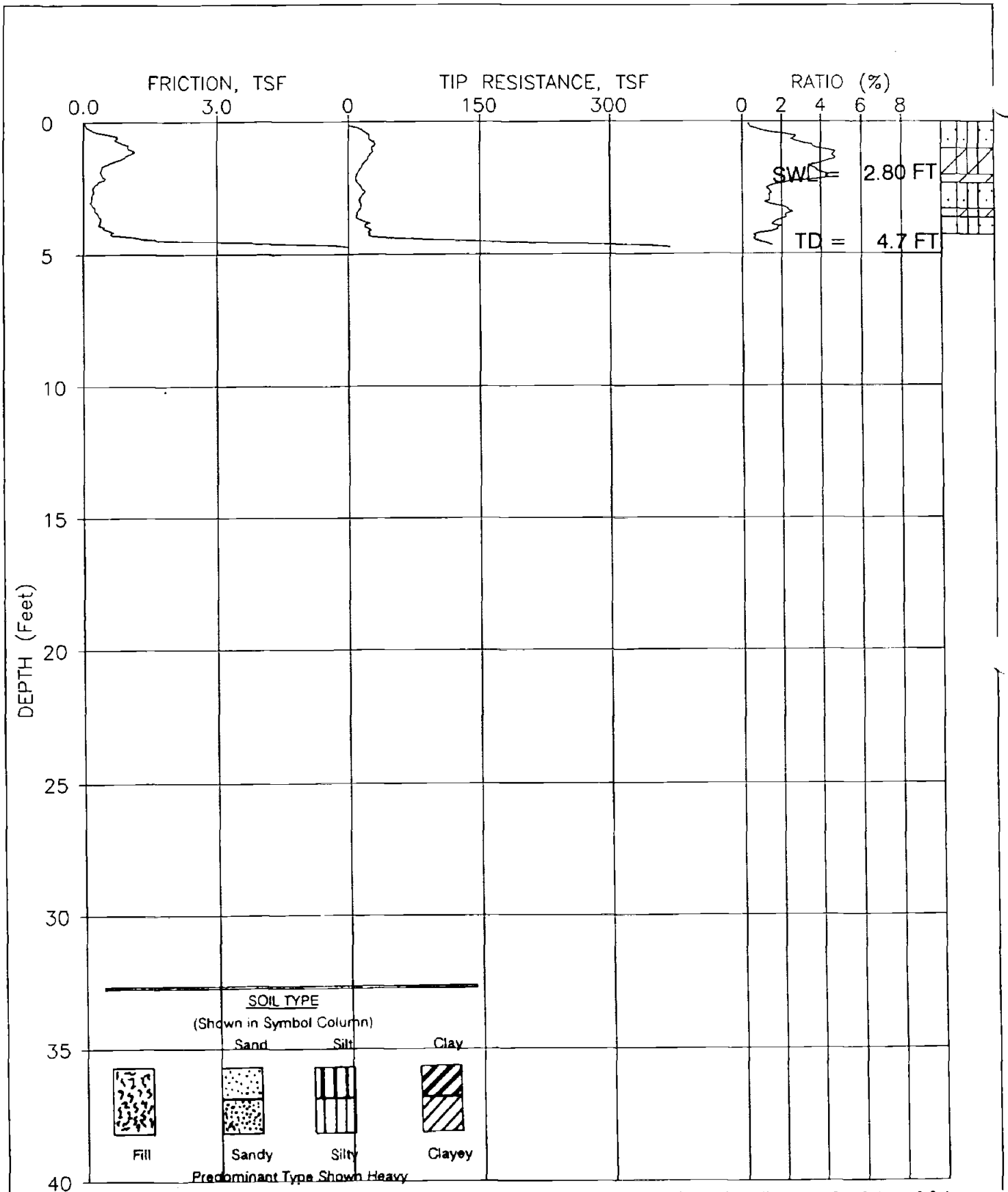


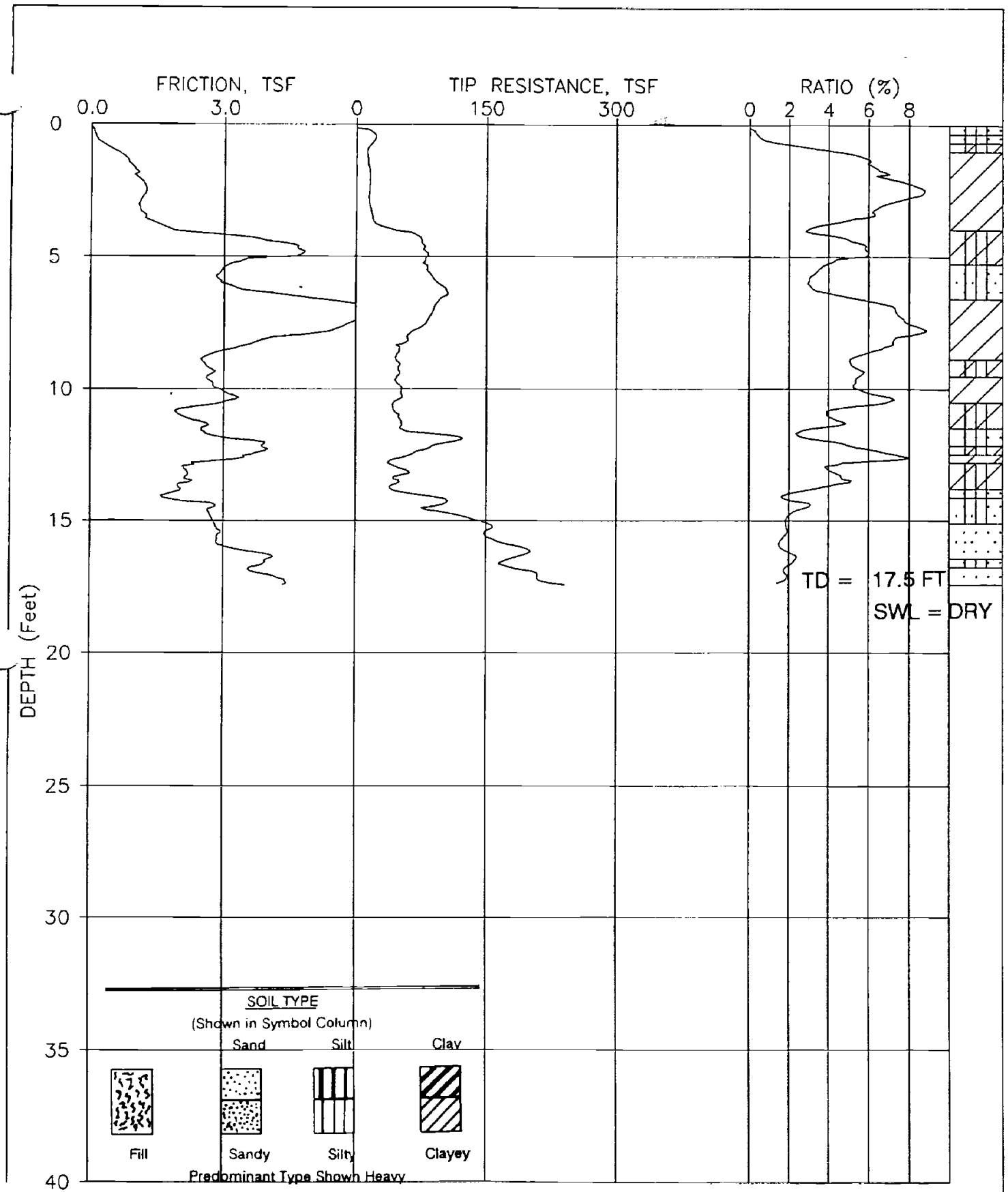
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-218-P DATE : 10-21-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-219-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-220-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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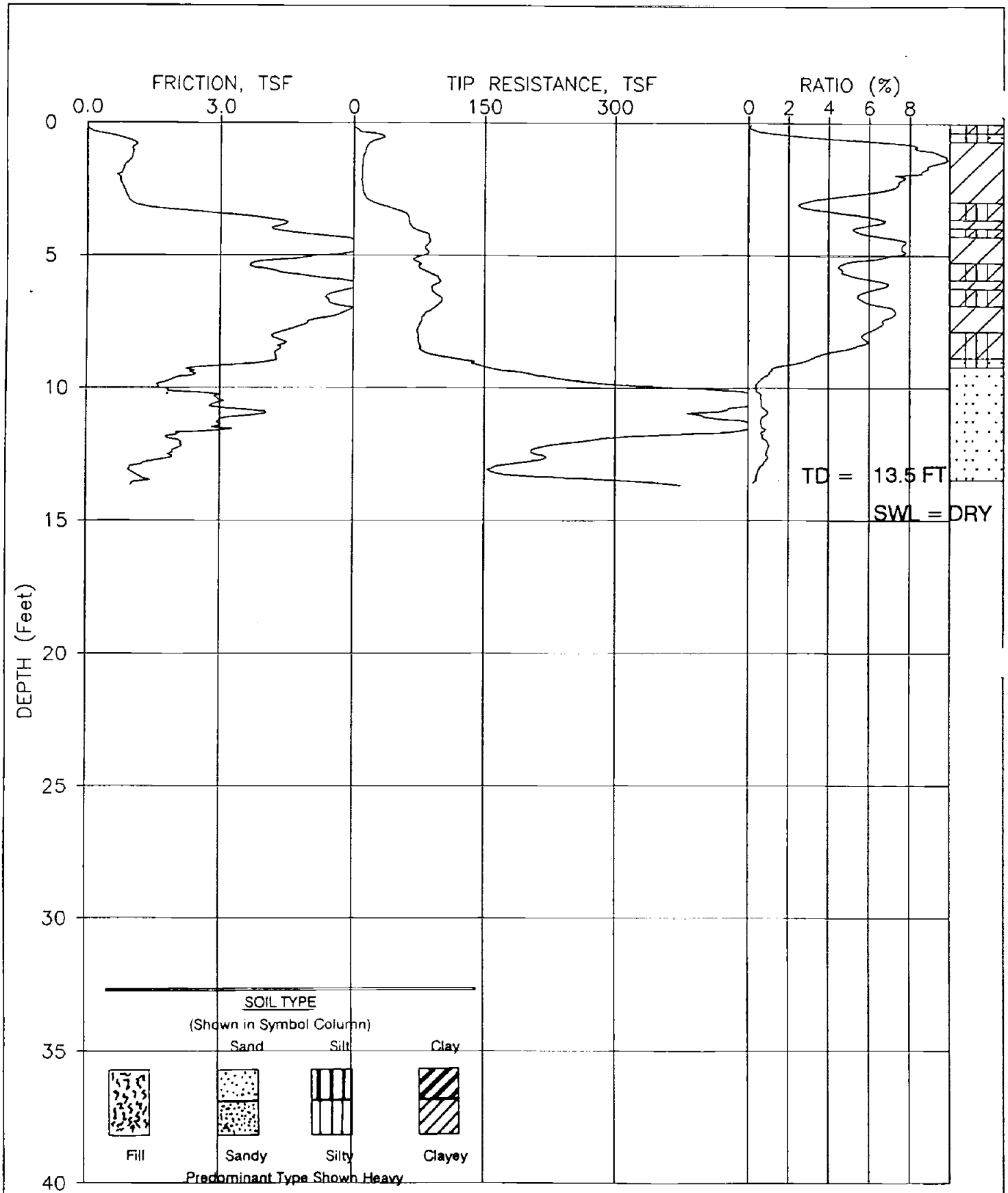

JOB NUMBER : 94-4123 CPT NUMBER : GMI18-221-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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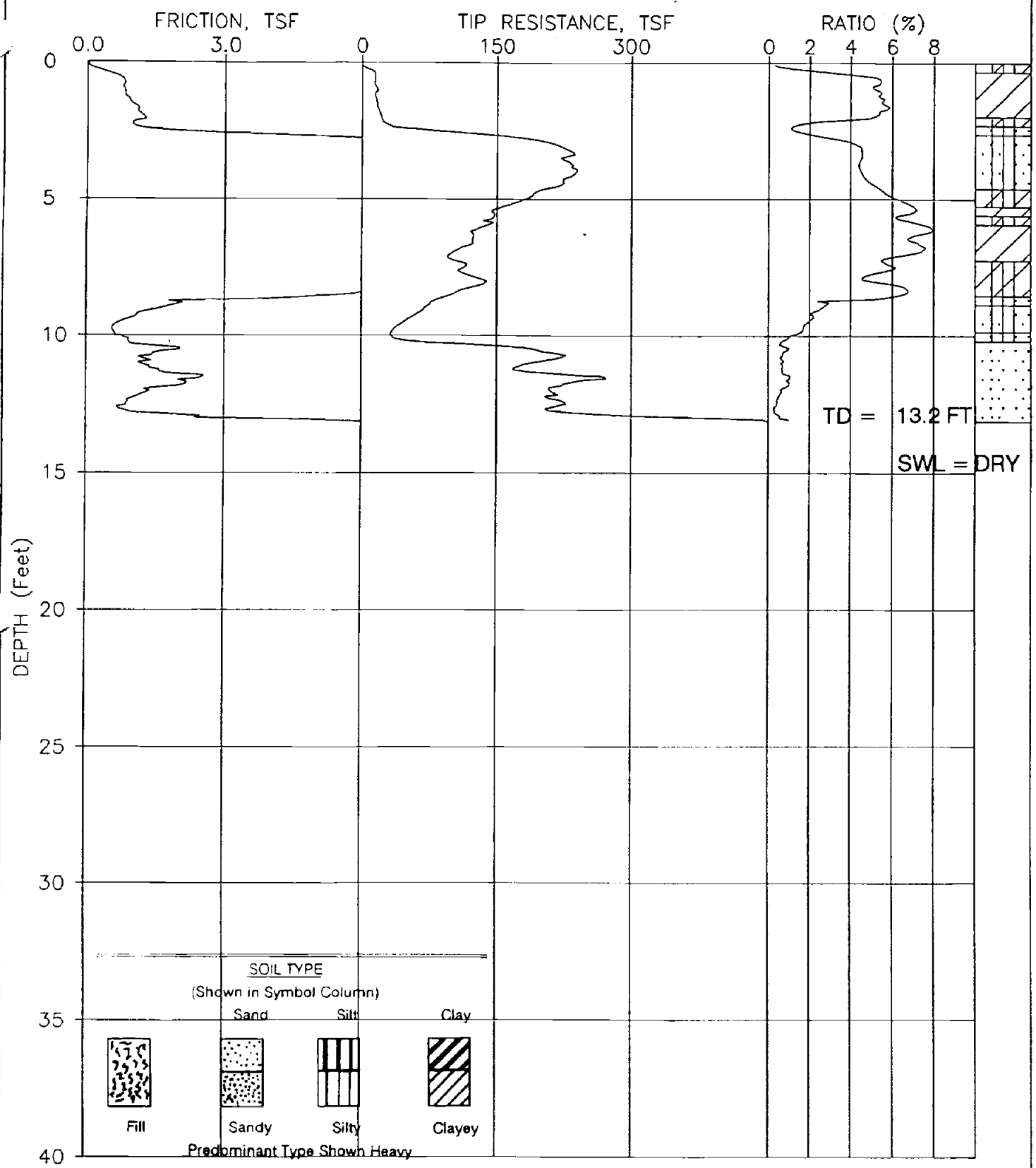

JOB NUMBER : 94-4123 CPT NUMBER : GMI18-222-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

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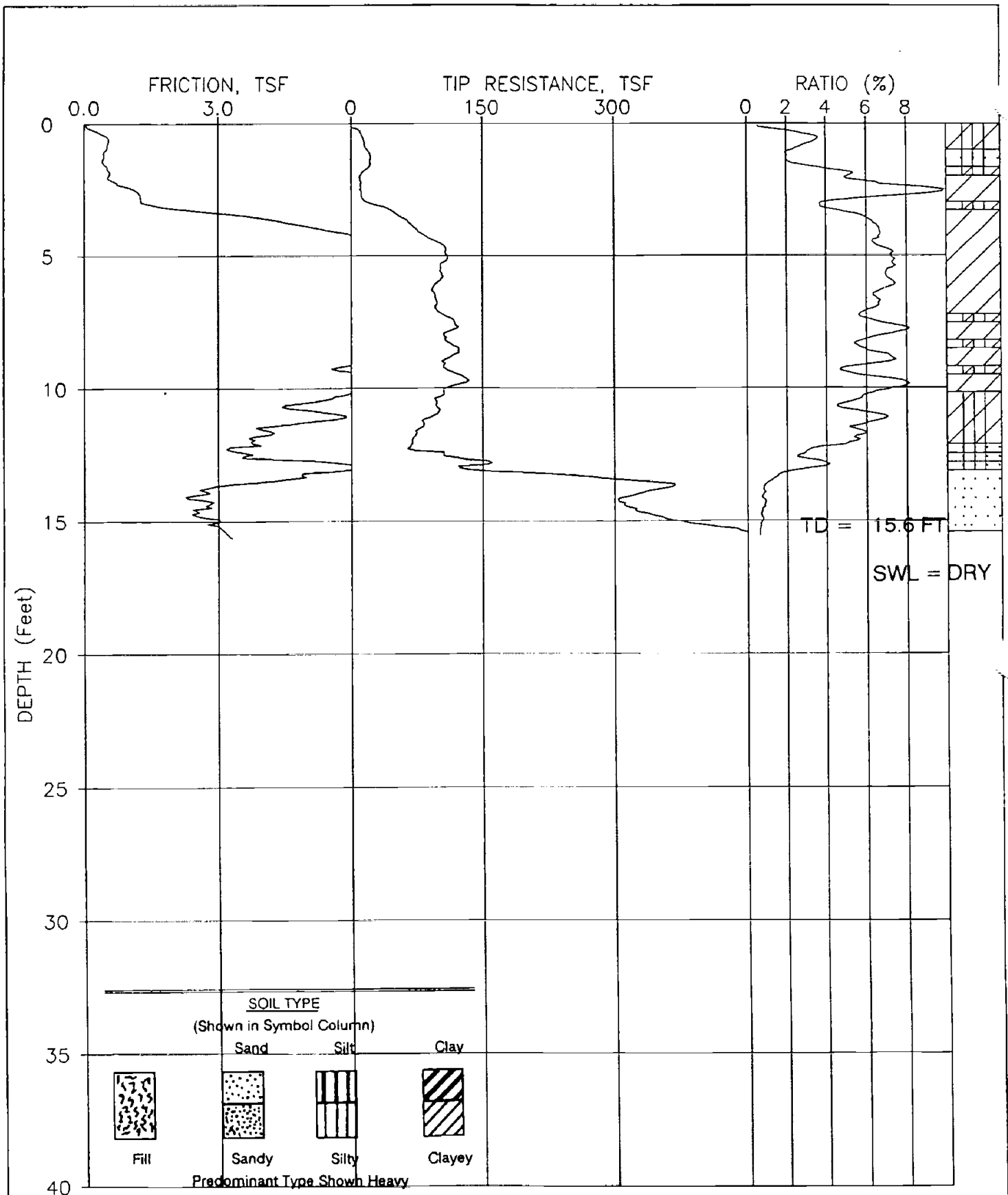
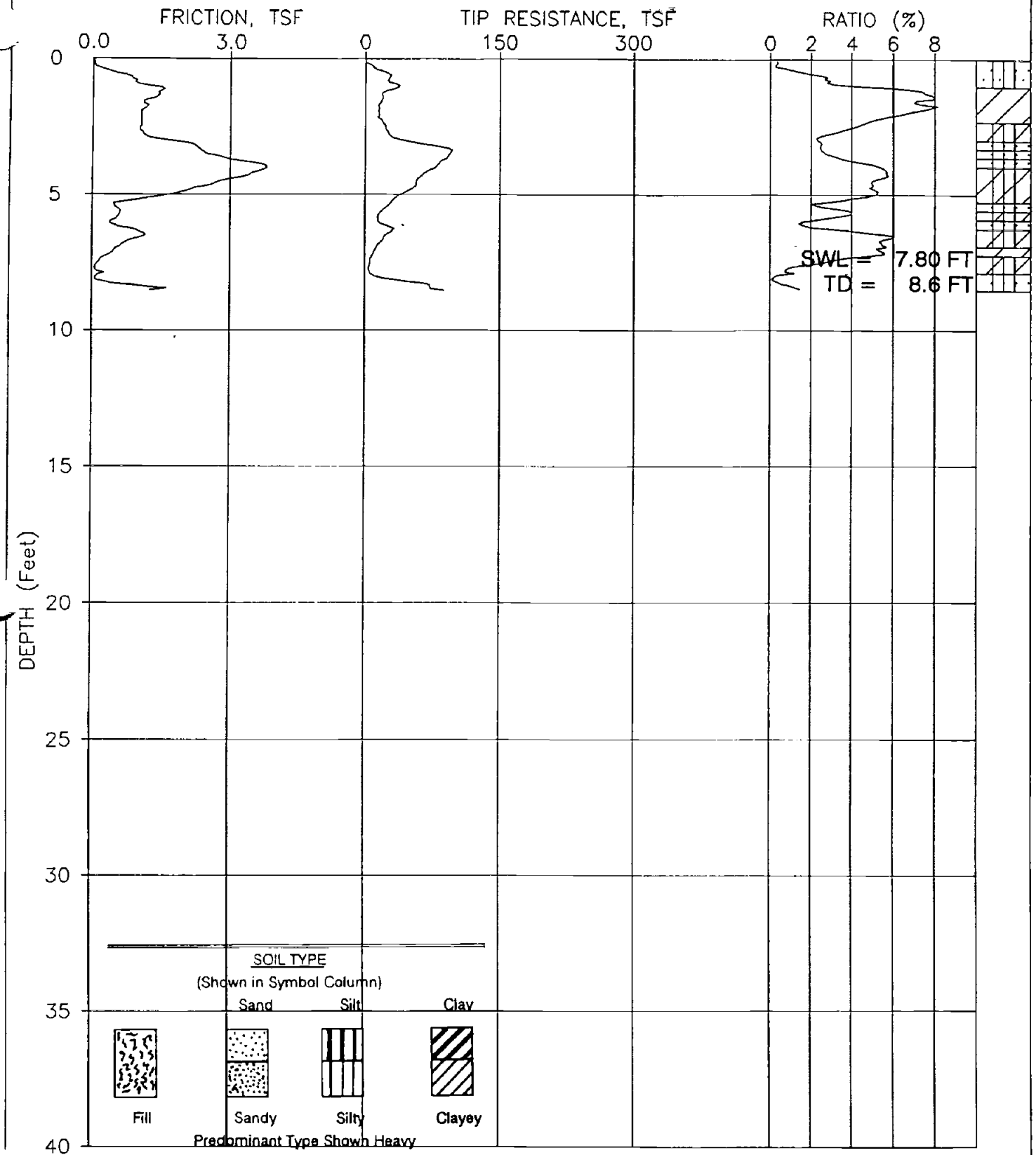


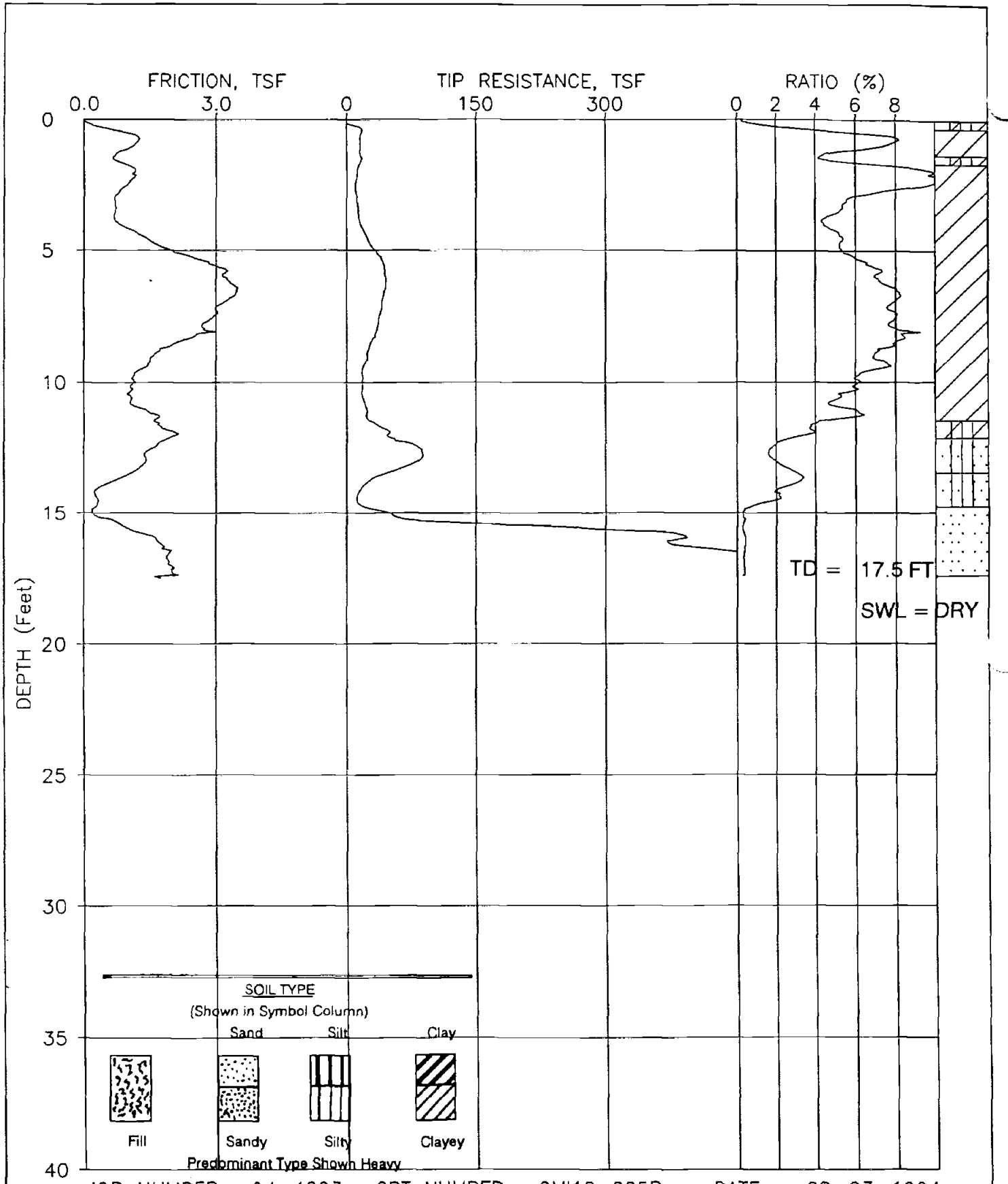
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-223-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



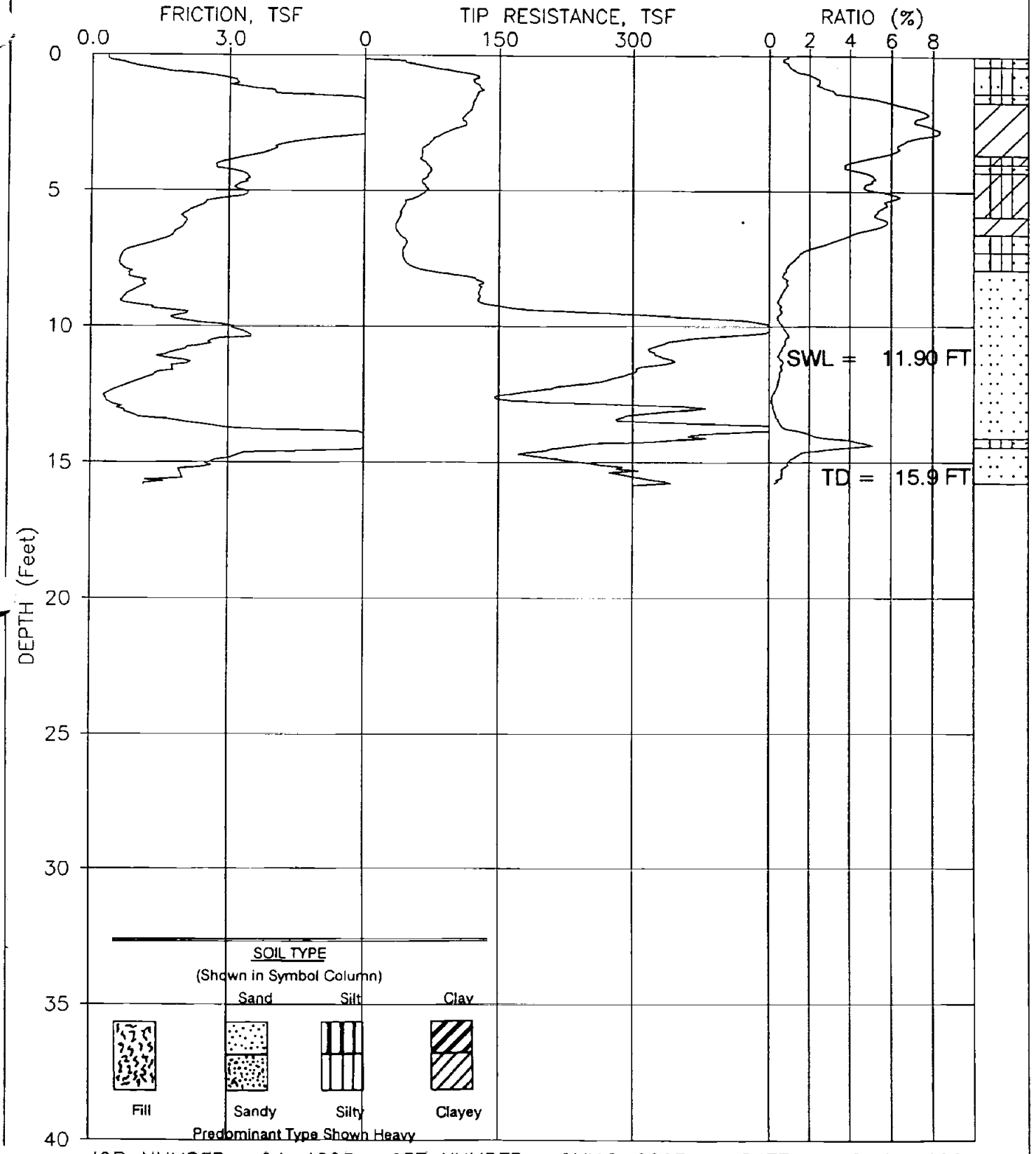
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-224-P DATE : 10-26-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



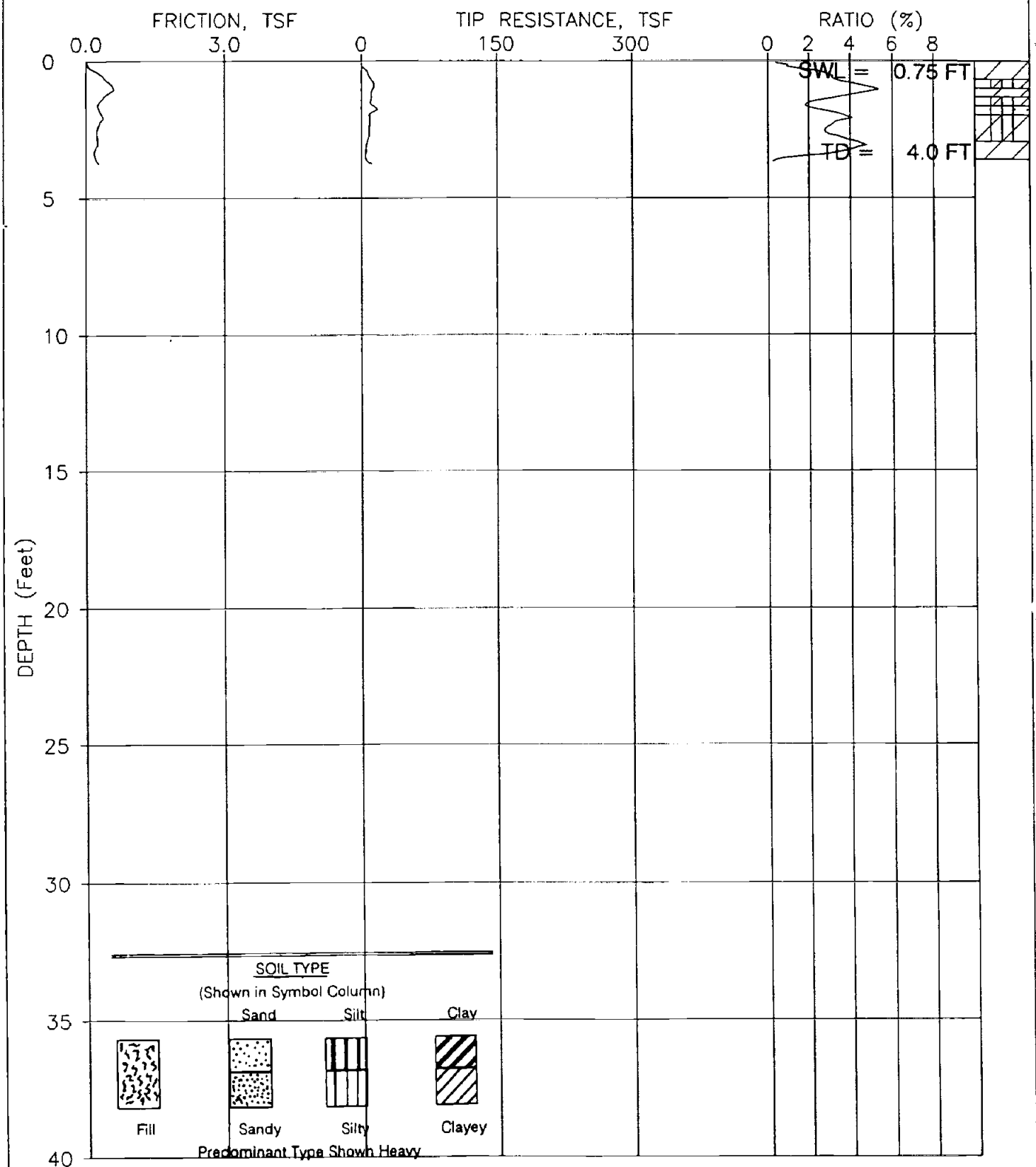
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-225P DATE : 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-226P DATE : 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

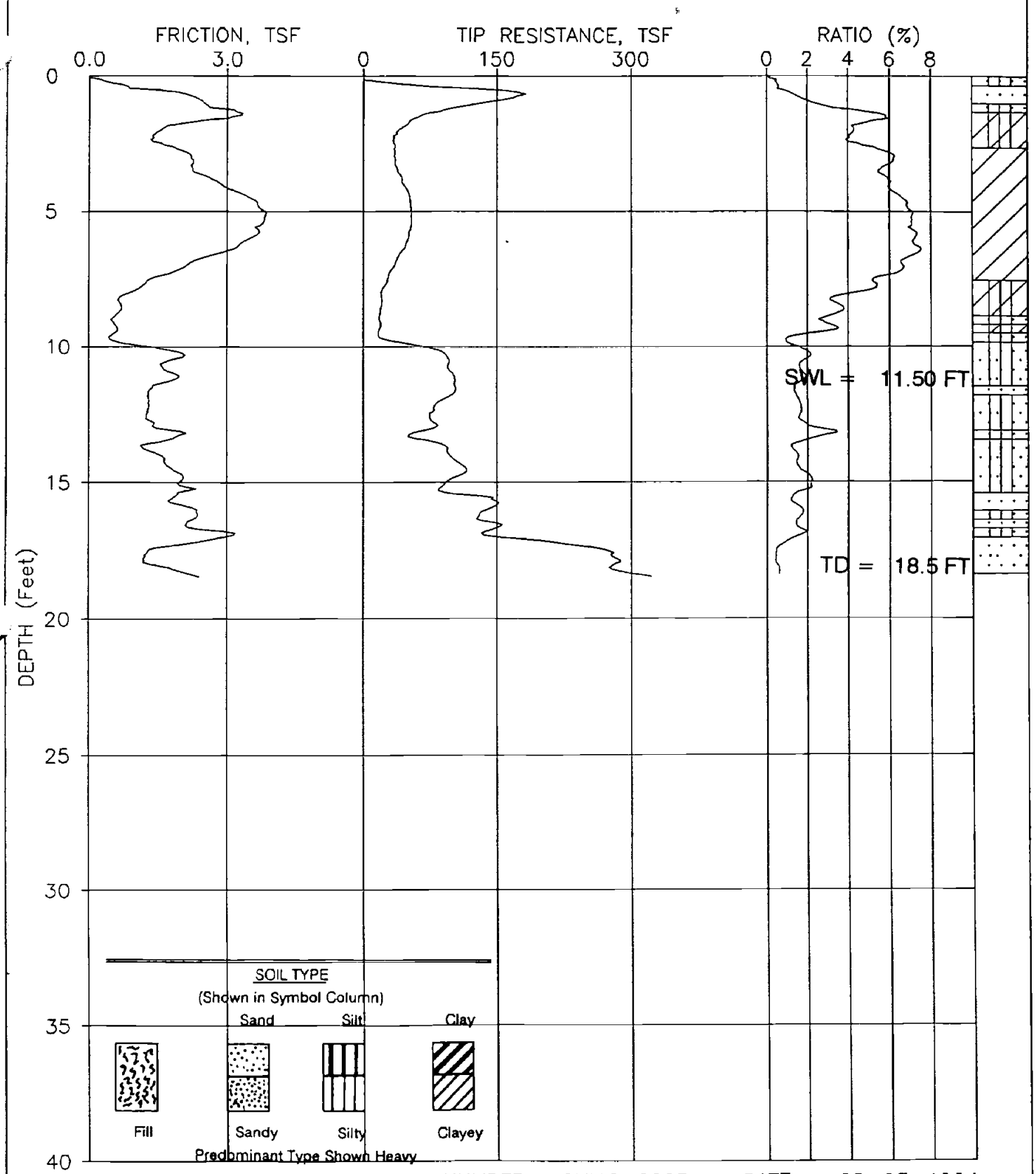
FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-227-P DATE : 10-24-1994

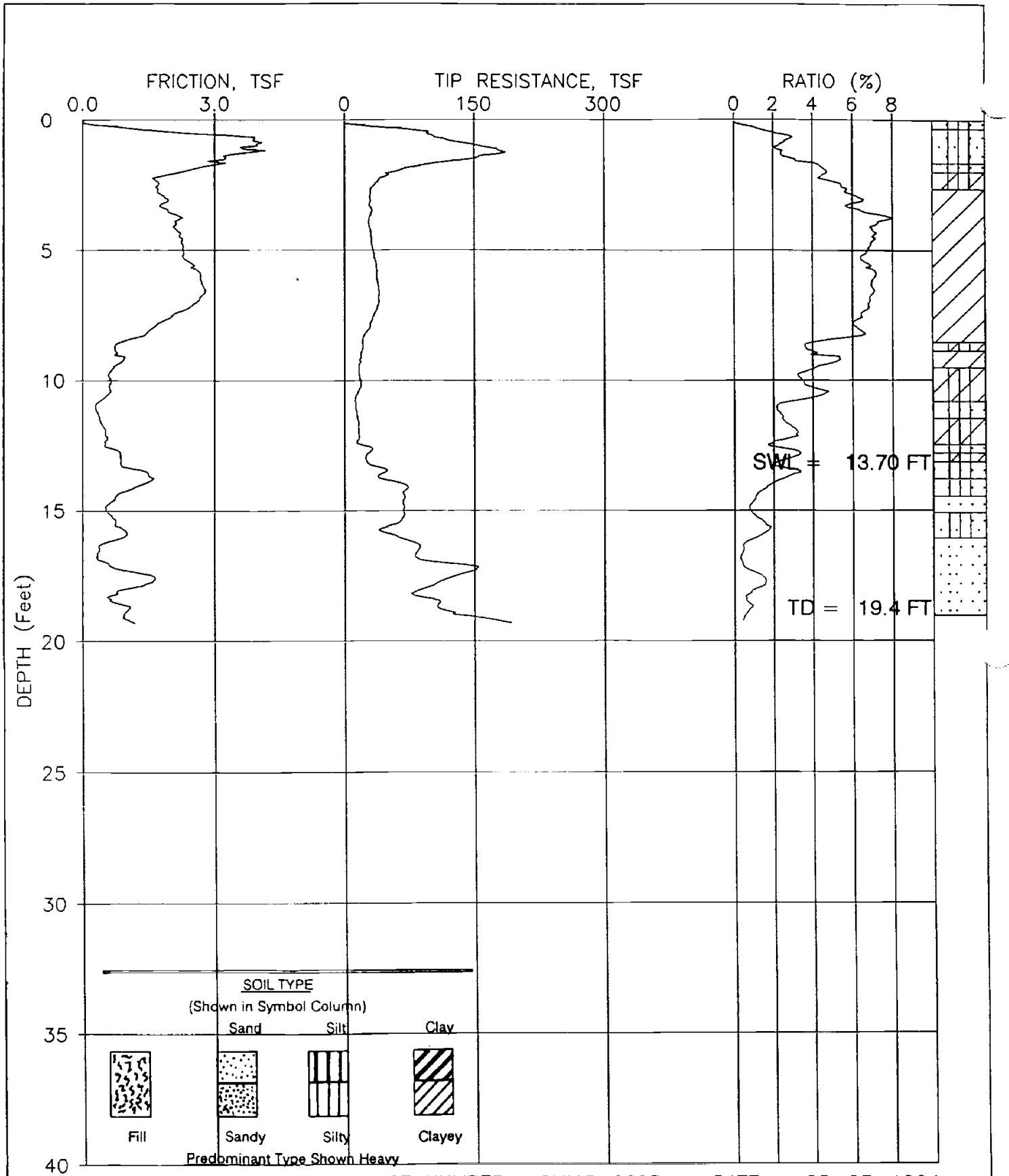
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



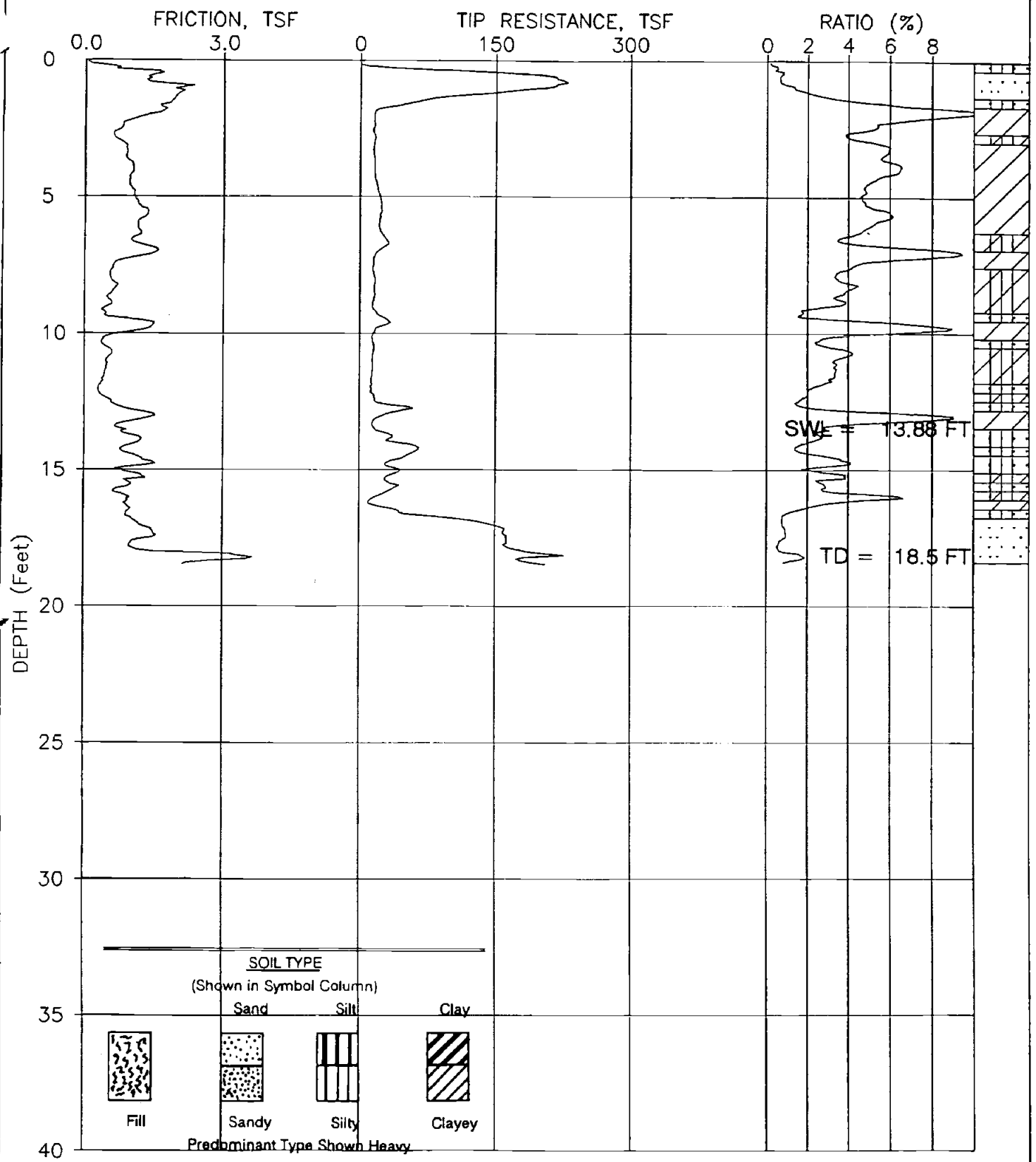
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-228P DATE : - 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



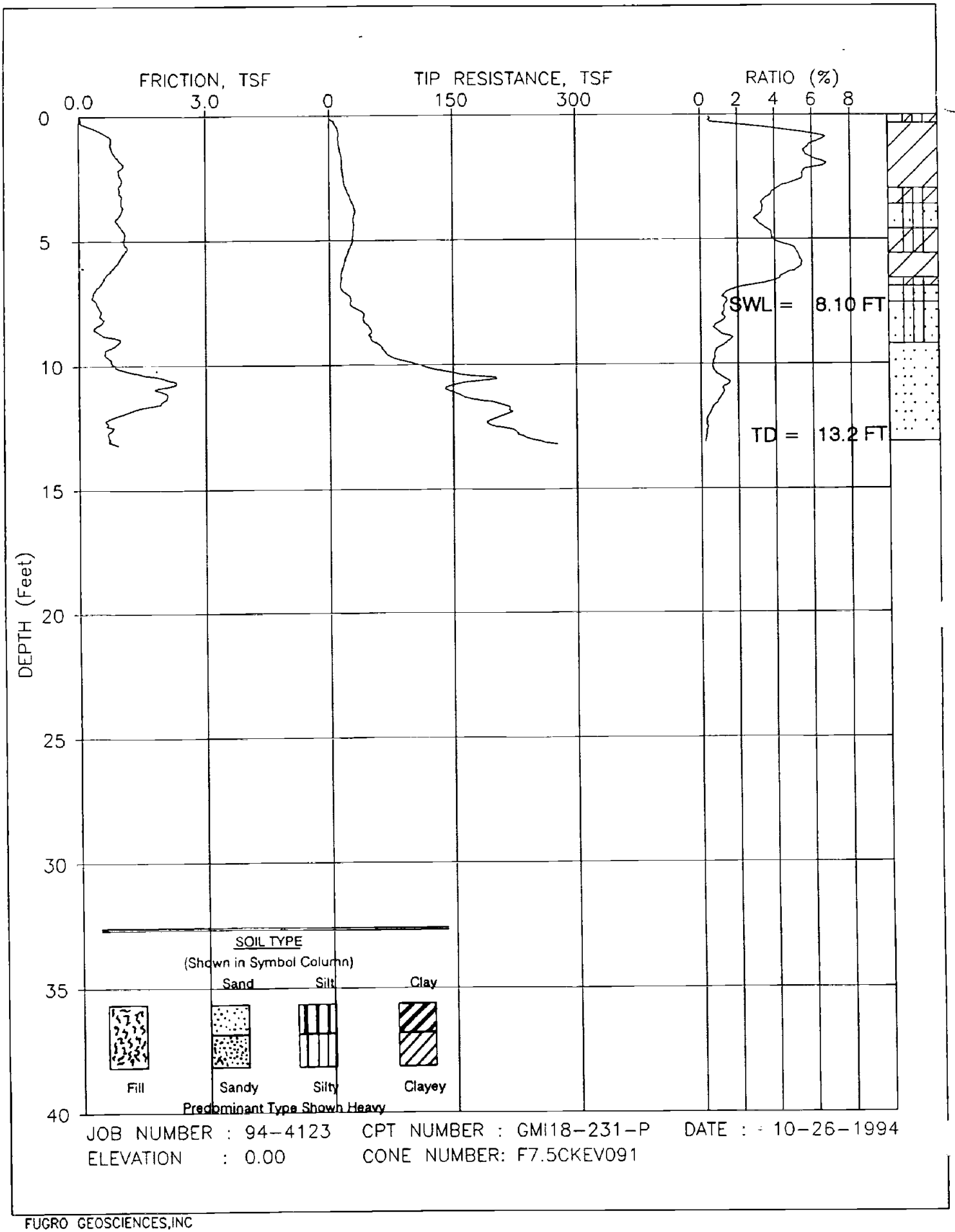
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-229P DATE : 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



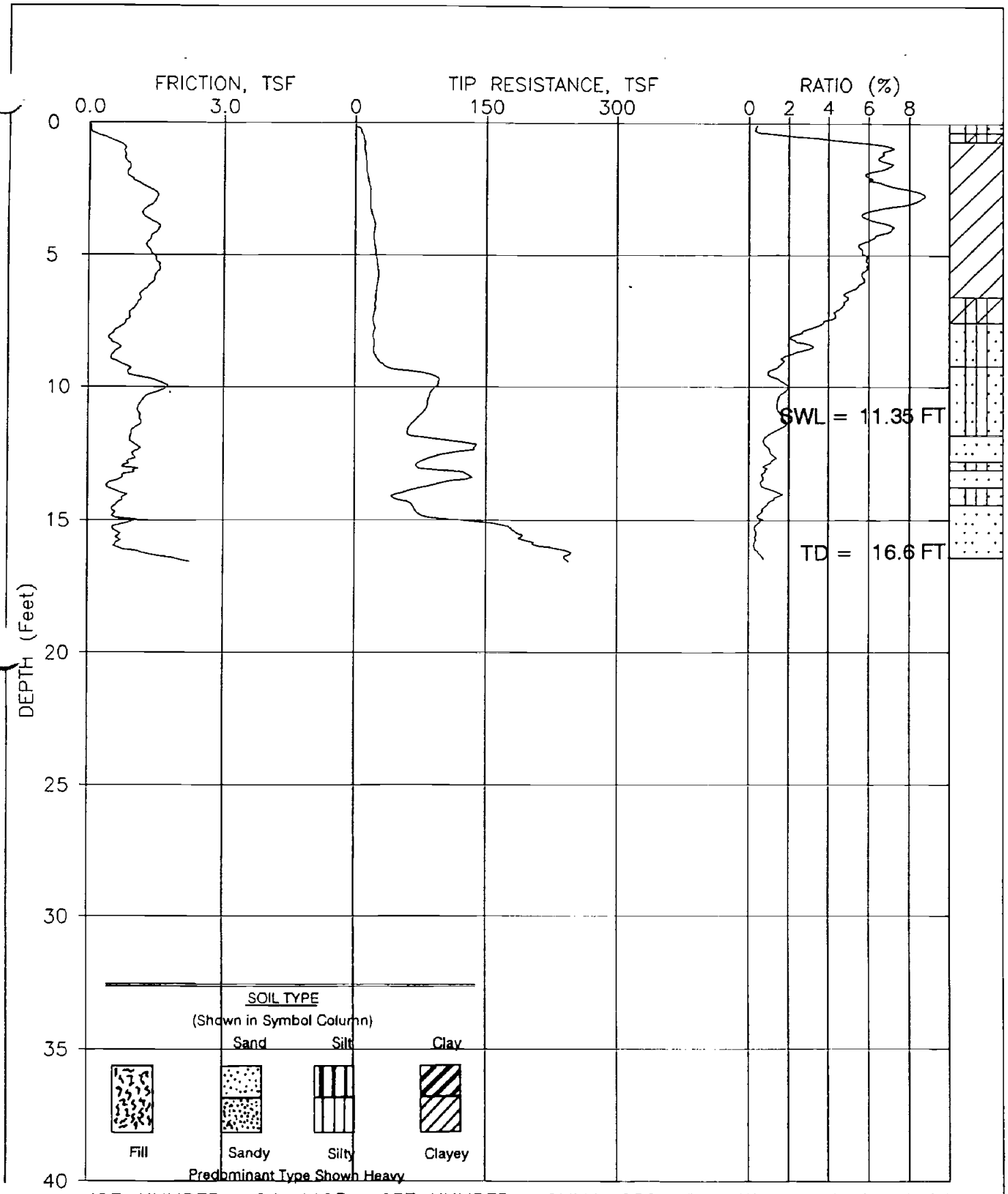
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-230P DATE : 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



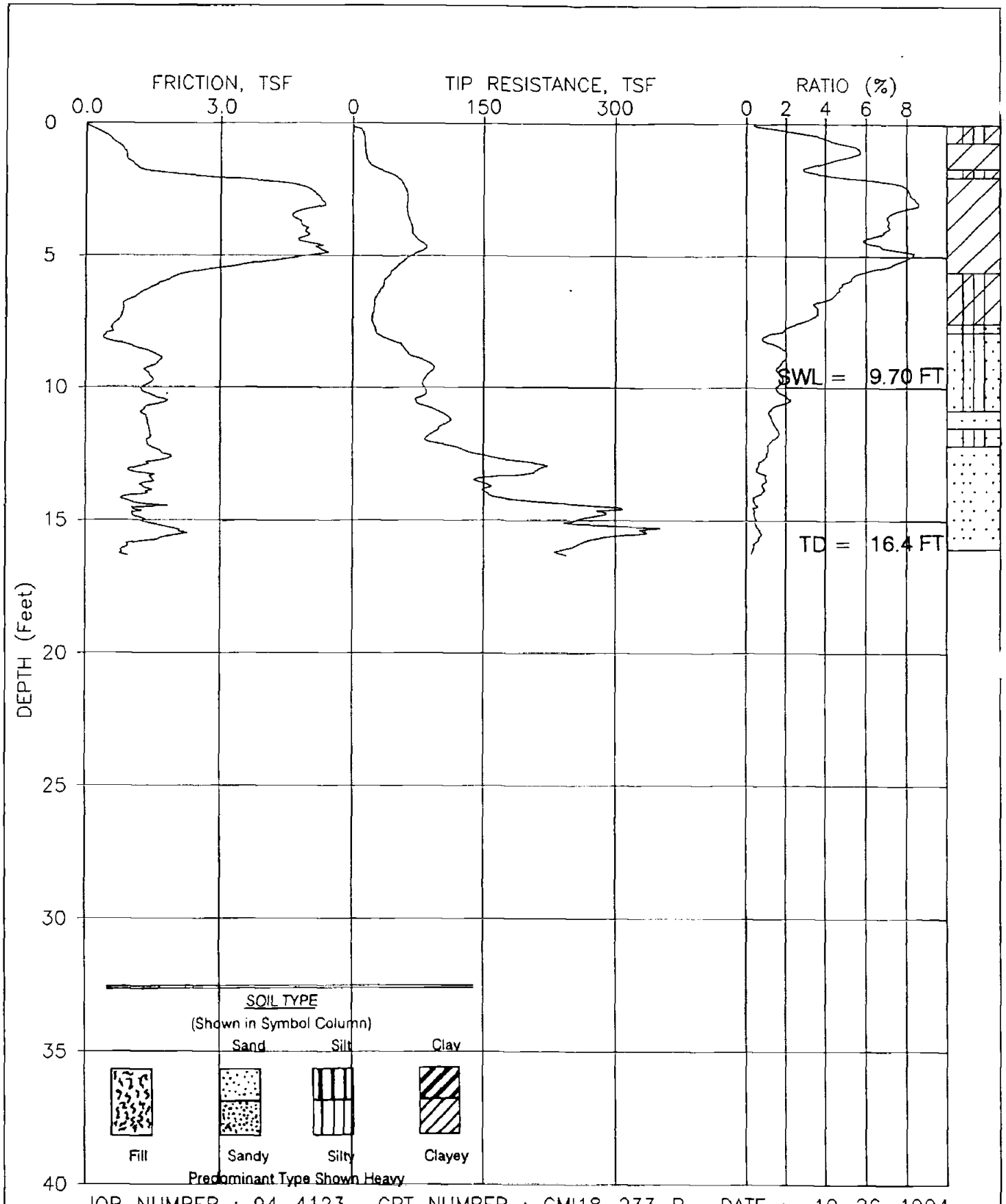
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-231-P DATE : 10-26-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

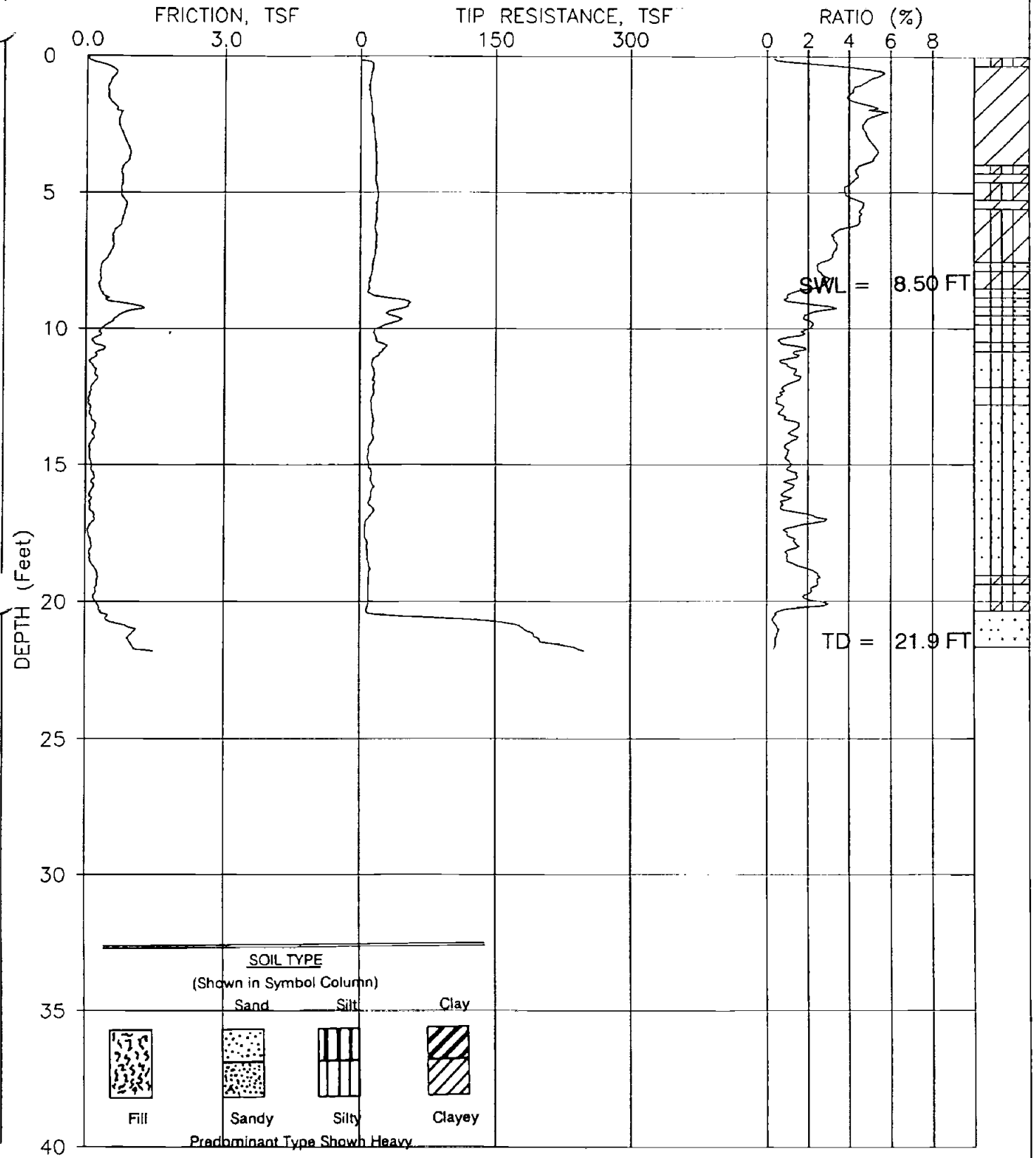


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-232A-P DATE : 10-26-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

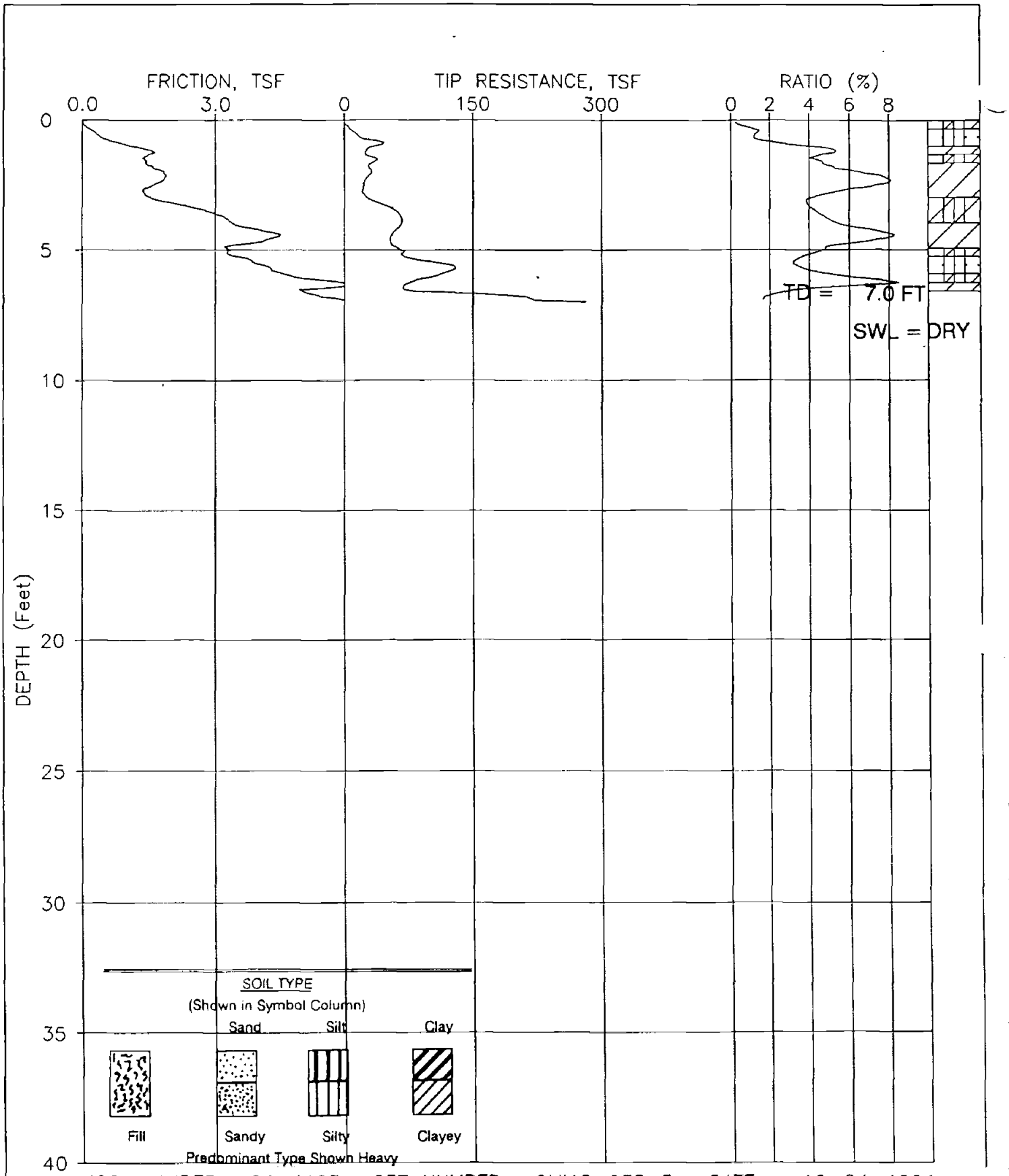


JOB NUMBER : 94-4123 CPT NUMBER : GMI18-233-P DATE : 10-26-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091



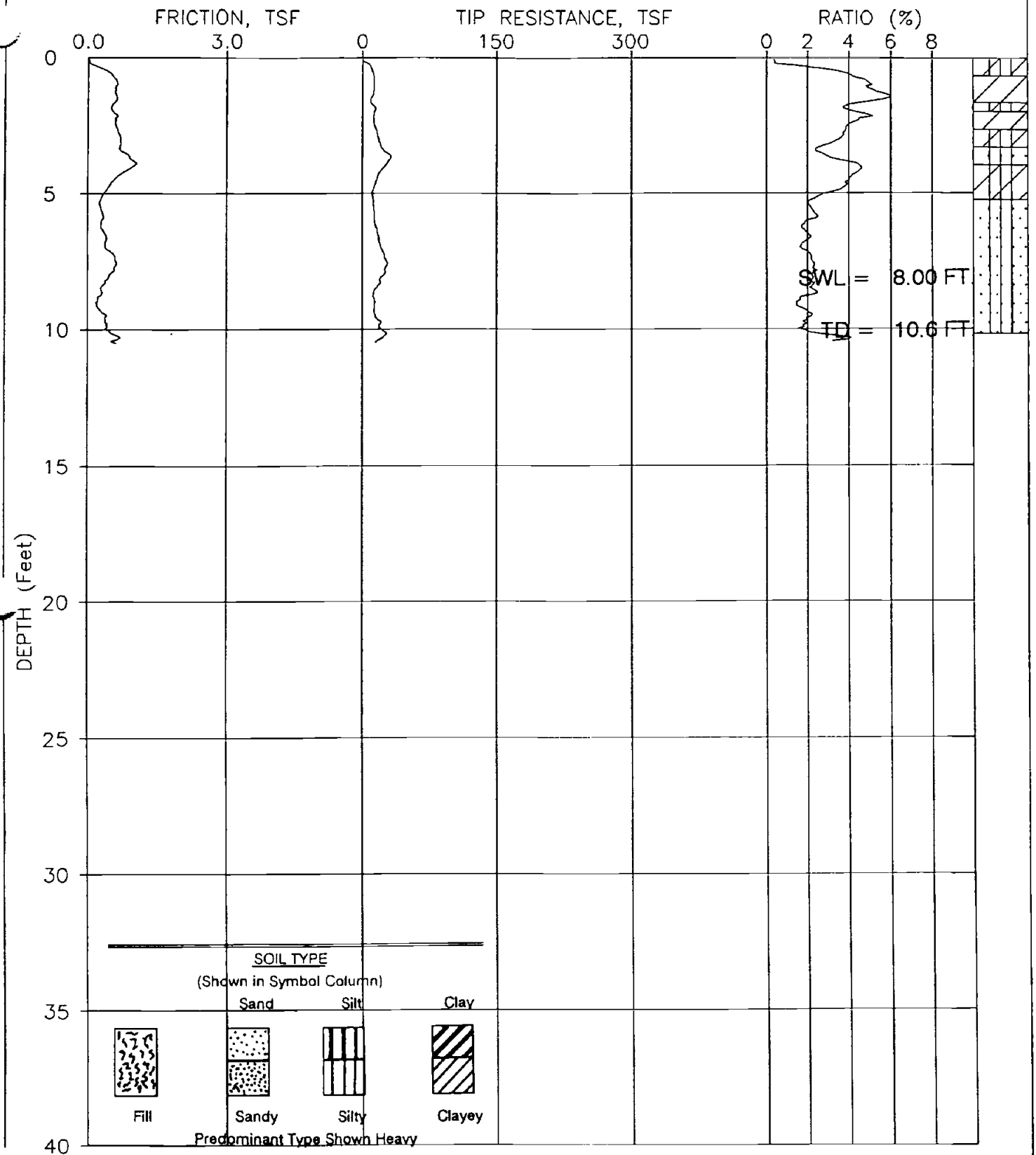
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-234-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



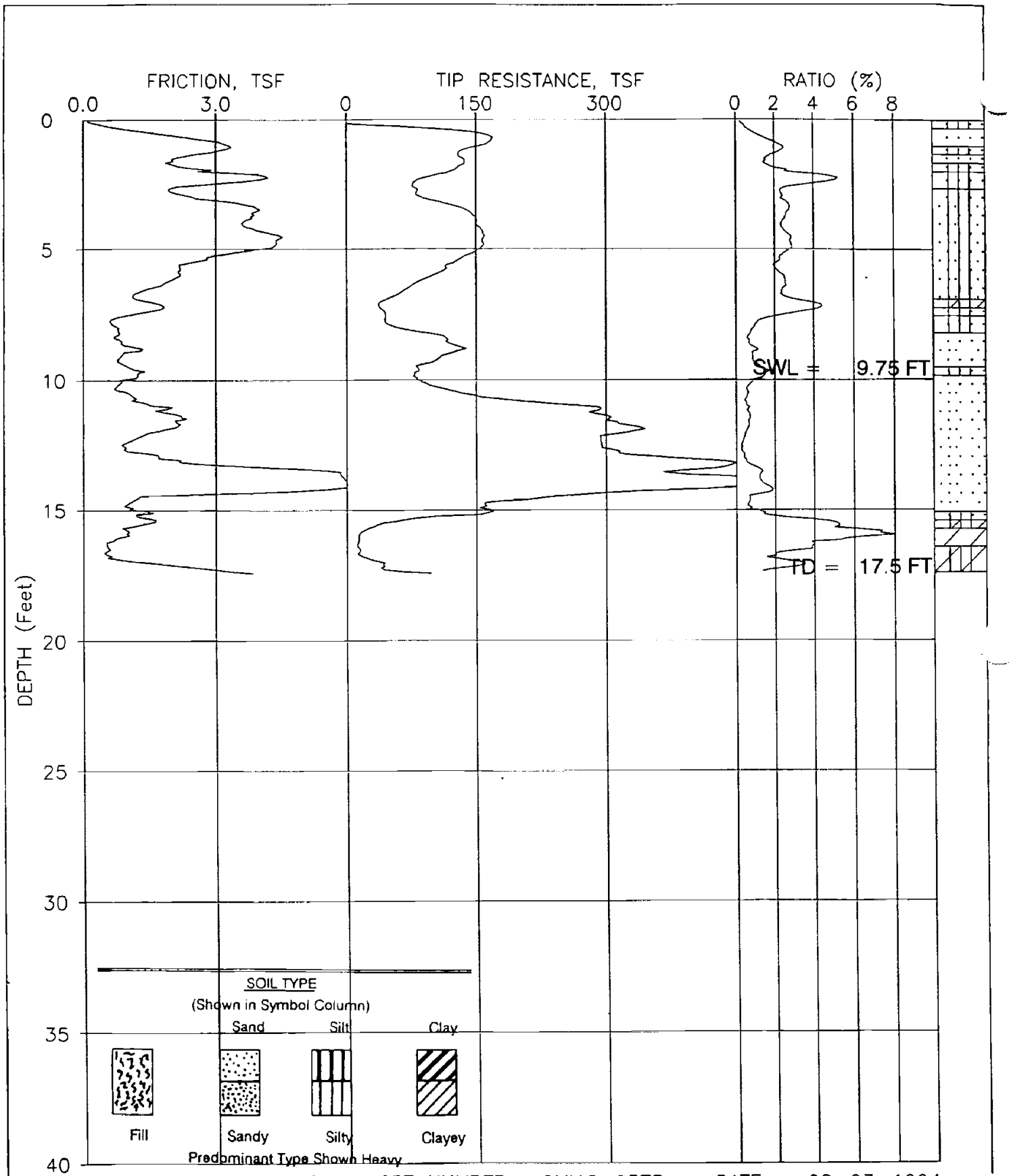
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-235-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



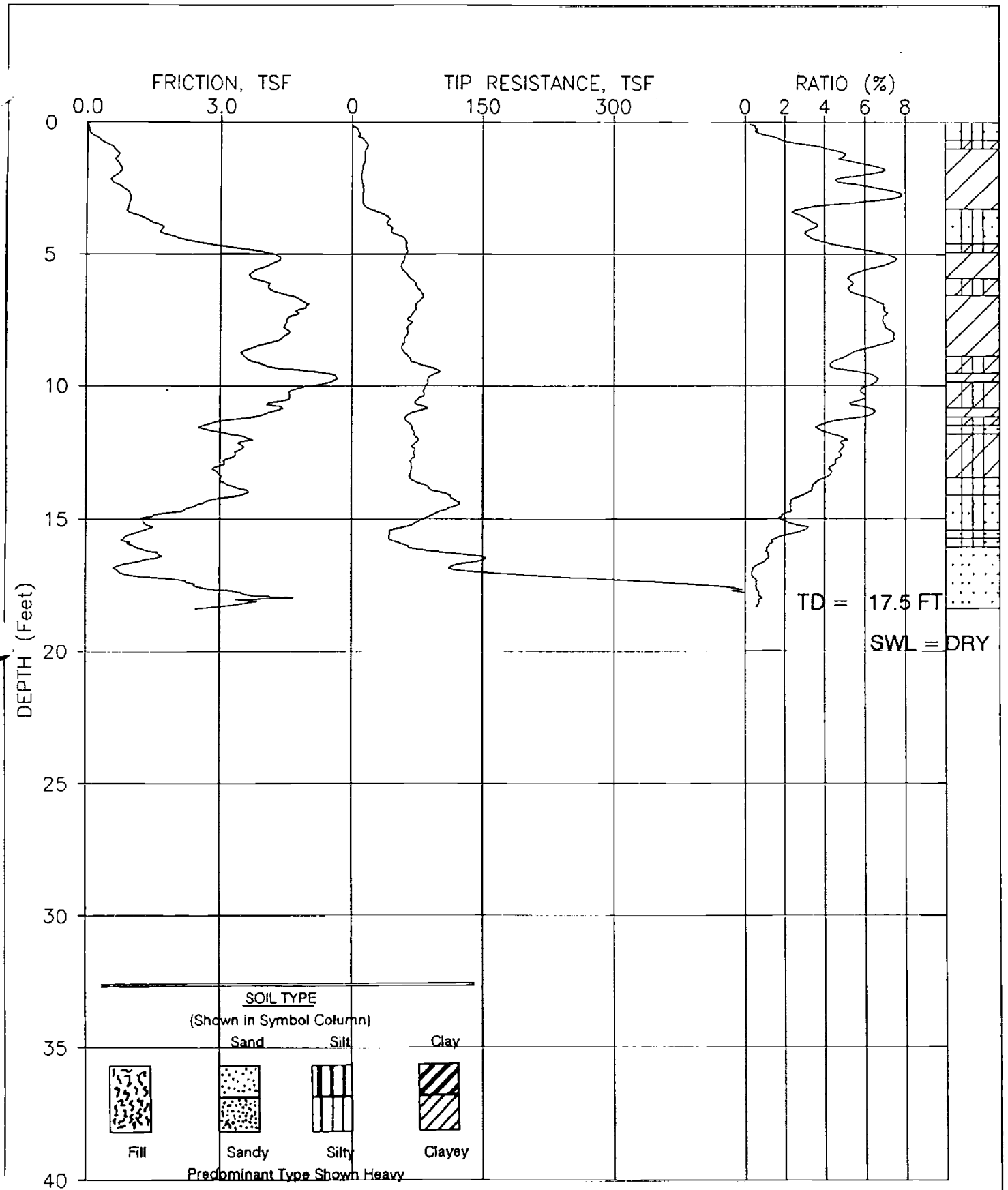
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-236-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



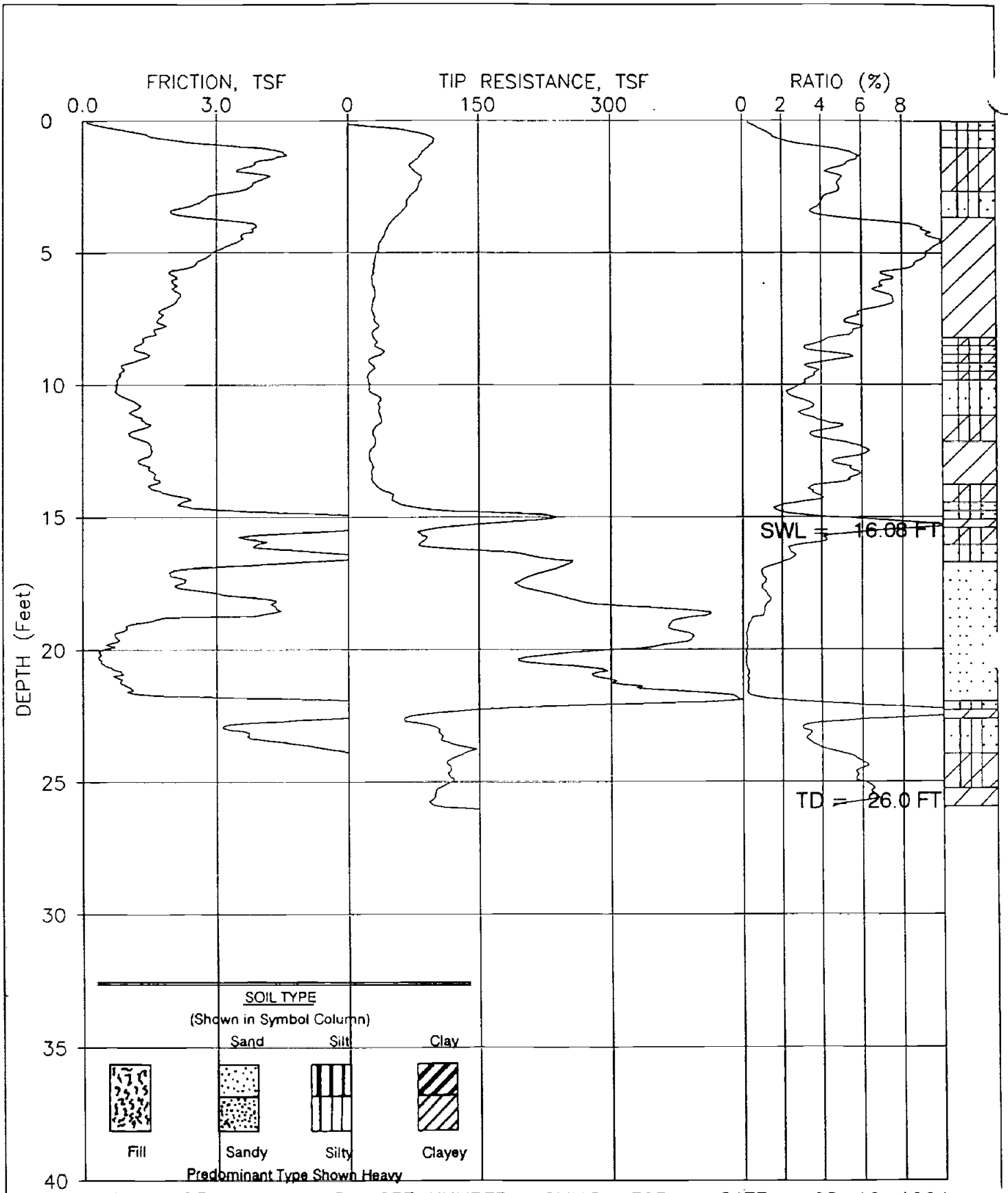
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-237P DATE : 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



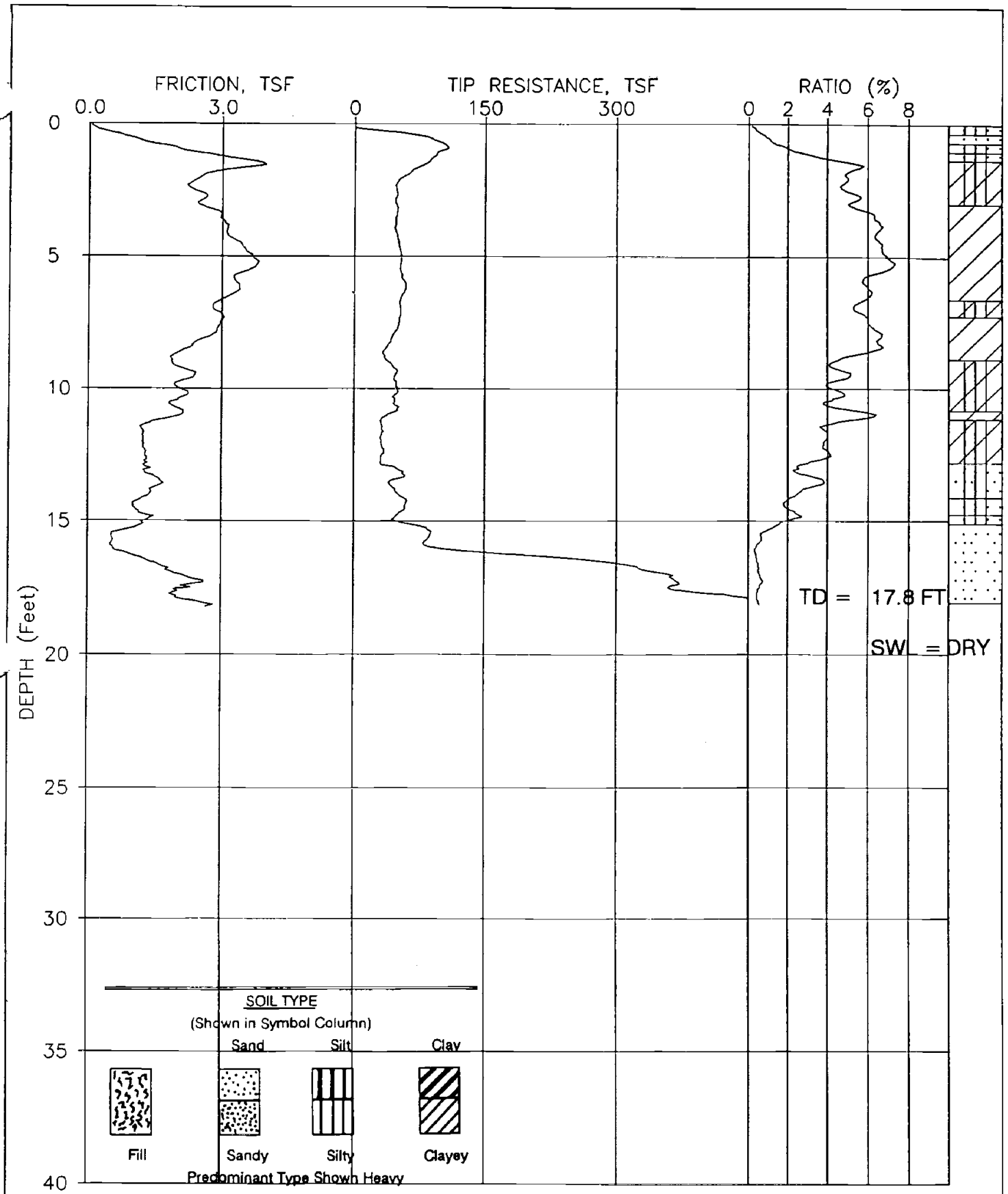
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-238-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



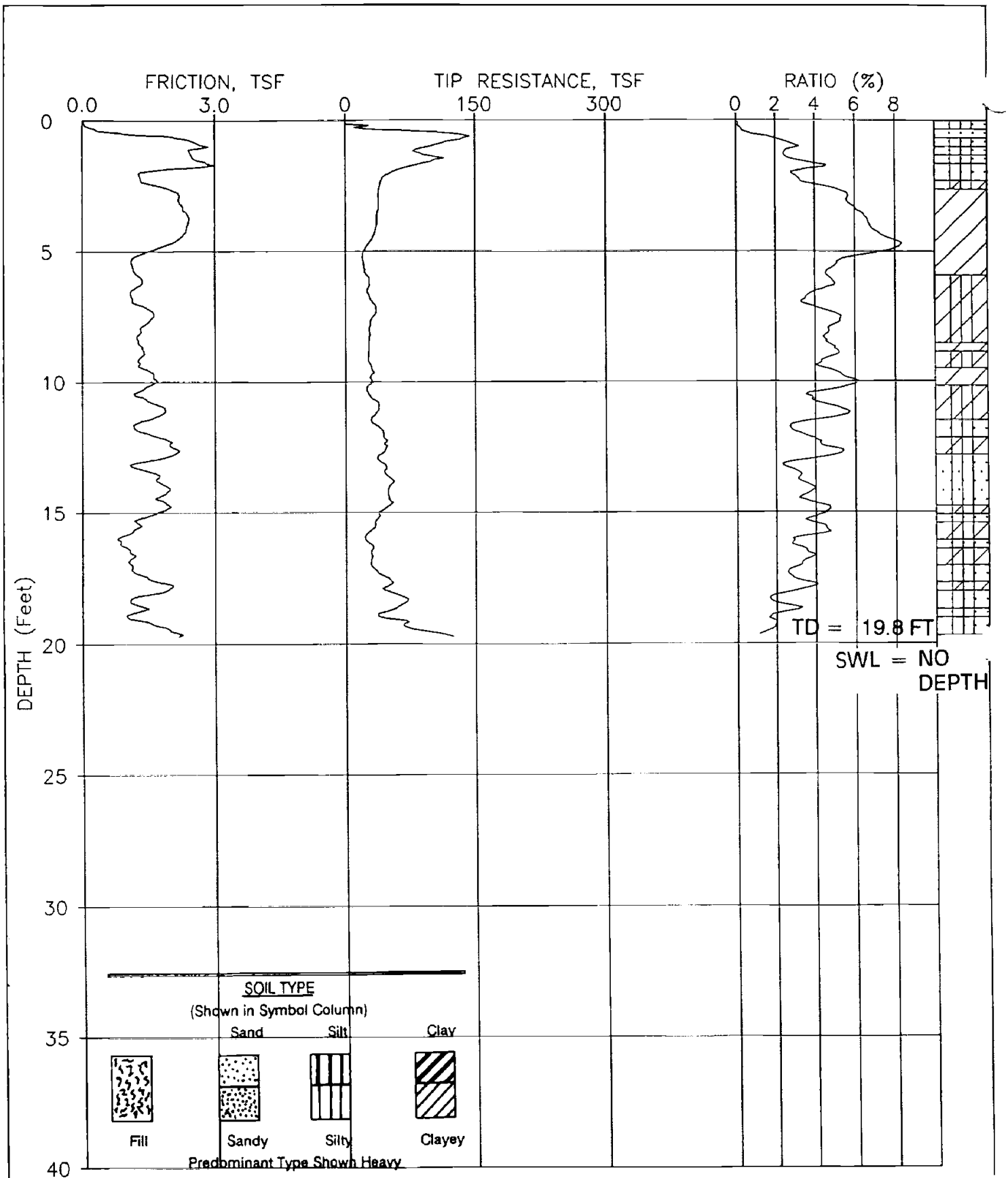
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-239P DATE : 08-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



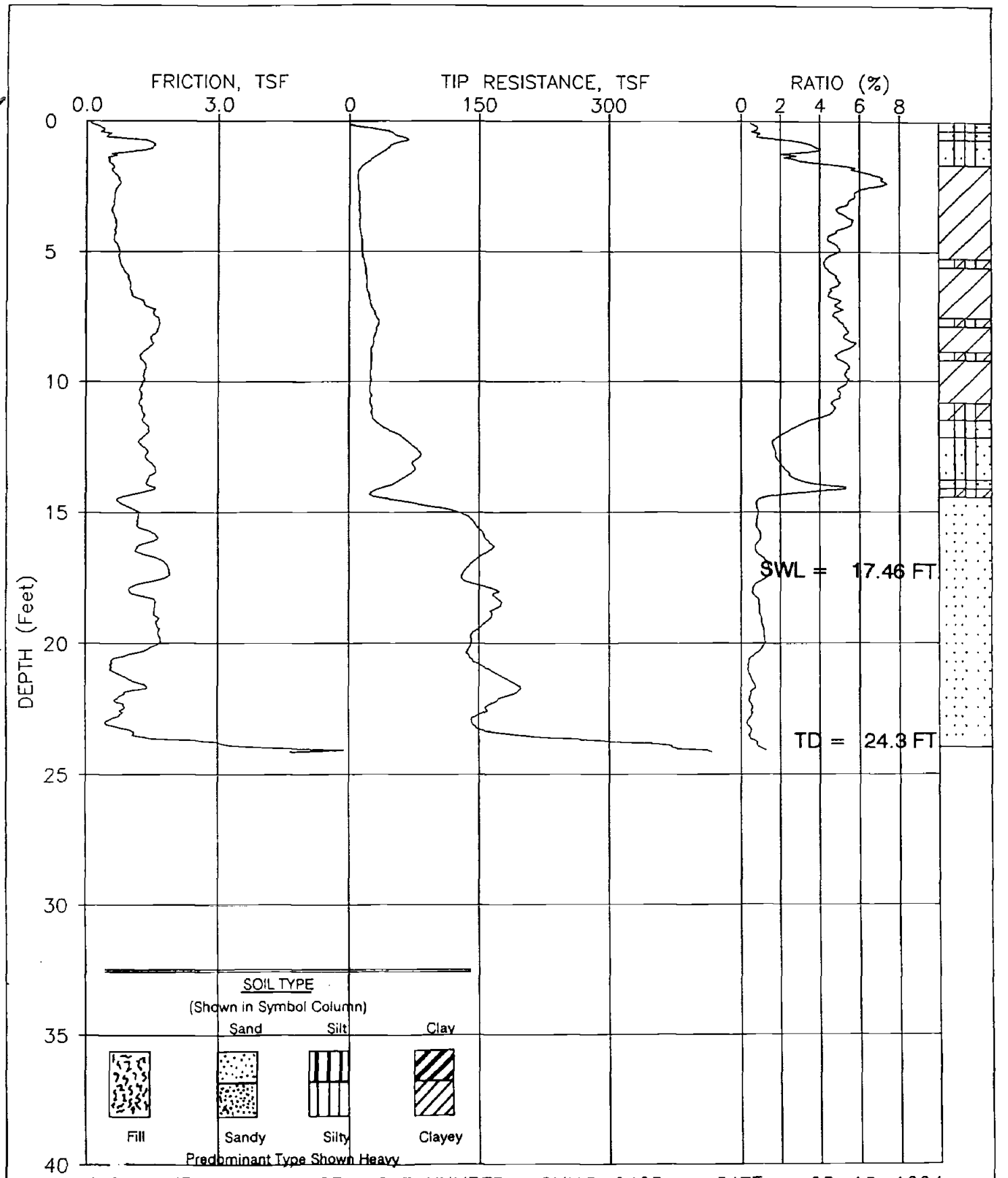
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-240P DATE : 08-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



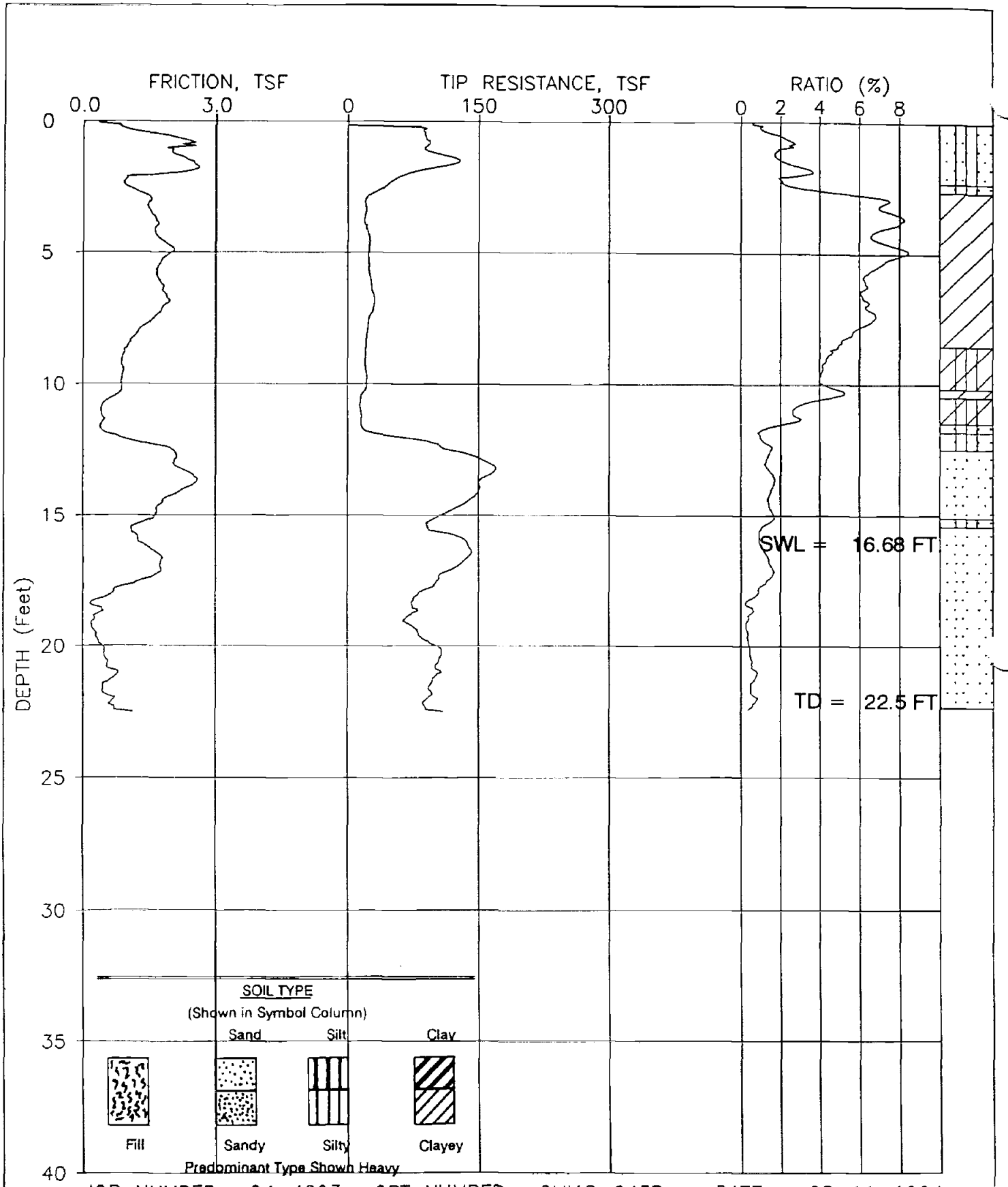
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-241P DATE : 08-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

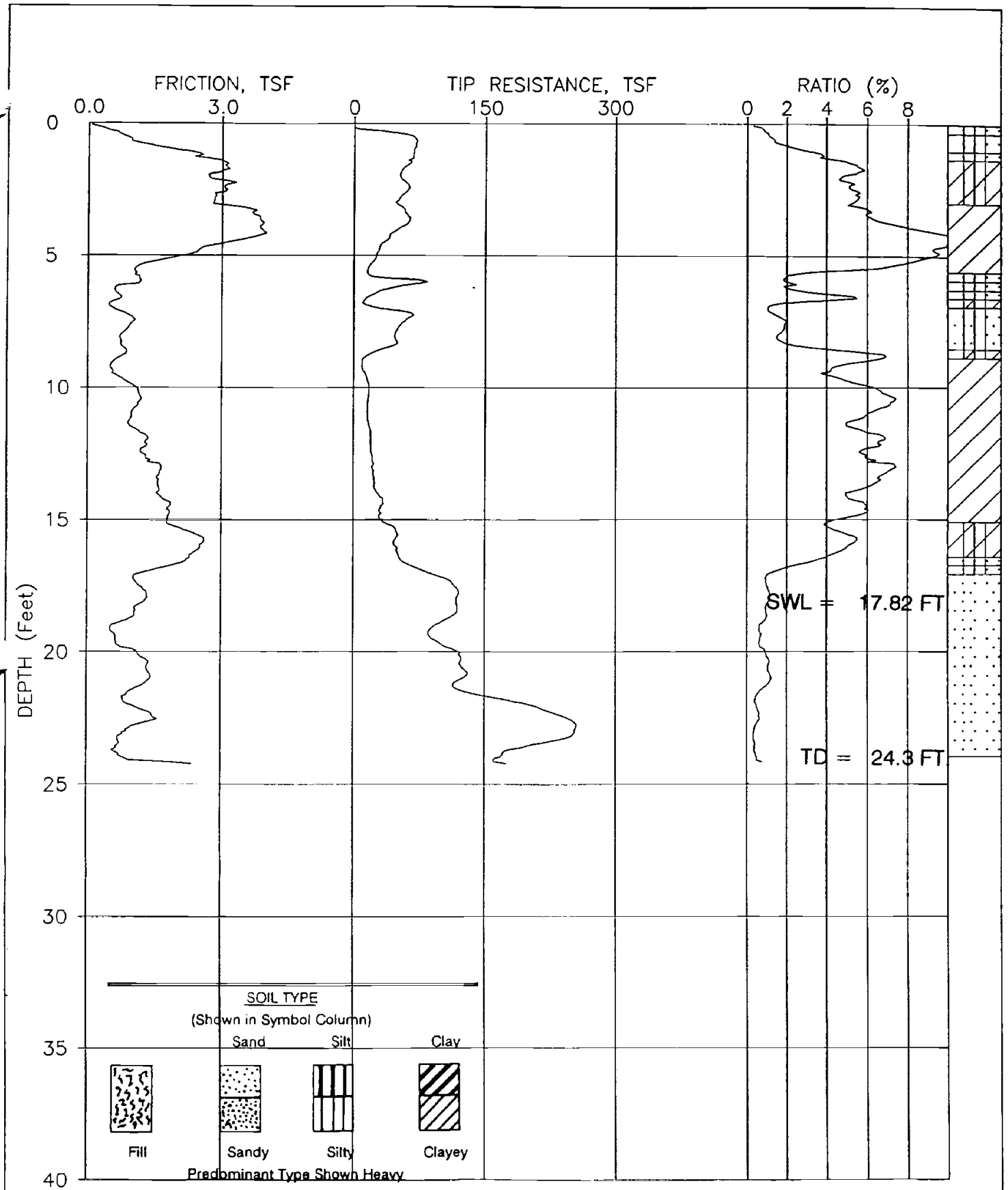


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-242P DATE : 08-12-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC

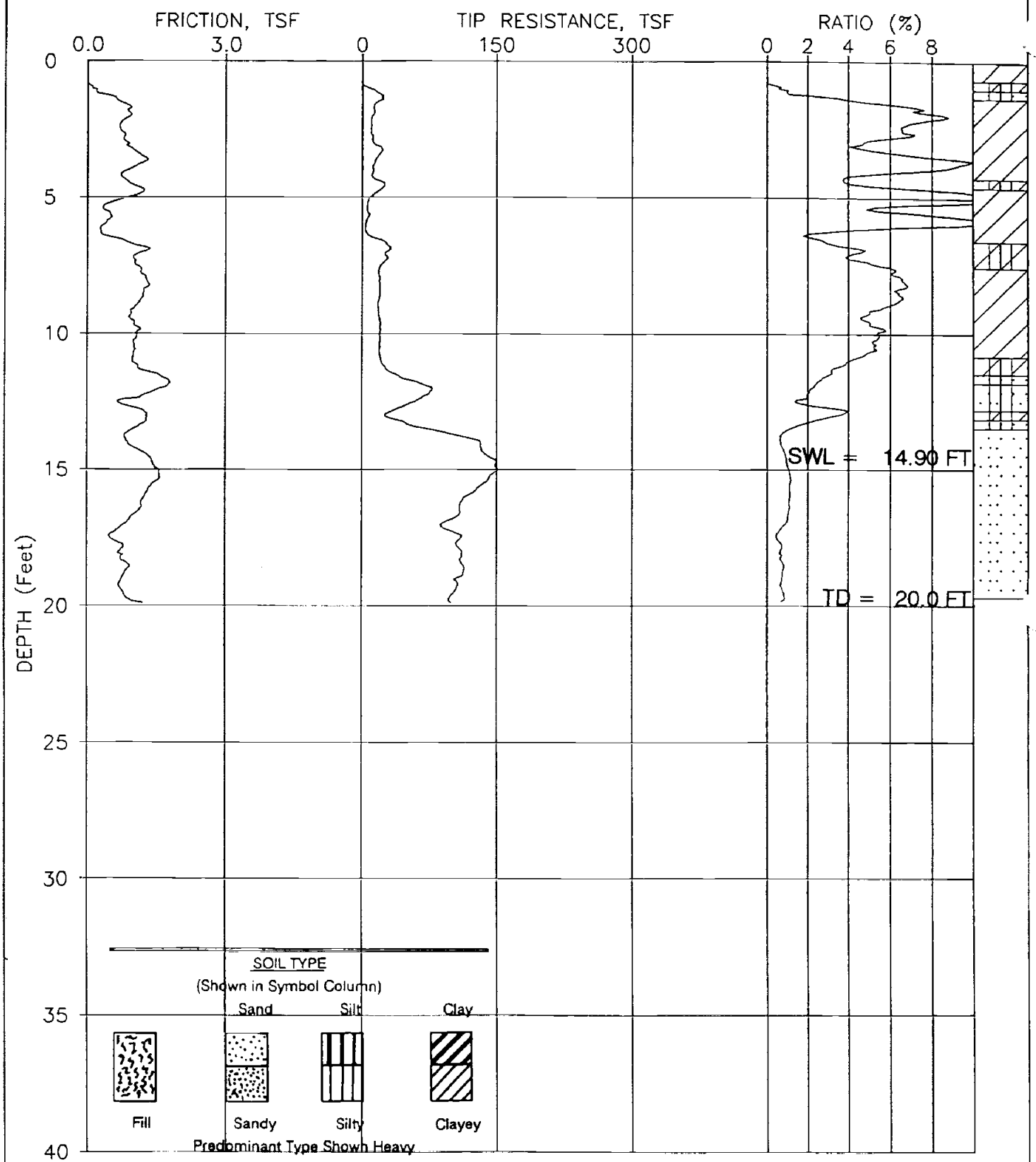


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-243P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080



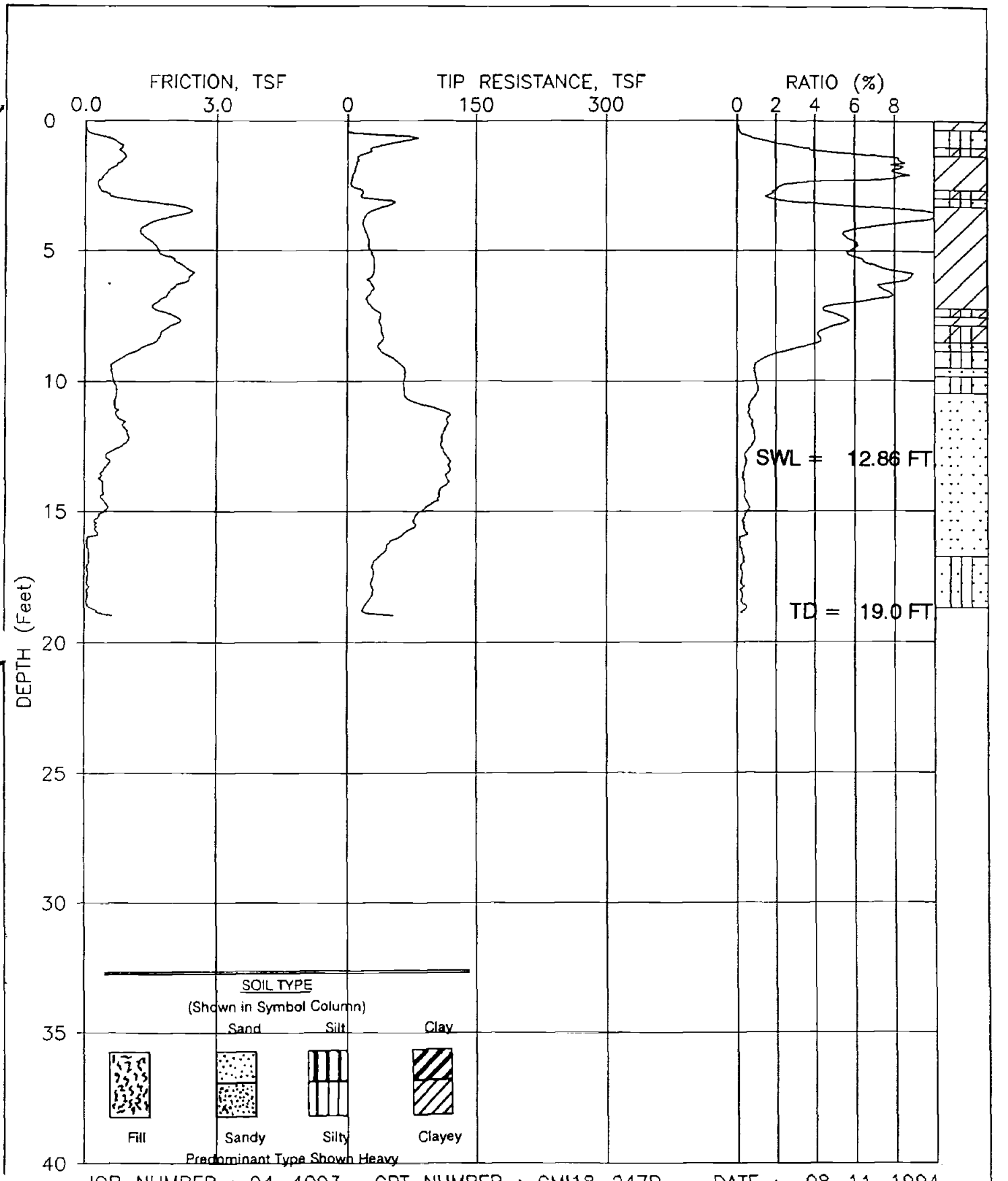
JOB NUMBER : 94-4093 CPT NUMBER : GMI-245P DATE : 08-03-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



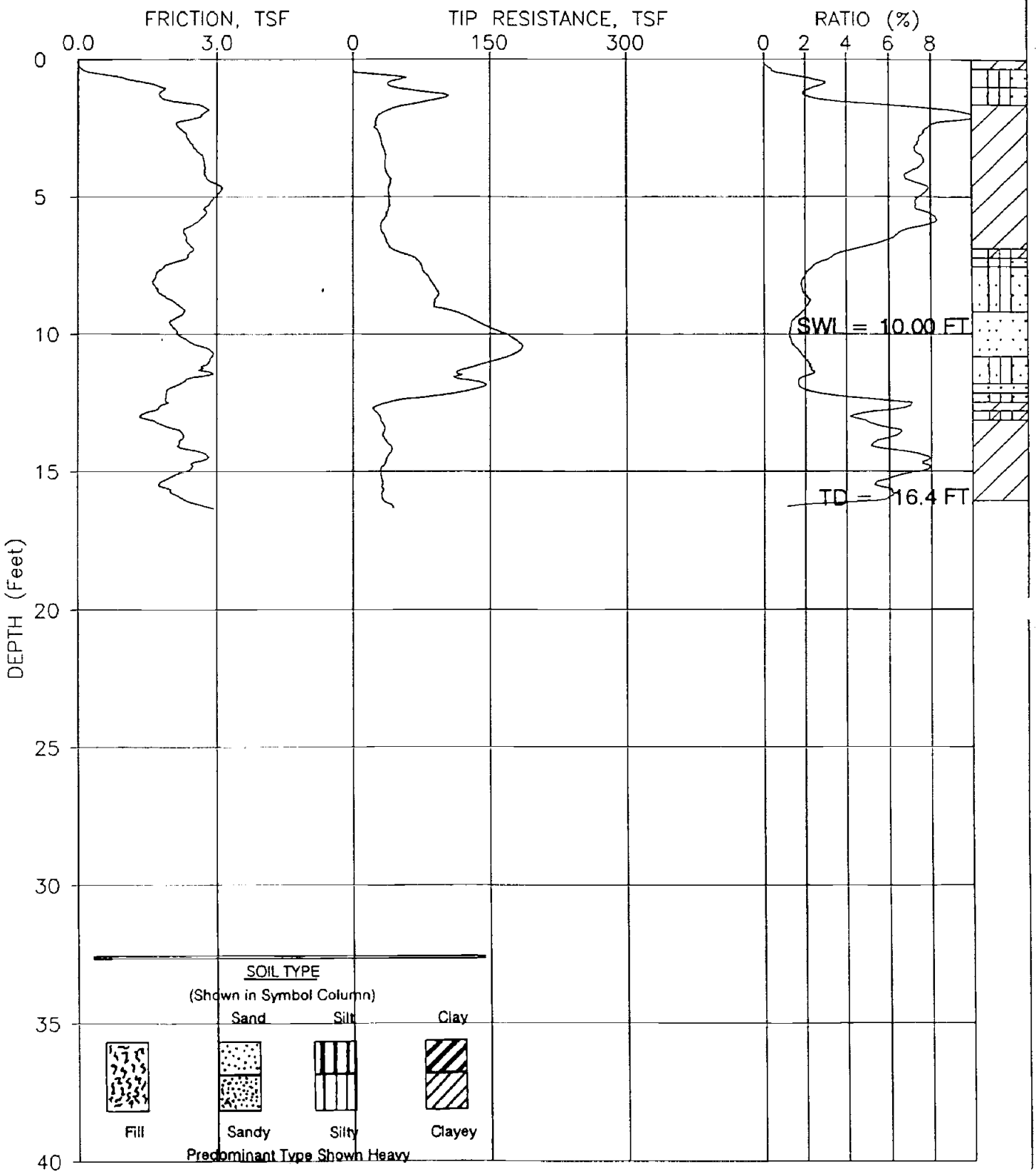
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-246P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



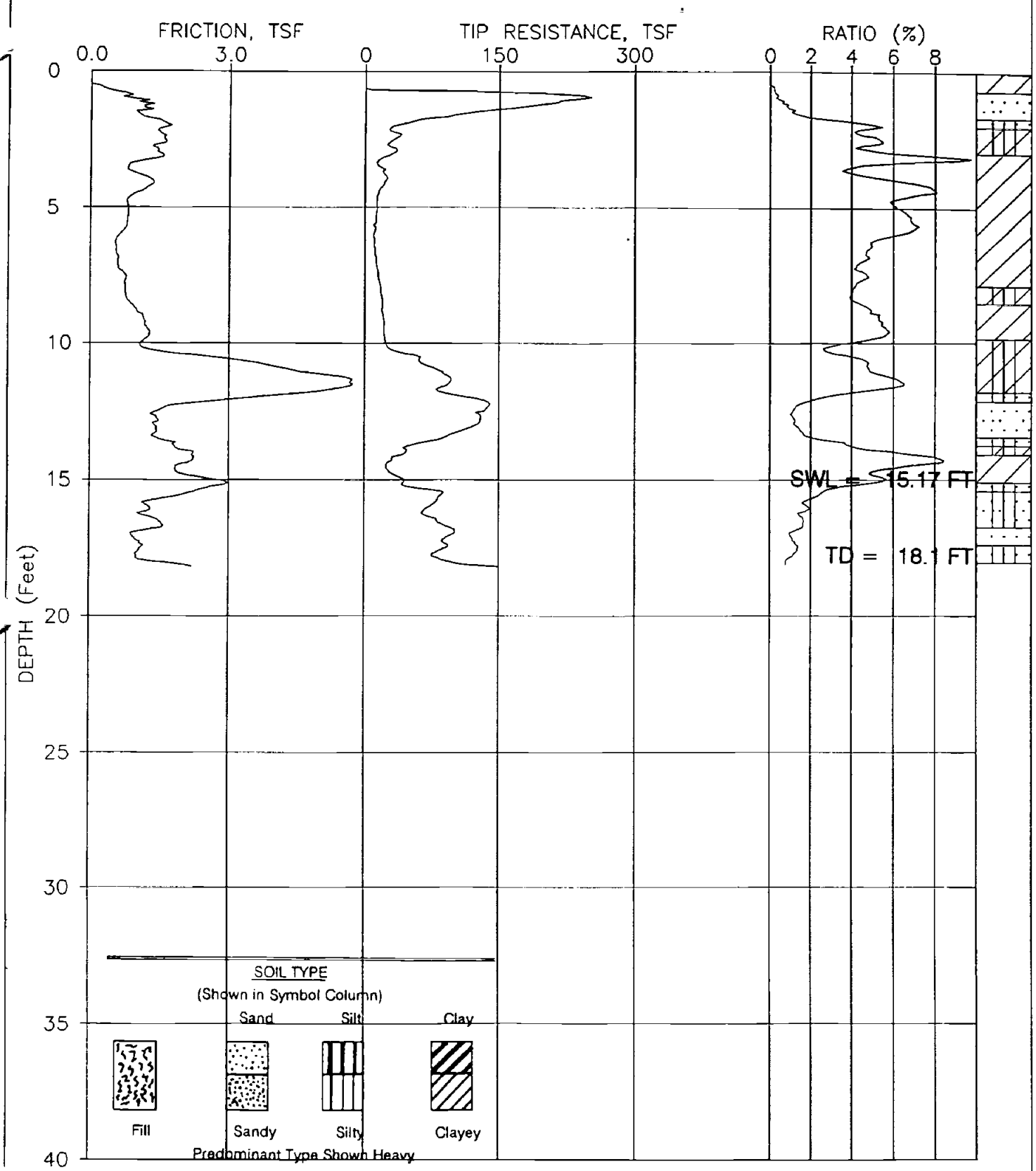
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-247P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



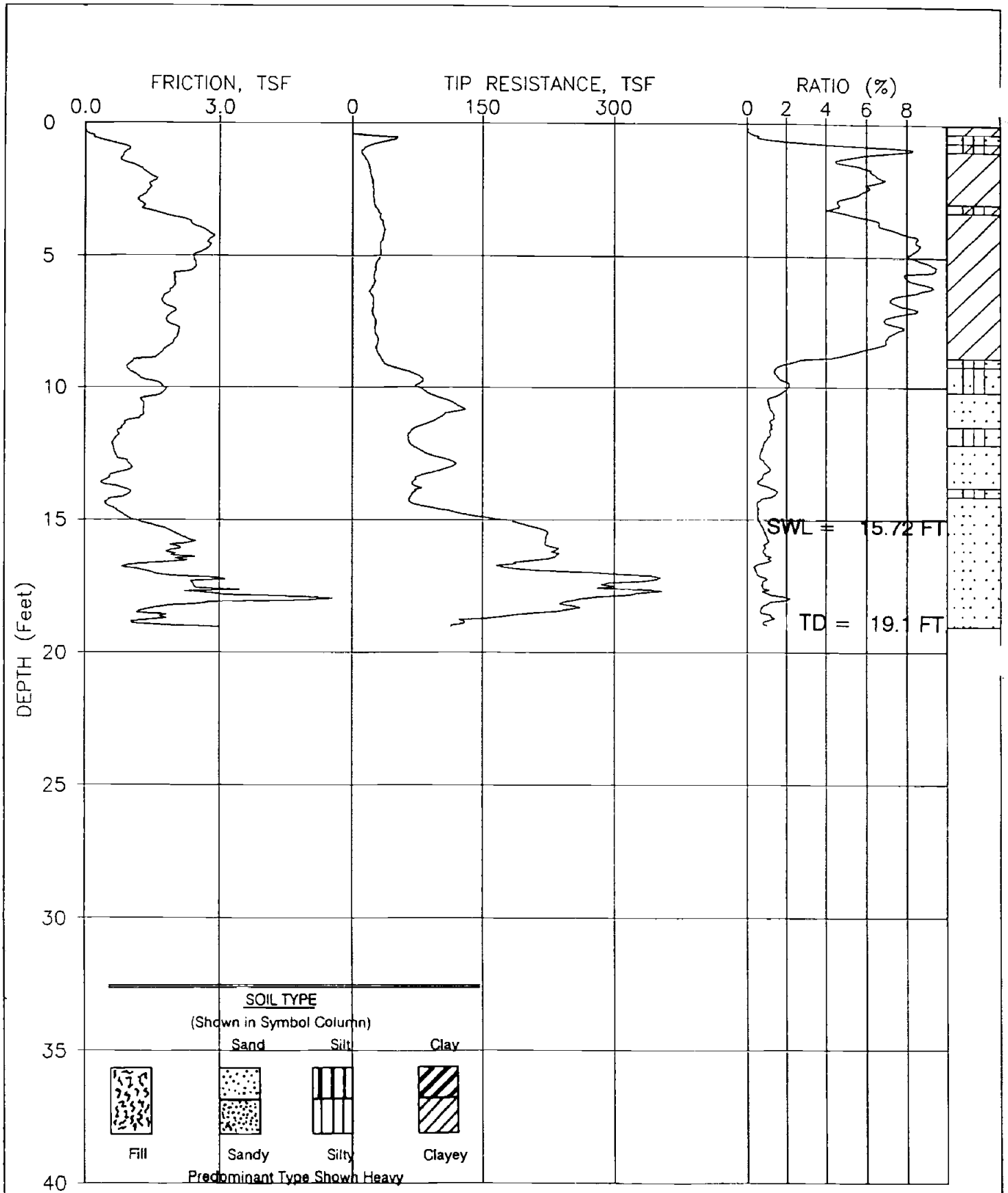
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-249-P DATE : 10-21-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

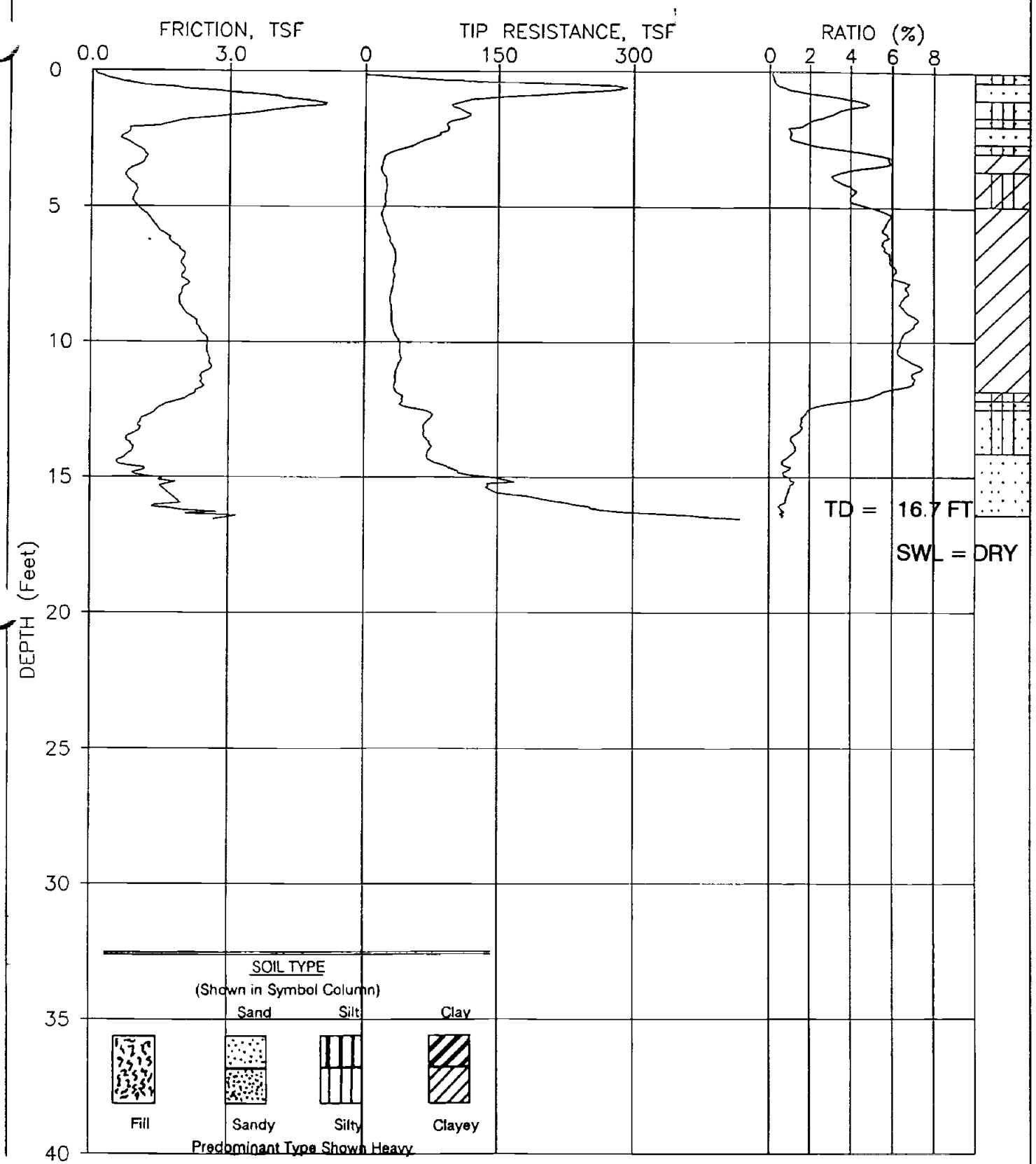


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-250P DATE : 08-22-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

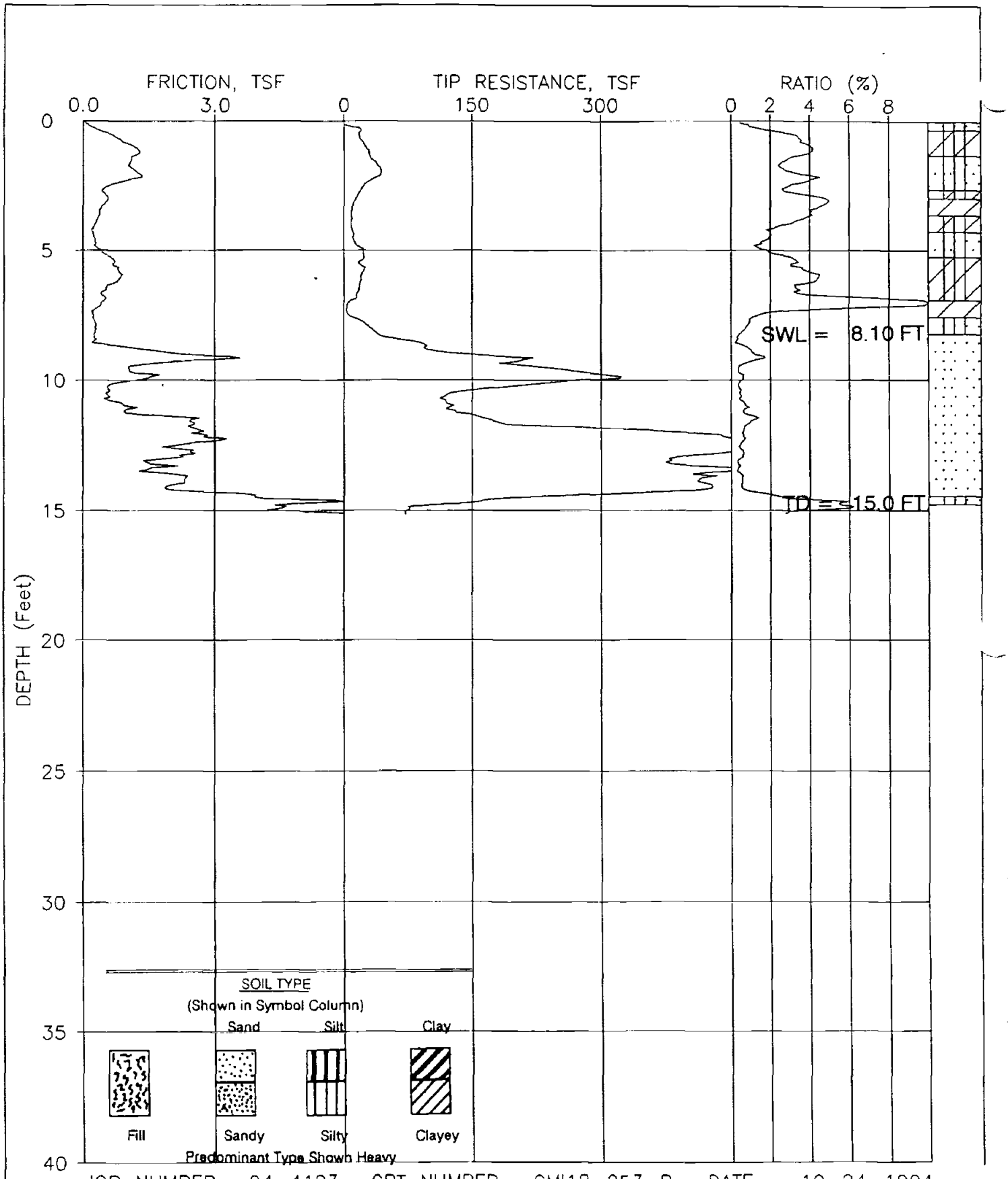


JOB NUMBER : 94-4093 CPT NUMBER : GMI18-251P DATE : 08-22-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091



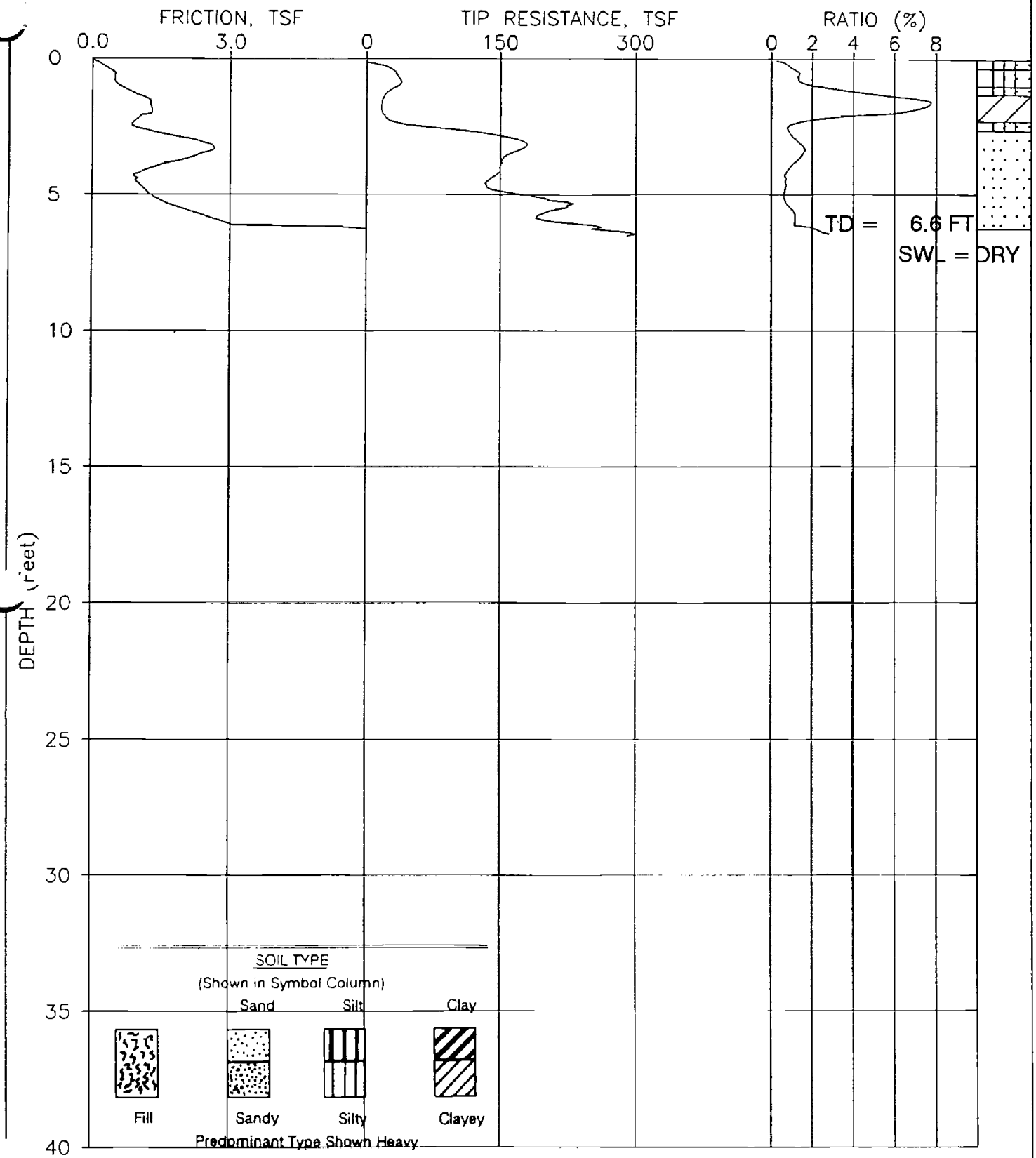
JOB NUMBER : 94-4093 CPT NUMBER : GMI18-252P DATE : 08-23-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



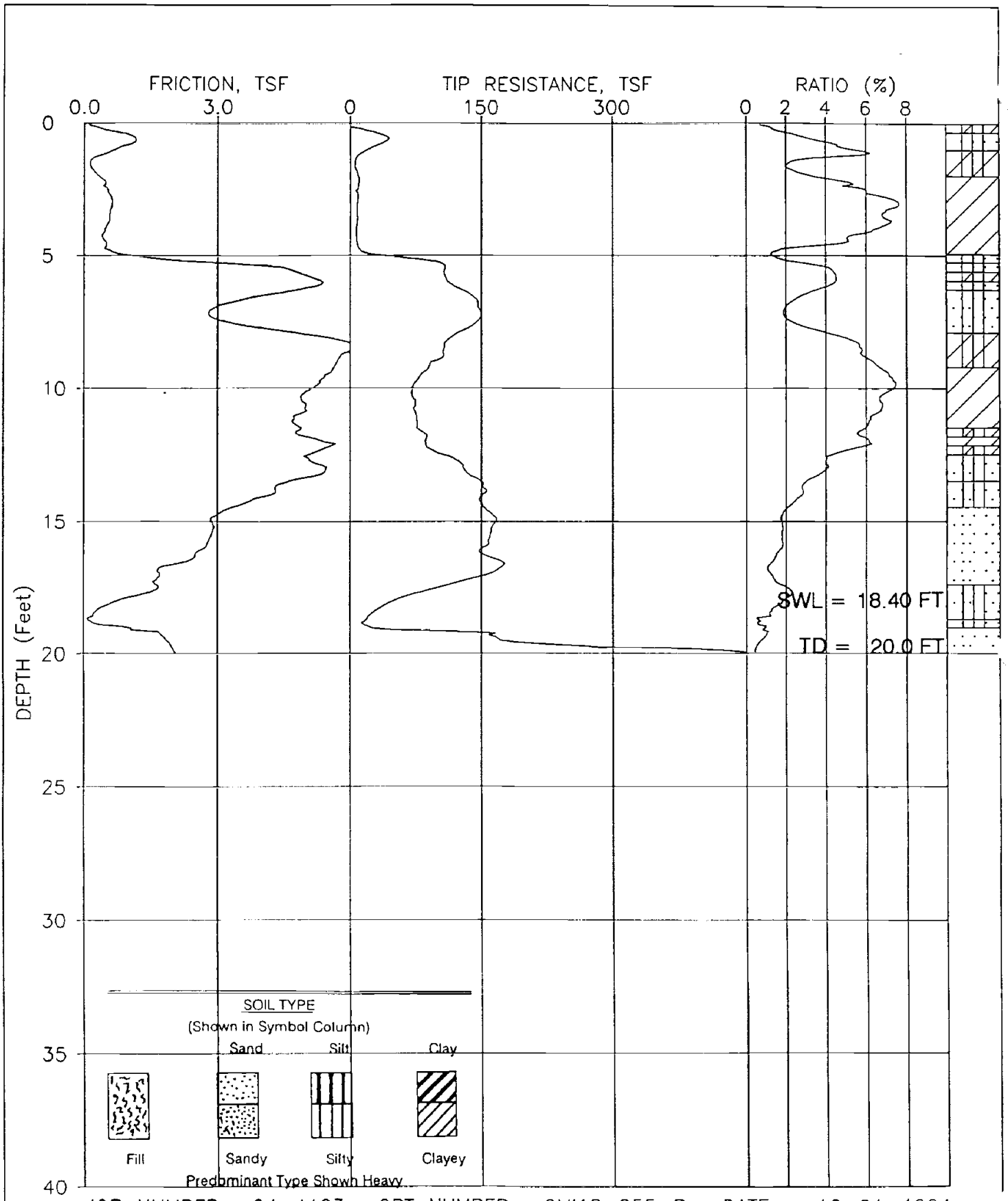
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-253-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



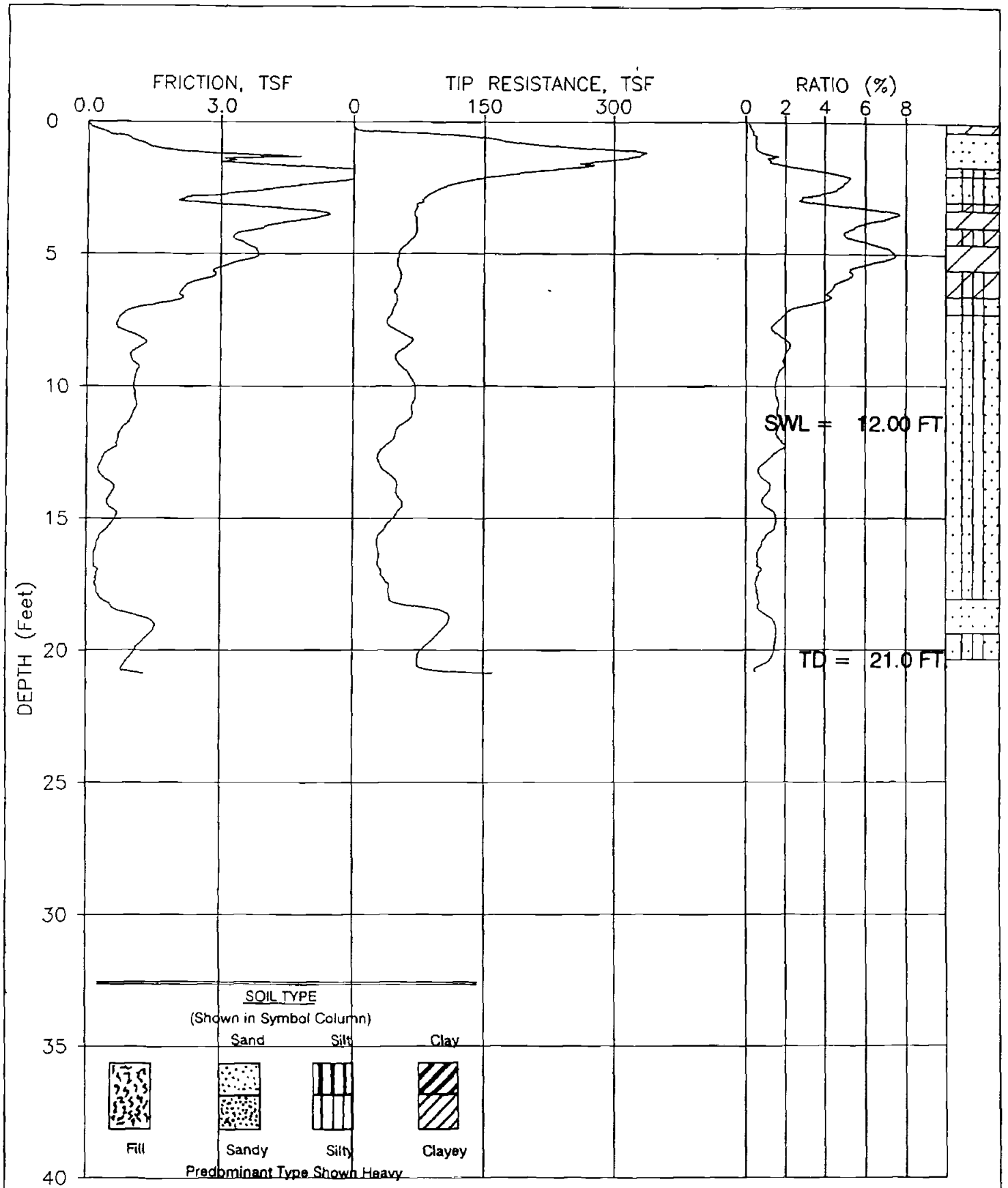
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-254-P DATE : 10-24-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



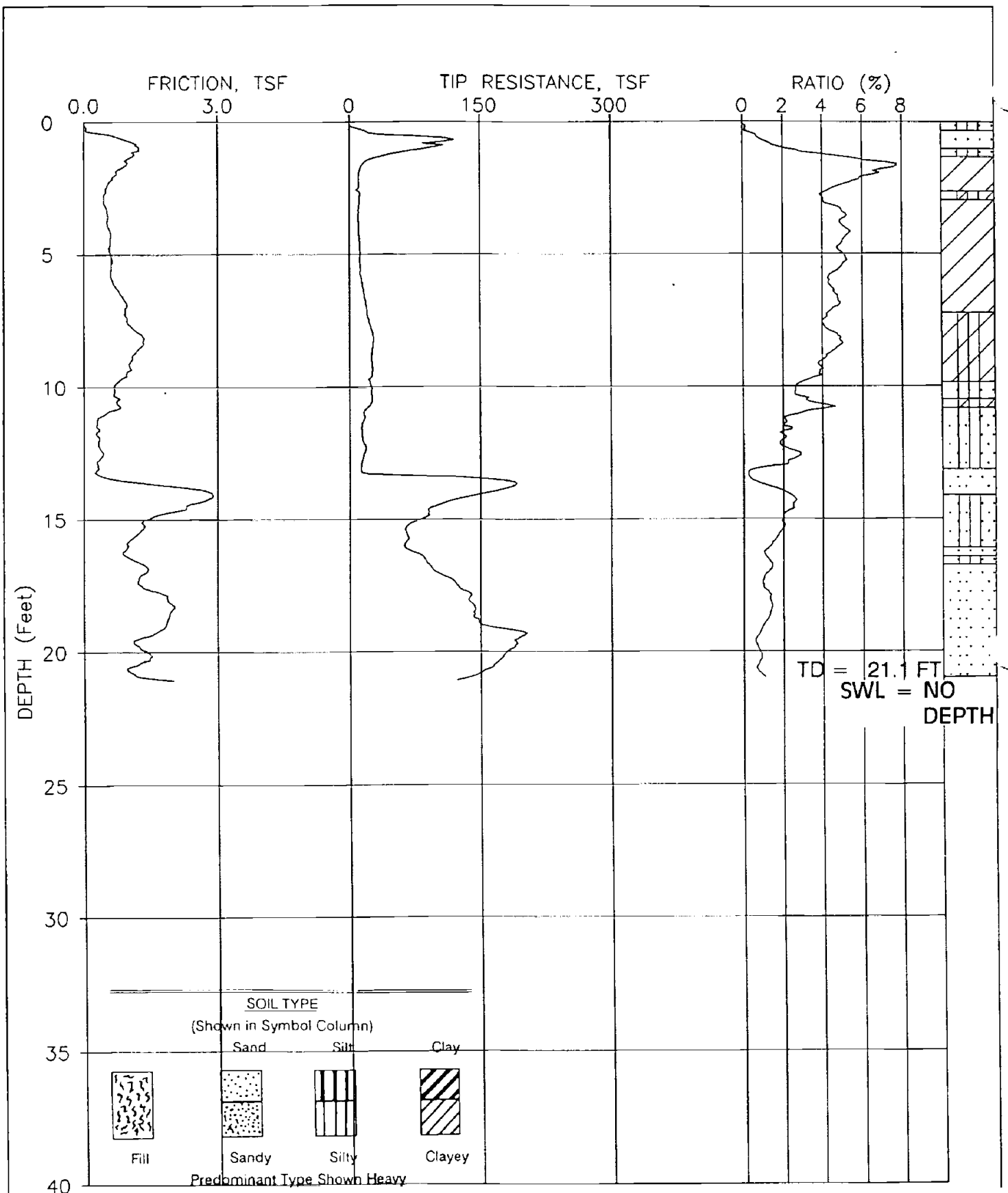
JOB NUMBER : 94-4123 CPT NUMBER : GMI18-255-P DATE : 10-21-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4093 CPT NUMBER : GMI18-261P DATE : 08-11-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV080

FUGRO GEOSCIENCES,INC



JOB NUMBER : 94-4123 CPT NUMBER : GMI18-263-P DATE : 10-26-1994
ELEVATION : 0.00 CONE NUMBER: F7.5CKEV091

FUGRO GEOSCIENCES,INC

APPENDIX D

Analytic Results, Chain-of Custody Forms, and QA/QC

RETURN RESULTS TO GMI OFFICE NOTED:

X	Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___	Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___	Oak Ridge, Tennessee	(615) 481-3552	(615) 481-3210
___	Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 1

Project No. 114-055

Project Name: Carswell Sampling Phase I

Samplers: 1. Tony C. Mills / Tony C. Mills
2. _____ / _____
3. _____ / _____
(Print/ Signature)

Sample I.D.	Date '94	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	8021	TPH					Remarks USACE Location #
GMI18-381	5-09	1630		X	1	WATER	2	X						A38
GMI18-411	5-09	1745		X	1	WATER	2	X						A41
GMI18-381	5-09	1630		X	1	water	1		X					A38, ADDED 6ml HCl ?
GMI18-411	5-09	1745		X	1	water	1		X					A41, ADDED ? HCL
~~TB50994~~ tm	5-10	0830		X	LAB	WATER	2	X	X					
TB50994														
CHECK IF PRESERVED:														

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5-10-94	1000	Kenneth R. Dill	Kenneth R. Dill	5/10/94	1830	[illegible]
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples Iced in field	X	___	Samples on dry ice in transport	___	___
Samples iced in transport	X	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: _____

TRANSPORTED BY:

LABORATORY:

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ___

Call GMI with Results ___

Upon Completion

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

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RETURN RESULTS TO GMI OFFICE NOTED:

X Plano, Texas (214) 423-5480 Fax (214) 422-2736
___ Baton Rouge, Louisiana (504) 926-2181 (504) 926-1040
___ Oak Ridge, Tennessee (615) 481-3552 (615) 481-3210
___ Norfolk, Virginia (804) 873-3702 (804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

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Project No. 1114-055

Project Name Caswell Sampling Phase I

Samplers: (Print/Signature)
1. Tony C. Mills / Tony C. Mills
2. _____ / _____
3. _____ / _____

Sample I.D.	Date '94	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021	418.1					Remarks USACE LOCATION #
GMI18-371	5-10	1200		X	1	water ✓	3	X	X					C37 6ml HCl pH:2.
TB51094	5-10	830		X	LAB	water ✓	2	X	X					
GMI18-361	5-10	1315		X	1	water	2	X						A36

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5-11-94	0910	Kenneth R. Dell	Kenneth R. Dell	5/11/94	10:00	Dwyn Shellish
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	X	___	Samples on dry ice in transport	___	___
Samples iced in transport	X	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: _____

TRANSPORTED BY: TALEM Kenneth R. Dell

LABORATORY:

ANALYSES TO BE COMPLETED:
Fast Turnaround ___ Date: _____
Normal Turnaround ___
Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

RETURN RESULTS TO GMI OFFICE NOTED:

X	Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___	Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___	Oak Ridge, Tennesee	(615) 481-3552	(615) 481-3210
___	Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 1

Project No. 1114-055

Project Name: CARSWELL Sampling PHASE I

Samplers: (Print/Signature)
1. TONY C. MILLS / Tony C. Mills
2. HUBERT S. THOMPSON / Hubert Thompson
3. _____ / _____

ANALYSES REQUIRED: method 8021 418.1

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers							Remarks
GMI18-291	5-11-94	1200		X	1	water	2	X						C29
GMI18-291	5-11-94	1330		X	2	water ✓	1		X					C29, 6ml HCl pH=5
TB51194	5-10-94	0830		X	LAB	water ✓	2	X	X					
GMI18-301	5-11-94	1600		X	1	water ✓	3	X	X					C30, 6ml HCl pH=3
GMI18-321	5-11-94	1700		X	1	water ✓	3	X	X					C32, 6ml HCl pH=4

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Hubert Thompson	5/12/94	915	[signature]	[signature]	5/12/94	1800	[signature]
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓		Samples on dry ice in transport		
Samples iced in transport			Samples at ambient in field		
Samples on dry ice in field			Samples at ambient in transport		

GMI CONTACT: LYLE WINNETTE

TRANSPORTED BY:

LABORATORY:

ANALYSES TO BE COMPLETED:
Fast Turnaround ___ Date: _____
Normal Turnaround ___
Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

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316
5-13-94

RETURN RESULTS TO GMI OFFICE NOTED:

X	Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___	Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___	Oak Ridge, Tennessee	(615) 481-3552	(615) 481-3210
___	Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

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Project No. 1114-055

Project Name Carswell Sampling Phase I

Samplers: (Print/Signature)
1. Tony C. Mills / Tony C Mills
2. ED ESCOBEDA /
3. HUBERT S. Thompson

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	8021	418.1					Remarks (USACE Location #)
GMI18-351	5-12-94	0930		X	1	water ✓	3	X	X					C35, 6ml HCl pH=2
~~TB51294~~	~~5-12-94~~			~~X~~	~~1~~	~~water~~ ✓	~~1~~		~~X~~					
GMI18-331	5-12-94	1030		X	1	water ✓	3	X	X					C33, 6ml HCl pH=3
GMI18-341	5-12-94	1100		X	1	water ✓	3	X	X					C34 6ml HCl pH=5
GMI18-342	5-12-94	1200		X	1	water ✓	3	X	X					C34 6ml HCl pH=2
GMI18-401	5-12-94	1545		X	2	water	3	X	X					C40 6ml HCl pH=6
FB51294	5-12-94	1230		X	3	water ✓	3	X	X					2ml HCl pH=2
TB51294	5-12-94	1230		X	1	water	2	X						
GMI18-441	5-12-94	1630		X	1	water ✓	3	X	X					G44 6ml HCl pH=2
GMI18-471	5-12-94	1700		X	1	water ✓	3	X	X					G47 6ml HCl pH=3
						CHECK IF PRESERVED:								

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5-13-94	0955	Kenneth R. Dillard	Kenneth R. Dillard	5/13/94	1100	Bryan Shellhammer
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples Iced in field	✓		Samples on dry ice in transport		
Samples Iced in transport	✓		Samples at ambient in field		
Samples on dry ice in field			Samples at ambient in transport		

GMI CONTACT: LYLE WINNETTE

TRANSPORTED BY: TALEM Kenneth R. Dillard

LABORATORY:

ANALYSES TO BE COMPLETED:
Fast Turnaround ___ Date: _____
Normal Turnaround X
Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

3 5 6 . 0 4 0 9

356 . 410

RETURN RESULTS TO GMI OFFICE NOTED:

X	Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___	Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___	Oak Ridge, Tennesee	(615) 481-3552	(615) 481-3210
___	Norfolk, Virginia	(804) 873-3702	(804) 873-3703

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ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

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Purchase Order No. _____

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Project No. 1114-055

Project Name: Carswell Sampling Phase I

Samplers: (Print/Signature) 1. Tony C. Mills / Tony C. Mills
2. _____ / _____
3. _____ / _____

	Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021	418.1				Remarks USACE LOCATION #
10	GMI18-391	5-12-94	1800		X	1	water ✓	3	X	X				C39, 6ml HCl, pH=3
11	GMI18-171	5-12-94	1840		X	1	water ✓	3	X	X				G17, 6ml HCl, pH=6
12	GMI18-161	5-12-94	1930		X	1	water ✓	3	X	X				G16, 6ml HCl, pH=2
13	GMI18-151	5-12-94	2000		X	1	water ✓	3	X	X				G15, 6ml HCl, pH=2
TM	~~GMI18-141~~	~~5-12-94~~	~~2045~~		~~X~~	~~1~~	~~water~~	~~1~~	~~X~~					~~G14~~

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5/13/94	0955	Kenneth R. Dillard	Kenneth R. Dillard	5/13/94	11:00	[signature]
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓		Samples on dry ice in transport		
Samples iced in transport	✓		Samples at ambient in field		
Samples on dry ice in field			Samples at ambient in transport		

GMI CONTACT: LyLE WINNETTE

TRANSPORTED BY: TALEM Kenneth R. Dillard

LABORATORY:

ANALYSES TO BE COMPLETED:
Fast Turnaround ___ Date: _____
Normal Turnaround ✓
Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

RETURN RESULTS TO GMI OFFICE NOTED:

✓ Plano, Texas	(214) 423-5480	Fax (214) 422-2736	
___ Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040	
___ Oak Ridge, Tennessee	(615) 481-3552	(615) 481-3210	
___ Norfolk, Virginia	(804) 873-3702	(804) 873-3703	

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 1

Project No. 1114-055

Project Name Cheswell Sampling Phase I

Samplers: (Print/Signature)
1. Tony C. Mills / Tony C. Mills
2. _____ /
3. _____ /

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	8021	418.1	CST				Remarks
TB51394	5/13/94	0900		X	LAB	water ✓	2	X	X	CST				
RB51394	5/13/94	1300		X	1	water ✓	3	X	X					5ml HCl
GMI18-451	5/13/94	1210		X	1	water ✓	3	X	X					6ml HCl pH: 3
GMI18-461	5/13/94	1300		X	1	water ✓	3	X	X					6ml HCl
GMI18-462	5/13/94	1330		X	1	water ✓	3	X	X					6ml HCl
GMI18-481	5/13/94	1430		X	1	water ✓	3	X	X					6ml HCl
FB51394	5/13/94	1530		X	1	water ✓	3	X	X					5ml HCl

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5/13/94	1627	Dwyn Shelby				
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓	___	Samples on dry ice in transport	___	___
Samples iced in transport	___	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: _____

TRANSPORTED BY:

LABORATORY: TALEM

ANALYSES TO BE COMPLETED:
Fast Turnaround ___ Date: _____
Normal Turnaround ✓
Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

RETURN RESULTS TO GMI OFFICE NOTED:

- X Plano, Texas (214) 423-5480 Fax (214) 422-2736
- ___ Baton Rouge, Louisiana (504) 926-2181 (504) 926-1040
- ___ Oak Ridge, Tennessee (615) 481-3552 (615) 481-3210
- ___ Norfolk, Virginia (804) 873-3702 (804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of ____

Project No. 1114-055

Project Name CARSWELL Sampling PHASE I

Samplers: (Print/Signature) 1. Tony C. Mills / Tony C. Mills 2. ____ / ____ 3. ____ / ____

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	8021	418.1					Remarks USACE Locations
GMI18-501	5-16-94	1020		X	1	water ✓	3	X	X					A50, 6ml HCl, pH=6
TRIP BLANK	5-13-94	0900		X	LAB	WATER	1	X						
GMI18-521	5/16/94	1220		X	1	water ✓	3	X	X					A52, 6ml HCl, pH=6
GMI18-531	5/16/94	1420		X	1	water ✓	3	X	X					A53, 6ml HCl, pH=4
GMI18-511	5/16/94	1500		X	1	water ✓	3	X	X					A51, 6ml HCl, pH=5
GMI18-431	5/16/94	1600		X	1	water ✓	3	X	X					A43, 6ml HCl, pH=6
GMI18-421	5/16/94	1645		X	1	water ✓	3	X	X					G42, 6ml HCl, pH=6
~~GMI18-121~~	~~5/16/94~~	~~1800~~		~~X~~	~~1~~	~~water~~	~~3~~ TCM							

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
[signature]	5/17/94	0911	[signature]	[signature]	5/17/94	10:15	[signature]
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓		Samples on dry ice in transport		
Samples iced in transport	✓		Samples at ambient in field		
Samples on dry ice in field			Samples at ambient in transport		

GMI CONTACT: Lyle Winnette

TRANSPORTED BY: [signature]

LABORATORY: TALEM

ANALYSES TO BE COMPLETED:

Fast Turnaround ____ Date: _____

Normal Turnaround ✓

Call GMI with Results Upon Completion ✓

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

3.56 . 412

RETURN RESULTS TO GMI OFFICE NOTED:

- X Plano, Texas (214) 423-5480 Fax (214) 422-2736
- ___ Baton Rouge, Louisiana (504) 926-2181 (504) 926-1040
- ___ Oak Ridge, Tennessee (615) 481-3552 (615) 481-3210
- ___ Norfolk, Virginia (804) 873-3702 (804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Project No. 1114-055

Project Name Caswell Sampling Phase I

Samplers: (Print/Signature)
1. TONY C. MILLS / Tony C. Mills
2. HUBERT G. THOMPSON /
3. _____ /

Sample I.D.	Date	Time	Comp	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021	418.1					Remarks USACE LOCATIONS
GMI18-141	5/17/94	1010		X	1	water ✓	3	X	X					G14, 6ml HCl, pH=3
TripBLANK	5/13/94	855		X	LAB	water	1	X						
GMI18-281	5/17/94	1050		X	1	water ✓	3	X	X					G28, 6ml HCl, pH=6
GMI18-491	5/17/94	1215		X	1	water ✓	3	X	X					G49, 6ml HCl, pH=6
GMI18-492	5/17/94	1250		X	1	water ✓	3	X	X					G49, 6ml HCl, pH=2
FB51794	5/17/94	1310		X	1	water ✓	3	X	X					G49, 5ml HCl pH=2
GMI18-111	5/17/94	1645		X	1	water ✓	3	X	X					G11, 6ml HCl pH=6
GMI18-201	5/17/94	1730		X	1	water ✓	3	X	X					G20, 6ml HCl, pH=6
GMI18-211	5/17/94	1810		X	1	water ✓	3	X	X					G21, 6ml HCl, pH=5
GMI18-221	5/17/94	1930		X	1	water ✓	3	X	X					G22, 6ml HCl, pH=6

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:
Tony C. Mills	5/18/94	0920	[signature]
Relinquished by:	Date	Time	Received by:

Relinquished by:	Date	Time	Received by:
[signature]	5/18/94	1045	[signature]
Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓	___	Samples on dry ice in transport	___	___
Samples iced in transport	___	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: Lyle Winnette

TRANSPORTED BY: TALEM

LABORATORY: TALEM

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ✓

Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY)— GOLD (FILE COPY)

RETURN RESULTS TO GMI OFFICE NOTED:

- X Plano, Texas (214) 423-5480 Fax (214) 422-2736
- ___ Baton Rouge, Louisiana (504) 926-2181 (504) 926-1040
- ___ Oak Ridge, Tennessee (615) 481-3552 (615) 481-3210
- ___ Norfolk, Virginia (804) 873-3702 (804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Project No. 1114-055

Project Name CARSWELL SAMPLING

Samplers: (Print/Signature) 1. TONY MILLS / Tony C. Mills 2. ___ / ___ 3. ___ / ___

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021 418.1					Remarks
GMI18-361	5/17/94	1130		X	1	water ✓	1		X				A36, 6ml HCl, pH=5
CHECK IF PRESERVED:													

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5/18/94	0920	[signature]	[signature]	5/18/94	1045	[signature]
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓	___	Samples on dry ice in transport	___	___
Samples iced in transport	✓	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: Lyle Winnette

TRANSPORTED BY: TALEM

LABORATORY: TALEM

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ✓

Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

RETURN RESULTS TO GMI OFFICE NOTED:

✓ Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___ Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___ Oak Ridge, Tennesee	(615) 481-3552	(615) 481-3210
___ Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 1

Project No. 1114-055

Project Name Caswell Sampling Phase I

Samplers: (Print/Signature) 1. Tony C. Mills / Tony C. Mills 2. _____ / _____ 3. _____ / _____

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021	418.1				Remarks
													USACE LOCATIONS
TB51894	5/18/94	0850		X	LAB	water	1	X	~~X~~				
GMI18-241	5/18/94	1050		X	1	water ✓	3	X	X				G24, 6ml HCl, pH=3, <1L Sample
GMI18-271	5/18/94	1135		X	1	water ✓	3	X	X				G27, 6ml HCl, pH=2
GMI18-231	5/18/94	1430		X	1	water ✓	3	X	X				G23, 6ml HCl, pH=2
CK ~~GMI18-101~~	5/18/94	1610		X	1	water ✓	3	X	X				A10, 6ml HCl, pH=2
~~GMI18~~													
FB51894	5/18/94	1715		X	1	water ✓	3	X	X				5ml HCl, pH=2
RB51894	5/18/94	1745		X	1	water ✓	3	X	X				5ml HCl, pH=2
GMI18-232	5/18/94	1845		X	1	water ✓	3	X	X				6ml HCl, pH=2 to 3

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tony C. Mills	5/19/94	0915	[signature]	[signature]	5/19/94	1830	[signature]
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓		Samples on dry ice in transport		
Samples iced in transport	✓		Samples at ambient in field		
Samples on dry ice in field			Samples at ambient in transport		

GMI CONTACT: Lyle Winnette

TRANSPORTED BY: TALEM

LABORATORY: TALEM

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ✓

Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

356 415

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 7

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-111

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1.2 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TACEM, Inc. 417

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 7 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-111

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			112
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	24	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

104/MMD/297

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 13

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-151

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	14 mg/L 05/19/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 13 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-151

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			86
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 12

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project#1114-055 Carswell Sampling Phase I; GMI18-161

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 t Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	24 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 12 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-161

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			102
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 11

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-171

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	45 mg/L 05/19/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 11 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-171

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			76
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	13	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 5

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-101

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	35 mg/L 05/23/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 5 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-101

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			86
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	220	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 8

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-201

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	9.4 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 8 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-201

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			116
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	440	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
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Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 9

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-211

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	7.1 mg/L 05/19/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J.R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 9 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-211

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			104
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 10

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-221

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1400 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TBEM, Inc. 431

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 10 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-221

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			86
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	600	
Toluene	5.0	520	
Ethylbenzene	5.0	1200	
Xylenes (total)	5.0	530	

104/MMD/300

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 4

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-231

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	18 mg/L 05/23/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 4 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-231

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J.R. Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			70
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 8

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-232

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	7.8 mg/L 05/23/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TAPEM, Inc. #35

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 8 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I: GMI18-232

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J. B. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			68
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

104/MMD/308

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 2

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-241

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	8000 mg/L 05/23/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 2 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-241

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			66
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	1400	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 3

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-271

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	44 mg/L 05/23/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 3 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-271

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			80
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

306 West Broadway Avenue
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Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 3

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-281

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 'et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	8.4 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

BATEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 3 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-281

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			111
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

104/MMD/293

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/12/94 2

Date Received: 05/12/94
Collected by: CST
Date Collected: 05/11/94

Identification: Project# 1114-055 Carswell, Phase I; GMI18-291 13:30

Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	61 mg/L 05/16/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/12/94 1

Date Received: 05/12/94
Collected by: CST
Date Collected: 05/11/94

Identification: Project# 1114-055 Carswell, Phase I; GMI18-291 12:00

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/17/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: L. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/12/94 1 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-291 12:00

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			81
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	26	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	20	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

37/LMA

TALEM, INC.

356 445

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/12/94 4

Date Received: 05/12/94
Collected by: CST
Date Collected: 05/11/94

Identification: Project# 1114-055 Carswell, Phase I: GMI18-301

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec: Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	4900 mg/L 05/16/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/12/94 4 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-301

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. B. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			92
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	150	
Xylenes (total)	5.0	350	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/12/94 5

Date Received: 05/12/94
Collected by: CST
Date Collected: 05/11/94

Identification: Project# 1114-055 Carswell, Phase I; GMI18-321

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	170 mg/L 05/16/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/12/94 5 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-321

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			77
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	24	
Toluene	5.0	15	
Ethylbenzene	5.0	16	
Xylenes (total)	5.0	61	

37/LMA

356. 443

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 2

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-331

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	6500 mg/L 05/16/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 2 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-331

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			61
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	49	
Xylenes (total)	5.0	320	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 3

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project#1114-055 Carswell Sampling Phase I; GMI18-341

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble. IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	1400 mg/L 05/19/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 3 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-341

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J.R. Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			92
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	35	
Xylenes (total)	5.0	47	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 4

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project#1114-055 Carswell Sampling Phase I; GMI18-342

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	280 mg/L 05/16/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 4 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-342

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J R Coolidge
J R Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			67
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	48	
Xylenes (total)	5.0	52	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 1

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-351

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	3900 mg/L 05/16/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 1 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-351

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			75
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	11	
Toluene	5.0	190	
Ethylbenzene	5.0	130	
Xylenes (total)	5.0	334	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/11/94 3

Date Received: 05/11/94
Collected by: CST
Date Collected: 05/10/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI 18-361

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID &
Hall detectors in series, cap
col; Tst Meth Eval Solid Wst,
SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/17/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J.R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/11/94 3 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-361

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. B. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			81
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

37/LMA

TALEM, INC.

356. 459

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 11

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-361

Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	890 mg/L 05/19/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J.R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/11/94 1

Date Received: 05/11/94
Collected by: CST
Date Collected: 05/10/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-371

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	18 mg/L 05/12/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/11/94 1 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-371

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			87
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/10/94 1

Date Received: 05/10/94
Collected by: CST
Date Collected: 05/09/94

Identification: Project# 1114-055; Carswell
Sampling Phase I; GMI 18-381

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	310 mg/L 05/12/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/10/94 1 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-381

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J.R. Coolidge
J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			66
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	580	
Xylenes (total)	5.0	1600	

37/LMA

TALEM, INC.

356. 464

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 10

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-391

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	2300 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 10 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-391

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			77
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	440	
Toluene	5.0	111	
Ethylbenzene	5.0	580	
Xylenes (total)	5.0	1700	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 5

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-401

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	24 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 5 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-401

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J R Coolidge
J R Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			110
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
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Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/10/94 2

Date Received: 05/10/94
Collected by: CST
Date Collected: 05/09/94

Identification: Project# 1114-055; Carswell
Sampling Phase I; GMI 18-411

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	2.7 mg/L 05/12/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/10/94 2 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-411

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			114
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 1

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-141

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1.2 mg/L 05/19/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J.R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 1 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-141

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			140
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	260	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 7

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/16/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-421

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	2.2 mg/L 05/19/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 7 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-421

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			104
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	520	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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Attention: Lyle Winnett
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1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 6

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/16/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-431

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1.5 mg/L 05/19/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
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(for inquiries contact Mona Dillard)

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Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 6 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-431

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			115
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	570	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

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1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 8

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project#1114-055 Carswell Sampling Phase I; GMI18-441

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb. Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	2.8 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
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(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 8 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-441

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			107
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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Date of Report: 05/27/94

Lab ID.: 316 05/13/94 9

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-471

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	2.1 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 9 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I: GMI 18-471

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			89
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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Date of Report: 05/27/94

Lab ID.: 316 05/13/94 16

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-451

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1200 mg/L 05/19/94

TALEM, INC.

Per: L. R. Coolidge
President

Distribution of Report:
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(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 16 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-451

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			78
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	1500	
Toluene	5.0	56	
Ethylbenzene	5.0	700	
Xylenes (total)	5.0	1300	

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1316 14th Street
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Date of Report: 05/27/94

Lab ID.: 316 05/13/94 17

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI-461

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	18 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 17 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase 1; GMI-461

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			102
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	120	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

TALEM, INC.

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Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 18

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-462

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	4.1 mg/L 05/19/94

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 18 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-462

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J.R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			84
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	100	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 19

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-481

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	11 mg/L 05/19/94

TALEM, INC.

Per: J. D. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 19 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI 18-481

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			94
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	13	
Trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	130	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 4

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-491

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	17 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 4 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-491

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			98
1,1-Dichloroethene	5.0	nd	
cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyl Chloride	5.0	nd	
Benzene	5.0	14	
Toluene	5.0	21	
Ethyl benzene	5.0	26	
Xylenes (total)	5.0	74	

TALEM, INC.

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Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 5

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-492

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	11 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 5 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-492

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			62
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyl Chloride	2.0	nd	
Benzene	2.0	3.7	
Toluene	2.0	3.1	
Ethyl Benzene	2.0	3.9	
Xylenes (total)	2.0	19	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 1

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/16/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-501

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	2.8 mg/L 05/19/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 1 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase 1; GMI18-501

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J.R. Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			106
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	21	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	9.7	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

104/MMD/284

TALEM, INC.

306 West Broadway Avenue
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Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 5

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/16/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-511

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1.6 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

356 495

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 5 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-511

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			107
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	820	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

104/MMD/288

TALEM, INC.

306 West Broadway Avenue
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Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
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1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 3

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/16/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-521

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	<0.50 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 3 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; GMI18-521

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J.B. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			148
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	950	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

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Metro/654-0443

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Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 4

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/16/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; GMI18-531

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/25/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	1.9 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 4 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I: GM118-531

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J.R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			99
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	610	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/11/94 2

Date Received: 05/11/94
Collected by: CST
Date Collected: 05/10/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; TB51094

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	<0.50 mg/L 05/12/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/11/94 2 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; TB51094

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			100
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

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Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/10/94 3

Date Received: 05/10/94
Collected by: CST
Date Collected: 05/10/94

Identification: Project# 1114-055; Carswell
Sampling Phase I; TB 50994

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	6.8 mg/L 05/12/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/10/94 3 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; TB 50994

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			108
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans 1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

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Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 6

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; FB51894

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	2.4 mg/L 05/23/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J.R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 6 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; FB51894

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			66
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
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Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 7

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; RB51894

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/27/94
Total Petroleum Hydrocarbons EPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	3.6 mg/L 05/23/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 7 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; RB51894

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J.R. Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			64
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

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Mailing Address:
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Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/19/94 1

Date Received: 05/19/94
Collected by: CST
Date Collected: 05/18/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; TB51894

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID &
Hall detectors in series, cap
col; Tst Meth Eval Solid Wst,
SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/27/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J.R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/19/94 1 Date of Analysis: 05/26/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; TB51894

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/26/94

Per: J.R. Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			68
1,1-Dichloroethene	5.0	nd	
Cis-1,2-Dichloroethene	5.0	nd	
trans-1,2-Dichloroethene	5.0	nd	
1,1-Dichloroethane	5.0	nd	
Trichloroethene	5.0	nd	
1,1,1-Trichloroethane	5.0	nd	
1,1,2-Trichloroethane	5.0	nd	
Tetrachloroethene	5.0	nd	
Vinyle Chloride	5.0	nd	
Benzene	5.0	nd	
Toluene	5.0	nd	
Ethylbenzene	5.0	nd	
Xylenes (total)	5.0	nd	

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TALEM, INC.

306 West Broadway Avenue
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Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 6

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; FB51794

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/26/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	<0.50 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TAPLEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 6 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; FB51794

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/25/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

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SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			108
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

104/MMD/296

TALEM, INC.

306 West Broadway Avenue
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Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/18/94 2

Date Received: 05/18/94
Collected by: CST
Date Collected: 05/17/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; Trip Blank

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID &
Hall detectors in series, cap
col; Tst Meth Eval Solid Wst,
SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/25/94

TALEM, INC.

Per: S. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TAIEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/18/94 2 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; Trip Blank

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J.P. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			107
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 06/06/94

Lab ID.: 316 05/17/94 2

Date Received: 05/17/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; Trip Blank

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID &
Hall detectors in series, cap
col; Tst Meth Eval Solid Wst,
SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/25/94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/17/94 2 Date of Analysis: 05/20/94

Customer Description: Project #1114-055; Carswell
Sampling Phase 1; Trip Blank

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/20/94

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Surrogate)			78
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 20

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; FB51394

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	<0.50 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

356 517

T A I E M, I n c.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 20 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; FB51394

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			104
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

37/LMA

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TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 14

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; TB51394

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID &
Hall detectors in series, cap
col; Tst Meth Eval Solid Wst,
SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 14 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; TB51394

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			102
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 15

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/13/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; RB51394

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/19/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	9.3 mg/L 05/19/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

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TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 15 Date of Analysis: 05/19/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; RB51394

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			82
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
xylenes (total)	2.0	nd	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 6

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I; FB51294

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/18/94
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	7.4 mg/L 05/19/94

Distribution of Report:
Geo-Marine

(For inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 6 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; FB51294

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			123
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

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TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/13/94 7

Date Received: 05/13/94
Collected by: CST
Date Collected: 05/12/94

Identification: Project# 1114-055 Carswell
Sampling Phase I: TB51294

Halogenated Volatile Organic Compounds
EPA 8021
Halognatd VOCs using GC-PID &
Hall detectors in series, cap
col; Tst Meth Eval Solid Wst,
SW-846, Vol IB, Ed 3, 11/86.

See attached ug/L
05/18/94

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TAIEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/13/94 7 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; TB51294

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			111
1,1-Dichloroethene	2.0	nd	
Cis-1,2-Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

37/LMA

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 05/27/94

Lab ID.: 316 05/12/94 3

Date Received: 05/12/94
Collected by: CST
Date Collected: 05/10/94

Identification: Project# 1114-055 Carswell, Phase I; TB 51194

Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 05/17/94
Total Petroleum Hydrocarbons TPA 418.1 et Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	6.2 mg/L 05/16/94

TALEM, INC.

Per: J.R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 05/12/94 3 Date of Analysis: 05/17/94

Customer Description: Project #1114-055; Carswell
Sampling Phase I; TB 51194

Sample Matrix: Water
Dilution Factor: 1.0
Extraction Method: Purge & Trap Extraction Date: 05/17/94

Per: J. R. Coolidge
President

nd - None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Recovery (%)
2-Bromochlorobenzene (Sur)			95
1,1-Dichloroethene	2.0	nd	
Cis-1,2 Dichloroethene	2.0	nd	
trans-1,2-Dichloroethene	2.0	nd	
1,1-Dichloroethane	2.0	nd	
Trichloroethene	2.0	nd	
1,1,1-Trichloroethane	2.0	nd	
1,1,2-Trichloroethane	2.0	nd	
Tetrachloroethene	2.0	nd	
Vinyle Chloride	2.0	nd	
Benzene	2.0	nd	
Toluene	2.0	nd	
Ethylbenzene	2.0	nd	
Xylenes (total)	2.0	nd	

TALEM, INC.

06 08 94 12:06

TALEM, Inc.

Analytical/Quality Control Report

206 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/10/94 1
COLLECTED BY: CST
DATE RECEIVED: 05 10/94
DATE COLLECTED: 05 09/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-381
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46416

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Total Petroleum Hydrocarbons	310	mg/L	0.50	TMS	Spike QC	316	05/10/94	3	mg/L
					Dup QC	316	05/10/94	3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/12/94	EPA 418.1	mg/L	0.00	0.50	72	22.0		10.5	41917
							70	21.4	2.7	10.4	99

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC				mg/L
					Dup QC	48	05/05/94	2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(y1)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

File: 174-58
A.F.
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TALEM, INC.

TALEM, Inc.

06/08/94 12:06 MMD Page: 1

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/10/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/10/94
DATE COLLECTED: 05/09/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-411
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46416

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC / Dup QC			QC Unit
Total Petroleum Hydrocarbons	2.7	mg/L	0.50	TMS	Spike QC	316	05/10/94 3	mg/L
					Dup QC	316	05/10/94 3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/12/94	EPA 418.1	mg/L	0.00	0.50	72	22.0		10.5	41917
							70	21.4	2.7	10.4	99

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC / Dup QC			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	48	05/05/94 2	mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/10/94 3
COLLECTED BY: CST
DATE RECEIVED: 05/10/94
DATE COLLECTED: 05/10/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; TB50994
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46416

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	6.8	mg/L	0.50	TMS	Spike QC	316 05/10/94 3		mg/L
					Dup QC	316 05/10/94 3		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/12/94	EPA 418.1	mg/L	0.00	0.50	72	22.0		10.5	41917
							70	21.4	2.7	10.4	99

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	48 05/05/94 2		mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Recvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

206 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/11/94 1
COLLECTED BY: CST
DATE RECEIVED: 05/11/94
DATE COLLECTED: 05/10/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-371
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46447

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	18	mg/L	0.50	TMS	Spike QC	316 05/10/94 3		mg/L
					Dup QC	316 05/10/94 3		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/12/94	EPA 418.1	mg/L	0.00	0.50	72	22.0		10.5	41917
							70	21.4	2.7	10.4	99

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	48 05/05/94 2		mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/11/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/11/94
DATE COLLECTED: 05/10/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; TB51094
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46447

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	316 05/10/94 3		mg/L
					Dup QC	316 05/10/94 3		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/12/94	EPA 418.1	mg/L	0.00	0.50	72	22.0		10.5	41917
							70	21.4	2.7	10.4	99

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	48 05/05/94 2		mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/11/94 3
COLLECTED BY: CST
DATE RECEIVED: 05/11/94
DATE COLLECTED: 05/10/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-361
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46447

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC	316 05/13/94 6	CC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Dup QC	316 05/13/94 6	ug/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Recvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/12/94 1
COLLECTED BY: CST
DATE RECEIVED: 05/12/94
DATE COLLECTED: 05/11/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-291 12:00

SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46454

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	316 05/13/94 6	ug/L
					Dup QC	316 05/13/94 6	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

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TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/12/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/12/94
DATE COLLECTED: 05/11/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-291 13:30
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46454

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	61	mg/L	0.50	TMS	Spike QC	1776	05/13/94 1	mg/L
					Dup QC	1776	05/13/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

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TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/12/94 3
COLLECTED BY: CST
DATE RECEIVED: 05/12/94
DATE COLLECTED: 05/10/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; TB51194
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46454

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	6.2	mg/L	0.50	TMS	Spike QC	1776	05/13/94 1	mg/L
					Dup QC	1776	05/13/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1731	05/09/94 1	ug/L
					Dup QC	1731	05/09/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

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TALEM, INC.

TALEM, Inc.

06/08/94 12:06 MMD Page: 1

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/12/94 4
COLLECTED BY: CST
DATE RECEIVED: 05/12/94
DATE COLLECTED: 05/11/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-301
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46454

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	4900	mg/L	10	TMS	Spike QC	1776	05/13/94 1	mg/L
					Dup QC	1776	05/13/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	1731	05/09/94 1	ug/L
					Dup QC	1731	05/09/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Recvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(yl)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

06/03/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

206 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/12/94 5
COLLECTED BY: CST
DATE RECEIVED: 05/12/94
DATE COLLECTED: 05/11/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-321
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46455

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	170	mg/L	0.50	TMS	Spike QC Dup QC	1776 1776	05/13/94 1 05/13/94 1	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC Dup QC	1731 1731	05/09/94 1 05/09/94 1	ug/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	73	7.30		10.0	42365
							75	7.47	2.3	8.90	89
1,1,2-Trichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	88	8.78		10.0	42365
							94	9.39	6.7	10.7	107
2-Bromochlorobenzene (surr)	DTW	05/18/94	EPA 8021	% Rcvry	0.00	10	95	47.3		50.0	42365
							78	39.2	19	56.0	112
Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42365
							88	8.83	12	9.76	98
Tetrachloroeth(y1)ene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42365
							89	8.90	14	9.67	97
Ethyl Benzene	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	104	10.4		10.0	42365
							91	9.06	14	10.7	107
cis-1,2-Dichloroethane	DTW	05/18/94	EPA 8021	ug/L	0.00	2.0	82	8.17		10.0	42365
							73	7.32	11	8.86	89

TALEM, INC.

TALEM, Inc.

06 08/94 12:06 MMD Page: 1

Analytical/Quality Control Report

506 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 1
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-351
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46514

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	3900	mg/L	0.50	TMS	Spike QC	1776	05/13/94 1	mg/L
					Dup QC	1776	05/13/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1731	05/09/94 1	ug/L
					Dup QC	1731	05/09/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(y)lene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-331

SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46514

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	6500	mg/L	0.50	TMS	Spike QC Dup QC	1776 1776	05/13/94 1 05/13/94 1	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC Dup QC	1731 1731	05/09/94 1 05/09/94 1	ug/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 3
COLLECTED BY: CST
DATE RECEIVED: 05 13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-341
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46514

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	1400	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 4
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-342

SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46514

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	280	mg/L	0.50	TMS	Spike QC	1776	05/13/94 1	mg/L
					Dup QC	1776	05/13/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/16/94	EPA 418.1	mg/L	0.00	0.50	117	32.1		10.5	42030
							118	32.4	.93	12.8	122

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	1731	05/09/94 1	ug/L
					Dup QC	1731	05/09/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

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TALEM, INC.

TALEM, Inc.

06/08/94 12:06 MMD Page: 1

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 5
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-401
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46515

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	24	mg/L	0.50	TMS	Spike QC	316 05/13/94 15		mg/L
					Dup QC	316 05/13/94 15		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2088 05/16/94 2		mg/L
					Dup QC	2088 05/16/94 2		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Recvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(y1)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 6
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; FB51294
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46515

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	7.4	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

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TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 7
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; TB51294
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46515

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Dup QC	2167	05/25/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Recvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

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TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 8
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-441
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46515

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	2.8	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(y1)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

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TALEM, INC.

06/08/94 12:08

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

106 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 9
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-471
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46516

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	2.1	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 10
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-391
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46516

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	2300	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	72	7.16		10.0	42366
							74	7.40	3.2	7.60	76
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	78	7.83		10.0	42366
							82	8.23	4.9	8.34	83
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	109	54.6		50.0	42366
							127	63.4	15	45.6	91
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42366
							112	11.2	10	9.36	94
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	100	10.0		10.0	42366
							108	10.8	7.6	9.38	94
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	107	10.7		10.0	42366
							116	11.6	8.0	9.70	97
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	94	9.40		10.0	42366
							123	12.3	27	6.10	61

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

106 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 11
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-171
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46516

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	45	mg/L	0.50	TMS	Spike QC Dup QC	316 05/13/94 15 316 05/13/94 15		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC Dup QC	2088 05/16/94 2 2088 05/16/94 2		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Recvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 12
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-161
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46516

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	24	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

206 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 13
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/12/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-151
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46517

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	14	mg/L	0.50	TMS	Spike QC	316	05/13/94 15	mg/L
					Dup QC	316	05/13/94 15	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 14
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; TB51394
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46531

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	1547 1547	05/23/94 05/23/94	5 5	mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	9.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 15
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; RB51394
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46531

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			
Total Petroleum Hydrocarbons	9.3	mg/L	0.50	TMS	Spike QC	316 05/13/94 15	QC Unit
					Dup QC	316 05/13/94 15	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	80	26.0		10.5	42108
							76	25.2	3.1	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2088 05/16/94 2	QC Unit
					Dup QC	2088 05/16/94 2	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

3 of 5

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 16
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-451
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46531

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Total Petroleum Hydrocarbons	1200	mg/L	0.50	TMS	Spike QC Dup QC	2088 2088	05/16/94 05/16/94	2 2	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	86	21.1		10.5	42109
							88	21.7	2.8	9.65	92

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC Dup QC	316 316	05/17/94 05/17/94	7 7	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

TALEM, Inc.

06/08/94 12:06 MMD Page: 1

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 17
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-461
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46531

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	18	mg/L	0.50	TMS	Spike QC Dup QC	2088 2088	05/16/94 2 05/16/94 2	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	86	21.1		10.5	42109
							88	21.7	2.8	9.65	92

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC Dup QC	316 316	05/17/94 7 05/17/94 7	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 18
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-462
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46532

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	4.1	mg/L	0.50	TMS	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	86	21.1		10.5	42109
							88	21.7	2.8	9.65	92

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	316	05/17/94 7	mg/L
					Dup QC	316	05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 19
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-481
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46532

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Total Petroleum Hydrocarbons	11	mg/L	0.50	TMS	Spike QC	2088	05/16/94	2	mg/L
					Dup QC	2088	05/16/94	2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	86	21.1		10.5	42109
							88	21.7	2.8	9.65	92

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	5.0	DTW	Spike QC	316	05/17/94	7	mg/L
					Dup QC	316	05/17/94	7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(y1)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/13/94 20
COLLECTED BY: CST
DATE RECEIVED: 05/13/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; FB51394
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46532

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	86	21.1		10.5	42109
							88	21.7	2.8	9.65	92

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	316	05/17/94 7	mg/L
					Dup QC	316	05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	83	8.26		10.0	42404
							108	10.8	27	8.40	84
1,1,2-Trichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42404
							90	9.04	4.0	8.86	89
2-Bromochlorobenzene (surr)	DTW	05/19/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42404
							86	43.0	6.7	47.0	94
Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	76	7.58		10.0	42404
							105	10.5	32	10.1	101
Tetrachloroeth(yl)ene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	74	7.42		10.0	42404
							112	11.2	41	10.2	102
Ethyl Benzene	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	80	7.98		10.0	42404
							112	11.2	34	10.4	104
cis-1,2-Dichloroethane	DTW	05/19/94	EPA 8021	ug/L	0.00	2.0	88	8.82		10.0	42404
							133	13.3	40	10.3	103

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

506 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 1
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05/16/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-501
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46569

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	2.8	mg/L	0.50	TMS	Spike QC	2088	05/16/94 2	mg/L
					Dup QC	2088	05/16/94 2	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	86	21.1		10.5	42109
							88	21.7	2.8	9.65	92

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	316	05/17/94 7	mg/L
					Dup QC	316	05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05/13/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; Trip Blank
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46569

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	316 05/18/94 6	ug/L
					Dup QC	316 05/18/94 6	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

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TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 3
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05 16/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-521
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46569

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC Dup QC	316 05/17/94 7 316 05/17/94 7		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	91	21.3		10.5	42110
							88	20.6	3.3	10.5	100

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	2023 05/17/94 1 2023 05/17/94 1		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 4
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05/16/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-531
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46569

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			
Total Petroleum Hydrocarbons	1.9	mg/L	0.50	TMS	Spike QC	316 05/17/94 7	QC Unit
					Dup QC	316 05/17/94 7	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	91	21.3		10.5	42110
							88	20.6	3.3	10.5	100

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2023 05/17/94 1	QC Unit
					Dup QC	2023 05/17/94 1	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 5
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05/16/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-511
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46570

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			QC Unit
Total Petroleum Hydrocarbons	1.6	mg/L	0.50	TMS	Spike QC	316 05/17/94 7	mg/L
					Dup QC	316 05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	91	21.3		10.5	42110
							88	20.6	3.3	10.5	100

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2023 05/17/94 1	mg/L
					Dup QC	2023 05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 6
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05/16/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-431
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46570

ANALYTE	Eprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	1.5	mg/L	0.50	TMS	Spike QC	316	05/17/94 7	mg/L
					Dup QC	316	05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	91	21.3		10.5	42110
							88	20.6	3.3	10.5	100

ANALYTE	Eprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/17/94 7
COLLECTED BY: CST
DATE RECEIVED: 05/17/94
DATE COLLECTED: 05/16/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-421
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46570

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			QC Unit
Total Petroleum Hydrocarbons	2.2	mg/L	0.50	TMS	Spike QC	316 05/17/94 7	mg/L
					Dup QC	316 05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	91	21.3		10.5	42110
							88	20.6	3.2	10.5	100

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2023 05/17/94 1	mg/L
					Dup QC	2023 05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Recvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(y1)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(y1)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 1
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-141
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46594

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	1.2	mg/L	0.50	TMS	Spike QC	316	05/17/94 7	mg/L
					Dup QC	316	05/17/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	91	21.3		10.5	42110
							88	20.6	3.3	10.5	100

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

TALEM, Inc.

06/08/94 12:06 MMD Page: 1

Analytical/Quality Control Report

506 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; Trip Blank
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46594

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC / Dup QC	316 05/18/94 6 / 316 05/18/94 6	QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW			ug/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 3
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-281

SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46594

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	8.4	mg/L	0.50	TMS	Spike QC Dup QC	2023 2023	05/17/94 1 05/17/94 1	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	1099 1099	05/18/94 3 05/18/94 3	mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.06		10.0	42538
							80	8.02	.49	7.82	78
1,1,2-Trichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	87	8.68		10.0	42538
							89	8.86	2.0	9.04	90
1,1-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	63	6.28		10.0	42538
							62	6.24	.63	7.66	77
2-Bromochlorobenzene (surr)	DTW	05/25/94	EPA 8021	% Rcvry	0.00	10	117	58.7		50.0	42538
							118	58.9	.34	53.8	108
Trichloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42538
							102	10.2	0	9.82	98
Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.68		10.0	42538
							100	10.0	3.2	9.82	98
Tetrachloroeth(yl)ene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	97	9.72		10.0	42538
							96	9.60	1.2	10.2	102
Ethyl Benzene	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							108	10.8	1.8	10.7	107
Vinyl Chloride	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	110	11.0		10.0	42538
							126	12.6	14	9.78	98
cis-1,2-Dichloroethane	DTW	05/25/94	EPA 8021	ug/L	0.00	2.0	81	8.08		10.0	42538
							84	8.36	3.4	8.00	80

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TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

106 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 4
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-491
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46594

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Total Petroleum Hydrocarbons	17	mg/L	0.50	TMS	Spike QC	2023	05/17/94	1	mg/L
					Dup QC	2023	05/17/94	1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1099	05/18/94	3	mg/Kg
					Dup QC	1099	05/18/94	3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Recvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 5
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-492
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46595

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	11	mg/L	0.50	TMS	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1099	05/18/94 3	mg/Kg
					Dup QC	1099	05/18/94 3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Recvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 6
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; FB51794
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46595

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1099	05/18/94 3	mg/Kg
					Dup QC	1099	05/18/94 3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

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06/08/94 12:06

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Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 7
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-111
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46595

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	1.2	mg/L	0.50	TMS	Spike QC Dup QC	2023 2023	05/17/94 1 05/17/94 1	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	1099 1099	05/18/94 3 05/18/94 3	mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

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TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 8
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-201
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46595

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	9.4	mg/L	0.50	TMS	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1099	05/18/94 3	mg/Kg
					Dup QC	1099	05/18/94 3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

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06/08/94 12:06

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Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 9
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-211
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46610

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	7.1	mg/L	0.50	TMS	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1099	05/18/94 3	mg/Kg
					Dup QC	1099	05/18/94 3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Rcvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

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06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 10
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-221
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46610

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	1400	mg/L	0.50	TMS	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	1099	05/18/94 3	mg/Kg
					Dup QC	1099	05/18/94 3	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42540
							109	10.9	9.4	7.92	79
1,1,2-Trichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	94	9.39		10.0	42540
							117	11.7	22	9.16	92
1,1-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	96	9.56		10.0	42540
							88	8.84	7.8	10.9	109
2-Bromochlorobenzene (surr)	DTW	05/26/94	EPA 8021	% Recvry	0.00	10	92	46.0		50.0	42540
							110	55.0	18	42.0	84
Trichloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	101	10.1		10.0	42540
							95	9.52	5.9	9.36	94
Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	98	9.83		10.0	42540
							88	8.82	11	9.12	91
Tetrachloroeth(yl)ene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	106	10.6		10.0	42540
							88	8.75	19	9.75	98
Ethyl Benzene	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42540
							86	8.62	17	9.18	92
Vinyl Chloride	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	80	8.03		10.0	42540
							99	9.86	20	8.71	87
cis-1,2-Dichloroethane	DTW	05/26/94	EPA 8021	ug/L	0.00	2.0	51	5.08		10.0	42540
							44	4.39	14	5.70	57

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06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/18/94 11
COLLECTED BY: CST
DATE RECEIVED: 05/18/94
DATE COLLECTED: 05/17/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-361
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46610

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	890	mg/L	0.50	TMS	Spike QC	2023	05/17/94 1	mg/L
					Dup QC	2023	05/17/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/19/94	EPA 418.1	mg/L	0.00	0.50	81	24.8		10.5	42111
							87	26.2	5.4	10.6	101

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06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 1
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; TB51894
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46606

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	1099 05/18/94 3 1099 05/18/94 3		mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(yl)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

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06/08/94 12:06

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Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 2
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-241
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46606

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	8000	mg/L	0.50	TMS	Spike QC	316	05/19/94 7	mg/L
					Dup QC	316	05/19/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	20	05/05/94 4	mg/Kg
					Dup QC	20	05/05/94 4	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(y)lene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 3
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-271
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46606

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	44	mg/L	0.50	TMS	Spike QC	316 05/19/94 7		mg/L
					Dup QC	316 05/19/94 7		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	20 05/05/94 4		mg/Kg
					Dup QC	20 05/05/94 4		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Recvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(yl)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 4
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-231
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46606

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	18	mg/L	0.50	TMS	Spike QC	316	05/19/94 7	mg/L
					Dup QC	316	05/19/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	20	05/05/94 4	mg/Kg
					Dup QC	20	05/05/94 4	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(yl)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

356 580

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 5
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-101
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46607

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	35	mg/L	0.50	TMS	Spike QC Dup QC	316 05/19/94 7 316 05/19/94 7		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	20 05/05/94 4 20 05/05/94 4		mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(yl)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 6
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; FB51894
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46607

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	2.4	mg/L	0.50	TMS	Spike QC	316	05/19/94 7	mg/L
					Dup QC	316	05/19/94 7	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC	20	05/05/94 4	mg/Kg
					Dup QC	20	05/05/94 4	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(yl)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 7
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; RB51894
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46607

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	3.6	mg/L	0.50	TMS	Spike QC Dup QC	316 05/19/94 7 316 05/19/94 7		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	20 05/05/94 4 20 05/05/94 4		mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(yl)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

TALEM, INC.

06/08/94 12:06

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817 335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 05/19/94 8
COLLECTED BY: CST
DATE RECEIVED: 05/19/94
DATE COLLECTED: 05/18/94

SAMPLE IDENTIFICATION: Project# 1114-055 Carswell Sampling Phase I; GMI18-232
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 46607

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	7.8	mg/L	0.50	TMS	Spike QC Dup QC	316 05/19/94 7 316 05/19/94 7		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	05/23/94	EPA 418.1	mg/L	0.00	0.50	95	23.6		10.5	42319
							92	23.0	2.5	10.2	97

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	2.0	DTW	Spike QC Dup QC	20 05/05/94 4 20 05/05/94 4		mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	102	10.2		10.0	42545
							109	10.9	6.6	8.64	86
1,1,2-Trichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							102	10.2	2.8	10.8	108
2-Bromochlorobenzene (surr)	DTW	05/27/94	EPA 8021	% Rcvry	0.00	10	72	36.0		50.0	42545
							70	35.0	2.8	46.0	92
Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	99	9.92		10.0	42545
							103	10.3	3.7	9.98	100
Tetrachloroeth(y1)ene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	82	8.20		10.0	42545
							80	8.00	2.4	11.8	118
Ethyl Benzene	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							104	10.4	.95	10.2	102
cis-1,2-Dichloroethane	DTW	05/27/94	EPA 8021	ug/L	0.00	2.0	105	10.5		10.0	42545
							124	12.4	16	10.8	108

R... N RESULTS TO GMI OFFICE NOTED:

✓	Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___	Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___	Oak Ridge, Tennesee	(615) 481-3552	(615) 481-3210
___	Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 2

Project No. 1114-055

Project Name CARSWELL FUELS PH II

Samplers: (Print/Signature) 1. L.L. Delano / LL Delano 2. ___ / ___ 3. ___ / ___

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021	~~8015 Modified~~ 22N	418.1				Remarks
4B-5	9-13-94	1130		✓	1	soil	1	✓						~~8015 Extractable Hydrocarbons-JP4~~ 22N
4B	9-13-94	1530		✓	1	water	3			✓				preserved w/ HCL
3B-15	9-13-94	1715		✓	1	soil	1	✓						
4B	9-13-94	1530		✓	1	water	2	✓						
TB 91394	9-13-94	2045		✓	1	water	2	✓						
3B	9-14-94	0800		✓	1	water	2	✓						
3B	9-14-94	0800		✓	1	water	3			✓				presered w/ HCL
1B-5	9-14-94	0900		✓	1	soil	1	✓						
RB 91494	9-14-94	1100		✓	1	water	1			✓				preserved w/ HCL
RB 91494	9-14-94	1100		✓	1	water	2	✓						
						CHECK IF PRESERVED:				✓				

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
LL Delano	9-14-94	1410	Bryan Shelley				
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓	___	Samples on dry ice in transport	___	___
Samples iced in transport	✓	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: Lyle Winnette

TRANSPORTED BY:

LABORATORY:

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ✓

Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

RETURN RESULTS TO GMI OFFICE NOTED:

___ Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___ Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___ Oak Ridge, Tennessee	(615) 481-3552	(615) 481-3210
___ Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Project No. 1114-055

Project Name CARSWELL PH II

Samplers: (Print/Signature)
1. L.L. DELANO / L L Delano
2. _____ / _____
3. _____ / _____

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED: 8021						Remarks
2B-20	9-14-94	1215		X	1	Soil	1	✓						

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:
L L Delano	9-14-94	1410	Dana Shelton
Relinquished by:	Date	Time	Received by:

Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓	___	Samples on dry ice in transport	___	___
Samples iced in transport	✓	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: Lyle Wanette

TRANSPORTED BY:

LABORATORY:

ANALYSES TO BE COMPLETED:
Fast Turnaround ___ Date: _____
Normal Turnaround ___
Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

356 - 585

TI.-SMI 6 1/19

RETURN RESULTS TO GMI OFFICE NOTED:

- ✓ Plano, Texas (214) 423-5480 Fax (214) 422-2736
- ___ Baton Rouge, Louisiana (504) 926-2181 (504) 926-1040
- ___ Oak Ridge, Tennesee (615) 481-3552 (615) 481-3210
- ___ Norfolk, Virginia (804) 873-3702 (804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 1

Project No. 1114-055

Project Name CARSWELL PH 2

Samplers: (Print/Signature) 1. L.L. Delano / [signature] 2. _____ / _____ 3. _____ / _____

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8021	418.1					Remarks
5B-15	9-14-94	1650		X	1	soil	1	X						
1B	9-15-94	0810		X	1	water	5	X	X					
1B2	9-15-94	0810		X	1	water	3	X	X					
2B	9-15-94	1000		X	1	water	5	X	X					
TB91594	9-15-94	0930		X	1	water	2	X						
5B	9-15-94	1050		X	1	water	5	X	X					
2B-202	9-14-94	1215		X	1	soil	1	X						Sample made available by change in QC requirements
						CHECK IF PRESERVED:			✓					

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
[signature]	9-15-94	1430	[signature]				
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	✓	___	Samples on dry ice in transport	___	___
Samples iced in transport	✓	___	Samples at ambient in field	___	___
Samples on dry ice in field	___	___	Samples at ambient in transport	___	___

GMI CONTACT: Lyle Winnette

TRANSPORTED BY:

LABORATORY:

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ___ Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

356 587

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 1

Date Collected: 09/13/94
Time Collected: 11:30
Collected by: CST

Identification: Project #1114-055; Soil sample #4B-5

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 1 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #4B-5
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			109
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/78

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 2

Identification: Project #1114-055; Water sample #4B

Date Collected: 09/13/94
Time Collected: 15:30
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank:	0.0
		Standard Expected:	50.0
		Standard Result:	44.6
		Duplicates:	45.1
			41.5
		Spike%:	87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	200 mg/L 09/15/94 16:00 TMS	Blank:	-0.1
		Standard Expected:	4.00
		Standard Result:	4.30
		Duplicates:	8.30
			8.30
		Spike%:	94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 2 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #4B
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			79
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/79

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 4

Identification: Project #1114-055; Water sample #TB91394

Date Collected: 09/13/94
Time Collected: 20:45
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	0.0 50.0 44.6 45.1 41.5 87

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 4 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #TB91394
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			103
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/81

TALEM, INC.

3 56 . 594

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 3

Identification: Project #1114-055; Soil sample #3B-15

Date Collected: 09/13/94
Time Collected: 17:15
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 3 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #3B-15
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			68
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/80

356. 596

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 5

Identification: Project #1114-055; Water sample #3B

Date Collected: 09/14/94
Time Collected: 08:00
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank:	0.0
		Standard Expected:	50.0
		Standard Result:	44.6
		Duplicates:	45.1
			41.5
		Spike%:	87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	4.5 mg/L 09/15/94 16:00 TMS	Blank:	-0.1
		Standard Expected:	4.00
		Standard Result:	4.30
		Duplicates:	8.30
			8.30
		Spike%:	94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

T A L E M, I n c.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 5 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #3B
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			82
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/82

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 7

Identification: Project #1114-055; Water sample #RB91494

Date Collected: 09/14/94
Time Collected: 11:00
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank:	0.0
		Standard Expected:	50.0
		Standard Result:	44.6
		Duplicates:	45.1
			41.5
		Spike%:	87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	<0.50 mg/L 09/15/94 16:00 TMS	Blank:	-0.1
		Standard Expected:	4.00
		Standard Result:	4.30
		Duplicates:	8.30
			8.30
		Spike%:	94

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: D. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 7 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #RB91494
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			97
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/84

356. 600

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 6

Date Collected: 09/14/94
Time Collected: 09:00
Collected by: CST

Identification: Project #1114-055; Soil sample #1B-5

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 6 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #1B-5
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			67
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/83

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 2

Identification: Project #1114-055 Carswell; 1B

Date Collected: 09/15/94
Time Collected: 08:10
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	0.0 50.0 44.6 45.1 41.5 87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	<0.50 mg/L 09/20/94 12:00 TMS	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	-0.1 4.00 4.20 4.70 4.90 120

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 2 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #1B
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			128
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/87

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 3

Identification: Project #1114-055 Carswell; 1B2

Date Collected: 09/15/94
Time Collected: 08:10
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	0.0 50.0 44.6 45.1 41.5 87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	<0.50 mg/L 09/20/94 12:00 TMS	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	-0.1 4.00 4.20 4.70 4.90 120

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 3 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #1B2
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			114
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/88

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 8

Date Collected: 09/14/94
Time Collected: 12:15
Collected by: CST

Identification: Project #1114-055; soil sample #2B-20

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	0.0 10.0 8.89 6.09 6.14 61

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 8 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #2B-20
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			104
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/85

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 4

Identification: Project #1114-055 Carswell; 2B

Date Collected: 09/15/94
Time Collected: 10:00
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	0.0 50.0 44.6 45.1 41.5 87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79- 020, Ed 3, 03/83.	<0.50 mg/L 09/20/94 12:00 TMS	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	-0.1 4.00 4.20 4.70 4.90 120

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 4 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #2B
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			96
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/89

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 5

Identification: Project #1114-055 Carswell;
TB91594

Date Collected: 09/15/94
Time Collected: 09:30
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank: 0.0 Standard Expected: 50.0 Standard Result: 44.6 Duplicates: 45.1 41.5 Spike%: 87

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 5 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #TB91594
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			106
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/90

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 1

Identification: Project #1114-055 Carswell; 5B-15

Date Collected: 09/14/94
Time Collected: 16:50
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

TALEM, INC.

Per: J. R. Cooldge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 1 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #5B-15
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			73
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/86

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 6

Identification: Project #1114-055 Carswell; 5B

Date Collected: 09/15/94
Time Collected: 10:50
Collected by: CST

	Results	Quality Control	
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached ug/L 09/26/94 16:00 TJB	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	0.0 50.0 44.6 45.1 41.5 87
Total Petroleum Hydrocarbons EPA 418.1 Pet Hydrcrb, Tot Recvrble, IR Spec; Meths For Chem Analy of Water & Wastes, EPA 600/4-79-020, Ed 3, 03/83.	<0.50 mg/L 09/20/94 12:00 TMS	Blank: Standard Expected: Standard Result: Duplicates: Spike%:	-0.1 4.00 4.20 4.70 4.90 120

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 6 Date of Analysis: 09/26/94
Customer Description: Project #1114-055; Water Sample #5B
Sample Matrix: water
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (ug/L)	Value Obtained (ug/L)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			107
Vinyl Chloride	10	nd	
1,1-Dichloroethane	10	nd	
trans-1,2-Dichloroethene	10	nd	
1,1-Dichloroethene	10	nd	
cis-1,2-Dichloroethene	10	nd	
1,1,1-Trichloroethane	10	nd	
Benzene	10	nd	
Ethylbenzene	10	nd	
Toluene	10	nd	
Xylene, Total	30	nd	
Trichloroethene	10	nd	
1,1,2-Trichloroethane	10	nd	
Tetrachloroethene	10	nd	

2219/LAB/91

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 7

Date Collected: 09/15/94
Time Collected: 12:15
Collected by: CST

Identification: Project #1114-055 Carswell; 2B-202

	Results	Quality Control
Halogenated Volatile Organic Compounds	See attached mg/Kg	Blank: 0.0
EPA 8021	09/28/94	Standard Expected: 10.0
Halognatd VOCs using GC-PID &	02:00	Standard Result: 8.89
Hall detectors in series, cap	TJB	Duplicates: 6.09
col; Tst Meth Eval Solid Wst,		6.14
SW-846, Vol IB, Ed 3, 11/86.		Spike%: 61

TALEM, INC.

Distribution of Report:
Geo-Marine

Per: J. R. Coolidge
President

(for inquiries contact Mona Dillard)

T A L E M, I n c.
Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 7 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #2B-202
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J. R. Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			94
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 1
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/13/94

SAMPLE IDENTIFICATION: Project #1114-055; Soil sample #4B-5
SAMPLE MATRIX: soil
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC	QC Unit
Halogenated Volatile Organic Compounds	See attached	mg/Kg	1.0	TJB	Dup QC	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	61	6.09		10.0	46292
							61	6.14	.81	8.89	89
1,1,2-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	88	8.85		10.0	46292
							99	9.89	11	5.92	59
1,1-Dichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	74	7.38		10.0	46292
							89	8.94	19	7.11	71
1,1-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	89	8.93		10.0	46292
							96	9.62	7.4	10.4	104
Trichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	98	9.85		10.0	46292
							121	12.1	20	11.5	115
Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	84	8.41		10.0	46292
							73	7.26	15	9.75	98
Tetrachloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	63	6.32		10.0	46292
							53	5.34	17	7.80	78
Ethyl Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	82	8.24		10.0	46292
							76	7.65	7.4	7.33	73
Toluene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	106	10.6		10.0	46292
							91	9.13	15	9.45	94
Vinyl Chloride	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	66	6.55		10.0	46292
							65	6.51	.61	7.71	77
Xylene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	3.0	97	29.0		30.0	46292
							82	24.7	16	30.8	103
cis-1,2-Dichloroethe(yl)ne	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	130	13.0		10.0	46292
							124	12.4	4.7	7.32	73
trans-1,2-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	97	9.69		10.0	46292
							79	7.91	20	9.08	91

356 618

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 2
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/13/94

SAMPLE IDENTIFICATION: Project #1114-055; Water sample #4B
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	200	mg/L	0.50	TMS	Spike QC	316	09/14/94 5	mg/L
					Dup QC	316	09/14/94 5	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/15/94	EPA 418.1	mg/L	0.00	0.50	94	8.30		4.00	45792
							94	8.30	0	4.30	108

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Spike QC	1220	09/09/94 1	mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 3
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/13/94

SAMPLE IDENTIFICATION: Project #1114-055; Soil sample #3B-15
SAMPLE MATRIX: soil
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC	316 09/14/94 1	QC Unit
Halogenated Volatile Organic Compounds	See attached	mg/Kg	1.0	TJB	Dup QC	316 09/14/94 1	mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	61	6.09		10.0	46292
							61	6.14	.81	8.89	89
1,1,2-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	88	8.85		10.0	46292
							99	9.89	11	5.92	59
1,1-Dichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	74	7.38		10.0	46292
							89	8.94	19	7.11	71
1,1-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	89	8.93		10.0	46292
							96	9.62	7.4	10.4	104
Trichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	98	9.85		10.0	46292
							121	12.1	20	11.5	115
Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	84	8.41		10.0	46292
							73	7.26	15	9.75	98
Tetrachloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	63	6.32		10.0	46292
							53	5.34	17	7.80	78
Ethyl Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	82	8.24		10.0	46292
							76	7.65	7.4	7.33	73
Toluene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	106	10.6		10.0	46292
							91	9.13	15	9.45	94
Vinyl Chloride	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	66	6.55		10.0	46292
							65	6.51	.61	7.71	77
Xylene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	3.0	97	29.0		30.0	46292
							82	24.7	16	30.8	103
cis-1,2-Dichloroethe(yl)ne	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	130	13.0		10.0	46292
							124	12.4	4.7	7.32	73
trans-1,2-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	97	9.69		10.0	46292
							79	7.91	20	9.08	91

3 of 3

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 4
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/13/94

SAMPLE IDENTIFICATION: Project #1114-055; Water sample #TB91394
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC			QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Dup QC	49	09/15/94 2	None

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

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TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 5
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/14/94

SAMPLE IDENTIFICATION: Project #1114-055; Water sample #3B
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC	316 09/14/94 5	QC Unit
Total Petroleum Hydrocarbons	4.5	mg/L	0.50	TMS	Dup QC	316 09/14/94 5	mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/15/94	EPA 418.1	mg/L	0.00	0.50	94	8.30		4.00	45792
							94	8.30	0	4.30	108

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC	1220 09/09/94 1	QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Dup QC		mg/L

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

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Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 6
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/14/94

SAMPLE IDENTIFICATION: Project #1114-055; Soil sample #1B-5
SAMPLE MATRIX: soil
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	mg/Kg	1.0	TJB	Spike QC	316 09/14/94 1		mg/Kg
					Dup QC	316 09/14/94 1		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	61	6.09		10.0	46292
							61	6.14	.81	8.89	89
1,1,2-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	88	8.85		10.0	46292
							99	9.89	11	5.92	59
1,1-Dichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	74	7.38		10.0	46292
							89	8.94	19	7.11	71
1,1-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	89	8.93		10.0	46292
							96	9.62	7.4	10.4	104
Trichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	98	9.85		10.0	46292
							121	12.1	20	11.5	115
Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	84	8.41		10.0	46292
							73	7.26	15	9.75	98
Tetrachloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	63	6.32		10.0	46292
							53	5.34	17	7.80	78
Ethyl Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	82	8.24		10.0	46292
							76	7.65	7.4	7.33	73
Toluene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	106	10.6		10.0	46292
							91	9.13	15	9.45	94
Vinyl Chloride	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	66	6.55		10.0	46292
							65	6.51	.61	7.71	77
Xylene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	3.0	97	29.0		30.0	46292
							82	24.7	16	30.8	103
cis-1,2-Dichloroethe(yl)ne	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	130	13.0		10.0	46292
							124	12.4	4.7	7.32	73
trans-1,2-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	97	9.69		10.0	46292
							79	7.91	20	9.08	91

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Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 7
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/14/94

SAMPLE IDENTIFICATION: Project #1114-055; Water sample #RB91494
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC / Dup QC	316 09/14/94 5	QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	316 09/14/94 5	mg/L
					Dup QC	316 09/14/94 5	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/15/94	EPA 418.1	mg/L	0.00	0.50	94	8.30		4.00	45792
							94	8.30	0	4.30	108

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC / Dup QC	1220 09/09/94 1	QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Spike QC	1220 09/09/94 1	mg/L
					Dup QC		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

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Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
550 E 15th Street
Plano TX 75074

LABORATORY ID: 316 09/14/94 8
COLLECTED BY: CST
DATE RECEIVED: 09/14/94
DATE COLLECTED: 09/14/94

SAMPLE IDENTIFICATION: Project #1114-055; soil sample #2B-20
SAMPLE MATRIX: soil
CHAIN OF CUSTODY NUMBER: 49309

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC	316 09/14/94 1	QC Unit
Halogenated Volatile Organic Compounds	See attached	mg/Kg	1.0	TJB	Dup QC	316 09/14/94 1	mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	61	6.09		10.0	46292
							61	6.14	.81	8.89	89
1,1,2-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	88	8.85		10.0	46292
							99	9.89	11	5.92	59
1,1-Dichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	74	7.38		10.0	46292
							89	8.94	19	7.11	71
1,1-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	89	8.93		10.0	46292
							96	9.62	7.4	10.4	104
Trichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	98	9.85		10.0	46292
							121	12.1	20	11.5	115
Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	84	8.41		10.0	46292
							73	7.26	15	9.75	98
Tetrachloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	63	6.32		10.0	46292
							53	5.34	17	7.80	78
Ethyl Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	82	8.24		10.0	46292
							76	7.65	7.4	7.33	73
Toluene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	106	10.6		10.0	46292
							91	9.13	15	9.45	94
Vinyl Chloride	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	66	6.55		10.0	46292
							65	6.51	.61	7.71	77
Xylene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	3.0	97	29.0		30.0	46292
							82	24.7	16	30.8	103
cis-1,2-Dichloroethe(yl)ne	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	130	13.0		10.0	46292
							124	12.4	4.7	7.32	73
trans-1,2-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	97	9.69		10.0	46292
							79	7.91	20	9.08	91

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TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 1
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/14/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; 5B-15
SAMPLE MATRIX: soil
CHAIN OF CUSTODY NUMBER: 49348

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC			QC Unit
Halogenated Volatile Organic Compounds	See attached	mg/Kg	1.0	TJB	Dup QC	49 09/15/94 2		None

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	61	6.09		10.0	46292
							61	6.14	.81	8.89	89
1,1,2-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	88	8.85		10.0	46292
							99	9.89	11	5.92	59
1,1-Dichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	74	7.38		10.0	46292
							89	8.94	19	7.11	71
1,1-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	89	8.93		10.0	46292
							96	9.62	7.4	10.4	104
Trichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	98	9.85		10.0	46292
							121	12.1	20	11.5	115
Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	84	8.41		10.0	46292
							73	7.26	15	9.75	98
Tetrachloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	63	6.32		10.0	46292
							53	5.34	17	7.80	78
Ethyl Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	82	8.24		10.0	46292
							76	7.65	7.4	7.33	73
Toluene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	106	10.6		10.0	46292
							91	9.13	15	9.45	94
Vinyl Chloride	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	66	6.55		10.0	46292
							65	6.51	.61	7.71	77
Xylene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	3.0	97	29.0		30.0	46292
							82	24.7	16	30.8	103
cis-1,2-Dichloroethe(yl)ne	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	130	13.0		10.0	46292
							124	12.4	4.7	7.32	73
trans-1,2-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	97	9.69		10.0	46292
							79	7.91	20	9.08	91

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 2
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/15/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; 1B
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49348

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	2088	09/14/94	1	mg/Kg
					Dup QC	2088	09/14/94	1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/20/94	EPA 418.1	mg/L	0.00	0.50	118	4.70		4.00	45959
							122	4.90	4.1	4.20	105

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Spike QC	2088	09/15/94	1	mg/L
					Dup QC				

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

TALEM, Inc.

01/26/95 15:03

MMD Page: 1

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 3
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/15/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; 1B2
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49348

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	2088	09/14/94 1	mg/Kg
					Dup QC	2088	09/14/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/20/94	EPA 418.1	mg/L	0.00	0.50	118	4.70		4.00	45959
							122	4.90	4.1	4.20	105

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Spike QC	2088	09/15/94 1	mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 4
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/15/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; 2B
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49348

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	2088	09/14/94	1	mg/Kg
					Dup QC	2088	09/14/94	1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/20/94	EPA 418.1	mg/L	0.00	0.50	118	4.70		4.00	45959
							122	4.90	4.1	4.20	105

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst					QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Spike QC	2088	09/15/94	1	mg/L
					Dup QC				

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 5
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/15/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; TB91594
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49349

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst	Spike QC / Dup QC	316 09/14/94 1	QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB			mg/Kg

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 6
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/15/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; 5B
SAMPLE MATRIX: water
CHAIN OF CUSTODY NUMBER: 49349

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Total Petroleum Hydrocarbons	<0.50	mg/L	0.50	TMS	Spike QC	2088	09/14/94 1	mg/Kg
					Dup QC	2088	09/14/94 1	

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
Total Petroleum Hydrocarbons	TMS	09/20/94	EPA 418.1	mg/L	0.00	0.50	118	4.70		4.00	45959
							122	4.90	4.1	4.20	105

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	ug/L	10	TJB	Spike QC	2088	09/15/94 1	mg/L
					Dup QC			

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	90	45.1		50.0	46291
							83	41.5	8.3	44.6	89
1,1,2-Trichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	132	66.0		50.0	46291
							130	65.0	1.5	45.7	91
1,1-Dichloroethane	TJB	09/26/94	EPA 8021	ug/L	0.00	10	141	70.4		50.0	46291
							155	77.6	9.7	34.5	69
1,1-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	148	73.9		50.0	46291
							126	62.9	16	44.1	88
Trichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	69	34.6		50.0	46291
							77	38.7	11	36.6	73
Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	102	51.0		50.0	46291
							98	49.0	4.0	43.5	87
Tetrachloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	100	50.0		50.0	46291
							95	47.6	4.9	31.3	63
Ethyl Benzene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	99	49.7		50.0	46291
							98	49.2	1.0	41.3	83
Toluene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	110	55.0		50.0	46291
							104	52.1	5.4	50.8	102
Vinyl Chloride	TJB	09/26/94	EPA 8021	ug/L	0.00	10	64	31.9		50.0	46291
							62	30.9	3.1	28.5	57
Xylene	TJB	09/26/94	EPA 8021	ug/L	0.00	30	118	177		150	46291
							117	175	1.1	153	102
cis-1,2-Dichloroethe(yl)ne	TJB	09/26/94	EPA 8021	ug/L	0.00	10	104	52.0		50.0	46291
							118	58.9	12	39.3	79
trans-1,2-Dichloroeth(yl)ene	TJB	09/26/94	EPA 8021	ug/L	0.00	10	103	51.6		50.0	46291
							100	50.2	2.7	50.1	100

TALEM, INC.

01/26/95 15:03

TALEM, Inc.

Analytical/Quality Control Report

MMD Page: 1

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186 Metro/654/0443

ATTENTION: Lyle Winnett
REPORTED TO: Geo-Marine
1316 14th Street
Plano TX 75074

LABORATORY ID: 316 09/15/94 7
COLLECTED BY: CST
DATE RECEIVED: 09/15/94
DATE COLLECTED: 09/15/94

SAMPLE IDENTIFICATION: Project #1114-055 Carswell; 2B-202
SAMPLE MATRIX: soil
CHAIN OF CUSTODY NUMBER: 49349

ANALYTE	Rprtd Result	Unit	DLim Used	Analyst				QC Unit
Halogenated Volatile Organic Compounds	See attached	mg/Kg	1.0	TJB	Spike QC	316 09/14/94 1		mg/Kg
					Dup QC	316 09/14/94 1		

QC ANALYTE	Ast	Date of Analysis	Procedure	Unit	Blank	QC Dlim	Spk %	Dups	RPD (%)	Check Sample True/Measured	QC# %Rec
1,1,1-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	61	6.09		10.0	46292
							61	6.14	.81	8.89	89
1,1,2-Trichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	88	8.85		10.0	46292
							99	9.89	11	5.92	59
1,1-Dichloroethane	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	74	7.38		10.0	46292
							89	8.94	19	7.11	71
1,1-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	89	8.93		10.0	46292
							96	9.62	7.4	10.4	104
Trichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	98	9.85		10.0	46292
							121	12.1	20	11.5	115
Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	84	8.41		10.0	46292
							73	7.26	15	9.75	98
Tetrachloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	63	6.32		10.0	46292
							53	5.34	17	7.80	78
Ethyl Benzene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	82	8.24		10.0	46292
							76	7.65	7.4	7.33	73
Toluene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	106	10.6		10.0	46292
							91	9.13	15	9.45	94
Vinyl Chloride	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	66	6.55		10.0	46292
							65	6.51	.61	7.71	77
Xylene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	3.0	97	29.0		30.0	46292
							82	24.7	16	30.8	103
cis-1,2-Dichloroethe(yl)ne	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	130	13.0		10.0	46292
							124	12.4	4.7	7.32	73
trans-1,2-Dichloroeth(yl)ene	TJB	09/28/94	EPA 8021	mg/Kg	0.00	1.0	97	9.69		10.0	46292
							79	7.91	20	9.08	91

RETURN RESULTS TO GMI OFFICE NOTED:

X	Plano, Texas	(214) 423-5480	Fax (214) 422-2736
___	Baton Rouge, Louisiana	(504) 926-2181	(504) 926-1040
___	Oak Ridge, Tennesee	(615) 481-3552	(615) 481-3210
___	Norfolk, Virginia	(804) 873-3702	(804) 873-3703

GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING

CHAIN-OF-CUSTODY RECORD

DOCUMENT NO.

Purchase Order No. _____

Page 1 of 1

Project No. 1114-055

Project Name CALSWELL FUEL PH II

Samplers: (Print/Signature) 1. L. L. DELANO / [signature] 2. _____ / _____ 3. _____ / _____

Sample I.D.	Date	Time	Comp.	Grab	Coll. By 1,2,3	Matrix	No. of Containers	ANALYSES REQUIRED 8015 Modified						Remarks
4B-5	9-13-94	1130		X	1	Soil	1	X						part of sample removed for different analysis
3B-15	9-13-94	1715		X	1	Soil	1	X						
1B-5	9-14-94	0900		X	1	Soil	1	X						
2B-20	9-14-94	1215		X	1	Soil	1	X						
2B-202	9-14-94	1215		X	1	Soil	1	X						Sample # altered by sampler
5B-15	9-14-94	1650		X	1	Soil	1	X						

CHECK IF PRESERVED:

Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
[signature]	9-15-94	1845					
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received for Lab by:

	Yes	No		Yes	No
Samples iced in field	X		Samples on dry ice in transport		
Samples iced in transport	X		Samples at ambient in field		
Samples on dry ice in field			Samples at ambient in transport		

GMI CONTACT: Lyle Winnette

TRANSPORTED BY:

LABORATORY: [signature] 9-16-94/10:00

ANALYSES TO BE COMPLETED:

Fast Turnaround ___ Date: _____

Normal Turnaround ___ Call GMI with Results Upon Completion ___

WHITE (REPORT COPY) YELLOW (LABORATORY COPY) PINK (PROJECT MANAGER COPY) GOLD (FILE COPY)

000004

PDP ANALYTICAL SERVICES
SAMPLE LOG-IN SHEET

LOGGED BY: DEBORAH O'CONNOR DOC 9-16-94 DATE OF LOG-IN: 16-Sep-94

Episode #: 2520
Client ID: GED-MARINE
Project ID: CARSWELL FUEL PHII
Project # 1114-055
PO Number:
Page 1 of 1 Air Bill #: FED X # 1193760057

Lab ID	Client ID	Testing Required	No. Cont.	Sample Matrix	M C	Date Sampled	Date Received	Date Due	Remarks
2520.01	4B-5	TPH 8015	1	SOIL		09-13-94	09-16-94	9-30-94	HC
2520.02	3B-15	TPH 8015	1	SOIL		09-13-94	09-16-94		
2520.03	1B-5	TPH 8015	1	SOIL		09-14-94	09-16-94		
2520.04	2B-20	TPH 8015	1	SOIL		09-14-94	09-16-94		
2520.05	2B-202	TPH 8015	1	SOIL		09-14-94	09-16-94		
2520.06	5B-15	TPH 8015	1	SOIL		09-14-94	09-16-94		

REPORT JP4 ONLY

Reviewed by: DO 9/16/94

Reporting Address:

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	4B-5	Date Sampled:	09/13/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.01	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J01	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A9
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	100

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	3B-15	Date Sampled:	09/13/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.02	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J02	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A13
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	95

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300: Spring, Texas 77386: Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	IB-5	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.03	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J03	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	ITPH0926A14
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	101

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	2B-20	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.04	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J04	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A10
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	88

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GED-MARINE	Client Sample ID:	2B-202	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.05	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J05	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A15
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	88

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	SB-15	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.06	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J06	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A16
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	93

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	NA	Client Sample ID:	NA	Date Sampled:	NA
Project Name:	NA	PDP Sample ID:	2520.SBLK1(METHOD BLANK)	Date Received:	NA
Project No.:	NA	Report No.:	2520JSBL	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A7
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	95

Method Blank ID:NA LCS ID: NA MS ID: NA MSD ID: NA DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	NA	Client Sample ID:	NA	Date Sampled:	NA
Project Name:	NA	PDP Sample ID:	2520.SLCS1(LAB CONTROL SAMPLE)	Date Received:	NA
Project No.:	NA	Report No.:	8015DSLC	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture	NA %	GC File ID:	1TPH0926A8
Sample Weight:	30.0 g	Date extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	LCS TRUE VALUE (ug/kg)	LCS RESULT (ug/kg)	LCS % REC.	LCS REC. LIMITS
Total Petroleum Hydrocarbons - JP-4 Range	16500	11385	69	(50-150)

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	93

Method Blank ID:2520.SBLK1 LCS ID: NA MS ID: NA MSD ID: NA DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	NA	Client Sample ID:	NA	Date Sampled:	NA
Project Name:	NA	PDP Sample ID:	2520.04MS(MATRIX SPIKE)	Date Received:	NA
Project No.:	NA	Report No.:	2520J04S	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	ITPH0926A11
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	10593

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	95

Method Blank ID:2520.SBLK1 LCS ID: NA MS ID: NA MSD ID: NA DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	NA	Client Sample ID:	NA	Date Sampled:	NA
Project Name:	NA	PDP Sample ID:	2520.04MSD(MATRIX SPIKE DUPLICATE)	Date Received:	NA
Project No.:	NA	Report No.:	2520J04D	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A12
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	9733

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	4600	(50-150)	90

Method Blank ID:2520.SBLK1 LCS ID: NA MS ID: NA MSD ID: NA DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	NA	Date Received:	NA
Project Name:	NA	Date Reported:	09/27/94
Project No.:	NA	Report No.:	25203040

GC-NONHALOGENATED EXTRACTABLE ORGANICS (MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RECOVERY SUMMARY)

Method Ref.: SW846-8015 (MOD) Sample Matrix: SOIL Analyst:SK

SAMPLE	MATRIX SPIKE	MATRIX SPIKE DUPLICATE
PDP Sample ID: 2520.04	MS Sample ID: 2520.04MS	MSD Sample ID: 2520.04MSD
Date Analyzed: 09/27/94	Date Analyzed: 09/27/94	Date Analyzed: 09/27/94
GC File ID: 1TPH0926A10	GC File ID: 1TPH0926A11	GC File ID: 1TPH0926A12

MATRIX SPIKE

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS % REC.	QC LIMITS REC.
TPH - JP-4 Range	16500	ND	10593	64	(50-150)

MATRIX SPIKE DUPLICATE

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MSD CONC. (ug/kg)	MSD % REC.	RPD	QC LIMITS RPD	QC LIMITS REC.
TPH - JP-4 Range	16500	ND	9735	59	8	50	(50-150)

* = Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

DHL ANALYTICAL

10805 Metric Boulevard • Austin, TX 78758
Phone (512) 835-9299 • Fax (512) 835-9297

CHAIN-OF-CUSTODY

CLIENT: Geomonitoring Services
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER: Lyle Wynette

DATE: 08/02/94 PAGE 1 OF 1
DHL PROJECT #: 940802T1
LOCATION: CARSWELL AFB
COLLECTOR: Tony

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI 18-137		1600	H_2O	1 liter Bottle	X																		1	
		1600	H_2O	40mL VOA					X	X													2	
GMI 18-138		1700	H_2O	1 liter Bottle	X																		1	
		1700	H_2O	40mL VOA					X	X													2	
GMI 18-136		1815	H_2O	1 liter Bottle	X																		1	
		1815	H_2O	40mL VOA					X	X													2	
GMI 18-161		1740	H_2O	1 liter Bottle	X																		1	
		1740	H_2O	40mL VOA					X	X													2	
TB 80294		1450	H_2O	40mL VOA					X	X													2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. [illegible]	08/02/94 1:03	[illegible]	08/02/94 19:23
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

10805 Metric Boulevard • Austin, TX 78758
Phone (512) 835-9299 • Fax (512) 835-9297

CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE INC
ADDRESS: 550 E. 15th ST.
PHONE: (214)423-5480 FAX: (214)422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 8/03/94 PAGE 1 OF 1
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI 18-178	–	1210	H_2O	1 LITER	X																		1	1
GMI 18-178	–	1210	H_2O	40ml VOA						X	X												2	2
GMI 18-179	–	1250	H_2O	1 LITER	X																		1	1
GMI 18-179	–	1250	H_2O	40ml VOA						X	X												2	2
GMI 18-211	–	1030	H_2O	1 LITER	X																		1	1
GMI 18-211	–	1030	H_2O	40ml VOA						X	X												2	2
GMI 18-180	–	1610	H_2O	1 LITER	X																		1	1
GMI 18-180	–	1610	H_2O	40ml VOA						X	X												2	2
GMI 18-245	–	1445	H_2O	40ml VOA						X	X												2	2
FB80394	–	1640	H_2O	1 LITER	X																		1	1
FB80394	–	1640	H_2O	40ml VOA						X	X												2	2
GWI 18-181	–	1640	H_2O	40ml VOA						X	X												2	2
GWI 18-181	–	1640	H_2O	1 LITER	X																		1	1
GWI 18-181D	–	1640	H_2O	40ml VOA						X	X												2	2
GWI 18-181D	–	1640	H_2O	1 LITER	X																		1	1
GWI 18-182	–	1820	H_2O	40ml VOA						X	X												2	2
GWI 18-183	–	1820	H_2O	40ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/04/94 1700	[illegible]	8/4/94 1700
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL
10805 Metric Boulevard • Austin, TX 78758
Phone (512) 835-9299 • Fax (512) 835-9297

CHAIN-OF-CUSTODY

CLIENT: GEOMATRIX INC.
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETT

DATE: 8/5/94 PAGE 1 OF 1
DHL PROJECT #: 9408027H
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
RB80594	–	0815	H_2O	40ml VOA						X	X												2	2
RB80594	–	0815	H_2O	1 LITER	X																		1	1
FB80594	–	0850	H_2O	40ml VOA						X	X												2	2
FB80594	–	0850	H_2O	1 LITER	X																		1	1
GMI 18-208	–	1130	H_2O	40ml VOA						X	X												2	2
GMI 18-208	–	1130	H_2O	1 LITER	X																		1	1
GMI 18-208D	–	1130	H_2O	40ml VOA						X	X												2	2
GMI 18-208D	–	1130	H_2O	1 LITER	X																		1	1
GMI 18-209	–	1400	H_2O	40 ml VOA						X	X												2	2
GMI 18-209	–	1400	H_2O	1 LITER	X																		1	1
GMI 18-210	–	1340	H_2O	40ml VOA						X	X												2	2
GMI 18-205	–	1515	H_2O	40ml VOA						X	X												2	2
GMI 18-205	–	1515	H_2O	1 LITER	X																		1	1
TB80594	–	0800	H_2O	40ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/05/94 1610	[illegible]	8/05/94 1610
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE
ADDRESS: 550 E. 15th ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WOODWARD

DATE: 8/8/94 PAGE 1 OF 1
DHL PROJECT #: 9408274
LOCATION: Carswell AFB
COLLECTOR: Tony C. Mills

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-193	—	1020	H_2O	40 ml VOA						X	X												2	2
GMI18-193	—	1020	H_2O	1 LITER	X																		1	1
GMI18-191	—	1450	H_2O	40 ml VOA						X	X												2	2
GMI18-191	—	1450	H_2O	1 LITER	X																		1	1
GMI18-190	—	1515	H_2O	40 ml VOA						X	X												2	2
GMI18-190	—	1515	H_2O	1 LITER	X	~~X~~																	1	1
GMI18-192	—	1600	H_2O	40 ml VOA						X	X												2	2
GMI18-192	—	1600	H_2O	1 LITER	X	~~X~~																	1	1
GMI18-189	—	1645	H_2O	40 ml VOA						X	X												2	2
GMI18-189	—	1645	H_2O	1 LITER	X	~~X~~																	1	1
GMI18-210	—	1730	H_2O	1 LITER	X																		1	1
TB80894	—	0845	H_2O	40 ml VOA						X	X												2	2

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME
Tony C. Mills 8/10/94 1915 [illegible] 8/10/94 1915
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

DHL ANALYTICAL
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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5760 FAX: 214-422-2754
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LILLE COINNETTE

DATE: 8/9/94 PAGE 1 OF
DHL PROJECT #: 9408027Y
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FB 8094	-	0830	H_2O	40 ml VOA						X	X												2	2
FB 8094	-	0830	H_2O	1 LITER	X																		1	1
GMI 18-198	-	0920	H_2O	40 ml VOA						X	X												2	2
GMI 18-198	-	0920	H_2O	1 LITER	X																		1	1
GMI 18-159	-	1030	H_2O	40 ml VOA						X	X												2	2
GMI 18-159	-	1030	H_2O	1 LITER	X																		1	1
GMI 18-159D	-	1030	H_2O	40 ml VOA						X	X												2	2
GMI 18-159D	-	1030	H_2O	1 LITER	X																		1	1
GMI 18-157	-	1000	H_2O	40 ml VOA						X	X												2	2
GMI 18-157	-	1000	H_2O	1 LITER	X																		1	1
GMI 18-139	-	1200	H_2O	40 ml VOA						X	X												2	2
GMI 18-139	-	1200	H_2O	1 LITER	X																		1	1
GMI 18-158	-	1115	H_2O	40 ml VOA						X	X												2	2
GMI 18-158	-	1115	H_2O	1 LITER	X																		1	1
GMI 18-160	-	1400	H_2O	40 ml VOA						X	X												2	2
GMI 18-160	-	1400	H_2O	1 LITER	X																		1	1

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME
Tony C. Mills 8/10/94 1915 [illegible] 8/10/94 1915
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE
ADDRESS: 550 E. 15th ST
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE LOUNNETTE

DATE: 8/10/94 PAGE 1 OF 2
DHL PROJECT #: 940802T4
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
RB81094	—	0730	H_2O	40 ml VOA						X	X												2	2
RB81094	—	0730	H_2O	1 LITER	X																		1	1
FB81094	—	0800	H_2O	40 ml VOA						X	X												2	2
FB81094	—	0800	H_2O	1 LITER	X																		1	1
8/9 GMI18-125	—	1330	H_2O	40 ml VOA						X	X												2	2
8/9 GMI18-125	—	1620	H_2O	1 LITER	X																		1	1
GMI18-128	—	1100	H_2O	40 ml VOA						X	X												2	2
GMI18-128	—	1100	H_2O	1 LITER	X																		1	1
GMI18-129	—	1015	H_2O	40 ml VOA						X	X												2	2
GMI18-129	—	1015	H_2O	1 LITER	X																		1	1
8/9 TB80994	—	1345	H_2O	40 ml VOA						X	X												2	2
8/9 GMI18-127	—	1715	H_2O	40 ml VOA						X	X												2	2
8/9 GMI18-127	—	1715	H_2O	1 LITER	X																		1	1
GMI18-133	—	1345	H_2O	40 ml VOA						X	X												2	2
GMI18-133	—	1345	H_2O	1 LITER	X																		1	1
GMI18-164	—	1545	H_2O	40 ml VOA						X	X												2	2
GMI18-164	—	1545	H_2O	1 LITER	X																		1	1
GMI18-131	—	1215	H_2O	40 ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/10/94 1915	[illegible]	8/10/94 1915
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE INC.
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-035 PROJECT MANAGER: LYLE WINNINGHAM

DATE: 8/10/94 PAGE 2 OF 2
DHL PROJECT #: 9408027T4
LOCATION: CARSWELL AFB
COLLECTOR: TONY C MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18131	—	1215	H_2O	1 LITER	X																		1	1
GMI18-131D	—	1215	H_2O	40 ml VOA						X	X												2	2
GMI18-131D	—	1215	H_2O	1 LITER	X																		1	1
GMI18-132	—	1430	H_2O	40 ml VOA						X	X												2	2
GMI18-132	—	1430	H_2O	1 LITER	X																		1	1
GMI18-130	—	1500	H_2O	40 ml VOA						X	X												2	2
GMI18-130	—	1500	H_2O	1 LITER	X																		1	1
TB81094	—	0715	H_2O	40 ml VOA						X	X												2	2
GMI18-169	—	1720	H_2O	40 ml VOA						X	X												2	2
GMI18-169	—	1720	H_2O	1 LITER	X																		1	1
GMI18-171	—	1815	H_2O	40 ml VOA						X	X												2	2
GMI18-171	—	1815	H_2O	1 LITER	X																		1	1
GMI18-135	—	1800	H_2O	40 ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/10/94 1815	[illegible]	8/10/94 1815
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE INC.
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5780 FAX: 214-422-2736
CLIENT PROJECT #: 1119-055 PROJECT MANAGER: CYLE CUENNETTE

DATE: 8/11/94 PAGE 1 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB81194	—	0725	H_2O	40 ml VOA					X	X													2	2
FB81194	—	1010	H_2O	40 ml VOA					X	X													2	2
FB81194	—	1010	H_2O	1 LITER	X																		1	1
GMI18-261	—	0850	H_2O	40 ml VOA					X	X													2	2
GMI18-261	—	0850	H_2O	1 LITER	X																		1	1
GMI18-134	—	1120	H_2O	40 ml VOA					X	X													2	2
GMI18-134	—	1120	H_2O	1 LITER	X																		1	1
GMI18-162	—	1200	H_2O	40 ml VOA					X	X													2	2
GMI18-162	—	1200	H_2O	1 LITER	X																		1	1
GMI18-163	—	1015	H_2O	40 ml VOA					X	X													2	2
GMI18-163	—	1015	H_2O	1 LITER	X																		1	1
GMI18-163D	—	1015	H_2O	40 ml VOA					X	X													2	2
GMI18-163D	—	1015	H_2O	1 LITER	X																		1	1
GMI18-173	—	0930	H_2O	40 ml VOA					X	X													2	2
GMI18-173	—	0930	H_2O	1 LITER	X																		1	1
GMI18-172	—	0810	H_2O	40 ml VOA					X	X													2	2
GMI18-172	—	0810	H_2O	1 LITER	X																		1	1
GMI18-174	—	1415	H_2O	40 ml VOA					X	X													2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/11/94 1810	[illegible]	8/11/94 1810
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 8/11/94 PAGE 2 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-174	-	1415	H_2O	1 LITER	X																		1	1
GMI18-247	-	1400	H_2O	40 ml VOA					X	X													2	2
GMI18-247	-	1400	H_2O	1 LITER	X																		1	1
GMI18-167	-	1345	H_2O	40 ml VOA					X	X													2	2
GMI18-167	-	1345	H_2O	1 LITER	X																		1	1
GMI18-246	-	1510	H_2O	40 ml VOA					X	X													2	2
GMI18-246	-	1510	H_2O	1 LITER	X																		1	1
GMI18-243	-	1730	H_2O	40 ml VOA					X	X													2	2
GMI18-243	-	1730	H_2O	1 LITER	X																		1	1

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME
Larry C. Miller 8/11/94 1810 [illegible] 8/11/94 1810
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 8/12/94 PAGE 1 OF 2
DHL PROJECT #: 9408027Y
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FB81294	—	0900	H_2O	40 mL VOA						X	X												2	2
FB81294	—	0900	H_2O	1 LITER	X																		1	1
RB81294	—	0920	H_2O	40 mL VOA						X	X												2	2
RB81294	—	0920	H_2O	1 LITER	X																		1	1
GMI18-242	—	0800	H_2O	40 mL VOA						X	X												2	2
GMI18-242	—	0800	H_2O	1 LITER	X																		1	1
GMI18-241	—	0850	H_2O	40 mL VOA						X	X												2	2
GMI18-241	—	0850	H_2O	1 LITER	X																		1	1
GMI18-239	—	0950	H_2O	40 mL VOA						X	X												2	2
GMI18-239D	—	0950	H_2O	40 mL VOA						X	X												2	2
GMI18-239	—	950	H_2O	1 LITER	X																		1	1
GMI18-239D	—	950	H_2O	1 LITER	X																		1	1
GMI18-202	—	1120	H_2O	40 mL VOA						X	X												2	2
GMI18-202	—	1120	H_2O	1 LITER	X																		1	1
~~[illegible]~~ D1	—	1300	H_2O	40 mL VOA						X	X												2	2
D1	—	1300	H_2O	1 LITER	X																		1	1
D2	—	1310	H_2O	40 mL VOA						X	X												2	2
D2	—	1310	H_2O	1 LITER	X																		1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/12/94 1400	[illegible]	8/12/94 1400
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL
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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE
ADDRESS: 530 E. 15th ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLY WINNETTE

DATE: 8/12/94 PAGE 2 OF 2
DHL PROJECT #: 940802T4
LOCATION: CARSWELL TFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
D3	—	1320	H_2O	40 ml VOA						X	X												2	2
D3	—	1320	H_2O	1 LITER		X																	1	1
TB81294	—	0715	H_2O	40 ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/12/94 1400	[signature]	8/12/94 1400
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

3 56 - 556

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CHAIN-OF-CUSTODY

CLIENT: CEC MARDIE INC
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5780 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 8/15/94 PAGE 1 OF 2
DHL PROJECT #: 94C80274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB815'94	—	0840	H_2O	40mL VOA						X	X												2	2
GMI18-212	—	0850	H_2O	40mL VOA						X	X												2	2
GMI18-212	—	0850	H_2O	1 LITER	X																		1	1
GMI18-140	—	1630	H_2O	40mL VOA						X	X												2	2
GMI18-140	—	1630	H_2O	1 LITER	X																		1	1
GMI18-213	—	0920	H_2O	40mL VOA						X	X												2	2
GMI18-213	—	0920	H_2O	1 LITER	X																		1	1
GMI18-141	—	1930	H_2O	40mL VOA						X	X												2	2
GMI18-141	—	1930	H_2O	1 LITER	X																		1	1
GMI18-214	—	0950	H_2O	40mL VOA						X	X												2	2
GMI18-214	—	0950	H_2O	1 LITER	X																		1	1
GMI18-154	—	1800	H_2O	40mL VOA						X	X												2	2
GMI18-154	—	1800	H_2O	1 LITER	X																		1	1
GMI18-154D	—	1800	H_2O	40mL VOA						X	X												2	2
GMI18-154D	—	1800	H_2O	1 LITER	X																		1	1
GMI18-200	—	1840	H_2O	40mL VOA						X	X												2	2
GMI18-200	—	1840	H_2O	1 LITER	X																		1	1
GMI18-194	—	1400	H_2O	40mL VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/17/94 1910	[illegible]	8/17/94 [illegible]
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2936
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WIDNEFFE

DATE: 8/15/94 PAGE 2 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-199	-	1400	H_2O	1 LITER	X																		1	1
FB8.1594	-	1000	H_2O	40ml VOA						X	X												2	2
FB8.1594	-	1000	H_2O	1 LITER	X																		1	1
GMI18-215	-	1020	H_2O	40ml VOA						X	X												2	2
GMI18-215	-	1020	H_2O	1 LITER	X																		1	1
GMI18-156	-	1430	H_2O	40ml VOA						X	X												2	2
GMI18-156	-	1430	H_2O	1 LITER	X																		1	1
GMI18-143	-	1400	H_2O	40ml VOA						X	X												2	2
GMI18-143	-	1400	H_2O	1 LITER	X																		1	1
GMI18-201	-	1150	H_2O	40ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/17/94 1910	[illegible]	8/17/94 1910
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

3 of 5

DHL ANALYTICAL
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CHAIN-OF-CUSTODY

CLIENT: GEOMARINE INC.
ADDRESS: 530 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2730
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WANNETTE

DATE: 8/16/94 PAGE 1 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
RB816 94	—	1130	H_2O	40ml VOA						X	X												2	2
RB816 94	—	1130	H_2O	1 LITER		X																	1	1
FB 816 94	—	1100	H_2O	40ml VOA						X	X												2	2
FB816 94	—	1100	H_2O	1 LITER		X																	1	1
GMI18-122	—	0850	H_2O	40ml VOA						X	X												2	2
GMI18-122	—	0850	H_2O	1 LITER		X																	1	1
GMI18-123	—	0930	H_2O	40ml VOA						X	X												2	2
GMI18-123	—	0930	H_2O	1 LITER		X																	1	1
GMI18-121	—	0815	H_2O	40ml VOA						X	X												2	2
GMI18-121	—	0815	H_2O	1 LITER		X																	1	1
GMI18-124	—	0915	H_2O	40ml VOA						X	X												2	2
GMI18-124	—	0915	H_2O	1 LITER		X																	1	1
GMI18-88	—	1050	H_2O	40ml VOA						X	X												2	2
GMI18-88	—	1050	H_2O	1 LITER		X																	1	1
GMI18-201	—	1150	H_2O	1 LITER		X																	1	1
GMI18-59	—	1720	H_2O	40ml VOA						X	X												2	2
GMI18-56	—	1600	H_2O	40ml VOA						X	X												2	2
GMI18-56	—	1600	H_2O	1 LITER		X																	1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/17/94 1910	[illegible]	8/17/94 1910
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

356 . 059

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEC MARINE INC
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5450 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETT

DATE: 8/16/94 PAGE 2 OF 2
DHL PROJECT #: 9408274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-89	-	1200	H_2O	40 ml VOA						X	X												2	2
GMI18-89	-	1200	H_2O	1 LITER	X																		1	1
GMI18-890	-	1200	H_2O	40 ml VOA						X	X												2	2
GMI18-890	-	1200	H_2O	1 LITER	X																		1	1
GMI18-90	-	1350	H_2O	40 ml VOA						X	X												2	2
GMI18-90	-	1350	H_2O	1 LITER	X																		1	1
GMI18-54	-	1500	H_2O	40 ml VOA						X	X												2	2
GMI18-54	-	1500	H_2O	1 LITER	X																		1	1
GMI18-55	-	1540	H_2O	40 ml VOA						X	X												2	2
GMI18-55	-	1540	H_2O	1 LITER	X																		1	1
GMI18-57	-	1625	H_2O	40 ml VOA						X	X												2	2
GMI18-57	-	1625	H_2O	1 LITER	X																		1	1
GMI18-58	-	1650	H_2O	40 ml VOA						X	X												2	2
GMI18-58	-	1650	H_2O	1 LITER	X																		1	1
TBE16 94	-	0945	H_2O	40 ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/17/94 1910	[illegible]	8/17/94 1910
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

3 of 3

DHL ANALYTICAL
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CHAIN-OF-CUSTODY

CLIENT: GEOMARINE INC.
ADDRESS: 530 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1119-055 PROJECT MANAGER: CYCL WINNETTE

DATE: 8/17/94 PAGE 1 OF 2
DHL PROJECT #: 940802T4
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-59	–	0820	H_2O	1 LITER		X																	1	1
GMI18-95	–	0950	H_2O	40 ml VOA						X	X												2	2
FB81794	–	1320	H_2O	40 ml VOA						X	X												2	2
FB81794	–	1320	H_2O	1 LITER		X																	1	1
GMI18-61	–	0915	H_2O	40 ml VOA						X	X												2	2
GMI18-61	–	0915	H_2O	1 LITER		X																	1	1
GMI18-64	–	1140	H_2O	40 ml VOA						X	X												2	2
GMI18-64	–	1140	H_2O	1 LITER		X																	1	1
GMI18-63	–	1110	H_2O	40 ml VOA						X	X												2	2
GMI18-63	–	1110	H_2O	1 LITER		X																	1	1
GMI18-62	–	1030	H_2O	40 ml VOA						X	X												2	2
GMI18-62	–	1030	H_2O	1 LITER		X																	1	1
GMI18-66	–	1500	H_2O	40 ml VOA						X	X												2	2
GMI18-66	–	1500	H_2O	1 LITER		X																	1	1
GMI18-66D	–	1700	H_2O	40 ml VOA						X	X												2	2
GMI18-66D	–	1700	H_2O	1 LITER		X																	1	1
GMI18-67	–	1745	H_2O	40 ml VOA						X	X												2	2
GMI18-67	–	1745	H_2O	1 LITER		X																	1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/17/94 1910	[illegible]	8/17/94 1910
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

356 661

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CHAIN-OF-CUSTODY

CLIENT: GEOMARINE INC.
ADDRESS: 550 E. 15th St.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-053 PROJECT MANAGER: CYLY WINNETTE

DATE: 8/17/94 PAGE 2 OF 2
DHL PROJECT #: 940802 T4
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	ANALYSES: BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-68	–	1815	H_2O	40ml VOA						X	X												2	2
GMI18-68	–	1815	H_2O	1 LITER		X																	1	1
GMI18-69	–	1845	H_2O	40ml VOA						X	X												2	2
GMI18-69	–	1845	H_2O	1 LITER		X																	1	1
TB81794	–	0810	H_2O	40ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/17/94 1910	[illegible]	8/17/94 1910
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

3 56 - 662

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 550 E. 15th ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETT

DATE: 8/18/94 PAGE 1 OF 2
DHL PROJECT #: 9408.02T4
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-85	—	0910	H_2O	40ml VOA						X	X												1	1
GMI18-86	—	0750	H_2O	40ml VOA						X	X												2	2
GMI18-86	—	0750	H_2O	1 LITER	X																		1	1
GMI18-87	—	0815	H_2O	40ml VOA						X	X												2	2
GMI18-87	—	0815	H_2O	1 LITER	X																		1	1
GMI18-70	—	0840	H_2O	40ml VOA						X	X												2	2
GMI18-70	—	0840	H_2O	1 LITER	X																		1	1
GMI18-71	—	1000	H_2O	40ml VOA						X	X												2	2
GMI18-71	—	1000	H_2O	1 LITER	X																		1	1
GMI18-71D	—	1000	H_2O	40ml VOA						X	X												2	2
GMI18-71D	—	1000	H_2O	1 LITER	X																		1	1
RB81894	—	1045	H_2O	40ml VOA						X	X												2	2
RB81894	—	1045	H_2O	1 LITER	X																		1	1
FB81894	—	1115	H_2O	40ml VOA						X	X												2	2
FB81894	—	1115	H_2O	1 LITER	X																		1	1
GMI18-106	—	1200	H_2O	40ml VOA						X	X												2	2
GMI18-106	—	1200	H_2O	1 LITER	X																		1	1
TB81894	—	0715	H_2O	40ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/18/94 1550	Scott Sanson	8/18/94 1550
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 550 E. 15th ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETE

DATE: 8/18/94 PAGE 2 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	ANALYSES: BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-105	–	1541	H_2O	40ml VOA						X	X												2	2
GMI18-105	–	1541	H_2O	1 LITER		X																	1	1
GMI18-104	–	1610	H_2O	40ml VOA						X	X												2	2
GMI18-104	–	1610	H_2O	1 LITER		X																	1	1
GMI18-103	–	1645	H_2O	40ml VOA						X	X												2	2
GMI18-103	–	1645	H_2O	1 LITER		X																	1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/18/94 1550	[signature]	8/18/94 1550
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

356 - 664

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-053 PROJECT MANAGER: LICE WINNETTE

DATE: 8/19/94 PAGE 1 OF 1
DHL PROJECT #: 9408604
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-96	-	0850	H_2O	40 ml VOA						X	X												2	2
GMI18-96	-	0850	H_2O	1 LITER	X																		1	1
D4	-	0730	H_2O	1 LITER	X																		1	1
D5	-	0740	H_2O	1 LITER	X																		1	1
GMI18-97	-	0920	H_2O	40 ml VOA						X	X												2	2
GMI18-97	-	0920	H_2O	1 LITER	X																		1	1
GMI18-98	-	1000	H_2O	40 ml VOA						X	X												2	2
GMI18-98	-	1000	H_2O	1 LITER	X																		1	1
GMI18-99	-	1030	H_2O	40 ml VOA						X	X												2	2
GMI18-99	-	1030	H_2O	1 LITER	X																		1	1
GMI18-101	-	1130	H_2O	40 ml VOA						X	X												2	2
GMI18-101	-	1130	H_2O	1 LITER	X																		1	1
GMI18-93	-	1230	H_2O	40 ml VOA						X	X												2	2
GMI18-93	-	1230	H_2O	1 LITER	X																		1	1
TB81994	-	0800	H_2O	40 ml VOA						X	X												2	2

RELINQUISHED BY: (Signature) Tony C. Mills DATE/TIME 8/19/94 1455 RECEIVED BY: (Signature) Sean Scanlon DATE/TIME 8/19/94 1455

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 550 E 15th ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 8/22/94 PAGE 1 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FB82294	-	1200	H_2O	40ml VOA						X	X												2	2
FB82294	-	1200	H_2O	1 LITER		X																	1	1
GMI18-64	-	1030	H_2O	40ml VOA						X	X												2	2
GMI18-64	-	1030	H_2O	1 LITER		X																	1	1
GMI18-64D	-	1030	H_2O	40ml VOA						X	X												2	2
GMI18-64D	-	1030	H_2O	1 LITER		X																	1	1
GMI18-92	-	1115	H_2O	40ml VOA						X	X												2	2
GMI18-92	-	1115	H_2O	1 LITER		X																	1	1
GMI18-91	-	1415	H_2O	40ml VOA						X	X												2	2
GMI18-91	-	1415	H_2O	1 LITER		X																	1	1
GMI18-65	-	1445	H_2O	40ml VOA						X	X												2	2
GMI18-65	-	1445	H_2O	1 LITER		X																	1	1
GMI18-250	-	1530	H_2O	40ml VOA						X	X												2	2
GMI18-250	-	1530	H_2O	1 LITER		X																	1	1
GMI18-217	-	1715	H_2O	40ml VOA						X	X												2	2
GMI18-217	-	1715	H_2O	1 LITER		X																	1	1
GMI18-251	-	1745	H_2O	40ml VOA						X	X												2	2
GMI18-251	-	1745	H_2O	1 LITER		X																	1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/23/94 20:15	[signature]	8/23/94 2015
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

356 . 666

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC
ADDRESS: 550 E. 15th ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETT

DATE: 8/22/94 PAGE 2 OF 2
DHL PROJECT #: 940802TY
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	ANALYSES: BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB822SY	–	1210	H_2O	40ml VOA						X	X												2	2

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/23/94 20:15	[signature]	8/23/94 2015
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

10805 Metric Boulevard • Austin, TX 78758
Phone (512) 835-9299 • Fax (512) 835-9297

CHAIN-OF-CUSTODY

CLIENT: GEO MARINE
ADDRESS: 550 E. 15th St.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-053 PROJECT MANAGER: LYLE WINNETTE

DATE: 8/23/94 PAGE 1 OF 2
DHL PROJECT #: 9408C27Y
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-237	-	0830	H_2O	40ml VOA						X	X												2	2
GMI18-237	-	0830	H_2O	1 LITER	X																		1	1
GMI18-226	-	1210	H_2O	40ml VOA						X	X												2	2
GMI18-226	-	1210	H_2O	1 LITER	X																		1	1
RB82394	-	1330	H_2O	40ml VOA						X	X												2	2
RB82394	-	1330	H_2O	1 LITER	X																		1	1
RB82394	-	1415	H_2O	40ml VOA						X	X												2	2
RB82394	-	1415	H_2O	1 LITER	X																		1	1
GMI18-228	-	1415	H_2O	40ml VOA						X	X												2	2
GMI18-228	-	1415	H_2O	1 LITER	X																		1	1
GMI18-228D	-	1415	H_2O	40ml VOA						X	X												2	2
GMI18-228D	-	1415	H_2O	1 LITER	X																		1	1
DW82394	-	1345	H_2O	40ml VOA						X	X												2	2
DW82394	-	1345	H_2O	1 LITER	X																		1	1
GMI18-229	-	1450	H_2O	40ml VOA						X	X												2	2
GMI18-229	-	1450	H_2O	1 LITER	X																		1	1
GMI18-230	-	1610	H_2O	40ml VOA						X	X												2	2
GMI18-230	-	1610	H_2O	1 LITER	X																		1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/23/94 20:15	[illegible]	8/23/94 20:15
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE LOUNNETTE

DATE: 8/23/94 PAGE 2 OF 2
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
DV294 A	–	1730	H_2O	40ml VOA						X	X												2	2
DV294 A	–	1730	H_2O	1 LITER	X																		1	1
DV294 B	–	1730	H_2O	40ml VOA						X	X												2	2
DV294 B	–	1730	H_2O	1 LITER	X																		1	1
DW 51794	–	1730	H_2O	40ml VOA						X	X												2	2
DW 51794	–	1730	H_2O	1 LITER	X																		1	1
DP 51994	–	1730	H_2O	40ml VOA						X	X												2	2
DP 51994	–	1730	H_2O	1 LITER	X																		1	1
TB 82394	–	0750	H_2O	40ml VOA						X	X												2	2
DV294C	–	1930	H_2O	40ml VOA						X	X												2	2
DV294C	–	1930	H_2O	1 LITER	X																		1	1
DW22194	–	1530	H_2O	40ml VOA						X	X												2	2
DW22194	–	1530	H_2O	1 LITER	X																		1	1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	8/23/94 20:15	[illegible]	8/23/94 205
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE, INC.
ADDRESS: 550 E. 15th ST. PLANO, TX 75074
PHONE: (214) 423-5480 FAX: (214) 422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 10/17/94 PAGE 1 OF 1
DHL PROJECT #: 940802T4
LOCATION: CARSWELL AFB (NAS-FORT WORTH)
COLLECTOR: TONY C. Mills

Sample I.D.	Depth	Time	Sample Type	Container Type	ANALYSES: BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB101794		1530	H_2O	40 ml VOA	no rm					✓	✓												2	
~~TB101794~~			H_2O			1																		
GMI18-144		1630	H_2O	40 ml VOA						✓	✓												2	
GMI18-144		1630	H_2O	1 L.		✓																	1	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	10/17/94 1700	Scott Schroeder	10/17/94 1700
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE INC
ADDRESS: 550 E. 15TH ST. PLANO, TX. 75074
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-05 PROJECT MANAGER: LYLE WINNETTE

DATE: 10/19/94 PAGE 1 OF 1
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB (NAS FT. WORTH)
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-146	–	0900	H_2O	40ml VOA						X	X												2	
GMI18-146	–	0900	H_2O	1 LITER	X																		1	
GMI18-149	–	1115	H_2O	40ml VOA						X	X												2	
GMI18-149	–	1115	H_2O	1 LITER	X																		1	
GMI18-148	–	1200	H_2O	40ml VOA						X	X												2	
GMI18-148	–	1200	H_2O	1 LITER	X																		1	
GMI18-119	–	1630	H_2O	40ml VOA						X	X												2	
GMI18-119	–	1630	H_2O	1 LITER	X																		1	
GMI18-120	–	1710	H_2O	40ml VOA						X	X												2	
GMI18-120	–	1710	H_2O	1 LITER	X																		1	
GMI18-118	–	1750	H_2O	40ml VOA						X	X												2	
GMI18-118	–	1750	H_2O	1 LITER	X																		1	
TB801994	–	0750	H_2O	40ml VOA						X	X												2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	10/19/94 1910	Scott Schreier	10/19/94 1910
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE INC.
ADDRESS: 550 E 15TH ST. PLANO, TX. 75074
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 10/20/94 PAGE 1 OF 1
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB, (NAS-FT-WORTH)
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-83	-	0845	H_2O	40 ml VOA						X	X												2	
GMI18-83	-	0845	H_2O	1 LITER	X																		1	
GMI18-82	-	0930	H_2O	1 LITER						X	X												2	
GMI18-80	-	1110	H_2O	40 ml VOA						X	X												2	
GMI18-80	-	1110	H_2O	1 LITER	X																		1	
GMI18-75	-	1440	H_2O	40 ml VOA						X	X												2	
GMI18-75	-	1440	H_2O	1 LITER	X																		1	
TBK02094	-	0910	H_2O	40 ml VOA						X	X												2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	10/20/94 16:25	[illegible]	10/20/94 1625
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO MARINE INC.
ADDRESS: 500 E. 15th St. Plano, TX 75074
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 10/21/94 PAGE 1 OF 1
DHL PROJECT #: 94080274
LOCATION: CARSWELL AFB (NAS - FT. WORTH)
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-249	—	1245	H_2O	40 ml VOA						X	X												2	
GMI18-249	—	1245	H_2O	1 LITER	X																		1	
GMI18-255	—	1410	H_2O	40 ml VOA						X	X												1	
GMI18-216	—	1440	H_2O	40 ml VOA						X	X												2	
GMI18-216	—	1440	H_2O	1 LITER	X																		1	
TB102194	—	0910	H_2O	40 ml VOA						X	X												2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	10/21/94 15:40	[signature]	10/21/94 1540
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: Geo-Marine, Inc.
ADDRESS: 550 E. 15th ST. PLANO, TX. 75074
PHONE: (214)423-5480 FAX: (214) 422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE WINNETTE

DATE: 10/24/94 PAGE 1 OF 1
DHL PROJECT #: 940802T4 / 941026B
LOCATION: CARSWELL - NAS FORT WORTH JRB
COLLECTOR: TONY C MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB102494		10:00	H_2O	VOA-40ml						✓	✓												2	
FB102494		10:30	H_2O	40ml VOA						✓	✓											Preserved w/ HCl	2	
FB102494		10:30	H_2O	1 L.	✓																	Preserved w/ HCl	1	
GMI18-253		11:30	H_2O	40ml VOA						✓	✓											"	2	
GMI18-253		11:30	H_2O	1L.	✓																	"	1	
GMI18-253D		11:30	H_2O	40ml VOA						✓	✓											"	2	
GMI18-253D		11:30	H_2O	1L.	✓																	"	1	
GMI18-236		14:30	H_2O	40ml VOA						✓	✓											"	2	
GMI18-236		14:30	H_2O	1L.	✓																	"	1	
GMI18-227		16:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-227		16:00	H_2O	1L.	✓																	"	1	
GMI18-234		17:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-234		17:00	H_2O	1L.	✓																	"	1	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	10/25/94 14:30	U.P.S. [illegible]	10/25 3:55
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
		[illegible]	10/26/94 1:10pm

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	20
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES: Some samples were frozen

LABORATORY NOTES:

3 of 4

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: Geo-Marine, Inc
ADDRESS: 550 E. 15th St. Plano, TX 75074
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: Lyle C. Winnette

DATE: 10/26/94 PAGE 1 OF 1
DHL PROJECT #: 940802T4
LOCATION: NAS Fort Worth JRB
COLLECTOR: Tony C Mills

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 825/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB102694		8:20	H_2O	40 ml VOA						✓	✓											Preserved w/ HCl	2	
GMI18-224		10:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-263		11:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-263		11:00	H_2O	1 L.	✓																	"	1	
GMI18-233		12:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-233		12:00	H_2O	1L	✓																	"	1	
GMI18-233D		12:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-233D		12:00	H_2O	1L	✓																	"	1	
FB102694		12:40	H_2O	40ml VOA						✓	✓											"	2	
FB102694		12:40	H_2O	1L	✓																	"	1	
RB102694		13:00	H_2O	40ml VOA						✓	✓											"	2	
RB102694		13:00	H_2O	1L	✓																	"	1	
GMI18-231		16:30	H_2O	40ml VOA						✓	✓											"	2	
GMI18-231		16:30	H_2O	1 L.	✓																	"	1	
GMI18-232		17:10	H_2O	40ml VOA						✓	✓											"	2	
GMI18-232		17:10	H_2O	1 L.	✓																	"	1	
GMI18-72	10/28/94	08:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-72	10/28/94	08:00	H_2O	1 L.	✓																	"	1	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C Mills	10/31/94 10:17	R Easley	10/31/94 10:19
[illegible]	10/31 2:50	Carol Miller	11/1/94 [illegible]:30 p.m.

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	18
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

365-075

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Phone (512) 835-9299 • Fax (512) 835-9297

CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE, INC.
ADDRESS: 550 E. 15th ST. PLANO, TX 75074
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE C. WINNETTE

DATE: 10/27/94 PAGE 1 OF 2
DHL PROJECT #: 940802T4
LOCATION: NAS FORT WORTH JRB
COLLECTOR: Tony C. Mills

Sample I.D.	Depth	Time	Sample Type	Container Type	BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
TB102794		08:00	H_2O	40ml VOA						✓	✓											Preserved w/ HCl	2	
GMI18-110		11:15	H_2O	40ml VOA						✓	✓											"	2	
GMI18-110		11:15	H_2O	~~40ml VOA~~ 1L		✓				~~✓~~												"	1	
GMI18-111		12:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-111		12:00	H_2O	1 L.		✓																"	1	
GMI18-109		13:45	H_2O	40ml VOA						✓	✓											"	2	
GMI18-109		13:45	H_2O	1 L.		✓																"	1	
GMI18-108		14:30	H_2O	40ml VOA						✓	✓											"	2	
GMI18-108		14:30	H_2O	1 L.		✓																"	1	
GMI18-107		14:50	H_2O	40ml VOA						✓	✓											"	2	
GMI18-107		14:50	H_2O	1L.		✓																"	1	
GMI18-84		15:45	H_2O	40ml VOA						✓	✓											"	2	
GMI18-84		15:45	H_2O	1 L.		✓																"	1	
FB102794		16:15	H_2O	40ml VOA						✓	✓											"	2	
FB102794		16:15	H_2O	1 L.		✓																"	1	
GMI18-73		17:00	H_2O	40ml VOA						✓	✓											"	2	
GMI18-73		17:00	H_2O	1 L.		✓																"	1	
GMI18-73D		17:00	H_2O	40ml VOA						✓	✓											"	2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Tony C. Mills	10/31/94 10:17	R Easley	10/31/94 10:18
[illegible]	10/31 2:30		

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

356 676

DHL ANALYTICAL

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CHAIN-OF-CUSTODY

CLIENT: GEO-MARINE INC
ADDRESS: 550 E. 15TH ST.
PHONE: 214-423-5480 FAX: 214-422-2736
CLIENT PROJECT #: 1114-055 PROJECT MANAGER: LYLE C. WINNETTE

DATE: 10/27/94 PAGE 2 OF 2
DHL PROJECT #: 940802T4
LOCATION: NAS FORT WORTH JRB
COLLECTOR: TONY C. MILLS

Sample I.D.	Depth	Time	Sample Type	Container Type	ANALYSES: BTEX	TRPH 418.1	TPH 8015 (gas)	TPH 8015 (diesel)	pH	VOA 601/8010	VOA 602/8020	VOA 624/8240	VOA 8260	SEMI VOL 625/8270	PCBs 608/8080	PAHs 610/8100	RCI	RACRA 8 METALS	TOTAL LEAD	TOX	TDS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
GMI18-73D		17:00	H_2O	1 L.		✓																	1	

RELINQUISHED BY: (Signature) Tony C. Mills DATE/TIME 10/31/94 10:17
RECEIVED BY: (Signature) R Easley DATE/TIME 10/31/94 10:18
RELINQUISHED BY: (Signature) N. Jan DATE/TIME 10/31 2:50
RECEIVED BY: (Signature) DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ DHL DISPOSAL @ $4.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF SAMPLES	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	

NOTES:

LABORATORY NOTES:

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 941019
ATE OF ANALYSES: 10/19/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-118 (ug/L)	GMI18-119 (ug/L)	GMI18-120 (ug/L)	TB101994 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	5
s-1,2-Dichloroethene	27.3	ND	95.0	ND	5
Dichloroethane	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	292	ND	473	ND	5
Benzene	ND	ND	ND	ND	5
hloroform	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	5
richloroethene	1095	ND	89.0	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	5
RPH	ND	ND	ND	--	1
urrogate Recovery (100ppb)	98	96	99	99	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941020
DATE OF ANALYSES: 10/20/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-83 (ug/L)	GMI18-82 (ug/L)	GMI18-80 (ug/L)	GMI18-75 (ug/L)	TB102094 (ug/L)	MDL (ug/L)
Vinylchloride	5.71	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	12.4	4.21	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	244	45.3	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	1182	7.14	4.26	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	--	ND	ND	--	1
Surrogate Recovery (100ppb)	95	92	96	93	97	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 941021
ATE OF ANALYSES: 10/21/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-255 (ug/L)	GMI18-249 (ug/L)	GMI18-216 (ug/L)	TB102194 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	5
s-1,2-Dichloroethene	ND	1.29	ND	ND	5
Dichloroethane	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	4.40	ND	ND	5
Benzene	ND	ND	ND	ND	5
hloroform	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	5
richloroethene	ND	120	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	5
Tetrachloroethene	ND	8.07	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	5
RPH	--	ND	ND	--	1
irrogate Recovery (100ppb)	78	91	88	91	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

IALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ITA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941028
DATE OF ANALYSES: 10/28/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB102494 (ug/L)	FB102494 (ug/L)	GMI18-253 (ug/L)	GMI18-253D (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	5
TRPH	--	ND	ND	ND	1
Surrogate Recovery (100ppb)	89	90	100	108	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 941028
ATE OF ANALYSES: 10/28/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-236 (ug/L)	GMI18-227 (ug/L)	GMI18-234 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	*	10
1,1-Dichloroethene	ND	ND	*	5
Methylene Chloride	ND	ND	*	5
rans-1,2-Dichloroethene	ND	ND	*	5
,1-Dichloroethane	ND	ND	*	5
cis-1,2-Dichloroethene	ND	ND	*	5
zene	ND	ND	*	5
roform	ND	ND	*	5
1,1,1-Trichloroethane	ND	ND	*	5
Carbon Tetrachloride	ND	ND	*	10
,2-Dichloroethane	ND	ND	*	5
richloroethene	ND	ND	*	5
1,2-Dichloropropane	ND	ND	*	5
oluene	ND	ND	*	5
,1,2 Trichloroethane	ND	ND	*	5
Tetrachloroethene	ND	ND	*	5
thylbenzene	ND	ND	*	5
ylenes	ND	ND	*	5
TRPH	ND	ND	ND	1
rrogate Recovery (100ppb)	103	105	*	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
: Sample Vials Broken As Received Due To Frozen

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Dr. Derhsing Luu

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941102
DATE OF ANALYSES: 11/02/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-107 (ug/L)	GMI18-84 (ug/L)	FB102794 (ug/L)	GMI18-73 (ug/L)	GMI18-73D (ug/L)	MDL (ug/L)
Vinylchloride	ND	5.61	ND	21.9	21.0	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	115	ND	50.7	49.0	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	112	ND	640	623	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	571	ND	255	242	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	2.2*	ND*	ND*	ND*	ND*	1
Surrogate Recovery (100ppb)	94	97	94	97	95	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* : ANALYSIS PERFORMED ON 11/03/94 BY Scott Schroeder

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
ATCH # 941102
DATE OF ANALYSES: 11/02/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB102794 (ug/L)	GMI18-110 (ug/L)	GMI18-111 (ug/L)	GMI18-109 (ug/L)	GMI18-108 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
is-1,2-Dichloroethene	ND	ND	ND	ND	5.89	5
ene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
xylenes	ND	ND	ND	ND	ND	5
TRPH	--	ND*	ND*	ND*	ND*	1
rrogate Recovery (100ppb)	93	94	94	97	95	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
: ANALYSIS PERFORMED ON 11/03/94 BY Scott Schroeder

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Dr. Derhsing Luu

TA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941103
DATE OF ANALYSES: 11/03/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	FB102694 (ug/L)	RB102694 (ug/L)	TB102694 (ug/L)	GMI18-224 (ug/L)	GMI18-72 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	12.7	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	331	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	5.01	4852*	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	--	--	ND	1
Surrogate Recovery (100ppb)	99	97	98	98	100	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* - INDICATES 10X DILUTION

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
ATCH # 941103
DATE OF ANALYSES: 11/03/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-231 (ug/L)	GMI18-232 (ug/L)	GMI18-233 (ug/L)	GMI18-233D (ug/L)	GMI18-263 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
is-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
ene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
rrogate Recovery (100ppb)	98	96	96	96	98	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940803
DATE OF ANALYSES: 08/03/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-136 (ug/L)	GMI18-137 (ug/L)	GMI18-138 (ug/L)	GMI18-161 (ug/L)	TB80294 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	37.5	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	19.9	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	121	34.3	203	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	2.3	2.1	5.3	1.9	--	1
Surrogate Recovery(100 ppb)	104	113	107	104	104	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940803
ATE OF ANALYSES: 08/03/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-178 (ug/L)	GMI18-179 (ug/L)	GMI18-211 (ug/L)	GMI18-180 (ug/L)	GMI18-245 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
,1-Dichloroethane	ND	ND	ND	ND	ND	5
is-1,2-Dichloroethene	20.5	ND	110	ND	149	5
Benzene	ND	ND	ND	ND	ND	5
oroform	ND	ND	ND	ND	ND	5
1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	189	99.2	29.3	ND	88.8	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	ND	5
RPH	ND	3.2	ND	ND	--	1
Surrogate Recovery (100ppb)	109	104	101	105	104	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

TA REVIEWED BY: Dr. Derhsing Luu

10805 Metric Boulevard • Austin, TX 78758 • Phone (512) 835-9299 • Fax (512) 835-9297

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940803
DATE OF ANALYSES: 08/03/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	FB80394 (ug/L)	GMI18-181 (ug/L)	GMI18-181D (ug/L)	GMI18-182 (ug/L)	GMI18-183 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	7.09	8.01	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	5.09	6.15	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	78.3	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND*	6.2*	1
Surrogate Recovery (100ppb)	104	67	109	113	99	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY
* --INDICATES ANALYSES PERFORMED ON 08/04/94

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940804
ATE OF ANALYSES: 08/04/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-177 (ug/L)	GMI18-184 (ug/L)	GMI18-175 (ug/L)	TB80394 (ug/L)	GMI18-185 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
,1-Dichloroethane	ND	ND	ND	ND	ND	5
is-1,2-Dichloroethene	19.0	ND	19.0	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
roform	ND	ND	ND	28.5	ND	5
1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	354	ND	347	ND	ND	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	35.3	ND	ND	ND	5
Xylenes	ND	4.71	ND	ND	ND	5
RPH	ND	775	ND	ND	3.8	1
Surrogate Recovery (100ppb)	94	89	104	107	118	

) INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940804
DATE OF ANALYSES: 08/04/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-176 (ug/L)	GMI18-188 (ug/L)	GMI18-187 (ug/L)	GMI18-186 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	43.5	ND	23.3	26.4	5
Benzene	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	5
Trichloroethene	156	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	105	103	106	106	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

)HL Project #940802T4
BATCH # 940805
)ATE OF ANALYSES: 08/05/94
'ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	RB80594 (ug/L)	FB80594 (ug/L)	GMI18-208 (ug/L)	GMI18-208D (ug/L)	GMI18-209 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	12.4	12.9	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
'ethylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	44.4	40.2	49.4	5
1 1-Dichloroethane	ND	ND	ND	ND	ND	5
·1,2-Dichloroethene	ND	ND	41.9	41.1	34.7	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
'arbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	9.23	5.07	107	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
'etrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
RPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	103	99	107	105	107	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940805
DATE OF ANALYSES: 08/05/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-210 (ug/L)	GMI18-205 (ug/L)	MDL (ug/L)
Vinylchloride	ND	91.8	10
1,1-Dichloroethene	ND	ND	5
Methylene Chloride	ND	ND	5
trans-1,2-Dichloroethene	56.5	ND	5
1,1-Dichloroethane	ND	ND	5
cis-1,2-Dichloroethene	50.1	6.16	5
Benzene	ND	ND	5
Chloroform	ND	ND	5
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	10
1,2-Dichloroethane	ND	ND	5
Trichloroethene	5.46	ND	5
1,2-Dichloropropane	ND	ND	5
Toluene	ND	ND	5
1,1,2 Trichloroethane	ND	ND	5
Tetrachloroethene	ND	ND	5
Ethylbenzene	ND	ND	5
Xylenes	ND	ND	5
TRPH	ND*	ND	1
Surrogate Recovery (100ppb)	102	107	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY
* -- INDICATES ANALYSES PERFORMED ON 08/09/94

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

)HL Project #940802T4
BATCH # 940809
DATE OF ANALYSES: 08/09/94
VATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB80594 (ug/L)	GMI18-193 (ug/L)	GMI18-190 (ug/L)	GMI18-191 (ug/L)	GMI18-192 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	19	220	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	--	2.1	2.6	ND	99	1
Surrogate Recovery (100ppb)	109	109	112	99	108	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940809
DATE OF ANALYSES: 08/09/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-189 (ug/L)	TB80894 (ug/L)	FB80994 (ug/L)	GMI18-198 (ug/L)	GMI18-157 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	94.6*	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	23.3	ND	ND	697*	89.1	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	--	ND	ND	ND	1
Surrogate Recovery (100ppb)	95	103	101	105	107	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* INDICATES 10X DILUTION

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940809
ATE OF ANALYSES: 08/09/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-159 (ug/L)	GMI18-159D (ug/L)	GMI18-139 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	5
,1-Dichloroethane	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	14.3	5
Benzene	ND	ND	ND	5
roform	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	5
richloroethene	6.25	4.53	122	5
1,2-Dichloropropane	ND	ND	ND	5
oluene	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	5
lenes	ND	ND	ND	5
RPH	ND	ND	ND	1
irrogate Recovery (100ppb)	105	107	103	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

TA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940810
DATE OF ANALYSES: 08/10/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-158 (ug/L)	GMI18-160 (ug/L)	RB81094 (ug/L)	FB81094 (ug/L)	GMI18-125 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	14.9	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	5.11	36.2	ND	ND	123	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	--	1
Surrogate Recovery (100ppb)	107	103	104	105	106	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940810
ATE OF ANALYSES: 08/10/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

'ARGET COMPOUNDS	GMI18-128 (ug/L)	GMI18-129 (ug/L)	TB80994 (ug/L)	GMI18-127 (ug/L)	GMI18-133 (ug/L)	MDL (ug/L)
'inylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
ns-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
·Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
'hloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
'richloroethene	50.3	23.5	ND	145	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
'ylenes	ND	ND	ND	ND	ND	5
'RPH	ND	ND	--	2.0	ND	1
'urrogate Recovery (100ppb)	108	112	111	101	105	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940810
DATE OF ANALYSES: 08/10/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-164 (ug/L)	GMI18-131 (ug/L)	GMI18-131D (ug/L)	GMI18-132 (ug/L)	GMI18-130 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	9.41	9.64	ND	18.1	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	104	104	101	104	103	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940810
ATE OF ANALYSES: 08/10/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	TB81094 (ug/L)	GMI18-169 (ug/L)	GMI18-171 (ug/L)	GMI18-135 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	5
-Dichloroethane	ND	ND	ND	ND	5
1,2-Dichloroethene	ND	ND	ND	9.09*	5
Benzene	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	5
richloroethene	ND	ND	ND	500*	5
,2-Dichloropropane	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	12.6*	5
Ethylbenzene	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	5
RPH	--	ND	ND	3.3	1
Surrogate Recovery (100ppb)	108	108	113	105	

) INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* INDICATES 10X DILUTION

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

TA REVIEWED BY: Dr. Derhsing Luu

10805 Metric Boulevard • Austin, TX 78758 • Phone (512) 835-9299 • Fax (512) 835-9297

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940811
DATE OF ANALYSES: 08/11/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB81194 (ug/L)	FB81194 (ug/L)	GMI18-261 (ug/L)	GMI18-134 (ug/L)	GMI18-162 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	6.51	209	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	--	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	103	102	104	97	106	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

10805 Metric Boulevard • Austin, TX 78758 • Phone (512) 835-9299 • Fax (512) 835-9297

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940811
ATE OF ANALYSES: 08/11/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-163 (ug/L)	GMI18-163D (ug/L)	GMI18-173 (ug/L)	GMI18-172 (ug/L)	GMI18-174 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
'-Dichloroethane	ND	ND	ND	ND	ND	5
1,2-Dichloroethene	ND	ND	ND	ND	31.7	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	ND	ND	15.0	ND	203	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
',1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
RPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	97	99	102	99	97	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940811
DATE OF ANALYSES: 08/11/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-247 (ug/L)	GMI18-167 (ug/L)	GMI18-246 (ug/L)	GMI18-243 (ug/L)	MDL (ug/L)
Vinylchloride	11.7	ND	10.2*	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	12.6	ND	ND	14.9	5
1,1-Dichloroethane	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	92.4	ND	78.2*	19.4	5
Benzene	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	5
Trichloroethene	121	ND	605*	164	5
1,2-Dichloropropane	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	95	95	97	96	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* INDICATES 10X DILUTION

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
ATCH # 940812
DATE OF ANALYSES: 08/12/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	FB81294 (ug/L)	RB81294 (ug/L)	GMI18-242 (ug/L)	GMI18-241 (ug/L)	GMI18-239 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
s-1,2-Dichloroethene	ND	ND	62.5	ND	ND	5
Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	43.8	ND	ND	5
enzene	ND	ND	ND	ND	ND	5
hloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	33.7	ND	ND	5
1.2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
hylbenzene	ND	ND	ND	ND	ND	5
lenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
rrogate Recovery (100ppb)	100	95	99	99	102	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Scott Schroeder

D REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940812
DATE OF ANALYSES: 08/12/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-239D (ug/L)	GMI18-202 (ug/L)	D1 (ug/L)	D2 (ug/L)	D3 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	--	10
1,1-Dichloroethene	ND	ND	ND	ND	--	5
Methylene Chloride	ND	ND	ND	ND	--	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	--	5
1,1-Dichloroethane	ND	ND	ND	ND	--	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	--	5
Benzene	ND	ND	ND	ND	--	5
Chloroform	ND	ND	ND	ND	--	5
1,1,1-Trichloroethane	ND	ND	ND	ND	--	5
Carbon Tetrachloride	ND	ND	ND	ND	--	10
1,2-Dichloroethane	ND	ND	ND	ND	--	5
Trichloroethene	ND	ND	ND	ND	--	5
1,2-Dichloropropane	ND	ND	ND	ND	--	5
Toluene	ND	ND	ND	ND	--	5
1,1,2 Trichloroethane	ND	ND	ND	ND	--	5
Tetrachloroethene	ND	ND	ND	ND	--	5
Ethylbenzene	ND	ND	ND	ND	--	5
Xylenes	ND	ND	ND	ND	--	5
TRPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	97	101	99	95	--	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940816
DATE OF ANALYSES: 08/16/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB81294 (ug/L)	TB81594 (ug/L)	GMI18-212 (ug/L)	GMI18-140 (ug/L)	GMI18-213 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
-1,2-Dichloroethene	ND	ND	ND	8.11	ND	5
ene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	108	ND	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	--	--	ND	ND	ND	1
urrogate Recovery (100ppb)	88	90	89	89	89	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940816
DATE OF ANALYSES: 08/16/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-214 (ug/L)	GMI18-154 (ug/L)	GMI18-154D (ug/L)	GMI18-200 (ug/L)	FB81594 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	14.1	15.0	17.2	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	167	176	186	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	89	86	89	89	92	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940816
ATE OF ANALYSES: 08/16/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-58 (ug/L)	GMI18-59 (ug/L)	GMI18-215 (ug/L)	GMI18-201 (ug/L)	RB81694 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
s-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
hloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	ND	ND	ND	22.5	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	ND	5
RPH	ND	--	ND	ND	ND	1
irrogate Recovery (100ppb)	91	93	92	91	92	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

IALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940816
DATE OF ANALYSES: 08/16/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	FB81694 (ug/L)	GMI18-122 (ug/L)	GMI18-124 (ug/L)	GMI18-56 (ug/L)	GMI18-90 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	33.5	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	48.6	143	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	88	84	89	87	91	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940817
ATE OF ANALYSES: 08/17/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-89 (ug/L)	GMI18-89D (ug/L)	GMI18-54 (ug/L)	GMI18-55 (ug/L)	GMI18-57 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
ns-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	8.91	9.75	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
hloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	67.6	66.5	ND	222	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	ND	5
RPH	ND	ND	ND	ND	ND	1
irrogate Recovery (100ppb)	88	89	88	84	91	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

IALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

ITA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940817
DATE OF ANALYSES: 08/17/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB81694 (ug/L)	GMI18-141 (ug/L)	GMI18-199 (ug/L)	GMI18-156 (ug/L)	GMI18-143 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	214*	78.4*	109*	85.7*	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	1418*	558*	797*	1034*	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	--	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	87	91	90	88	90	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* INDICATES 10X DILUTION

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940817
ATE OF ANALYSES: 08/17/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-123 (ug/L)	GMI18-121 (ug/L)	GMI18-88 (ug/L)	GMI18-95 (ug/L)	FB81794 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
','-Dichloroethane	ND	ND	ND	ND	ND	5
1,2-Dichloroethene	195*	47.5*	104*	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	1441*	582*	662*	ND	ND	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
'.1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
RPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	83	83	84	76	84	

,) INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* INDICATES 10X DILUTION

, ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

TA REVIEWED BY: Dr. Derhsing Luu

10805 Metric Boulevard • Austin, TX 78758 • Phone (512) 835-9299 • Fax (512) 835-9297

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940817
DATE OF ANALYSES: 08/17/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-61 (ug/L)	GMI18-64 (ug/L)	GMI18-63 (ug/L)	GMI18-62 (ug/L)	GMI18-66 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	5.23	15.1	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	--	ND	ND	ND	1
Surrogate Recovery (100ppb)	80	75	82	84	72	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940817
DATE OF ANALYSES: 08/17/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-66D (ug/L)	GMI18-67 (ug/L)	GMI18-68 (ug/L)	GMI18-69 (ug/L)	TB81794 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	47.6	ND	76.8*	ND	5
ene	ND	ND	ND	ND	ND	5
roform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	ND	215	ND	728*	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
ylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	--	1
rrogate Recovery (100ppb)	84	79	77	79	79	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
INDICATES 10X DILUTION

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940818
DATE OF ANALYSES: 08/18/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-85 (ug/L)	GMI18-86 (ug/L)	GMI18-87 (ug/L)	GMI18-70 (ug/L)	GMI18-71 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	33.5	2.50	ND	16.2	2.92	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	454	32.4	8.89	263	118	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	--	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	100	98	99	101	101	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940818
ATE OF ANALYSES: 08/18/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	GMI18-71D (ug/L)	RB81894 (ug/L)	FB81894 (ug/L)	GMI18-106 (ug/L)	TB81894 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	7.76	ND	ND	7.69	ND	5
Benzene	ND	ND	ND	ND	ND	5
hloroform	ND	ND	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
richloroethene	120	ND	ND	154	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
lenes	ND	ND	ND	ND	ND	5
RPH	ND	ND	ND	ND	--	1
irrogate Recovery (100ppb)	98	103	104	103	100	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

TA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940818
DATE OF ANALYSES: 08/18/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-105 (ug/L)	GMI18-104 (ug/L)	GMI18-103 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	5
cis-1,2-Dichloroethene	115*	159*	155*	5
Benzene	ND	ND	ND	5
Chloroform	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	5
Trichloroethene	987*	1269*	1069*	5
1,2-Dichloropropane	ND	ND	ND	5
Toluene	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	5
Xylenes	ND	ND	ND	5
TRPH	ND	ND	ND	1
Surrogate Recovery (100ppb)	99	99	100	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS
* INDICATES 10X DILUTION

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940819
ATE OF ANALYSES: 08/19/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	TB81994 (ug/L)	GMI18-96 (ug/L)	GMI18-D4 (ug/L)	GMI18-D5 (ug/L)	GMI18-97 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	--	--	ND	10
,1-Dichloroethene	ND	ND	--	--	ND	5
Methylene Chloride	ND	ND	--	--	ND	5
s-1,2-Dichloroethene	ND	ND	--	--	ND	5
Dichloroethane	ND	ND	--	--	ND	5
cis-1,2-Dichloroethene	ND	ND	--	--	ND	5
Benzene	ND	ND	--	--	ND	5
hloroform	ND	ND	--	--	ND	5
,1,1-Trichloroethane	ND	ND	--	--	ND	5
Carbon Tetrachloride	ND	ND	--	--	ND	10
,2-Dichloroethane	ND	ND	--	--	ND	5
richloroethene	ND	1.91	--	--	ND	5
1,2-Dichloropropane	ND	ND	--	--	ND	5
Toluene	ND	ND	--	--	ND	5
,1,2 Trichloroethane	ND	ND	--	--	ND	5
Tetrachloroethene	ND	ND	--	--	ND	5
Ethylbenzene	ND	ND	--	--	ND	5
ylenes	ND	ND	--	--	ND	5
RPH	--	ND	ND	ND	ND	1
urrogate Recovery (100ppb)	99	97	--	--	95	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

QA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940819
DATE OF ANALYSES: 08/19/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-98 (ug/L)	GMI18-99 (ug/L)	GMI18-101 (ug/L)	GMI18-93 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	2.76	ND	1.21	ND	5
Benzene	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	5
Trichloroethene	119	ND	19.4	8.21	5
1,2-Dichloropropane	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	5
Tetrachloroethene	2.96	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	92	98	100	97	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

)HL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
/ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	FB82294 (ug/L)	GMI18-64 (ug/L)	GMI18-64D (ug/L)	GMI18-92 (ug/L)	GMI18-91 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
lethylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
zene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	40.2	33.7	12.6	1.35	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
urrogate Recovery (100ppb)	94	99	95	94	96	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-65 (ug/L)	GMI18-250 (ug/L)	GMI18-217 (ug/L)	GMI18-251 (ug/L)	TB82294 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	51.9	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	3.50	ND	39.0	ND	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	70	118	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	1.39	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	5.13	--	1
Surrogate Recovery (100ppb)	95	92	96	106	96	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-237 (ug/L)	GMI18-226 (ug/L)	RB82394 (ug/L)	FB82394 (ug/L)	GMI18-228 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	24.2	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
-1,2-Dichloroethene	25.9	ND	ND	ND	ND	5
ene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	146	ND	ND	ND	ND	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
thylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
urrogate Recovery (100ppb)	97	106	97	93	95	

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	GMI18-228D (ug/L)	GMI18-229 (ug/L)	GMI18-230 (ug/L)	DV294A (ug/L)	DV294B (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	2.75	12.3	5
Benzene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	3.38	ND	5
1,2-Dichloropropane	ND	ND	ND	ND	ND	5
Toluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	ND	ND	ND	ND	ND	1
Surrogate Recovery (100ppb)	95	95	89	93	95	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940823
ATE OF ANALYSES: 08/23/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

ARGET COMPOUNDS	DW51794 (ug/L)	DP51994 (ug/L)	TB82394 (ug/L)	MDL (ug/L)
inylchloride	ND	ND	ND	10
,1-Dichloroethene	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	5
ans-1,2-Dichloroethene	ND	ND	ND	5
Dichloroethane	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	5
Benzene	ND	ND	ND	5
hloroform	ND	ND	ND	5
,1,1-Trichloroethane	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	5
richloroethene	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	5
oluene	ND	ND	ND	5
,1,2 Trichloroethane	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	5
ylenes	ND	ND	ND	5
RPH	ND	ND	--	1
rrogate Recovery (100ppb)	93	93	94	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

TA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
WATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	DV294C (ug/L)	DW22194 (ug/L)	DW82394 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	5
cis-1,2-Dichloroethene	4.94	ND	ND	5
Benzene	ND	ND	ND	5
Chloroform	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	5
Carbon Tetrachloride	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	5
Trichloroethene	ND	ND	ND	5
1,2-Dichloropropane	ND	ND	ND	5
Toluene	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	5
Xylenes	ND	ND	ND	5
TRPH	ND	ND	ND	1
Surrogate Recovery (100ppb)	96	96	95	

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
ATCH # 941019
DATE OF ANALYSES: 10/19/94
ATER ANALYSES BY EPA 8021 AND TRPH BY EPA 418.1

TARGET COMPOUNDS	TB101794 (ug/L)	GMI18-144 (ug/L)	GMI18-146 (ug/L)	GMI18-148 (ug/L)	GMI18-149 (ug/L)	MDL (ug/L)
Vinylchloride	ND	ND	ND	9.67	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	5
ethylene Chloride	ND	ND	ND	ND	ND	5
rans-1,2-Dichloroethene	ND	ND	ND	23.1	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5
1,2-Dichloroethene	ND	72.4	ND	231	15.0	5
ene	ND	ND	ND	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	5
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	5
arbon Tetrachloride	ND	ND	ND	ND	ND	10
,2-Dichloroethane	ND	ND	ND	ND	ND	5
Trichloroethene	ND	768	3.93	782	28.0	5
,2-Dichloropropane	ND	ND	ND	ND	ND	5
oluene	ND	ND	ND	ND	ND	5
1,1,2 Trichloroethane	ND	ND	ND	ND	ND	5
etrachloroethene	ND	ND	ND	ND	ND	5
hylbenzene	ND	ND	ND	ND	ND	5
Xylenes	ND	ND	ND	ND	ND	5
TRPH	--	ND	ND	ND	ND	1
urrogate Recovery (100ppb)	99	100	100	102	102	

) INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4

QUALITY CONTROL CHECK FOR TRPH-% RECOVERY

SAMPLE ID	DATE OF ANALYSIS	MEASURED PPM	% ACCURACY	BATCH #
230 PPM QCC	08/02/94	229	100	940802
230 PPM QCC	08/02/94	230	100	940802
230 PPM QCC	08/03/94	230	100	940803
230 PPM QCC	08/03/94	234	102	940803
230 PPM QCC	08/04/94	236	103	940804
230 PPM QCC	08/04/94	238	103	940804
230 PPM QCC	08/05/94	231	100	940805
230 PPM QCC	08/05/94	234	102	940805
230 PPM QCC	08/09/94	227	99	940809
230 PPM QCC	08/09/94	227	99	940809
230 PPM QCC	08/10/94	229	100	940810
230 PPM QCC	08/10/94	231	100	940810
230 PPM QCC	08/10/94	231	100	940810
230 PPM QCC	08/11/94	232	101	940811
230 PPM QCC	08/11/94	232	101	940811
230 PPM QCC	08/12/94	231	100	940812
230 PPM QCC	08/12/94	236	103	940812
230 PPM QCC	08/16/94	232	101	940816
230 PPM QCC	08/16/94	234	102	940816
230 PPM QCC	08/16/94	230	100	940816
230 PPM QCC	08/17/94	229	100	940817
230 PPM QCC	08/17/94	232	101	940817
230 PPM QCC	08/17/94	233	101	940817
230 PPM QCC	08/18/94	234	102	940818
230 PPM QCC	08/18/94	234	102	940818
230 PPM QCC	08/19/94	234	102	940819
230 PPM QCC	08/19/94	231	100	940819
230 PPM QCC	08/23/94	233	101	940823
230 PPM QCC	08/23/94	231	100	940823
230 PPM QCC	08/23/94	231	100	940823

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4

QUALITY CONTROL CHECK FOR TRPH-% RECOVERY

SAMPLE ID	DATE OF ANALYSIS	MEASURED PPM	% ACCURACY	BATCH #
230 PPM QCC	10/19/94	234	102	941019
230 PPM QCC	10/19/94	234	102	941019
230 PPM QCC	10/21/94	224	97	941021
230 PPM QCC	10/21/94	227	99	941021

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4

QUALITY CONTROL CHECK FOR TRPH-% RECOVERY

SAMPLE ID	DATE OF ANALYSIS	MEASURED PPM	% ACCURACY	BATCH #
230 PPM QCC	10/28/94	233	101	941028
230 PPM QCC	10/28/94	232	101	941028

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4

UALITY CONTROL CHECK FOR TRPH-% RECOVERY

SAMPLE ID	DATE OF ANALYSIS	MEASURED PPM	% ACCURACY	BATCH #
230 PPM QCC	11/03/94	232	101	941103
230 PPM QCC	11/03/94	232	101	941103

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

YSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE FOR TRPH - WATER

SAMPLE ID	DATE OF ANALYSIS	UNSPIKED CONC(PPM)	SPIKED CONC(PPM	RECOVERED CONC(PPM)	% ACCURACY	BATCH #
FB80394 MS	08/03/94	ND	23	23.4	102	940803
FB80394 MSD	08/03/94	ND	23	23.8	103	940803
				%RPD	1.69	
GMI18-188 MS	08/04/94	ND	23	21.4	93	940804
GMI18-188 MSD	08/04/94	ND	23	22.1	96	940804
				%RPD	3.22	
FB80594 MS	08/05/94	ND	23	24.0	104	940805
FB80594 MSD	08/05/94	ND	23	23.6	103	940805
				%RPD	1.68	
FB80994 MS	08/09/94	ND	23	23.0	100	940809
FB80994 MSD	08/09/94	ND	23	23.2	101	940809
				%RPD	0.87	
FB81094 MS	08/10/94	ND	23	23.4	102	940810
FB81094 MSD	08/10/94	ND	23	22.9	100	940810
				%RPD	2.16	
FB81194 MS	08/11/94	ND	23	23.1	100	940811
FB81194 MSD	08/11/94	ND	23	22.9	100	940811
				%RPD	0.87	
FB81294 MS	08/12/94	ND	23	22.5	98	940812
FB81294 MSD	08/12/94	ND	23	22.9	100	940812
				%RPD	1.76	
FB81594 MS	08/16/94	ND	23	22.9	100	940816
FB81594 MSD	08/16/94	ND	23	22.6	98	940816
				%RPD	1.32	
FB81694 MS	08/16/94	ND	23	23.8	103	940816
FB81694 MSD	08/16/94	ND	23	23.4	102	940816
				%RPD	1.69	

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE FOR TRPH - WATER

SAMPLE ID	DATE OF ANALYSIS	UNSPIKED CONC(PPM)	SPIKED CONC(PPM	RECOVERED CONC(PPM)	% ACCURACY	BATCH #
GMI18-56 MS	08/16/94	ND	23	23.7	103	940816
GMI18-56 MSD	08/16/94	ND	23	23.4	102	940816
				%RPD	1.27	
FB81794 MS	08/17/94	ND	23	24.0	104	940817
FB81794 MSD	08/17/94	ND	23	23.6	103	940817
				%RPD	1.68	
FB81894 MS	08/18/94	ND	23	24.5	107	940818
FB81894 MSD	08/18/94	ND	23	23.9	104	940818
				%RPD	2.48	
GMI18-96 MS	08/19/94	ND	23	23.6	103	940819
GMI18-96 MSD	08/19/94	ND	23	24.0	104	940819
				%RPD	1.68	
FB82294 MS	08/23/94	ND	23	23.6	103	940823
FB82294 MSD	08/23/94	ND	23	24.0	104	940823
				%RPD	1.68	
FB82394 MS	08/23/94	ND	23	22.9	100	940823
FB82394 MSD	08/23/94	ND	23	23.3	101	940823
				%RPD	1.73	

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE FOR TRPH - WATER

SAMPLE ID	DATE OF ANALYSIS	UNSPIKED CONC(PPM)	SPIKED CONC(PPM	RECOVERED CONC(PPM)	% ACCURACY	BATCH #
GMI18-144 MS	10/19/94	ND	23	22.9	100	941019
GMI18-144 MSD	10/19/94	ND	23	23.5	102	941019
				%RPD	2.59	
GMI18-83 MS	10/21/94	ND	23	23.0	100	941021
GMI18-83 MSD	10/21/94	ND	23	23.5	102	941021
				%RPD	2.15	

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4

ATRIX SPIKE AND MATRIX SPIKE DUPLICATE FOR TRPH - WATER

SAMPLE ID	DATE OF ANALYSIS	UNSPIKED CONC(PPM)	SPIKED CONC(PPM	RECOVERED CONC(PPM)	% ACCURACY	BATCH #
GMI18-253 MS	10/28/94	ND	23	22.6	98	941028
GMI18-253 MSD	10/28/94	ND	23	22.6	98	941028
				%RPD	0.00	

YSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu Der Luu

ATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-C55

DHL Project #940802T4

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE FOR TRPH - WATER

SAMPLE ID	DATE OF ANALYSIS	UNSPIKED CONC(PPM)	SPIKED CONC(PPM	RECOVERED CONC(PPM)	% ACCURACY	BATCH #
FB102694 MS	11/03/94	ND	23	22.5	98	941103
FB102694 MSD	11/03/94	ND	23	23.3	101	941103
				%RPD	3.49	

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940803
DATE OF ANALYSES: 08/03/94
UALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	100	104
',1-Dichloroethene	ND	102	102
'ethylene Chloride	ND	114	108
trans-1,2-Dichloroethene	ND	81	96
1,1-Dichloroethane	ND	104	98
'is-1,2-Dichloroethene	ND	109	90
'enzene	ND	95	118
Chloroform	ND	98	112
' ',1-Trichloroethane	ND	100	90
ion Tetrachloride	ND	80	120
1,2-Dichloroethane	ND	88	94
Trichloroethene	ND	92	110
,2-Dichloropropane	ND	92	103
'oluene	ND	106	97
1,1,2-Trichloroethane	ND	82	113
'etrachloroethene	ND	96	102
thylbenzene	ND	98	98
Xylenes	ND	99	96
urrogate Recovery %	115	104	86

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940803
DATE OF ANALYSES: 08/03/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB80394 MS	FB80394 MSD	% RPD
Vinylchloride	102	110	7.5
1,1-Dichloroethene	95	97	2.1
Methylene Chloride	90	98	8.5
trans-1,2-Dichloroethene	97	98	1.0
1,1-Dichloroethane	105	99	5.9
cis-1,2-Dichloroethene	99	101	2.0
Benzene	100	103	3.0
Chloroform	100	101	1.0
1,1,1-Trichloroethane	104	112	7.4
Carbon Tetrachloride	89	102	13.6
1,2-Dichloroethane	84	86	2.4
Trichloroethene	94	96	2.1
1,2-Dichloropropane	91	96	5.3
Toluene	110	104	5.6
1,1,2-Trichloroethane	86	90	4.5
Tetrachloroethene	96	98	2.1
Ethylbenzene	101	102	1.0
Xylenes	101	104	2.9

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 940804
ATE OF ANALYSES: 08/04/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

ARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
inylchloride	ND	96	92
,1-Dichloroethene	ND	104	101
Methylene Chloride	ND	100	100
rans-1,2-Dichloroethene	ND	96	102
,1-Dichloroethane	ND	92	95
cis-1,2-Dichloroethene	ND	95	100
zene	ND	100	100
roform	ND	104	104
1,1,1-Trichloroethane	ND	96	96
Carbon Tetrachloride	ND	96	96
,2-Dichloroethane	ND	106	105
richloroethene	ND	101	110
1,2-Dichloropropane	ND	99	97
oluene	ND	109	113
,1,2-Trichloroethane	ND	106	106
Tetrachloroethene	ND	103	104
thylbenzene	ND	101	102
ylenes	ND	103	104
Surrogate Recovery %	109	106	108

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940804
DATE OF ANALYSES: 08/04/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB80494 MS	TB80494 MSD	% RPD
Vinylchloride	100	100	0.0
1,1-Dichloroethene	104	106	1.9
Methylene Chloride	98	98	0.0
trans-1,2-Dichloroethene	101	101	0.0
1,1-Dichloroethane	89	95	6.5
cis-1,2-Dichloroethene	102	100	2.0
Benzene	100	98	2.0
Chloroform	108	103	4.7
1,1,1-Trichloroethane	102	95	7.1
Carbon Tetrachloride	82	90	9.3
1,2-Dichloroethane	103	100	3.0
Trichloroethene	113	100	12.2
1,2-Dichloropropane	102	99	3.0
Toluene	114	110	3.6
1,1,2-Trichloroethane	102	104	1.9
Tetrachloroethene	102	102	0.0
Ethylbenzene	103	103	0.0
Xylenes	105	105	0.0

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
ATCH # 940805
DATE OF ANALYSES: 08/05/94
UALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
inylchloride	ND	98	88
1,1-Dichloroethene	ND	98	95
ethylene Chloride	ND	95	99
rans-1,2-Dichloroethene	ND	105	100
1,1-Dichloroethane	ND	92	101
is-1,2-Dichloroethene	ND	102	101
ene	ND	100	96
roform	ND	98	106
1,1,1-Trichloroethane	ND	90	96
arbon Tetrachloride	ND	110	88
,2-Dichloroethane	ND	98	103
Trichloroethene	ND	96	100
,2-Dichloropropane	ND	92	98
oluene	ND	101	111
1,1,2-Trichloroethane	ND	98	108
Tetrachloroethene	ND	102	101
thylbenzene	ND	100	102
ylenes	ND	105	101
rrogate Recovery %	111	107	107

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940805
DATE OF ANALYSES: 08/05/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	GMI18-188 MS	GMI18-188 MSD	% RPD
Vinylchloride	86	88	2.3
1,1-Dichloroethene	101	103	2.0
Methylene Chloride	98	100	2.0
trans-1,2-Dichloroethene	102	100	2.0
1,1-Dichloroethane	94	96	2.1
cis-1,2-Dichloroethene	104	110	5.6
Benzene	92	93	1.1
Chloroform	104	105	1.0
1,1,1-Trichloroethane	96	95	1.0
Carbon Tetrachloride	96	110	13.6
1,2-Dichloroethane	102	104	1.9
Trichloroethene	100	104	3.9
1,2-Dichloropropane	98	96	2.1
Toluene	103	104	1.0
1,1,2-Trichloroethane	99	102	3.0
Tetrachloroethene	106	107	0.9
Ethylbenzene	103	102	1.0
Xylenes	104	105	1.0

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

10805 Metric Boulevard • Austin, TX 78758 • Phone (512) 835-9299 • Fax (512) 835-9297

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940809
ATE OF ANALYSES: 08/09/94
UALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	98	114
,1-Dichloroethene	ND	92	95
ethylene Chloride	ND	112	86
trans-1,2-Dichloroethene	ND	105	98
' '-Dichloroethane	ND	114	88
1,2-Dichloroethene	ND	101	95
Benzene	ND	102	100
Chloroform	ND	120	96
,1,1-Trichloroethane	ND	107	86
arbon Tetrachloride	ND	102	82
1,2-Dichloroethane	ND	120	92
richloroethene	ND	109	111
,2-Dichloropropane	ND	114	88
Toluene	ND	104	104
',1,2-Trichloroethane	ND	119	96
etrachloroethene	ND	114	109
thylbenzene	ND	107	103
Xylenes	ND	105	103
urrogate Recovery %	110	112	111

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940809
DATE OF ANALYSES: 08/09/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB80994 MS	FB80994 MSD	% RPD
Vinylchloride	80	71	11.9
1,1-Dichloroethene	96	96	0.0
Methylene Chloride	90	88	2.2
trans-1,2-Dichloroethene	102	100	2.0
1,1-Dichloroethane	88	88	0.0
cis-1,2-Dichloroethene	96	90	6.5
Benzene	100	101	1.0
Chloroform	96	98	2.1
1,1,1-Trichloroethane	92	90	2.2
Carbon Tetrachloride	64	74	14.5
1,2-Dichloroethane	100	95	5.1
Trichloroethene	93	90	3.3
1,2-Dichloropropane	93	91	2.2
Toluene	104	106	1.9
1,1,2-Trichloroethane	98	99	1.0
Tetrachloroethene	109	111	1.8
Ethylbenzene	102	104	1.9
Xylenes	101	105	3.9

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940810
ATE OF ANALYSES: 08/10/94
UALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)	QCC#3 (ug/L)
Vinylchloride	ND	100	102	88
,1-Dichloroethene	ND	100	98	96
ethylene Chloride	ND	101	95	88
trans-1,2-Dichloroethene	ND	98	100	94
1-Dichloroethane	ND	98	95	92
1,2-Dichloroethene	ND	102	96	90
Benzene	ND	100	97	98
Chloroform	ND	103	101	94
,1,1-Trichloroethane	ND	106	97	92
arbon Tetrachloride	ND	109	102	85
1,2-Dichloroethane	ND	107	95	88
richloroethene	ND	107	100	94
,2-Dichloropropane	ND	106	98	90
Toluene	ND	104	108	103
,1,2-Trichloroethane	ND	101	98	90
etrachloroethene	ND	110	105	94
thylbenzene	ND	102	104	101
Xylenes	ND	103	106	100
urrogate Recovery %	108	110	133	110

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940810
DATE OF ANALYSES: 08/10/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB81094 MS	FB81094 MSD	% RPD
Vinylchloride	115	108	6.3
1,1-Dichloroethene	112	115	2.6
Methylene Chloride	124	116	6.7
trans-1,2-Dichloroethene	115	114	0.9
1,1-Dichloroethane	121	116	4.2
cis-1,2-Dichloroethene	122	126	3.2
Benzene	101	96	5.1
Chloroform	120	120	0.0
1,1,1-Trichloroethane	118	118	0.0
Carbon Tetrachloride	94	106	12.0
1,2-Dichloroethane	124	121	2.4
Trichloroethene	114	108	5.4
1,2-Dichloropropane	122	121	0.8
Toluene	106	106	0.0
1,1,2-Trichloroethane	118	118	0.0
Tetrachloroethene	111	111	0.0
Ethylbenzene	102	106	3.8
Xylenes	103	106	2.9

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

ATCH # 940810
DATE OF ANALYSES: 08/10/94
RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB81094 MS	TB81094 MSD	% RPD
inylchloride	82	80	2.5
1,1-Dichloroethene	97	92	5.3
ethylene Chloride	84	84	0.0
rans-1,2-Dichloroethene	87	87	0.0
1,1-Dichloroethane	86	86	0.0
-1,2-Dichloroethene	88	84	4.7
ene	98	97	1.0
Chloroform	90	88	2.2
1,1,1-Trichloroethane	94	90	4.3
arbon Tetrachloride	104	90	14.4
,2-Dichloroethane	88	84	4.7
Trichloroethene	90	95	5.4
,2-Dichloropropane	88	87	1.1
oluene	104	102	1.9
1,1,2-Trichloroethane	90	88	2.2
etrachloroethene	110	108	1.8
thylbenzene	102	99	3.0
Xylenes	102	101	1.0

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940811
DATE OF ANALYSES: 08/11/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	82	81
1,1-Dichloroethene	ND	92	101
Methylene Chloride	ND	94	100
trans-1,2-Dichloroethene	ND	93	101
1,1-Dichloroethane	ND	98	103
cis-1,2-Dichloroethene	ND	98	104
Benzene	ND	98	96
Chloroform	ND	89	98
1,1,1-Trichloroethane	ND	92	100
Carbon Tetrachloride	ND	101	88
1,2-Dichloroethane	ND	100	105
Trichloroethene	ND	102	102
1,2-Dichloropropane	ND	101	106
Toluene	ND	104	101
1,1,2-Trichloroethane	ND	104	105
Tetrachloroethene	ND	104	102
Ethylbenzene	ND	103	98
Xylenes	ND	103	98
Surrogate Recovery %	108	106	102

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940811
DATE OF ANALYSES: 08/11/94
RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB81194 MS	TB81194 MSD	% RPD
Vinylchloride	88	92	4.4
1,1-Dichloroethene	94	96	2.1
ethylene Chloride	104	102	1.9
rans-1,2-Dichloroethene	104	109	4.7
1,1-Dichloroethane	107	110	2.8
is-1,2-Dichloroethene	108	110	1.8
enzene	96	91	5.3
Chloroform	105	106	0.9
1,1-Trichloroethane	102	105	2.9
on Tetrachloride	96	98	2.1
1,2-Dichloroethane	110	108	1.8
Trichloroethene	99	107	7.8
,2-Dichloropropane	108	113	4.5
oluene	102	104	1.9
1,1,2-Trichloroethane	110	115	4.4
etrachloroethene	102	104	1.9
thylbenzene	102	103	1.0
Xylenes	100	104	3.9

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940812
DATE OF ANALYSES: 08/12/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	80	75
1,1-Dichloroethene	ND	90	89
Methylene Chloride	ND	90	100
trans-1,2-Dichloroethene	ND	91	101
1,1-Dichloroethane	ND	94	104
cis-1,2-Dichloroethene	ND	96	104
Benzene	ND	96	95
Chloroform	ND	88	107
1,1,1-Trichloroethane	ND	90	102
Carbon Tetrachloride	ND	92	78
1,2-Dichloroethane	ND	98	114
Trichloroethene	ND	99	94
1,2-Dichloropropane	ND	101	110
Toluene	ND	102	100
1,1,2-Trichloroethane	ND	100	111
Tetrachloroethene	ND	101	99
Ethylbenzene	ND	100	95
Xylenes	ND	101	95
Surrogate Recovery %	100	104	96

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940812
ATE OF ANALYSES: 08/12/94
RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB81294 MS	FB81294 MSD	% RPD
Vinylchloride	76	82	7.6
',1-Dichloroethene	84	88	4.7
ethylene Chloride	96	102	6.1
rans-1,2-Dichloroethene	99	96	3.1
1,1-Dichloroethane	101	110	8.5
is-1,2-Dichloroethene	101	110	8.5
enzene	90	91	1.1
Chloroform	100	106	5.8
1-Trichloroethane	98	105	6.9
on Tetrachloride	76	98	25.3
1,2-Dichloroethane	106	108	1.9
richloroethene	94	107	12.9
,2-Dichloropropane	106	113	6.4
oluene	102	104	1.9
1,1,2-Trichloroethane	111	115	3.5
etrachloroethene	102	104	1.9
thylbenzene	99	103	4.0
Xylenes	101	104	2.9

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940816
DATE OF ANALYSES: 08/16/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)	QCC#3 (ug/L)
Vinylchloride	ND	102	95	88
1,1-Dichloroethene	ND	94	96	92
Methylene Chloride	ND	87	108	95
trans-1,2-Dichloroethene	ND	92	94	101
1,1-Dichloroethane	ND	88	104	98
cis-1,2-Dichloroethene	ND	89	100	93
Benzene	ND	105	102	99
Chloroform	ND	87	90	89
1,1,1-Trichloroethane	ND	89	95	91
Carbon Tetrachloride	ND	82	94	89
1,2-Dichloroethane	ND	95	98	94
Trichloroethene	ND	105	104	102
1,2-Dichloropropane	ND	94	104	91
Toluene	ND	100	98	96
1,1,2-Trichloroethane	ND	88	94	90
Tetrachloroethene	ND	98	97	94
Ethylbenzene	ND	95	93	90
Xylenes	ND	97	94	91
Surrogate Recovery %	95	94	94	92

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

'HL Project #940802T4
BATCH # 940816
DATE OF ANALYSES: 08/16/94
RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB81594 MS	TB81594 MSD	% RPD
Vinylchloride	100	97	3.0
1,1-Dichloroethene	98	102	4.0
ethylene Chloride	104	108	3.8
rans-1,2-Dichloroethene	96	95	1.0
1,1-Dichloroethane	106	110	3.7
is-1,2-Dichloroethene	96	98	2.1
enzene	98	101	3.0
Chloroform	91	95	4.3
1,1-Trichloroethane	94	97	3.1
on Tetrachloride	81	88	8.3
1,2-Dichloroethane	100	103	3.0
Trichloroethene	101	104	2.9
,2-Dichloropropane	96	104	8.0
oluene	100	99	1.0
1,1,2-Trichloroethane	100	101	1.0
etrachloroethene	98	98	0.0
thylbenzene	94	94	0.0
Xylenes	96	96	0.0

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940816
DATE OF ANALYSES: 08/16/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB81594 MS	FB81594 MSD	% RPD
Vinylchloride	92	90	2.2
1,1-Dichloroethene	100	98	2.0
Methylene Chloride	96	98	2.1
trans-1,2-Dichloroethene	104	102	1.9
1,1-Dichloroethane	99	100	1.0
cis-1,2-Dichloroethene	89	92	3.3
Benzene	100	100	0.0
Chloroform	87	86	1.2
1,1,1-Trichloroethane	90	91	1.1
Carbon Tetrachloride	80	83	3.7
1,2-Dichloroethane	94	90	4.3
Trichloroethene	104	102	1.9
1,2-Dichloropropane	94	90	4.3
Toluene	96	96	0.0
1,1,2-Trichloroethane	92	93	1.1
Tetrachloroethene	95	96	1.0
Ethylbenzene	91	92	1.1
Xylenes	91	94	3.2

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940817
DATE OF ANALYSES: 08/17/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)	QCC#3 (ug/L)
Vinylchloride	ND	88	94	72
1,1-Dichloroethene	ND	103	118	97
Methylene Chloride	ND	92	115	98
trans-1,2-Dichloroethene	ND	103	120	102
1,1-Dichloroethane	ND	102	120	98
cis-1,2-Dichloroethene	ND	90	112	93
Benzene	ND	100	90	92
Chloroform	ND	89	108	90
1,1,1-Trichloroethane	ND	87	107	93
Carbon Tetrachloride	ND	87	120	96
1,2-Dichloroethane	ND	90	110	95
Trichloroethene	ND	101	90	95
1,2-Dichloropropane	ND	91	112	98
Toluene	ND	96	92	88
1,1,2-Trichloroethane	ND	88	116	93
Tetrachloroethene	ND	94	94	89
Ethylbenzene	ND	90	89	83
Xylenes	ND	93	91	85
Surrogate Recovery %	88	92	90	87

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940817
DATE OF ANALYSES: 08/17/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB81694 MS	TB81694 MSD	% RPD
Vinylchloride	83	80	3.7
1,1-Dichloroethene	118	124	5.0
Methylene Chloride	115	116	0.9
trans-1,2-Dichloroethene	118	122	3.3
1,1-Dichloroethane	115	117	1.7
cis-1,2-Dichloroethene	113	107	5.5
Benzene	90	91	1.1
Chloroform	108	101	6.7
1,1,1-Trichloroethane	104	104	0.0
Carbon Tetrachloride	94	105	11.1
1,2-Dichloroethane	109	103	5.7
Trichloroethene	100	92	8.3
1,2-Dichloropropane	111	106	4.6
Toluene	92	96	4.3
1,1,2-Trichloroethane	110	112	1.8
Tetrachloroethene	92	94	2.2
Ethylbenzene	90	90	0.0
Xylenes	90	92	2.2

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940817
ATE OF ANALYSES: 08/17/94
. RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB81794 MS	FB81794 MSD	% RPD
Vinylchloride	76	75	1.3
,1-Dichloroethene	106	106	0.0
ethylene Chloride	103	102	1.0
trans-1,2-Dichloroethene	107	103	3.8
1-Dichloroethane	98	102	4.0
1,2-Dichloroethene	96	96	0.0
Benzene	92	94	2.2
Chloroform	87	88	1.1
,1,1-Trichloroethane	91	94	3.2
arbon Tetrachloride	82	92	11.5
1,2-Dichloroethane	92	96	4.3
richloroethene	96	98	2.1
,2-Dichloropropane	92	96	4.3
Toluene	89	92	3.3
1,1,2-Trichloroethane	93	95	2.1
etrachloroethene	90	89	1.1
Ethylbenzene	86	84	2.4
Xylenes	86	87	1.2

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derh Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940818
DATE OF ANALYSES: 08/18/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	80	65
1,1-Dichloroethene	ND	108	104
Methylene Chloride	ND	102	96
trans-1,2-Dichloroethene	ND	108	105
1,1-Dichloroethane	ND	102	103
cis-1,2-Dichloroethene	ND	100	100
Benzene	ND	100	94
Chloroform	ND	98	97
1,1,1-Trichloroethane	ND	95	98
Carbon Tetrachloride	ND	90	80
1,2-Dichloroethane	ND	95	100
Trichloroethene	ND	108	99
1,2-Dichloropropane	ND	101	102
Toluene	ND	97	91
1,1,2-Trichloroethane	ND	97	98
Tetrachloroethene	ND	97	91
Ethylbenzene	ND	92	87
Xylenes	ND	93	87
Surrogate Recovery %	83	93	90

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940818
DATE OF ANALYSES: 08/18/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB81894 MS	FB81894 MSD	% RPD
Vinylchloride	83	85	2.4
1,1-Dichloroethene	122	128	4.8
Methylene Chloride	128	124	3.2
trans-1,2-Dichloroethene	136	136	0.0
1,1-Dichloroethane	130	130	0.0
cis-1,2-Dichloroethene	125	120	4.1
Benzene	96	92	4.3
Chloroform	122	111	9.4
1,1,1-Trichloroethane	118	113	4.3
Carbon Tetrachloride	91	110	18.9
1,2-Dichloroethane	117	120	2.5
Trichloroethene	98	94	4.2
1,2-Dichloropropane	122	124	1.6
Toluene	93	96	3.2
1,1,2-Trichloroethane	125	122	2.4
Tetrachloroethene	96	95	1.0
Ethylbenzene	91	90	1.1
Xylenes	91	92	1.1

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940819
DATE OF ANALYSES: 08/19/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	92	106
1,1-Dichloroethene	ND	92	102
Methylene Chloride	ND	93	110
trans-1,2-Dichloroethene	ND	98	110
1,1-Dichloroethane	ND	98	110
cis-1,2-Dichloroethene	ND	94	104
Benzene	ND	94	86
Chloroform	ND	93	106
1,1,1-Trichloroethane	ND	91	102
Carbon Tetrachloride	ND	85	82
1,2-Dichloroethane	ND	95	107
Trichloroethene	ND	98	88
1,2-Dichloropropane	ND	100	110
Toluene	ND	92	90
1,1,2-Trichloroethane	ND	96	113
Tetrachloroethene	ND	92	91
Ethylbenzene	ND	89	87
Xylenes	ND	90	88
Surrogate Recovery %	98	90	90

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
BATCH # 940819
DATE OF ANALYSES: 08/19/94
RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB81894 MS	TB81894 MSD	% RPD
Vinylchloride	100	96	4.1
',1-Dichloroethene	98	100	2.0
ethylene Chloride	95	100	5.1
trans-1,2-Dichloroethene	100	105	4.9
1,1-Dichloroethane	100	101	1.0
is-1,2-Dichloroethene	95	100	5.1
enzene	94	94	0.0
Chloroform	96	96	0.0
1-Trichloroethane	94	96	2.1
on Tetrachloride	85	98	14.2
1,2-Dichloroethane	100	100	0.0
Trichloroethene	100	100	0.0
,2-Dichloropropane	101	104	2.9
oluene	92	92	0.0
1,1,2-Trichloroethane	96	102	6.1
etrachloroethene	92	92	0.0
thylbenzene	88	88	0.0
Xylenes	89	90	1.1

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)	QCC#3 (ug/L)
Vinylchloride	ND	91	91	90
1,1-Dichloroethene	ND	106	87	105
Methylene Chloride	ND	98	104	100
trans-1,2-Dichloroethene	ND	101	110	107
1,1-Dichloroethane	ND	92	104	103
cis-1,2-Dichloroethene	ND	90	104	95
Benzene	ND	90	92	92
Chloroform	ND	86	100	94
1,1,1-Trichloroethane	ND	88	100	97
Carbon Tetrachloride	ND	88	88	94
1,2-Dichloroethane	ND	92	102	100
Trichloroethene	ND	101	96	96
1,2-Dichloropropane	ND	90	104	96
Toluene	ND	88	88	90
1,1,2-Trichloroethane	ND	82	104	96
Tetrachloroethene	ND	86	88	90
Ethylbenzene	ND	80	83	86
Xylenes	ND	83	83	86
Surrogate Recovery %	92	83	84	88

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

'HL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB82294 MS	FB82294 MSD	% RPD
Vinylchloride	82	82	0.0
1,1-Dichloroethene	118	116	1.7
ethylene Chloride	108	104	3.8
rans-1,2-Dichloroethene	113	111	1.8
1,1-Dichloroethane	109	105	3.7
is-1,2-Dichloroethene	102	102	0.0
enzene	85	86	1.2
Chloroform	98	95	3.1
1-Trichloroethane	96	98	2.1
on Tetrachloride	88	84	4.7
1,2-Dichloroethane	100	101	1.0
Trichloroethene	85	85	0.0
,2-Dichloropropane	101	100	1.0
oluene	88	89	1.1
1,1,2-Trichloroethane	100	100	0.0
etrachloroethene	86	88	2.3
thylbenzene	85	85	0.0
Xylenes	85	86	1.2

VALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Dr. Derhsing Luu Der Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 940823
DATE OF ANALYSES: 08/23/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB82394 MS	FB82394 MSD	% RPD
Vinylchloride	81	90	10.5
1,1-Dichloroethene	99	102	3.0
Methylene Chloride	97	98	1.0
trans-1,2-Dichloroethene	103	104	1.0
1,1-Dichloroethane	100	100	0.0
cis-1,2-Dichloroethene	97	96	1.0
Benzene	90	90	0.0
Chloroform	96	94	2.1
1,1,1-Trichloroethane	95	94	1.1
Carbon Tetrachloride	90	82	9.3
1,2-Dichloroethane	94	98	4.2
Trichloroethene	92	92	0.0
1,2-Dichloropropane	98	98	0.0
Toluene	88	88	0.0
1,1,2-Trichloroethane	96	95	1.0
Tetrachloroethene	86	86	0.0
Ethylbenzene	84	82	2.4
Xylenes	83	83	0.0

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Dr. Derhsing Luu Derhsing Luu

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941019
DATE OF ANALYSES: 10/19/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	104	110
,1-Dichloroethene	ND	94	108
Methylene Chloride	ND	102	111
trans-1,2-Dichloroethene	ND	103	102
,1-Dichloroethane	ND	99	110
is-1,2-Dichloroethene	ND	104	100
Benzene	ND	103	99
Chloroform	ND	103	113
1-Trichloroethane	ND	98	111
Carbon Tetrachloride	ND	99	111
1,2-Dichloroethane	ND	103	114
richloroethene	ND	106	103
,2-Dichloropropane	ND	101	111
Toluene	ND	100	96
,1,2-Trichloroethane	ND	106	113
etrachloroethene	ND	101	96
Ethylbenzene	ND	100	95
Xylenes	ND	99	93
Surrogate Recovery %	102	100	95

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941019
DATE OF ANALYSES: 10/19/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB101794 MS	TB101794 MSD	% RPD
Vinylchloride	117	122	4.2
1,1-Dichloroethene	106	108	1.9
Methylene Chloride	112	112	0.0
trans-1,2-Dichloroethene	105	104	1.0
1,1-Dichloroethane	108	111	2.7
cis-1,2-Dichloroethene	106	104	1.9
Benzene	101	101	0.0
Chloroform	113	113	0.0
1,1,1-Trichloroethane	107	109	1.9
Carbon Tetrachloride	104	108	3.8
1,2-Dichloroethane	112	113	0.9
Trichloroethene	112	106	5.5
1,2-Dichloropropane	108	113	4.5
Toluene	98	98	0.0
1,1,2-Trichloroethane	110	116	5.3
Tetrachloroethene	99	99	0.0
Ethylbenzene	98	97	1.0
Xylenes	96	96	0.0

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941020
DATE OF ANALYSES: 10/20/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	97	95
1,1-Dichloroethene	ND	98	98
Methylene Chloride	ND	100	105
trans-1,2-Dichloroethene	ND	98	93
1-Dichloroethane	ND	102	99
1,2-Dichloroethene	ND	94	91
Benzene	ND	92	88
Chloroform	ND	105	96
1,1,1-Trichloroethane	ND	104	98
Carbon Tetrachloride	ND	101	97
1,2-Dichloroethane	ND	110	105
Trichloroethene	ND	93	89
1,2-Dichloropropane	ND	108	103
Toluene	ND	95	91
1,1,2-Trichloroethane	ND	110	102
Tetrachloroethene	ND	96	91
Ethylbenzene	ND	94	88
Xylenes	ND	93	87
Surrogate Recovery %	96	96	90

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941020
DATE OF ANALYSES: 10/20/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB101994 MS	TB101994 MSD	% RPD
Vinylchloride	98	105	6.9
1,1-Dichloroethene	105	108	2.8
Methylene Chloride	108	110	1.8
trans-1,2-Dichloroethene	94	96	2.1
1,1-Dichloroethane	106	105	0.9
cis-1,2-Dichloroethene	95	97	2.1
Benzene	92	91	1.1
Chloroform	109	111	1.8
1,1,1-Trichloroethane	106	96	9.9
Carbon Tetrachloride	102	98	4.0
1,2-Dichloroethane	112	110	1.8
Trichloroethene	93	91	2.2
1,2-Dichloropropane	107	107	0.0
Toluene	92	92	0.0
1,1,2-Trichloroethane	113	103	9.3
Tetrachloroethene	94	93	1.1
Ethylbenzene	92	91	1.1
Xylenes	91	89	2.2

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941021
ATE OF ANALYSES: 10/21/94
UALITY CONTROL CHECK (QCC)-% RECOVERY

ARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
Vinylchloride	ND	91	98
,1-Dichloroethene	ND	92	101
ethylene Chloride	ND	100	108
trans-1,2-Dichloroethene	ND	96	97
,1-Dichloroethane	ND	100	108
is-1,2-Dichloroethene	ND	96	96
Benzene	ND	96	94
oroform	ND	103	115
1-Trichloroethane	ND	99	109
Carbon Tetrachloride	ND	98	108
1,2-Dichloroethane	ND	106	116
richloroethene	ND	97	95
,2-Dichloropropane	ND	102	114
Toluene	ND	93	92
,1,2-Trichloroethane	ND	106	122
etrachloroethene	ND	93	93
Ethylbenzene	ND	92	92
ylenes	ND	90	90
Surrogate Recovery %	97	92	90

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

NALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941021
DATE OF ANALYSES: 10/21/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB102094 MS	TB102094 MSD	% RPD
Vinylchloride	98	95	3.1
1,1-Dichloroethene	98	93	5.2
Methylene Chloride	100	104	3.9
trans-1,2-Dichloroethene	98	98	0.0
1,1-Dichloroethane	104	106	1.9
cis-1,2-Dichloroethene	98	97	1.0
Benzene	96	96	0.0
Chloroform	109	108	0.9
1,1,1-Trichloroethane	104	104	0.0
Carbon Tetrachloride	102	106	3.8
1,2-Dichloroethane	103	111	7.5
Trichloroethene	98	98	0.0
1,2-Dichloropropane	106	106	0.0
Toluene	93	93	0.0
1,1,2-Trichloroethane	99	115	15.0
Tetrachloroethene	93	94	1.1
Ethylbenzene	92	94	2.2
Xylenes	90	91	1.1

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

HL Project #940802T4
ATCH # 941028
DATE OF ANALYSES: 10/28/94
UALITY CONTROL CHECK (QCC)-% RECOVERY

TARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
inylchloride	ND	108	106
1,1-Dichloroethene	ND	118	108
ethylene Chloride	ND	108	129
rans-1,2-Dichloroethene	ND	107	104
1,1-Dichloroethane	ND	102	122
is-1,2-Dichloroethene	ND	101	104
ene	ND	104	106
roform	ND	107	121
1,1,1-Trichloroethane	ND	106	114
rbon Tetrachloride	ND	104	114
2-Dichloroethane	ND	103	117
Trichloroethene	ND	106	104
2-Dichloropropane	ND	107	126
luene	ND	104	104
1,1,2-Trichloroethane	ND	107	124
Tetrachloroethene	ND	117	112
hylbenzene	ND	108	112
lenes	ND	103	106
rrogate Recovery %	92	105	104

ND INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

ALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu Derhsing Luu

TA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941028
DATE OF ANALYSES: 10/28/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB102494 MS	FB102494 MSD	% RPD
Vinylchloride	106	108	1.9
1,1-Dichloroethene	105	113	7.3
Methylene Chloride	135	118	13.4
trans-1,2-Dichloroethene	99	97	2.0
1,1-Dichloroethane	116	116	0.0
cis-1,2-Dichloroethene	105	102	2.9
Benzene	106	103	2.9
Chloroform	120	120	0.0
1,1,1-Trichloroethane	114	113	0.9
Carbon Tetrachloride	110	113	2.7
1,2-Dichloroethane	112	118	5.2
Trichloroethene	105	102	2.9
1,2-Dichloropropane	118	125	5.8
Toluene	101	99	2.0
1,1,2-Trichloroethane	120	121	0.8
Tetrachloroethene	112	109	2.7
Ethylbenzene	107	104	2.8
Xylenes	97	97	0.0

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu Derhsing Luu

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 941102
ATE OF ANALYSES: 11/02/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

ARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
inylchloride	ND	64	66
,1-Dichloroethene	ND	95	90
Methylene Chloride	ND	98	109
rans-1,2-Dichloroethene	ND	95	92
,1-Dichloroethane	ND	92	97
cis-1,2-Dichloroethene	ND	98	95
enzene	ND	97	95
roform	ND	96	99
1,1,1-Trichloroethane	ND	91	94
Carbon Tetrachloride	ND	91	90
,2-Dichloroethane	ND	98	97
richloroethene	ND	98	96
1,2-Dichloropropane	ND	97	105
oluene	ND	92	92
,1,2-Trichloroethane	ND	99	99
Tetrachloroethene	ND	98	95
thylbenzene	ND	96	94
lenes	ND	95	92
Surrogate Recovery %	102	86	87

) INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

IALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu

TA REVIEWED BY: Allan Cobb

10805 Metric Boulevard • Austin, TX 78758 • Phone (512) 835-9299 • Fax (512) 835-9297

DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941102
DATE OF ANALYSES: 11/02/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	FB102794 MS	FB102794 MSD	% RPD
Vinylchloride	65	65	0.0
1,1-Dichloroethene	92	91	1.1
Methylene Chloride	100	112	11.3
trans-1,2-Dichloroethene	92	92	0.0
1,1-Dichloroethane	94	99	5.2
cis-1,2-Dichloroethene	94	95	1.1
Benzene	95	94	1.1
Chloroform	90	99	9.5
1,1,1-Trichloroethane	90	104	14.4
Carbon Tetrachloride	88	92	4.4
1,2-Dichloroethane	91	100	9.4
Trichloroethene	96	102	6.1
1,2-Dichloropropane	98	109	10.6
Toluene	85	83	2.4
1,1,2-Trichloroethane	97	99	2.0
Tetrachloroethene	96	96	0.0
Ethylbenzene	90	88	2.2
Xylenes	84	76	10.0

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Dr. Derhsing Luu Derhsing Luu

DATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
ATCH # 941103
DATE OF ANALYSES: 11/03/94
QUALITY CONTROL CHECK (QCC)-% RECOVERY

ARGET COMPOUNDS	BLANK (ug/L)	QCC#1 (ug/L)	QCC#2 (ug/L)
inylchloride	ND	70	88
1,1-Dichloroethene	ND	97	92
Methylene Chloride	ND	95	104
rans-1,2-Dichloroethene	ND	98	95
,1-Dichloroethane	ND	97	104
cis-1,2-Dichloroethene	ND	101	98
zene	ND	101	98
roform	ND	98	99
1,1,1-Trichloroethane	ND	95	104
Carbon Tetrachloride	ND	91	98
,2-Dichloroethane	ND	96	105
rrichloroethene	ND	102	101
1,2-Dichloropropane	ND	98	109
oluene	ND	94	98
,1,2-Trichloroethane	ND	104	104
Tetrachloroethene	ND	101	98
thylbenzene	ND	100	99
ylenes	ND	99	95
Surrogate Recovery %	103	102	108

D INDICATES NOT DETECTED AT LISTED DETECTION LIMITS

NALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

ATA REVIEWED BY: Allan Cobb Allan Cobb

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DHL ANALYTICAL

GEO-MARINE, INC.

Location: CARSWELL AFB, FORT WORTH, TEXAS
Project #: 1114-055

DHL Project #940802T4
BATCH # 941103
DATE OF ANALYSES: 11/03/94
% RECOVERY FOR MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

TARGET COMPOUNDS	TB102694 MS	TB102694 MSD	% RPD
Vinylchloride	76	66	14.1
1,1-Dichloroethene	96	95	1.0
Methylene Chloride	100	101	1.0
trans-1,2-Dichloroethene	96	95	1.0
1,1-Dichloroethane	98	105	6.9
cis-1,2-Dichloroethene	98	97	1.0
Benzene	99	98	1.0
Chloroform	108	106	1.9
1,1,1-Trichloroethane	105	102	2.9
Carbon Tetrachloride	97	102	5.0
1,2-Dichloroethane	103	106	2.9
Trichloroethene	99	98	1.0
1,2-Dichloropropane	109	111	1.8
Toluene	98	97	1.0
1,1,2-Trichloroethane	111	109	1.8
Tetrachloroethene	100	99	1.0
Ethylbenzene	96	96	0.0
Xylenes	92	93	1.1

ANALYSES PERFORMED ON-SITE IN DHL'S TNRCC APPROVED MOBILE LABORATORY

ANALYSES PERFORMED BY: Scott Schroeder Scott Schroeder

DATA REVIEWED BY: Allan Cobb Allan Cobb

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APPENDIX E

Soil Logs

GEO-MARINE

RECORD OF SUBSURFACE EXPLORATION

Project No.: 1114-055
Project: CARSWELL FUELS. PHASE II Soil Borings
Drilling Co: GMI
Driller: HSThompson
Drilling Method: HSA/CT-5'

Well/Boring #: GMI 1B-01B
Depth of Boring: 29'
Depth of Well: 28.9'
Length of Screen: 10 ft.
Length of Casing: 20'
Logged By: LL Delano

Date Drilled: 9-14-94
Diameter of Boring: 7 5/8"
Diameter of Screen: 2"
Diameter of Casing: 2"
Slot Size: 0.01
Well Material: PVC

DEPTH FEET	SOIL DESCRIPTION	OVA	REMARKS
0	ASPHALT SURFACE		
2.5	CLAY, silty, color grades from black at top to dark olive brown @ 5'	5 with spike to 15 no odor	recovered 5'/5' sampled 1B-05
5.0	SAND, very clayey, pebbly, cohesive, medium brown	1 no odor	recovered 1'/5'
10.0	SAND, clayey, gravelly, white pebbles ≤ 1/2", base of interval loose clayey SAND w/o pebbles	<1 no odor	recovered 1'/5'
15.0	SAND & GRAVEL, pebbles subangular ≤ 1 1/2" w/ SAND, fine grained, clayey @ base of interval	1 no odor	recovered 1'/5'
20.0	SAND, medium-grained, quartz, rounded, well sorted, loose, wet in lower portion, light brown	1 no odor	recovered 1'6"/5' driller reported water @ 23'6"
25.0	SAND, medium to coarse-grained, wet, small angular gravel, 3" layer of well-cemented sand	wet sample	recovered 1'2"/3' driller reported hard layer @ 27'
27.5	LIMESTONE pebble in shoe	No sample	changed to bit @ 28'
30.0	T.D. • 29'		

ABBREVIATIONS AND SYMBOLS

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
RC-Rock Core
THD-Texas Highway Department Cone
CT-5' Continuous Sampler

HSA-Hollow Stem Augers
CFA-Continuous Flight Augers
DC-Driving Casing
MD-Mud Drilling

WATER LEVEL
▽ At Completion
▼ After Hours
• Water on Rods

Bottom Cap
Sand Pack
Bentonite Seal
Factory-Slotted Well Screen
Well Casing
Volaclay Grout Seal

GEO-MARINE

RECORD OF SUBSURFACE EXPLORATION

Project No.: 1114-055
Project: CARSWELL FUELS, PHASE II Soil Borings
Drilling Co: GMI
Driller: HS Thompson
Drilling Method: HSA / CT-5'

Well/Boring #: GMI 18-02B
Depth of Boring: 29'
Depth of Well: 28'6"
Length of Screen: 10 ft.
Length of Casing: 20'
Logged By: LL Delano

Date Drilled: 9/14/94
Diameter of Boring: 7 5/8"
Diameter of Screen: 2"
Diameter of Casing: 2"
Slot Size: 0.01
Well Material: PVC

DEPTH FEET	SOIL DESCRIPTION	OVA	REMARKS
0	3" Asphalt over SAND, very clayey, fine-grained, medium brown		recovered 4'6"/5'
2.5	CLAY, silty, tough, hard, not plastic, white streaks + small soft pebbles, medium → dark gray	<1 no odor	
5.0	SAND, v. clayey, some gravel, medium to coarse grained		recovered 3'6"/5'
7.5	CLAY, very sandy (fine-grained), tough, hard	<1 no odor	layer of white pebbles @ 10'
10.0	GRAVEL, white pebbles in sandy, clayey matrix		recovered 2'6"/5'
12.5		<1 no odor	
15.0	SAND, v. clayey fine grained, soft		Driller reported water @ 15' recovered 3'/5'
17.5	SAND, medium-grained, rounded, quartz, clean, loose	<1 no odor	
20.0	SAND, as above but more clayey, very wet	Wet sample	Sample: 2B-20 recovered 1'8"/5'
22.5			
25.0			recovered 1'8"/2'
	GRAVEL + SAND - pebbles rounded ≤ 1"		
27.5	SHALE, ground up, medium gray, description from material on bit	No sample	changed to bit @ 27'
30.0	TD = 29'		

ABBREVIATIONS AND SYMBOLS

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
RC-Rock Core
THD-Texas Highway Department Cone
CT-5' Continuous Sampler

HSA-Hollow Stem Augers
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DC-Driving Casing
MD-Mud Drilling

WATER LEVEL
▽ At Completion
▼ After Hours
• Water on Rods

Bottom Cap
Sand Pack
Bentonite Seal
Factory-Slotted Well Screen
Well Casing
Volaclay Grout Seal

GEO-MARINE

RECORD OF SUBSURFACE EXPLORATION

Project No.: 1114-055
Project: CARSWELL FUELS. PHASE II Soil Borings
Drilling Co: GMI
Driller: HS Thompson
Drilling Method: HSA/CT-5'

Well/Boring #: GMI 18-03B
Depth of Boring: 25'
Depth of Well: 24'
Length of Screen: 10 ft.
Length of Casing: 15'
Logged By: LL Delano

Date Drilled: 9-13-94
Diameter of Boring: 7 5/8"
Diameter of Screen: 2"
Diameter of Casing: 2"
Slot Size: 0.01
Well Material: PVC

DEPTH FEET	SOIL DESCRIPTION	OVA	REMARKS
0	8" gravel asphalt surface		
	SAND, clayey, pebbly, light gray		recovered 5'/5'
	CLAY, silty, tough, hard, dark brown	< 1	
2.5	CLAY, very silty, less tough, pebbly, light to medium brown, finely laminated	no odor	pebbles rounded's ≤ 1/2"
5.0	SAND, gravelly, clayey, rounded, loose, medium brown	< 1	recovered 2'6"/5'
7.5	SAND & GRAVEL, loose, light tan	no odor	pebbles roundal, hard ≤ 1"
10.0		< 1	recovered 2'6"/5'
12.5	SAND, clayey, medium brown, more cohesive than above	no odor	Sample Driller reported water @ 14'
15.0		no sample	changed to bit-drilled 2'
17.5	GRAVEL w/ subrounded pebbles to 1" and small angular pebbles, wet, oily, free product in barrel	sample wet	recovered 3"/3' barrel coated with dark brown free product
20.0	SHALE BEDROCK (weathered), somewhat fissile, medium gray, desription from cuttings (interval not cored)	no sample	changed to bit for remainder of hole
22.5			
25.0	T.D. = 25'		
27.5			
30.0			

ABBREVIATIONS AND SYMBOLS

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
RC-Rock Core
THD-Texas Highway Department Cone
CT-5' Continuous Sampler

HSA-Hollow Stem Augers
CFA-Continuous Flight Augers
DC-Driving Casing
MD-Mud Drilling

WATER LEVEL
▽ At Completion
▼ After Hours
• Water on Rods

Bottom Cap
Sand Pack
Bentonite Seal
Factory-Slotted Well Screen
Well Casing
Volaclay Grout Seal

GEO-MARINE

RECORD OF SUBSURFACE EXPLORATION

Project No.: 1114-055
Project: CARSWELL FUELS, PHASE II SOIL Borings
Drilling Co: GMI
Driller: HS Thompson
Drilling Method: HSA/CT-5'

Well/Boring #: GMI 18-04B
Depth of Boring: 27.'
Depth of Well: 26.2'
Length of Screen: 10 ft.
Length of Casing: 17'
Logged By: LL Delano

Date Drilled: 9/13/94
Diameter of Boring: 7 5/8"
Diameter of Screen: 2"
Diameter of Casing: 2"
Slot Size: 0.01
Well Material: PVC

DEPTH FEET	SOIL DESCRIPTION	OVA	REMARKS
0	6" asphalt		
	CLAY, silty, tough, hard, light gray	<1 odor at surface	recovery: 3'6"/5'
2.5	SAND, gravelly, clayey, loose, dry, light beige-gray		pebbles sub-rounded ≤ 1/2"
5.0	CLAY, slick, tough, somewhat plastic, very dark gray	spike to 20	recovery: 3'8"/5' Collected soil sample 4B-5
	CLAY, sandy, medium brown	1-2	
7.5	CLAY, sandy, more homogeneous than above	<1	Lo pebbles @ 8'
10.0	SAND, medium-grained, quartz, clean, loose, dry, medium brown	5 no odor	recovered 1'8"/5'
12.5			Sampled 4B-5 driller: water @ 14'
15.0	Gravel layer, rounded & angular pebbles to 1/2" underlain by 3" SAND - remainder missing	15 strong fuel odor	recovered 3"/5' drilled top part of interval exterior of core barrel coated w/ dark brown oil (?)
17.5			
20.0	SAND, as above except wet, barrel has free product	spike to 20 moderate odor	recovered 6"/5'
22.5			
25.0	CLAY, tough layered, medium rust-brown	5	recovered 2'/2'
	CLAY (weathered shale), fissile, medium gray	<1	
27.5			
30.0	T.D. 27		

ABBREVIATIONS AND SYMBOLS

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WATER LEVEL
▽ At Completion
▼ After Hours
• Water on Rods

Bottom Cap
Sand Pack
Bentonite Seal
Factory-Slotted Well Screen
Well Casing
Volclay Grout Seal

GEO-MARINE

RECORD OF SUBSURFACE EXPLORATION

Project No.: 1114-055
Project: CARSWELL FUELS, PHASE II Soil Borings
Drilling Co: GMI
Driller: HS Thompson
Drilling Method: HSA / CT-5'

Well/Boring #: GMI 18-05B
Depth of Boring: 29'
Depth of Well: 28'9"
Length of Screen: 10 ft.
Length of Casing: 20'
Logged By: L L Delano

Date Drilled: 9-14-94
Diameter of Boring: 7 5/8"
Diameter of Screen: 2"
Diameter of Casing: 2"
Slot Size: 0.01
Well Material: PVC

DEPTH FEET	SOIL DESCRIPTION	OVA	REMARKS
0	CLAY, silty, sandy, pebbly (top soil), dark brown		recovered 3'6"/5'
2.5	SAND, very clayey w/ white streaks + pebbles	<1 no odor	
	SAND, clayey, cohesive, streaked		
5.0	CLAY, silty, very tough, dark gray		recovered 5'/5'
7.5	CLAY, silty, tough, but softer than above, medium gray	<1 no odor	
10.0	CLAY, sandy cohesive, medium brown	1 slight odor	recovered 4'2"/5'
12.5	CLAY, very sandy w/ white pebbles		sampled 5B-15
15.0			recovered 1'8"/5'
17.5	SAND, medium-grained, quartz, rounded, clean, loose	<1	
20.0		Wet Sample	recovered 2'6"/5'
22.5			Driller reported water @ 24'
25.0	SAND, coarse-grained w/ grand (large rounded & small angular pebbles, narrow tightly cemented layer	wet sample	recovered 3"/1' Changed to bit @ 26'
27.5	NO SAMPLE	no sample	
30.0	T.D = 29		

ABBREVIATIONS AND SYMBOLS

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ST-Pressed Shelby Tube
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HSA-Hollow Stem Augers
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WATER LEVEL
▽ At Completion
▼ After Hours
• Water on Rods

Bottom Cap
Sand Pack
Bentonite Seal
Factory-Slotted Well Screen
Well Casing
Volclay Grout Seal

APPENDIX F

Field Log Book

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name GEO-MARINE, INC

Address 550 E. 15th ST.
PLANO, TX 75074

Phone (214) 423-5480

Project 1114-055
Groundwater Sampling at Carswell
for JP-4, TCE, BTEX
"CARSWELL GROUNDWATER SURVEY

Yellow Polyethylene Protective Slipcovers (Item #31) are available for this style of notebook.
Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

1994

1-17 DELON, STATIC WATER LEVELS, GROUTING 5/9 TO
FOR PHASE I (53 locations) 5/19

5/11/94

0830 STARTED CLEANING HOLES OUT FOR A-41 & A-38 TO PATCH PAVEMENT
0900 FINISHED PAVEMENT PATCH
FUGRO STARTED ON A-31
0910 DECON 1" PIPE
0915 FINISHED DECON
1000 FUGRO FINISHED UP A-31
MOVED TO C-29
1015 WATER IN HOLE SPONGED OUT BUT STILL SEAPING EVERY-ONE THINKING ON HOW TO CURE PROBLEM ONE SUGGESTION PUT BENTONITE GROTE IN HOLE TO SHUT DOWN SEAPAGE, WORKED WENT TO C-30 SPONGED OUT SAME & FIXED SEAPAGE.
1100 DECON BARRELS NO SAFETY MEETING YET
1136 FUGRO MOVED TO C-30 PICKED UP BARRELS
1145 DECONING BARRELS
1155 FINISHED DECON
1210 SHUT DOWN FOR LUNCH
1[illegible] RETURNED PULLING SAMPLE C-29

1400 LEFT TO FILL RIG WITH DIESEL
1445 RETURNED FUGRO WORKING ON C-30
1515 FUGRO MOVED TO C-32
WENT TO FLIGHT OPS
CHIPS WERE TOOK TO RADAR SITE UNLOADED SAME
1605 HEADED BACK TO FIELD
1615 BACK AT SEALED PIPE C-32
SEALED C-30
1625 WATER LEVEL AT C-37 IS 21.85 BOTTOM OF HOLE IS 24.30
1632 PULLING SCREEN & SEAL UP GEO-TECH HOLE TO BOTTOM OF CONCRETE PAD
1700 DECONING 1" PIPE
1745 LEFT DECON AREA TO LO HOME
1758 LEFT RAMP TO RADAR
1832 LEFT RADAR
1~~8[illegible]~~ 1ST

5/12/94

730 STARTED SPONGE HOLES C-33 C-34 C-35

745 UNLOADED TRAILER SET UP D-CON

820 WATER LEVEL AT A-36 IS 22.10 BOTTOM 23.30

825 PULLED SCREEN & RISER PULLED HOLE UP TO BOTTOM OF ASPHALT, ASPHALTED SAME

845 WENT TO DELIVER SAMPLES

910 DROPPED SAMPLES OFF

925 RETURNED TO RAMPS AT C-33 PICKED UP BARRELS WENT TO D-CON

942 RETURNED TO FUGRO AT C-34

955 ARRIVED AT C-39 SPONGE DRY

1000 LEFT C-39 WENT TO C-40 SO DID FUGRO LEFT C-34/C-39

1010 WENT TO C-34

1034 FUGRO MOVED OFF C-39 WENT TO C-40

1215 WENT TO SAMPLE C-39 PULLED 6" WATER OUT NO MORE

1500 BACKED UP TO C-39 TO PULL SCREEN

1510 GOT BARRELS FROM FUGRO TO DACON

1515 WENT & STARTED OF C-17 C-16 C-15

1530 WATER LEVEL AT A-31 0' BOTTOM OF PIPE AT 20'

1540 DACON BARRELS

1600 GOING TO RADAR SITE SCREEN & DOT BARREL

1610 LEFT RADAR SITE

1620 PICKED UP BARRELS & SCREEN FUGRO AT C-17

1630 PULLED A-31 GROUTED & PAVED

1645 WENT TO PICK UP RISER & LEAVE ONE DOT DRUM

1730 LEFT RADAR SITE

1745 SOUNDED C-29 WATER LEVEL 18.20' BOTTOM 19.80' PULLED PIPE GROUTED UP TO BOTTOM OF CONCRETE PAD

1815 SOUNDED C-30 WATER LEVEL 19.50' BOTTOM AT 20.92' 22' OF PIPE PULLED SAME GROUTED UP TO BOTTOM OF CONCRETE SLAB

CONT.

1835 SOUNDED C-32 WATER LEVEL 20.80' BOTTOM AT 22.50 PULLED PIPE GROUTE UP TO BOTTOM OF CONCRETE PAD

1855 DECONING BARRELS & TRUCK

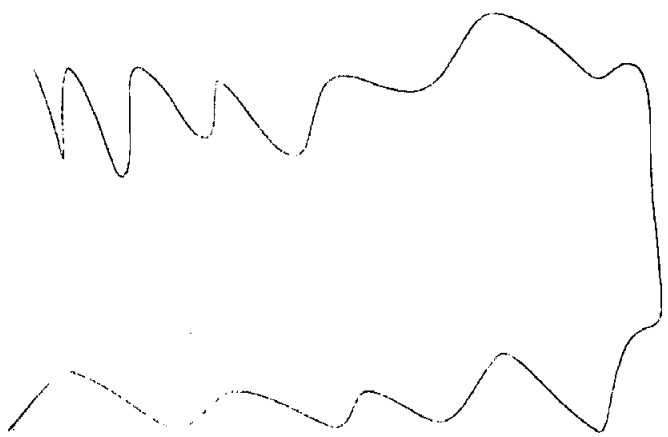
1943 WENT TO MOTEL FOR BOTTLES

2010 BACK ON RAMP

2015 LEFT G-~~10~~ 16 HST WENT TO DECON AREA STARTED CLEANING UP

2100 WENT TO G-15 FOR TONY

2145 SHUT DOWN AT RADAR SITE



5/13/94

7:18 LEFT RADAR SITE

730 GOT PERMIT RIGGED UP DECON

857 STARTED HOLE AT A-45

906 STARTED HOLE AT A-46 FUGRO ARRIVED A-45

915 STARTED HOLE AT A-48

925 STARTED HOLE AT A-50

945 WATER LEVEL AT C-35 IS 22.00' BOTTOM OF PIPE 24.90' PULLED SAME GROUTED TO BOTTOM OF CONCRETE PAD

1025 WATER LEVEL AT C-3 IS 23.43 BOTTOM AT 24.30 PULLED SAME DWAYNE FROM CORPS SHOWED UP

1040 GOING TO RADAR SITE

1105 RETURN TO RAMPS PICKED BARRELS HEAD TO DECON

1210 FUGRO ON A 48 RETURNED BARRELS SEALED A-46 & A45

1223 RETURNED TO C34 WATER LEVEL AT 21.98' BOTTOM AT 24.00 PULLED SAME & GROUTED UP TO BOTTOM OF CONCRETE SLAB

1244 WENT TO C40 WATER LEVEL ~~AT~~ ~~16.50~~ 16.50 HST BOTTOM AT 18.00

1315 SEALED UP C-48

1445 FINISHED UP SECURING EVERY THING AS PER USA

5/10/94

0755 ARRIVED AT RADAR SITE

855 SAFETY MEETING AT A-50

915 SET UP AT A-53

925 SET UP AT A-52

937 SET UP AT A-51

940 SET UP AT A-43

1004 PICKED UP BARRELS A-51 WENT TO DECON AREA

1046 FUGRO AT A-52 LEFT BARRELS

1050 ARRIVED C-49 WATER LEVEL AT 20.10 BOTTOM 25' PULLED SCREEN & REBAR BROKEN UP BELOW CONCRETE PAD

1113 SET ON A-36

1125 SET UP ON A-51 AGAIN PLUG & ASPHALTED OTHER A-51 FUGRO ON A-53

1145 PICKED UP BARRELS A-53

1149 ARRIVED AT C-47 WATER LEVEL AT 9.40' BOTTOM OF PIPE AT 21' PULLED & PLUG

1210 SET UP AT A-44 WATER LEVEL AT 12.70' BOTTOM OF PIPE AT 14.50' PULLED & PLUGGED

1220 ON THE TO DECON

1245 LUNCH

1345 LEFT BARRELS AT A-51

CONT.

1400 WATER LEVEL AT ~~B~~ HST C-17 12.50 BOTTOM OF PIPE 15.0' PULL PIPE & PLUG

1412 WATER LEVEL C-16 14.65 BOTTOM OF PIPE IS 12.70 PULL PIPE & PLUG

1432 WATER LEVEL AT C-15 22.65 BOTTOM OF PIPE IS ~~BE~~ HST 27.0' PULLED PIPE & PLUGGED

1450 PICKED UP BARRELS FUGRO AT A-43

1461 WATER LEVEL AT A-45 IS 11.10' HIGH ODOR OF PETROLEUM BOTTOM IS AT 17.76 PULL REBAR & SCREEN PLUGGED SAND & ASPHALT

1519 DECON BARRELS

1545 DROP OFF BARRELS AT C-42 LEFT FOR RADAR SITE

1600 LEFT RADAR SITE

1619 ARRIVED AT A-43 FUGRO LEFT C-42 HEADED FOR C-~~#~~ HST 13

1635 ARRIVED AT A-46 WATER LEVEL AT 8.60' BOTTOM IS 11.0' PULLED SCREEN AND REBAR & PLUGGED & ASPHALT

1715 PICKED UP BARRELS AT C-13 FUGRO GETTING READY TO MOVE TO C-12 WENT TO DECON

1735 BACK TO ~~B~~ HST C-12 UNLOADED BARRELS

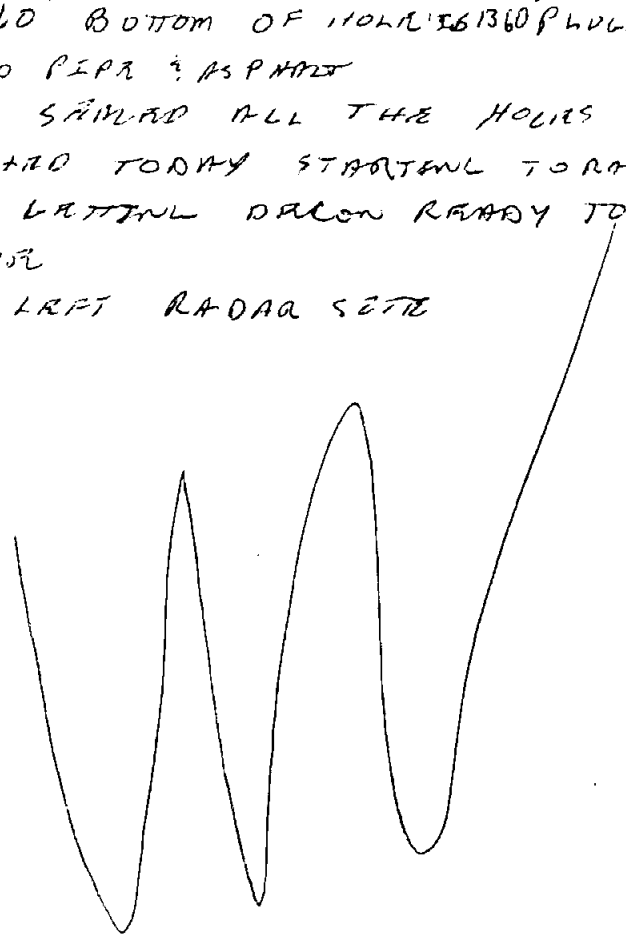
CONT

~~5.43~~ 1743 ARRIVED AT A-48 WATER LEVEL AT 6.60' BOTTOM OF HOLE IS 13.60' PLUGGED PULLED PIPE & ASPHALT

1800 SEALED ALL THE HOLES PUNCHED TODAY STARTING TO RAIN

1820 GETTING DECON READY TO LEAVE

1855 LEFT RADAR SITE



5/17/94

0710 ON LOCATION

0730 ON RAMP

0845 SAFTY MEETING

0905 MEET WITH TALEM LABS

0919 BACK AT G-28 PICKED UP BARRELS

1000 DROPED BARRELS OFF AT G-49

1015 SET UP ON A-4

1030 SET UP ON A-3

1045 FUGRO AT G-5

1115 LEFT RAMPS TO PICK UP ASPHALT PATCH

1300 ARRIVED ON RAMP UNLOADED MATERIAL

1324 ON A-50 WATER LEVEL AT 6.25' BOTTOM AT 10.40' PULLED PLUGGED & ASPHALTED

1340 FUGRO ON G-2 PICKED UP BARRELS

1515 SET UP AT A-53 WATER LEVEL AT 15'9" BOTTOM AT 24' PULLED PIPE PLUGGED & ASPHALT

1535 SET UP AT A-52 WATER LEVEL AT 3.66' BOTTOM AT 15' PULLED PIPE PLUGGED & ASPHALT

1615 MST FUGRO LEAVING G-11

1620 SET UP AT A-51 WATER AT 4.'9" BOTTOM AT PULLED PIPE PLU[illegible]

[illegible]

CONT.
1640 SET UP AT A-43 WATERLEVEL IS
11' 1½" BOTTOM 15' PULLED PIPE PLUGGED
HOLE & ASPHALT
1705 LEFT DECON AREA
1710 SET UP AT G-13 WATER LEVEL AT 0'
BOTTOM AT 24'3" PULLED PIPE PLUG
SEALING OTHER WELLS
1728 SET UP ON G-12 WATER LEVEL
BOTTOM AT 22' PLUGGED HOLE
1749 PLUGGED G-2 SHORT HOLE
1750 PLUGGED G-1
1800 WENT & GOT DECON AREA READY
1900 WENT & HELPED TONY
2000 LEFT APRON
2030 LEFT RADAR SITE

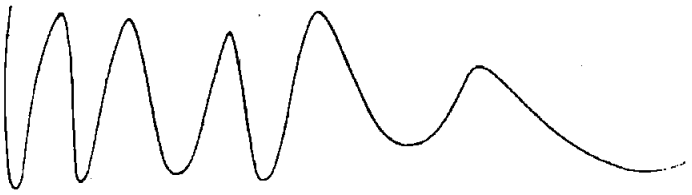
5/18/94
0716 ARRIVED AT RADAR SITE
0740 ARRIVED G-5 WATERLEVEL AT 16.6'
BOTTOM OF WELL 17'
0800 SAFTY MEETING
0810 A-4 WATERLEVEL AT 15.' BOTTOM
OF WELL AT 15'
0813 A-3 WATERLEVEL AT 0' BOTTOM
OF WELL AT 13.6"
0823 G-2 WATER LEVEL AT 0' BOTTOM
OF WELL AT 3' PLUGGED WELL
835 G-18 WATERLEVEL 0'
839 G-19 WATER LEVEL 0'
BOTTOM OF PIPE 22'9" PULLED
& PLUGGED WELL
845 G-8 WATER LEVEL AT 24' BOTTOM
OF WELL AT 24.10 PULLED PIPE &
PLUGGED
0900 G-11 WATER LEVEL AT 12'4"
BOTTOM OF WELL 20'5" PULLED
PIPE & PLUGGED
0909 DECON AREA
0935 G-49 WATER LEVEL AT 11'2½"
BOTTOM OF PIPE 17'6" PULLED PIPE PLUGGED
FAINT SMELL OF PETROLEUM

CONT

0950 SET UP ON A-7
1000 SET UP ON A-9
1010 SET UP ON A-10
1030 SET UP ON A-6
1035 G-14 WATER LEVEL AT 25'3" BOTTOM AT 30'6" PULLED PIPE & PLUGGED
1100 A-36 WATER LEVEL 22' BOTTOM OF PIPE 26'1" PULLED & PLUGGED ASPHALT
1120 PECON
1130 G-26 PULLED PIPE PLUGGED
1135 G-25 PULLED PIPE PLUGGED
1140 A-4 PULLED PIPE PLUGGED ASPHALT FUGRO ON G5
1150 A-3 ASPHALT FUGRO AT A-6
1200 LEFT RAMPS
1330 G-22 WATER LEVEL AT 15'8" BOTTOM OF PIPE 19,00 PULLED PIPE PLUGGED ~~TAS~~ HST
1343 G-21 WATERLEVEL AT 24'3" BOTTOM AT 25'3" PULLED PIPE PLUGGED
1355 G-20 WATER LEVEL AT ~~27~~ HST 24'10" BOTTOM OF PIPE IS 27' PULLED PIPE & PLUGGED

CONT

1410 G-5 PLUGGED 1ST HOLE 2ND HOLE 15' DEEP 0' WATER LEVEL PLUGGED
1425 PICKED UP BARRELS FUGRO ON A-7
1515 FUGRO AT A-9 DROP OFF BARRELS
KOP CLEAN UP SITES DECON BARRELS & TRUCK FUGROS ALSO GDT RIG ROAD READY HEPING TONY
1939 HEADED FOR TOWER
1945 LEFT TOWER
1910 LEFT RADAR SITE



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5/19/94

0715 ARRIVED ON SITE LOADED UP MATERIAL

0815 TO 1000 Cemented nine holes on flightline.

1010 GMI18-06P - no water, Sounded bottom of PVC @ 22.9'.

1117 Sounded bottom of PVC AT GMI18-07P at 24.2', no water. PLUGGED HOLE

1150 Sounded Bottom of PVC AT GMI18-09P. at 26.1'. no water. Plugged hole and patched asphalt

1210 GMI18-24P water level is 20.75'. Sounding is at 22.6'. Grouted hole.

1355 GMI18-27P. Sounding is 16.35'. SWL is 10.3'. PLUGGED HOLE w/ BENTONITE TO SURFACE.

1405 GMI 18-23P. Sounding is 26.8 (PVC). SWL is 22.5'. Plugged hole to surface.

1410 Decon pipe. Filled one barrel with water. Took barrel to storage area and loaded 3 barrels on one pallet. brought the last empty barrel back to flightline.

1545 - grouted GMI18-07P to surface and patched asphalt.

1555 GMI 18-10P. Sounding is at 24.5. Static water level is at 23.1. Grouted hole to surface and patched asphalt.

1615 TO 1700 SECURE EQUIPMENT

1700 LEAVE FLIGHTLINE - Sign out

1715 unloaded 1/2 drum of decon water and 1/2 drum of asphalt cuttings. Loaded bentonite, secured rig.

1800 Left site

Tony C. Mills

2Aug94	Start / Move	Sounding	Static water level	Pull / grouts	DATE / TIME
GMI 18 137P	1115	21.04	15.30	✓	3Aug/1920
GMI 18 161P	1630 / 1700	20.54	12.26	✓	3Aug 1905
GMI18136P	1700 / 1800	20.94 ~~25.10~~	16.30 ~~16.14~~	✓	3Aug/1930
GMI18138P	1530 / 1630	25.10	16.14	✓	3Aug/1935
3Aug94 GMI18179P	0850	21.88	5.90	✓ (B)	4Aug/1120
GMI18178P	0850 / 0930	12.00	7.66	✓	4Aug/1000
GMI18211P	0930	20.10	16.90	✓	4Aug/1100
GMI18245		18.52	17.82	✓	4Aug/1410
GMI180P	1130 / 1800	16.68	13.64	✓	4Aug/1430
GMI181P	1300 / 1350	13.40	9.18	✓	4Aug/1515
GMI182P	1350 / 1425	21.64	20.58	✓ 1145	5Aug/1145
GMI183P	1425	20.56	20.42	✓	5Aug/1645
4Aug GMI177P	0730 / 0800	28.64	19.70	✓	4Aug93 1735
GMI176P	0800 / 0830	14.9	13.28	✓	4Aug/1720
GMI175P		16.20	13.80	✓	4Aug 1730
GMI184P		22.60	18.46	(B/S water) ✓ (marks)	4Aug94 1615
GMI185P		24.32	16.94	✓	5Aug 1120
GMI186P		17.38	16.46	✓	5Aug 1520
GMI187P		20.04	17.02	✓	5Aug 1525
GMI188P		19.20	18.10	✓	5Aug 1530
GMI18-205		19.07	16.53	✓	8Aug94 1220
GMI18-206		14.80	DRY	✓	8Aug94 1505
GMI18-207		16.20	DRY	✓	8Aug94 1510
GMI18-208		24.34	19.76	✓	8Aug94 1520
GMI18-209		23.10	20.60	✓	8A 94
[illegible]		[illegible]	[illegible]	✓	9A 94

4Aug 0 # GMI 18-185 Sampled 0700
GMI 18-183 went back to complete TPH without Success 0800
GMI 18-182 TPH without Success 0830
GMI 18-177 TPH without Success 0850
GMI 18-176 TPH okey

	sounding	Stationary Level	Pull grout	Date/Time
GMI18-189	19.54	18.42	✓	08/09/94 1615
GMI18-191	20.38	19.24	✓	08/09/94 1620
GMI18-192	17.76	Dry	✓	08/09/94 1638
GMI18-193	21.12	19.70	✓	08/09/94 1635
GMI18-190	17.56	15.88	✓	08/09/94 1638
GMI18-195	28.00	DRY	✓	08/09/94 1500
GMI-18-196	24.48	DRY	✓	10 Aug 94 0830
GMI-18-197	24.04	Dry	✓	10 Aug 94 0835
GMI 18-198	25.48	12.26	✓	10 Aug 94 0837
GMI-18-157	13.32	11.48	✓	10 Aug 94 0846
GMI18-158	12.38	12.00	✓	10 Aug 94 0850
GMI18-159	14.02	12.44	✓	10 Aug 94 0855
GMI18-135	16.84	Dry	✓	10 Aug 94 0900
GMI18-165	9.50	Dry	✓	10 Aug 94 1545
GMI18-135	17.80	14.12	✓	10 Aug 94 1800
GMI18-137	21.94	17.24	✓	10 Aug 94 1830
GMI18-139	16.36	14.10	✓	10 Aug 94 1840
GMI18-160	16.32	14.08	✓	10 Aug 94 1835
GMI18-128	24.74	5.18	✓	11 Aug 94 1445
GMI18-129	22.68	13.28	✓	11 Aug 94 1450
GMI18-130	13.66	9.90	✓	11 Aug 94 1455
GMI18-131	19.96	11.62	✓	11 Aug 94 1503
GMI18-132	13.82	8.00	✓	11 Aug 94 1458
GMI18-164	7.22	5.30	✓	11 Aug 94 1650
GMI18-166	7.16	Dry	✓	11 Aug 94 1605

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	Sounding	Statewater Level	Puff grant	Date/time
GMI18-167	18.84	14.66	✓	11Aug94 1608
GMI18-171	13.82	13.00	✓	11Aug94 1620
GMI18-172				11Aug94 ~~[illegible]~~
GMI18-133	16.74	9.18	✓	11Aug94 1400
GMI18-162	13.44	10.06	✓	12Aug94 1030
GMI18-134	13.48	10.58	✓	1035
GMI18-167	~~[illegible]~~ 9.88	6.50	✓	1045
GMI18-172	~~[illegible]~~ 18.50	11.90	✓	1100
GMI18-269	~~[illegible]~~ 14.00	12.00	✓	1105
GMI18-173	17.10	13.60	✓	1120
GMI18-174	15.70	12.00	✓	1130
GMI18-247	18.16	12.86	✓	1140
GMI18-246	15.10	14.90	✓	1315
GMI18-243		16.68	✓	1340
GMI18-163	11.20	7.66	✓	1040
GMI18-212	23.96	17.46	✓	15Aug94 1510
GMI18-241	17.48	Dry	✓	1515
GMI18-240	18.04	Dry	✓	1520
GMI18-239	24.70	16.08	20 [illegible] ✓	1525
GMI18-203	12.96	Dry	✓	1530
GMI18-202	16.28	15.04	✓	1530
GMI18-204	14.36	Dry	✓	1720
GMI18-126	18.92	Dry	✓	16Aug94 1735
GMI18-212	17.58	13.88	✓	1750
GMI-213	15.29	13.34	✓	155

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	Sounding	static water level	PULL grout	Date/Time
GMI18-214	16.24	12.62	✓	1800 16Aug94
GMI18-215	19.20	17.64	✓	1805
GMI18-94	22.42	22.34	✓	1830
GMI18-201	24.72	23.90	✓	1840
GMI18-199	30.89	29.14	✓	1845
GMI18-156	12.65	10.14	✓	1850
GMI18-155	22.51	DRY	✓	1855
GMI18-140	11.62	7.50	✓	1902
GMI18-141	24.19	10.98	✓	1905
GMI18-142	21.04	20.14	✓	1910
GMI18-200	25.72	21.90	✓	1920
GMI-154	22.35	21.28	✓	1925
GMI-143	24.64	20.28	✓	1930
GMI18-121	18.20*	18.10*	✓	17Aug94 1410
GMI18-122	16.80	14.36	✓	1425
GMI18-123	22.37	13.36	✓	1430
GMI18-124	18.80	15.06	✓	1435
GMI18-88	17.12	14.88	✓	1450
GMI18-89	23.70	16.24	✓	1530
GMI18-90	20.06	17.62	✓	1605
GMI18-91	19.40	DRY	✓	1615
GMI18-54	21.42	18.68	✓	1620
GMI18-55	18.28	14.54	✓	1635
GMI18-56	18.04	13.66	✓	1645
GMI18-57	12.64	10.52	✓	1650

*GMI18-120 DRY?? Sounding muddy (Static level ??)

	Sounding	Static Water Level	Pull & Grout	Date Time
GMI18-58	12.62	9.58		18Aug94 1330
GMI18-59	15.24	8.76		1335
GMI18-60	10.66	10.48		1340
GMI18-61	15.42	12.66		1345
GMI18-62	13.54	11.44		1350
GMI18-63	19.64	14.58		1355
GMI18-64	17.18	DRY (mud) wet		1358
GMI18-65	18.30	DRY		1405
GMI18-95	12.63	7.94		1450
GMI18-66	23.00	19.48		19Aug94 0700
GMI18-67	20.70	17.26		0715
GMI18-68	17.26	15.30		0725
GMI18-69	20.14	14.26		0730
GMI18-87	24.94	13.50		1350
GMI18-86	18.24	13.40		1400
GMI18-85	14.94	13.60		1405
GMI18-91	20.98	15.10		1410
GMI18-70	18.27	14.20		1425
GMI106	22.50	16.78		1415
GMI18105	19.40	16.72		1420
GMI18104	21.53	16.44		1425
GMI18-103	24.96	17.11		1430
~~GMI18-102~~ !	~~20.22~~	~~[illegible]~~	~~[illegible]~~ 1135	~~1440~~
GMI18-93 ① 16.55	16.2½	11.3¼	Tape ??	22Aug94 1050
GMI18-94	9.¾	Dry		

! 30 Aug 94
① all measurments are in 10ths. 16.2½ should read 16.25, etc. 9.¾ should read 9.07.

also note that all ~~[illegible]~~ sounding measurments must have .35 added to arrive at correct sounding.

⟷ new Tape add .35 to ~~Static Depth~~ Sounding

* new Tape is in 10ths. if it shows ½ more to 5 [illegible]

	Sounding	Static water Level	Pulled & grouted	Date Time
GMI18-96	24.4½	13.1 *		23 Aug 94 0930
GMI18-97	20.3½	17.4 *		0940
GMI18-98	13.3½	Dry *	1st moved only 5' casing	0950
GMI18-99	17.3½	Dry	Removing 15' casing	1320
GMI18-100	** 19.7½	19.1½	(9-22) DRY??	Ground level casing 1350
GMI18-101	21.7¾	[illegible]		1340
GMI18-91	24.9½	[illegible]	19.4	23 Aug 94 1020
GMI18-65	24.5½	19.7		1005
GMI18-92	19.8½	10.4½		1000
GMI18-64	23.4	18.6		1030
GMI18-250	15.3	15.1¾		1605
GMI18-247	22.5½	18¾		1615
GMI18-251	18.00	15.7¾		1625
GMI18-252	15.8"	DRY? *		24 Aug 94 1340
GMI18-237	16.00	9.7½		1300
GMI18-235	15.2½"	Dry		1310
GMI18-236	12.7"	11.4"		1320
GMI18-238	16.6"	11.5"		1345
GMI18-239	15.9¾"	13.7"		1630
GMI18-230	15.3½	13.8¾"		1615
			9-15-94	
GMIE-1B	28.9	24.4	✓	between 0915
GMI18-2B	28.9	23.3	✓	and
GMI18-3B	24.0	14.3 TM	✓	1630
GMI18-4B	26.2	14.3 TM	✓	
[illegible]	28.75	23.45	✓	

* Static Depth ??

** no static water level but Tip wet to about 6'??

add .35

148	14.28	75	6.95
149	28.65	80	10.84
115	-0.6	81	0
116	-0	82	24.40
117	-0	83	20.20
118	24.30	79	
119	16.45		
120	19.45		

* Tip (2") of Probe wet??

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	Sounding	Stone water level	Pitted & yellow	Date & Time
GMI18-255	18.9	18.4	24 Oct 1550	24 Oct 1550
GMI18-218	16.25	16.0	1605	1605
GMI18-216	17.35	16.5	1620	1620
GMI18-249	12.25	10.0	1630	1630
GMI18-219	14.6	2.8	0800	24 Oct 44 0800
GMI18-253	11.1	5.1	0810	0810
GMI18-254	6.75	Dry	0830	0830
18-220	17.6	Dry	0840	0840
18-226	10.1	5.0	0845	0845
18-227	12.35	Dry	0855	0855
18-235	6.5	Dry	0910	0910
18-234	16.45	8.5	0920	0920
18-237	3.25	7.5	0930	0930
18-233	15.5	Dry	0945	0945
18-235	18.15	Dry	0955	0955
18-221	13.3	Dry	1000	1000
18-224	8.4	7.8	0730	27 Oct 0730
18-233	13.4	9.7	0800	0800
18-232	13.3	11.35	0820	0820
18-263	12.5	Dry	0830	0830
18-231	16.5	8.1	0840	0840
18-150	5.1	DRY	1000	1000
18-110	12.0	3.0	1125	1128
18-76	8.0	Dry	0830	28 Oct 44 0830
18-111	15.75	8.05	0817	08

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	Sounding	Static water level	Pull & grouted	Date & Time
18-109	36.6	27.75	0850	0850
18-108	13.4	6.65	0900	0900
18-107	16.45	14.3	0910	0910
18-84	20.40	18.0	0915	0915
18-72	23.8	15.75	0920	0920
18-73 1'mud	25.7	23.7	0940	0940
18-151	21.55	Dry	1020	1020

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GEO-MARINE, INC

550 E. 15th ST.

1114-055

Groundwater Sampling AT Carswell AFB
FOR Fuels (JP4), TCE AND BTEX
Phase I and Phase II

Disposal

5/12 ONE DRUM DECON WATER AT STORAGE AREA
5/17 TWO " " " " " "
5/18 ONE DRUM ASPHALT CUTTINGS 5/31
5/19 one Drum Decon water
1/2 Drum Decon water
1/2 Drum Asphalt Cuttings
5/23 1 1/2 Drum of Decon/Rinse WATER.
(the 1/2 Drum was added to the the 1/2 Drum dated 5/19)

6/31 Heat disposal of the one drum of asphalt cuttings.
8/25 21 Drums of Decon water numbered 1-21.
and 1 drum of samples, 1 drum of glass,
1 drum (1/5 full) of SLUDGE.
9/15 6 drums of soil, 3 decon water
10/31 2 drums of decon water #22 and #23
5/23/94

Duplicates 1 per 10
Field Blanks 1 per 10
Trip Blanks 1 each shipment
Rinsate Blanks 1 per 20

1.

LOCATING SAMPLE POINTS (53 PHASE I)

4-19-94

0745 Tony Mills & Hubert Thompson (GMI) arrived at Base OPS.

0810 Ms. Debbie Fitzgerald (USACE) arrived to get flightline training

0820 Began flightline training for the three of us (Tony, Hubert, Fitzgerald) Rules and procedures for gaining access to the flightline will change during the next week. Mr Queretaro (Base Operations Director?) decided to allow us on the flightline using our current pass. Will need the entire crew to finish flightline training May 9, when sampling project begins.

0830 Alan Flolu (BCA) came to Base OPS. Tony asked Flolu if it would be possible to bring the rig the next day to core through the concrete on the flightline. He said he would get started on digging permit.

0840 Mills, Thompson and Fitzgerald located most of the penetrometer locations.

4-19-94

1045 Took Fitzgerald to her vehicle. She left the base while Thompson and Mills called the office and had lunch.

1130-1200 Went to Home Depot to get nails and tincaps for flagging on asphalt.

1200 On flightline to finish marking locations.

Found discrepancy in what was marked on the maps and what was noted in the field. The monitoring wells were actually located near station C37 rather than C35.

1400 Called Ms. Debbie Fitzgerald. She said to position C34 and C33 near C37 in the same relative manner as the are positioned near C35 on the map. (move them).

1430 Alan Flolu came out to flightline left to look for Jeff Harvey (CRA) Carswell Redevelopment Authority.

1450 Finished locating all of the 53 Phase I penetrometer locations.

4-19-94

JEFF HARVEY AND JOHN CUNNINGHAM (CRA) [illegible] BY THE [illegible] TOWER. BASE OPS. MR HARVEY [illegible] HE WOULD TRY TO HAVE [illegible] FOR THE [illegible] WATER, GAS, SEWER. [illegible] TO HAVE IT DONE TOMORROW. ALAN [illegible] HARVEY HE COULD [illegible] FROM BCA. [illegible] Gregory [illegible] AND THOMPSON DECIDE TO SCRIBE WELL NUMBERS ON THE ~~40~~ MONITOR WELL (INSTALLED IN MARCH 1994, GMI) [illegible] TO PUT THEIR LOCKS [illegible] IN EXCHANGE FOR THE ONES WE [illegible] ON.

15:[illegible] [illegible] LOCKS AT BCA. GONE [illegible] AND SCRIBE WELL COVERS.

16:[illegible] [illegible] BACK TO FLOLO. TALKED [illegible] SAMPLED AND [illegible] SINGE LAW [illegible] IN [illegible] SLOTS [illegible] ON A [illegible]. [illegible] TO FINISH [illegible].

[illegible] BASE AND HAMMED FOR [illegible].

Jerry C. Mills

5-09-94

BEGINNING OF PHASE I PENETROMETER GROUNDWATER SAMPLING FOR FUELS AND TCE.

7:30 MILLS, WINNETTE, DELANO AND THOMPSON (Geo-Marine) ARRIVE ON BASE.
Edward Escochea AND Robert Anderson (FUGRO) ARE HERE WITH TRUCK.

7:45 DROVE TO FLOLO'S OFFICE.
ALAN FLOLO (Carswell AFBCA) called Roy Queretaro to see if he is ready to give flightline training to field crew.

8:00 Dwayne Ford (USACE) arrived and Eddie STEEL (Cowboy Coring) arrived.

8:10 ALL DROVE to BASE Operations to get flightline training. THIS is the first day to use the new system [illegible] gave us training - warning of red lines, speed limits, restricted areas. The new method will be as such. STOP IN AT TOWER AT BEGINNING AND END OF DAY.

9:10 Gone to get passes and pass and ID.
10:00 STOP AT FLIGHTLINE TOWER FOR PASS
10:20 - 10:50 SITE SAFETY MEETING
11:00 PULLED FUGRO RIG TO FIRST LOCATION
COWBOY CORING STARTED ON FIRST HOLE.
11:15 LEFT LOCATION FOR LUNCH.
12:30 WINNETTE AND DELANO LEFT CARSWELL
FOR THE DAY.
12:40 MILLS AND THOMPSON RECEIVED
BOTTLES AND COOLERS FROM TALEM.
KEPT 2 COOLERS. MADE PLANS TO
CALL THEM IN THE MORNING FOR
SAMPLE PICK UP.
MMR WAS ALSO THERE WITH
[illegible] CHIPS AND
[illegible] THOMPSON AND I PICKED
[illegible] THOMPSON TOOK MMR TO
[illegible] AREA (Landfill C4)
[illegible] OF RAIN.
1[illegible] F[illegible] A HOLE AT
[illegible] 28P. [illegible] A HOLE. THOMPSON
[illegible] AND CASING FOR 28P.
1[illegible] CPT AT 28P. MOVED OFF OF LOCATION
TO GO TO 24P. TOO WET SO MOVED
RIG BACK TO 28 TO RUSH WATER SAMPLED.

SCREEN DID NOT GO DOWN FARENOUGH.
DO NOT HAVE BOTTOM CAPS SO MILLS
WENT TO LOOK FOR THEM.
1415 RIG GOT STUCK AT 28P. THOMPSON
ATTEMPTED TO PULL RIG OUT WITH
GMI drill RIG. THOMPSON HAS
2 pilot holes drilled in asphalt.
1525 Moved RIG TO 38P.
1600 CPT AT 38P.
1630 USED GMF CASING FOR PIEZOMETER
INSTALLATION.
Mills took a sample. water did not
have an odor.
1715 FUGRO PUNCHED HOLE AT 41P.
Set screen in open hole.
1745 Mills took a sample at 41P.
Screen was not deep enough for
enough but took full set of samples.
added too much HCl. pH ≈ 1
1715 TO 1915 Fugro could not go
on Flightline with mud on the tires
So used steam cleaner to wash truck.
1915 MOVED EQUIPMENT TO STORAGE AREA.
2000 Thompson/Mills left site.
[illegible]

5-10-94

FUGRO ARRIVED 07:30 AT TOWER.

720 Thompson and Mills arrived at storage area & picked up decon unit.

750 Mills and Thompson on flightline

800 Fugro begin 1st hole at GMI 18-37P

805 calibrated HNu and CGS 80 gas detector.

830 TRIED TO SET PIEZOMETER AT 37P. ONLY 1' of water - bridged at 17'. will use GMF to get casing in the hole.

830 ADVIE STEEL Cowboy Coring arrived

900 CALLED CYLE KINNETTE AND TALEM. TALEM IS WAITING AT THE GATE.

900 to 1000 KENNETH DUARD w/ TALEM PICKED UP PREVIOUS DAYS SAMPLES (2). Brought trip blanks for three days. Labelled TB 50994 on TB's for yesterday.

1020-1050 TALKED TO ED AND Robert (Fugro) ABOUT PROCEDURES AT GMI 18-36P GAVE THEM Decon water to decon probe. They will punch holes and set piezometers through GMF. Hilert Thompson will decon

1100 Mills at GMI 18-37P to sample. Thompson is back from storage area.

1200 Mills took sample at 37P Sample # ~~37~~ GMI 18-371. HNu = 1 ppm Trip Blank in Cooler TB 51094.

1240 Finished sealing well at surface with safety cone, bentonite and ~~sp~~ trash bag.

1200 Fugro had problem with Rig. left site to take care of business and eat lunch.

1315 Sampled GMI 18-36P # GMI 18-361 for volatiles. Not enough water for TPH. no sample - only 50 ml. HNu = .5 ppm decanned bailers/covered hole

1350-1420 Lunch - Thompson / Mills

1430 Mills & Thompson located the sampling locations in which the stakes had been misplaced.

1530 Fugro came by and said they needed a new air pump. They will get one and begin installing it.

1430 Mills and Thompson began sealing the holes that Cowboy Coring cored in the concrete along the blast shield and measured water levels at GMI 18-38P and 41P.

1630 GMI 18-38P @ 19.45' BGL
1715 GMI 18-41P @ 9.62' BGL
1700 FUGRO LEFT THE SITE.
Location 34P has water flowing in around the concrete. poured 1' of bentonite in to seal it off
29P also had flowing water under or in the concrete. Treated likewise.

Location 40P, 33P, 39P, 32, 30P were dry so seal top with plastic and bentonite to prevent runoff from flowing in.

1830 PARKED RIG & LEFT SITE

Tony Mills

5-11-94 WEDNESDAY

8:00 Mills AND THOMPSON ARRIVED ON BASE - MADE PHONE CALLS AT BASE OPS - PICKED UP RIG ETC.
8:30 FUGRO HAS TRUCK REPAIRED AND READY TO PUNCH HOLES AT GMI 18-31P.
9:00 calibrated GAS DETECTOR AND LEFT IT WITH FUGRO.
9:10 MET KENNETH DILLARD (TALEM) AT THE GATE TO DELIVER YESTERDAY'S SAMPLES.
9:25 CALLED MMR.
1005 FINISHED SETTING GMI 18-31P moved to 29P
29P HAS water moving below concrete. Put grout in hole to run CPT and to seal off surface water.
1040 Began punching 29P.
1050 Fugro Rig Problems. BLOWN FUSE
1055 Mills sampling at 31P.
hole is dry - no sample
1120 Set piezometer at 29P open hole?
1120

1150 FUGRO Truck broke down with electrical problems, Come to have lunch and get mechanic. Lyle Burnsville Came on site.
1200 Sampled GMI 18 29P for volatiles
1215 at Tower to get permission to bring mechanic to flightline — Permission granted.
1230 Took off for lunch from Tower.
01330 TOOK TPH Sample at 29P. Preserved with 6ml. HCl. HNu Read 20 ppm or greater from hole in concrete not from PVC. This well is the one that had surface water flowing inside or beneath the concrete. Flolo came to site.
1410 Fugro arrived with a mechanic.
1415 Mills TOOK VAN TO Goodyear, Did not have the right tires so came back at 1445.
1445 FUGRO WAS Coming out OF HOLE WITH CPT AT GMI18-30P. HAVING MORE TROUBLES WITH Equipment. (momentary) Mills TOOK ~~State~~ water level measurement at 29P — 18.85 BGL. Disconnected instrument

1415-1500 Thompson IS Remarking the Locations previously staked. Using 3 foot stakes this time.

1515 FUGRO moved to GMI18-32P. AFTER SETTING piezometer at 30P.
MMR Delivery of Benseal arrived at Base OPS. Thompson went to help unload the pallet.

1530 Mills at 30P to sample.
1600 Sample # GMI18-301. HNu read 720 ppm then drop to 0 in PVC. Annulus preserved with 6 ml to get pH = 3 to 4. Brown dark silty w/Petroleum odor
1610 FUGRO LEFT SITE TO PARK RIG. NEED TO PAY MECHANIC. WILL BE BACK 700 AM. Tomorrow.
1700 Samples at 32P. #GMI18-321. Preserved with 6ml HCl. HNu picked up to 50 ppm and drop to 0 in PVC.
1715 Flolo came by. Water has Petroleum odor.
1800 LEFT FLIGHTLINE. Mills/Thompson CALLED THE OFFICE.
1830 LEFT BASE.

5-12-94

THURSDAY - Rained last night - sprinkling this morning.

0700 FUGRO AT TOWER

0730 Mills / Thompson (GMI) AT TOWER AFTER GETTING RIG.

0730 - 0745 SWABBED WATER OUT OF Concrete hole at 35P. FUGRO BEGAN PUNCHING HOLE.

0800 CPT AT 35P. 25' deep

0810 calibrated instruments

0820 CASING WENT DOWN TO 23' no water [illegible] GMF casing

0845 put screen in hole. Pull casing.

0855 moved to GMI18-33P.

0960 light drizzle while sampling at 35P

0920 [illegible] CPT AT 33P to 23.3'

0930 samples taken at 35P for 8021 & TPH GMI 18-351. pH = 2 w/ 6ml HCl HNu 15-20 ppm water has definite petroleum odor and Brown color w/ fine silt. Same as 30P.

0950 CPT done at 34P to 24 feet. Piezometer set.

1005 mills at 33P.

1030 Took sample GMI 18-331

Fugro moved to GMI 18-~~40P~~ 39 TM water at 33P [illegible] petroleum odor. [illegible]

1045 Mills moved to 34P.

Took duplicates

Normal Sample GMI18-341 at 1100

Duplicate GMI18-342 at 1200

Regulatory Duplicate GMI18-343 at 1100

ADDED 6ml HCl to each

341 pH = 5

342 pH = 2

343 pH = 4

1130 Fugro punched 40P and set screen with GMF casing.

1200 Fugro took sample at 40P for 8021, not enough for TPH yet.

1230 - 01300 Fugro lunch

1300 TO ~~1400~~ 1330 GMI - lunch

TOOK Fugro TO SEE NEXT LOCATION.

CALLED THE OFFICE, AND CALLED DART Courier to take samples to the Lab (SWDL)

1445 DART PICKED up SAMPLES.

ALAN FLOLO CAME BY. ASKED HIM TO START UTILITY CLEARANCE FOR G20, 21, 22 and 27 & He said he would start tomorrow.

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808

1510 MET FUGRO ON FLIGHTLINE
THEY DID NOT ATTEMPT G49 because it was too wet. Punched G47 and G44 - 25 to 3 ft. Came back to C39 to push GMF and reset casing. Thompson helped pull casing with [illegible]. Mills gone to GMI 18-40P to sample for TPH.

1545 GMI 18-401 needed [illegible] 8021 samples + 7 PH. Lots of water light tan milky color. no odor. HNu = 0

1630 [illegible] SAMPLE AT 44P. WATER IS REDDISH TAN AND FINE SILT. Preserved w/ 6ml HCl and PH = 2. No odor HNu [illegible].

1700 [illegible] sample at 47P water is tan [illegible] no odor. HNu = 0. Preserved TPH [illegible] pH 3.
[illegible] previous piezometers [illegible] back to 39P.

2[illegible] [illegible] at 39P, [illegible] water. [illegible] petroleum spill. [illegible] PVC. [illegible] silty, [illegible]) [illegible] pH 3.

1840 Sampled GMI 18-17P. water is grey, no odor HNu = 0. 6ml HCl, pH = 6.

1900 FUGRO IS READY TO QUIT FOR THE DAY. Mills moving TO G16.

1930 Sampled GMI 18-16P
GMI 18-161. HNu = 10ppm

~~1930~~ Sampled GMI 18-161 water is brown. heavy fine sand/silt with no odor. PH < 2 6ml HCl

2000 Sampled GMI 18-151 at GMI 18-15P. Water is very silty/sandy. Reddish brown and no odor HNu = 0. PH < 2 with 6ml HCl.

2045 Sampled G14, GMI 18-141. only 1 vial for 8021. not enough water. 26'10" to bottom of casing. will check water level in the morning.

2130 PUT ALL samples up to GMI 18-139 in one cooler (A) and GMI 18-171, 161, 151, 141 in another cooler (C). Cooler B went to SWDC.

2145 Parked Rig and left STORAGE area. [signature]

356 809

5-13-94

FRIDAY

720 - Mills & Thompson (GMI) ARRIVED
Robert Anderson was here at Base Ops.
SAFETY MEETING

740 Signed in at Base Ops. DROVE TO
GMI 18-141. Measured Sounding AT 25.55'
Bgs. [illegible] of [illegible] hole depth.
will come back to install PVC via
GMI casing later. (Not enough
water for TPH).

0815 [illegible] AT TALEM. ASKED
[illegible] PVC SHAVINGS IN samples. SHE
SAID TO AVOID IT. ORDERED LABELS,
[illegible] TRAY [illegible], 4 coolers.
[illegible] said [illegible] was going to check
with [illegible] to see what they wanted
[illegible] they would
[illegible] and TPH. She
[illegible] DON'T WORRY ABOUT BOTTLE LOTS.

[illegible] AT 20', 21' and 22' P
[illegible] LOGGING PERMIT ON
[illegible].

0915 Mills DROVE TO GATE TO WAIT FOR
TALEM.

1000 PICK UP ICE AND DROVE TO FLIGHTLINE.
FUGRO HAS PUNCHED HALF AND INSTALLED
PIEZOMETER AT GMI 18-45 P.

1020 ~~HAD SAFETY MEETING AT 46P.~~

1020 Dwayne Ford came by - talked about
the tank removal starting Tuesday
next week. Told him about
water running under the Concrete on the
Flightline, and showed him which
locations smelled like petroleum.
Also that we did not get a TPH AT
36P. He wants to try it again.
ALSO GET A Sample at 28 P monday.
and don't worry about fixing areas
where we get stuck since tanks
and piplines will ~~have been~~ be pulled
in the near future.

1115 Safety Meeting on the Alert Apron
46 P. ALAN FIOLO CAME BY -
SAID HE WAS STARTING UTILITY
CLEARANCE. ~~FUGRO BE~~

1140 FUGRO GETTING READY TO Punch
48 P. mills to Sample 49 P. 451

1210 Took sample GMI 18-~~441~~ m. Water
smells w/ Petroleum. Slightly silty
w/ brown silt. HNu = 6 ppm

1215 Decomed [illegible] and took Fincale Blank RB 51394 → B00
1315 moved to 46P. ATE LUNCH until 1345.
1400 TOOK Samples at 46P
time of [illegible] GMI 18-461 [illegible] Regular Sample
1330 GMI 18-462 [illegible] Duplicate
1330 GMI 18-463 SWDL Regular Dup

1430 took sample at 48P.
1445 Move off of flightline to storage area A storm [illegible] coming. The Airforce wanted us to leave the line as soon as possible so Mills TOLD FUGRO (WHO WAS AT 14P TO RE-LUNCH FOR TPH) TO PACK THE RIG AND HELP SAMPLE. [illegible] 1415 from the base. Thompson and Mills drove to storage [illegible] and label the sample bottles.
1545 LEFT SITE

Tony [illegible] Mills

5-16-94

MONDAY

7:50 THOMPSON AND MILLS ARRIVED ON BASE. PICKED UP EQUIPMENT. FUGRO WAS HERE AND SIGNED IN AT TOWER.
8:15 Mills CALLED TALEM, INFORMED NOT TO COME IN. FUGRO WILL MEET US ON THE APRON TO COMPLETE ASPHALT.
8:45 FUGRO ON LOCATION A50. (50P)
9:00 SAFETY MEETING HELD ON LOCATION ~~Calibrated~~ Purged gas detector (CGS80).
0945 Calibrated HNu.
1000 Fugro moved to A43.
1020 Took Sample # GMI 18-501 AT 50P. water has light brown fine silt. no odor. HNu = 0ppm. 6ml HCl pH = 6.
1030 FUGRO HIT A PIPE AT 51P APPROX 5' deep. Pulled off and moved to 52P. Mills LEFT TO CALL MMR AND ORDER MORE PVC. MET FLOLO AND JEFFREY HARVEY (CRA) AT THE DECON RIG. ALL OF OUR LOCATIONS ARE CLEAR EXCEPT POSSIBLY 927.

356 811

THEY (JEFF) SAID IT WOULD BE OK. TO
move 36' as long as it is in the
middle of the road as it was before.
THEY ALSO DROVE TO 51 P and said it
would be good to move rock 10'.

1105 Mills called MMR.
fiber crete? latex gloves?

1220 Fugro finished 53P moved to
51 P and left for lunch

1220 Mills sampled 52 P. water has
slight amount of reddish tan silt.
No odor. HNu = 0, 6ml HCl, pH = 6.

1230 Decanned Bailers.

1240 Met Hubert T. at Decon area.

1300 Took Lunch. Fugro BACK TO
[illegible].

1300 CALLED OFFICE. TALKED TO DELANO.
[illegible] shipping PVC, CONCRETE
PATCHING, PUTS IN GRASS ETC.

[illegible] BACK TO [illegible].

[illegible] Mills took sample AT GMI18-53P.
water has orange brown silt. No
odor. HNu 0 ppm. 6ml HCl in TPH.
pH [illegible].

1500 [illegible] 51 P. Fugro punched
[illegible] HNu = 0. water has [illegible]
[illegible] 6ml

1500 TO 1550 NICK MOERICKE (FUGRO)
CAME BY THE SITE, BROUGHT SUPPLIES.

1600 SAMPLED GMI18-43P. HNu = 0

1600 ~~[illegible]~~ water has heavy amount of
reddish tan silt. no odor. pH = 6 w/6ml HCl

1645 Sampled GMI18-42P. HNu = 0
water has small amount of tan silt, no
odor. pH = 6 w/6ml HCl.

1730 ~~Sampled~~ GMI18-13P, HNu = 1 ppm
No sample - hole is dry to approximately
23'.

1745 FUGRO pushing GMF AT 12P. TD =
@ 1740.

1800 HAS BEEN CLEAR DAY UNTIL NOW
BEGINNING TO RAIN. FUGRO OFF OF
HOLE. TRIED SAMPLING 13P.
HOLE IS ALSO DRY.

1830 FUGRO LEFT SITE. Mills AND
THOMPSON CLEAN UP A DECON AREA
AND PARK RIG. CALLED OFFICE.

1900 LEFT SITE.

Tony C. Mills

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5-17-94
Tuesday

0730 Mills AND THOMPSON SIGN IN AT TOWER. CHECKED LOCATION 28P. FUGRO AT 14P with GMF.

0800 GMF WENT TO 30' SET PVC.

0815 CALLED TREM ASKED FOR HCl ACID.

0830 FUGRO AT 28P. went on GMF.

0900 FUGRO BEGAN GMF AT 28P.

0845 SAFETY MEETING

0935 TODAY HAS BEEN OVERCAST. SCATTERED [illegible] IN THE FORECAST. BEGAN TO SPRINKLE SO DRIVE TO G49 TO CHECK GROUND CONDITIONS. FUGRO DECIDED TO INSTALL PIEZOMETER AT 36P (MAIN FOR TPH) THEN GO TO G49.

1010 Mills [illegible] sample at 14P. Water has heavy amount of reddish silt. No odor today. HNu not working well today. Had [illegible] ppm on the 12th. pH 3. w/ 6ml HCl. Took sample in new hole with PVC via GMF.

1030 Mills checked for water at 13P and 12P again. Both are dry.

1050 Took sample at 28P - NEW HOLE - PVC installed via GMF. water has 20% tan silt no odor. HNu=0. pH=6 w/ 6ml HCl.
FUGRO moved FROM 49P TO 05P.

1100-1120 Decommed BAILERS
36P is new hole approx 10 feet N. of old one.

1130 Sampled 36P for TPH only. HNu=<1ppm Began to lightly sprinkle/mist. Water is dark "chocolate" brown with petroleum odor. pH=5 w/ 6ml HCl. Now has H_2S odor. HNu after sampling is 6ppm

1145 decommed bailer and moved to 49P. FUGRO moved TO 04P.

1205 water at 49P is dark colored as if contaminated. No definite smell. HNu = 1 to 2 ppm in PVC. Greenish brown silt.

regular	GMI 18-491	1215	pH=6
duplicate	GMI 18-492	1250	pH=~~2~~ 3
regulatory duplicate	GMI 18-493 SWDL	1215	pH=~~3~~ 2
TREM	FB51794	1310	pH=2
SWDL	FB51794	1310	

1320 TOOK Trip Blank TB51794 for SWDL

1230
FUGRO TOOK LUNCH BREAK AFTER PUNCHING
05P AND 04P. ACCORDING TO ESCOCHEA
NEITHER HAS WATER.
~~13~~ 1400 MILLS AND THOMPSON LEFT
FLIGHTLINE - STOCKED COOLERS WITH ICE
1430 TO 1500 LUNCH (GMT) FUGRO
PUNCHED 02P only 5' deep so
moved to try again; then only 2' deep
MUST BE ON BEDROCK TOLD FUGRO
TO PUNCH 01P and leave it as is.

1500 CALLED DART Courier. They will
pick up SWDL SAMPLES AT 9:00am
Tomorrow at the gate.
1530 Fugro punched 08 (08P). After
doing 01P. 08P seems to be dry.
PVC ALL THE WAY TO TD. THEN moved
on TO 11P.
1545 Mills TRY TO SAMPLE AT 04P.
NO WATER. However High petroleum
in air in PVC. HNu > 100 ppm
1555 Mills at 05P. No water. HNu = 0.
NO ODOR near pipe.
1600 03P has 150 ppm in the open hole.
dry hole

1605 02P has 4ppm in open hole, dry hole
FUGRO FINISHED AT 11P AND ON 20P.
1645 Sampled 11P. water has tan silt,
no odor, HNu = 0. pH = 6 w/6ml HCl.
FUGRO FINISHED AT 20P AND ON TO
G21.
1700 DECON BAILERS
1713 Checked 08P. STILL DRY. FUGRO
moved off of 21P to 22P.
1730 GMT 18-201 - HNU = 0 water
is sandy (reddish sand); only ~~16~~ 6" of
water in pipe. took Samples for
8021. will come back for rest of
TPH.
1740-755 Began to shower large droplets.
ESCOCHEA SAID PVC IS AT BOTTOM of Hole.
1810 Sampled 21P. HNu > 1ppm. water
is brown and sandy; no odor. NOT
enough for TPH. ~~and~~
1900 FUGRO LEFT FLIGHTLINE.
1810 TO 1910 worked 20P and 21P Alternately
to get enough for TPH. NEITHER ARE
FULL ONE LITERS.
20P - 6ml HCl, pH = 6
21P - 6ml HCl, pH = 5

1930 Thompson Sampled GMI 18-22P. water is dark grey in color, petroleum odor, pH= 6 w/ 6ml. HCl. HNu = 30 ppm

1950 GMI 18-19 P is dry - HNu = 0

2000 LEFT FLIGHTLINE / Mills, Thompson DROVE TO DECON AREA (storage area). UNLOADED TWO BARRELS OF DECON WATER AND LABELED THEM.

2030 LEFT SITE.

Tony C. Mills

5-18-94 WEDNESDAY

0710 GMI ARRIVED ON SITE. PICKED up decon unit.

0720 - 0735 CHECK IN AT BASE OPS.

0740 FUGRO IS ON LOCATION 18 P.

0800 18 P is dry - 2' short of TD, however GMI will NOT GO DOWN THAT FAR DUE TO TIGHTNESS OF FORMATION (GRAVEL?)

0800 HELD SAFETY MEETING. THOMPSON SAID 05 P HAS 3" OF WATER.

0815 TRIED TO SAMPLE 05 P. NOT ENOUGH WATER BUT CASING IS 5' SHORT of TD. 17.5 vs 22.5. TALKED TO ED ESCOCHEA ABOUT IT. HE WILL PULL THE SCREEN AND SEE ABOUT RUNNING GMI.

0820 CALIBRATED THE HNu.

0855 DART PICKED UP SWDL SAMPLES.

0920 TALEM PICKED up THEIR SAMPLES. JAMES BOND PICKED. PUT TRIP BLANKS IN COOLERS.

0940 - 1020 CALLED THE OFFICE.

1050 SAMPLED 24P. HNu = 100 ppm high petroleum odor. Dark, thick water. pH = w/ 6 ml HCl.

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815

1105 checked 26P. HNu=0.
Hole is dry and 3' deep.
1111 checked 25P. HNu = 20 ppm
no definite odor. Ed Escobea felt
that it is bedrock. Approximate depth
is 6.5 feet.
1130 1145 Fugro Pushing screen at
27P via GMF.
1135 GMI18-27P HNu = 0. no odor.
pH = 2 w/ 6ml HCl. water is slightly
silty.

1140 Deconned Bailer
1150 TRIED TO FINISH TPH AT 24P. NOT
ENOUGH.
1205 LEFT SITE FOR LUNCH (FUGRO & GMI)
1325 BACK ON BASE
1330 mills CALLED OFFICE.
1345 Mills called TALEM ABOUT Sampling
equipment.
1430 Sampled GMI18-23P. water
[illegible], no odor. HNu = 4 ppm.
pH = 2 w/ 6ml HCl
1450 GMI18-06P; HNu = 2 no water.
Fugro dropped to ≈ 23'.

1500 GMI18-07P HNu = 9 ppm in
open hole.
1505 Fugro punched 09P. Screen went
to 26'. TD = 26.5' no water.
1520-1540 FINISHED SAMPLING AT
24P. STILL less than one liter.
6ml HCl, PH = 3
1520 TO 1555 FUGRO PUNCHED A10.
water is slightly silty (brown). no odor
HNu = 0. pH = 2 w/ 6ml. HCl
1610 TOOK Sample AT GMI18-101.
1630 Mills called office.
1700 GMI18-07P is dry after
Fugro ran GMF. HNu still
>6 ppm. Screen ≈ 23'
1707 Decided to take Dup's and
Blanks at GMI18-10P.

1715 FB 51894 BOTH TALEM & SWDC
5ml HCl added for VOA only
1735 GMI18-103 for SWDC (Regulatory Dup)
6ml HCl added
~~GMI18-102 for TALEM (Duplicate)~~
~~6ml HCl added~~
1745 RB 51894 for both labs.

1730 could not get ~~enough~~ ENOUGH WATER FOR DUPS SO TOOK RINSATE BLANK AND moved TO 23 P TO TAKE Duplicates

1845 GMI 18-233 for SWDL 6ml HCl pH=2 or 3
GMI 18-232 for TACEM 6ml HCl pH=2 or 3

1945 THOMPSON AND Mills LEFT FLIGHTLINE. FILTERS COOLED W/ ICE AND DROVE TO STORAGE AREA. UNLOADED 1 drum of ASPHALT CUTTINGS AND SOIL.

MILLS AND THOMPSON LEFT FOR THE DAY
FLORO LEFT AT 1830 TODAY

Jerry C. Mills

5/19/94

0715 Mills AND THOMPSON ARRIVED AT STORAGE AREA TO LOAD SUPPLIES.
0740 Signed in at BASE OPS
0745 CALLED OFFICE
0815 THOMPSON AND Mills BEGAN PARKING CONCRETE ON TANKER ROW. NINE 4" Diameter holes two feet deep. USING FIBER REINFORCED CONCRETE MIX (QUICKCRETE).
0855 Mills TOOK SAMPLES TO THE GATE FOR TACEM.
0915 JAMES PICKARD (TACEM) PICKED up the cooler & FLORO came by and talked about concrete.

1015 Tried to mix Bentonite granules with water and grout 06 P through PVC tremie pipe. Kept plugging up. Steam cleaned equipment and moved to 07 P. Florio came out for a few minutes. SAID Thompson can try out this rock bit on a concrete trailer pad.
1030 - 1300 GROUTED HOLES WHILE THOMPSON Drilled a test hole in concrete. Loaded

van with materials.

1300 Thompson left the site. Mills took lunch break.

1400 Mills returned to take static water level measurements at 27P, 23P and 10P. and Plug holes.

1410 Decon pipe.

1545 - 1615 completed grouting holes.

1700 SECURED EQUIPMENT on the trailer. LEAVE FLIGHTLINE.

1800 left site after dropping of 1/2 drum of asphalt cutting and 1/2 drum of decon water.

Tony Mills

5-23-94 WORK ORDER # 1161-052

SAMPLING NINE MONITOR WELLS. (GMI)

1400 MILLS AND THOMPSON ARRIVED ON BASE TO SAMPLE MONITORING WELLS (9). STOPPED BY FLOLOS OFFICE TO GET KEYS. FILLED COOLER WITH ICE. FLOLO WAS NOT THERE SO DROVE TO FLIGHTLINE TO BEGIN.

1442 GMI 22-02M. SWL is 8.58' BTC. 28.60' BTC = Sounding 20' of water = 10 gal of water for SAMPLE TAKEN 1515. Purged 12 gallons before sampling. water level while pumping = 10.9' BTC water is clear no odor. HNu was 2,000 in Hole but dropped to zero after pumping.

1540 ARRIVED AT GMI 22 SWL = 18.52 BTC, Sounding = 28.5' BTC. water is clear, first was tan silt, no odor HNu = 1ppm after sampling. Pumped 7 gal before sampling. 1555 = sample time.

1610 MET ALAN FLOLO AT GMI 22-04M TOOK FIELD BLANKS WHILE WAITING FOR KEYS.

1630 FBS2394 for TALEM AND SWD

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1643 TOOK SAMPLE AT GMI 22-04M
w/ Duplicates.
GMI-22-04M for SWDL
1650 GMI 22-04MD for TALEM Dup
Water is clear, no odor, HNu = 0 ppm
1750 ARRIVED AT GMI 22-06M
TOOK Rinsate Blanks at 04M after
decoming pump. Poured samples
at 1750. Pumped 6 gal before
sampling. Total of 10 gal.
1805 TOOK samples. Water is clear,
no odor, HNu < 1. pH = 2 w/ 6ml
HCl.

1820 moved TO GMI 22-03M.
1840 TOOK Samples GMI 22-03M
1830 TOOK TRIP BLANKS TB52394 for
SWDL AND TALEM.
03M has clear water, no odor,
HNu ≤ 1 ppm. pH < 2 w/ 6ml HCl.
1900 ARRIVED AT ~~GMI 05M.~~ GMI 22-05M.
1915 Sampled GMI 22-05M after purging
2 gallons. Purged 3 gal total.
1930 ARRIVED AT GMI 22-~~05A~~ 07M.

2010 Sampled GMI 22-07M. Slow
PRODUCER, Approx 1 L per 10 min.
Purged only 4 gal in 35 min before
sampling. Water is silty (red) with
no odor. HNu = 0.
2018 Arrived at GMI 22-08M.
Purged 6 gal before sampling.
Water began silty but become clear,
no odor, HNu = 0. pH ≤ 2 w/ 6ml
HCl.
2030 Sample time for GMI 22-08M.
2045 ARRIVED AT GMI 04-01M AT
Golf Course near Landfill 04.
SWL = 20.53 Sounding = 34.9
Water is cloudy, no odor. HNu = 0
2102 Sample taken at GMI 04-01M.
Purged 9 gal before sampling, total
of 12 gal. pH = 2 w/ 6ml HCl.

2143 TOOK 2 DRUMS OF WATER TO
STORAGE AREA. STORED ONE
DRUM AND FILLED THE DRUM
THAT WAS 1/2 FULL.
2150 Pulled one well on the flightline
that was missed on 2/19. GMI 18-28P.
2200 LEFT SITE. Jimmy C. Mills

5-24-94

SAMPLES OF THE NINE MONITOR WELLS WERE DELIVERED TO TALEM AND TO USACE Southwestern Division Laboratory by Robert Thompson (Geo-Marine).

Tony C Mills

5-31-94 DISPOSAL OF DRUMS OF SOIL AT CARSWELL.

8:15 TONY Mills (GMI) ARRIVED ON BASE. DROVE TO Bldg 1215 TO GET A KEY FROM FLOLO (BCA). FLOLO WAS OUT OF THE OFFICE. TOOK A KEY TO TRY THE LOCK AT THE DRUM STORAGE AREA (OLD LANDFILL AT CARSWELL).

8:30 JOHN (HEET ENERGY) WAS AT THE GATE. DROVE TO STORAGE AREA. KEY DID NOT FIT.

9:10 UNLOCKED THE GATE. JOHN LOADED BARRELS OF SOIL WHILE Mills CHECKED 2 LOCATIONS ON FLIGHTLINE TO SEE IF THEY HAD BEEN GROUTED.

9:50 ONE HOLE, LOCATION GMI18-19P was grouted. the other, GMI18-18P STILL HAD PVC IN IT. CHECKED FOR WATER (dry) and pulled pipe and grouted the hole.

10:10 JOHN WAS LOADING BARRELS. MIKE BOTWIN (BCA) CAME TO GET THE KEY AND SIGN THE MANIFEST. 10 Drums were loaded of the 13. He NOTICED HAZARDOUS WASTE LABELS

ON THE DRUMS AND REQUESTED THE ANALYSIS. STOPPED LOADING UNTIL WE COULD GET A COPY OF THE ANALYSIS.

1130 LYLE WINNETTE (GMI) RAN TO CALL MEET FARRAY (BRUCE McDONALD) for the ANALYSIS. BRUCE McDONALD FAXED THE ANALYSES TO MIKE BOTWIN. AFTER REVIEW, BOTWIN DECIDED TO REMOVE THE HAZARDOUS WASTE LABELS AND REPLACE THEM WITH GREEN - "NON REGULATED LABELS".

1130 MILLS AND JOHN REPLACED LABELS. (MEET ALREADY HAD THE PROPER LABELS PRINTED) (MILLS PUT THE HAZ WASTE LABELS ON WHEN THE DRUMS WERE FIRST STORED).

1210 ARRIVED AT THE BCA Building 1215 to HAVE MANIFESTS SIGNED BY MIKE BOTWIN.

1161-0521) MANIFEST HAD 12 DRUMS OF SOIL
1164-0565 CUTTINGS FROM THE 10 BOREHOLES
2) MANIFEST HAD 1 DRUM OF ASPHALT cutting from pavement work (Grace I)

1230 LEFT THE BASE.

6-29-94 1500
GMI 18-42 P
Sounding 19.6 SNL 13.25

Chief Cummings on Sleuter with AMU. get permission to drill near F-16.

PHASE II - HYDRANT FUEL SYSTEM

6-28-94 TUESDAY.

TONY MILLS AND HUBERT THOMPSON (GMI) ARRIVE ON BASE AT 0915.
STOPPED AT ALAN FLOLO'S OFFICE.

0930 BEGAN MARKING LOCATION BETWEEN RUNWAY SIDE AND PARALLEL TAXIWAY. START AT NORTH END AND MOVE SOUTH-

1230 TOOK LUNCH BREAK.

1300 CONTINUED TO MARK LOCATIONS.

1605 LEFT RUNWAY. TOOK MAP TO FLOLO'S OFFICE.

1630 LEFT BASE.

Tony Mills

6-29-94 WEDNESDAY

0900 MILLS (GMI) ARRIVED ON BASE TO MARK LOCATIONS. PICKED UP MAP FROM FLOLO'S OFFICE.

0930 BEGAN MARKING AROUND PERIMETER OF WEAPONS STORAGE AREA. (WSA)

1230 TOOK OFF FOR LUNCH

1300 RETURNED TO MARK LOCATIONS

1350 GATE AT WSA IS LOCKED. ROY QUERETARO (BASE OPS) SAID THE BCA HAS THE KEY.

1400 MILLS MARKED LOCATIONS AROUND BLDG 1050.

1310 MARKED AREAS NEAR WSA AND MAIN TAXIWAY.

1340 MARKING LOCATIONS WEST OF N. APRON.

1645 LEFT BASE.

Tony Mills

6-30-94 THURSDAY

1100 Mills AND THOMPSON ARRIVED AT FLOLO'S OFFICE. PICKED UP KEY TO WSA.

1115 BEGAN TO MARK LOCATIONS ON S. END OF PARALLEL TAXIWAY AND S. RUNWAY. Completed WSA AREA.

1500 MOVED TO APRON TO COMPLETE LOCATIONS IN THAT AREA. LOCATION 164 IS IN A RESTRICTED AREA ON NORTH SIDE OF THE TRANSPORTATION RAMP. MOVED IT TO REPLACE THE ALTERNATE LOCATION AT THE CORNER OF FENCE (#262)

1620 LOCATION 168 WAS NOT MARKED SINCE IT IS AN ALTERNATE LOCATION AND THE AREA IS FILLED WITH UTILITIES.

1635 THE BASE POLICE ESCORTED US INTO RESTRICTED AREA TO MARK LOCATIONS IN THE CENTER OF THE APRON TOWARD THE F-16 APRON. LOCATION #174 IS NEAR AN F-16. HAD TO CALL ON THE MP TO GET ASSISTANCE. PERMISSION WAS GRANTED TO ~~SAMPLE~~ MARK THE LOCATION. WILL NEED TO ARRANGE SAMPLING ACTIVITIES WITH

CHIEF CUNNINGS OR
CHIEF SLENTER WITH THE
ANG.

1710 LEFT FLIGHTLINE FOR THE DAY.

Jerry Mills

7-05-94 TUESDAY.
HUBERT THOMPSON AND TONY MILLS (GMI) ARRIVED ON BASE AT 0915 TO COMPLETE THE SAMPLE LOCATIONS.
0930 BEGAN ON THE FLIGHTLINE AT 180.
1130 FINISHED ON TANKER ROW LEFT FLIGHTLINE AND COMPLETED ALTERNATES NEAR 1ST ST AND B ST. COULD NOT GET IN RESTRICTED AREA TO DO #248.
ALAN FLOLO CAME BY AT BOWER AND 1ST. HE WILL TALK TO ~~CAPT~~ CHIEF CUMMINGS ABOUT PUNCHING #174 near F-16's.
HE will also GET US 4 new utility maps.

1200 WORKED FROM 212 TOWARD KNIGHTS LAKE ROAD LOCATING THE PRIMARY LOCATIONS. THEN COMPLETED IN AREA Between "B" and JENNINGS.

1330 BEGAN LOCATING ALTERNATES AT 239 TO 241, 250 TO 260, Then 237, 238.

1600 STOPPED AT FLOLO'S OFFICE to pick up MAPS. HE INFORMED US OF THE KICKOFF MEETING AT BLDG 1215 ON THURSDAY.

1630 COMPLETED MARKING LOCATIONS NEAR MAIN GATE. Includes 228, 229, 230.

DID NOT DO 7 LOCATIONS (ALTERNATES) WHICH WILL BE COMPLETED THURS. AFTER THE MEETING.
THESE INCLUDE: 263, 231, 232, 233, 234, 235, 236.

CHANGES TO ORIGINAL MAP ARE:
1) 164 WAS MOVED APPROX. 200 FT NW.
2) 248, 168, and 152, 256 WERE NOT LOCATED. EACH OF THESE ARE ALTERNATES.
3) 167 WAS MOVED A SIGNIFICANT DISTANCE EASTWARD.
4) 221 and 216 were also moved to a more convenient Location.

1630 Hubert and Tony Mills Left Location (BASE).

Tony C. Mills

PHASE II - GROUNDWATER SAMPLING
08/01/94

1530 TONY MILLS (GMI) ARRIVED ON SITE. ALAN FLOLO (AFBCA) HAD TAKEN ALBERT FONSECA (DRILLER) AND TRACY BRYCE (ASSISTANT)(FUGRO) TO GET FLIGHTLINE TRAINING AND BASE PASSES.

1600 FUGRO TRANSPORTED THEIR CONE PENETROMETER RIG TO THE FLIGHTLINE, UNLOADED THE RIG AND TESTED THE SYSTEM. TALKED WITH FUGRO ABOUT DRILLING PLANS.

1730 LEFT SITE.

Tony C. Mills

08/02/94 TUESDAY

0730 FUGRO ARRIVED AT BASE OPERATIONS FLIGHT TOWER.

0745 MILLS AND JIM CROW (GMI) ARRIVED AT TOWER. ORDERED SUPPLIES.

0815 HELD SAFETY MEETING NEAR TANKER ROW. SHOWED FUGRO LOCATIONS IN GRASS AREA.

0930 CROW DROVE TO THE GATE TO MEET DHL ANALYTICAL - MILLS CALLED GMI OFFICE AND MMR ENTERPRISES.

1000 ALAN FLOLO BROUGHT DERHSING LUU AND SCOTT SCHROEDER (DHL) TO FLIGHTLINE FOR TRAINING, THEN TO PASS AND I.D. EDDIE (COWBOY CORING) ARRIVED AT THE TOWER. FUGRO HAVING PROBLEMS WITH P.C.

1055 FUGRO PUNCHED HOLE AT 161P. COULD NOT GET PVC IN TO BOTTOM, SO WILL PUSH CPT ONLY UNTIL DELON UNIT IS READY. COWBOY CORING BEGAN AT 136P, ~~then~~ on TO 178P

AND CONTINUE SOUTH ALONG ROW OF HANGARS.

1200 CREW FILLED DECON TANK W/ WATER. AND PARKED RIG AT FLIGHTLINE.

1230 CPT AT 138 P. TOOK LUNCH BREAK.

1300 FUGRO AT 136 ACROSS TAXIWAY.

1345 CPT AT 136. NEED TO DECON GMF CASING. FUGRO WAITING FOR GMI TO DECON PIPE.

1440 FUGRO PUSHING GMF AT 137.

1450 PREPARED TRIP BLANK TB80294.

1545 FUGRO DONE AT 137. MOVING TO 138 TO PUSH CASING.

1600 SAMPLED 137 P. SAMPLE# is GMI 18-137.

1630 PUSHED CASING AT 138 P. moving to 161 P.

1700 SAMPLED 138.

1715 PUSHED CASING AT 161 P. moved to 136 P.

1740 SAMPLED 161.

1800 PUSHED CASING AT 136. FUGRO MOVED RIG BACK TO DECON AREA.

1815 SAMPLED 136.

1845 FUGRO LEFT SITE.

1900 TOOK SAMPLES TO LAB. DR. LIU SIGNED COFC. HAVING SOME PROBLEMS GETTING LAB READY.

1930 LEFT SITE.

Troy C. Phillips

08-03-94

0715 Mills and Crow arrived on Base.
0730 Left Floco a message to have 174, 247 and 162 checked for utilities.
0745 Held safety meeting with Fugro at 179.
0830 Fugro punched 179 to 26.5'. Calibrated gas detector and OVM.
0900 Fugro at 178. Mills took Floco to see 162.
0915 Eddie w/ Cowboy Coring arrived. Took him to the east gate to enter F-16 restricted area.
0930 Fugro went to 211 after setting PVC in at 178.
1035 Fugro moved to 245 after setting PVC at 211. Mills sampled 211.
1130 Fugro moved to 180. Mills picked up 1.61 key for weapons storage area from BCA. Took Cowboy Coring to USA.
1210 Mills sampled 178. Fugro set screen at 180.
1215 Fugro left for lunch.
1250 Mills took samples to lab. Left for lunch.

1315 Fugro back at 181.
1330 Mills and Crow back from lunch. Mills making copies of maps and call SWDL - Stephen Brooks
1445 Sampled GMI 18-245
1510 Shipment of pipe and grout arrived went to unload at ~~Radarsite~~ (LF04)
1600 Sampling at GMI 18-180 unloaded supplies inside hangar 1401 where the mobile lab is located.
1640 Sampling at 181 P. Took Dup for mobile lab. Lost bailer in the hole. Tried to use 2nd bailer. Bailed until water would not come in. Could not pull casing out. Could not get a Dup for USACE Southwestern Division Laboratory (SWDL). Took FB.
1800 Tried to sample at 182. Not enough for TPH. Will try casing run tomorrow.
1730 Fugro left site. They pulled off of last hole (185P) at 1630.
1820 Tried sampling 183 P. Bailed it dry w/ only a fraction (1/4) of TPH.

1850 DECIDED TO TAKE STATIC WATER MEASUREMENTS OF 136, 137, 138, 161 from YESTERDAY. GROUTED HOLES AFTER PULLING CASING.

2020 SAMPLING AT 184P. LOTS OF WATER SO TOOK THE SWDL DWP AT 2045. ALSO AWFB FOR SWDL.

2110 PACKED SAMPLES W/ ICE AND LEFT BASE.

Tony C. Mills

08/04/94 THURSDAY

630 FUGRO & GMI ARRIVED AT TOWER & CHECKED IN.

645 GMI AT 185 TO SAMPLE. CALIBRATED OVM.

745 CROW (GMI) TRIED TO GET TPH FROM 183 P. IT WAS DRY.

815 CROW AT 182 P TO TRY FOR TPH. : Mills AT BASE OPS TO CALL FOR COMPUTER SERVICE.

0830 CROW SAMPLED 177.

0900 FUGRO HAD 177 AND 176 PUNCHED. WAS LOOKING FOR 173 WHICH DID NOT GET CORED. MOVED RIG TO 175.

0910 Sampled AT 176. Full samples

0940 sampled AT 175. Full samples.

1025 FUGRO PULLED OFF OF 177 AFTER PUSHING GMF CASING TO GET THE PVC SCREEN DEEPER. ONLY VOA'S were collected PREVIOUSLY. MILLS SAMPLED TPH AT 177. FUGRO MOVED TO 181 TO PULL WELL. PVC WAS STUCK IN THE HOLE AND THE BAKER STUCK IN PVC. THEN FUGRO LS

TO MOVE TO 182 TO REPUNCH W/GMF
TO GET DEEPER.
Crew decomed GMF, TOOK SWL measurements.
1140 FUGRO PUSHED CASING AT 182.
1150 Mills sampled 182 FOR TPH.
1200 LUNCH
1300 CPT AT 186.
1330 SAMPLED 186 P. ONLY ENOUGH FOR VOA'S.
1400 CPT AT 188.
1420 Sampled 188.
1500 CPT AT 187.
1510 SAMPLED 187.
1515 CPT AT 205. move TO 186 TO PUSH CASING.
1615 PUSHED CASING AT 186. 205 IS DRY.
1630 SAMPLED 186 FOR TPH. TOOK SAMPLES TO LAB.
1700 FUGRO LEFT SITE.
1730 CREW AND Mills PULLED 3 "WELLS" ON TAXIWAY IN F-16 RESTRICTED AREA.
GROUTED HOLES TO BOTTOM OF CONCRETE.
PUT SURFACE GROUT IN 186, 187, 188
TO KEEP RUNOFF FROM ENTERING GROUNDWATER
2030 LEFT SITE.

Tony C. Mills

8/05/94 FRIDAY

0700 GMI ARRIVED AT TOWER

0710 SAFETY MEETING. THEN FUGRO MOVED TO ~~206P~~. 209 P

0750 CALIBRATED OVM

0800 MADE TRIP BLANKS TB80594 FOR BOTH LABS

0815 Rinsate Blank RB80594 for BOTH LABS

0815 FUGRO MOVED TO 206 P

0850 FIELD BLANKS FB80594 for BOTH LABS.

0855 FUGRO MOVED TO 207 P.

0925 FUGRO AT 208 P.

0930 NO WATER AT 209 P.

0935 NO WATER AT 206 P. PVC ALL THE WAY DOWN TO TD. DRY HOLE

0940 NO WATER AT 207 P. PVC ALL THE WAY DOWN TO TD. DRY HOLE

0940 208 P HAS A LOT OF SAND. WILL USE GMF TO GET CASING (PVC) DOWN.

1030 FUGRO MOVED TO 210.

1040 MILLS SAMPLING AT 208.

1130 TOOK Sample 208 and duplicate 208D. ALSO 208 FOR USACE SWDL

1115 FUGRO moved to 205 TO USE GMF casing.

1200 CALLED FOR COURIER SERVICE TO DELIVER SAMPLES.

1230 FUGRO moved TO 209 AGAIN TO use GMF.

1300 MILLS WAITING ON ~~AMERICAN~~ TM COURIERS OF AMERICA

1315 FUGRO SET PVC AT 209, then PARKED RIG AND PACKED up.

1345 Courier PICKED up SWDL samples

1340 Sampling at 210. SCAN TO MAKE WATER

1400 Sampling at 209.

1500 Pulled PVC AT 180 AND GROUTED HOLE.

1515 SAMPLED 205 -

1530 DROPPED OFF SAMPLE AT DHL

1630 YESTERDAY'S HOLES HAVE BEEN GROUTED. PARK TRUCK AND STEAM CLEANER.

1700 GMI left SITE.

Larry C. Mills

partly Cloudy, 80°

8/08/94 MONDAY

0700 Mills AND CROW (GMI) ARRIVED AT BASE OPS. FONSECA AND BRYCE (FUGRO) ARRIVED. PREPARED FOR THE DAY.

0755 SAFETY MEETING.

0810 FUGRO BEGAN AT GMI 18-189 P.

0830 CALIBRATED OVM.

0840 FUGRO PUNCHED 189 and moved to 193. ONLY 1" OF WATER IN 189.

0845 Prepared Trip BLANK - TB80894 ALAN FLOLO CAME BY AND SAID TO CALL THE GMI OFFICE. UTILITIES ARE CLEAR AT 237, 244, 247, and 174. Move 247 EAST TOWARD FIRE HYDRANT. Keep 244 N of 3RD PARKING BLOCK. 162 and 173 need TO BE CHECKED.

DROVE TO BASE OPS TO CALL OFFICE

0930 FUGRO RIG IS DOWN. ALTERNATOR PROBLEMS. LEFT SITE TO TEND TO THE PROBLEM.

1020 SAMPLED GMI 18-193.

1045 Mills AND CROW CEMENTING HOLES TO SURFACE ON CONCRETE.

1245 Mills & CROW GONE TO LUNCH.

1315 DROVE TO SHOPPETTE TO GET WATER AND ICE CHESTS.

1355 FUGRO MOVED FROM 191 P TO 190 P.

1405 TRIED TO GET TPH FROM 210 P. - DRY.

1450 SAMPLED 191 P.

1500 FUGRO FINISHED 192 P AND MOVED TO PUNCH GMF AT 189.

1515 Sampled 190.

1545 FUGRO moved TO 210 TO RE-PUNCH WITH GMF.

1600 Sampled 192. HAS FREE PRODUCT ON BAILER AND IN WATER - DARK AND OILY.

1700 FUGRO moved to 195. will wait on 194 TO SEE IF IT IS CLEAR W/ ELECTRICAL.

1645 SAMPLED 189.

1730 SAMPLED TPH AT 210.

1900 GMI LEFT SITE

Tony C. Mills

356

Overcast, 80°

8/09/94 TUESDAY

0615 GMI and FUGRO ARRIVED AT TOWER.

0630 SIGN IN.

0645 SAFETY MEETING

0700 FUGRO AT LOCATION 196 P.
MILLS PULLED PVC AT 195 - DRY HOLE
MUD ON BOTTOM 2" of Pipe. GROUTED HOLE.

0730 CALIBRATED OVM. FUGRO FINISHED AT 196 P.

0740 FUGRO moved TO 197 P.

0820 FUGRO AT 198 P. PUNCHED HOLE at 0860 AND moved TO 157.

0915 ~~0850~~ PUNCHED HOLE AT 157 - moved TO 158.

0920 Sampled 198, 196 & 197 will need GMF CASING RUN TO GET DEEP ENOUGH.

0950 FUGRO punched 159 and moved TO 158 P.
FUGRO PUNCHED 158 and moved TO 139.

1050 FUGRO PUNCHED 139 and moved TO 125.

1080 Sampled 159. TOOK Duplicates
GMI 18-159,
GMI 18-159 D - DHC Dup.
GMI 18-159 - SVOC Dup.

1115 SAMPLING AT 158. CLOUDS HAVE BROKEN - WARM - PARTLY CLOUDY - WINDY.

1110 FUGRO MOVING FROM 125 TO 160.

1125 CROW TAKING SAMPLES TO DHC LAB.

1200 FUGRO Punched 160. SAMPLING 139.

1210 LUNCH

1245 BACK FROM LUNCH TO complete Sampling TPH AT 158 AND 139. BOTH ARE SLOW PRODUCERS AS WAS 157. FUGRO MOVED TO 196 TO PUSH GMF.

1330 TRIED TO SAMPLE 125. NOT ENOUGH WATER; sampled 160.

1430 TOOK SAMPLES TO LAB. (DHC)
FLOLO CAME BY - SAID THE LOCATIONS 162 AND 173 ARE OK.
MILLS ASKED HIM TO check 249.
will call Concrete coming out tomorrow.

1510 TRIED TO Sample 196 - DRY

1510 197 also dry.

1515 FUGRO DID CAMMA PUSH AT 125.

1530 FUGRO MOVED TO ~~126~~ 135. LOCATION 125 IS STILL DRY W/ PVC TO BOTTOM.

1610 FUGRO FINISHED CPT AT 135.

1640 FUGRO FINISHED CPT AT 126.

1620 Mills SAMPLED 135.

1715 CPT AT 127. MOVED BACK OVER HOLE TO USE GMF (SING

1815 Sampled GMI 18-127.

~~1100 VISITORS ARRIVED AT LOCATION 63P.
RUBEN GARZA, CHARLIE VARNELL,
AMPY BOUCHEY, HARRY WINDECKER,
AND LYLE WINNETTE (GMI), DEBBIE
FITZGERALD AND (USACE)
AND ALAN FLOLO (AFBCA).
1110 SAMPLED 63P. NOT ENOUGH FOR
DUP.~~

→ 8/17/94

8/10/94 WEDNESDAY
SUNNY - 80's
FUGRO - GMI ARRIVED AT BASE OPS
AT 6:30
6:45 SAFETY MEETING
0715 PUSH GMF CASING AT 126.
STILL ONLY TO 19'. HOLE IS 24'.
0715 TB81094 FOR DHL (TRIP BLANK)
0730 RINSATE BLANKS
RB81094 FOR BOTH LABS.
0745 FUGRO MOVED TO 128.
0800 FILLED FIELD BLANKS
FB81094 FOR BOTH LABS.
0815 CPT AT 128. SCREEN WENT DOWN
TO 13'. TD = 26'.
0900 FUGRO PUNCHED CPT AT 129. SCREEN
ALSO STOPPED AT A SHALLOW DEPTH.
FONSELA AND MILLS DISCUSSED AN
APPROACH TO SAMPLING IN THIS AREA.
ASSUME THE GMF WILL BE USED AT
EACH HOLE. FUGRO WILL PUSH CPT AT
3 OR MORE LOCATIONS AND THEN
RETURN TO DO CASING RUN.
0900 SAMPLED 128. ONLY 2 VIALS
FILLED - VERY SANDY - PROBABLY
IS DISPLACED WATER FROM DEEPER

IN THE HOLE. WILL RESAMPLE.
1015 SAMPLED 129. FUGRO REPOSITIONING W/GMF AT 128.
1100 SAMPLED 128.
1110 FUGRO PUSHED CPT AT 131.
1115 called office AND CALLED COURIERS OF AMERICA.
1215 SAMPLED 131. TOOK DUPLICATES.
1300 MET COURIERS AT BASE OPS.
1305 LUNCH (GMI) FUGRO BACK FROM LUNCH TO PUSH GMF AT 133.
1345 SAMPLING 133. FUGRO AT 132.
1425 CPT AT 130. (14:30)
1430 SAMPLED 132.
1445 FUGRO moved TO 164 could NOT FIND IT.
1500 FUGRO AT 165. Mills sampling 130.
1515 FUGRO AT 164.
1545 SAMPLED 164. FUGRO AT 166.
1610 FUGRO AT 169.
1620 SAMPLED 166 - DRY
1715 FUGRO PULLED OFF OF 169 TO MOVE TO 171. HAD PROBLEMS AT 169 - RAN GMF TWICE.
1630-1700 LOOKED FOR LOCATIONS. COULD NOT FIND 170. WILL NOT PUNCH THIS HOLE.
1720 SAMPLING 169.
1750 FUGRO FINISHED 171.
1815 SAMPLED 171.
1900 PULLED PVC AND GROUTED 160 & 139. SECURED EQUIP. AT DECON AREA
1930 TOOK SAMPLES TO LAB.
1945 GMI LEFT SITE.

Jerry C. Mills

8/11/94 THURS.
CLEAR SKIES - CALM.
6:25 GMI ; FUGRO AT BASE OPS.
6:35 SAFETY MEETING
6:50 FUGRO GETTING RIG READY
0700 FOR THE DAY.
~~0.50~~ BEGIN AT LOCATION 172.
CALIBRATED OVM.
0725 TRIP BLANKS - BOTH LABS
0755 FUGRO MOVED FROM 172 TO
261 AFTER SETTING PIEZOMETER.
0810 SAMPLED GMI 18-172.
0820 FUGRO PUNCHED 261 and moved TO
173.
0850 Sampled 261.
0930 Sampled 173.
0900 FUGRO moved FROM 173 TO 163.
0945 FUGRO moved TO 134.
1110 FUGRO HAS completed 162 and
AT 167.
1010 Sampled Field Blank.
1015 Sampled 163.
1120 Sampled 134.
1200 Sampled 162.
1205 FUGRO & GMI - Lunch

FLOLO come By. Move 244 TO THE 3RD
PARKING SPACE. DO NOT DO 249.
SCOTT w/ DHL PICKED up samples
on FLIGHTLINE.

1215-1250 Lunch; Fugro punched GMI-Bd 74
WD ~~1250~~ 1310-1320 Showed next set
of locations to Fugro personnel;
Set up on GMI 18-247; sampled
GMI-18-167 @ 1345
1400 Sampled 247.
1415 SAMPLED 174
1445 LOISE DECAMP TOOK SAMPLES FOR
USACE SUDL TO DALLAS.
1510 SAMPLED 246.
1445 FUGRO COULD NOT PUNCH PAST
1' at 244. WENT TO 243.
1540 FUGRO RIG SHUT DOWN AT
243. OUT OF DIESEL?
1550 TOOK SAMPLES TO LAB.
1730 TOOK SAMPLE AT 243 FROM INSIDE
TRUCK THROUGH GMF.
1750 CPT RIG OPERATING AGAIN. PULLING
CASING. TOOK LAST SAMPLE TO LAB.
1800 SECURED EQUIPMENT.
1840 LEFT SITE
James C Mills

8/12/94 FRIDAY
CLEAR SKIES, CALM

0630 FUGRO / GMI ARRIVED AT LOCATION 242. HELD SAFETY MEETING.
0700 CALIBRATED OVM.
0715 TRIP BLANKS. (BOTH LABS) TB81294.
0720 CPT AT 242. RUNNING GMP.
0835 CPT AT 240.
0810 CPT AT 241.
0830 Sampled 241.
0910 CPT AT 239.
0900 FIELD BLANKS FOR BOTH LABS.
0920 RINSEATE BLANKS FOR BOTH LABS.
0950 SAMPLED GMI 18-239
TOOK DUPLICATES - BOTH LABS.
DID NOT GET ENOUGH FOR TPH. WILL COME BACK TO RUN CASING.
1080 CPT AT 203.
1030 CPT AT 202. 19.4 RAN CASING GMF 15.5
1090 TRIED TO SAMPLE 203 - DRY.
1100 FUGRO moved from 202 BACK TO 239 FOR GMF CASING RUN.
1120 Sampled Volatiles at 202. SLOW TO Recover.

1200 FINISHED SAMPLING TPH AT 239 AFTER FUGRO RAN CASING.
1220 FINISHED sampling 202.
1230 DROPPED SAMPLES BY THE LAB. FUGRO PARKED RIG AT DECON AREA AFTER CPT AT 204.
1245 SAMPLING AT 204 - HOLE IS DRY.
1300 Sampled DECON WATER DRUM #1 D1
1310 Sampled D2 - Drum #2
1320 SAMPLED D3 - DRUM #3
1400 TOOK SAMPLES TO LAB. SIGNED C OF C. PARKED VAN AT DECON AREA. SECURED EQUIPMENT
1500 LEFT SITE.

Jerry C. Mills

OVERCAST, COOL, SCATTERED SHOWERS

8/15/94 MONDAY

0700 FUGRO ARRIVED AT BASE OPS.
0710 GMI ARRIVED.
0730 SAFETY MEETING
0800 MOVED TO LOCATION 212.
(MOVED PARKED VEHICLES FROM LOCATION
0830 CALIBRATED OVM
0840 TRIP BLANK FOR DHL. TB 81594
0850 SAMPLED GMII 8-212. FUGRO moved to 213.
0900 CPT @ 213
0920 Sampled 213.
0950 SAMPLED 214. FUGRO moved TO FLIGHTLINE
1020 SAMPLED 215. FLOLO CAME OUT. BROUGHT DIGGING PERMIT FOR CRA AND COMMUNICATIONS FOR AREA 2. (FLIGHTLINE) AND 1.61 Key.
1040 CPT @ 194.
1100 SAMPLED 194 - NOT ENOUGH WATER.
1150 SAMPLED 201 - NOT ENOUGH FOR TPH.
1140 CPT @ 199.
1215 LUNCH GMI 1205 LUNCH FUGRO.
1320 GMI RETURNED TO DECON AREA. DECON WASHER NOT OPERATING PROPERLY. CROW LEFT TO GET OIL AT BX.
1345 FUGRO moving FROM 155 TO 156. MILLS SAMPLING AT 199.
1400 Sampled 199.
1440 SAMPLED 156. 155 WAS DRY. CROW AND MILLS WORKING ON DECON UNIT.
1530 CALLED OFFICE & TALLEM, TO ORDER AMBER 1-L GLASS JARS FOR USACE - SWDL SAMPLES. THEY WILL ARRIVE AT 1630. CROW WILL PICK UP.
1630 SAMPLED 140. WATER WAS NOTED BY DRILLER (FUGRO) TO BE ENTERING WELL FROM NEAR THE SURFACE, SOMEWHERE BELOW THE SLAB.
1650 TOOK USACE SWDL TRIPBLANK TB81594.
1700 FIELD BLANKS FB81594 FOR BOTH LABS.
1730 TRIED SAMPLING 142. IT IS DRY.

1800 SAMPLED 154. Duplicates for Both LABS.
GMI 18-154 AND GMI 18-154Δ.
1840 Sampled 200.
1900 SAMPLED 143.
1930 Sampled 141.
2000 TRIED TO SAMPLE 201 - only 4" of water not enough for TPH. 194 - DRY AFTER GMF CASING RUN.
2015 LEFT SITE (GMI).
1830 FUGRO LEFT SITE AFTER GMF AT 194.

Tony C. Mills

PARTLY CLOUDY (OVERCAST) - COOL
8/16/94 TUESDAY
FORECAST - SUNNY - HOT
0630 FONSECA, BRYCE (FUGRO) AND MILLS, CROW (GMI) SIGN IN AT BASE OPS.
0635 SAFETY MEETING AT DECON STATION.
0650 CROW AND MILLS WORK ON PRESSURE WASHER TO GET IT STARTED. DECON CASING. FUGRO AT 121.
0725 Mills RESAMPLED SAME FOR TPH AT 201. CROW PICK-UP SCREEN AND RISER.
0740 CALIBRATE OVM.
0745 CPT AT 121 move TO 122 SCREEN SET BELOW 18'. Hole is 25.5'
0800 TOOK LAST AMOUNT OF WATER FOR TPH AT 201.
0815 SAMPLING AT 121.
0820 CPT AT 122; move TO ~~123~~ 124m. COULD NOT FIND 123.
0840 CPT AT 124.
0850 Sampled 122.
0900 CPT AT 123
0915 Sampled VOA'S AT 124. NOT ENOUGH FOR TPH. FUGRO MOVED ON LOCATION TO PUSH CA[illegible]G.

356
838

0930 SAMPLED 123.
0950 FUGRO MOVED ACROSS TAXIWAY TO 88P.
1000 FINISHED SAMPLING (TPH) AT 124.
1050 SAMPLED GMI 18-88 P.
FUGRO moved TO 89.
1100 TOOK FIELD BLANKS FB81694 FOR BOTH LABS
1130 TOOK RINSATE BLANK FOR BOTH LABS RB81694.
1145 FUGRO FINISHED W/ GMF CASING AT 89 P.
1200 SAMPLED 89 P.
1245 CALLED OFFICE TO CALL COURIERS OF America. will meet at 1345 TO PICK UP SAMPLES.
1315 TOOK LUNCH. (GMI). FUGRO PUNCHED 90 P.
1345 MET COURIERS OF AMERICA. SHIPPED SAMPLES TO DALLAS TO SWDL.
1400 Mills CALLED OFFICE.
1350 SAMPLED 90 P.
1425 SAMPLED 91 P. 91 IS DRY
TM ~~1450 92 P IS DRY. NEED TO USE CASING.~~
1500 Sampled 54 P.

1540 SAMPLED 55P.
1600 SAMPLED 56 P. SLOW TO RECHARGE.
1615 FUGRO MOVING FROM 58 TO 59.
1625 SAMPLED 57P
1650 SAMPLED 58P.
1640 ~~GMI~~ CPT AT 59 P.
1650 FUGRO LEFT LOCATION TO SECURE EQUIPMENT.
1720 SAMPLED 59. VOA'S ONLY - SOME TPH; will RUN CASING TOMORROW
1730 TO 1940 - GROUT HOLES - MEASURE STATIC WATER LEVELS.
1900 TOOK LAST SAMPLES TO LAB.
2000 GMI LEFT SITE.

Jerry C. Mills

PARTLY CLOUDY 75°. STEADY BREEZE.

8/17/94 WEDNESDAY

0630 MILLS AND CROW (GMI) ARRIVED AT BASE OPS. DECONNED PIPE. CROW LEFT TO FUEL THE YELLOW VAN.

0715 FUGRO ARRIVED.

0730 SAFETY MEETING. ~~PULLED~~ MOVED RIG TO 59P TO PUSH CASING.

0745 CALIBRATED OVM.

0820 DID NOT GET MUCH WATER AT 59P. PVC IS DOWN TO TD - 16'.

0830 FUGRO PUNCHED 60P. HOLE IS DRY.

0850 CPT AT 61P TO 15.7'. MOVED TO 95P.

0910 CPT AT 95P.

0915 SAMPLED VOA'S AT 61. NOT MUCH WATER FOR TPH.

0950 SAMPLED 1 VOA AT 95P. FUGRO MOVED TO 63.

1030 CPT AT ~~62~~ 63 MORNING TO ~~65~~ 64. SAMPLED 62.

1040 CPT AT 64.

1140 ~~CP~~ SAMPLED 64.

1100 VISITORS ARRIVED ON SITE. RUBEN GARZA, HARRY WINDBOLER, CHARLIE VARNELL, AMPY BONCHEV, LYLE WINNETTE (GMI), DEBBIE F[illegible] AND [illegible] (USACE), ALAN FLOLO (AFBCA). VISITORS CAME TO SEE CONE PENETROMETER AND MOBILE LAB AS WELL AS FIELD PROCEDURES.

1110 SAMPLED 63P.

1140 SAMPLED 64P.

1200 ATTEMPTED 65P AFTER CASING WAS USED. COMPLETELY DRY. WATER IS APPARENTLY JUST BELOW THE SCREEN IN MOST OF TODAY'S HOLES. FUGRO MOVED OVER TO 91P WHERE THE HOLE WAS DRY YESTERDAY.

1215 LUNCH

1250 BACK TO FLIGHTLINE.

1305 PUSHING GMF AT 91P.

1320 GMF WENT ONLY TO 16'. EARLIER, THE PVC WAS DOWN TO 20' AND WAS DRY. FONSECA (DRILLER) AND MILLS DISCUSSED THE PROBABILITY THAT THE SURFACE CLAYS ARE HIGH ENOUGH IN FRICTION CAPACITY TO STOP THE GMF CASING FROM REACHING THE SAND. FUGRO HAS A WATER

SAMPLER THAT WILL FIT W/ THE CPT RODS. FONSECA WILL CALL FUGRO OFFICE TO SEND SOME WATER SAMPLERS AND BAILERS.

1335 COLLECTED FIELD BLANK (BOTH LABS) FB 81794.

1410 TRIP BLANK FOR SVDL - TB81794.

1420 GMF AT 66 P. moved to 67 P.

1500 SAMPLED 66. NOT ENOUGH FOR TPH OR DUPLICATES.

1530 - 1630 CALLED OFFICE, ORDERED SUPPLIES AND TOOK SAMPLES TO THE LAB. FUGRO ALSO CALLED OFFICE.

1640 GMF CASING PUNCHED AT 66. SAMPLING FOR TPH. FUGRO SET UP AT 69 P. AT 66 P - HAD ENOUGH WATER FOR DUPLICATES GMI 18 - 66 D AND GMI 18-66 AT 17:00.

1745 SAMPLED 67 P. FUGRO WILL WRAP THINGS UP AT DECON STATION AND LEAVE FOR THE DAY.

1815 SAMPLED 68 P. NOT MAKING MUCH WATER.

1845 SAMPLED 69 P. SCOTT SCHRODER CAME OUT. SAID HE COULD NOT ANALYZE 64 FOR TPH - NOT ENOUGH WATER. TOOK SAMPLES BY THE LAB WHILE CROW SECURED EQUIPMENT AT DECON AREA.

1930 MILLS AND CROW LEFT THE SITE.

Tony C. Mills

8/18/94 THURSDAY
CLOUDY. SHOWERED FOR ABOUT ONE HOUR LAST NIGHT. SCATTERED SHOWERS IN THE FORECAST.
0630 FUGRO AND GMII ARRIVED ON SITE AT BASE OPS.
0700 SAFETY MEETING ON THE FLIGHTLINE.
0725 CPT @ 86 P. Screen down to 19'. TD ≈ 22'.
0750 SAMPLED 86 P. CPT @ 87 P.
0815 SAMPLED 87 P. CPT @ 70 P.
0840 SAMPLED 70 P. CPT @ 85 P.
0910 TRIED TO SAMPLE 85. BAILED DRY. 1 VOA +.
0930 – 1000 FUGRO HIT STORM SEWER LINE AT 106 – MOVED OVER 20'.
1000 Sampled AT 71 P. Duplicates GMC18-71 D AND GMC18-71.
1040 FUGRO RIG SHUT DOWN
1045 TOOK RINSATE BLANK RB81894 FOR BOTH LABS.
1115 TOOK FIELD BLANKS FB81894 FOR BOTH LABS.
1140 FUGRO LEFT SITE TO TRAVEL TO DALLAS FOR PARTS (FILTER)

1200 SAMPLED 106 P.
1215 TOOK Sample 106 TO LAB. GMI LEFT FOR LUNCH.
1310 Mills AND CROW BACK TO FLIGHTLINE. Mills WENT TO CALL AT BASEOPS TO OPER HCl AUD. CROW BEGAN TAKING STATIC WATER MEASUREMENTS AND PULLING WELLS.
1400 COURIERS OF AMERICA PICKED UP SAMPLES FOR CORPS OF ENGINEERS SOUTHWESTERN DIVISION LABORATORY (SWDL).
1415 MILLS AND CROW FINISHED GROUTING HOLES.
1515 FUGRO HAS TRUCK OPERATING. SET UP AT 105 P. CROW STAYED TO SAMPLE. Mills TO MAKE CALL TO OFFICE.
1541 SAMPLED 105.
1610 SAMPLED 104.
1630 CPT @ 103
1645 SAMPLED 103.
1800 CPT @ 102 – DRY HOLE. QUIT FOR THE DAY.
1830 SECURED EQUIP. FUGRO LEFT SITE
1800 TOOK SAMPLES TO LAB – LEFT SI

CLOUDY - STEADY S. WIND.

8/19/94 FRIDAY

0630 FUGRO / AMI SIGN IN AT TOWER.

0700 SAFETY MEETING AT FLIGHTLINE.

0715 FUGRO MOVE TO 96 P. CROW TAKING SWL MEASUREMENTS AT 66 - 69 - PULL PVC AND GROUT HOLES.

0730 MILLS SAMPLED DRUM (DECON WATER) # 4 and 5.

0800 TRIP BLANK TB8194.

0815 CALIBRATED OVM. FUGRO USING CASING TO INSTALL PVC. HOLE TD=24.7'. SCREEN WENT DOWN TO 15' FIRST TRY.

0830 SCREEN SET AT 24'. MOVE TO 97 P.

0850 SAMPLED 96 - SEVERAL FEET OF WATER.

0910 CPT @ 97

0920 SAMPLED 97.

0930 CPT @ 98 P. FONSECA CAME TO DISCUSS LOCATION 98, VERY SILTY - HIGH FRICTION - WILL NOT BE ABLE TO PUSH CASING ALL THE WAY DOWN SCREEN IS AT 15'.

0950 THERE IS 4' TO 5' OF WATER AT 98. FUGRO MOVED ON TO 99 P.

1000 SAMPLED 98 P. WATER LEVEL IS ABNORMALLY HIGH.

1010 CPT AT 99 P TO 22.8'. SCREEN AT 18'.

1030 SAMPLED 99. HAD 2' WATER IN SCREEN - BAILED IT DRY - SLOW TO RECHARGE. HOLE IS PRIMARY CLAY AND SILT.

1035 CPT AT 100.

1100 100 P IS DRY. CPT at 101 P.

1130 SAMPLED 101 - RIG IS AT 94 P W SINCE 96 HAS 2 PPB TCE.

1140 CPT AT 94 - DRY HOLE @ 20'.

1210 CPT AT 93 - TO 22.7'.

1230 EPT SAMPLED 93.

1245 CPT AT 92 P. TD = 21'. SCREEN STOPPED AT 10'. HIGH FRICTION CLAY IS TOO TIGHT FOR CASING. WILL TRY FUGRO WATER SAMPLER IF ANALYSIS ON 93 SHOWS DETECTABLE AMOUNTS OF TCE.

1300 FUGRO PARKED RIG AT DECON STATION.

1330 FONSECA BROUGHT TIMESHEETS TO BE SIGNED. SIGNED AND MADE COPIES. CROW IS MEASURING SWL ON FLIGHTLINE.

8/22/94 Monday

0700 Mills and Crow (GMI) arrive at Base Ops.

0715 Mills drove to Talem Environmental (Ft. Worth) to get HCl acid. Crow prepared for the day.

0800 Fugro arrived (as planned) and got ready for the day.

0815 Mills back on site - pick up some ice. Crow said Flolo came by. The Communications Locator did not leave a list of locations in Area 3.

0825 Discussed w/ Fugro what locations to re-do on flight line. 64, 65, 91 and 92. Fugro did not have proper sub to use with the water sampler but they have a "pre-punch" tip that fits on CPT rods. Will prepunch 3 of the holes and then run GMF casing on those that were previously dry.

0900 Fugro at 64 to prepunch. Mills to call Flolo at Tower.

1000 Fugro completed at 64. Ato waiting for CAFB personnel to turn off the localizer antennae before entering area of location 92.

1030 Mills sampled 64 - took duplicates.

1100 Fugro pulled off of 92 and back to 91 to prepunch.

1115 Mills and Crow sampled 92.

1200 Fugro finished at 91, then took lunch. Mills prepared field blanks.

1210 Trip blanks for both labs.

1230 Lunch - called Couriers of America - will meet at 13:15

1300 Mills took Crow back to flightline, then back to Tower.

1330 - Gave samples for COFS of Engineers to Couriers of America.

1345 Mills called Lyle Winnette (GMI) to inform him of situation. Flolo and Mills took a drive earlier in the day to look for "cleared" locations. Only 4 were ready in Area 3. Winnette said we should do what is cleared, then might

SEND FUGRO HOME IF NO MORE TO DO. STILL HAVE NOT RECEIVED AN "OK" ON ANY EXTRA LOCATIONS. FLOLO IS WORKING TO GET MORE FOR US TO DO.

1400 FUGRO PUSHED CASING TO 26' AT 65.

1415 MILLS SAMPLED 91. LOT OF WATER. 4'?

1445 PLENTY OF WATER AT 65 ALSO. TOOK SAMPLE. PREPUNCH IS WORKING QUITE WELL. IT OPENS THE HOLE WIDER THROUGH THE SURFACE CLAYS - THUS, LESS FRICTIONS AGAINST GMF CASING.

1500 FUGRO MOVED OUTSIDE FLIGHTLINE TO BX PARKING LOT. PUNCHED 250.

1530 CROW SAMPLED 250 NOT MUCH WATER, BUT ENOUGH FOR ANALYSIS. MILLS CALLED WINNETTE AGAIN. STILL HAVE NOT HEARD IF MORE LOCATIONS ARE READY.

1550 CPT AT 251. PETROLEUM VAPORS ARE EVIDENT. OVM READINGS ABOVE 10 ppm. NO WATER. WILL PUSH CPT AT 217, THEN COME BACK TO USE GMF LATER.

1630 CPT AT 217. SOUTHWESTERN BELL LOCATOR CAME BY. MILLS ASKED HIM TO LOCATE 252, 237, 225, 226 in area 3 AND 228, 229, 230 IN AREA 4. WILL FIND OUT IF MORE WILL BE DONE, THEN GIVE HIM MORE INSTRUCTIONS LATER. CALLED WINNETTE AGAIN. HE STILL HAS NO WORD FROM USACE ON EXTRA LOCATIONS. HE SAID TO PLAN ON DOING THE ABOVE LOCATIONS AND THAT WOULD BE ALL FOR NOW. NOT ENOUGH TIME TO NEGOTIATE EXTRA LOCATIONS BEFORE WE ARE READY TO DO THEM.

1700 FUGRO PUSHED GMF AT 217, THEN BACK TO 251.

1715 MILLS SAMPLED 217.

1730 GMF AT 251

1745 CROW SAMPLED 251.

1800 FUGRO LEFT RIG IN PARKING LOT. SIGNED OUT AT TOWER AND LEFT SITE.

1800-1900 CROW DECONNED PIPE WHILE MILLS REPAINTED LOCATIONS ON FLIGHTLINE.

1915 GMI LEFT THE BASE.

Tom L. Mills

PARTLY CLOUDY - CALM

8/23/94 TUESDAY.

0630 mills AND CROW ARRIVED

0645 FUGRO ARRIVED IN PARKING LOT.

0700 SET UP AT 252.

0730 CPT AT 252. HOLE IS 17'. PVC TO BOTTOM - DRY.

0750 CALIBRATED OVM - TRIP BLANKS FOR DNL TB 82394

0810 TRIP BLANK. TB82394 FOR SWDC.

0800 CPT AT 237. RUNNING GMF CASING.

0830 SAMPLED 237.

0850 CPT AT 225. RUNNING GMF. mills CHECKED REMAINING 4 LOCATIONS TO SEE IF CLEAR w/ COMMUNICATIONS. HAVE NOT BEEN CLEARED.

0910 MET FLOLO (BCA), LOUISE DELANO (GMI) and DAVID O'CONNELL AND DAVID McCANN (BRITTAIN AND CRAWFORD (surveyors)) AT TOWER. TALKED ABOUT LOCATIONS THAT HAVE BEEN DONE TO DATE, PHASE I AND II AND THOSE 4 THAT WE PLAN TO DO TODAY. GAVE THEM 2 MAPS with circled locations.

TOLD FLOLO WE NEED 4 cleared. He CALLED SM&P. They will send SOMEONE OUT.

0960 BACK AT #225. FUGRO WAITING.

1010 225 IS DRY - USED GMF - 17'

1030 TRIED TO SAMPLE 252 - DRY. SM&P LOCATOR CAME OUT WHILE AT 225. SHOW HIM THE 4 THAT NEED TO BE CLEARED, AND THAT will BE ALL FOR THIS WEEK. FLOLO will CALL HIM OUT IF WE HAVE MORE TO DO LATER.

1055 CPT GMF at 226. PUSHING GMF TO GET DEEPER INTO WATER TD = 16' PVC went DOWN TO 13'. DEFINITE FUELS ODOR.

1130 GMF DOWN ONLY TO 13'. CUT END OFF OF SCREEN AND CAPPED END W/LATEX GLOVE.

1210 Sampled GMI 18-226.

1215 TOOK LUNCH

1300 CROW GONE TO DECON STATION DELANO CALLED LYLE WINNETTE

1330 TOOK RINSATE BLANKS RB82394
FOR BOTH LABS.
1345 FUGRO MOVED TO 229 FROM 228.
1415 DELANO PREPARED FIELD BLANKS
FB82394 FOR BOTH LABS. MILLS
SAMPLED 228 - TOOK DUPLICATES.
1500 DELANO TOOK SAMPLES TO DALLAS
TO USACE-SWDL. CPT AT 228.
1530 CPT AT 230. FUGRO WENT TO
FLIGHTLINE TO GET TRACTOR & TRAILER.
1550 SAMPLED GMI18-229 - LABELLED
AS 1450.
1600 FUGRO DECON EQUIP.
1610 MILLS SAMPLED 230.
1640 MILLS SAMPLING DRUMS AT
STORAGE AREA (LF 04)
CARSWELL.
1730 TOOK 4 SAMPLES OF DRUMMED WATER.
DP 51994 from 2 Drums of Decon/Purge Water (5/19/94)
DW51794 From 4 Drums of Decon WATER dated (5/17/94)
DV294A From 3 Drums of Well Development water
dated in Feb. '94.
DV294B From 3 Drums "
1930 DV294C From 4 Drums "
DW22194 From 2 Drums Decon water (FEB '94)
2000 TOOK SAMPLES TO LAB AND LEFT SITE.
Lonnie C. Mills

8/24/94 WEDNESDAY
0630 MILLS & CREW SIGN IN AT
TRAILER.
0640 MARKED DRUMS AND LOADED &
HAULED TO STORAGE AREA
(LF-04)
0800 - LOADED 6 MORE DRUMS.
0830 - CALLED OFFICE, LYLE WINNETTE
WANTS TO STORE - DECONNED PVC
WITH THE BENTONITE IN HANGAR
1401. KEEP ALL 1-L JARS FOR
NEXT PHASE.
0910 FUGRO IS READY TO LEAVE THE
BASE ON WAY BACK TO HOUSTON.
SIGNED TIMESHEET ~~[illegible]~~ AT
FLOLO'S OFFICE. FLOLO GAVE
PERMISSION TO STORE SUPPLIES
AT BLDG. 1401. I AGREED TO
MOVE IT IF NEED BE.
1000 LOADED 5 MORE DRUMS. STOPPED
BY LAB. SCOTT SCHROEDER (DAL)
SAID ANALYSES FROM LAST NIGHT
IS COMPLETE. WILL HAVE REPORTS
AND MAPS IN 1 HOUR. HE WILL
LEAVE BOTTLES FOR US.

1100 CROW AT DECON AREA TOOK GATHER DECONNED PIPE IN BUNDLES AND RE-PAINT 3 locations IN TAXIWAY. MILLS CALLED OFFICE AND ACME COOPERAGE FOR DRUMS. INFORMED WANNETTE OF THE ACTIVITIES THAT WILL TAKE PLACE TOMORROW. THE TREATMENT OF USGS WASTE-WATER.

1130 TOOK A COPY OF MAPS BACK TO SCOTT SCHROEDER (DHL). HE WILL EMPTY ALL OF THE SAMPLE CONTAINERS INTO THE 2 STORAGE DRUMS IN THE HANGAR, AND THEN BE FINISHED WITH THIS PHASE — BACK TO AUSTIN. CROW UNLOADED PVC PIPE WHERE THE BENTONITE IS STORED.

1145 - 1215 LUNCH.

1230 CROW PULLING YESTERDAY'S WELLS AND TAKING STATIC WATER. MILLS OFF TO DALLAS TO GET DRUMS.

1445 MILLS BACK ON FLIGHTLINE. UNLOADED DRUMS AT DECON. BEGINNING TO RELOCATE #'S 1 THROUGH 53 FOR SURVEYORS.

CROW DECONNED PVC.

1830 ALL LOCATIONS IN THE AREA BETWEEN FUEL TERMINAL 40 AND THE WEAPONS STORAGE AREA AND SOUTH HAVE BEEN LOCATED (1-41) 22 COULD NOT BE FOUND.

LEFT SITE.

Tony C. Mills

8/25/94 THURSDAY

0630 MILLS AND CROW SIGNED IN AT TOWER (BASE-OPS). BOUND ALL PVC THAT WAS DECONNED AND MOVED TO BLDG 1401 WITH THE REST. CUT UP PVC FROM THE 2 O/I CONTAMINATED LOCATIONS 184, 192. PUT PVC IN THE DRUM WITH BROKEN SAMPLE CONTAINERS.

0745. PUT WASTE BENTONITE THAT WAS USED TO TEMPORARILY PLUG HOLES AT SURFACE IN THE CONCRETE IN ONE DRUM. ALSO PUT SLUDGE FROM DECON TROUGH IN THE SAME DRUM – CONTAINS < 1/4 DRUM OF CONTENTS.

LOADED DRUMS 18 - 21 (DECON WATER) THAT WAS GENERATED 8/24/94. ALSO LOADED DRUM #17. DRUMS 16 - 21 HAVE NOT BEEN SAMPLED.

845 UNLOADED DRUMS 17 - 21 + THE DRUM OF SLUDGE/BENTONITE. DRUM 17 IS CONTAMINATED WITH DIESEL. FUGRO DRAINED DIESEL INTO THEIR TUB OF DECON WATER.

1030 MILLS AND CROW LOADED NEW PVC AND SAMPLE JARS TO TRANSPORT BACK TO GMI - PLANO, TX. TOOK EARLY LUNCH - CALLED LYLE WINNESTE. LYLE WANTS TO MOVE DRUMS OF GLASS AND SAMPLE WATER TO STORAGE AREA ALSO.

1130 MOVED DRUMS TO STORAGE. CROW LEFT FOR PLANO.

1330 MILLS DROVE TO LANDFILL NO. 4 AT LOCKHEED. SCRIBED 2 WELL NUMBERS ON WELL COVER. DREMEL TOOL BATTERY IS DEAD. LEFT SITE TO GO BACK TO DRUM STORAGE.

1430 FINISHED MARKING ON DRUMS. LEFT SITE TO GO TO PLANO.

Jerry C. Mills

8/29/94 DRUM-DISPOSAL (MONDAY)

0945 mills (GMI) ARRIVED AT STORAGE AREA. MET MARK MACKEY (IT) - GAVE COPY OF ANALYTICAL FOR DRUMS OF WATER. HE CALLED RICK WISE (IT) AND FOUND OUT IT IS OK TO DISPOSE OF OUR DRUMS. TALKED TO WILL McDONALD (EAGLE) ABOUT WHICH DRUMS ARE OURS. MET GLENN RIVERS (USGS).

CALL JOHNNIE HOOPER (CHIEF) 777-6671

KEVIN McKEE - LUKE GILPIN. ABOUT LOCKHEED. WATER DISPOSAL

DAVE MOCKLEE - AIR FORCE LIAISON

1100 CALL BRITTAIN & CRAWFORD TO SEE IF SURVEYORS HAVE HAD ANY PROBLEMS WITH PHASE I AND II LOCATIONS. NONE SO FAR - ACCORDING TO MR. BRITTAIN.

1150-1220 LUNCH

1315 FINISHED SCRIBING WELL NUMBERS ON 5 MONITORING WELLS AT LANDFILL NO. 4 - AFP4. HEADED BACK TO PLANO.

Tony C. Mills

9/13/94

6:00 assembled & loaded equipment

6:30 left Plano

7:50 arrived front gate of CAFB

8:05 received delivery of sample bottles from Talent Lab

8:10 met Alan Flolo of BCA - reviewed flightline training @ Base Ops - received base passes for Delano, Lewis, Thompson & Moring from Pass & Id. Passes good through 9/94

0945 Checked in at Base Ops for Passes. Showed Alan Flolo the 5 soil boring locations. Checked w/ Marine personnel from Maintenance Control re locations. Told to check w/ LT Games before doing #1 & #2

1040 Set up @ GMI18-04B

10:55 Safety meeting attended

9/13/94

by GMI personnel

1105 Drilling GMI18-04B - asphalt surface - location is adjacent to washrack - calibrated HNu w/o incident & set up for sampling. Continuously cored 4B from ground surface to TD=27 except @ 15' where changed to bit for hard layer

1330 T.D. - had free product on the rod & one barrel since 15'-20' interval - strong odor - hit water @ 14'

pulled out of hole & set 10' screen.

1425 Crew broke for lunch - called office

1500 Sampled GMI 18-04B water, labeled drum & site, disposed of bailer & string - water very turbid/no odor.

1600 Crew returned - set up on GMI 18-03B

1700-1715 Stopped for sudden rain storm - put bentonite in 4B. down to 15' in 3B.

1735 Stopped for rain - now at 20' - hit water @ 14'

1742 Started drilling again

1830 TD @ 25' - pulled out of hole & set 10' screen & 20' of casing - protected hole from possible rain

1910 Checked out & left base

2045 Prepared trip blank for Taken samples

[signature]

[signature]

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9/14/94
0715 check in at Base Ops
check w/ Lt Gamas re 3
holes near 1050
0800 SWL GMI 18-03B = 14.3'
Sampled GMI 18-03B
Took duplicate sample for
SWDL
TD = 26.2 ft - water cleared
than 04B but still sediment
HST & BY drilling GMI 18-01B
0910 Started soil description
& sampling - hole @ 20' depth
calibrated HNu - behaving
erratically
4B: SWL 14.4 24.0 TD
1040 TD GMI 18-01B @ 29'
set 10' screen & 20' casing
1100 Took rinsate sple @
beginning of GMI 18-02B -
moved & set up
1120 Started drilling
1300 TD @ 28.5 - water @ 20'
pulled out & set screen
& casing. Took duplicate
soil sample

1330 Crew to lunch. LLD
to Talem to deliver
samples - met & talked w/
Elna Ramsey
1500 Set up on GMI 18-05B
Started drilling
Alvin Brown of BCA stopped
Alan Flolo away on emergency
leave & Alvin Brown will
be contact in his place
1600 Hole to 25' intermittent
rain
1620 Recalibrated HNu -
Span radically different
from 1st reading this A.M.
1700 GMI 18-05 T.D. = 29'
Pulled out of hole & set
10' of screen & 20' of 2"
casing
1745 LLD checked out. Crew
moved drums to fenced
area on White Settlement Rd
1915 Crew left site
[illegible] Kilauer

9/15/94

0720 Delano & Lewis check in @ Base Cps. Thompson & Murray buying complete supplies

0745 Measured SWL 24.4 TD 28.9 @ GMI 18-01B Sampled water - took duplicate

0810 replaced 03B - water v. turbid

0915 Crew started grouting holes

0930 Prepared trip blank for samples to Talon & to SWDL

0945 Sampled GMI 18-02B TD = 28.9 SWL = 23.' water very turbid - no odor - reacted w/ HCL as did 03B & 01B

1050 Moved to GMI 18-05B TD = 28.75 SWL = 23.45' Sampled hole - 1st bailer relatively clear - rust or brown - reacted w/ HCL

1130 LLD HST to drum storage area to complete

9/15/94

labeling of drums

E = 76 drums GMI 18-01B & 02B have 2 each - 03B, 04B & 05B have 1 each of drill cuttings

1150 Crew to lunch

LLD to finish labeling, C & C forms & calls to lab and office

~~1230 Finished labeling samples & prepared LLD~~

1400 LLD left base for deliveries @ Talon and SWDL. Crew completing grouting of holes, decontaminating pipe, moving of decon water drums & site cleanup

1630 Crew left site.

LL Delano

PHASE II

10/17/94 PENETROMETER/WATER SAMPLING
REMAINING 55 LOCATIONS [SCHROEDER, (DHL)]
8:00 ARRIVED ON BASE. [DELANO, Mills, THOMPSON (GMI)], [FONSECA, ANDERSON (FUGRO)]
8:30 DRIVE TO ALAN FLOLO'S OFFICE TO BEGIN ORIENTATION / PASSES.
9:00 DRIVE TO PASS & ID. OBTAINED BASE PASSES.
9:45 ALAN FLOLO'S BRIEFING ON FLIGHTLINE PROCEDURES.

10:35 CHECKED IN AT BASE OPS. UNLOADED SUPPLIES, BUGGY, LAB PARKED IN BLDG 1401: WAITING ON DIGGING PERMIT BY SM'S P.
1200 DELANO (GMI) LEFT BASE.
1215 Mills MET HUNTER (SM'S P) AT FLOLO'S OFFICE. NONE OF THE LOCATIONS HAVE BEEN CLEARED FOR COMMUNICATIONS.
1245 TO 1315 TOOK LUNCH BREAK. THOMPSON AND FUGRO ON LUNCH.
1320 Mills AND HUNTER WENT TO FLIGHTLINE TO FIND LOCATIONS.
1415 FUGRO MOVED TO 1ST LOCATION.

Mills AND THOMPSON LOCATED #'S 153, 145, 144
1500 calibrated HNu.
1530 SAMPLED TRIP BLANK TB101794-
Fugro moved from 153P TO 144P.
1545 TRIED TO SAMPLE 153P - DRY.
PVC IS DOWN TO TD. ≈ 18' ~~Below ground level~~ 18.2'
1555 CPT AT 144P. TD = 26.0' BGL
1630 SAMPLED 144P. HNU = 0
FUGRO LEFT SITE TO FIX FLAT. THOMPSON DECON-PIPE. Mills CAPPED HOLES AT Surface to prevent infiltration.
BEGAN TO DRIZZLE.
WEATHER HAS BEEN OVERCAST AND 75° ALL DAY.
1700 TOOK THE 2 SAMPLES TO Mobile LAB - (DHL) at BLDG 1401. ELECTRICITY WAS HOOKED UP ONLY ONE HOUR AGO.
1730 CALLED LYLE MINNETTE (GMI) TO REQUEST HELP FOR TOMORROW.
1800 LEFT SITE.

Tony C. Mills

10/18/94 TUESDAY - Cloudy, raining

7:00 FUGRO & THOMPSON ARRIVED AT TOWER

7:20 Mills picked up ICE AND ARRIVED AT TOWER SIGNED IN.

8:00 BEGAN TO RAIN HEAVILY. FUGRO CALLED OFFICE TO INQUIRE ABOUT STANDBY CHARGES DUE TO WEATHER.

8:15 DECIDED TO SEND FUGRO PERSONNEL OFFSITE FOR THE DAY.

8:30 JIM CROW (GMI) ARRIVED AT TOWER. FLOYD IS NOT HERE TO GET JIM A BASE PASS. TOOK JIM TO CE. BLDG 1215. ELLIOTT SMITH HELPED WITH ORIENTATION. MR. SMITH ASKED THE (Mills) TO TALK TO A COUPLE OF LAW ENGINEERING PERSONNEL.

9:30 CALLED GMI OFFICE. ALSO CALLED LAB TECH. SCOTT SCHROEDER.

10:30 UNLOADED SUPPLIES FROM JIM CROW'S VEHICLE.

11:00 PAINTED STAKES TO BE USED FOR MARKING LOCATIONS.

11:40 TOOK LUNCH BREAK.

12:45 GMI RETURNED TO FLIGHTLINE MET SM&P. BEGAN MARKING LOCATIONS. SM&P LOCATING CABLES. RAIN HAS CEASED. SKIES ARE STILL CLOUDY.

15:00 Hunter (SM&P) LEFT SITE. WILL BE BACK TOMORROW PM.

16:30 Mills - Thompson COMPLETED MARKING SAMPLE LOCATIONS ON FLIGHTLINE. SIGNED OUT AT BASE OPS. CALLED OFFICE.

1700 BEGAN MARKING LOCATIONS OUTSIDE FLIGHTLINE

1800 LEFT BASE.

Tony C. Mills

10/19/94 WEDNESDAY

07:00 FUGRO - GMF ARRIVED AT BASE OPS. TO SIGN IN.

07:25 CALIBRATED ENMET GGS-80 gas detector.

07:30 CALIBRATED HNu. AIR IS Humid. Weather - Cloudy, 70°. RAIN IN FORECAST FOR TODAY AND TOMORROW.

07:45 FUGRO HIT SOME CONCRETE FILL AT 145P. MOVED 10' SOUTH.

07:50 Prepared TRIP BLANK TB101994.

08:05 FUGRO MOVED TO 146P. 145P IS LOCATED ON A HILL COMPOSED OF CONCRETE RUBBLE.

08:35 CPT AT 146P. TD = 7.0'.

9:00 SAMPLED 146P. NO TPH. WATER IS PROBABLY PRESENT DUE TO INFILTRATION OF RECENT RAINSHOWERS.

09:15 CPT AT 147P. TD = 7.5 HIT GRAVEL OR DEBRIS. LOCATED NEAR LANDFILL 5. NO WATER. PVC TO BOTTOM.

HNu=100

10:00 CPT AT 148P. TD = 27.8' PVC BRIDGED AT 15'. NO WATER. WILL COME BACK WITH GMF CASING.

10:45 CPT AT 149P. TD = 32.9'

11:00 FUGRO MOVED BACK TO 148P. GMF CASING.

11:15 Sampled 149P. HNu = 5 ppm. no odor - orange-brown FINE-SANDY WATER.

11:50 USED GMF CASING TO GET PVC TO TD at 148P.

12:00 FUGRO / THOMPSON TOOK LUNCH BREAK. Mills SAMPLED 148P. HNu = 60 ppm water is LT. BRN, SLIGHTLY SILTY.

12:30 TOOK SAMPLES TO LAB AT BLDG. 1401. Mills TOOK LUNCH BREAK

13:20 FUGRO Thompson BACK ON-SITE.

13:55 CPT AT 116P. DRY HOLE, TD = 8.6.

14:35 CPT AT 115P. DRY, TD = 4.3'

15:00 Hunter Holmes (Sm&P) CAME OUT SAID HE will BE BACK AFTER LOOKING ELSEWHERE AT CARSWELL.

15:05 CPT AT 117P. TD = 19' DRY. LOCATED APPROX. 65' NW OF HM 123.

15:45 CPT AT 118P. TD = 31.8' SCREEN TO 26'. NEED TO USE GMF CASING TO GET PVC DOWN TO BOTTOM.

16:10 CPT AT 119P. TD = 27'

16:30 SAMPLED 119P. GRAY-BROWN very SILTY water. No odor HNu = 0.

16:40 CPT AT 120P. TD = 29.0'

17:10 Sampled 120P. Gray-brn water, no odor - HNu = 0.

17:30 Fugro pushed PVC to TD at 118P. Hunter (SM & P) is back to clear more locations for communications lines.

17:50 Sampled 120P. Lt. orange-brn water. No odor.

18:00 Fugro left for the day. Thompson is decontaminating the GMI casing. Mills is with SM & P.

19:10 Took sample to lab. GMI & SM & P gone for the day.

Tony C. Mills

10/20/94 Thursday

7:00 Arrived at Base Ops.

7:35 Fugro moved rig across taxiway (parallel) to location GMI18-83P.

0740 Sounding at 144P = 23.46'
Static water level (SWL) = 20.04'

0745 153P sounding = 18.6' - DRY

0750 Deconned water level instrument.

8:05 CPT at 83P. TD = 33.2'

8:45 Sampled GMI18-83P. Lt. brn on top silty water no odor.

8:55 Calibrated HNu. Today is overcast and foggy. HNu not responding properly. CPT @ 82P.

9:10 Took trip blanks - both labs. TB102094.

9:30 Sampled 82P for VOAs only. Will come back to get deeper. Brn silty. CPT @ 81P.

9:55 81P is dry PVC to bottom @ 25'.

10:15 Mills at Base Ops - called Cowboy Coring - will be out at Tenner c/l 7:30.

10:45 Back on flightline. It is raining steadily.

FUGRO HAS PUNCHED 80 P and 75 P.
ON WAY TO 74 P.

11:00 RAIN PICKED UP. HAVE A TARP SPREAD OVER THE HOLE WHILE SAMPLING AT 80 P. HN_u NOT FUNCTIONING. SEND THOMPSON TO HAVE FUGRO HOLD OFF FOR A BIT.

11:10 RAIN STOPPED. FUGRO AND THOMPSON GONE FOR LUNCH.
SAMPLED 80 P. LT. BRN SILTY WATER
HN_u = ?

11:30 WIND CHANGED DIRECTIONS AND BLEW IN A THUNDERSTORM & LIGHTNING AND HEAVY RAIN. STOPPED AT LAB AND WAITED DURING STORM. BROUGHT IN SAMPLES

12:00 MILLS ATE LUNCH.

12:30 STORM PASSED OVER. DRIVE TO BASE OPS TO WEATHER STATION. WILL RAIN OFF & ON ALL DAY.

12:45 FUGRO & THOMPSON ARRIVED. CALLED
1300 LYLE MINNETTE AT GMI OFFICE. LYLE WANTS TO FINISH THE JOB AS SOON AS POSSIBLE. HE WILL CALL DHL ABOUT THEIR SCHEDULE NEXT WEEK. FUGRO CAN STAY HERE NEXT WEEK BUT THE LAB MIGHT NEED TO CHANGE SCHEDULE.

1330 TALKED TO SCOTT SCHROEDER (DHL) THEY NEED TO KNOW WHAT OUR PLANS ARE.

1340 FUGRO & GMI BACK ON FLIGHTLINE TO TRY ANOTHER HOLE. WATER IS STANDING ON GROUND SURFACE IN PLACES. GOT VAN AND 1-TON STUCK. WILL WAIT UNTIL TOMORROW TO SEE WHAT WEATHER AND GROUND CONDITIONS ARE LIKE

1440 SAMPLED 75 P. DARK GRAY WATER. HN_u = 0. MUDDY DOOR. FUGRO LEFT SITE. THOMPSON IS TAKING STATIC WATER MEASUREMENTS AND PULLING WELLS FROM YESTERDAY. GROUTING HOLES TO SURFACE.

1430 HUNTER (SM'S P) WAS HERE. SAID ALL LOCATIONS ON FLIGHTLINE ARE OK. HE IS checking 80P, 81P NEXT.

15-20 Mills at base OPS to call office.
Thompson pulling wells.
1550 - Called Scott Poyner (Eagle Construction) about disposal of soil in landfill.
1620 Took samples to the lab.
1630 Helped Thompson grout some holes. All of the wells that were punched yesterday have been grouted. Deconned pipe
1800 Left site.

Tony C. Mills

10/21/94 Friday
7:00 Mills & Fugro arrive at tower.
Thompson is purchasing plywood at Home Depot.
Weather cloudy scattered showers.
A front is moving in from the northwest.
It appears a thunderstorm is almost here.
7:45 Went to Bowling Alley to wait out storm.
8:15 Called Alan Flolo to request util. clearance for #249 P.
Left message.
8:30 Drove out to flightline after storm passed.
8:55 Set up on ~~78~~ P. 79 P.
9:00 Calibrated HNu.
9:10 Prepared Trip Blanks TB102194 for DHL.
CPT at 79 P.
9:35 CPT at 114 P. Only 1' deep.
Limestone outcrops in Dearly creek.
It is obvious 113 P will be even shallower so skipped that location
79 P is dry. Checked 150 & 151 P to see if clear for utilities - no sign.

9:50 Moving Rig off of flightline to do locations near the streets. Too wet to work on Flightline.

10:15 MET ALAN FLOLO (BCA) AT BASE-OPS HE SAID 249P is clear for util. except maybe a water line. be careful not to punch through it.

11:00 FUGRO Rig arrived at Gate, moved to 249P. Alan Flolo called SM&P to get them to clear some locations

11:30 DECIDED NOT TO WORK THROUGH THE WEEKEND BUT TO COME BACK MONDAY. LEFT FOR LUNCH AND TO CHECK OUT OF MOTEL.

12:30 GMI Found SM&P on base. He said Location 216 and 253 are clear. He will clear 218 and 254 for us now.

12:40 Fonseca (Fugro) came back to location 255. ~~ANDERSON (Fugro) already pushed CPT~~ TCM will move to 216P next.

1245 Thompson and Mills sampled 249P. water is orage-brown and fine sand.

1330: CPT @ 255P. TD = 20.0' PVC Down TO 19'.

1400 CPT @ 216P.

1410 Sampled 255P. Got only 1 VOA. TOOK several TRIPS W/ BAKER.

1440 Sampled 216P. HNu = 0 Same ORANGE-BROWN FINE sandy water as 255 and 249.

1450 CPT AT 218P. PVC IS AT ≈ 17'. TD ≈ 19' Hole IS Dry HNu = 0

15:15 FUGRO GONE TO UNLOAD PLYWOOD AT WAREHOUSE AND LEAVE SITE FOR WEEKEND. SCOTT (DHL) CAME BY TO PICK up LAST Sample + TRIP.

1600 INFORMED FLOLO THAT WE ~~would~~ BEGIN NEXT MONDAY.

1700 GMI LEFT SITE. DHL WILL BE PULLING OUT SOON.

Tony C. Mills

10/24/94 MONDAY
PARTLY CLOUDY - 70°

8:10 FUGRO - Albert Fonseca & Robert Anderson
GMI - Tony Mills ARRIVE AT BASE OPS.

8:20 SIGN IN AT TOWER. GET EQUIP AT BLDG 1401.

8:50 RIG SET UP AT LOCATION H
GMI 18 - 254P. Calibrated HNu.

9:10 CPT @ 254P @ ≈ 7'. TD 6.6'.

9:20 254P is dry. HNu = 50 ppm. There is a sweet odor in the pipe.

9:35 CPT @ 253P. TD = 15.0'. PVC only went down to 10'. Decided to Run GMF casing to get pipe to bottom of hole.

10:00 TOOK TRIP BLANKS, TB102494

10:30 FIELD BLANKS FB102494 FOR BOTH LABS. Preserved TPH for all sample containers plus VOA's TO BE SHIPPED TO AUSTIN, (DHL). DHL IS NOT ON SITE THIS WEEK.

11:30 Sampled 253P. Took Duplicate for both labs. GMI 18 - 253 - SWDL
GMI 18 - 253 - DHL
GMI 18 - 253D - DHL

Preserved each container except VOA's for SWDL. Water is brown - silty, no odor. HNu = 0.

12:30 JIM CROW ARRIVED (GMI)
MR. FLOLO IS NOT AVAILABLE FOR ASSISTANCE IN ACQUIRING A PASS FOR THE VAN. will be back after 1:00.

12:15 LOOKED FOR FUGRO. They HAVE 3 HOLES PUNCHED AND SET up on 234P.

12:30 TOOK LUNCH BREAK.
CALLED COURIERS OF America to HOT-SHOT SAMPLES TO SWDL IN DALLAS.

13:10 RELINQUISHED SAMPLES TO CINDY. IT IS BEGINNING TO SHOWER. ROBERT ANDERSON PULLED DECON TRAILER TO DECON AREA.

13:30 Mills AT 29P WAITING FOR RAIN TO STOP. ALL HOLES HAVE BEEN GROUTED AT SURFACE TO PREVENT INFILTRATION OF RAINWATER THROUGH BOREHOLE AND CAPPED ON TOP.

1315 CPT AT 234P.
1430 Sampled 236P. TAN BRN FINE SANDY WATER. no odor. HNu = 0. near old fuel station. 219 P and 220 P are Dry - no odors. HNu = 0.
1445 HUNTER (SMBP) came out. The 4 locations by the Gate have not been located and also the 2 by the school on the flightline. He said he would do those today. We checked 224 P and found where the stake needs to be. Utilities are OK.
1500 CPT @ 235 P. ~~235 P has been~~ Set up on 222 P.
1600 ~~CPT~~ Sampled 227 P. Med. BRN no odor. HNu = 0. HUNTER SAID COULD NOT FIND 231 P. 232 IS ON A Communication cable. Move 6' west (away from ROAD).
1640 PUT A STAKE AT 231 P.
1700 SAMPLED 234 P. BRN SANDY WATER. NO ODOR. HNu not working.
1710 235 P IS DRY
1720 222 P IS DRY, FUGRO LEAVES SITE
1730 223 P IS DRY
1740 238 P IS DRY
1750 221 P IS DRY
[illegible] LEAVE SITE [illegible] Mill

10/25/94 TUESDAY
6:00 RAIN IN FORECAST FOR TODAY - SCATTERED SHOWERS! T STORMS. RAINING THIS a.m.
7:15 GATE ARRIVED AT BASE OPS TO PARK VAN IN HANGAR 1401. LEAT SITE FOR THE DAY.

Tony C. Mills

10/26/94 WEDNESDAY
43° - Sunny - no Rain in forecast today. Should be 70° high today.
7:15 Mills AND CROW SIGN IN AT BASE OPS. GET VAN AT BLDG 1401.
0805 FUGRO ARRIVED AT TOWER HELD SAFETY MEETING. CROW IS GETTING DECON RIG READY.
0815 CALIBRATED HNu.
0820 TRIP BLANK FOR DHL. TOOK FUGRO TO SEE NEXT 4 LOCATIONS.
0840 BEGAN AT 224P.
0900 CPT AT 224P.
1000 Sampled 224 P for VOA only. Gray sandy water. No odor. HNu = 5 PPM.

356 . 862

10:30 TRIP BLANK TB102694 FOR SWDL
11:00 Sampled 263P. MED BRN SANDY WATER. NO ODOR. HNu = 0
11:10 FUGRO BROKE A DRIVE CHAIN ON RIG. GONE TO GET A NEW CHAIN.
12:00 Sampled 233P. MED-BRN SANDY WATER. NO ODOR, HNu = 0 ppm. TOOK Duplicate Samples GMI 18-233D FOR DHL, AND GMII 18-233 for SWDL.
12:40 Took FIELD BLANK. FB102694
13:00 TOOK RINSATE BLANK. RB102694.
13:15 Relinquished Samples to Cindy Allen (Couriers of America) to take to Southwest Division Lab (SWDL) in Dallas.
13:45 Crew & Mills Came to Lunch.
1400 CALLED SCOTT POYNOR (EAGLE CONSTRUCTION ABOUT DISPOSAL OF SOILS. IF USGS AGREES TO LET US USE THEIR SAMPLE ANALYSES THEN WE CAN DISPOSE OF OUR CAFB SOILS WITH USGS.
1500 FUGRO BACK TO REPAIR RIG.
1600 FUGRO FINISHING AT ~~232P~~. 231

16:40 CPT AT 232P. Moved Rig THROUGH SOUTH GATE OF FLIGHTLINE THROUGH ENTRY NEAR BLDG 1050.
17:10 Sampled 232P. MAKING WATER SLOWLY. MED-BRN SANDY. NO ODOR, HNu=0.
17:50 CPT AT 150 P. TD = 11'. TRIED TWICE. STILL SHALLOW AND DRY. HNu=0.
18:30 LEFT SITE.

Tony C. Mills

10/27/94 THURSDAY - PTLY SUNNY - chilly

0715 SIGN IN AT TOWER.

0730 SAFETY MEETING

0745 START AT 151 P.

0750 CALIBRATE HNu.

0800 TRIP BLANK TB102794

0815 CPT AT 151 P. DRY HOLE TD=21.0' no odors. HNu = 0, ppm.

0845 CPT AT 78 P. TD ≈ 2'. DRY HOLE. HNu=0

0910 CPT AT 77P. TD≈2'. HAS WATER IN HOLE BUT DID NOT SAMPLE. HNu=0.

0930 CPT AT 112 P. TD ≈ 2.5' NO SAMPLE. HNu=0.

0930-1000 LOOKING FOR STAKE AT 111P. ALL STAKES IN THIS AREA HAVE BEEN KNOCKED DOWN BY MOWERS.

10:00 MILKS LOCATION REST OF CPT LOCATIONS FUGRO BEGIN AT 111P.

11:15 SAMPLING AT 110P. BRN WATER NO ODORS. HNu=0.

12:00 SAMPLED 111 P. LT-BRN WATER. NO ODORS HNu=0.

12:15 LUNCH.

1300 CALLED BRUCE MACDONALD (HEET ENVIRONMENTAL DISPOSAL) NOT IN OFFICE.

13:15 BACK ON FLIGHTLINE.

13:45 SAMPLED GMF-8 - 109P. LIGHT BROWN water - SILTY, no ODOR, HNu=0. FUGRO BEGINNING AT 107P.

14:05 CPT @ 107P

14:30 Sampled 108P. MED-BRN WATER, SILTY, No ODOR. HNu=0. CPT @ 72P.

14:50 Sampled 107P. MED BRN SILTY/SANDY WATER, NO ODOR, HNu=0

15:20 Sampled 72P. 50' SOUTH OF LF05-01 MONITORING WELL. PVC NOT DEEP ENOUGH. WILL RUN CASING LATER.

15:10 CPT @ 84P.

15:45 Sampled 84P. GRAY-BROWN SILTY WATER. PUTRID ODOR, HNu=0

15:50 CPT @ 72P. PVC NOT DEEP ENOUGH SO PUSHING GMF CASING.

16:00 TRIP BLANK FOR USACE-SWDL LABS. TB102794.

16:15 FIELD BLANKS FOR BOTH LABS FB102794

1700 SAMPLED 73P. MED-BROWN SANDY WATER. NO ODOR, HNu = 6 ppm.

1710 Fugro pushed GMF at 72 P. Moving to 76 P to be pushed through asphalt.
1800 CPT @ 76 P. Smells like fuel. Parked rig. Will sample in the morning. Need more acid.
1815 Fugro left site. GMI Decon pipe.
1836 GMI sign out at tower.

Tony C. Mills

10/28/94 Friday.
0710 GMI & Fugro sign in at tower.
0740 76 P is dry. Fugro will push GMF to bottom.
0800 Sampled 72 P. Gray-Brown water. Silty. No odor. HNu = 0.
0820 Fugro finished at 76 P and left flightline to decon truck and load. 76 P is dry. pulled casing (PVC) and grouted hole. HNu = 10 ppm
0830 Cron is pulling wells and grouting holes. Mills signing Fugro timesheets at decon area.
0930 Fugro left base. Surveyor arrived. Mills making phone calls.
1030 Mills restaked locations on flightline and patch asphalt at 76 P.
11:30 Called office. Called MMR Enterprises.
12:00 Unloaded pipe at Bldg 1401. Loaded some supplies to return to plant.
12:45 Signed out at tower. Ate lunch
13:30 GMI left base.

Tony C. Mills

11/01/94

9:15 Mills & Lewis (Geo-Marine) arrived on base at Bldg 1225. Mr. Elliott Smith (BCA) helped us get L. Lewis a pass.

9:30 Had breakfast at Bonnie Alice.

10:00 Went to Pass and ID to get a pass.

10:30 Sign in on flightline at Base Ops. Loaded some supplies on pickup.

11:00 Wait for MMR at Base Ops.

11:40 Little Ralph (MMR) came to Base Ops. Had to get base pass first. Loaded his truck with bentonite and pipe (new).

12:00 MMR left base. Mills and Lewis hooked on to decon trailer and loaded 2 drums of decon water.

12:30 Signed out at tower.

12:40 Took keys (1-66 well key and key to Bldg 1401) to Flolo's office. Returned to Kathy.

13:40 Finished unloading drums at landfill & storage area. Emptied samples into the drum of sample water and broke the glass containers into the drum of "glass".

13:40 Left Carswell AFB. Now (NAS Fort Worth JRB).

Jerry C. Mills

SAMPLING DRUMS AT Lockheed.

11/18/94 FRIDAY.

8:00 Tony Mills (GMT) MET BRUCE MACDONALD (HEAT ENERGY ADVANCED TECHNOLOGY) IN FORT WORTH. CALLED LUKE GILPIN (LOCKHEED ENVIRONMENTAL SECTION) LUKE WILL MEET US INSIDE LOCKHEED AND GIVE US THE KEY TO THE DRUM STORAGE AREA.

8:25 DROVE THROUGH THE GATE GET JD BAKER'S AND PICKED UP KEY FROM MR. GILPIN. HE SAID HE WANTS THE DATA FOR THE DRUMMED SOIL AND WATER. INFORMED HIM THAT SOIL & WATER WILL BE INCINERATED. GILPIN MIGHT WANT TO SPREAD SOIL AT LOCKHEED IF IT IS CLEAN. LOCKHEED PREFERS TO KEEP THEIR WASTES.

0900 SAMPLED DRUMS FOR WASTE PROFILE. BRUCE WANTS OUR LAB DATA ALSO.

0910 LEFT LOCKHEED.

0915 ARRIVE AT CARSWELL TO GET A SAMPLED OF GLASS (CONTAINERS) FOR THIS PROJECT (1114-055 FUELS).

0935 BRUCE MCDONALD LEFT SITE.

MILLS TOOK COMPOSITE SAMPLE OF SOIL BORINGS FOR TOTAL METALS ANALYSES. THE CURRENT PLAN IS TO DISPOSE OF THE SIX DRUMS OF SOIL ON BASE AT THE SOIL STOCKPILE.

1100 Mills left site after stopping by BCA.

Tony C Mills

11/30/94 WED.

0800 ARRIVED HT DRUM SICKALE SITE WAITING ON EVERY ONE

0815 MR. MACDANIEL & MR. ELLIOT ARRIVED FOR I.T. VISITED FOR 10 MINS.

0830 I.T. LEAVING

0851 LEFT SITE TO USE PHONE

0858 ARRIVED FLOLO OFFICE CALLED WALRAVEN (EAGLE) ASKED WHY LATE CLEANING TRUCK AND IS ON THE WAY EXPECTED TO ARRIVE AT 0930

0913 LEFT FLOLO'S OFFICE WITH SAME TO BE SHOWN WHERE TO PLACE BARRELS PLOW 1320 996-2607 (RICKAL & KATHY)

0922 LEFT FLOLOS OFFICE

0927 ARRIVED AT SITE MCDONALD (EAGLE) ON SITE & MR. MCKAY (IT) VISITED WITH SAME

0939 STARTED REMOVING LIDS ON BARRELS

1030 LEFT SITE TO MAKE PHONE CALL

1055 RETURNED TO SITE EAGLE ON JOB SITE SETTING UP 3 MAN CREW + MCDONALD SENT 1 BACK TO SHOP TO PICK UP HOSE & FITTINGS. EAGLE NOT PREPARED AT ALL

1250 STARTED DRAINING OUT DRUMS WENT

1330 WENT TO IT UNIT AND STARTED PUMPING FROM TANK TO UNIT

1415 MACKAY SECURED PUMPING TO MANY SUDS MAKING A MESS ADVISED US TO QUIT

1600 PUMPED FLUID FROM TANK BACK INTO OUT DRUMS (6)

1600 LEFT JOB SITE

12/1/94
1215 ARRIVED ON SITE STARTED
PUTTING RINGS ON DOT DRUMS
1349 COMPLETED DOT DRUMS
NOT DISTURBED #17, 19, 8, 10
14, 1, 16, 9, 12, 5, 20, 7
DRUMS THAT HAVE FLUID THAT
HAS BEEN MIXED 9-15-94
DRUM #2 (1/2 FULL), #15 (1/2 FULL), 21
6, 18, 13, 3
1400 LEFT SITE HEADED TO FLOCO
OFFICE
1407 ARRIVED & TALKED TO
MR BOTWIN SAID NOT WORRY
ABOUT DIRT NOW LEFT SAME
1415 ARRIVED & HOOKED UP TRAILER
1418 LEFT SITE

356 . 869

APPENDIX G

Drum Disposal Documentation

GMI RECORD OF COMMUNICATION

Copies To: FILE, LCW, LLD

Project Name:/Number: CARSWELL GROUNDWATER SURVEY (FWES) / 1114-055

X Telephone Call ____ In Person Interview

Date: 11/14/94 Time: 10:10

Contact Name: MIKE BOTWIN

Title:/Affiliation: ENVIRONMENTAL ENGINEER AFBCA - CARSWELL

Contact Telephone Number:/Extension: (817) 731-8973/19

GMI Employee: TONY Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

WHAT TYPE OF ANALYSES DOES HE REQUIRE TO DISPOSE OF "CLEAN" SOIL ON THE GROUND AT NAS FT WORTH JRB?
SINCE VOLATILES AND TPH (MODIFIED) HAS BEEN DONE, HE RECOMMENDS THAT THE SOIL BE TESTED FOR METALS (TOTAL).
AS A RULE:

IF TOTAL METALS < 20 TIMES TCLP LIMIT ~~or~~ IT IS CLEAN.

IF TOTAL METALS > or approximate 20 × TCLP THEN RUN TCLP.

ACTION RECOMMENDED OR TAKEN

SEND ANALYSES + METALS. IF SOIL IS CLEAN, THEY WILL TELL US WHERE TO SPREAD IT OUT. THEN DECON DRUMS AT THE SLUDGE DRYING PIT.

Signature Tony C. Mills

GEO-MARINE, INC.
ENGINEERING AND ENVIRONMENTAL SERVICES

14 November 1994

Michael J. Botwin
AFBCA/OLH
Building 1215
Carswell Air Force Base, Texas 76127-5000

Dear Mr. Botwin:

Enclosed are the lab analyses for five soil samples. The samples will be characteristic of the six drums of soil that Geo-Marine has requested permission to dispose at NAS Fort Worth JRB. As you will see, Talem, Inc., of Fort Worth analyzed for Halogenated Volatile Organic Compounds by method EPA 8021. PDP Analytical Services, of Spring, Texas, analyzed for TPH by method EPA 8015 modified for JP-4. We are anticipating compositing the drums to be analyzed for total metals. If you have any questions, please call (214)423-5480.

Sincerely,

Tony C. Mills

Tony C. Mills
Geologist

TCM

ref: 1114-055

CORPORATE OFFICE:
550 EAST FIFTEENTH STREET PLANO, TEXAS 75074 (214) 423-5480 FAX (214) 422-2736

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 1

Identification: Project #1114-055; Soil sample #4B-5

Date Collected: 09/13/94
Time Collected: 11:30
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 1 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #4B-5
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			109
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/78

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 3

Date Collected: 09/13/94
Time Collected: 17:15
Collected by: CST

Identification: Project #1114-055; Soil sample #3B-15

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

TALEM, INC.

Per: J. R. Coolidge
President

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 3 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #3B-15
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J R Coolidge
J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			68
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/80

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 6

Identification: Project #1114-055; Soil sample #1B-5

Date Collected: 09/14/94
Time Collected: 09:00
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 6 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #1B-5
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			67
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/83

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
550 E 15th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/14/94 8

Identification: Project #1114-055; soil sample #2B-20

Date Collected: 09/14/94
Time Collected: 12:15
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Coolidge
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/14/94 8 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #2B-20
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J.R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			104
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/85

TALEM, INC.

306 West Broadway Avenue
Fort Worth, Texas 76104
817/335-1186
Metro/654-0443

Mailing Address:
P.O. Box 3270
Fort Worth, Texas 76113

Attention: Lyle Winnett
Reported to: Geo-Marine
1316 14th Street
Plano, TX 75074

Date of Report: 09/30/94

Lab ID.: 316 09/15/94 1

Identification: Project #1114-055 Carswell; 5B-15

Date Collected: 09/14/94
Time Collected: 16:50
Collected by: CST

	Results	Quality Control
Halogenated Volatile Organic Compounds EPA 8021 Halognatd VOCs using GC-PID & Hall detectors in series, cap col; Tst Meth Eval Solid Wst, SW-846, Vol IB, Ed 3, 11/86.	See attached mg/Kg 09/28/94 02:00 TJB	Blank: 0.0 Standard Expected: 10.0 Standard Result: 8.89 Duplicates: 6.09 6.14 Spike%: 61

Distribution of Report:
Geo-Marine

(for inquiries contact Mona Dillard)

TALEM, INC.

Per: J. R. Cooke
J. R. Cooke
President

TALEM, Inc.

Halogenated Volatile Organic Compounds (EPA 8021)

Sample ID: 316 09/15/94 1 Date of Analysis: 09/28/94
Customer Description: Project #1114-055; Soil Sample #5B-15
Sample Matrix: soil
Dilution Factor: 1.0
Extraction Method: EPA 5030A

Per: J. R. Coolidge
President

nd = None Detected

****

SURROGATES & VALUES OBTAINED

Compound Name	Detection Limit (mg/Kg)	Value Obtained (mg/Kg)	Reco-Very %
QC Surrogate: 2-Bromochlorobenzene(IS)			73
Vinyl Chloride	1.0	nd	
1,1-Dichloroethane	1.0	nd	
trans-1,2-Dichloroethene	1.0	nd	
1,1-Dichloroethene	1.0	nd	
cis-1,2-Dichloroethene	1.0	nd	
1,1,1-Trichloroethane	1.0	nd	
Benzene	1.0	nd	
Ethylbenzene	1.0	nd	
Toluene	1.0	nd	
Xylene, Total	3.0	nd	
Trichloroethene	1.0	nd	
1,1,2-Trichloroethane	1.0	nd	
Tetrachloroethene	1.0	nd	

2219/LAB/86

FDP ANALYTICAL SERVICES
SAMPLE LOG-IN SHEET

LOGGED BY: DEBORAH O'CONNOR DOC 9-16-94 DATE OF LOG-IN: 16-Sep-94

Episode #: 2520
Client ID: GEO-MARINE
Project ID: CARSWELL FUEL PHII
Project # 1114-055
PO Number:
Page 1 of 1 Air Bill #: FED X # 1193760057

Lab ID	Client ID	Testing Required	No. Cont.	Sample Matrix	M C	Date Sampled	Date Received	Date Due	Remarks
2520.01	4B-5	TPH 8015	1	SOIL		09-13-94	09-16-94	9-30-94	HC
2520.02	3B-15	TPH 8015	1	SOIL		09-13-94	09-16-94		
2520.03	1B-5	TPH 8015	1	SOIL		09-14-94	09-16-94		
2520.04	2B-20	TPH 8015	1	SOIL		09-14-94	09-16-94		
2520.05	2B-20Z	TPH 8015	1	SOIL		09-14-94	09-16-94		
2520.06	5B-15	TPH 8015	1	SOIL		09-14-94	09-16-94		

REPORT JP4 ONLY

Reviewed by: DO 9/16/94

Reporting Address:

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	4B-5	Date Sampled:	09/13/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.01	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J01	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A9
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	100

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	3B-15	Date Sampled:	09/13/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.02	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J02	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A13
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	95

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	1B-5	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.03	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J03	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A14
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	101

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	2B-20	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.04	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J04	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A10
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	88

Method Blank ID: 2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

PDP ANALYTICAL SERVICES
24900 Pitkin Drive, Suite 300; Spring, Texas 77386; Phone (713)363-2233

LABORATORY REPORT

Client:	GEO-MARINE	Client Sample ID:	5B-15	Date Sampled:	09/14/94
Project Name:	CARSWELL FUEL PHII	PDP Sample ID:	2520.06	Date Received:	09/16/94
Project No.:	1114-055	Report No.:	2520J06	Date Reported:	09/27/94

GC-NONHALOGENATED EXTRACTABLE ORGANICS (DATA SHEET)

Sample Matrix:	SOIL	Dilution:	1.0	Method Ref.:	SW846-8015 (MOD)
Multiplying Factor:	33	Percent Moisture:	NA %	GC File ID:	1TPH0926A16
Sample Weight:	30.0 g	Date Extracted:	09/23/94	Analyst:	SK
Extract Volume:	1.0 ml	Date Analyzed:	09/26/94		

COMPOUND	QUANTITATION LIMIT (ug/kg)	RESULTS (ug/kg)
Total Petroleum Hydrocarbons - JP-4 Range	8333	ND

QUALITY ASSURANCE/QUALITY CONTROL

Surrogate	Spike Added (ug/kg)	QC Limits (Recovery)	% Recovery
o-Terphenyl	6600	(50-150)	93

Method Blank ID:2520.SBLK1 LCS ID: 2520.SLCS1 MS ID: 2520.04MS MSD ID: 2520.04MSD DUP ID: NA

GMI RECORD OF COMMUNICATION

Copies To: FILE, LCW, LLD

Project Name:/Number: CARSWELL GROUNDWATER SURVEY / 1114-055

X Telephone Call ___ In Person Interview

Date: 7/17/94 Time: 08:50

Contact Name: MIKE BOTMIN

Title:/Affiliation: ENVIRONMENTAL ENGINEER AFBCA

Contact Telephone Number:/Extension: (817) 737-8973/19

GMI Employee: T. Mills

Title:/Department: HAZMAT

TOPICS DISCUSSED

WHERE TO TAKE SOIL & WHEN:

THERE IS A STOCKPILE FOR SOIL NEAR THE FIRING RANGE. IF SOIL IS DRY AND "CLEAN" IT CAN BE TAKEN THERE ANYTIME. NO MANIFEST IS NEEDED SINCE IT WILL NOT BE TRANSPORTED OFF-SITE AND SINCE IT IS NOT HAZARDOUS WASTE.

ACTION RECOMMENDED OR TAKEN

Signature Tony C. Mills

Post-it™ Fax Note 7671	Date 11/28/94	# of pages ▶ 1
To MIKE BOTWIN	From TONY MILLS	
Co./Dept. AFBCA	Co. GEO MARINE	
Phone # 817-731-8973	Phone # ~~817~~ 214-423-5480	
Fax # 817-731-8133	Fax # 214-422-2736	

SUMMARY REPORT

CLIENT : Geo-Marine, Inc.
PROJECT : 1114-055 Carswell GW Survey

JOB NUMBER : D94-11879
REPORT DATE : 23-NOV-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	GMI18-Soil	Soil	18-NOV-1994

TOTAL METALS		1			
Arsenic	mg/Kg	3.1			
Barium	mg/Kg	273			
Cadmium	mg/Kg	2.7			
Chromium	mg/Kg	11.6			
Lead	mg/Kg	10.6			
Mercury	mg/Kg	< 0.10			
Selenium	mg/Kg	< 0.5			

TOTAL METALS		1			
Silver	mg/Kg	< 1.0			

MISCELLANEOUS ANALYSES		1			
Total Solids	%	91.4			

Preliminary report based upon incomplete data.

GMI RECORD OF COMMUNICATION

Copies To: FILE, LCW, LLD

Project Name:/Number: CARSWELL GROUNDWATER SURVEY / 1114-055

X Telephone Call ___ In Person Interview

Date: 12/19/94 Time: 10:00

Contact Name: MIKE BOTWIN

Title:/Affiliation: ENVIRONMENTAL ENGINEER AFBCA

Contact Telephone Number:/Extension: (817) 731-8973 / 19

GMI Employee: T. Mills

Title:/Department: HAZMAT / ENG.

TOPICS DISCUSSED

THE SIX DRUMS OF SOIL (FROM THE 5 SOIL BORINGS) ARE CLEAN, ACCORDING TO MIKE BOTWIN. WE HAVE HIS PERMISSION TO STOCKPILE THIS SOIL IN A DESIGNATED STORAGE AREA ON BASE. MR. BOTWIN PREFERS TO TAKE CARE OF IT TOMORROW (12/20/94) OR WAIT UNTIL THE SECOND WEEK OF JANUARY.

CONCERNING 47 DRUMS OF WATER, MR. BOTWIN WILL REVIEW THE ANALYTICAL DATA; IT IS PROBABLY OK FOR COLD SPRINGS DISPOSAL TO HANDLE IT, BUT WILL NOT HAPPEN UNTIL JANUARY.

ACTION RECOMMENDED OR TAKEN

GEO-MARINE OPTED TO DISPOSE OF SOIL ON 12/20/94.

Signature Tony C. Mills

12/20/94

0905 ARRIVED RADAR SITE
LOADED BARRELS ~~HEA~~ 1ST
0927 HEADED TO SEE BOTSWIN
0935 MAIN GATE ISSUED
PASS
0940 IN FOLOS OFFICE TALKING
TO MR BOTWIN
0950 WENT TO DROP OFF POINT
UNLOADED BARRELS & DECON SAME
11 15 LEFT SITE WENT TO SEE
MR BOTWIN
11 30 UNLOADED DRUMS AT BUILDING
20
11 45 DUMPED TRASH FROM BARRELS
LEFT BASE

[signature]

APPENDIX H

Safety, Health, and Emergency Response Plan (SHERP)

356 894

SAFETY, HEALTH, AND EMERGENCY RESPONSE PLAN (SHERP)

PHASES I AND II
GROUNDWATER SAMPLING AND SUBSURFACE SOIL DELINEATION OF THE HYDRANT FUELING SYSTEM

AT

CARSWELL AIR FORCE BASE
FORT WORTH, TEXAS

Prepared for:

Department of the Army
Fort Worth District Corps of Engineers
Fort Worth, Texas 76102-0300

Contract # DACA63-93-D-0014
Delivery Order #0055

Prepared by:

Geo-Marine, Inc.
550 East 15th Street
Plano, Texas 75074
(214) 423-5480

August 1994

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Site Safety Plan		8
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ATTACHMENTS

Hazard Evaluation Forms
Route Map to Hospital
Site Map
GMI Employee OSHA Certifications
Equipment List
Site Safety Review Form
Air Monitoring Forms

1.0 FIELD ACTIVITIES

The Phase I and II Groundwater Sampling and Subsurface Soil Delineation field program at Carswell Air Force Base will include the following elements:

- Locate 53 client-determined groundwater sampling and soil delineation locations (Phase I)
- Locate an additional ±150 groundwater sampling locations based on the results of Phase I (Phase II)
- Accurately plot all sampling locations on base map (Phases I and II)
- Check all sampling sites for surface obstructions, underground utilities and other structures with assistance of appropriate private utility and government personnel (Phases I and II)
- Drill or core through concrete surface where needed (Phases I and II)
- Sample groundwater using truck-mounted penetrometer sampler (Phases I and II)
- Ship water samples to off-site laboratory for solvent and petroleum analyses (Phase I)
- Analyze all groundwater samples on site using EPA methods 8021 and 418.1 in a mobile laboratory for client-specified compounds (Phase II)
- Describe subsurface soil column at all sample stations using electronic ("piezocone") profiles (Phases I and II)
- Pressure grout all penetrometer holes to the surface and repair surface to pre-investigation condition (Phases I and II)
- Decontaminate all sampling and subsurface penetrometer equipment between each station (Phases I and II)
- Drum all decontamination liquids, all unused sample, and all groundwater encountered during penetrometer work (Phases I and II)
- Store drums at a client-approved location in preparation for future disposal off-site in an approved manner (Phases I and II)
- Monitor breathing space air with HNu at each sample location to check for elevated levels of organic vapors; monitor breathing space air continuously during sampling operations with oxygenmeter/explosimeter (Phases I and II)
- Survey location and elevation of each sample site (Phases I and II)

2.0 RESOURCES

Reference documents used in the development of this Safety, Health, and Emergency Response Plan (SHERP) include:

- OSHA regulations in 29 CFR 1910 and 29 CFR 1926
- U.S. Army Corps of Engineers Safety and Health Requirements Manual EM 385-1-1
- Geo-Marine, Inc. Corporate Safety Manual (1992)
- NIOSH Pocket Guide to Chemical Hazards (1990)
- Chemical Hazards of the Workplace by Proctor, Hughes, & Fischman (1989)
- Merck Index: an Encyclopedia of Chemicals, Drugs, and Biologicals (1989)
- NIOSH Guidance Manual for Hazardous Waste Sites (1985)

3.0 KEY PERSONNEL

Geo-Marine, Inc. (GMI) and subcontract personnel responsible for the safe completion of this project include:

- GMI Corporate Safety Committee Chair - Mary Alice Garza
- GMI Project Manager - Lyle Winnette
- GMI Field Supervisor - Louise Delano
- GMI Sampler - Tony Mills
- GMI Site Safety Officer - Tony Mills
- GMI Driller and Helper - Hubert Thompson and Bruce Moring
  (Note that this task may be done by a subcontractor concrete corer.)
- GMI Decon Technician - Lambert Lewis
  (Note that this task may be done by the penetrometer subcontractor.)
- Subcontractor Penetrometer Equipment Supervisor - not available
- Subcontractor Penetrometer Equipment Operator - not available
- Mobile Laboratory Subcontractor Supervisor - not available
- Mobile Laboratory Subcontractor Technician - not available
- Subcontractor Survey Crew Members - not available

3.1 Corporate Safety Committee Chair/Project Manager

The GMI Corporate Safety Committee Chair and Project Manager will have the ultimate responsibility for implementation of all parts of the SHERP and to make certain that all applicable federal, state, and local safety regulations and guidelines are followed. They will have the responsibility of notifying the designated Contracting Officer's Representative (COR) of any reportable accident or incident within two days of that accident and for the timely submission of an accident report on ENG form 3394. They will also have responsibility for the immediate verbal reporting of any incident (including, but not limited to theft or release) involving hazardous or toxic materials and for the notification in writing within 24 hours.

3.2 Field Supervisor

The Field Supervisor will observe field activities of GMI and subcontractor personnel to insure that safety and health procedures outlined in this SHERP are followed. The Field Supervisor will assure that daily calibration of the HNu, measuring of background ambient air for organic vapors, and recording of such data are done in the vicinity of each penetrometer or drilling site.

3.3 Site Safety Officer

The Site Safety Officer will oversee all field procedures to check that SHERP guidelines are followed. The Site Safety Officer has the authority to invoke disciplinary action in the event any stipulations of the SHERP are willfully ignored and to suspend field activity for safety and/or health reasons. Specifically, the responsibilities of the Site Safety Officer include:

organizing the field sampling area so that support facilities are in uncontaminated areas

introducing the field operations to the local emergency response/accident personnel

overseeing appropriate use and care of personal protective equipment (PPE)

monitoring external physical conditions, especially temperature, wind strength and direction, and potential for electrical storms

running the initial site safety meeting and additional meetings as needed (Site Safety Review form attached)

immediately notifying the Project Manager in the event of a reportable accident or any incident involving the theft or release of hazardous or toxic materials. In the event neither the Project Manager nor the Corporate Safety Committee Chair is available, he will have the responsibility for all verbal and written notifications to the COR of any emergencies, accidents, injuries, or other such incidents

3.4 Field Sampler

The Field Sampler will make certain that the appropriate PPE is worn and used and that the samples are collected with decontaminated equipment using procedures which minimize the potential of exposure via either respiration or eye/skin contact. The Field Sampler will also monitor organic vapor levels in breathing air space and check for explosive atmosphere whenever one or both of these tasks are delegated to him. He is also responsible for the safe delivery of the samples to the analytic laboratory. When the laboratory is off-site (as in Phase I), he is responsible for the packaging of the samples for shipment.

3.5 Driller and Helper

The driller and the helper will operate the drillrig in a safe manner and will insure that the appropriate PPE is worn and used. They will insure that each sampling site is left clean and undisturbed. In the event a subcontractor concrete corer is used, the same standards will be followed.

3.6 Decon Technician

The decon technician will assure that all safety precautions are followed and that proper PPE is used during the cleaning of equipment between each sampling site. He will follow approved decon procedures and use only approved washing and rinsing materials and equipment.

3.7 Subcontractor Penetrometer Supervisor and Equipment Operator

Subcontractor personnel will operate the sampler in a safe manner and will insure that the appropriate PPE is worn and used and that proper decontamination procedures are carried out. They will insure that each sampling site is left clean and undisturbed.

3.8 Subcontractor Mobile Laboratory Supervisor and Technician

Subcontractor personnel will operate the mobile lab equipment in a safe manner and will wear and use appropriate PPE. They will insure that all required analytic methodology and QA/QC procedures are used and documented.

3.9 Subcontractor Survey Crew

Subcontractor survey crew will operate all equipment in an industry-approved manner. They will leave each sample location clean.

3.10 Field Team

Each member of the field team individually has the responsibility to read, understand, and follow each section of this SHERP. Each team member will attend all site safety meetings called by the Site Safety Officer and will acknowledge his authority to upgrade PPE or to evacuate the site in the event of emergency health or safety situations. Each team member who drives a vehicle will follow all traffic regulations, stay within the speed limit, and always wear a seat belt. Any unsafe work practices will be reported to the Site Safety Officer immediately.

4.0 PERSONAL PROTECTIVE EQUIPMENT

The appropriate level of PPE for this project will be either level C or level D. The determinant will be the concentration of airborne organic vapors measured in the breathing space air in the sampling location area. The decision to upgrade to level C from level D will be the responsibility of the Site Safety Officer. If at any time conditions exceed the protection provided by Level C PPE, the site will immediately be evacuated following the direction of the Site Safety Officer.

4.1 Level D PPE

Level D protection includes long sleeve shirt and trousers, hard hat, steel-toed boots, and gloves. When splashing is likely, boots and gloves should be made of rubber and clothes and skin protected with liquid-resistant coveralls like tyveks. Goggles or safety glasses will be available at the site for eye protection.

4.2 Level C PPE

Level C protection includes all the elements of level D plus the addition of an air purifying respirator (APR) with the appropriate chemical cartridges, either half or full face. APRs for all field crew members will be readily available on site at all times; respirators will be promptly used any time the Site Safety Officer so instructs.

5.0 DOCUMENTS

The GMI Project Manager will maintain safety and health records on file which document compliance with both Occupational Safety and Health Administation (OSHA) medical surveillance and OSHA hazardous materials training practices for each team member:

(a) annual occupational health examination including physician certification to wear a respirator

(b) OSHA-approved 40-hour hazardous material handling course or 8-hour refresher within the last 12 months

(c) successful respirator fit-testing performed annually

(d) current training in CPR and First Aid

In addition, at least one member of the GMI team has current certification as an OSHA Supervisor.

Copies of OSHA certifications for the GMI team are attached. Other cited documents are available for review on request.

GEO-MARINE, INC.
SITE SAFETY PLAN

GENERAL INFORMATION

PROJECT TITLE/NUMBER: Phase I - Groundwater Survey at Carswell Air Force Base/1114-055

PROJECT MANAGER: Lyle Winnette

PROJECT LOCATION(S): Fort Worth, Texas

PLAN PREPARED BY: Louise Delano DATE: August 1, 1994

PLAN APPROVED BY: Lyle Winnette DATE: August 1, 1994

PLAN REVIEWED BY SITE SAFETY OFFICER: Tony Mills DATE: August 1, 1994

SCOPE/OBJECTIVE OF WORK: Describe subsurface materials and sample groundwater at 53 client-determined penetrometer sites for analysis for BTEX, TPH, TCE, and other organic compounds, in order to (1) identify contaminants, (2) determine location of release point(s), and (3) establish boundaries of plume(s) of affected water. Based on results, recommend locations for an additional 150 sampling points for client approval.

PROPOSED DATES OF FIELD ACTIVITIES: August 1 - August 26, 1994 (Phase II)

SUMMARY:

Overall Chemical Hazard:	low [ ]	moderate [X]	serious [ ]	unknown [ ]
Overall Physical Hazard:	low [ ]	moderate [X]	serious [ ]	unknown [ ]

GEO-MARINE, INC.
SITE SAFETY PLAN

SITE/WASTE CHARACTERISTICS

WASTE TYPE(S):

gas/vapor [ ] liquid [X] sludge [ ] solid [ ]

CHARACTERISTICS:

flammable/ ignitable [X] volatile [X] corrosive [ ] acutely toxic [ ]

explosive [ ] reactive [ ] carcinogen [ ] radioactive [ ]

other:_____

PHYSICAL HAZARDS:

overhead [X] confined space [ ] below grade [ ] trip/fall [X]

puncture [X] burn [X] cut [X] splash [X]

noise [X] other:_____

BRIEF SITE HISTORY/DESCRIPTION, INCLUDING UNUSUAL FEATURES (see Scope of Work for details):

Elevated levels of petroleum hydrocarbons have been identified in soils and groundwater in the area of the pumping stations of the flightline hydrant fueling system. In addition, a leak in a pipeline was previously found and repaired, but the immediate area was not remediated. Investigations at Air Force Plant No. 4 suggest that a TCE plume also extends under the runway.

LOCATIONS OF CHEMICALS/WASTES: extent of plume(s) not yet delineated

ESTIMATED VOLUMES(S) OF CHEMICAL/WASTES: volume(s) of chemicals unknown

Site currently in operation yes [X] no [ ]

GEO-MARINE, INC.
SITE SAFETY PLAN

HAZARD EVALUATION

List hazard by task (i.e. drilling, sampling, etc.); number tasks; assign physical and chemical hazard(s) and evaluation (s):

NO.	TASK	CHEMICAL HAZARD/ EVALUATION	PHYSICAL HAZARD/ EVALUATION
1	air monitoring	fumes/slight	none/none
2	"punching" holes	fumes/slight	working around aircraft/slight
			obstruction on runway/slight
			damage to aircraft/slight
			heavy equipment usage/slight
			hit aboveground-underground utilities/slight
			hit underground fuel lines/slight
			near other construction activity/slight
			obstruction hazards/slight
3	collecting samples	splashing/slight	none/none
		spilling/slight	
4	equipment decon	splashing/slight	steam burn/slight
		spilling/slight	
5	sample analyses	splashing/slight	none/none
6	drum contents sampling	splashing/slight	drum moving/slight
		spilling/slight	

Completed Hazard Evaluation forms attached for each major known contaminant?

yes [X] no [ ]

If not, why?

HAZARD CONTROL

Task-associated chemical hazards on the site include fumes and possible splashing by or spillage of contaminated groundwater or decon water. The possibility of any of these events occurring is considered very slight.

(1) Splashing and spilling can be prevented or mitigated by watchfulness, care, and the appropriate use of PPE. The decon area will be lined with sufficiently strong plastic to contain any spilled decon fluids. A spill control kit will be kept in the penetrometer truunk in case a sample spill occurs inside the vehicle during sampling.

(2) Fume accumulation is unlikely in the open air, above-ground setting of the sampling locations; however, the consistent and regular use of an air monitor will detect any above-background levels of organic vapors so that readily available chemical respirators can be put on and/or the site evacuated if needed.

Task-associated physical hazards on the site include injury from use of heavy equipment, back injury from improper lifting or carrying, accidents associated with other construction activity (e.g., tank removal), accidents associated with aircraft activity on the flightline, damage to either overhead or below ground utilities, damage to underground hydrant fueling system, impaired hearing, and season-related temperature stress (either heat or cold). All are considered preventable.

(1) Potential for injury from heavy equipment can be minimized by attentiveness to proper procedures.

(2) Injury from lifting or carrying can be minimized by sensible practices (including wearing a safety belt) and the appropriate use of transporting equipment such as a dolly for drums and drill stem.

(3) Interaction with other construction activities can be avoided with coordinated planning. However, traffic control measures and equipment will be available for use wherever needed or required.

(4) Damage to overhead utilities can be avoided by watchfulness during equipment moving and set up.

(5) Damage to underground utilities and hydrant fueling system can be minimized by coordination with utility clearance personnel and strict adherence to cleared locations.

(6) Conflict with aircraft can be avoided by attentiveness to the flightline training and watchfulness at all times while on active runway or taxiway areas.

(7) The potential for damage to aircraft from dirt, pebbles, bolts, etc. can be minimized by careful housecleaning practices both before entering and while on the flightline. Any PVC pipe left extending aboveground overnight will be clearly marked with a brightly colored plastic cone.

(8) Damage to hearing can be minimized by the proper and consistent use of hearing protection.

(9) To minimize the possibility of adverse reaction to either heat stress or excessive cold, the Site Safety Officer will monitor temperature and heat/chill index. Fluids will be available on site at all times, and rest breaks will be taken as deemed appropriate by the Site Safety Officer.

GEO-MARINE, INC.
SITE SAFETY PLAN

SITE SAFETY WORK PLAN

SITE CONTROL: site maps are attached

perimeter identified [X]

work area(s) identified [X]
(by sample points pending utility clearance)

contaminated area(s) [ ]
(not yet delineated)

decontamination station(s) [ ]
(will be located near site)

ANTICIPATED LEVEL OF PROTECTION TO BE USED:
(cross-reference with task numbers from Hazard Evaluation section):

Task No.	Anticipated Protection Level*
1	level D
2	level D
3	level D
4	level D
5	level D
6	level D

* with capability to go immediately to level C if conditions (as described on the following page) warrant

NOTES:

1.) Anticipated amounts and contamination levels of hazardous materials will not require the specific designation of site control zones.

2.) All sampling procedures will be performed outdoors in an open air setting on level ground. Confined space and/or below ground situations will not be encountered.

GEO-MARINE, INC.
SITE SAFETY PLAN

SITE SAFETY WORK PLAN (cont.)

ACTION LEVELS FOR

(I.) UPGRADE TO LEVEL C PPE, INCLUDING USE OF CHEMICAL RESPIRATOR:
(II.) EVACUATION OF WORK ZONE FOR REASSESSMENT OF CONDITIONS:

I: If field team members are operating in level D PPE and organic vapors (measured in the breathing zone) are 5 ppm or more above local background, they will either upgrade to level C PPE, including APRs with chemical cartridges, or evacuate the site at the discretion of the Site Safety Officer.

II. If field team members are operating in either level D or level C PPE and organic vapors (measured in the breathing zone) exceed 10 ppm above local background, they will immediately evacuate the site following the procedure dictated by the Site Safety Officer.

Air monitoring to determine background levels and to check for the below listed organic vapor action levels and explosive limits will be performed at each sample location using an HNu and an EnMEt explosimeter. Both machines will be calibrated daily using accepted calibration procedures and checked frequently during the day. Calibration procedures will be documented in the field logbook.

Samples of the two air monitoring forms are attached; complete monitoring records will be maintained on site throughout the project.

The HNu does not identify compounds; therefore, it will be assumed that readings above local background result from contaminant vapors. The numbers used below represent the worst case scenario, i.e., they are consistent with guidelines for benzene and vinyl chloride, the two most hazardous substances which might be encountered during this project.

The EnMet Tritector measures oxygen levels, toxic fumes, and combustible gases (explosimeter). An alarm sounds if oxygen levels drop below 19.5% <u>or</u> toxic vapors exceed 10 ppm <u>or</u> combustible gases exceed 10% LEL methane equivalent. If the alarm sounds, the Site Safety Officer will immediately assess the situation and order an evauation of the site or other measures, if appropriate.

Level D: O_2 >19.5% or <25%
(unknown) organic vapors 0 to 5 ppm
particulates > __ mg/m NOT APPLICABLE
other _____

Level C: O_2 >19.5% or <25%
(unknown) organic vapors 5 to 10 ppm
particulates > __ mg/m NOT APPLICABLE
other _____

SITE SAFETY WORK PLAN (cont.)

DECONTAMINATION SOLUTIONS & PROCEDURES:

All cone-penetrometer and sampling equipment will be decontaminated between sample locations at a decon station location approved through Alan Flolo, Air Force Base Conversion Agency. Large equipment will be steam-cleaned with hot water and non-phosphate, non-volatile cleaner. Hand-sampling equipment will be decontaminated by hand, using the same cleaner. All equipment will be rinsed thoroughly, and the samplers will have a distilled water final rinse.

PERSONNEL DECON PROTOCOL:

All disposable PPE will be decontaminated and disposed of as "clean trash". Goggles, outer gloves, and APRs (if needed) will be cleaned with appropriate cleaners/sanitizers for reuse.

WORK LIMITATIONS (TIME OF DAY, WEATHER, ETC.):

Work limitations include: (1) weekdays 8 A.M. to 5 P.M. (set by client), (2) electrical storms (requiring shut-down), and (3) temperature-related stress. To reduce incidence of heat stress induced by temperature, frequent breaks will be taken and adequate fluids will be available at all times for consumption. Cold conditions will be mitigated with appropriate clothing, hot liquids, and breaks as needed. The identification of an electrical storm in the area will result in an immediate cessation of penetrometer truck activities until the storm has passed.

SITE SAFETY WORK PLAN (cont.)

DISPOSAL OF INVESTIGATION-DERIVED MATERIALS
(DECON WASTE & GROUNDWATER):

All investigation-derived waste materials, including but not limited to: (1) sampled water not retained for analyses, (2) groundwater encountered during subsurface activities, and (3) decon waste water will be contained on site in Base-designated location in sealed 55-gallon drums, until analytic results indicate proper mode and location of treatment and/or disposal.

SAMPLE HANDLING PROCEDURES (INCLUDING PPE):

Samples will be collected, handled, and analyzed by personnel wearing protective coveralls and latex surgical gloves, with other equipment, such as goggles, used if appropriate. Samples will be handled with care, kept on ice, and analyses will be conducted in a timely fashion. When samples are to be transported off-site for analyses (as in Phase I), particular care will be taken in packing and transporting samples to minimize potential for damage to sample containers and spillage of contents.

GEO-MARINE, INC.
SITE SAFETY PLAN

EMERGENCY INFORMATION

LOCAL RESOURCES
PHONE NUMBERS/NAMES OF INDIVIDUALS/ADDRESSES AS APPLICABLE:

Ambulance: 911

Hospital Emergency Room: 882-3333
(map with route to hospital is attached)

Poison Control Center: 1-800-441-0040

Police (local, county, state): 911 (emergency) 335-4222 (non-emergency from Fort Worth phone book)

Fire Department: 911 (emergency) 332-2131 (non-emergency from Fort Worth phone book)

Airport: Meacham Airport 624-1127

Regulatory Agency Contact (EPA, TNRCC, etc.): EPA 214-655-6444 TNRCC (district) 214-298-6171

QA/QC Laboratory: US Army Corps of Engineers Southwestern Division Laboratory, 4815 Cass St.,

Dallas, TX 75235-8011 CONTACT: Steven Brooks at 905-9130

Client Contact: Deborah Fitzgerald (817) 334-3221

SITE RESOURCES
PHONE NUMBERS/NAMES OF INDIVIDUALS/ADDRESSES AS APPLICABLE:

Site Contact (emergency - 24 hours): 911

Site Contact (non-emergency): (817) 782-5000 (Carswell switchboard)

Site Emergency Contact: Bobby Hernandez (Environmental) (817) 731-8973 or Secretary (817) 731-8973
Air Force Base Security (817) 782-7038

Water Supply Source: available on site

Local Telephone Number (Base Utilities, etc.)/Location: Alan Flolo/Air Force Base Conversion Agency

(817) 731-8973 ext.18

GEO-MARINE INC.
HAZARDOUS COMMUNICATION PROGRAM

PROJECT NAME: Phase II - Groundwater Survey (fuels), Carswell Air Force Base, Fort Worth, Texas

PROJECT LOCATION: Carswell Air Force Base, Fort Worth, Texas

PROJECT NUMBER: 1114-055

DATE: August 1, 1994

This written hazardous communication program follows the requirements specified in 29 CFR 1910.1200 (OSHA) and includes the following components:

I. proper labelling of all containers of hazardous chemicals which includes accurate identification of contents, appropriate hazard warnings, and complete name and address of manufacturer

II. complete and readily available list of all chemicals present on site

III. readily available material safety data sheets (MSDS) for all chemicals either used or produced at the site

IV. employee training which includes:

- detection methods for hazardous chemicals
- monitoring methods for hazardous chemicals
- emergency procedures in the event of a release
- safe work habits
- types of personal protective equipment (PPE) and the appropriate use of PPE

I. Are all containers of hazardous chemicals on site properly labelled?
yes no not applicable/reason

II. Is there a complete list of all hazardous chemicals on site readily available?
yes no not applicable/reason

III. Are there MSDS sheets readily available for all hazardous chemicals used or produced on site?
yes no not applicable/reason

IV. Employee Training:

OSHA 40 Hour Training?
yes no not applicable/reason

Other training? (specify)

What hazardous chemical detection method(s) are used on site?
(Phase II) Mobile lab will analyze all samples for halogenated hydrocarbons and for petroleum hydrocarbons using EPA methods 8021 and 418.1.

What hazardous chemical monitoring method(s) are used on site?
(Phases I and II) HNu and EnMet will both be used to monitor breathing air space at each sample location to detect organic vapors, oxygen deficiency, and/or presence of toxic or combustible gases.

What emergency procedures are in place in the event of a release?

Emergency Phone Numbers:

fire: 911 police: 911 ambulance: 911

Route to nearest hospital (map is attached with highlighted route):

Roaring Spring Rd. southeast from base to I-30. East on I-30 to Summit exit. South on Summit to Pennsylvania. East one block to Harris Methodist Hospital at 1301 Pennsylvania Ave.

What level of PPE is used at the site? (include specifics of clothing and equipment):

Level D with hardhats, steel-toes boots, and latex gloves.
Rubber boots, rain suits, safety goggles, and impervious coveralls will be available.
APR with organic vapor cartridges will be available in case action level exceeded.

Printed name of person completing form: _____ Title: _____

Signature: _____

ATTACHMENTS

Hazard Evaluation Forms
Route Map to Hospital
Site Map
GMI Employee OSHA Certifications
Equipment List
Site Safety Review Form
Air Monitoring Forms

GEO-MARINE INC.

EVALUATION OF HAZARDOUS MATERIALS (INCLUDING CHEMICALS)

Project Number/Name: _____ Date: _____

Chemical Name: _____ DOT Name/UN Number: _____ CAS Number: _____

REFERENCES CONSULTED: (circle)

NIOSH/OSHA Pocket Guide Verschueren Merck Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other _____

CHEMICAL PROPERTIES:

Chemical Formula: _____ Odor Characteristic: _____ Flammable Limits: _____

Molecular Weight: _____ Physical State: _____ Solubility (Water): _____ Boiling Point: _____

Flash Point: _____ Freezing Point: _____ Specific Gravity: _____ Vapor Pressure/ Density: _____

Incompatibilities: _____ LEL: _____ UEL: _____

BIOLOGICAL PROPERTIES

TLV-TWA: _____ PEL: _____ Odor/Odor Threshold: _____

IDLH: Human: _____ Aquatic: _____ Rat/Mouse: _____

Route(s) of Exposure: _____

Carcinogen: _____ Teratogen: _____ Mutagen: _____

HANDLING RECOMMENDATIONS (including personal protective clothing, equipment, & measures):

_____

_____

MONITORING RECOMMENDATIONS:

_____

_____

DISPOSAL/WASTE TREATMENT:

_____

_____

HEALTH HAZARD & FIRST AID:

_____

_____

SYMPTOMS: Acute: _____

Chronic: _____

GEO-MARINE INC.

HAZARD EVALUATION OF CHEMICALS

Project Number/Name: **1114-055/Groundwater Survey (fuels) at Carswell Air Force Base, Fort Worth, Texas**

Chemical Name: **Benzene** DOT Name/UN Number: **Benzene/UN1114** CAS Number: **71-43-2**

References Consulted: (circle):

NIOSH/OSHA Pocket Guide Verschueren Merck Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other **29 CFR 1910.1028**

Chemical Properties:

Chemical Formula: C_6H_6 Odor Characteristic: **pleasant, sweet, aromatic** LEL: **1.3%** UEL: **7.9%**

Molecular Weight: **78** Physical State: **Liquid** Solubility (Water): **0.07%** Boiling Point: **176°F**

Flash Point: **12°F** Freezing Point: **42°F** Specific Gravity: **0.879** Vapor Pressure/Density: **75 mm Hg/2.7**

Incompatibilities: **Strong oxidizers, many fluorides & perchlorates, nitric acid**

Biological Properties:

TLV-TWA: **0.5 ppm** PEL: **1 ppm** STEL: **5 ppm** Odor/Odor Threshold:

IDLH: Human: **2000 ppm** Aquatic: Rat/Mouse: **LD_{50} orally = 3.8 ml/kg**

Route(s) of Exposure: **Inhalation, ingestion, dermal contact, eye contact.**

Carcinogen: **suspected in humans** Teratogen: Mutagen:

Handling Recommendations (including personal protective clothing, equipment, & measures):
At 2 ppm above background to 10 ppm, use half mask with OV cartridges; above 10 ppm use full-face APR. Above 50 ppm use PAPR (powered APR); above 100 ppm use supplied air positive pressure air respirator; above 1000 ppm use SCBA. Remove or control ignition sources. Keep fire extinguisher available. Keep containers in a well ventilated area.

Monitoring Recommendations: **HNu, GC/FID, OVA, Drager tube for Benzene** IP = **9.24 eV**

Disposal/Waste Treatment: **Keep area ventilated near spill or leak, and remove ignition sources. Follow EPA, DOT, State and Local disposal regulations.**

Health Hazard & First Aid:
Highly Flammable Liquid. Immediately wash with water if eye contact. Use soap and water when skin contact has occurred. If inhaled, move person to fresh air. Use mouth to mouth resuscitation if person has stopped breathing. Get medical attention immediately if swallowed; do not induce vomiting.

Symptoms: Acute: **Due to ingestion and inhalation: dizziness, staggering gait, nausea, headaches, restlessness, convulsions, euphoria, pulmonary edema.**
Chronic: **Fatigue, nervousness, red skin, leukemia, bone marrow depression.**

GEO-MARINE INC.

HAZARD EVALUATION OF CHEMICALS

Project Number/Name: **1114-055/Groundwater Survey (fuels) at Carswell Air Force Base, Fort Worth, Texas**

Chemical Name: **Toluene** DOT Name/UN Number: **Toluene/UN1294** CAS Number: **108-88-3**

References Consulted: (circle):

NIOSH/OSHA Pocket Guide Verschueren Merck Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other _____

Chemical Properties:

Chemical Formula: $C_6H_5CH_3$ Odor Characteristic: **pungent, sweet, aromatic** Flammable Limits:

Molecular Weight: **92.1** Physical State: **Liquid** Solubility (Water): **0.05%** Boiling Point: **232°F**

Flash Point: **40°F** Freezing Point: **-139°F** Specific Gravity: **0.87** Vapor Pressure/Density: **20 mm Hg**

Incompatibilities: **Strong oxidizers** LEL: **1.2%** UEL: **7.1%**

Biological Properties:

TLV-TWA: **100 ppm** PEL: **100 ppm** Ceiling: **150 ppm (REL)** Odor/Odor Threshold:

IDLH: Human: **2000 ppm** Aquatic: Rat/Mouse: **LD_{50} orally = 7.53 g/kg**

Route(s) of Exposure: **Inhalation, ingestion, dermal contact, eye contact.**

Carcinogen: Teratogen: Mutagen:

Handling Recommendations (including personal protective clothing, equipment, & measures):
Use APR with chemical cartridges above 1000 ppm (Level C). Above 2000 ppm use SCBA or evacuate site.

Monitoring Recommendations:
HNu, GC/FID, OVA, Drager tube for Toluene
IP: 8.82 eV

Disposal/Waste Treatment:
Ventilate spill or leak and remove ignition sources. Follow EPA, DOT, State and Local disposal regulations.

Health Hazard & First Aid:
Flammable Liquid. Immediately wash with water if eye contact. Use soap and water when skin contact has occurred. If inhaled, move person to fresh air. Use mouth to mouth resuscitation if person has stopped breathing. Get medical attention immediately if swallowed; do not induce vomiting.

Symptoms: Acute: **Fatigue, weakness, confusion, euphoria, dizziness, headaches, dilated pupils, insomnia, nervousness**

Chronic: **Paresthesia, dermatitis, kidney or liver damage, anemia, bone marrow depression.**

GEO-MARINE INC.

HAZARD EVALUATION OF CHEMICALS

Project Number/Name: **1114-055/Groundwater Survey (fuels) at Carswell Air Force Base, Fort Worth, Texas**

Chemical Name: **Ethylbenzene** DOT Name/UN Number: **Ethylbenzene/UN1175** CAS Number: **100-41-4**

References Consulted: (circle):

NIOSH/OSHA Pocket Guide Verschueren Merck Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other **Firefighter's Hazardous Materials Reference Book**

Chemical Properties:

Chemical Formula: $C_2H_5C_6H_5$ Odor Characteristic: **aromatic** Flammable Limits:

Molecular Weight: **106.2** Physical State: **Liquid** Solubility (Water): **0.01%** Boiling Point: **277°F**

Flash Point: **55° - 64°F** Freezing Point: **-139°F** Specific Gravity: **0.87** Vapor Pressure/Density: **10 mm @ 79°F**

Incompatibilities: **Strong oxidizers** LEL: **1.0%** UEL: **6.7%**

Biological Properties:

TLV-TWA: **100 ppm** PEL: **100 ppm** STEL: **125 ppm** Odor/Odor Threshold:

IDLH: Human: **2000 ppm** Aquatic: Rat/Mouse: **LD_{50} orally = 5.46 g/kg**

Route(s) of Exposure: **Inhalation, ingestion, dermal contact, eye contact.**

Carcinogen: Teratogen: Mutagen:

Handling Recommendations (including personal protective clothing, equipment, & measures):
Use APR with chemical cartridges above 1000 ppm (Level C). Above 2000 ppm use SCBA or evacuate site. Remove or control ignition sources. Keep fire extinguisher available. Keep containers in a well ventilated area.

Monitoring Recommendations: **HNu, GC/FID, OVA, Drager tube for Ethylbenzene**
IP = 8.76 eV

Disposal/Waste Treatment:
Ventilate spill or leak and remove ignition sources. Follow EPA, DOT, State and Local disposal regulations.

Health Hazard & First Aid:
Flammable Liquid. Immediately wash with water if eye contact. Use soap and water when skin contact has occurred. If inhaled, move victim to fresh air. Use CPR if person has stopped breathing. If breathing is difficult administer oxygen. Get medical attention immediately if swallowed; do not induce vomiting.

Symptoms: Acute: **Irritation of skin, eyes, nose, mucous membranes, and in high concentraions, narcotic.**
Chronic: **Skin contact may cause erythema and skin inflammation.**

GEO-MARINE INC.

HAZARD EVALUATION OF CHEMICALS

Project Number/Name: **1114-055/Groundwater Survey (fuels) at Carswell Air Force Base, Fort Worth, Texas**

Chemical Name: **Xylene** DOT Name/UN Number: **Xylene/UN1307** CAS Number: **1330-20-7**

References Consulted: (circle):

NIOSH/OSHA Pocket Guide Verschueren Merck Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other **Firefighter's Hazardous Materials Reference Book**

Chemical Properties:

Chemical Formula: $C_6H_4(CH_3)_2$ Odor Characteristic: **sweet, aromatic** Flammable Limits:

Molecular Weight: **106.2** Physical State: **Liquid** Solubility (Water): **insoluble** Boiling Point: **269° - 292°F**

Flash Point: **63° to 90°F** Freezing Point: **-54° to 56°F** Specific Gravity: **0.87** Vapor Pressure/Density: **9 mm**

Incompatibilities: **Strong oxidizers, hypochlorite bleaches** LEL: **1.1%** UEL: **7.0%**

Biological Properties:

TLV-TWA: **100 ppm** PEL: **100 ppm** STEL: **150 ppm** Odor/Odor Threshold:

IDLH: Human: **1000 ppm** Aquatic: Rat/Mouse: **LD_{50} orally = 7.71 ml/kg**

Route(s) of Exposure: **Inhalation, ingestion, dermal contact, eye contact, skin absorption.**

Carcinogen: Teratogen: Mutagen:

Handling Recommendations (including personal protective clothing, equipment, & measures):
Use APR with chemical cartridges above 1000 ppm (Level C). Above 2000 ppm use SCBA or evacuate site. Remove or control ignition sources. Keep fire extinguisher available. Keep containers in a well ventilated area.

Monitoring Recommendations: **HNu, GC/FID, OVA, Drager tube for Xylene** IP = **8.44 to 8.56 eV**

Disposal/Waste Treatment:
Ventilate spill or leak and remove ignition sources. Incinerate in an absorbed sand. Follow EPA, DOT, State and Local disposal regulations.

Health Hazard & First Aid:
Flammable Liquid. Immediately wash with water if eye contact. Use soap and water when skin contact has occurred. If inhaled, move victim to fresh air. Use CPR if person has stopped breathing. If breathing is difficult administer oxygen. Get medical attention immediately if swallowed; do not induce vomiting.

Symptoms:	Acute:	**Irritation of skin, eyes, nose, mucous membranes, and in high concentraions, narcotic; nausea, vomiting, loss of conciousness**
	Chronic:	**Skin rash, possible liver/kidney damage**

GEO-MARINE INC.

HAZARD EVALUATION OF CHEMICALS

Project Number/Name: **1114-055/Groundwater Survey (fuels) at Carswell Air Force Base, Fort Worth, Texas**

Chemical Name: **Trichloroethene** DOT Name/UN Number: **UN1710** CAS Number: **79-01-6**

References Consulted: (circle):

NIOSH/OSHA Pocket Guide Verschueren **Merck** Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other_____

Chemical Properties:

Chemical Formula: $CHCl=CCl_2$ Odor Characteristic: **chloroform-like** LEL: **8%** UEL: **10.5%**

Molecular Weight: **131.4** Physical State: **liquid** Solubility (Water): **non-soluble (0.1% @ 77°F.)** Boiling Point: **189°F.**

Flash Point: **90°F.** Freezing Point: **-99°F.** Specific Gravity: **1.46** Vapor Pressure/Density: **58 mm.**

Incompatibilities: **strong caustics, chemically active metals, e.g. Na, Be, Li, Mg, Ti, & Ba**

Biological Properties

TLV-TWA: **25 ppm (NIOSH)** PEL: **50 ppm** STEL: **200 ppm** Odor/Odor Threshold:

IDLH: Human: **1000 ppm** Aquatic: Rat/Mouse: **LD_{50} = 4.92 ml/kg**
LC = 8000 ppm

Route(s) of Exposure: **inhalation, ingestion, skin/eye contact**

Carcinogen: **suspected** Teratogen: Mutagen:

Handling Recommendations (including personal protective clothing, equipment, & measures):
use goggles and impervious clothing to guard against affects of splashing
use respirators if concentration of organic vapors in breathing space atmosphere exceeds 5 ppm above local background

Monitoring Recommendations: **area air monitoring with OVA, HNu: IP = 9.45 eV**

Disposal/Waste Treatment:
Allow area of spill or leak to ventilate and remove ignition sources. Follow EPA, DOT, State and Local disposal regulations.

Health Hazard & First Aid: **irrigate eyes immediately if splashed; seek immediate medical attention if ingested; wash skin with sap if splashed; remove to fresh air and administer resuscitation if necessary if overcome with fumes.**

Symptoms: Acute: **vertigo, nausea, eye/skin irritation, cardiac arrhythmia**
Chronic: **target organs include respiratory system, heart, liver, kidneys, skin**

GEO-MARINE INC.

HAZARD EVALUATION OF CHEMICALS

Project Number/Name: **1114-055/Groundwater Survey (fuels) at Carswell Air Force Base, Fort Worth, Texas**

Chemical Name: **Vinyl Chloride** DOT Name/UN Number: **Vinyl Chloride/UN1086** CAS Number: **75-01-4**

References Consulted: (circle):

NIOSH/OSHA Pocket Guide Verschueren Merck Hazardline Chris ACGIH

Toxic & Hazardous Safety Manual Other **29 CFR 1910.1017**

Chemical Properties:

Chemical Formula: **$CH_2=CHCl$** Odor Characteristic: **pleasant at high conc.** Flammable Limits:

Molecular Weight: **62.5** Physical State: **Gas/Liquid** Solubility (Water): **0.01%** Boiling Point: **7° F**

Flash Point: **-112°F** Freezing Point: **-256°F** Specific Gravity: **0.9** Vapor Pressure/Density: **> 1 atm.**

Incompatibilities: **Copper, oxidizers, aluminum, peroxides, iron, steel** LEL: **3.6%** UEL: **33%**

Biological Properties:

TLV-TWA: **0.5 ppm** PEL: **1 ppm** STEL: **5 ppm** Odor/Odor Threshold:

IDLH: Human: **Carcinogen** Aquatic: Rat/Mouse:

Route(s) of Exposure: **Inhalation.**

Carcinogen: **confirmed in humans** Teratogen: Mutagen:

Handling Recommendations (including personal protective clothing, equipment, & measures):
At 2 ppm above background use APR with OV cartridges; above 10 ppm use gas mask APR or full face powered APR; above 25 ppm use supplied air respirator; above 100 ppm use SCBA. Remove or control ignition sources. Keep fire extinguisher available. Keep containers in a well ventilated area.

Monitoring Recommendations: **HNu, GC/FID, OVA, Drager tube for Vinyl Chloride** IP = **9.99 eV**

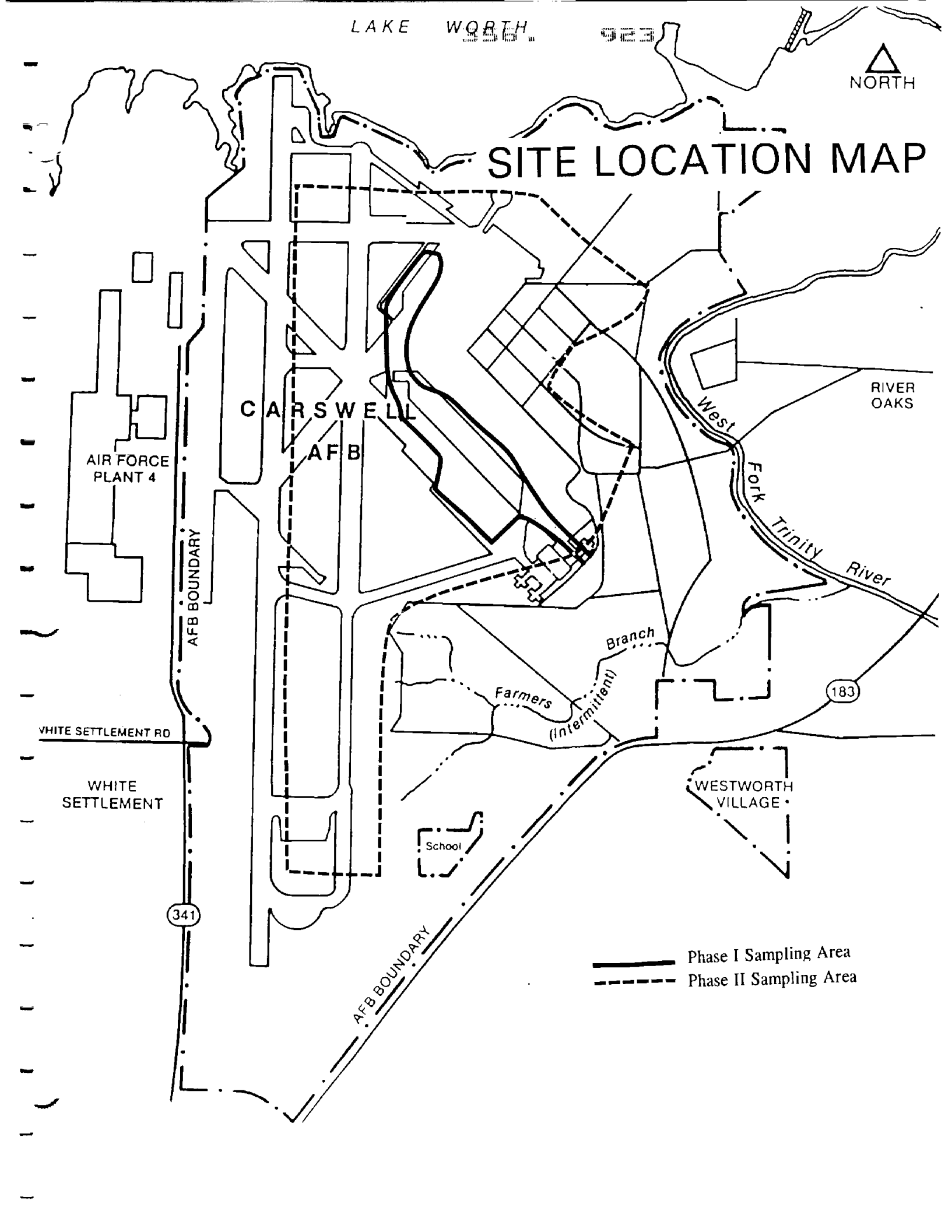
Disposal/Waste Treatment:
Allow ventilation in area of leak and remove ignition sources. Follow EPA, DOT, State and Local disposal regulations.

Health Hazard & First Aid:
Flammable Gas. If inhaled, give respiratory support. Skin contact can result in frostbite. Get medical attention immediately. Narcotic in high concentrations.

Symptoms: Acute: **Weakness; abdominal pain**
Chronic: **GI bleeding; heptomegaly; pallor or cyan of extremities**

HOSPITAL ROUTE MAP

356922


SITE LOCATION MAP
LAKE WORTH
NORTH
CARSWELL AFB
AIR FORCE PLANT 4
AFB BOUNDARY
WHITE SETTLEMENT RD
WHITE SETTLEMENT
341
AFB BOUNDARY
School
Farmers Branch (Intermittent)
West Fork Trinity River
183
RIVER OAKS
WESTWORTH VILLAGE
Phase I Sampling Area
Phase II Sampling Area

Economic Environmental Services, Inc.

Certificate of Completion

This is to certify that

Lyle C. Winnette

461-94-3130

has successfully completed an

8 Hr. Training Course in

29 CFR Part 1910.120(e)(8) and DOT HM-126F

Hazardous Operations and Emergency Response

on this 1st day of February, 1994.

Thomas G Bentley-Smith

Trainer

No. 941171

356 . 924

Economic Environmental Services, Inc.

Certificate of Completion

This is to certify that

L. Louise Delano

006-48-1402

has successfully completed an

8 Hr. Training Course in

29 CFR Part 1910.120(e)(8) and DOT HM-126F

Hazardous Operations and Emergency Response

on this 1st day of February, 1994.

Thomas F. Bonita Smith

Trainer

No. 941167

Economic Environmental Services, Inc.

Certificate of Completion

This is to certify that

Louise L. Delano

006-48-1402

has successfully completed an

8 Hr. Managers/Supervisors Training Course in

29 CFR Part 1910.120 and DOT HM-126F

Hazardous Waste Operations and Emergency Response

on this 26th day of March, 1993.

Thomas G Bentley-Smith

Trainer

No. 930952

356 . 926

Economic Environmental Services, Inc.

Certificate of Completion

This is to certify that

Tony C. Mills

446-62-1135

has successfully completed an

8 Hr. Training Course in

29 CFR Part 1910.120(e)(8) and DOT HM-126F

Hazardous Operations and Emergency Response

on this 1st day of February, 1994.

Thomas G Bentley Smith

Trainer

No. 941172

Economic Environmental Services, Inc.

Certificate of Completion

This is to certify that

Isaac J. Crow

458-68-0687

has successfully completed an

8 Hr. Training Course in

29 CFR Part 1910.120(e)(8) and DOT HM-126F

Hazardous Operations and Emergency Response

on this 1st day of February, 1994.

Thomas G Bentley-Smith

Trainer

No. 941166

Mayhew Environmental Training Associates

Certificate Number
7ME070293002HM
Soc. Sec. #530-48-1550

Accreditation Expires
07/02/94

This is to certify that

Hubert S. Thompson Jr.

has successfully completed
8 hours of annual recertification training in

Hazardous Waste Operations & Emergency Response

in accordance with OSHA 29 CFR 1910.120
July 2, 1993 in Dallas, Texas
and passed the associated examination.

Conducted By:

META

P.O. Box 786 Lawrence, Kansas 66044
1-800-444-6382
For further information contact: Patsy Kemp, Registrar

T. Bradford Mayhew, President

Center for Environmental Research and Training

Department of Civil Engineering
The University of Texas at Arlington

Certificate of Achievement
Awarded to

Bruce D. Moring

in recognition of the successful completion of

HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE
Annual Recertification Training
Certificate No. 585-21-0623HWR

Prior Certification No./Date: 585-21-0623/02/04/93
Prior Training Provider: UNIVERSITY OF TEXAS AT ARLINGTON
April 4, 1994

Expiration Date: April 4, 1995

Director

Economic Environmental Services, Inc.

Certificate of Completion

This is to certify that

Lambert Lewis

455-70-4020

has successfully completed an

8 Hr. Training Course in

29 CFR Part 1910.120(e)(8) and DOT HM-126F

Hazardous Operations and Emergency Response

on this 1st day of February, 1994.

Thomas H Bentley-Smith

Trainer

No. 941168

ENVIRONMENTAL, INC.

P.O. Box 630834
Nacogdoches, TX 75963-0834

This is to certify that

RAAJAN MEHTA

has successfully completed the 40 Hour Course

"Health & Safety for Hazardous Waste Operations"

as required by OSHA 29 CFR 1910.120 (e), (2)

Date: November 11, 1993

Location: Dallas, Texas

Soc. Sec.#: 450-37-8790

Steve Credeur, CHMM

ENVIRONMENTAL CORPORATE SEAL 1993 TEXAS INC.

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. BOX 13087 AUSTIN, TEXAS 78711-3087
512-371-6795

THIS CERTIFIES THAT

HUBERT SHARP JR THOMPSON

whose signature appears below and which is bonded to by the Texas Natural Resource Conservation Commission is entitled to practice in Texas as indicated.

Certificate Number	Expiration Date
2413W	AUG 31, 1994

Signature of Licensee

CHAIRMAN

GEO MARINE
HUBERT SHARP JR THOMPSON
550 E 15TH
PLANO, TX 75074

01711

PLEASE KEEP THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
ADVISED OF ADDRESS CHANGES: HOME AND BUSINESS

TPS Form WC-2D (Rev. 05-2-93)

75074-3746 94

356 - 933

GEO-MARINE, INC.
SITE SAFETY PLAN
EQUIPMENT LIST

PPE

Level A

Item	No(s).
SCBA	
spare air tanks	
encapsulating suit (type _____)	
surgical gloves	
gloves (type _____)	
outer work gloves	
neoprene safety boots	
steel-toed boots	
booties	
hard hat	
5-minute escape cooling vest	

Level C

Item	No(s).
respirator (type _____)	
cartridge (type _____)	
5-minute escape mask	
protective coveralls (type _____)	
rain suit available	
butyl apron	
surgical gloves	
gloves (type _____)	
outer work gloves	
neoprene safety boots	
steel-toed boots	
booties	
hard hat with face shield	

Level B

Item	No(s).
SCBA	
spare air tanks	
protective coverall (type _____)	
rain suit	
butyl apron	
surgical gloves	
gloves (type _____)	
outer work gloves	
neoprene safety boots	
steel-toed boots	
booties	
hard hat with face shield	

Level D

Item	No(s).
respirator available (type _____)	
cartridges available (type _____)	
5-minute escape mask available	
protective coverall (type _____)	
splash apron	
rain suit available	
neoprene safety boots	
steel-toed boots	
booties	
work gloves	
surgical gloves	
hardhat	
safety glasses or goggles	

EQUIPMENT LIST (cont.)

GENERAL INSTRUMENTS	No(s).
OVA (model no. _____)	
HNu (model no. _____)	
O^2 explosimeter with calibration kit	
magnetometer (model no. _____)	
pipe locator	
Draeger tubes (type _____)	
heat stress monitor	
noise equipment (type _____)	
monitox cyanide	
personal sampling pumps	
conductivity meter	
pH meter	
metal detector	

RADIATION	No(s).
Geiger counter	
ion chamber	
alert dosimeter	
pocket dosimeter	
portable ratemeter	
scaler/ratemeter (type _____)	
micro meter	

FIRST AID	No(s).
first aid kit	
oxygen administrator	
stretcher	
portable eye wash	
blood pressure monitor	
thermometer	
blanket	

EQUIPMENT LIST (cont.)

VEHICLE No(s). _____

vehicle (description & license number_____) . . . . . .
gas ( ) . . . . . .
oil ( ) . . . . . .
antifreeze ( ) . . . . . .
battery water level ( ) . . . . . .
windshield washing fluid ( ) . . . . . .
tire pressure ( ) . . . . . .
tire pressure - spare(s) ( ) . . . . . .
other _____ ( ) . . . . . .
vehicle insurance proof ( ) . . . . . .
vehicle registration current ( ) . . . . . .
vehicle inspection current ( ) . . . . . .
tool kit . . . . . .
hydraulic jack . . . . . .
spare tire(s) . . . . . .
lug wrench . . . . . .
tow chain . . . . . .
fire extinguisher (date tested/filled _____) . . . . . .
generator . . . . . .
steam cleaner . . . . . .
. . . . . .
. . . . . .

DECON No(s). _____

wash tubs . . . . . .
buckets . . . . . .
scrub brushes . . . . . .
pressurized sprayer . . . . . .
detergent (type _____) . . . . . .
solvent (type _____) . . . . . .
plastic sheeting . . . . . .
containment dams . . . . . .
tarps and poles . . . . . .
trash bags . . . . . .
trash containers . . . . . .
masking tape . . . . . .
duct tape . . . . . .
paper towels . . . . . .
face mask sanitizer . . . . . .
respirator cleaners . . . . . .
goggle cleaners . . . . . .
chairs . . . . . .
step ladder . . . . . .
distilled water . . . . . .
. . . . . .
. . . . . .

EQUIPMENT LIST (cont.)

SAMPLING AND SHORT-TERM SAMPLE STORAGE No(s).

clear glass bottles
8 oz . . . . . .
16 oz. . . . . .
32 oz. . . . . .
64 oz. . . . . .
amber glass bottles (1 liter) . . . . . .
VOA vials . . . . . .
acid for preservation (type: _____) . . . . . .
funnel . . . . . .
string . . . . . .
hand bailer
1.66 inch . . . . . .
2 inch . . . . . .
4 inch . . . . . .
bottle labels . . . . . .
water proof pen . . . . . .
chain-of-custody forms . . . . . .
sample description forms . . . . . .
custody seals . . . . . .
QA/QC seals . . . . . .
baggies . . . . . .
spoons . . . . . .
knives . . . . . .
measuring tape . . . . . .
filter paper . . . . . .
coolers . . . . . .
ice . . . . . .
personal pump sampling supplies . . . . . .
thieving rods with bulbs . . . . . .
. . . . . .

SAMPLE SHIPMENT No(s).

heavy duty plastic coolers with labels . . . . . .
paint cans with lids, 7 clips each . . . . . .
shipping labels . . . . . .
DOT labels . . . . . .
labels **UP** . . . . . .
FRAGILE . . . . . .
HAZARDOUS . . . . . .
other _____ . . . . . .
strapping tape . . . . . .
clear packing tape . . . . . .
express shipping forms . . . . . .
vermiculite . . . . . .
"bubble" wrap . . . . . .
. . . . . .

EQUIPMENT LIST (cont.)

MISCELLANEOUS	No(s).
surveyor's tape	
100-foot metal tape	
flagging	
stakes	
surveying flags	
surveying meter stick	
compass (type _____)	
measuring ("wonder") wheel	
300 foot nylon rope	
nylon string	
camera	
film	
banner tape	
binoculars	
megaphone	
walkie-talkies	
chaining pin and ring	
bailing pump	
55-gallon storage drums	
drum dolly	
bung wrench	
wheel barrow	
pick	
shovel	
soil auger	
weather radio	

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: _____ Time: _____ Location of review: _____

GMI Representative(s): _____

Client Representative(s): _____

Meeting Conducted by: _____

Meeting Objective(s): _____

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: _____

TOPICS DISCUSSED:

Physical Hazards _____

Chemical Hazards _____

Radiation Hazards _____

Personal Protective Clothing/Equipment _____

Emergency Procedures _____

Specific Individual Responsibilities _____

Decontamination Procedures _____

Special Site Considerations _____

Checklist

Emergency information reviewed by ALL team members? ___

Route to nearest hospital known by ALL team members? ___

Site safety plan on site and readily available to ALL team members? ___

Copy(ies) of appropriate licensing/certification available? ___

Signatures of those present:

GEO-MARINE, INC.

AIR MONITORING FORMS (daily calibration unless noted)

Contaminant(s) of Interest: TPH (especially benzene, toluene, ethyl-benzene, & xylenes)
TCE (trichloroethylene) & break-down products

Type of Sample (area, personal): area

Equipment Make & Model: HNu Systems, Inc. model PI-101

DATE	TIME	INSTRUMENT READING	SAMPLER INITIALS

GEO-MARINE, INC.

AIR MONITORING FORMS (daily calibration unless noted)

Contaminant(s) of Interest: TPH (especially benzene, toluene, ethyl-benzene, & xylenes)
TCE (trichloroethylene) & break-down products

Type of Sample (area, personal): area

Equipment Make & Model: ENMET Corp. model CGS-80

DATE	TIME	INSTRUMENT READINGS			SAMPLER INITIALS
		Oxygen	Toxic	Combustible	

Note that only the pages directly impacted by the SOW modification are included in this revision. The remainder of the SHERP is unchanged.

SUPPLEMENT TO/REVISION OF

SAFETY, HEALTH, AND EMERGENCY RESPONSE PLAN (SHERP)

PHASE II
GROUNDWATER SAMPLING AND SUBSURFACE SOIL DELINEATION OF THE HYDRANT FUELING SYSTEM

AT

CARSWELL AIR FORCE BASE
FORT WORTH, TEXAS

Prepared for:

Department of the Army
Fort Worth District Corps of Engineers
Fort Worth, Texas 76102-0300

Contract # DACA63-93-D-0014
Delivery Order #0055

Prepared by:

Geo-Marine, Inc.
550 East 15th Street
Plano, Texas 75074
(214) 423-5480

September 1994

1.0 FIELD ACTIVITIES

The Phase I and II Groundwater Sampling and Subsurface Soil Delineation field program at Carswell Air Force Base will include the following elements:

- Drill five boreholes from ground surface to bedrock using a truck mounted drill rig
- Visually describe soil column and monitor with an HNu
- Collect one soil sample from the horizon with the highest Hnu reading for analysis
- Collect water sample or (if water is not available) a second soil sample
- Ship all samples off-site for analyses using EPA-approved methods 8021, 418.1, and 8015
- Pressure grout bore holes to the surface and repair surface to pre-investigation condition
- Decontaminate all sampling and subsurface penetrometer equipment between each station
- Drum all decontamination liquids, all unused sample, and all groundwater
- Sample drums for analysis pending proper disposal; store drums at a client-approved location
- Monitor breathing space air with HNu at each sample location to check for elevated levels of organic vapors

GEO-MARINE, INC.
SITE SAFETY PLAN

SITE/WASTE CHARACTERISTICS

WASTE TYPE(S):

gas/vapor [ ] liquid [X] sludge [ ] solid [ ]

CHARACTERISTICS:

flammable/ ignitable [X] volatile [X] corrosive [ ] acutely toxic [ ]

explosive [ ] reactive [ ] carcinogen [ ] radioactive [ ]

other:_____

PHYSICAL HAZARDS:

overhead [X] confined space [ ] below grade [ ] trip/fall [X]

puncture [X] burn [X] cut [X] splash [X]

noise [X] other:_____

BRIEF SITE HISTORY/DESCRIPTION, INCLUDING UNUSUAL FEATURES (see Scope of Work for details):

Elevated levels of petroleum hydrocarbons have been identified in soils and groundwater in the area of the pumping stations of the flightline hydrant fueling system. In addition, a leak in a pipeline was previously found and repaired, but the immediate area was not remediated. Investigations at Air Force Plant No. 4 suggest that a TCE plume also extends under the runway.

LOCATIONS OF CHEMICALS/WASTES: extent of plume(s) not yet delineated

ESTIMATED VOLUMES(S) OF CHEMICAL/WASTES: volume(s) of chemicals unknown

Site currently in operation yes [X] no [ ]

GEO-MARINE, INC.
SITE SAFETY PLAN

HAZARD EVALUATION

List hazard by task (i.e. drilling, sampling, etc.); number tasks; assign physical and chemical hazard(s) and evaluation (s):

NO.	TASK	CHEMICAL HAZARD/ EVALUATION	PHYSICAL HAZARD/ EVALUATION
1	air monitoring	fumes/slight	none/none
2	drilling holes	fumes/slight	working around aircraft/slight
			obstruction on runway/slight
			damage to aircraft/slight
			heavy equipment usage/slight
			hit aboveground-underground utilities/slight
			hit underground fuel lines/slight
			obstruction hazards/slight
3	collecting samples	splashing/slight	none/none
		spilling/slight	
4	equipment decon	splashing/slight	steam burn/slight
		spilling/slight	
5	drum contents sampling	splashing/slight	drum moving/slight
		spilling/slight	

Completed Hazard Evaluation forms attached for each major known contaminant?

yes [X] no [ ]

If not, why?

_____

_____

HAZARD CONTROL

Task-associated chemical hazards on the site include fumes and possible splashing by or spillage of contaminated groundwater or decon water. The possibility of any of these events occurring is considered very slight.

(1) Splashing and spilling can be prevented or mitigated by watchfulness, care, and the appropriate use of PPE. The decon area will be lined with sufficiently strong plastic to contain any spilled decon fluids.

(2) Fume accumulation is unlikely in the open air, above-ground setting of the sampling locations; however, the consistent and regular use of an air monitor will detect any above-background levels of organic vapors so that readily available chemical respirators can be put on and/or the site evacuated if needed.

Task-associated physical hazards on the site include injury from use of heavy equipment, back injury from improper lifting or carrying, accidents associated with other construction activity (e.g., tank removal), accidents associated with aircraft activity on the flightline, damage to either overhead or below ground utilities, damage to underground hydrant fueling system, impaired hearing, and season-related temperature stress (either heat or cold). All are considered preventable.

(1) Potential for injury from heavy equipment can be minimized by attentiveness to proper procedures.

(2) Injury from lifting or carrying can be minimized by sensible practices (including wearing a safety belt) and the appropriate use of transporting equipment such as a dolly for drums and drill stem.

(3) Interaction with other construction activities can be avoided with coordinated planning. However, traffic control measures and equipment will be available for use wherever needed or required.

(4) Damage to overhead utilities can be avoided by watchfulness during equipment moving and set up.

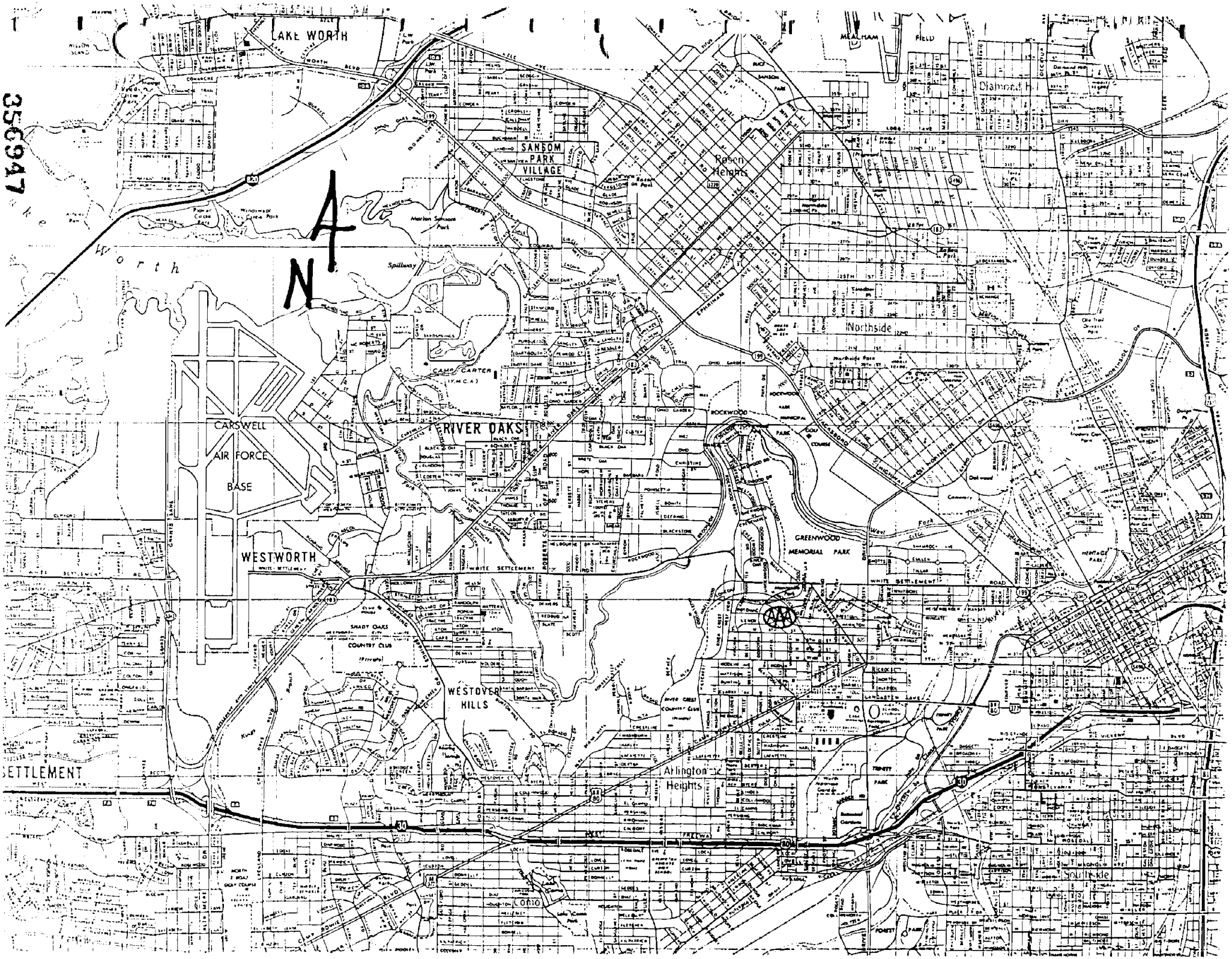
(5) Damage to underground utilities and hydrant fueling system can be minimized by coordination with utility clearance personnel and strict adherence to cleared locations.

(6) Conflict with aircraft can be avoided by attentiveness to the flightline training and watchfulness at all times while on active runway or taxiway areas.

(7) The potential for damage to aircraft from dirt, pebbles, bolts, etc. can be minimized by careful housecleaning practices both before entering and while on the flightline. Any PVC pipe left extending aboveground overnight will be clearly marked with a brightly colored plastic cone.

(8) Damage to hearing can be minimized by the proper and consistent use of hearing protection.

(9) To minimize the possibility of adverse reaction to either heat stress or excessive cold, the Site Safety Officer will monitor temperature and heat/chill index. Fluids will be available on site at all times, and rest breaks will be taken as deemed appropriate by the Site Safety Officer.

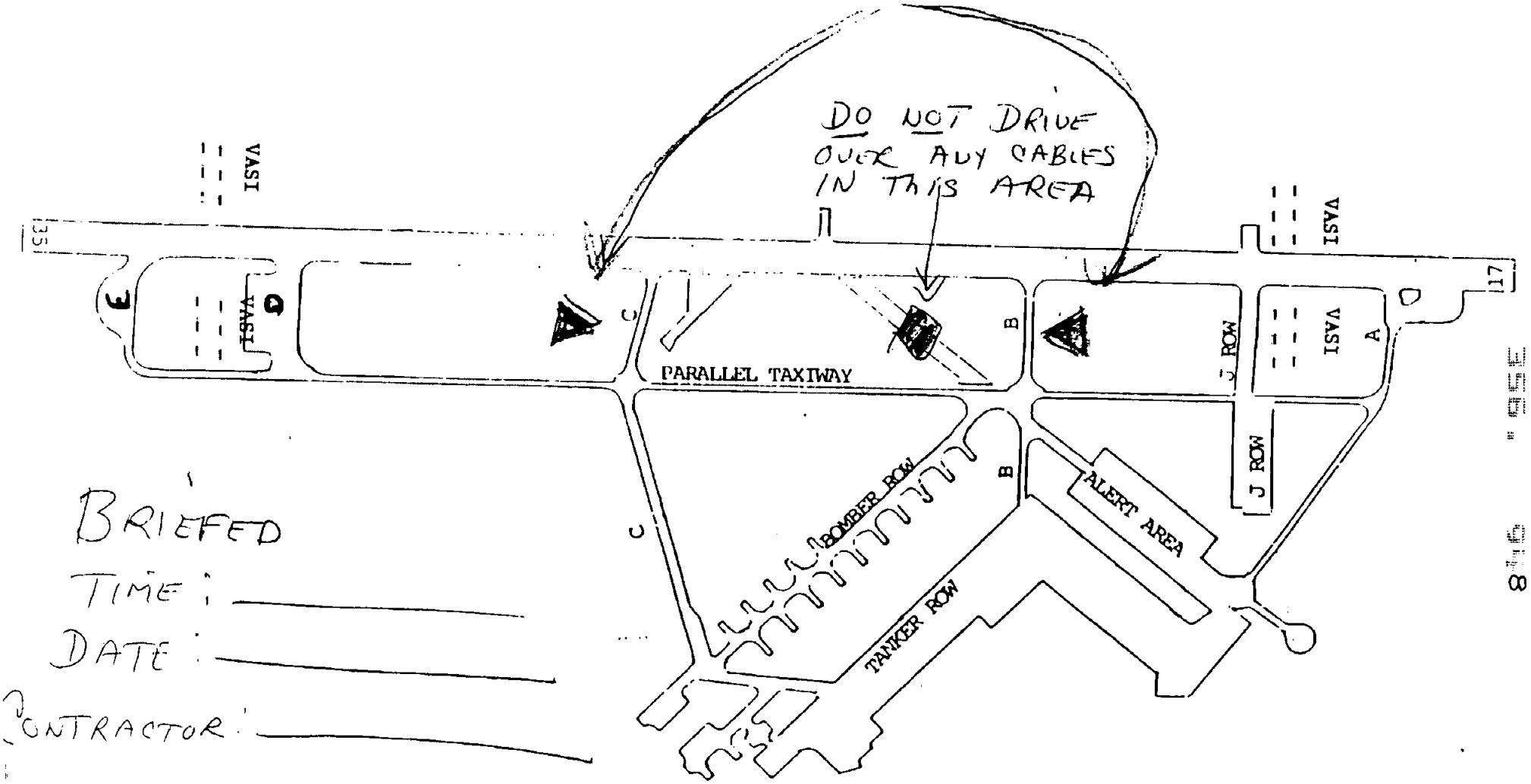

LAKE WORTH
SANSOM PARK VILLAGE
Rosen Heights
MEACHAM FIELD
Diamond Hill
Northside
CAMP CARTER
RIVER OAKS
CARSWELL AIR FORCE BASE
WESTWORTH
WESTOVER HILLS
GREENWOOD MEMORIAL PARK
SHADY OAKS COUNTRY CLUB
Arlington Heights
Southside
Como
SETTLEMENT
N

356947

GEO MARKING

DO NOT ENTER THESE AREAS WITHOUT CONTACTING RADIO MAINTENANCE. PHONE 7843 THESE AREAS CONTAIN RADIATION. MAINTENANCE MUST TURN OFF GLIDESLOPE BEFORE YOU MAY ENTER.

AIRFIELD DIAGRAM



BRIEFED

TIME: _____

DATE: _____

CONTRACTOR: _____

SCHEDULE THESE AREAS ON MONDAY MORNING IF POSSIBLE. THIS IS WHEN THEY DO

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 5-9-94 Time: 1020 Location of review: BASE OPERATIONS

GMI Representative(s): LYLE WINNETTE

Client Representative(s): DWAYNE FORD

Meeting Conducted by: JONY Mills

Meeting Objective(s): INTRODUCE SAFETY PLAN, REVIEW SAFETY PROCEDURES AND EMERGENCY PROCEDURES.

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated: LIGHTNING

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards ✓
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations ✓

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:
Tony C. Mills
[illegible] Thompson
Robert [illegible]
[illegible]
[illegible]
[illegible] Ford

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 5-13-94 Time: 1115 Location of review: ALERT APRON

GMI Representative(s): TONY C. MILLS

Client Representative(s): NONE

Meeting Conducted by: TONY C. MILLS

Meeting Objective(s): REVIEW SAFETY PLAN, HAZARDS, EMERGENCY PROCEDURES, RAIN AND ELECTRICAL STORMS.

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated: LIGHTNING, T-STORMS, AIRCRAFT NOISE

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards ✓
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations ✓

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 5/16/94 Time: 0900 Location of review: ALERT APRON

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): REVIEW SITE SAFETY PLAN, EMERGENCY PROCEDURES, HAZARDS.

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: _____

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards ✓

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ___

Route to nearest hospital known by ALL team members? ___

Site safety plan on site and readily available to ALL team members? ___

Copy(ies) of appropriate licensing/certification available? ___

Signatures of those present:

Tony C. Mills

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 5/17/94 Time: 0845 Location of review: G48

GMI Representative(s): Tony C. Mills

Client Representative(s): NONE

Meeting Conducted by: Tony Mills

Meeting Objective(s): TAILGATE SAFETY MEETING.

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment

Emergency Procedures

Specific Individual Responsibilities

Decontamination Procedures

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Tony C. Mills

[illegible]

[illegible]

[illegible]

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 5/18/94 Time: 0800 Location of review: LOCATION G18

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): TAILGATE SAFETY MEETING

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards ✓
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations ✓

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:
[illegible]
[illegible]
Tony C. Mills

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8-02-94 Time: 0815 Location of review: DECON AREA

GMI Representative(s): Tony Mills

Client Representative(s): NONE

Meeting Conducted by: Tony Mills

Meeting Objective(s): COVER SITE SAFETY PLAN, EMERGENCY PROCEDURES, HAZARDS, AND SITE CONSIDERATIONS.

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: HEAT

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards ____

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Tony C. Mills

Albert Zimmer

Isaac J. Crouch

Tracy [illegible]

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 8-03-94 Time: 0800 Location of review: LOCATION 179

GMI Representative(s): Tony Mills

Client Representative(s): NA

Meeting Conducted by: Tony Mills

Meeting Objective(s): REVIEW SAFETY PLAN, EMERGENCY PROCEDURES AND SPECIFIC SAFETY ISSUES TO APRON AREA.

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations ✓

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:
Tony C. Mills
[illegible]
[illegible]
Robert [illegible]

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/05/94 Time: 0710 Location of review: Decon Area

GMI Representative(s): Tony C. Mills

Client Representative(s): NONE

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): Discuss specific hazards and review site safety.

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: Lightning

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards ✓

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Tony C. Mills

Isaac J. Crowe Jr.

Albert Fonseca

Tracy D. Bryce

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/08/94 Time: 0755 Location of review: DEGON AREA

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): REVIEW SAFETY PROCEDURES.

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Albert Fonseca

Tony O'Bryan

Isaac Crouch

Tony C. Mills

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/09/94 Time: 0635 Location of review: DECON AREA

GMI Representative(s): Tony Mills

Client Representative(s): NA

Meeting Conducted by: Tony Mills

Meeting Objective(s):

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Tony C. Mills

Allen T. Fonseca

Tracy O. Bryce

Isaac J. Crowell

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 8/10/94 Time: 645 Location of review: Decon area

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony Mills

Meeting Objective(s): TAILGATE SAFETY MEETING

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:
Albert Fonseca
Tracy O'Byrne
Isaac J. Nowell
Tony C. Mills

356 960

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/11/94 Time: 0635 Location of review: DECON AREA

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): TAILGATE SAFETY MEETING

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: HEAT CONDITIONS

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Albert Zamora

Tracy Boyce

Frank Craig

Tony C. Mills

356 961

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/12/94 Time: 0630 Location of review: At Location 242

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: TONY C. MILLS

Meeting Objective(s): REVIEW SAFETY PROCEDURES

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: WORKING IN PARKING LOT AND ON STREETS

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards ____

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Albert Zimmer

Tony D Bryce

Tony C. Mills

Isaac Crowell

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/15/94 Time: 7:30 Location of review: DECON AREA

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): Review Safety Procedures.

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: Punching in Active Parking Area

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards ____

Personal Protective Clothing/Equipment ✓

Emergency Procedures ____

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Albert Fonseca

[illegible]

Isaac J. Brown

Tony C. Mills

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 5/16/94 Time: 0635 Location of review: DECON AREA

GMI Representative(s): Tony C. Mills

Client Representative(s): N/A

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): REVIEW SAFETY PROCEDURES. DISCUSS SPECIFIC HAZARDOUS FOR TODAY

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: TAXIWAYS - VEHICLES AND PLANES.

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards ____

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Tony C. Mills

Albert F. [illegible]

[illegible]

[illegible]

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 8/17/94 Time: 0645 Location of review: FLIGHTLINE

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): TAILGATE SAFETY MEETING, REVIEW SPECIFIC HAZARDS.

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated: TAXIING AIRCRAFT AND VEHICLES -

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards ____
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations ✓

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:
Albert Fonseca
Tony O'Farrell
Tony C. Mills
Isaac J. Crawford

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055
Site Location: Carswell Air Force Base, Fort Worth, Texas
Date: 8/18/94 Time: 0700 Location of review: FLIGHTLINE

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): TAILGATE SAFETY MEETING

Chemicals Anticipated: BTEX and TCE (and derivatives)
Other Hazardous Substance(s) and/or Condition(s) Anticipated: NOISE, HEAT, JETS ON TARMACS.

TOPICS DISCUSSED:
Physical Hazards ✓
Chemical Hazards ✓
Radiation Hazards ____
Personal Protective Clothing/Equipment ✓
Emergency Procedures ✓
Specific Individual Responsibilities ✓
Decontamination Procedures ✓
Special Site Considerations ✓

Checklist
Emergency information reviewed by ALL team members? ✓
Route to nearest hospital known by ALL team members? ✓
Site safety plan on site and readily available to ALL team members? ✓
Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:
[illegible]
[illegible]
Albert [illegible]
Tony C. Mills

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 8/19/94 Time: 7:00 Location of review: FLIGHTLINE

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): Review SAFETY PLAN, Emergency PROCEDURES

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated: HEAT, NOISE FROM AIRCRAFT.

TOPICS DISCUSSED: ✓

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Isaac J. [illegible]

Albert [illegible]

[illegible]

Tony C. Mills

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS TEAM
SITE SAFETY REVIEW

PROJECT NAME: CARSWELL FUELS PH II **PROJECT NUMBER:** 1114-055

Site Location: CARSWELL AFB (near location GMI 18-04B)

Date: 9/13/94 Time: 1050 Location of review: ↓

GMI Representative(s): DELANO, Lewis, Thompson, Loring

Client Representative(s): —

Meeting Conducted by: Delano

Meeting Objective(s): Review SHERP revisions made to cover drilling operations not included in original SOW

Chemicals Anticipated: TCE etc, TPH in solution

Other Hazardous Substance(s) and/or Condition(s) Anticipated: hot weather, heavy equipment, aircraft

TOPICS DISCUSSED:

Physical Hazards: ✓

Chemical Hazards: ✓

Radiation Hazards: NA

Personal Protective Clothing/Equipment: ✓ * glove issue brought up by B. Loring

Emergency Procedures: ✓

Specific Individual Responsibilities: ✓

Decontamination Procedures: ✓

Special Site Considerations: ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

[illegible]

[illegible]

[illegible]

D. Delano

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 10/27/94 Time: 08:30 Location of review: FLIGHTLINE

GMI Representative(s): Tony C. Mills

Client Representative(s): NA

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): REVIEW SHEET, SAFETY CAUTIONS,

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

Robert Anderson

Albert Torres

Tony C. Mills

[illegible]

GEO-MARINE INC.
HAZARDOUS & TOXIC MATERIALS PLAN
SITE SAFETY REVIEW

PROJECT NAME: Phase I - Groundwater Survey, Carswell AFB (fuels) **PROJECT NUMBER:** 1114-055

Site Location: Carswell Air Force Base, Fort Worth, Texas

Date: 10/26/94 Time: 8:05 Location of review: BASE OPS

GMI Representative(s): Tony C. Mills

Client Representative(s): N/A

Meeting Conducted by: Tony C. Mills

Meeting Objective(s): TAILGATE SAFETY MEETING,

Chemicals Anticipated: BTEX and TCE (and derivatives)

Other Hazardous Substance(s) and/or Condition(s) Anticipated:

TOPICS DISCUSSED:

Physical Hazards ✓

Chemical Hazards ✓

Radiation Hazards

Personal Protective Clothing/Equipment ✓

Emergency Procedures ✓

Specific Individual Responsibilities ✓

Decontamination Procedures ✓

Special Site Considerations ✓

Checklist

Emergency information reviewed by ALL team members? ✓

Route to nearest hospital known by ALL team members? ✓

Site safety plan on site and readily available to ALL team members? ✓

Copy(ies) of appropriate licensing/certification available? ✓

Signatures of those present:

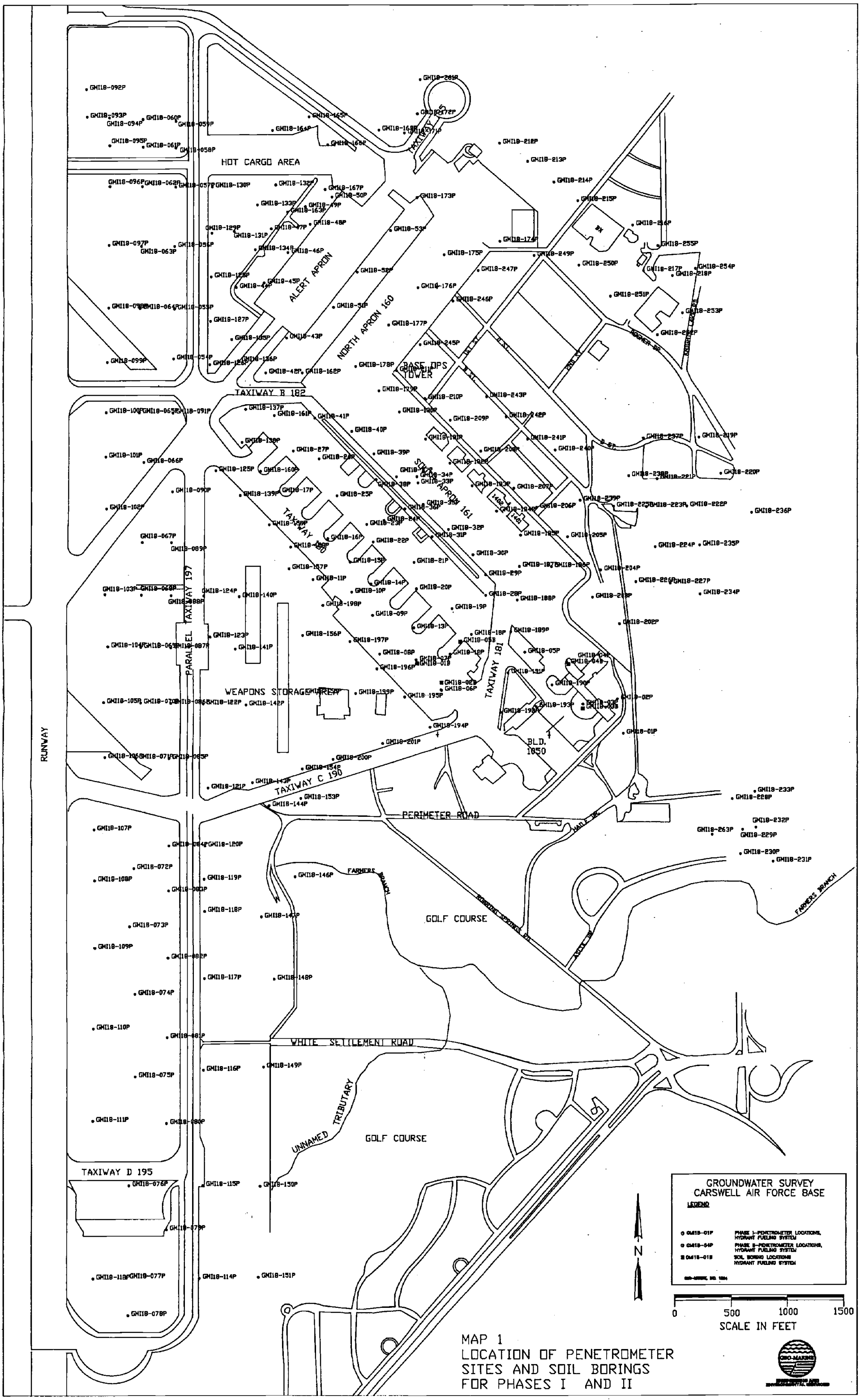
Isaac J. Low Jr.

Tony C. Mills

Albert Fonseca

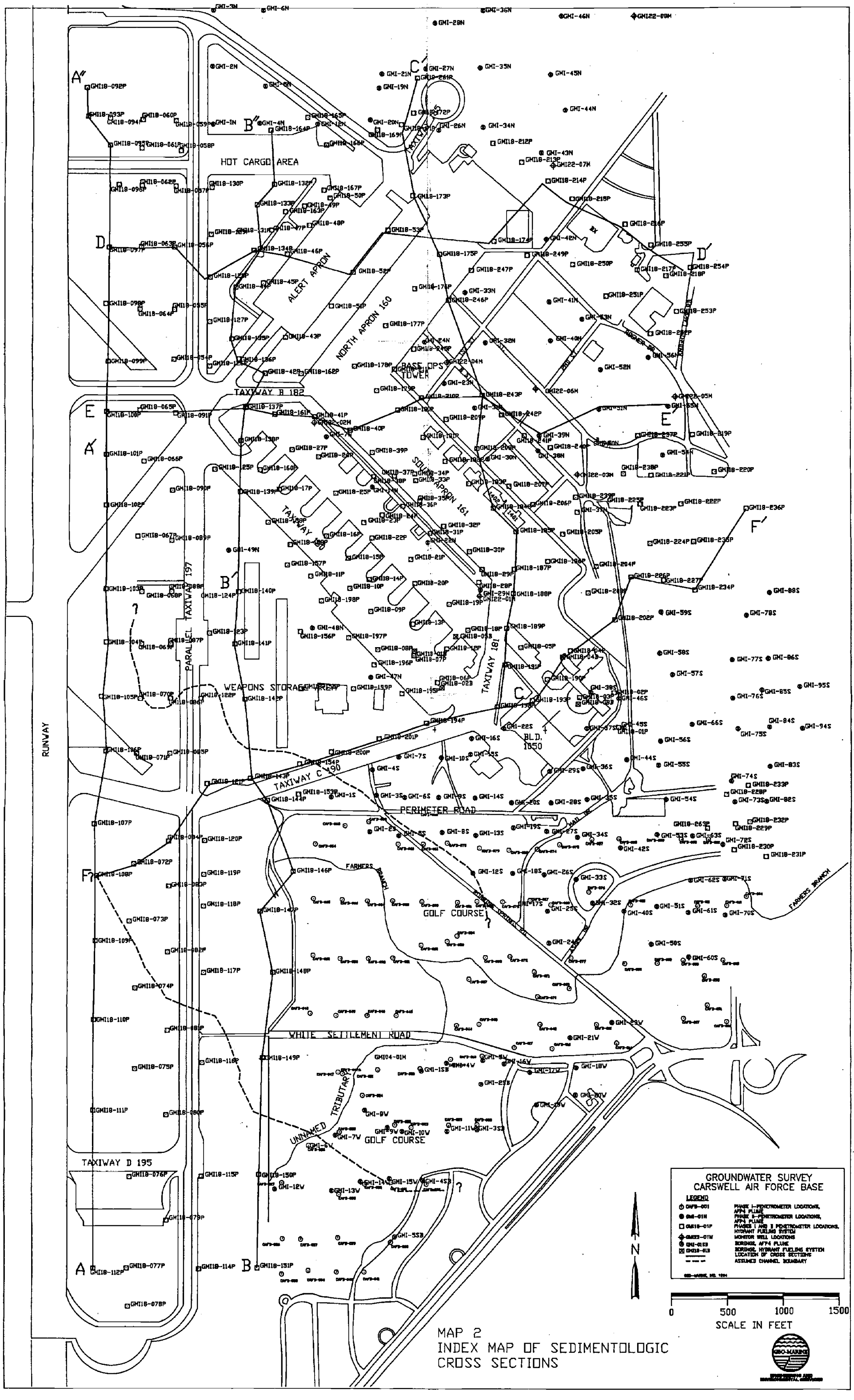
Robert Hardin

356970



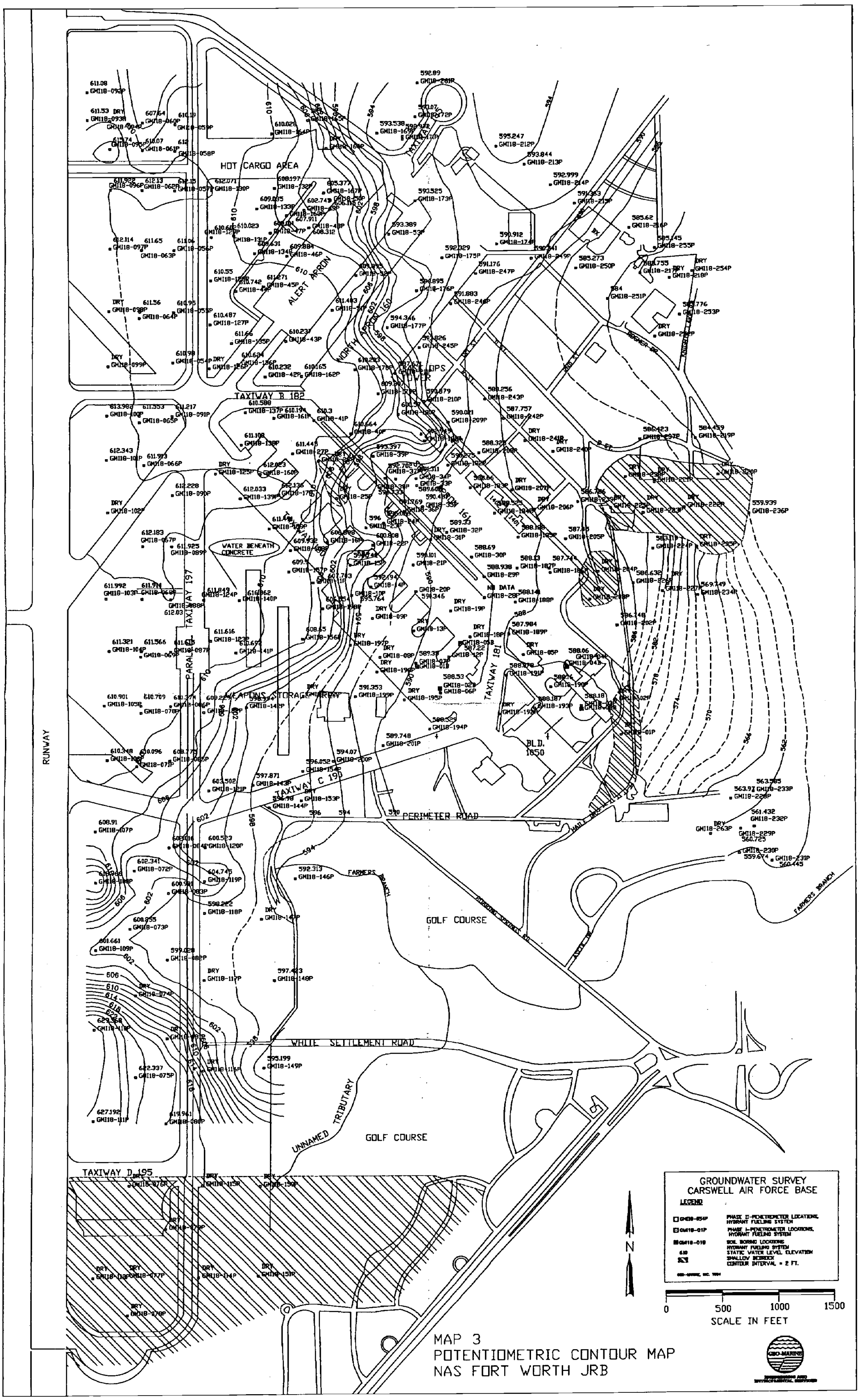
MAP 1
LOCATION OF PENETROMETER SITES AND SOIL BORINGS FOR PHASES I AND II

356971



MAP 2
INDEX MAP OF SEDIMENTOLOGIC CROSS SECTIONS

356972



MAP 3
POTENTIOMETRIC CONTOUR MAP
NAS FORT WORTH JRB

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE