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Winston-Salem
Regional Office

Sun Company, Inc.
4041 Market Street
Aston PA 19014
215 499 5770



Certified Mail Return Receipt Requested

November 10, 1994

Mr. Larry D. Coble
Regional Supervisor
State of North Carolina
Department of Environment, Health, and Natural Resources
Department of Environmental Management
8025 North Point Boulevard, Suite 100
Winston-Salem, North Carolina 27106-3203

Summit Ave. Sunoco

RE: Former Sunoco Retail Facility
1103 Summit Avenue
Greensboro, North Carolina
Guliford County
Incident Number 10141

Dear Mr. Coble:

The purpose of this letter is to request a 30 day extension for submittal of a Corrective Action Plan (CAP) for the referenced site. The current deadline for submittal of the CAP is December 1, 1994. A comprehensive site assessment has been completed at the site and remediation feasibility testing has been accomplished. To allow time to fully evaluate the most appropriate remedial strategy for the site, a 30 day extension is respectfully requested. If this extension request meets with your approval, the new deadline for submittal of the CAP would be January 2, 1995.

Your assistance in this matter is greatly appreciated. If you have any questions, please contact Herbert Berger with Groundwater Technology at (919) 467-2227 or me at (610) 859-5705.

Sincerely,

for Daniel Shine
Environmental Coordinator

CC: Herbert Berger (Groundwater Technology)





Sun Company, Inc.
4041 Market Street
Aston PA 19014
215 499 5770

September 13, 1994

Mr. Waddell Watters
NCDEHNR - Groundwater Section
Winston-Salem Regional Office
8025 North Point Boulevard
Winston-Salem, North Carolina 27106

**Re: Revised Comprehensive Site Assessment Report
Former Sunoco Station
1103 Summit Avenue
Greensboro, North Carolina**

Dear Mr. Watters:

Enclosed for your review is the Revised Comprehensive Site Assessment Report prepared for the above referenced site. Based on the findings of this assessment, a Corrective Action Plan will be prepared and submitted for your approval. The recommendations that will be presented in the Corrective Action Plan will be based on various field tests performed to aid in determining the most applicable and economical remediation technology.

Please call me with any questions you may have regarding this CSA report or the Summit Avenue, Greensboro site.

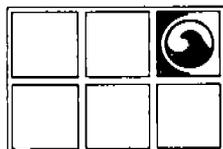
Sincerely,
SUN COMPANY, INC.

A handwritten signature in cursive script that reads "Daniel P. Shine for".

Daniel P. Shine
Environmental Engineer

Enclosure





**GROUNDWATER
TECHNOLOGY**

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SEP 14 1994

Winston-Salem
Regional Office

Groundwater Technology, Inc.

1000 Perimeter Park Drive, Suite I, Morrisville, NC 27560
Tel: (919) 467-2227 Fax: (919) 467-2299

COMPREHENSIVE SITE ASSESSMENT

Former Sunoco Station
1103 Summit Avenue
Greensboro, North Carolina
Duns #0276-0007

Revised: September 12, 1994

Prepared for:
Mr. Daniel Shine
SUN COMPANY, INC.
4041 Market Street
Aston, PA 19014

Prepared by:
Groundwater Technology, Inc.

Teresa L. Watson
Project Manager

Reviewed by:
Groundwater Technology, Inc.

Beau Hodge, P.G.
NC Registration #1243

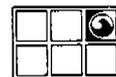


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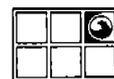
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1.0 INTRODUCTION

At the request of Sun/Mid-State Oil Company (Sun), Groundwater Technology, Inc. conducted an environmental site assessment at the former Sunoco station #0276-0007 located at 1103 Summit Avenue in Greensboro, North Carolina. The purpose of this investigation was to assess the quality of soils and groundwater at the site and to delineate the extent of petroleum hydrocarbons in the subsurface.

An initial environmental site assessment was conducted by Law Engineering during December 1992. The work scope of the initial assessment included a sensitive receptor survey, the installation of four Type II groundwater monitoring wells (MW-1 through MW-4), and soil and groundwater sampling/analysis. The completed site assessment report (Divestment Contamination Report: February 25, 1993) indicated that total petroleum hydrocarbons (TPH) as gasoline and diesel fuel were detected above the NCDEHNR action levels in the soil samples collected from borings MW-1 and MW-4. Groundwater analytical results indicated that BTEX constituents were detected in groundwater samples collected from three of the four monitoring wells in concentrations ranging from 230 micrograms per liter ($\mu\text{g/L}$) to 1.6 $\mu\text{g/L}$. Subsequent to the receipt of this report, the North Carolina Department of Environment, Health and Natural Resources (NCDEHNR) - Winston-Salem Regional Office issued a Notice of Violation (NOV) dated April 22, 1993 for violation of the groundwater quality standards.

On April 27, 1993, a 550-gallon fuel oil underground storage tank (UST) was removed from the site. According to the Tank Excavation Assessment Report prepared by Griffith Enterprises, Inc. (August 24, 1993), TPH as gasoline and diesel fuel were detected at concentrations above the NCDEHNR action levels in soil samples collected from the bottom of the UST excavation (S-1 and S-2).

Comprehensive site assessment activities were conducted by Groundwater Technology during May, June and December 1993. Investigation activities included the installation of two Type II groundwater monitoring wells and one Type III groundwater monitoring well, soil and groundwater sampling/analysis, and drill cutting material characterization. A Comprehensive Site Assessment report presenting the results of the investigation activities was submitted to the Winston-Salem Region of the NCDEHNR on January 24, 1994. Due to the lack of

delineation of the petroleum hydrocarbon plume, the NCDEHNR requested that additional assessment of the site be completed. This revised CSA presents the compilation and interpretation of the information acquired as a result of the additional assessment activities.

2.0 SITE INFORMATION REVIEW

2.1 Site Location and Surrounding Properties

The Citgo station is located at 1103 Summit Avenue in Greensboro, North Carolina (Figure 1). Local land use in the vicinity of the site is primarily commercial. Several small businesses are located northeast of the site along Summit Avenue. A Crown retail petroleum station and Libby Hill Seafood Restaurant are located east and southeast of the site, across Summit Avenue. A McDonalds restaurant is adjacent to the southwest side of the property, and the Summit Garden Center is located further southwest, across 3rd Street toward Wendover Avenue (Figure 2).

Evidence of USTs on surrounding properties was observed at the Crown retail facility east of the site. Review of selected regulatory lists by Law Engineering identified several facilities in the surrounding area of the site as having a documented contamination incident. However, none of these facilities are located within a 1,000-foot radius of the site.

2.2 Facility Description

The facility is currently operating as a Citgo retail service station/convenience store with a canopy covering two pump islands and six dispensing pumps (Figure 3). The convenience store sits on the west side of the property, with asphalt paving at the front and east sides of the store and a grassed area along the back (northwest side) of the store. Surface drainage at the site flows southwest toward a catchment basin located at the southwestern edge of the property. The retail gasoline distribution system is made up of six USTs and associated product and vent lines. The UST system reportedly consists of four 4,000-gallon gasoline USTs and one 550-gallon used oil UST. It should be noted that there is no evidence of the 550-gallon UST at the location shown on a site plan provided by Sunoco. According to the Law Engineering report, the facility used to operate as a full-service station; therefore, it is likely that bay drains were once located at the site.

2.3 Potential Receptors

The risk to potential receptors is a function of the hazard associated with a material and the level to which any receptor is exposed to that material. Potential receptors, as applied herein, are defined as humans, flora and/or fauna, and associated ecological systems (e.g., wetlands), that could be adversely affected by the presence of the various phases of petroleum hydrocarbons at the facility.

Area reconnaissance was conducted to identify potential receptors within an approximate 1,500-foot radius of the facility. Drinking water in the vicinity of the site is provided by the City of Greensboro, which obtains its water supply from reservoirs located in Guilford County. No municipal or private potable water wells were identified in the search area. Potential man-made migration routes for petroleum hydrocarbons at the site include underground utilities that run parallel to Summit Avenue. However, these utilities do not intersect the water-table, which is located at approximately 9 to 12 feet below grade. A Baptist church located approximately 400 feet north of the site was the only building with a basement identified within the 1,500-foot radius. The nearest surface waters to the site are a small branch of North Buffalo Creek located to the northwest and Muddy Creek located to the southeast, both approximately 2,500 feet from the site. North Buffalo Creek and Muddy Creek merge into Reedy Creek which empties into the Haw River.

3.0 INVESTIGATIVE METHODS

The following presents a summary of the investigative activities completed at the site during May, June and December 1993, and August 1994. Detailed descriptions of the field methods used for each investigative activity are presented in Appendix A.

3.1 Monitoring Well Installation and Soil Sampling

Two additional groundwater monitoring wells were installed at the site on May 27 and 28, 1993 to supplement the four existing Type II monitoring wells. On December 9, 1993, another monitoring well was installed off site on the adjacent property owned by the McDonald's Corporation. Two of the additional wells (MW-6 and MW-7) were constructed as shallow, Type II monitoring wells to aid in assessing the lateral extent of petroleum hydrocarbons at the site. The third additional well (VMW-5) was constructed as a Type III vertical-definition well installed to assess the vertical extent of the dissolved hydrocarbon plume. At the request of the NCDEHNR, a second Type II monitoring well (MW-9) was installed on the McDonald's property on August 17 and 18, 1994, to aid in further delineating the lateral extent of the hydrocarbon plume. A second Type III monitoring well (VMW-8) was also installed to further delineate the vertical extent of dissolved hydrocarbons at the site. All monitoring well locations are shown on the site map (refer to Figure 3).

The additional groundwater monitoring wells were installed and constructed in accordance with the corresponding protocols for Type II and Type III monitoring wells presented in Appendix A. Construction details for each monitoring well are presented in the well construction records and drilling logs (Appendix B) and are summarized in Table 1.

In addition to installation of the additional monitoring wells on August 18, 1994, three soil borings were drilled in and around the former fuel oil UST excavation in order to delineate the horizontal and vertical extent of petroleum impacted soils, and to determine whether groundwater has been impacted. Soil boring locations are shown on the attached site map.

During drilling operations, soil samples were collected from each well and soil boring according to the soil sampling protocol included in Appendix A. The material collected in each split-spoon

sampler was logged by a geologist and screened with a photoionization detector (PID) to provide a preliminary indication of the presence of volatile organic compounds (VOCs). PID readings recorded in the field are included in the drilling logs presented in Appendix B. The soil sample collected from above the water table at each well boring location exhibiting the highest PID response was retained for laboratory analysis. The soil samples exhibiting the highest PID response value from each soil boring location, and the soil sample collected at the water table from the boring drilled through the former excavation, were also retained for laboratory analysis. All of the soil samples were submitted to GTEL Environmental Laboratories, Inc. and analyzed for TPH as gasoline and diesel fuel by California GC Method SW-846 (modified EPA Method 8015) using extraction Methods 5030 and 3550, respectively.

Subsequent to installation, the newly installed monitoring wells were developed and surveyed according to the corresponding protocols included in Appendix A.

3.2 Well Gauging and Groundwater Sampling

On August 23, 1994, all monitoring wells at the site (9 total) were gauged using an electronic optical Interface Probe™ to determine the depth to water and the presence/absence of phase-separated hydrocarbons (PSH). Liquid level data from this gauging event and well-head elevation survey data are presented in Table 2. PSH have not been detected in any of the monitoring wells during any gauging event to date.

During previous investigations, groundwater samples were collected from monitoring wells MW-1 through MW-6 on June 15, 1993, and from well MW-7 on December 21, 1993. Each groundwater sample was submitted to GTEL Environmental Laboratories for the following laboratory analyses in accordance with NCDEHNR guidelines:

- Purgeable halocarbons by EPA Method 601;
- Purgeable aromatics plus methyl tertiary-butyl ether (MTBE) and isopropyl ether (IPE) by modified EPA Method 602;
- Ethylene dibromide (EDB) by EPA Method 504; and
- Semivolatile organics (base/neutrals) by EPA Method 625.

Subsequent to installation of wells VMW-8 and MW-9, groundwater samples were collected from each monitoring well at the site on August 23, 1994. All groundwater samples were

submitted to GTEL for analysis of BTEX plus MTBE and IPE by modified EPA Method 602. In addition, samples from newly installed wells VMW-8 and MW-9 were also analyzed for purgeable halocarbons by EPA Method 601, EDB by EPA Method 504 and semivolatile organics (base/neutrals) by EPA Method 625.

The field protocols used for well gauging and groundwater sampling are presented in Appendix A.

3.3 Drill Cutting Material Classification

Drill cuttings generated during each drilling event were stockpiled on site for subsequent characterization and consideration of disposal or on-site treatment options. The drill cuttings were placed on, and covered with, polyethylene sheeting for temporary on-site staging in accordance with NCDEHNR guidelines. A composite sample (CS-1) was obtained from the stockpiled soils which were generated during May drilling activities. This sample was submitted for the following laboratory analyses to determine if the material should be classified as hazardous or non-hazardous in accordance with the petroleum UST exclusion clause of the RCRA Toxicity Characteristic (TC) Rule:

- TCLP metals; and
- Reactivity, Corrosivity, and Ignitability.

Based on our experience at similar sites, it was anticipated that the drill cuttings would be suitable for reclamation at a state-approved brick manufacturing facility. Therefore, the composite sample was also analyzed for the following parameters to meet the analytical requirements of the brick manufacturer:

- BTEX by EPA Method 8020;
- TPH by EPA Methods 3550 and 5030; and
- Total Organic Halogens (TOX) by EPA Method 9020.

A second composite soil sample collected from the drill cuttings generated during investigation activities conducted in August 1994 was submitted for analysis of TCLP metals, reactivity, corrosivity and ignitability for material classification.

4.0 RESULTS

4.1 Site Geology

The site is located in the Carolina Slate Belt of the Piedmont Physiographic Province of central North Carolina. The Carolina Slate Belt includes volcanic and sedimentary rocks of Late Proterozoic to Cambrian age (Butler and Secor, 1991). These rocks are massive to well-foliated with common shearing and recrystallization.

Two geologic cross sections were prepared based on the drilling logs of the seven monitoring wells installed at the site. The lines of cross section, A-A' and B-B', are indicated in Figure 4. Cross section A-A' is oriented in a southwest-northeast direction and is presented as Figure 5. Cross section B-B' is oriented in a west-east direction and is presented as Figure 6. The geologic cross sections illustrate that the subsurface materials beneath the site are predominantly clayey and sandy silts overlain by a sandy clay layer and underlain by sandy silt/silty sands which grade downward to saprolite at approximately 30 to 42 feet below grade. Based on a decreasing rate of drill head advancement, the surface of bedrock is estimated to be approximately 35 to 40 feet below grade at VMW-5 and approximately 55 to 60 feet below grade at VMW-8.

4.2 Site Hydrogeology

During drilling operations, visibly saturated soils were encountered at depths ranging from 8 to 12 feet below grade. The static water-table levels in the monitoring wells ranged from 9.45 to 12.0 feet below grade in August 1994. Liquid-level data collected from the August 23, 1994 monitoring well gauging event are presented in Table 2. Based on these data, a water-table elevation contour map was developed and is presented as Figure 7. The water-table elevation contours indicate that the major component of shallow groundwater flow beneath the site is toward the south. It should be noted that wells VMW-5 and VMW-8 are constructed as vertical-definition wells; therefore, data from these wells was not used to determine the shallow water-table configuration.

4.3 Laboratory Analytical Results

The following sections summarize the laboratory results of the soil and groundwater samples collected during the additional assessment. Copies of the original laboratory reports are presented in Appendix C and Appendix D.

4.3.1 Soil Analytical Results

Laboratory analytical results for the soil samples collected from wells VMW-5, MW-6, MW-7 and MW-9 indicate that TPH as gasoline and diesel fuel were not detected in any of the samples. Soil analytical results of the sample collected from boring SB-1 at a depth of 4 to 6 feet indicate concentrations of TPH as gasoline and diesel fuel at concentrations of 130 mg/Kg and 1,200 mg/Kg, respectively, above NCDEHNR standards. Concentrations of TPH as diesel fuel in SB-2A were also detected above the NCDEHNR standard at a depth of 6 to 8 feet. Soil sample SB-2B (12 to 14 feet) and SB-3 (14 to 16 feet) did not indicate the presence of petroleum hydrocarbons in the soil. A summary of PID readings and corresponding laboratory analytical results of previously collected and recent soil samples is presented in Table 3. Based on the laboratory analytical results, a site map showing the approximate extent of adsorbed-phase hydrocarbons is included as Figure 8.

4.3.2 Drill Cutting Material Classification Results

Laboratory results for both composite soil samples collected from the drill cuttings indicate that the samples did not exhibit the characteristics of ignitability, reactivity or corrosivity. In addition, the laboratory results for RCRA metals analysis by TCLP indicate that none of the metals were detected above the corresponding maximum allowable TCLP concentration limit in the sample leachates. According to the petroleum UST exclusion of the RCRA TC Rule, these results indicate that the drill cuttings may be classified as a non-hazardous material. Stockpiled soils generated from the May and December drilling events have been reclaimed at Cherokee Sanford Group's brick manufacturing facility, and it is anticipated that the remaining stockpiled soils will also be reclaimed by Cherokee Sanford.

4.3.3 Groundwater Analytical Results

A summary of the groundwater sampling results from the previous comprehensive site assessment activities conducted in June and December 1993 and recent sampling results from additional assessment activities conducted in August 1994 are presented in Table 4. The corresponding NCDEHNR water quality standards are also presented for comparison.

Isoconcentration contour maps of dissolved benzene, total dissolved BTEX, and dissolved MTBE in shallow groundwater are included as Figures 9 through 11, respectively. Data from wells VMW-5 and VMW-8 were not used to generate these figures due to the depth of the well screen intervals.

The laboratory analytical results of the groundwater samples collected on August 23, 1994 indicate that dissolved benzene concentrations above the NCDEHNR groundwater quality standard ($1 \mu\text{g/L}$) were detected in the groundwater samples collected from wells MW-2, VMW-5, MW-6 and VMW-8. Dissolved benzene was not detected above the corresponding NCDEHNR standard in the groundwater samples collected from monitoring wells MW-1, MW-3, MW-4, MW-7 and MW-9. With the exception of benzene, no other BTEX constituents were detected above the corresponding NCDEHNR water quality standards at any of the wells. Concentrations of total dissolved BTEX detected at the monitoring wells range from $0.9 \mu\text{g/L}$ at MW-1 to $553.4 \mu\text{g/L}$ at MW-6. Dissolved BTEX constituents were not detected at wells MW-3 and MW-7.

The highest concentrations of dissolved MTBE were detected in the groundwater samples from wells MW-1 ($220 \mu\text{g/L}$), MW-4 ($1,000 \mu\text{g/L}$) and MW-6 ($1,600 \mu\text{g/L}$). Dissolved MTBE was also detected at wells MW-1 and VMW-8 at concentrations well below the NCDEHNR groundwater quality standard of $200 \mu\text{g/L}$. Dissolved MTBE was not detected in the groundwater samples collected from wells MW-2, MW-3, VMW-5 and MW-9. Laboratory analytical results also indicate that IPE was detected at seven of the nine monitoring wells sampled, with the exception of wells MW-3 and MW-9.

Previous and recent analytical results from EPA Method 601 (purgeable halocarbons) indicate that 1,2-dichloroethane (1,2-DCA) was detected at wells MW-1, MW-2, MW-4, VMW-5, MW-6 and VMW-8, 1,2-dichloroethene (1,2-DCE) was detected at well MW-7, and bromodichloromethane, tetrachloroethene and chloroform were also detected at well VMW-8. In addition, one semivolatile organic compound, naphthalene, was detected at wells MW-4 and MW-6, and EDB was also detected in the groundwater sample collected from well MW-6.

5.0 INTERPRETATIONS AND CONCLUSIONS

5.1 Petroleum Hydrocarbons in Soil

Laboratory analytical results from the previous site assessment conducted by Law Engineering on December 3, 1992 indicated that petroleum hydrocarbons were detected in the soil samples collected at the site. TPH as gasoline and diesel fuel were detected above the corresponding NCDEHNR standards in well boring samples MW-1 (69 mg/Kg as gasoline, 240 mg/Kg as diesel fuel) and MW-4 (11 mg/Kg as gasoline, 70 mg/Kg as diesel fuel). Monitoring well MW-1 is located adjacent to the suspected location of the 550-gallon used oil UST and well MW-4 is located adjacent to the gasoline UST area. In addition, TPH as gasoline and diesel fuel were detected above the NCDEHNR action levels in soil samples collected from the fuel oil UST excavation at the back of the building.

During recent site assessment activities, soil samples were collected from four of the five additional well borings (VMW-5, MW-6, MW-7 and MW-9) at depths ranging from 6 to 12 feet below grade, with PID readings ranging from 2.4 to 322. Monitoring well VMW-5 is located adjacent to the east side of the gasoline UST area and downgradient from well MW-2 (previously the well with the highest total BTEX concentration in groundwater). Monitoring wells MW-6 and MW-9 are located hydraulically downgradient (south) of the gasoline UST area and the pump islands, and MW-7 is located approximately 150 feet south of the pump islands. Laboratory results of soil samples collected from these borings indicated that TPH as gasoline and diesel fuel were not detected. Therefore, based on past and present laboratory analytical data, the highest concentrations of petroleum hydrocarbons in the adsorbed phase are in the form of both gasoline and diesel fuel constituents and appear to be localized in the vicinity of wells MW-1 and MW-4 (refer to Figure 8).

In addition, soil samples collected from borings at the former fuel oil UST excavation indicate adsorbed-phase hydrocarbons in and around the former excavation. Based on the laboratory results and PID readings, it appears that the adsorbed-phase hydrocarbons are concentrated at depths ranging between 4 and 9 feet below grade. Results from soil sample SB-2B indicate that petroleum hydrocarbons do not appear to be present at the water table and therefore, do not appear to have impacted the groundwater in the vicinity of the former fuel oil UST.

5.2 Petroleum Hydrocarbons in Groundwater

Based on Groundwater Technology's interpretation of the North Carolina Classifications and Water Quality Standards (15A NCAC 2L), groundwater at the site is classified as Class GA groundwater. This classification represents groundwater that is an existing or potential source of: 1) drinking water for humans, 2) water supply for potable mineral water and conversion to fresh waters, and/or 3) water supply for purposes other than drinking.

Laboratory analytical results from the August 23, 1994 sampling event indicate that dissolved benzene was detected above the NCDEHNR groundwater quality standard in samples collected from two of the seven shallow, Type II monitoring wells at the site (MW-2 and MW-6). Laboratory analytical results also indicate that, with the exception of benzene, dissolved BTEX constituents were not detected above any of the corresponding NCDEHNR water quality standards in the groundwater samples obtained from any of the Type II monitoring wells. Based on the groundwater analytical data, the extent of dissolved BTEX appears to have been delineated on the northeast and west sides of the site by wells MW-3 and MW-1, and to the south-southwest by wells MW-7 and MW-9. The extent of the hydrocarbon plume to the east and southeast of the site has not been fully delineated due to the fact that the site borders Summit Avenue, a four lane highway. The extent of dissolved BTEX hydraulically upgradient (north) has not yet been delineated as indicated by hydrocarbon concentrations at MW-2 (refer to Figures 9 and 10). Groundwater Technology contacted the owner of the property adjacent to the north side of the site (Electrolux Vacuum Sales and Service) on July 10, 1994, and access to the property for the purpose of installing a monitoring well was denied.

Dissolved MTBE concentrations exceeding the NCDEHNR standard were detected in the groundwater samples obtained from wells MW-1, MW-4 and MW-6. Because MTBE is more water soluble and has a lower affinity for soil adsorption than BTEX constituents, it usually represents the leading edge of the hydrocarbon plume. The lateral extent of MTBE has been delineated to the northeast and southwest by wells MW-3, MW-2, MW-7 and MW-9, and may be inferred hydraulically upgradient of the gasoline UST area. The extent of dissolved MTBE has not been delineated on the northwest side of the UST area or east-southeast of the UST area and pump islands as indicated by the concentrations of MTBE at wells MW-4 and MW-6 (refer to Figure 11).

In addition to the above constituents, previous and recent laboratory results indicate concentrations of 1,2-DCA and IPE in several of the monitoring wells, along with naphthalene in wells MW-4 and MW-6, EDB in well MW-6, and 1,2-DCE in well MW-7. With the exception of 1,2-DCE, the presence of these constituents would be consistent with the operation of the facility for the sale of retail petroleum due to their use as gasoline additives. 1,2-DCE is not a petroleum constituent or additive; therefore, the source of this compound at well MW-7 is not known.

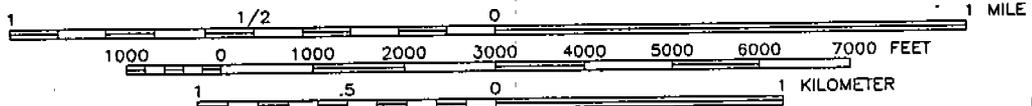
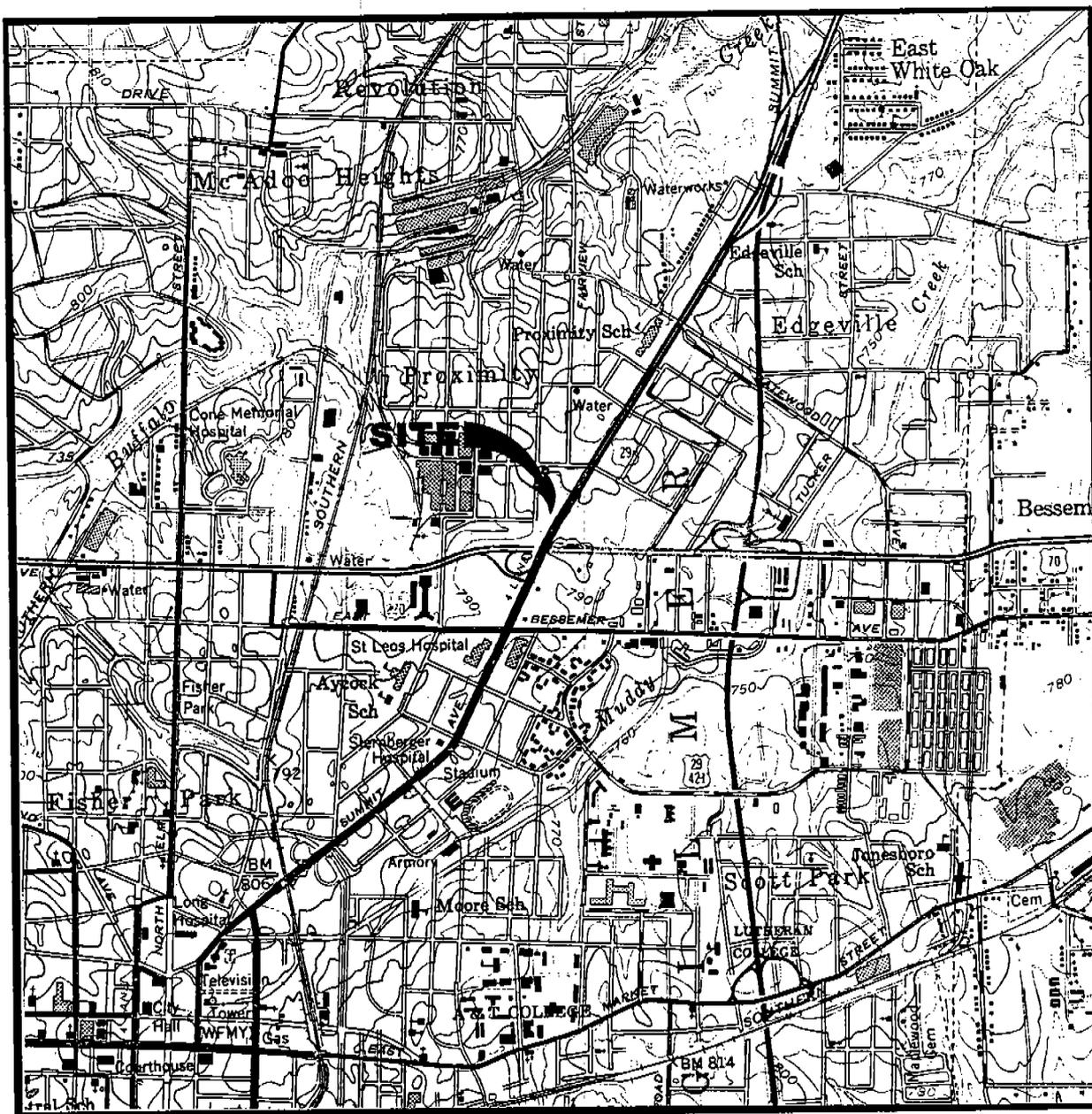
Dissolved benzene was detected at a concentration of 2.2 $\mu\text{g/L}$, slightly above the NCDEHNR groundwater quality standard, in the sample collected from vertical-definition well VMW-8. Other BTEX constituents and MTBE were not detected above corresponding NCDEHNR groundwater quality standards at VMW-8. Based on this data, it appears that the vertical extent of the dissolved hydrocarbon plume at the site can be inferred at a depth of 55 feet below grade (Figure 5). In addition, however, various compounds including IPE, 1,2-DCA, bromodichloromethane, tetrachloroethene and chloroform were also detected at well VMW-8.

5.3 Recommendations

In order to fully assess the upgradient extent of the hydrocarbon plume, Groundwater Technology requests the assistance of the NCDEHNR in obtaining access to the Electrolux property for the purpose of installing a groundwater monitoring well. Installation of a monitoring well east-southeast of the site for the purpose of delineating the dissolved plume would not be practical without placing the well in the middle of Summit Avenue, a high traffic, four lane highway. Furthermore, there are no potential receptors (potable wells, surface waters, etc.) within 1,500 feet downgradient of the site. Based on the configuration of the dissolved plume, corrective action can be implemented to address the mass of hydrocarbon constituents.

Groundwater Technology recommends the pilot testing of remedial alternatives in order to evaluate their technical and economic feasibilities. Upon review of the additional assessment information and the pilot testing results, Groundwater Technology will select the most effective and economic remediation technology. A Corrective Action Plan (CAP) detailing the design and specifications of the appropriate system will be prepared and forwarded to the Sun/Mid-State Oil Company for subsequent submittal to the NCDEHNR. In addition, the CAP will address monitoring the migration of groundwater downgradient of the site, across Summit Avenue.

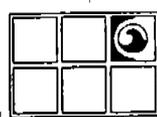
FIGURES



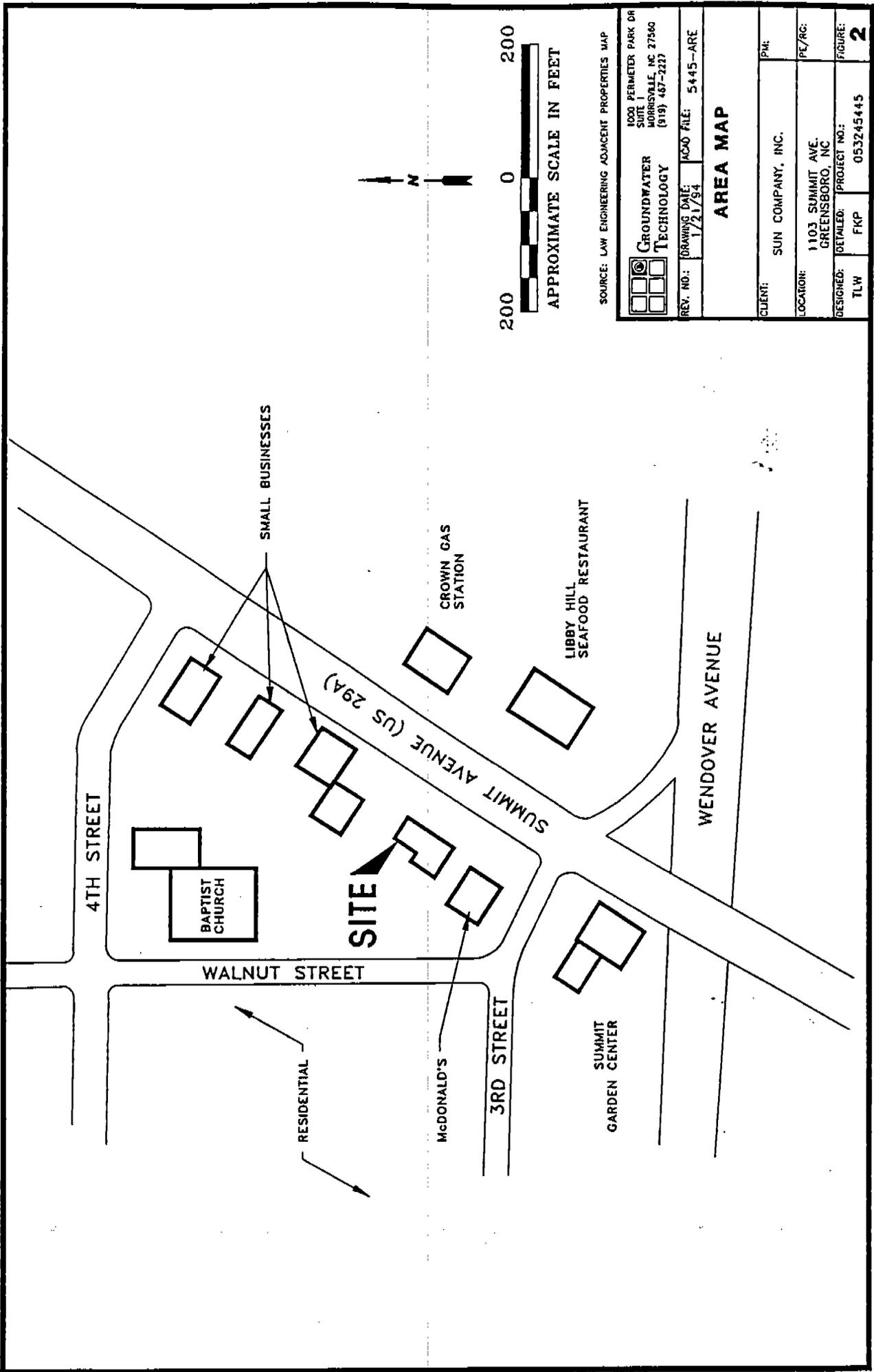
QUADRANGLE LOCATION

FIGURE 1
SITE LOCATION MAP
SUN COMPANY, INC.
 1103 SUMMIT AVE.
 GREENSBORO, NORTH CAROLINA
 053245445

GREENSBORO, NC
 7.5' QUADRANGLE
 36079-A7-TF-024
 1968



GROUNDWATER
TECHNOLOGY, INC.



SOURCE: LAW ENGINEERING ADJACENT PROPERTIES MAP


 GROUNDWATER
 TECHNOLOGY
 1000 PERMETER PARK DR
 SUITE 1
 MORRISVILLE, NC 27560
 (919) 487-2227

REV. NO.:
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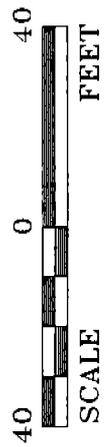
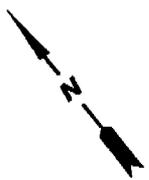
AREA MAP	
CLIENT:	SUN COMPANY, INC.
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC
DESIGNED:	TLW
PROJECT NO.:	053245445
FIGURE:	2

200 0 200
 APPROXIMATE SCALE IN FEET

LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- SD UNDERGROUND STORM DRAIN
- W UNDERGROUND WATER LINE
- ⊙ SOIL BORING

NOTE: OVERHEAD UTILITY LINES RUN PARALLEL TO SUMMIT AVENUE.



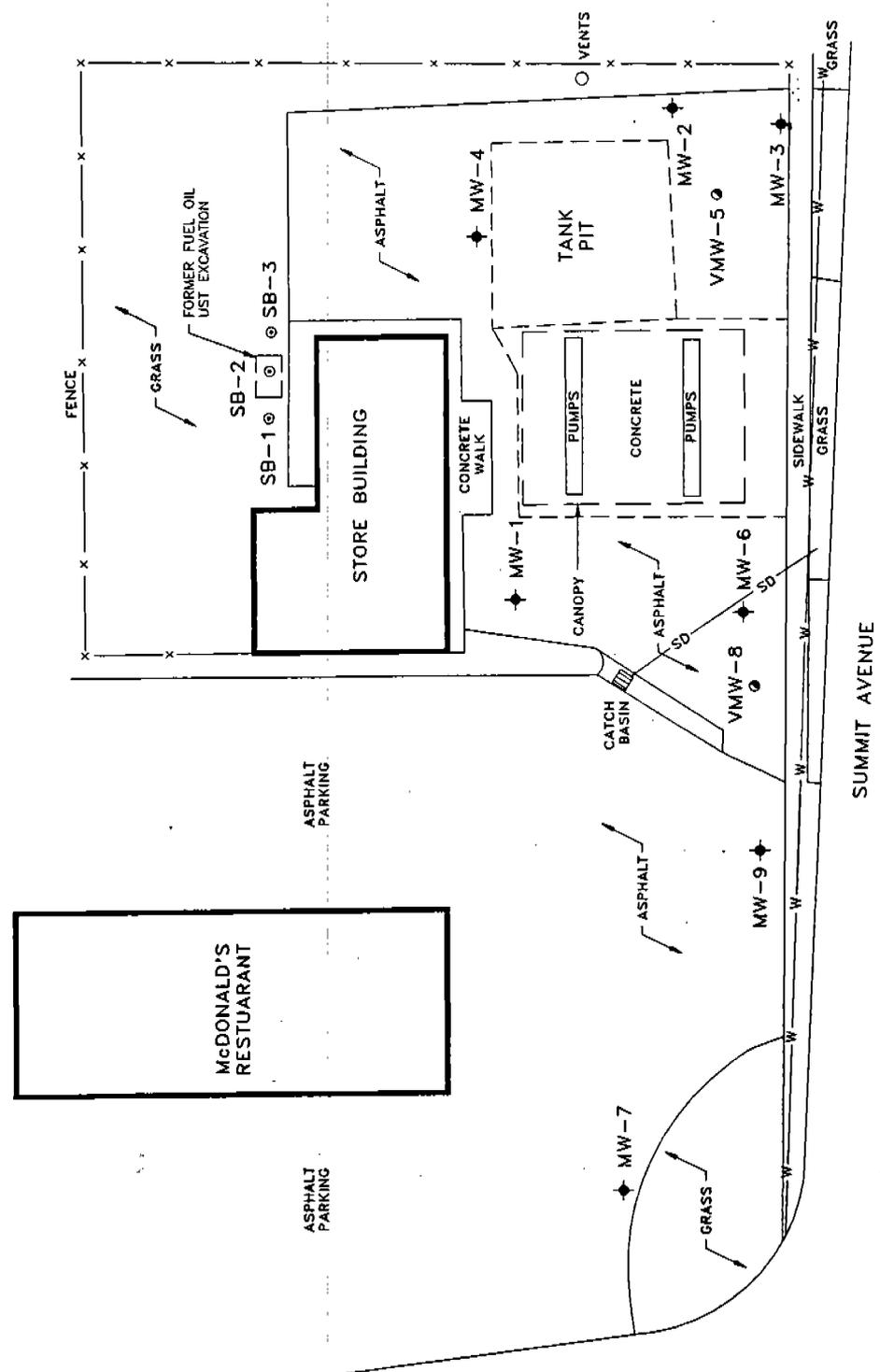
SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE 1
MORRISVILLE, NC 27560
(919) 467-2227

REV. NO.: DRAWING DATE: 1/21/94 ACAD FILE: 5445-SIT

SITE MAP

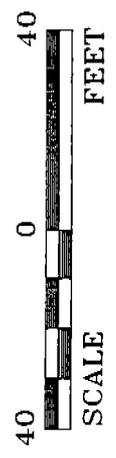
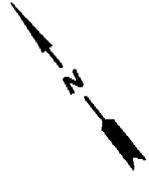
CLIENT:	SUN COMPANY, INC.	PM:	
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC	PE/RC:	
DESIGNED:	TLW	PROJECT NO.:	053245445
FIGURE:			3



SUMMIT AVENUE

LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL



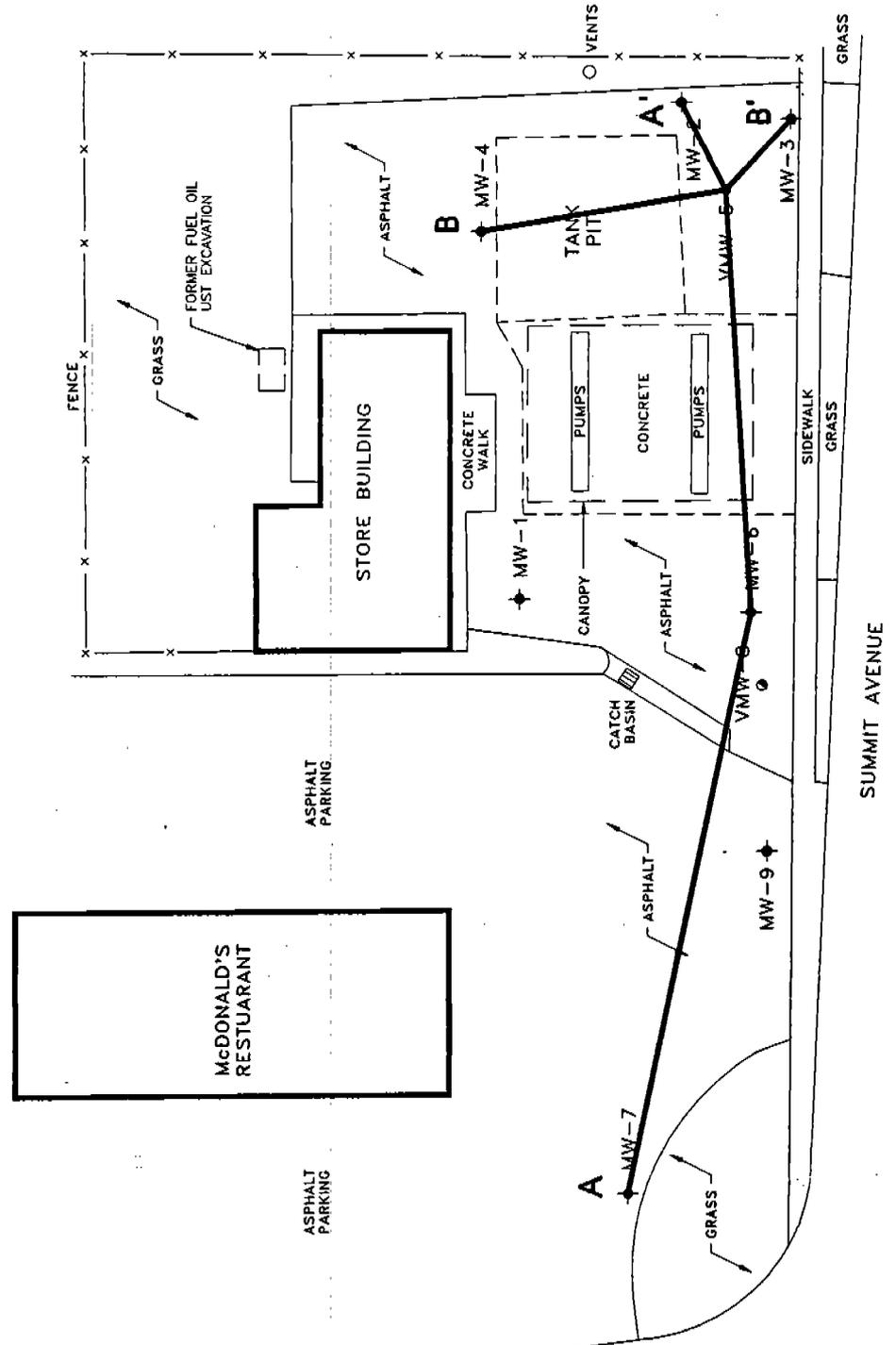
SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

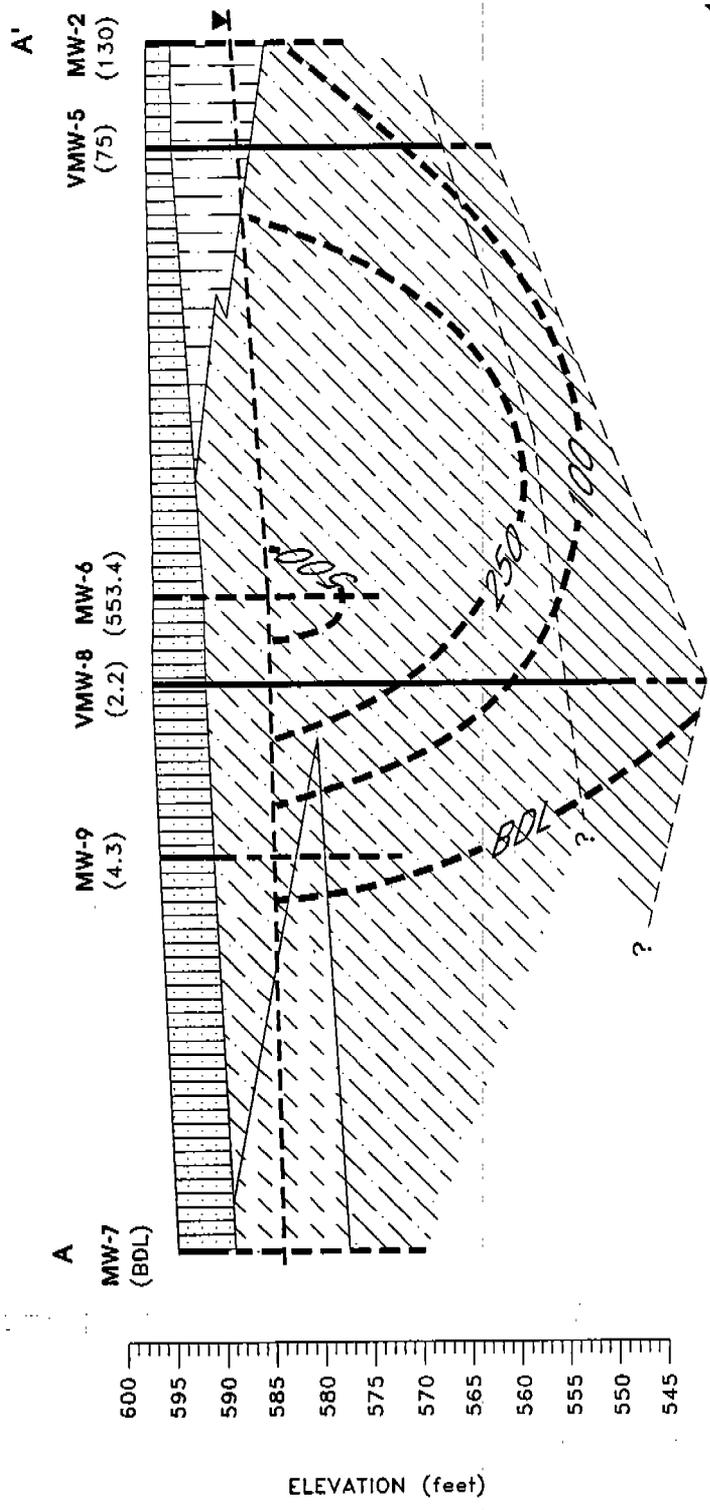
GROUNDWATER TECHNOLOGY
 1000 PERIMETER PARK DR
 SUITE 100
 GREENSBORO, NC 27560
 (919) 467-2227

REV. NO.: DRAWING DATE: 1/21/94
 JACO FILE: 5445-SIT

LINES OF GEOLOGIC CROSS-SECTIONS A-A' & B-B'

CLIENT:	SUN COMPANY, INC.	PM:	
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC	PE/RG:	
DESIGNED:	TLW	PROJECT NO.:	053245445
	FKP	FIGURE:	4





VERTICAL SCALE AS SHOWN



HORIZONTAL SCALE IN FEET

SOURCE: WELL LOG INFORMATION

GROUNDWATER TECHNOLOGY
 1000 PERMIER PARK DR
 SUITE 1
 MORRISVILLE, NC 27560
 (919) 467-2227

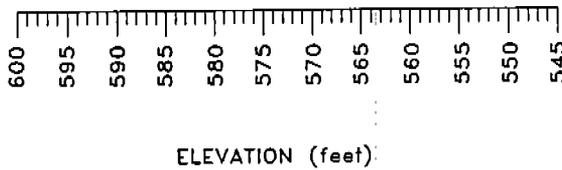
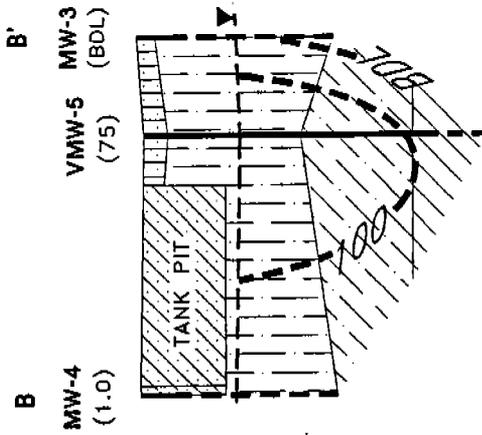
REV. NO.:
 DRAWING DATE: 1/21/94
 ACAD FILE: 5445-XAA

GEOLOGIC CROSS-SECTION A-A'

CLIENT:	SUN COMPANY, INC.	PM:	
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC	PE/RC:	
DESIGNED:	TLW	PROJECT NO.:	053245445
	FKP		FIGURE: 5

LEGEND

- SANDY/CLAYEY SILT
- SANDY CLAY
- SANDY SILT/SILT
- SANDY SILT
- SILT
- SAPROLITE
- WATER-TABLE ELEVATION (feet)
- WELL CASING
- WELL SCREEN
- (4.3)
- 100
- BDL



LEGEND

-  SANDY/CLAYEY SILT
-  SANDY CLAY
-  SAPROLITE
-  WATER-TABLE ELEVATION (feet)
-  CLAYEY SAND (FILL)
-  SANDY SILT/SILTY SAND
-  WELL CASING
-  WELL SCREEN

DISSOLVED TOTAL BTEX CONCENTRATION (ug/L) (75)

DISSOLVED TOTAL BTEX ISOC ONCENTRATION CONTOUR (ug/L), **100**

BDL BELOW DETECTION LIMIT

VERTICAL SCALE AS SHOWN



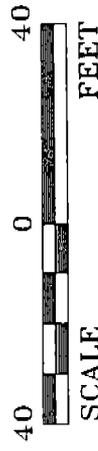
HORIZONTAL SCALE IN FEET

SOURCE: WELL LOG INFORMATION

		1000 PERIMETER PARK DR SUITE 1 MORRISVILLE, NC 27560 (919) 467-2227	
REV. NO.:	DRAWING DATE:	ACAD FILE:	
	1/21/94	5445-XBB	
GEOLOGIC CROSS-SECTION B-B'			
CLIENT:	SUN COMPANY, INC.		
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC		
DESIGNED:	TLW	PROJECT NO.:	053245445
	FKP	FIGURE:	6

LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- (587.17) ELEVATION OF WATER IN FEET
- INFERRED CONTOUR



SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE 1
MORRISVILLE, NC 27560
(919) 467-2227

REV. NO.: DRAWING DATE: 1/21/94 ACAD FILE: 5445-SIT

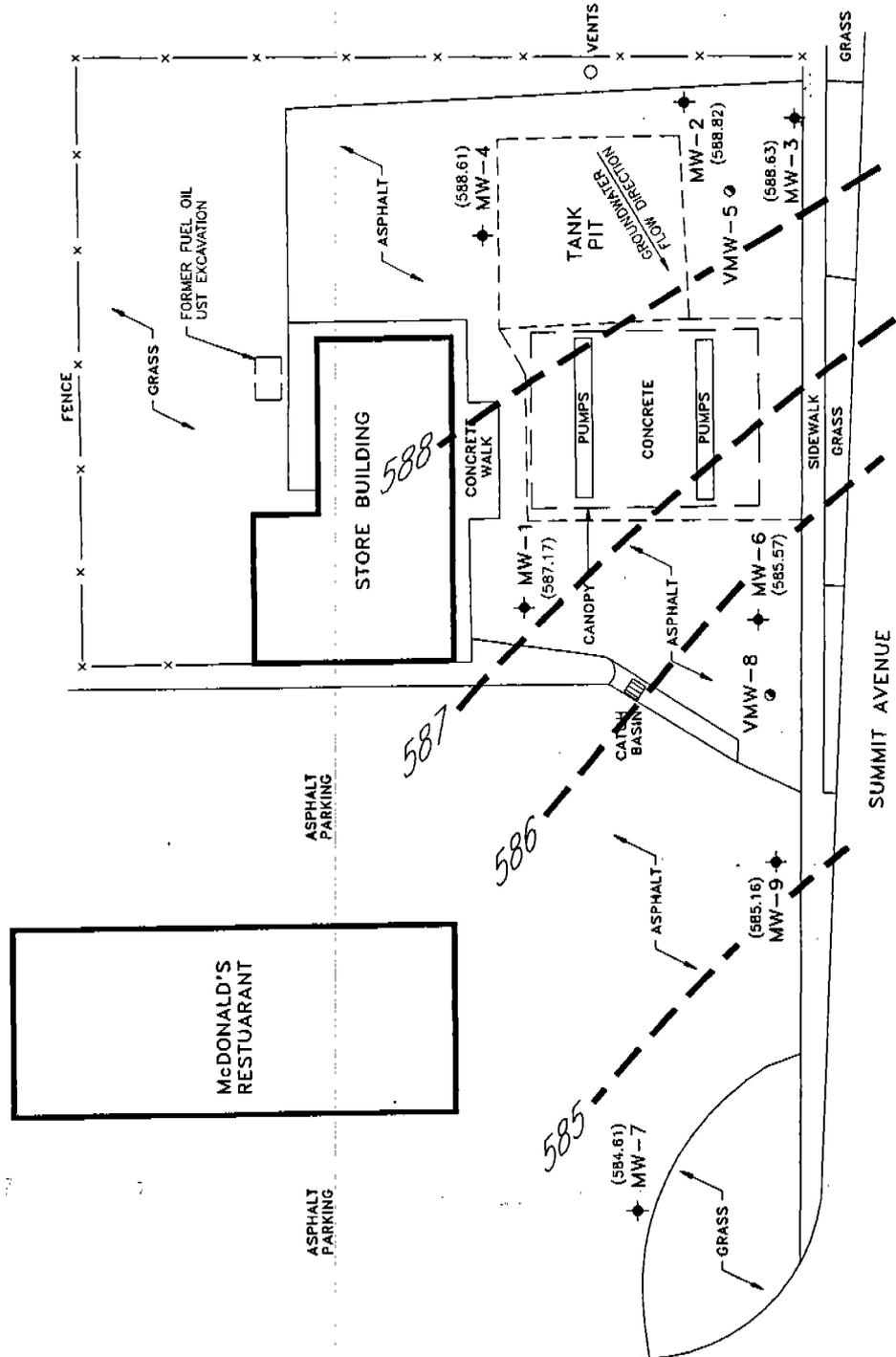
WATER TABLE ELEVATION CONTOUR MAP (ft.)
AUGUST 23, 1994

CLIENT: SUN COMPANY, INC.

LOCATION: 1103 SUMMIT AVE.
GREENSBORO, NC

DESIGNED: TLW PROJECT NO.: 053245445
CHECKED: FKP

FIGURE: **7**



LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- ◌ APPROXIMATE AREA OF TPH IN SOIL

TPH	CONCENTRATION (mg/kg)
AS GAS	130
AS DIESEL	1,200

TPH	CONCENTRATION (mg/kg)
AS GAS	11
AS DIESEL	70

TPH	CONCENTRATION (mg/kg)
AS GAS	59
AS DIESEL	240



SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

1000 PERIMETER PARK DR
 SUITE 1
 MORRISVILLE, NC 27560
 (919) 467-2227

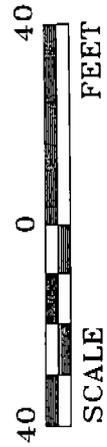
REV. NO.:
 DRAWING DATE: 1/21/94
 ACAD. FILE: 5445-SIT

APPROXIMATE EXTENT OF TOTAL PETROLEUM HYDROCARBONS IN SOIL

CLIENT:	SUN COMPANY, INC.
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC
DESIGNED:	TLW FKP
PROJECT NO.:	053245445
PE/RC:	
FIGURE:	8

LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- (130) CONCENTRATION OF DISSOLVED BENZENE (ug/L)
- - - INFERRED CONTOUR



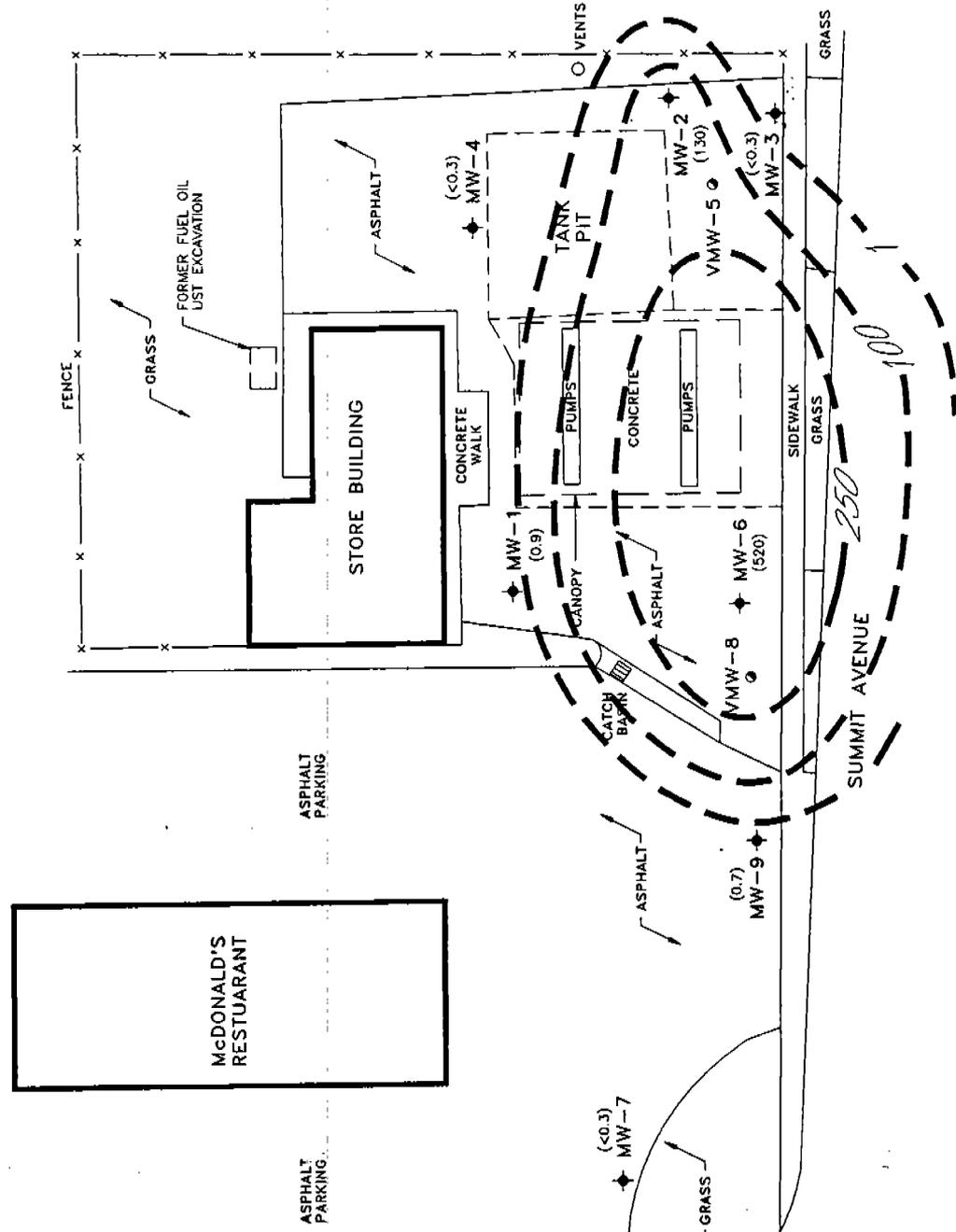
SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE 1
MORRISVILLE, NC 27560
(919) 467-2227

REV. NO.: 1
DRAWING DATE: 1/21/94
ACAD FILE: 5445-SIT

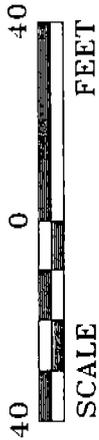
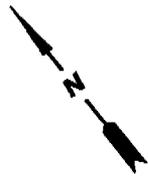
**DISSOLVED BENZENE
ISOCONCENTRATION CONTOUR MAP
AUGUST 23, 1994**

CLIENT:	SUN COMPANY, INC.	PM:	
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC	PE/RO:	
DESIGNED:	TLW	PROJECT NO.:	053245445
FIGURE:	FKP		9



LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- (130) CONCENTRATION OF DISSOLVED TOTAL BTEX (ug/L)
- INFERRED CONTOUR
- (BDL) BELOW DETECTION LIMITS

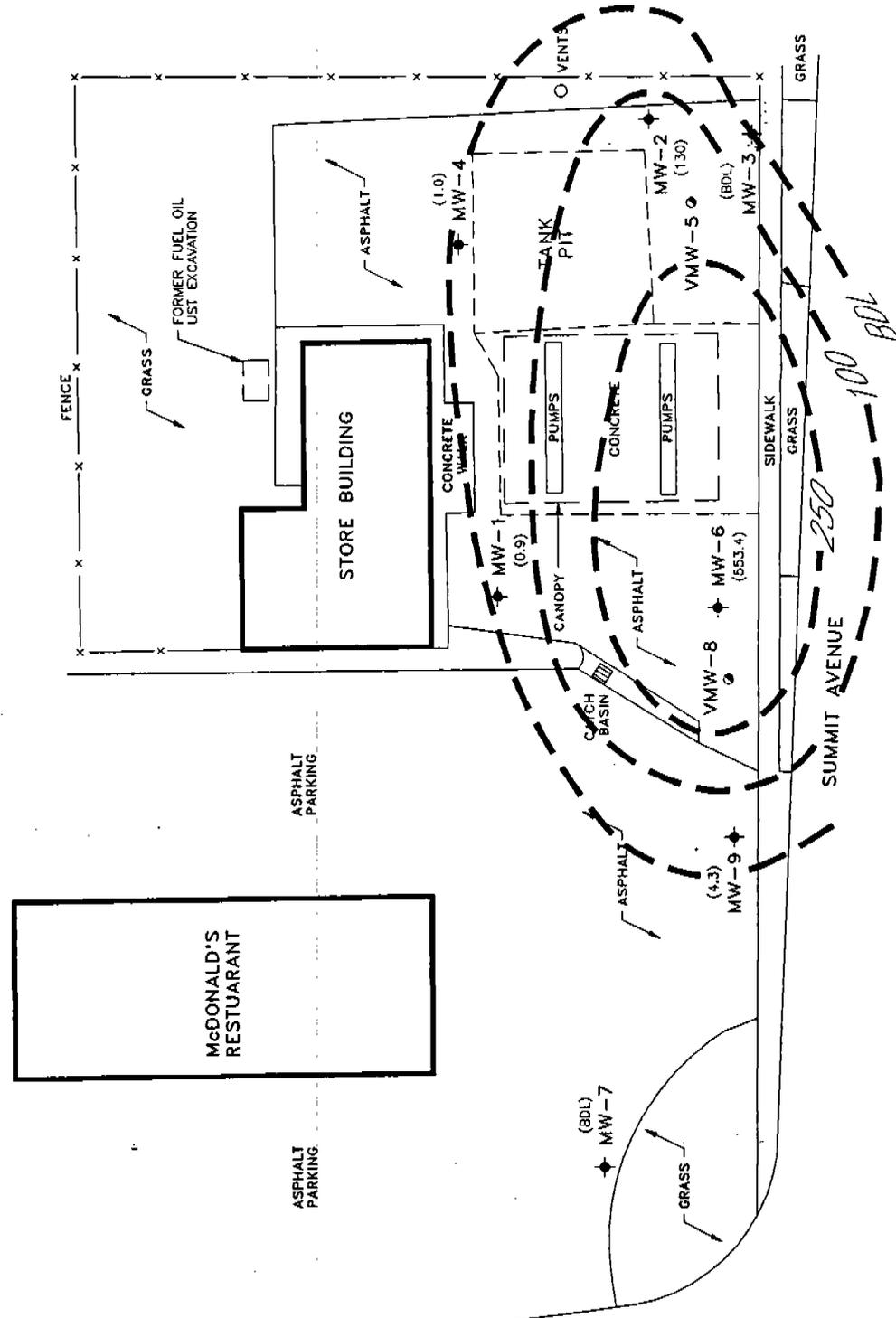


SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

	GROUNDWATER TECHNOLOGY 1000 PERIMETER PARK DR SUITE 1 MORRISVILLE, NC 27560 (919) 467-2227
	REV. NO.: 1/21/94 DRAWING DATE: ACAD FILE: 5445-SIT

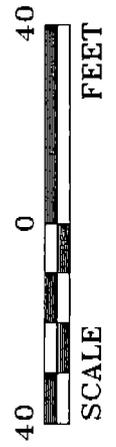
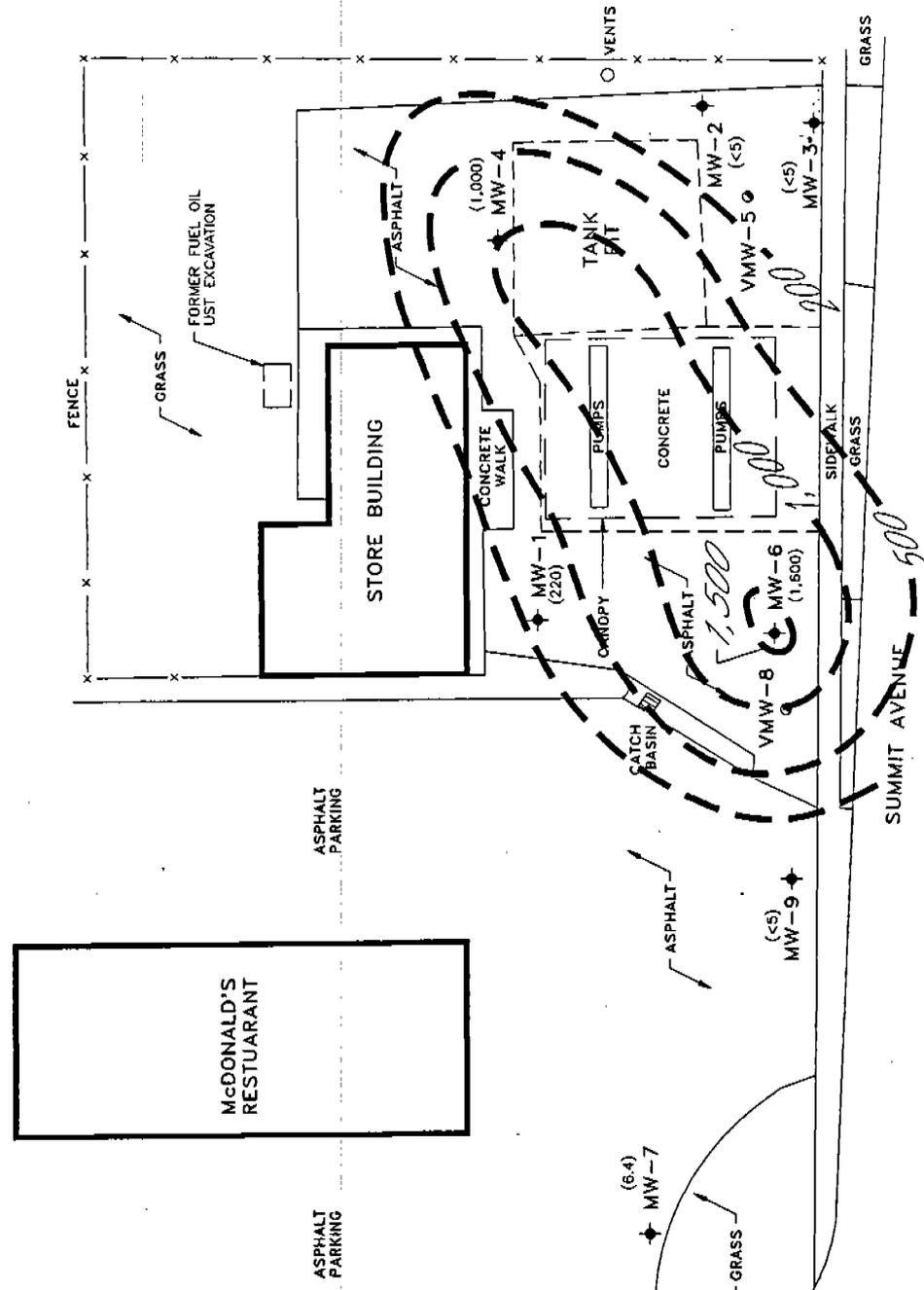
**DISSOLVED TOTAL BTEX
ISOCONCENTRATION CONTOUR MAP
AUGUST 23, 1994**

CLIENT:	SUN COMPANY, INC.	PI:	
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC	PE/RG:	
DESIGNED:	TLW	PROJECT NO.:	053245445
DETAILED:	FKP	FIGURE:	10



LEGEND

- ◆ MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- (220) CONCENTRATION OF DISSOLVED MTBE (ug/L)
- - - INFERRED CONTOUR



SOURCE: JAMES L. HAINES & ASSOC. - 6/24/93 SURVEY

GROUNDWATER TECHNOLOGY
 1000 PERIMETER PARK DR
 SUITE
 MORRISVILLE, NC 27560
 (919) 467-2227

REV. NO.: DRAWING DATE: 1/21/94 ACAD FILE: 5445-SIT

**DISSOLVED MTBE ISOCONCENTRATION CONTOUR MAP
 AUGUST 23, 1994**

CLIENT:	SUN COMPANY, INC.	PM:	
LOCATION:	1103 SUMMIT AVE. GREENSBORO, NC	PE/RC:	
DESIGNED:	TLW	PROJECT NO.:	053245445
DRAWN:	FKP	FIGURE:	11

TABLES

**TABLE 1
MONITORING WELL CONSTRUCTION DETAILS**

Sun Company, Inc
1103 Summit Ave.
Greensboro, North Carolina

WELL DESIGNATION	TOTAL DEPTH (ft)	SCREENED INTERVAL (ft. below grade)	WELL DIAMETER (inches)	WELL TYPE*
MW-1	20	5-20	4	Type II
MW-2	20	5-20	4	Type II
MW-3	20	5-20	4	Type II
MW-4	20	5-20	4	Type II
VMW-5	35	30-35	2	Type III
MW-6	23	3-23	4	Type II
MW-7	25	5-25	2	Type II
VMW-8	55	50-55	2	Type II
MW-9	24	9-24	2	Type III

Notes:

**Type II Well: Shallow groundwater monitoring well.*

**Type III Well: Vertical definition monitoring well.*

TABLE 2
WATER - TABLE ELEVATIONS

DATE: 8/23/94

Sun-Company, Inc
1103 Summit Ave.

Greensboro, North Carolina

WELL IDENTIFICATION	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	DEPTH TO PRODUCT (Feet)	PRODUCT THICKNESS	WATER - TABLE ELEVATION (Feet)	COMMENTS
MW-1	597.61	10.44	--	--	587.17	--
MW-2	598.53	9.71	--	--	588.82	--
MW-3	598.84	10.21	--	--	588.63	--
MW-4	598.56	9.95	--	--	588.61	--
VMW-5	598.21	9.75	--	--	588.46	--
MW-6	597.57	12.00	--	--	585.57	--
MW-7	595.14	10.53	--	--	584.61	--
VMW-8	597.35	10.64	--	--	586.71	--
MW-9	597.11	11.95	--	--	585.16	--

Notes:

Depth to water measured relative to top of casing.

Well head elevations measured relative to site - specific datum.

TABLE 3
SOIL ANALYTICAL RESULTS
 Sun Company, Inc.
 1103 Summit Ave.
 Greensboro, North Carolina

Sample Designation	Sample Date	Sample Depth Exhibiting Highest PID Reading (ft)*	PID Response**	TPH as Diesel (mg/kg)	TPH as Gasoline (mg/kg)
MW-1	12/3/92	3.5-5	>1000	240	69
MW-2	12/3/92	3.5-5	30	<4	<4
MW-3	12/3/92	13.5-15	18	<4	<4
MW-4	12/3/92	3.5-5	>1000	70	11
VMW-5	5/27/93	6-8	322	<10	<1.0
MW-6	5/27/93	6-8	4.9	<10	<1.0
MW-7	12/9/93	7-9	22.5	<10	<1.0
VMW-8	8/17/94	34-36	26.6	NA	NA
MW-9	8/18/94	10-12	2.4	<10	<1
SB-1	8/18/94	4-6	148	1200	130
SB-2A	8/18/94	6-8	148	160	<5
SB-2B	8/18/94	12-14	9.1	<10	<1
SB-3	8/18/94	14-16	5.8	<10	<1

Notes:

* Depth at which sample was collected.

** PID response as calibrated to isobutylene.

TPH - Total Petroleum Hydrocarbons

NA - Not Analyzed

TABLE 4
GROUNDWATER ANALYTICAL RESULTS (ug/L)
Sun Company, Inc.
1103 Summit Ave.
Greensboro, North Carolina

SAMPLE DESIGNATION: SAMPLE DATE:	MW-1		MW-2		MW-3		MW-4		VMW-5		MW-6		MW-7		VMW-8		MW-9		NC Standard
	6/15/93	8/23/94	6/15/93	8/23/94	6/15/93	8/23/94	6/15/93	8/23/94	6/15/93	8/23/94	12/21/93	8/23/94	8/23/94	8/23/94	8/23/94	8/23/94	8/23/94		
Volatile Organic Compounds																			
Benzene	0.7	0.9	120	130	<0.3	<0.3	33	<0.3	54	75	820	520	<0.3	<0.3	2.2	<0.3	0.7	1	
Toluene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	2	<0.3	<0.3	<0.3	5	7.4	<0.3	<0.3	<0.3	<0.3	<0.3	1000	
Ethylbenzene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.7	<0.3	<0.3	<0.3	10	6	<0.3	<0.3	<0.3	<0.3	<0.3	29	
Xylene, total	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	21	<0.5	<0.5	<0.5	45	20	<0.5	<0.5	<0.5	<0.5	3.6	530	
BTEX, total	0.7	0.9	120	130	--	--	57	1.0	54	75	881	553.4	--	--	2.2	4.3	--	--	
MTBE	140	220	<5	<5	<5	<5	770	1000	<5	<5	1800	1600	<5	6.4	8.8	<5.0	200		
IPE	29	20	82	120	<1	<1	430	140	30	49	<1	14	99	67	18	<1.0	NL		
EOB	<0.02	NA	0.58	NA	<0.02	NA	<0.02	<0.02	0.0004										
Semivolatile Organics*																			
Naphthalene	<10	NA	<10	NA	NA	NA	19	NA	<10	NA	17	NA	<10	NA	<10	<10	NL		
Purgeable Halocarbons*																			
1,2-Dichloroethane	5	NA	11	NA	NA	NA	9	NA	4	NA	120	NA	<0.5	NA	1.6	<0.5	0.38		
1,2-Dichloroethene	<0.5	NA	<0.5	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	30	NA	<0.5	<0.5	70		
Bromodichloromethane	<0.5	NA	<0.5	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	2.0	<0.5	NL		
Tetrachloroethene	<0.5	NA	<0.5	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	1.7	<0.5	NL		
Chloroform	<0.5	NA	<0.5	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	9.4	<0.5	0.19		

Notes:
*Only those analytes detected above the quantitation limit are recorded.
NL - No established standard listed by the NCDEHNR.
NA - Not Analyzed

APPENDIX A
FIELD METHODS AND PROTOCOLS

MONITORING WELL INSTALLATION AND CONSTRUCTION
Shallow (Type II) Wells Completed in Unconsolidated Material

The shallow (Type II), water-table wells were drilled with a truck-mounted drilling rig equipped with hollow-stem augers. The augers and all drilling equipment were steam cleaned prior to drilling at each location and after completion of the last boring.

Each well was installed through the augers to ensure proper construction and placement, and is constructed of Schedule 40 PVC solid casing and factory slotted well screen (0.02-inch slots) connected by threaded, flush joints. The wells were completed with a sufficient length of well screen so that the screened interval extends approximately 5 feet above and 10 feet below the static depth of the water table. The screen of each well is equipped with a PVC bottom cap. The solid PVC casing of each well extends from the top of the well screen to approximately 6-inches below grade. The annular space of each well is packed with washed sand to a minimum level of 1 foot above the top of the well screen. A one-foot-thick bentonite seal rests on top of the sand pack, above which a Portland cement grout extends to approximately 4 inches below the top of the PVC casing. The PVC casing of each well is equipped with a sealed, locking cap to prevent unauthorized access. In addition, each well casing is protected with a steel, water-tight manhole set to grade within a concrete pad. Each shallow, water-table well was constructed in accordance with NCDEHNR well construction specifications.

MONITORING WELL INSTALLATION AND CONSTRUCTION
Vertical Definition (Type III) Wells Completed in Unconsolidated Material

The deep (Type III), vertical definition well was drilled with a truck-mounted drilling rig using both hollow stem auger and rotary drilling techniques. The vertical definition well is double-cased to isolate the deep well screen from the shallow portion of the aquifer. The augers, drill pipe, and roller bit were steam cleaned prior to initiation of drilling.

To construct the deep well, hollow stem augers were advanced through the shallow portion of the water-table aquifer, and Schedule 40 PVC outer casing was placed through the augers up to grade. The inside of the outer casing was sealed at the base with a 1- to 2-foot thick cement grout seal, and the annular space surrounding the casing was filled with a cement/bentonite grout that was allowed to cure for approximately 18 to 24 hours. After the curing period, water standing in the casing was removed by pumping, and drilling was continued with a roller bit to the total depth of the well. During drilling, clean water was circulated through the roller bit to remove drill cuttings and to prevent collapse of the borehole.

The vertical definition well was installed through the outer casing, and is constructed of 2-inch ID, Schedule 40 PVC, solid casing and factory-slotted well screen (0.02-inch slots) connected by threaded, flush joints. The well was completed with 5 feet of screen equipped with a PVC bottom cap. The solid PVC casing extends from the top of the well screen to approximately 6-inches below grade. The annular space surrounding the well is packed with washed sand to a level of approximately 1 to 2 feet above the top of the well screen. A one-foot-thick bentonite seal rests on top of the sand pack, above which a cement grout extends to approximately 4 inches below the top of the PVC casing. The PVC casing is equipped with a sealed, locking cap to prevent unauthorized access. In addition, the well casing is protected with a steel, water-tight manhole set to grade within a concrete pad. The deep, vertical definition well was constructed in accordance with NCDEHNR well construction specifications.

SOIL SAMPLING PROTOCOL

During drilling operations, soil samples were collected using 2-foot-long, split-spoon samplers. The split-spoon samplers were washed with alkaline soap and water and rinsed with distilled water prior to each use. At each drilling location, soil samples were collected in 2-foot intervals at selected depths to the completion depth of drilling. The depths from which soil samples were collected at each location are indicated in the drilling logs presented in Appendix B. The split-spoon samplers were advanced using a 140-pound sliding hammer, and the number of hammer blows required to advance the split spoons in successive 6-inch increments was recorded.

A description of the soils retained in each split-spoon sampler was logged by a geologist, and representative portions of the material were placed into labeled laboratory containers that were promptly placed on ice in a cooler. A separate representative portion of each soil sample was placed in a resealable plastic bag and allowed to equilibrate for a minimum of 15 minutes. After the equilibration period, either a photoionization detector (PID) or a flame ionization detector (FID) probe was inserted into each resealable bag and a headspace reading of total volatile organic compounds (VOCs) was recorded. The PID/FID response values recorded in the field are indicated in the drilling logs presented in Appendix B. After completion of drilling at each location, the PID/FID response values for all soil samples were evaluated in the field. The soil sample from each drilling location that exhibited the highest PID/FID response value was retained and submitted for laboratory analysis along with completed chain-of-custody forms. In the event that no PID/FID response was observed for any of the soil samples collected at a drilling location, the sample collected from immediately above the water table was retained and submitted for laboratory analysis.

WELL DEVELOPMENT PROTOCOL

Following construction and installation, the monitoring wells were developed using an air lift/purge technique to remove sediment from within the well and annular gravel pack, and to ensure proper hydraulic connection between the well and surrounding aquifer material. The well development assembly consisted of a compressed-air line, equipped with an in-line oil filter, that was passed through the center of an approximately 3-foot length of solid, Schedule 40, PVC casing that was attached to the well head with a PVC slip coupling. The solid casing was fitted with a PVC, side-discharge pipe to allow water purged during development to be conveyed to a steel, 55-gallon drum for containment prior to treatment.

Prior to initiation of the development process at each well, the compressed-air line was washed with alkaline soap and water and was rinsed with distilled water. The free end of the compressed-air line was then lowered into each well below the water table, and the top of the solid casing was sealed with duct tape. Compressed air was then passed through the air line, and water within the well was lifted and purged until the discharge appeared to be free of suspended sediments or for a maximum of two hours. Following completion of development, water contained in the 55-gallon drum was pumped through a portable granular activated carbon (GAC) treatment unit equipped with an in-line sediment filter.

WELL SURVEY

Subsequent to installation, the monitoring wells were surveyed by a licensed professional surveyor for casing elevations and horizontal positions to provide control for static head measurements and delineations of groundwater flow direction. All survey measurements were made relative to a common datum such that water level measurements from all monitoring wells could be directly compared. At each well location, the elevation of the top of the PVC casing was measured to the nearest 0.01 foot. The points at which elevations were measured were permanently marked for future reference. The horizontal positions of the monitoring wells were measured to the nearest 0.1 foot relative to the locations of the common datum and/or prominent site structures. A minimum of two reference points were used to locate each well. Well survey data are included in Appendix C.

LIQUID LEVEL MONITORING

Measurements of the liquid levels in the monitoring wells were made with an electronic optical INTERFACE PROBE™ that is capable of distinguishing liquid-phase hydrocarbons from water. Liquid levels were measured to the nearest 0.01 foot from a permanently marked survey point on the top of each well casing to allow measured values to be directly compared to a common datum. Each well was allowed to equilibrate for a minimum of 15 minutes after removal of the well cap before liquid levels were measured. Measurements made in the field included depth to water, depth to liquid-phase hydrocarbons (if present), and thickness of liquid-phase hydrocarbons (if present). If the presence of liquid-phase hydrocarbons was indicated by measurements with the INTERFACE PROBE™, a clear acrylic bailer was used to obtain a groundwater sample from the well for visual confirmation. If the presence of liquid-phase hydrocarbons was visually confirmed, a bailer was used to remove the liquid-phase hydrocarbons to the fullest extent possible. Liquid-phase hydrocarbons removed from the monitoring wells were transferred to an appropriately labeled on-site storage vessel pending classification and disposal. All measured liquid level values, the approximate volume of liquid-phase hydrocarbons removed from each well (if applicable), and all pertinent field observations were immediately recorded in a bound field book to provide a permanent record of the site visit.

GROUNDWATER SAMPLING PROTOCOL

Groundwater samples were obtained from the monitoring wells using the following protocol:

- 1) The static water level in each well was measured with an electronic optical INTERFACE PROBE™.
- 2) The volume of standing water (in gallons) in each well was calculated using the following formula:

$$V = [(3.14) r^2 h] \times 7.48 \text{ gal/ft}^3$$

where r is the radius of the well in feet, and h is the height of the water column standing in the well.

- 3) Monitoring wells capable of sustaining sufficient yield were purged of a minimum of three static well volumes of water using a stainless steel submersible pump. Monitoring wells having low yield were purged until dry, and the water level was allowed to recover to a minimum of 80 percent of the static level prior to sampling. Purged water was conveyed to a steel 55-gallon drum for containment and then pumped through a portable granular activated carbon (GAC) treatment unit equipped with an in-line sediment filter prior to being discharged.
- 4) Representative groundwater samples were collected with a stainless steel bailer that was thoroughly cleaned prior to sample collection from each well using an alkaline soap and water wash followed by three distilled water rinses. The first bailer of water retrieved from each well was discarded. All groundwater samples were transferred directly from the bailer to laboratory-prepared containers.
- 5) All sample containers were labeled with the following information:
 - Sample Designation
 - Sampling Date
 - Sampling Time
 - Site Name
 - Requested Analysis/Analyses
 - Type of Preservative Used (if applicable)
- 6) All sample containers were placed on ice in a cooler, along with completed chain-of-custody forms, and shipped via overnight courier to GTEL Environmental Laboratories, Inc. for analysis.

APPENDIX B

DRILL LOGS AND WELL CONSTRUCTION RECORDS

DEPTH+
(FT.)

DESCRIPTION

ELEVATION
(FT.)

● PENETRATION - BLOWS/FOOT

OVA
(PPM)

0.0
0.3
0.6
3.5
8.5
13.5
18.5
22.0

4 1/2" ASPHALT
3" STONE

AUGERED TO 3.5 FEET WITHOUT SAMPLING

FILL- BROWN BLACK SANDY CLAYEY SILT WITH WOOD, TOPSOIL AND ORGANICS

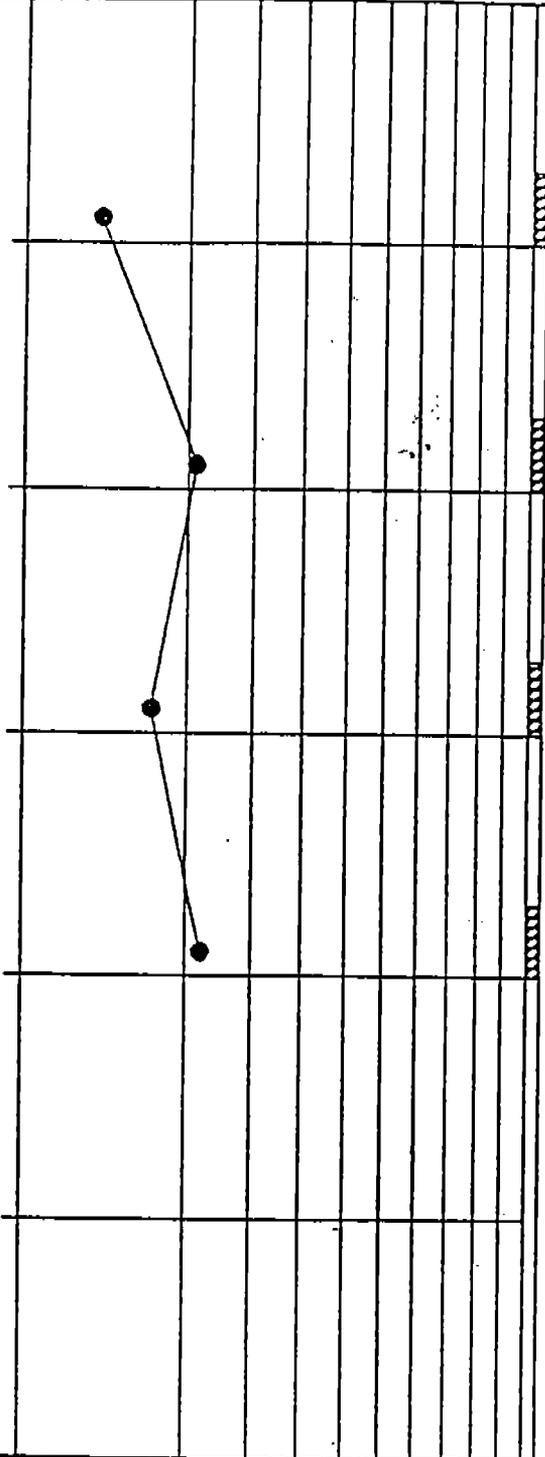
RESIDUUM- WHITE GRAY FINE SANDY SILT

TAN BROWN FINE MEDIUM SANDY SILT

WHITE TAN MEDIUM SANDY SILT

BORING TERMINATED AT 22 FEET
WATER ENCOUNTERED AT 10 FEET AT TIME OF BORING

0 10 20 30 40 60 80 100



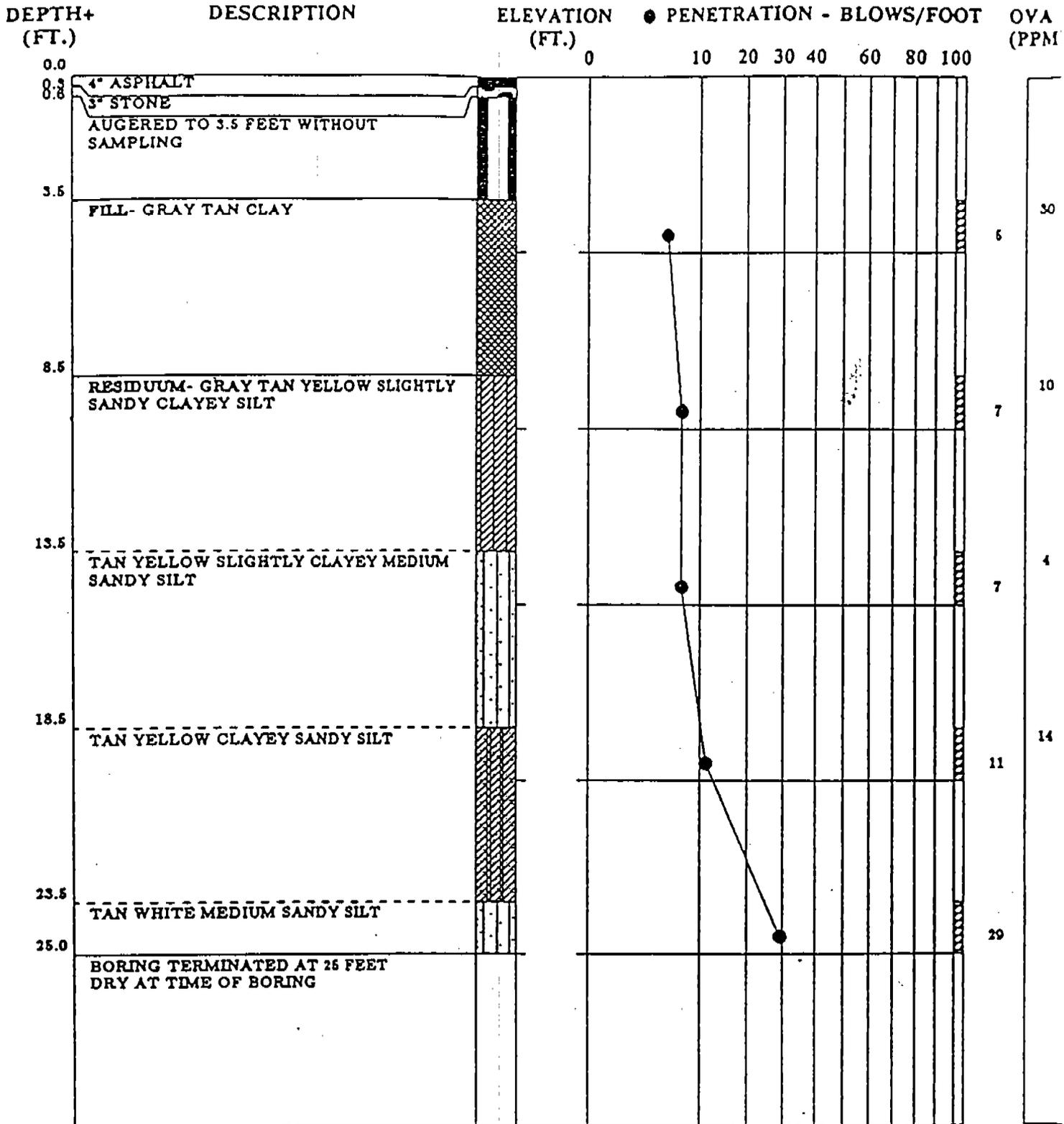
REMARKS:

TEST BORING RECORD

BORING NUMBER MW-1
 DATE DRILLED December 2, 1992
 PROJECT NUMBER 259-90007-01
 PROJECT SUNOCO-SUMMIT AVENUE
 PAGE 1 OF 1

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

LAW ENGINEERING



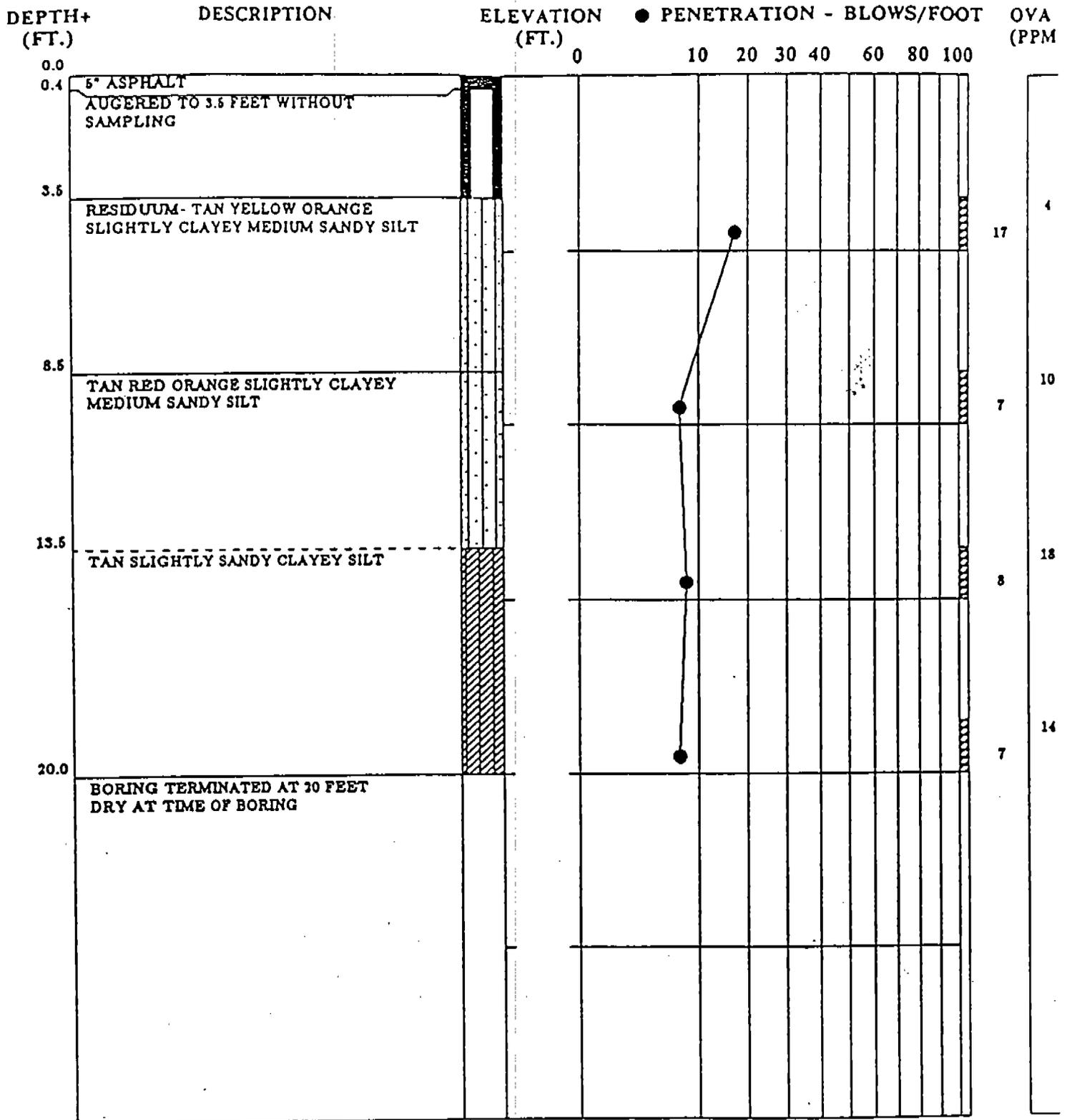
REMARKS:

TEST BORING RECORD

BORING NUMBER MW-2
 DATE DRILLED December 2, 1992
 PROJECT NUMBER 259-90007-01
 PROJECT SUNOCO-SUMMIT AVENUE
 PAGE 1 OF 1

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

LAW ENGINEERING



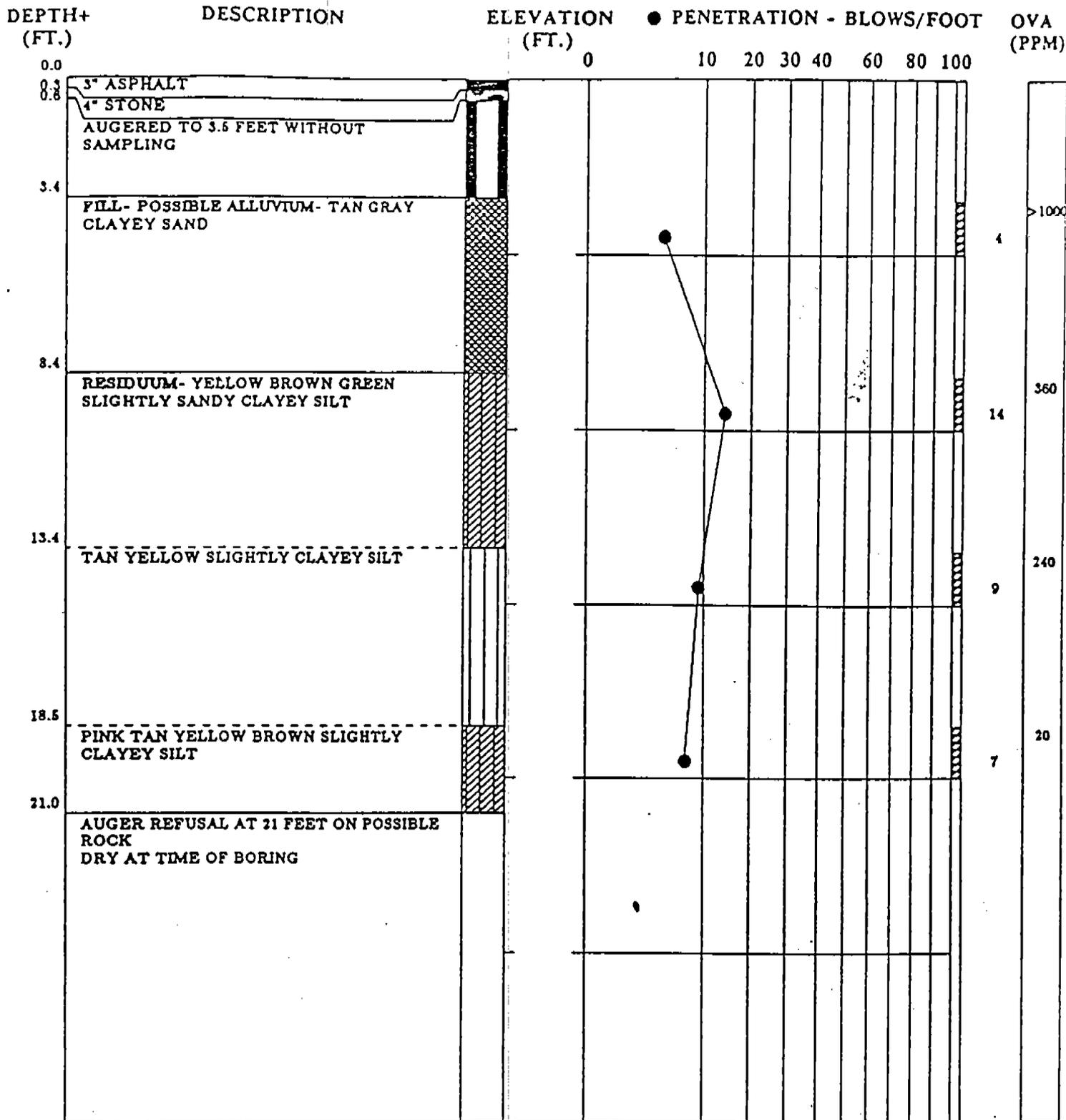
REMARKS:

TEST BORING RECORD

BORING NUMBER MW-3
 DATE DRILLED December 3, 1992
 PROJECT NUMBER 259-90007-01
 PROJECT SUNOCO-SUMMIT AVENUE
 PAGE 1 OF 1

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

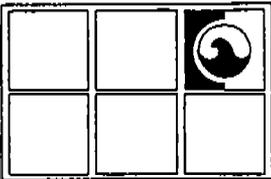
LAW ENGINEERING



REMARKS:

TEST BORING RECORD	
BORING NUMBER	MW-4
DATE DRILLED	December 2, 1992
PROJECT NUMBER	259-90007-01
PROJECT	SUNOCO-SUMMIT AVENUE
PAGE 1 OF 1	
 LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



GROUNDWATER TECHNOLOGY INC.

CLIENT: SUN COMPANY, INC.

PROJECT NAME: SUN - SUMMIT AVE.

PROJECT NUMBER: 053245445

LOCATION: SUMMIT AVE.

GREENSBORO, NC

DRILLER: FISHBURNE DRILLING, INC.

DATE 01/10/93

WELL NUMBER VMW-5

CASED FROM 0 TO 30' WITH SCH 40 PVC

DRILL RIG CME 75

SCREENED FROM 30' TO 35' WITH 0.020" SLOT

DRILL METHOD HOLLOW STEM AUGER

WELL DEPTH 35' WELL DIAMETER 2"

DATE(S) DRILLED MAY 27, 1993

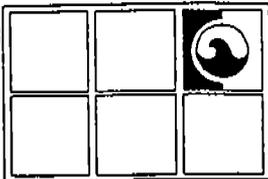
ELEVATION 598.21'

LOGGED BY T. WATSON

ANNULUS COMPLETION SANDPACK 35'-28'; BENTONITE 28'-26'; GROUT 26'-0

OTHER 6" OUTER CASING SET AT 28'; COMPLETED W/LOCKING CAP & CONC. EMBEDDED MH COV.

WELL DETAIL	DEPTH	GRAPHIC COLUMN	LITHOLOGICAL DESCRIPTION	SAMPLE	COMMENTS
			ASPHALT/CRUSHER RUN: To 6"		
			SILT/SILTY CLAY: Brn, little F to M-grnd. slight hydrocarbon (HC) odor	0-2'	BC=8-6-7-6 PID=136
	5		SILT: Orange-gry, mottled, some clay & F M-grained sand, dry-damp, slight HC odor	2-4'	BC=6-8-15-16 PID=56.2
			Silt: As above, damp-dry	4-6'	BC=3-5-5-6 PID=70.1
	10		SILT: Orange-lt. gry, some F to M-grained sand, clayey, moist (Lab Sample)	6-8'	BC=6-6-8-9 PID=322
			SILT: As above, clayey & sandy, moist-wet	8-10'	BC=3-3-4-6 PID=117
			SILT: Orange, some clay, tr. F-grnd. sand, saturated, thin layer of gravel, soft	10-12'	BC=6-6-8-7 PID=50.4
	15		SILT: Orange-red-tan, mottled, some- little clay, tr. F-grnd. sand, saturated, black organic staining (vein), soft	14-16'	BC=2-2-1-2 PID=34.3
	20		SILT: As above, black organic staining, saturated, soft	19-21'	BC=1-1-3-2 PID=22.7
	25		SILT: Or, little CL, tr. F-grnd. sand, litte blk org. staining, sl. foliated, thin layer of SAPROLITE @ 25', saturated, soft	24-26'	BC=3-2-2-3 PID=14.3
	30		SILT: As above to 29' then SAPROLITE: Wht-lt. gry, SILT - very F-grnd. sand, v. F mica, appears to be weathered granite, (not foliated)	28-30'	BC=27-40-21-50/5 PID=13.2
	35				



GROUNDWATER TECHNOLOGY INC.

CLIENT: SUN COMPANY, INC.

PROJECT NAME: SUN - SUMMIT AVE.

PROJECT NUMBER: 053245445

LOCATION: SUMMIT AVE.

GREENSBORO, NC

DRILLER: FISHBURNE DRILLING, INC.

DATE 01/10/93

WELL NUMBER MW-6

CASED FROM 0 TO 3' WITH SCH 40 PVC

DRILL RIG CME 75

SCREENED FROM 3' TO 23' WITH 0.020" SLOT

DRILL METHOD HOLLOW STEM AUGER

WELL DEPTH 23' WELL DIAMETER 2"

DATE(S) DRILLED MAY 27, 1993

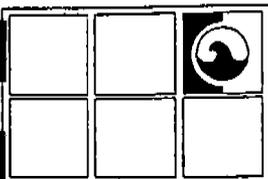
ELEVATION 597.57'

LOGGED BY T. WATSON

ANNULUS COMPLETION SANDPACK 23'-2'; BENTONITE 2'-1'; GROUT 1'-0

OTHER WELL COMPLETED WITH LOCKING CAP & CONCRETE EMBEDDED MANHOLE COVER

WELL DETAIL	DEPTH	GRAPHIC COLUMN	LITHOLOGICAL DESCRIPTION	SAMPLE	COMMENTS
			ASPHALT/CRUSHER RUN: To 6"		
			CLAY: Gry-blu, sandy, silty, F to M-grnd. sand, damp-dry	0-2'	BC= -10-11-14 PID=3.2
			CLAY: As above to 3' then SANDY SILT: Gry-tan-or, v. F to F-grnd. sand, F mica mica, damp, some-little clay	2-4'	BC=2-3-5-6 PID=0.4
	5		SANDY SILT: Tan-lt. or-blk, F to M-grnd. sand, damp-dry, trace clay	4-6'	BC=3-6-10-10 PID=1.4
			SANDY SILT: Lt. gry-tan-or, F to C-grnd. sand, iron staining, damp-dry, trace clay (Lab Sample)	6-8'	BC=8-14-16-15 PID=4.9
	10		SILTY SAND: Tan-lt. or, F to M-grnd. sand grading to F-grnd. @ 9.5', damp-moist	8-10'	BC=8-10-12-10 PID=2.1
			SILTY SAND/SANDY SILT: Tan-wht-lt. or, F to M-grnd. sand, some mica, moist-wet, slightly foliated	10-12'	BC=9-10-9-8 PID=2.4
	15		SANDY SILT/SILTY SAND: Tan-wht-or, v. F to M-grnd. sand, F mica, Wet-moist	14-16'	BC=4-5-5-6 PID=1.2
			SILTY SAND: Tan-wht-lt. or, F to M-grnd. sand, moist-wet, trace F mica, slight foliation	19-21'	BC=8-10-10-15 PID=29.1
	20				
	25				



GROUNDWATER TECHNOLOGY INC.

CLIENT: SUN COMPANY, INC.

PROJECT NAME: SUN - SUMMIT AVE.

PROJECT NUMBER: 053245445

LOCATION: SUMMIT AVE.

GREENSBORO, NC

DATE 01/10/93

WELL NUMBER MW-7

DRILLER: FISHBURNE DRILLING, INC.

CASED FROM 0 TO 5' WITH SCH 40 PVC

DRILL RIG CME 75

SCREENED FROM 5' TO 25' WITH 0.020" SLOT

DRILL METHOD HOLLOW STEM AUGER

WELL DEPTH 25' WELL DIAMETER 2"

DATE(S) DRILLED DECEMBER 9, 1993

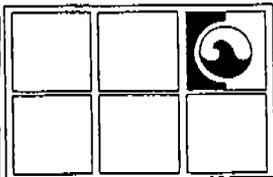
ELEVATION 595.14'

LOGGED BY T. WATSON

ANNULUS COMPLETION SANDPACK 25'-3'; BENTONITE 3'-2'; GROUT 2'-0

OTHER WELL COMPLETED WITH LOCKING CAP & CONCRETE EMBEDDED MANHOLE COVER

WELL DETAIL	DEPTH	GRAPHIC COLUMN	LITHOLOGICAL DESCRIPTION	SAMPLE	COMMENTS
			ASPHALT/CRUSHER RUN: To 8"-10"		
			SANDY CLAY: Grey, F-grnd. sand, some silt, plastic, damp	0-3'	(HAND) PID=1.0
			SILTY CLAY: Orange-tan-grey, little F- grnd. sand, damp	3-5'	BC=3-4-5-8 PID=0.8
	5		SILT: Tan-lt. gry, little-trace F-grnd. sand, little clay, damp-moist	5-7'	BC=3-5-11-11 PID=0.7
			SILT: Tan-lt. gry/grn, tr. F-grnd. sand, little clay, damp-moist. (Lab Sample)	7-9'	BC=4-5-7-9 PID=22.5
	10		SILT: As above, moist-wet	9-11'	BC=7-5-7-11 PID=3.9
			SILT: Tan-or-grn/gry, little-some F-grnd. sand, little clay, sl. foliation, wet	13-15'	BC=5-6-8-9 PID=2.8
	15				
			SANDY SILT: Tan-orange-green, trace clay, slight foliation, damp	18-20'	BC=9-11-16-20 PID=4.6
	20				
			SAPROLITE (SANDY SILT): Tan-orange-green- white, F to M-grnd. sand, slightly foliated, damp	23-25'	BC=9-11-14-19 PID=2.8
	25				



GROUNDWATER TECHNOLOGY INC.

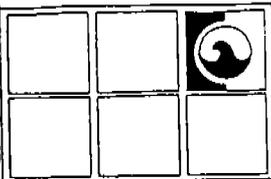
CLIENT: SUN COMPANY, INC.
 PROJECT NAME: SUN-SUMMIT-A15
 PROJECT NUMBER: 05004545
 LOCATION: 1103 SUMMIT AVE.
GREENSBORO, NC
 DRILLER: FURNBURN DRILLING INC.

DATE 8/18/94 WELL NUMBER MW-9

CASED FROM 0 TO 9' WITH 2 1/2" HD PVC DRILL RIG CIM 75 HD
 SCREENED FROM 9' TO 24' WITH 0.020 slot DRILL METHOD HOLLOW STEM AUGERS
 WELL DEPTH 24' WELL DIAMETER 2" DATE(S) DRILLED 8/18/94
 ELEVATION _____ LOGGED BY T. WATSON

ANNULUS COMPLETION Sandpack: 24'-7', Bentonite: 7'-5' Grout: 5'-0
 OTHER _____

WELL DETAIL	DEPTH	GRAPHIC COLUMN	LITHOLOGICAL DESCRIPTION	SAMPLE	Blow Count	COMMENTS PID
		~~~~~	Asphalt + Crushed Run			
		SANDY CLAY	SANDY CLAY: Gray - Orange Fine Gr.	2-4	5-9-9-6	4.1
			Little silt Damp			
	5	SILTY SAND	SILTY SAND: Orange - Tan - Lt. Gray Fine	4-6	9-11-16-14	4.1
			Coarse Gr. Trace Clay Damp - Dry			
			SILTY SAND: Orange - Tan - White, Fine	6-8	6-8-9-12	1
			Coarse gr, Sm. Qtz. Frag. Dry			
	10		SILTY SAND: AA Damp - Moist	8-10	9-12-7-10	4.1
			SILTY SAND: AA Gradling to SANDY SILT	10-12	6-6-8-8	2.4
			Fine-Med. Gr, Little - Trace Clay, Moist (MW-9)			
	15	SILT	SILT: Gray - Green - Orange, Little - Tr.	12-14	3-4-5-6	2.4
			Clay, Fine Sand, Iron Staining			
			Blk. Min. Staining Wet			
			SILT: AA, Wet - Saturated	14-16	3-4-6-7	1.6
	20	SANDY SILT	SANDY SILT: Tan - Orange, Trace Fine	19-21	4-4-3-4	3.3
			Sand thin gravel layer @ 20'			
			Wet - moist some clay			
			SILT: Orange - White - Green, Little	24-26	4-4-5-6	3.3
			Clay, trace fine sand, slight			
	25		Calculation Wet			
	30					
	35					



# GROUNDWATER TECHNOLOGY INC.

CLIENT: SUN COMPANY, INC.  
 PROJECT NAME: SUN - SUMM. - AVE.  
 PROJECT NUMBER: 002245445  
 LOCATION: 1103 SUMM. - AVE  
GREENSBORO, NC  
 DRILLER: FISHBURN DRILLING, INC.

DATE 8/12/94 WELL NUMBER VMW-8

CASED FROM 0' TO 50' WITH SCH 40 PVC  
 SCREENED FROM 50' TO 55' WITH 0020 slot  
 WELL DEPTH 55' WELL DIAMETER 2"  
 ELEVATION _____

DRILL RIG CME 75 HD  
 DRILL METHOD HSA / ROLLER BIT  
 DATE(S) DRILLED 8/17 - 18/94  
 LOGGED BY T. WATSON

ANNULUS COMPLETION Sandpack: 55' - 47.5' , Bentonite: 47.5' - 45' , Grout: 45' - 0  
 OTHER 6" outer casing set to 45'

WELL DETAIL	DEPTH	GRAPHIC COLUMN	LITHOLOGICAL DESCRIPTION	SAMPLE	COMMENTS PID
	5	SANDY CLAY	Asphalt + Crushed cur → SANDY CLAY: Gray, Damp		
			SANDY CLAY: Brown, Fine - Med. Gr.	5-7	2.4
	10	SANDY/CLAYEY SILT	Some Silt, Damp		
			SANDY/CLAYEY SILT: Brown, Fine - Med. Gr., Damp - Moist	9-11	3.3
	15		SANDY/CLAYEY SILT: AA, Moist	14-16	3.3
	20		SANDY SILT: Brown, Fine - Med. Gr.	19-21	6.6
			Some Clay, Wet		
	25		SANDY SILT/SILTY SAND: Brown, Fine - Med. Gr., Little Clay, Wet - Satur.	24-26	19.1
	30		SANDY SILT/SILTY SAND: AA, Wet	29-31	13.1
	35		SANDY SILT/SILTY SAND: AA, Wet	34-36	26.6
	40				
	45				
	50	SAPROLITE	SAPROLITE (SANDY SILT)	49-51	
	55				
	60				
65					



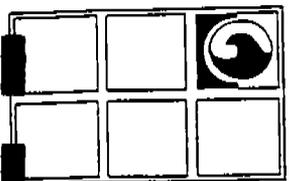
# GROUNDWATER TECHNOLOGY INC.

CLIENT: SUN COMPANY, INC.  
 PROJECT NAME: SUN - SUMM. - A15.  
 PROJECT NUMBER: 05324545  
 LOCATION: 1103 SUMM. - AVE.  
GREENSBORO, NC  
 DRILLER: FISHBONE DRILLING INC.

DATE: 8/18/94 BORING NUMBER: SB-1

BEDROCK DEPTH: — BORING DEPTH: 16' DRILL RIG: CME 75 HD  
 BORING DIAMETER: 8" ELEVATION: — DRILL METHOD: HOLLOW STEM AUGERS  
 NUMBER OF SAMPLES: — DATE(S) DRILLED: 8/18/94  
 FIRST WATER DEPTH: ~14' LOGGED BY: T. WATSON  
 ANNULUS COMPLETION: BORING FILLED W/ NEAR CEMENT GROUT

DEPTH	GRAPHIC COLUMN	SAMPLES				LITHOLOGICAL DESCRIPTION	COMMENTS
		#	TYPE	BLOW COUNT	TIME		
0-2	CLAY	0-2		3-3-4-4		CLAY: Gray - Orange, Mottled Some silt little fine gr. sand damp	PID = 3.3
		2-4		4-4-3-3		SILTY CLAY: Gray - Black, Some - little sand fine - med. gr.	PID = 13.3
5	SANDY CLAY	4-6	SB-1	3-3-4-5	0823	Moist, sl. HC odor SANDY CLAY: Gray - Black, silty fine - med. gr. moist str.	PID = 148
		6-8		5-3-13-18		HC odor SANDY CLAY: Gray, Plastic little - Trace silt, fine gr. damp str.	PID = 103
		8-10		8-11-13-16		HC odor SANDY CLAY: Gray - Orange, Mottled Plastic, fine - med. gr. little -	PID = 6
15	SILT	10-12		16-21-18-13		Trace silt damp, sl. HC odor SANDY CLAY: RR, damp	PID = 5.8
		12-14		14-19-12-10		CLAYEY SILT: Lt. Gray - Orange - Tan Mottled little fine sand moist	PID = 8
20		14-16		13-4-3-4		SILT: Lt. Gray - Orange, Mottled Some clay, little - trace fine sand wet	PID = 10
25							



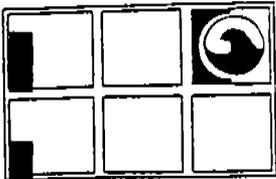
# GROUNDWATER TECHNOLOGY INC.

CLIENT: SUN COMPANY, INC.  
 PROJECT NAME: SUN-SUMMIT AVE.  
 PROJECT NUMBER: 052245445  
 LOCATION: 1103 SUMMIT AVE.  
GREENSBORO, NC  
 DRILLER: FISHBURN DRILLING, INC.

DATE: 8/18/94 BORING NUMBER SB-2  
 BEDROCK DEPTH — BORING DEPTH 16'  
 BORING DIAMETER 8" ELEVATION —  
 NUMBER OF SAMPLES —  
 FIRST WATER DEPTH ~14'  
 ANNULUS COMPLETION: BORING FILLED W/ NEAT CEMENT GROUT

DRILL RIG CME 75 HD  
 DRILL METHOD HOLLOW STEM AUGERS  
 DATE(S) DRILLED 8/18/94  
 LOGGED BY T. WATSON

DEPTH	GRAPHIC COLUMN	SAMPLES				LITHOLOGICAL DESCRIPTION	COMMENTS
		#	TYPE	BLOW COUNT	TIME		
5	SILTY SAND FILL	0-2		3-3-4-3		SILTY SAND Fill Material, Wet	PID = 2.4
		2-4		3-3-3-4		SILTY SAND Fill Material, Little Clay Saturated	PID = 12.4
		6-8	SB-2A	2-1-2-3	0.17	SANDY SILT: Gray - Black Clays. Med-Fine Gr. Damp - Moist	PID = 14.8
10	SANDY SILT	8-10		4-5-7-6		SANDY SILT: Lt. Gray Fine - Mod Gr. Some - Little Clay, Moist	PID = 25.7
		10-12		2-2-2-5		SANDY SILT: Lt. Gray - Orange Mottled Fine - Mod Gr. Little Clay Moist	PID = 11.6
		12-14	SB-2B	2-1-2-3	1000	SANDY SILT: RA Moist - Wet	PID = 5.8
		14-16		2-2-3-5		SANDY SILT: RA Wet	PID = 9.1
15							
20							
25							



**GROUNDWATER TECHNOLOGY INC.**

CLIENT: SUN COMPANY, INC.  
 PROJECT NAME: SUN - SUMMIT - A15  
 PROJECT NUMBER: 053245445  
 LOCATION: 1102 Summit - A15  
GREENSBORO, NC  
 DRILLER: FISHBANE DRILLING INC.

DATE: 8/18/94 BORING NUMBER SB-3

ROCK DEPTH — BORING DEPTH 16' DRILL RIG CME 75 HD  
 BORING DIAMETER 8" ELEVATION — DRILL METHOD Hollow Stem Augers  
 NUMBER OF SAMPLES — DATE(S) DRILLED 8/18/94  
 FIRST WATER DEPTH ~14' LOGGED BY T. Watson  
 ANNULUS COMPLETION: BORING FILLED W/ NEAT CEMENT GROUT

DEPTH	GRAPHIC COLUMN	SAMPLES				LITHOLOGICAL DESCRIPTION	COMMENTS
		#	TYPE	BLOW COUNT	TIME		
	SANDY SILT / SILTY SAND	0-2		3-3-4-3		Sandy, Silty Topsoil	PID = 4.1
		2-4		1-2-1-1		SANDY SILT: Brown Clayey Fine - Med. Co. Wet	PID = 7
5		4-6		3-2-1-3		SILTY SAND: Brown Fine - Med. Co. (minimal sample recovery)	PID = 4.1
	SANDY CLAY	6-8		6-5-6-8		SANDY CLAY: Lt. Gray - Orange, Mottled Little - Trace Silt Plastic Wet 2	PID = 3.3
	CLAY	9-10		2-4-2-7		top -> damp CLAY: Lt. Gray - Brown Little - Some Silt Trace Fine Sand Plastic Damp	PID = 4.1
10	CLAYEY SILT	10-12		3-2-2-5		CLAYEY SILT: Gray - Orange Mottled Some Fine - Med Sand Damp - Moist	PID = 4.1
	SANDY SILT	12-14		3-3-4-6		SANDY SILT: Orange - Lt. Gray - White Mottled Little clay Fine - Med. Co. Sand Wet - moist	PID = 5.8
15		14-16 SB-3		2-3-2-4	1055	SANDY SILT: RA Wet - Saturated	PID = 5.8
20							
25							



FOR OFFICE USE ONLY

Quad No. _____ Serial No. _____  
 Lat. _____ Long. _____ P. _____  
 Minor Basin _____  
 Basin Code _____  
 Header Ent. _____ GW-1 Ent. _____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR Law Engineering  
 DRILLER REGISTRATION NUMBER 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 40-1070-WM-0495

1. WELL LOCATION: (Show sketch of the location below)  
 Nearest Town: Greensboro, NC

County: Guilford

2. OWNER Sunoco/Mid-State Oil Company  
 ADDRESS 1835 Market St., 11 Penn Ctr., 9th Floor  
Philadelphia PA 19103  
(Street or Route No.)  
City or Town State Zip Code

Depth From To  
 DRILLING LOG Formation Description

3. DATE DRILLED 12/3/92 USE OF WELL Monitoring  
 4. TOTAL DEPTH 25 ft CUTTINGS COLLECTED  Yes  No

See Soil Test Boring Log MW-2

5. DOES WELL REPLACE EXISTING WELL?  Yes  No  
 6. STATIC WATER LEVEL: _____ FT.  above TOP OF CASING,  
 TOP OF CASING IS _____ FT.  below ABOVE LAND SURFACE.

7. YIELD (gpm): N.A. METHOD OF TEST N.A.  
 8. WATER ZONES (depth): _____

If additional space is needed use back of form.

9. CHLORINATION: Type N.A. Amount N.A.

10. CASING:  

From	Depth	To	Diameter	Wall Thickness or Weight/FT	Material
0	5	5	4-in	Sch 40	PVC
From	To	Fl.			
From	To	Fl.			

**LOCATION SKETCH**

(Show direction and distance from at least two State Roads, or other map reference points)

11. GROUT:  

From	Depth	To	Material	Method
0	3	3	Neat Cement	Tremie
From	To	Fl.		

See Monitoring Well Location Map

12. SCREEN:  

From	Depth	To	Diameter	Slot Size	Material
5	20	20	4 in	0.010 in	PVC
From	To	Fl.			
From	To	Fl.			

13. GRAVEL PACK:  

From	Depth	To	Size	Material
4	20	20		Sand
From	To	Fl.		

14. REMARKS: _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

SIGNATURE OF CONTRACTOR OR AGENT

2/23/93

DATE

Submit original to Division of Environmental Management and copy to well owner.















APPENDIX C  
SOIL ANALYTICAL REPORTS



# GTEL

ENVIRONMENTAL  
LABORATORIES, INC.

4080 Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 Inside CA  
(800) 423-7143 Outside CA  
(510) 825-0720 FAX

Client Number: 013245445  
Project ID: 1103 Summit Ave.  
Greensboro, NC  
Work Order Number: C3-05-0556

June 15, 1993

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park Drive  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 05/29/93, under chain of custody record 29442.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certificate numbers 194 and 1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

Eileen F. Bullen  
Laboratory Director

Client Number: 013245445  
 Project ID: 1103 Summit Ave.  
 Greensboro, NC  
 Work Order Number: C3-05-0556

**Table 1**  
**ANALYTICAL RESULTS**  
**Metals in TCLP Leachate^a**

GTEL Sample Number			03	PB060293		
Client Identification			CS-1	METHOD BLANK		
Date Sampled			05/28/93	-		
Date Leached			06/02/93	06/02/93		
Date Analyzed (Method 6010)			06/07/93	06/07/93		
Date Analyzed (Method 7470)			06/03/93	06/03/93		
Analyte	Method ^b	Detection Limit, mg/L	Leachate Concentration, mg/L			
Arsenic	EPA 6010	0.1	<0.1	<0.1		
Barium	EPA 6010	5	<5	<5		
Cadmium	EPA 6010	0.1	<0.1	<0.1		
Chromium, total	EPA 6010	0.1	<0.1	<0.1		
Lead	EPA 6010	0.5	<0.5	<0.5		
Mercury	EPA 7470	0.004	<0.004	<0.004		
Selenium	EPA 6010	0.5	<0.5	<0.5		
Silver	EPA 6010	0.1	<0.1	<0.1		
Detection Limit Multiplier			1	1		

- a. Federal Register, June 29, 1990, 40 CFR, Part 261, Appendix II - Method 1311.  
 b. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986.

Client Number: 013245445  
 Project ID: 1103 Summit Ave.  
 Greensboro, NC  
 Work Order Number: C3-05-0556

**ANALYTICAL RESULTS**  
 TPH as Diesel in Soil  
 Method: Modified EPA 8015a

GTEL Sample Number		01	02	03	060493
Client Identification		VMW-5	MW-6	CS-1	METHOD BLANK
Date Sampled		05/27/93	05/27/93	05/28/93	-
Date Extracted		06/01/93	06/01/93	06/01/93	06/01/93
Date Analyzed		06/07/93	06/07/93	06/07/93	06/07/93
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
TPH as diesel	10	<10	<10	<10	<10
Detection Limit Multiplier		1	1	1	1
Percent Solids		73.5	73.8	73.9	NA
OTP surrogate, % recovery		78.5	74.5	90.3	101

a. O-Terphenyl surrogate recovery acceptability limits are 50-150%. Test Methods for Evaluating Solid Waste, SW-846, 3rd edition, Rev. O, U.S. EPA, November, 1986.  
 NA = Not Applicable.

Client Number: 013245445  
 Project ID: 1103 Summit Ave.  
 Greensboro, NC  
 Work Order Number: C3-05-0556

## ANALYTICAL RESULTS

### Volatile Organics in Soil

EPA Methods 8020 and Modified 8015^a

GTEL Sample Number		01	02	03	060993 GCF
Client Identification		VMW-5	MW-6	CS-1	METHOD BLANK
Date Sampled		05/27/93	05/27/93	05/28/93	
Date Analyzed		06/09/93	06/10/93	06/10/93	06/09/93
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	NR	NR	<0.005	<0.005
Toluene	0.005	NR	NR	<0.005	<0.005
Ethylbenzene	0.005	NR	NR	<0.005	<0.005
Xylene, total	0.015	NR	NR	<0.015	<0.015
BTEX, total	--	NR	NR	--	--
Gasoline	1	<1	<1	<1	<1
Detection Limit Multiplier		1	1	1	1
Percent solids		59.8	59.0	66.2	NA
BFB surrogate, % recovery		88.5	88.5	88.9	94.4

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures. Bromofluorobenzene surrogate recovery acceptability limits are 60-140%. NA = Not Requested. NA = Not Applicable.

Client Number: 013245445  
 Project ID: 1103 Summit Ave.  
 Greensboro, NC  
 Work Order Number: C3-05-0556

**ANALYTICAL RESULTS**  
 Matrix: Soil

Test Description	Units	Detection Limit	Method	Sample Identification		Test Result
				Sample Number	Date Sampled	
EOX	mg/Kg	1	EPA 9020	06/07/93	03	<10
Flashpoint	oF	60°	EPA 1010	06/15/93	CS-1	NA
Reactivity Cyanide	mg/Kg	1	ASTM (D5049-90/C)	06/07/93	060793EOX	<1
Reactivity Sulfide	mg/Kg	1	ASTM (D4978-89/A)	06/07/93	METHOD BLANK	<1
Corrosivity: pH	pH	NA	EPA 9045	06/08/93	--	NA

Note: Test Methods for Evaluating Solid Waste, SW-846, 3rd edition, Rev. O, U.S. EPA, November, 1986.  
 ASTM = American Society for Testing and Materials, 1990.  
 NF < 160 = No flash at temperature less than or equal to 160°.  
 NA = Not Applicable.



Company Name: GT - Morrisville, NC  
 Company Address: 200 PRIMER PARK DR. GREENSBORO, NC  
 Project Manager: T. WATSON  
 Phone #: (919) 467-7727  
 FAX #: (919) 467-7299  
 Site location: 1103 Summit Ave.  
 Client Project ID: (#) 01324545  
 (NAME) SUN-SUMMIT AVE.  
 Sampler Name (Print): T. WATSON

I attest that the proper field sampling procedures were used during the collection of these samples.

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix										Method Preserved			Sampling	
			WATER	SOIL	SLUDGE	PRODUCT	OTHER	HCl	HNO3	H2SO4	ICE	UNRESERVED	DATE	TIME			
VMW-5	01	2	X									X			5/27	0845	
MW-6	03	2	X									X			5/27	1305	
CS-1	03	2	X									X			5/28	0930	

**SPECIAL DETECTION LIMITS**

**SPECIAL REPORTING REQUIREMENTS**

Lab Use Only Lot # _____ Storage Location: C3050556

Work Order # _____  
 Received by: FED EX  
 Received by: _____

Date _____ Time _____  
 Date 5/29/94 Time 1730

Date _____ Time _____  
 Date 5/29/94 Time 9:45

Received by Laboratory: Patricia Brown  
 Waybill # _____

**CUSTODY RECORD**



# GTEL

ENVIRONMENTAL  
LABORATORIES, INC.

4080 Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 Inside CA  
(800) 423-7143 Outside CA  
(510) 825-0720 FAX

Client Number: 052245445  
Project ID: 1103 Summit Ave.  
Greensboro, NC  
Work Order Number: C3-12-0196

RECEIVED  
DEC 27 1993

December 27, 1993

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park Drive, Ste. I  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 12/11/93, under chain of custody record 29385

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

GTEL is also certified by the State of North Carolina Department of Environmental, Health and Natural Resources, certification number 385, to perform analyses for wastewater according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

Rashmi Shah  
Laboratory Director

Client Number: 052245445  
 Project ID: 1103 Summit Ave.  
 Greensboro, NC  
 Work Order Number: C3-12-0196

ANALYTICAL RESULTS

TPH as Gasoline in Soil

EPA Method 8015a

GTEL Sample Number		01	A122193		
Client Identification		MW-7	METHOD BLANK		
Date Sampled		12/09/93	-		
Date Extracted		12/21/93	12/21/93		
Date Analyzed		12/21/93	12/21/93		
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
TPH as gasoline	1	<1	<1		
Detection Limit Multiplier		1	1		
Percent Solids		71.5	NA		
BFB surrogate, % recovery		96.5	101		

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures. Bromofluorobenzene surrogate recovery acceptability limits are 60-140%.  
 NA = Not Applicable.

Client Number: 052245445  
 Project ID: 1103 Summit Ave.  
 Greensboro, NC  
 Work Order Number: C3-12-0196

**Table 1**  
**ANALYTICAL RESULTS**  
 Total Petroleum Hydrocarbons as Diesel Fuel in Soil  
 Modified EPA Methods 3550/8015^a

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Results reported on a wet weight basis.

GTEL Sample Number		01	GCK1220		
Client Identification		MW-7	METHOD BLANK		
Date Sampled		12/09/93	-		
Date Extracted		12/17/93	12/17/93		
Date Analyzed		12/20/93	12/20/93		
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
TPH as diesel fuel	10	<10	<10		
Detection Limit Multiplier		1	1		
Percent solids		71.5	NA		
OTP surrogate, % recovery		74.1	108		

NA = Not Applicable.





ENVIRONMENTAL  
LABORATORIES, INC.

**Northwest Region**

4080 Pike Lane  
Suite C  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 Inside CA  
FAX (510) 825-0720

Client Number: 053245445  
Project ID: Sun-Summit Ave.  
Greensboro, NC  
Work Order Number: C4-08-0328

September 1, 1994

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park Drive, Suite 1  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 08/20/94, under chain of custody record 21648.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

GTEL is also certified by the State of North Carolina Department of Environmental, Health and Natural Resources, certification number 385, to perform analyses for wastewater according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

*So*  
Rashmi Shah  
Laboratory Director

Client Number: 053245445  
 Project ID: Sun-Summit Ave.  
 Greensboro, NC  
 Work Order Number: C4-08-0328

## ANALYTICAL RESULTS

### Total Petroleum Hydrocarbons as Diesel Fuel in Soil

#### Modified EPA Methods 3550/8015^a

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Results reported on a wet weight basis. NA = Not Applicable.
- b. Surrogate high due to target compound interference.

GTEL Sample Number		01	02	03	04
Client Identification		MW-9	SB-1	SB-2A	SB-2B
Date Sampled		08/18/94	08/18/94	08/18/94	08/18/94
Date Extracted		08/24/94	08/24/94	08/24/94	08/30/94
Date Analyzed		08/26/94	08/26/94	08/26/94	08/31/94
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
TPH as diesel fuel	10	<10	1200	160	<10
Detection Limit Multiplier		1	1	1	1
Percent solids		83.3	75.2	75.0	68.6
OTP surrogate, % recovery		59.4	b	162 ^b	84.0

GTEL Sample Number		05	GC-KF 8-25		
Client Identification		SB-3	METHOD BLANK		
Date Sampled		08/18/94	--		
Date Extracted		08/24/94	08/24/94		
Date Analyzed		08/31/94	08/25/94		
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
TPH as diesel fuel	10	<10	<10		
Detection Limit Multiplier		1	1		
Percent solids		71.5	NA		
OTP surrogate, % recovery		88.1	107		

GTEL Client ID: 053245445  
 Login Number: C4080328  
 Project ID (number): 053245445  
 Project ID (name): Sun/Summit Ave., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 8015  
 Matrix: Soil

GTEL Sample Number	C4080328-01	C4080328-02	C4080328-03	C4080328-04
Client ID	MW-9	SB-7	SB-2A	SB-2B
Date Sampled	08/18/94	08/18/94	08/18/94	08/18/94
Date Analyzed	08/27/94	08/27/94	08/27/94	08/28/94
Dilution Factor	1.00	5.00	5.00	1.00

Analyte	Reporting		Concentration:Wet Weight			
	Limit	Units				
TPH as Gasoline	1.0	mg/kg	< 1.0	130	< 5.0	< 1.0
BFB (surrogate)	--	%	84.7	244	101	81.9
Percent Solids	--	%	83.3	75.2	75.0	68.6

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8015:

*Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846*, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual protocols, May 1988 revision. BFB surrogate recovery acceptability limits are 60 - 119 %. Results reported on a dry weight basis.

C4080328-02:

Estimated concentration for gasoline due to overlapping fuel patterns. Surrogate recovery high due to target compound interference.

C4080328-03:

Detection limit raised due to high levels of nontarget hydrocarbons.

GTEL Concord, CA  
 C4080328:1



GTEL Client ID: 053245445  
Login Number: C4080328  
Project ID (number): 053245445  
Project ID (name): Sun/Summit Ave., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics  
Method: EPA 8015  
Matrix: Soil

GTEL Sample Number	C4080328-05	--	--	--
Client ID	SB-3	--	--	--
Date Sampled	08/18/94	--	--	--
Date Analyzed	08/27/94	--	--	--
Dilution Factor	1.00	--	--	--

Analyte	Reporting Limit	Units	Concentration	Wet Weight
TPH as Gasoline	1.0	mg/kg	< 1.0	--
BFB (surrogate)	--	%	83.6	--
Percent Solids	--	%	71.5	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8015:

*Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846*, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual protocols, May 1988 revision. BFB surrogate recovery acceptability limits are 60 - 119 %. Results reported on a dry weight basis.

GTEL Concord, CA  
C4080328:2



10500 UNIVERSITY CENTER DRIVE  
TAMPA, FL 33612  
(813) 979-9092 CONCORD, CA

Company Name: GTT - Morrisville, NC  
 Phone #: (919) 467-2227  
 FAX #: (919) 467-2299  
 Site location: SUN - Summit Ave.  
 Project Manager: 1000 Peinometer Park Dr., Morrisville, NC  
 Client Project ID: (#) 053245445  
 (NAME) T. WATSON (Pilot): TERESA WATSON  
 Sampler Name (Pilot): TERESA WATSON

I attest that the proper field sampling procedures were used during the collection of these samples.

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix				Method Preserved				Sampling		
			WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	UNPRESERVED SPECIES
MW-9	01	2	X	X	X	X	X	X	X	X	X	8/18	1715
SB-1	02	2	X	X	X	X	X	X	X	X	X	8/18	0947
SB-2A	03	2	X	X	X	X	X	X	X	X	X	8/18	1005
SB-2B	04	2	X	X	X	X	X	X	X	X	X	8/18	1055
SB-3	05	2	X	X	X	X	X	X	X	X	X	8/18	1055

**TAT**

Priority (24 hr)   
 Expedited (48 hr)   
 7 Business Days   
 Other 10 days   
 Business Days

Special Handling

GTEL Contact _____  
 Quote/Contract # _____  
 Confirmation # _____  
 PO # _____

QA/QC LEVEL

BLUE  CLP  OTHER  FAX

Relinquished by Sampler: Teresa Watson  
 Relinquished by: _____  
 Relinquished by: _____

DATE TIME

8/19/94 16:50  
 8/20/94 10:15

RECEIVED BY: FED EX

RECEIVED BY LABORATORY: Ronald C. Almon

Waybill # 669066655

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

21646

BTEX/602 <input type="checkbox"/> 8020 <input type="checkbox"/> with MTBE <input type="checkbox"/>	BTEX/Gas Hydrocarbons PID/FID <input type="checkbox"/> with MTBE <input type="checkbox"/>	Hydrocarbons GC/FID Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Screen <input type="checkbox"/>	Hydrocarbon Profile (SIMDIS) <input type="checkbox"/>	Oil and Grease 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/> SM 503 <input type="checkbox"/>	TPH/R 418.1 <input type="checkbox"/> SM 503 <input type="checkbox"/>	EDB by 504 <input type="checkbox"/> DBCP by 504 <input type="checkbox"/>	EPA 503.1 <input type="checkbox"/> EPA 502.2 <input type="checkbox"/>	EPA 601 <input type="checkbox"/> EPA 8010 <input type="checkbox"/>	EPA 602 <input type="checkbox"/> EPA 8020 <input type="checkbox"/>	EPA 608 <input type="checkbox"/> 8080 <input type="checkbox"/> PCB only <input type="checkbox"/>	EPA 624/PPL <input type="checkbox"/> 8240/TAL <input type="checkbox"/> NBS (+15) <input type="checkbox"/>	EPA 625/PPL <input type="checkbox"/> 8270/TAL <input type="checkbox"/> NBS (+25) <input type="checkbox"/>	EPA 610 <input type="checkbox"/> 8310 <input type="checkbox"/>	EP TOX Metals <input type="checkbox"/> Pesticides <input type="checkbox"/> Herbicides <input type="checkbox"/>	TCLP Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-VOA <input type="checkbox"/> Pest <input type="checkbox"/> Herb <input type="checkbox"/>	EPA Metals - Priority Pollutant <input type="checkbox"/> TAL <input type="checkbox"/> RCRA <input type="checkbox"/>	CAM Metals TLC <input type="checkbox"/> STLC <input type="checkbox"/>	Lead 239.2 <input type="checkbox"/> 200.7 <input type="checkbox"/> 7420 <input type="checkbox"/> 7421 <input type="checkbox"/> 6010 <input type="checkbox"/>	Organic Lead <input type="checkbox"/>	Corrosivity <input type="checkbox"/> Flash Point <input type="checkbox"/> Reactivity <input type="checkbox"/>	X <u>+PH as GC (8015 - 5232)</u>			
----------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------	--------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------	--------------------------------------------------------------------------	-----------------------------------------------------------------------	--------------------------------------------------------------------	--------------------------------------------------------------------	--------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	----------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------	---------------------------------------------------------------------------------------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------

REMARKS

Analyze by California-C.C SW-846 (incl. EPA 8015)  
Standard TAT

Lab Use Only Lot # _____ Storage Location: 4°C

Work Order # CA080328

Received by: FED EX

CUSTOMY RECORD

Waybill # 669066655



**ENVIRONMENTAL  
LABORATORIES, INC.**

**Northwest Region**  
4080-C Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 *from inside California*  
(800) 423-7143 *from outside California*  
(510) 825-0720 (FAX)

Client Number: 053245445  
Project ID: Sun/Summit Ave.  
Greensboro, NC  
Work Order Number: C4-08-0373

September 6, 1994

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park Drive, Suite 1  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 08/24/94, under chain of custody record 30054.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

GTEL is also certified by the State of North Carolina Department of Environmental, Health and Natural Resources, certification number 385, to perform analyses for wastewater according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

Rashmi Shah  
Laboratory Director

Client Number: 083245445  
 Project ID: Sun/Summit Ave.  
 Greenboro, NC  
 Work Order Number: C4-08-0373

**ANALYTICAL RESULTS**  
 Matrix: Soil

Test Description	Units	Detection Limit	Method	Date Analyzed	Sample Number	
					Sample Identification	10
				Date Sampled		
Flashpoint	°F	65	EPA 1010	08/30/94	CS6-SU	
Sulfide Screen	mg/Kg	1	ASTM D4978-89A	08/30/94	NF _≤ 160	
Cyanide Screen	mg/Kg	1	ASTM D5049-90C	08/30/94	<1	
pH	NA	NA	EPA 8045	08/30/94	<1	7.2
					Test Result	

Note: Test Methods for Evaluating Solid Waste, SW-846, 3rd edition, Rev. O, U.S. EPA, November, 1986. NA = Not Applicable.  
 ASTM = American Society for Testing and Materials, 1990.  
 NF_≤160 = No flash at temperature less than or equal to 160°.



Client Number: 053245445  
 Project ID: Sun/Summit Ave.  
 Greenboro, NC  
 Work Order Number: C4-06-0373

## ANALYTICAL RESULTS

### Metals in TCLP Leachate^a

GTEL Sample Number		10	082994 MET		
Client Identification		CSS-SU	METHOD BLANK		
Date Sampled		08/23/94	-		
Date Leached Start		08/25/94	08/25/94		
Date Leached End		08/26/94	08/26/94		
Date Digested		08/29/94	08/29/94		
Date Analyzed (Method 6010)		08/29/94	08/29/94		
Date Analyzed (Method 7060)		08/29/94	08/29/94		
Date Digested and Analyzed (Method 7470)		08/29/94	08/29/94		
Analyte	Method ^b	Detection Limit, mg/L	Leachate Concentration, mg/L		
Arsenic	EPA 7060 ^a	0.5	<0.5	<0.5	
Barium	EPA 6010 ^c	5	<5	<5	
Cadmium	EPA 6010 ^c	0.1	<0.1	<0.1	
Chromium, total	EPA 6010 ^c	0.1	<0.1	<0.1	
Lead	EPA 6010 ^c	0.5	<0.5	<0.5	
Mercury	EPA 7470 ^d	0.004	<0.004	<0.004	
Selenium	EPA 6010 ^c	0.5	<0.5	<0.5	
Silver	EPA 6010 ^c	0.1	<0.1	<0.1	
Detection Limit Multiplier			1	1	

- a. Federal Register, June 29, 1990, 40 CFR, Part 261, Appendix II - Method 1311. Update of November 24, 1992 removed bias adjustment based on spike recoveries.
- b. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1988.
- c. Inductively Coupled Argon Plasma (ICP)
- d. Cold Vapor Atomic Absorption (CVAA)
- e. Graphite Furnace Atomic Absorption (GFAA)

APPENDIX D  
GROUNDWATER ANALYTICAL REPORTS



# GTEL

ENVIRONMENTAL  
LABORATORIES, INC.

4080 Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 Inside CA  
(800) 423-7143 Outside CA  
(510) 825-0720 FAX

Client Number: 053245445  
Project ID: Greensboro, NC  
(Summit Ave)  
Work Order Number: C3-06-0277

June 24, 1993

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 06/16/93, under chain of custody record 29432.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

Eileen F. Bullen  
Laboratory Director

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

**Table 1**  
**ANALYTICAL RESULTS**  
**Aromatic Volatile Organics and**  
**MTBE in Water**  
**EPA Methods 5030 and 602^a**

GTEL Sample Number		01	02	03	04
Client Identification		MW1	MW2	MW3	MW4
Date Sampled		06/15/93	06/15/93	06/15/93	06/15/93
Date Analyzed		06/27/93	06/27/93	06/27/93	06/27/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	0.7	120	<0.3	33
Toluene	0.3	<0.3	<0.3	<0.3	2
Ethylbenzene	0.3	<0.3	<0.3	<0.3	0.7
Xylene, total	0.5	<0.5	<0.5	<0.5	21
BTEX, total	--	0.7	120	--	57
Methyl-tert-butyl-ether	5	140	<5	<5	770
Isopropyl ether	1	29	82	<1	430
Detection Limit Multiplier		1	1	1	1
BFB surrogate, % recovery		96.8	95.1	94.9	98.0

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. BFB surrogate recovery acceptability limits are 70-130%.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

**Table 1 (Continued)**  
**ANALYTICAL RESULTS**  
 Aromatic Volatile Organics and  
 MTBE in Water  
 EPA Methods 5030 and 602^a

GTEL Sample Number		05	06	M062793
Client Identification		VMW5	MW6	METHOD BLANK
Date Sampled		06/15/93	06/15/93	-
Date Analyzed		06/27/93	06/27/93	06/27/93
Analyte	Detection Limit, ug/L	Concentration, ug/L		
Benzene	0.3	54	820	<0.3
Toluene	0.3	<0.3	5	<0.3
Ethylbenzene	0.3	<0.3	10	<0.3
Xylene, total	0.5	<0.5	45	<0.5
BTEX, total	-	54	881	-
Methyl-tert-butyl-ether	5	<5	1800	<5
Isopropyl ether	1	30	<1	<1
Detection Limit Multiplier		1	1	1
BFB surrogate, % recovery		94.6	102	94.3

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. BFB surrogate recovery acceptability limits are 70-130%.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

Table 1  
 ANALYTICAL RESULTS  
 1,2-Dibromoethane in Water  
 EPA Method 504^a

GTEL Sample Number		01	02	03	04
Client Identification		MW1	MW2	MW3	MW4
Date Sampled		06/15/93	06/15/93	06/15/93	06/15/93
Date Extracted		06/18/93	06/18/93	06/18/93	06/18/93
Date Analyzed		06/18/93	06/18/93	06/18/93	06/18/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
1,2-Dibromoethane	0.02	<0.02	<0.02	<0.02	<0.02
Detection Limit Multiplier		1	1	1	1
DBCP Surrogate, % Recovery		70.5	63.6	67.3	72.9

GTEL Sample Number		05	06	061293EDB	
Client Identification		VMW5	MW6	METHOD BLANK	
Date Sampled		06/15/93	06/15/93	--	
Date Extracted		06/18/93	06/18/93	06/18/93	
Date Analyzed		06/18/93	06/18/93	06/18/93	
Analyte	Detection Limit, ug/L	Concentration, ug/L			
1,2-Dibromoethane	0.02	<0.02	0.58	<0.02	
Detection Limit Multiplier		1	1	1	
DBCP Surrogate, % Recovery		57.3	104	79.8	

a. Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Revision 2.0, USEPA, December 1988.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave.)  
 Work Order Number: C3-06-0277

Table 1  
 ANALYTICAL RESULTS  
 Purgeable Halocarbons in Water  
 EPA Method 601a

GTEL Sample Number		01	02	03	04
Client Identification		MW1	MW2	MW3	MW4
Date Sampled		06/15/93	06/15/93	06/15/93	06/15/93
Date Analyzed		06/24/93	06/24/93	06/24/93	06/25/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	5	11	<0.5	9
1,1,1-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Detection Limit Multiplier		1	1	1	1
BFB surrogate, % recovery		86.8	93.6	95.2	91.4

a. Federal Register, Vol. 49, October 26, 1984. BFB surrogate recovery acceptability limits are 65-135%.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave.)  
 Work Order Number: C3-06-0277

Table 1 (Continued)  
 ANALYTICAL RESULTS  
 Purgeable Halocarbons in Water  
 EPA Method 601^a

GTEL Sample Number		05	06	062493C
Client Identification		MW5	MW6	METHOD BLANK
Date Sampled		06/15/93	06/15/93	-
Date Analyzed		06/25/93	06/25/93	06/24/93
Analyte	Detection Limit, ug/L	Concentration, ug/L		
Chloromethane	0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5	<0.5	<0.5	<0.5
1,2-Dichloroethene	0.5	<0.5	<0.5	<0.5
Chloroform	0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	4	120	<0.5
1,1,1-Trichloroethane	0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5
Detection Limit Multiplier		1	1	1
BFB surrogate, % recovery		114	99.2	72.8

a. Federal Register, Vol. 49, October 26, 1984. BFB surrogate recovery acceptability limits are 65-135%.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

Table 1

ANALYTICAL RESULTS

Semi-Volatile Organics in Water  
 EPA Method 8270^a/625^b

GTEL Sample Number		01	02	03	04
Client Identification		MW1	MW2	MW3	MW4
Date Sampled		06/15/93	06/15/93	06/15/93	06/15/93
Date Extracted		06/19/93	06/19/93	06/19/93	06/19/93
Date Analyzed		06/22/93	06/22/93	06/22/93	06/22/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
bis(2-Chloroethyl)ether	10	<10	<10	<10	<10
1,3-Dichlorobenzene	10	<10	<10	<10	<10
1,4-Dichlorobenzene	10	<10	<10	<10	<10
1,2-Dichlorobenzene	10	<10	<10	<10	<10
bis-(2-Chloroisopropyl)ether	10	<10	<10	<10	<10
N-Nitroso-di-propylamine	10	<10	<10	<10	<10
Hexachloroethane	10	<10	<10	<10	<10
Nitrobenzene	10	<10	<10	<10	<10
Isophorone	10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane	10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	10	<10	<10	<10	<10
Naphthalene	10	<10	<10	<10	19
4-Chloroaniline	10	<10	<10	<10	<10
Hexachlorobutadiene	10	<10	<10	<10	<10
2-Methylnaphthalene	10	<10	<10	<10	<10
Hexachlorocyclopentadiene	10	<10	<10	<10	<10
2-Chloronaphthalene	10	<10	<10	<10	<10
2-Nitroaniline	50	<50	<50	<50	<50
Dimethylphthalate	10	<10	<10	<10	<10
Acenaphthylene	10	<10	<10	<10	<10
3-Nitroaniline	50	<50	<50	<50	<50
Acenaphthene	10	<10	<10	<10	<10
4-Nitrophenol	50	<50	<50	<50	<50
Dibenzofuran	10	<10	<10	<10	<10
2,4-Dinitrotoluene	10	<10	<10	<10	<10
2,6-Dinitrotoluene	10	<10	<10	<10	<10

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

Table 1 (Continued)  
 ANALYTICAL RESULTS  
 Semi-Volatile Organics in Water  
 EPA Method 8270^a/625^b

GTEL Sample Number		01	02	03	04
Client Identification		MW1	MW2	MW3	MW4
Date Sampled		06/15/93	06/15/93	06/15/93	06/15/93
Date Extracted		06/19/93	06/19/93	06/19/93	06/19/93
Date Analyzed		06/22/93	06/22/93	06/22/93	06/22/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Diethylphthalate	10	<10	<10	<10	<10
4-Chlorophenyl-phenylether	10	<10	<10	<10	<10
Fluorene	10	<10	<10	<10	<10
4-Nitroaniline	50	<50	<50	<50	<50
N-Nitrosodiphenylamine	10	<10	<10	<10	<10
4-Bromophenyl-phenylether	10	<10	<10	<10	<10
Hexachlorobenzene	10	<10	<10	<10	<10
Phenanthrene	10	<10	<10	<10	<10
Anthracene	10	<10	<10	<10	<10
Di-n-butylphthalate	10	<10	<10	<10	<10
Fluoranthene	10	<10	<10	<10	<10
Pyrene	10	<10	<10	<10	<10
Butylbenzylphthalate	10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	20	<20	<20	<20	<20
Benzo(a)anthracene	10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	10	<10	<10	<10	<10
Chrysene	10	<10	<10	<10	<10
Di-n-octylphthalate	10	<10	<10	<10	<10
Benzo(b)fluoranthene	10	<10	<10	<10	<10
Benzo(k)fluoranthene	10	<10	<10	<10	<10
Benzidine	20	<20	<20	<20	<20
Benzo(a)pyrene	10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	10	<10	<10	<10	<10
Dibenz(a,h)anthracene	10	<10	<10	<10	<10
Benzo(g,h,i)perylene	10	<10	<10	<10	<10
Detection Limit Multiplier		1	1	1	1
d5-Nitrobenzene surr., % rec.		85.5	55.8	82.6	97.9
2-Fluorobiphenyl surr., % rec.		81.8	62.3	80.1	85.8
d14-Terphenyl surr., % rec.		69.2	73.9	74.6	76.3

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510.  
 b. Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

Table 1

ANALYTICAL RESULTS

Semi-Volatile Organics in Water  
 EPA Method 8270^a/625^b

GTEL Sample Number		05	06	061993BN-1
Client Identification		VMW5	MW6	METHOD BLANK
Date Sampled		06/15/93	06/15/93	-
Date Extracted		06/19/93	06/19/93	06/19/93
Date Analyzed		06/22/93	06/22/93	06/22/93
Analyte	Detection Limit, ug/L	Concentration, ug/L		
bis(2-Chloroethyl)ether	10	<10	<10	<10
1,3-Dichlorobenzene	10	<10	<10	<10
1,4-Dichlorobenzene	10	<10	<10	<10
1,2-Dichlorobenzene	10	<10	<10	<10
bis-(2-Chloroisopropyl)ether	10	<10	<10	<10
N-Nitroso-di-propylamine	10	<10	<10	<10
Hexachloroethane	10	<10	<10	<10
Nitrobenzene	10	<10	<10	<10
Isophorone	10	<10	<10	<10
bis(2-Chloroethoxy)methane	10	<10	<10	<10
1,2,4-Trichlorobenzene	10	<10	<10	<10
Naphthalene	10	<10	17	<10
4-Chloroaniline	10	<10	<10	<10
Hexachlorobutadiene	10	<10	<10	<10
2-Methylnaphthalene	10	<10	<10	<10
Hexachlorocyclopentadiene	10	<10	<10	<10
2-Chloronaphthalene	10	<10	<10	<10
2-Nitroaniline	50	<50	<50	<50
Dimethylphthalate	10	<10	<10	<10
Acenaphthylene	10	<10	<10	<10
3-Nitroaniline	50	<50	<50	<50
Acenaphthene	10	<10	<10	<10
4-Nitrophenol	50	<50	<50	<50
Dibenzofuran	10	<10	<10	<10
2,4-Dinitrotoluene	10	<10	<10	<10
2,6-Dinitrotoluene	10	<10	<10	<10

Client Number: 053245445  
 Project ID: Greensboro, NC  
 (Summit Ave)  
 Work Order Number: C3-06-0277

Table 1 (Continued)

ANALYTICAL RESULTS

Semi-Volatile Organics in Water  
 EPA Method 8270^a/625^b

GTEL Sample Number		05	06	061993BN-1	
Client Identification		VMW5	MW6	METHOD BLANK	
Date Sampled		06/15/93	06/15/93	-	
Date Extracted		06/19/93	06/19/93	06/19/93	
Date Analyzed		06/22/93	06/22/93	06/22/93	
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Diethylphthalate	10	<10	<10	<10	
4-Chlorophenyl-phenylether	10	<10	<10	<10	
Fluorene	10	<10	<10	<10	
4-Nitroaniline	50	<50	<50	<50	
N-Nitrosodiphenylamine	10	<10	<10	<10	
4-Bromophenyl-phenylether	10	<10	<10	<10	
Hexachlorobenzene	10	<10	<10	<10	
Phenanthrene	10	<10	<10	<10	
Anthracene	10	<10	<10	<10	
Di-n-butylphthalate	10	<10	<10	<10	
Fluoranthene	10	<10	<10	<10	
Pyrene	10	<10	<10	<10	
Butylbenzylphthalate	10	<10	<10	<10	
3,3'-Dichlorobenzidine	20	<20	<20	<20	
Benzo(a)anthracene	10	<10	<10	<10	
bis(2-Ethylhexyl)phthalate	10	<10	<10	<10	
Chrysene	10	<10	<10	<10	
Di-n-octylphthalate	10	<10	<10	<10	
Benzo(b)fluoranthene	10	<10	<10	<10	
Benzo(k)fluoranthene	10	<10	<10	<10	
Benzidine	20	<20	<20	<20	
Benzo(a)pyrene	10	<10	<10	<10	
Indeno(1,2,3-cd)pyrene	10	<10	<10	<10	
Dibenz(a,h)anthracene	10	<10	<10	<10	
Benzo(g,h,i)perylene	10	<10	<10	<10	
Detection Limit Multiplier		1	1	1	
d5-Nitrobenzene surr., % rec.		68.5	56.0	74.2	
2-Fluorobiphenyl surr., % rec.		76.3	62.0	72.5	
d14-Terphenyl surr., % rec.		69.7	77.5	68.5	

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510.  
 b. Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.

Company Name: **FTI** Phone #: 919 467-2227  
 Fax #: 919 467 2299  
 Site Location: **Greensboro, NC (Summit Ave)**  
 Client Project ID: (M) 053245445-020543  
 (NAME) **Summit Ave**  
 Sampler Name (Print): **Aaron Hill**

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix						Method Preserved			Sampling		
			WATER	SLUDGE	PRODUCT	OTHER	TO	NO	H ₂ O	ICE	OTHER	DATE	TIME	
MW1	01	5	X	X	X	X	X	X	X	X	6/15/93	11:30		
MW2	02	5	X	X	X	X	X	X	X	X	05/11	09:11		
MW3	03	5	X	X	X	X	X	X	X	X	00/21	00/21		
MW4	04	5	X	X	X	X	X	X	X	X	07/20	07/20		
MW5	05	5	X	X	X	X	X	X	X	X				
MW6	06	5	X	X	X	X	X	X	X	X				

**SPECIAL DETECTION LIMITS**

**SPECIAL REPORTING REQUIREMENTS**

QA/QC LEVEL:  LUE  CLP  OTHER

Relinquished by Sampler: **Aaron Hill**

**CUSTODY RECORD**

Relinquished by: _____ Date: _____ Time: _____

Received by: **FENEX EOU** Date: **6/15/93** Time: **1400**

Work Order #: **C3060277**

Storage Location: **SEALS INTACT, ON ICE AT 4°C**

Lab Use Only Lot #: _____

BTX/Gas Hydrocarbons PID/FID	Hydrocarbons GC/FID Gas	Hydrocarbon Profile (SIMDIS)	Oil and Grease 413.1	TPH/MR 418.1	EDB by 504	EPA 503.1	EPA 601	EPA 602	EPA 608	EPA 624/PPL	EPA 625/PPL	EPA 610	EP TOX Metals	TCLP Metals	EPA Metals - Priority	CAM Metals	Lead	Organic Lead	Corrosivity
<input checked="" type="checkbox"/> with MTBE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DBCP by 504	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>											

**REMARKS**  
 DTEX/602 + MTBE + IPE (2 was) acidified w/ HCL  
 all others unacidified

**LAB USE ONLY**

Received by Laboratory: **B... E...**

Client Number: 053245445  
Project ID: Greensboro, NC  
Work Order Number: C3-12-0449



RECEIVED JAN - 7 1994

January 6, 1994

4080 Pike Lane  
Concord, CA 94520  
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(800) 544-3422 Inside CA  
(800) 423-7143 Outside CA  
(510) 825-0720 FAX

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 12/22/93, under chain of custody record 74-7655.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

GTEL is also certified by the State of North Carolina Department of Environmental, Health and Natural Resources, certification number 385, to perform analyses for wastewater according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

for  
Rashmi Shah  
Laboratory Director

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics  
 MTBE and IPE in Water

EPA Methods 5030 and 602a

GTEL Sample Number		01	M010394		
Client Identification		MW7	METHOD BLANK		
Date Sampled		12/21/93	--		
Date Analyzed		01/04/94	01/03/94		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3		
Toluene	0.3	<0.3	<0.3		
Ethylbenzene	0.3	<0.3	<0.3		
Xylene, total	0.5	<0.5	<0.5		
Methyl-tert-butyl-ether	5	<5	<5		
Isopropylether	1	99	<1		
Detection Limit Multiplier		1	1		
BFB surrogate, % recovery		86.5	88.9		

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. BFB surrogate recovery acceptability limits are 70-130%.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 Work Order Number: C3-12-0449

**Table 1**  
**ANALYTICAL RESULTS**  
**1,2-Dibromoethane in Water**  
**EPA Method 504a**

GTEL Sample Number		01	010493EDB		
Client Identification		MW7	METHOD BLANK		
Date Sampled		12/21/93	--		
Date Extracted		01/05/94	01/05/94		
Date Analyzed		01/05/94	01/05/94		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
1,2-Dibromoethane	0.02	<0.02	<0.02		
Detection Limit Multiplier		1	1		
DBCP surrogate, % recovery		113	140		

a. Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Revision 2.0, USEPA, December 1988.

Table 1 (Continued)  
 ANALYTICAL RESULTS  
 Purgeable Halocarbons in Water  
 EPA Method 601a

GTEL Sample Number		01	C010294		
Client Identification		MW7	METHOD BLANK		
Date Sampled		12/21/93	-		
Date Analyzed		12/29/93	01/02/94		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5		
Bromomethane	0.5	<0.5	<0.5		
Vinyl chloride	1	<1	<1		
Chloroethane	0.5	<0.5	<0.5		
Methylene chloride	0.5	<0.5	<0.5		
1,1-Dichloroethene	0.5	<0.5	<0.5		
1,1-Dichloroethane	0.5	<0.5	<0.5		
1,2-Dichloroethene	0.5	30	<0.5		
Chloroform	0.5	<0.5	<0.5		
1,2-Dichloroethane	0.5	<0.5	<0.5		
1,1,1-Trichloroethane	0.5	<0.5	<0.5		
Carbon tetrachloride	0.5	<0.5	<0.5		
Bromodichloromethane	0.5	<0.5	<0.5		
1,2-Dichloropropane	0.5	<0.5	<0.5		
cis-1,3-Dichloropropene	0.5	<0.5	<0.5		
Trichloroethene	0.5	<0.5	<0.5		
Dichlorodifluoromethane	0.5	<0.5	<0.5		
Dibromochloromethane	0.5	<0.5	<0.5		
1,1,2-Trichloroethane	0.5	<0.5	<0.5		
trans-1,3-Dichloropropene	0.5	<0.5	<0.5		
2-Chloroethylvinyl ether	1	<1	<1		
Bromoform	0.5	<0.5	<0.5		
Tetrachloroethene	0.5	<0.5	<0.5		
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5		
Chlorobenzene	0.5	<0.5	<0.5		
1,2-Dichlorobenzene	0.5	<0.5	<0.5		
1,3-Dichlorobenzene	0.5	<0.5	<0.5		
1,4-Dichlorobenzene	0.5	<0.5	<0.5		
Trichlorofluoromethane	0.5	<0.5	<0.5		
Detection Limit Multiplier		1	1		
BFB surrogate, % recovery		90.1	89.2		

a. Federal Register, Vol. 49, October 26, 1984. BFB surrogate recovery acceptability limits are 65-135%.

Client Number: 053245445  
 Project ID: Greensboro, NC  
 Work Order Number: C3-12-0449

Table 1  
 ANALYTICAL RESULTS  
 Semi-Volatile Organics in Water  
 EPA Method 8270a/625b

GTEL Sample Number		01	122793 BNAW-1		
Client Identification		MW7	METHOD BLANK		
Date Sampled		12/21/93	-		
Date Extracted		12/27/93	12/27/93		
Date Analyzed		01/03/94	01/03/94		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Phenol	10	<10	<10		
bis(2-Chloroethyl)ether	10	<10	<10		
2-Chlorophenol	10	<10	<10		
1,3-Dichlorobenzene	10	<10	<10		
1,4-Dichlorobenzene	10	<10	<10		
Benzyl alcohol	10	<10	<10		
1,2-Dichlorobenzene	10	<10	<10		
2-Methylphenol	10	<10	<10		
bis-(2-Chloroisopropyl)ether	10	<10	<10		
4-Methylphenol	10	<10	<10		
N-Nitroso-di-propylamine	10	<10	<10		
Hexachloroethane	10	<10	<10		
Nitrobenzene	10	<10	<10		
Isophorone	10	<10	<10		
2-Nitrophenol	10	<10	<10		
2,4-Dimethylphenol	10	<10	<10		
Benzoic acid	50	<50	<50		
bis(2-Chloroethoxy)methane	10	<10	<10		
2,4-Dichlorophenol	10	<10	<10		
1,2,4-Trichlorobenzene	10	<10	<10		
Naphthalene	10	<10	<10		
4-Chloroaniline	10	<10	<10		
Hexachlorobutadiene	10	<10	<10		
4-Chloro-3-methylphenol	10	<10	<10		
2-Methylnaphthalene	10	<10	<10		
Hexachlorocyclopentadiene	10	<10	<10		
2,4,6-Trichlorophenol	10	<10	<10		
2,4,5-Trichlorophenol	50	<50	<50		
2-Chloronaphthalene	10	<10	<10		
2-Nitroaniline	50	<50	<50		
Dimethylphthalate	10	<10	<10		
Acenaphthylene	10	<10	<10		
3-Nitroaniline	50	<50	<50		
Acenaphthene	10	<10	<10		
2,4-Dinitrophenol	50	<50	<50		
4-Nitrophenol	50	<50	<50		
Dibenzofuran	10	<10	<10		

Table 1 (Continued)  
 ANALYTICAL RESULTS  
 Semi-Volatile Organics in Water  
 EPA Method 8270a/625b

GTEL Sample Number		01	122793 BNAW-1		
Client Identification		MW7	METHOD BLANK		
Date Sampled		12/21/93	-		
Date Extracted		12/27/93	12/27/93		
Date Analyzed		01/03/94	01/03/94		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
2,4-Dinitrotoluene	10	<10	<10		
2,6-Dinitrotoluene	10	<10	<10		
Diethylphthalate	10	<10	<10		
4-Chlorophenyl-phenylether	10	<10	<10		
Fluorene	10	<10	<10		
4-Nitroaniline	50	<50	<50		
4,6-Dinitro-2-methylphenol	50	<50	<50		
N-Nitrosodiphenylamine	10	<10	<10		
4-Bromophenyl-phenylether	10	<10	<10		
Hexachlorobenzene	10	<10	<10		
Pentachlorophenol	50	<50	<50		
Phenanthrene	10	<10	<10		
Anthracene	10	<10	<10		
Di-n-butylphthalate	10	<10	<10		
Fluoranthene	10	<10	<10		
Pyrene	10	<10	<10		
Butylbenzylphthalate	10	<10	<10		
3,3'-Dichlorobenzidine	20	<20	<20		
Benzo(a)anthracene	10	<10	<10		
bis(2-Ethylhexyl)phthalate	10	<10	<10		
Chrysene	10	<10	<10		
Di-n-octylphthalate	10	<10	<10		
Benzo(b)fluoranthene	10	<10	<10		
Benzo(k)fluoranthene	10	<10	<10		
Benzidine	20	<20	<20		
Benzo(a)pyrene	10	<10	<10		
Indeno(1,2,3-cd)pyrene	10	<10	<10		
Dibenz(a,h)anthracene	10	<10	<10		
Benzo(g,h,i)perylene	10	<10	<10		
Detection Limit Multiplier		1	1		
d5-Nitrobenzene surr., % rec.		86.4	85.2		
2-Fluorobiphenyl surr., % rec.		92.6	67.8		
d14-Terphenyl surr., % rec.		130	128		
d5-Phenol surr., % rec.		48.3	55.8		
2-Fluorophenol surr., % rec.		19.8	53.8		
2,4,6-Tribromophenol surr., % rec.		46.8	64.0		

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510.  
 b. Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.



MI 48131  
WA 98108

Concord, CA

800-233-9336  
FAX 916-338-0036  
909-473-7143

Project Manager: Teresa Watson ✓ Phone # 919 467 2227

Address: Morrisville, NC ✓ Site location: Greenboro, NC ✓

Project Number: 053245445 Project Name: Sum - Summit

Sampler Name (Print):

I attest that the proper field sampling procedures were used during the collection of these samples.

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	Matrix		Method Preserved				Sampling					
			WATER	SOIL	AIR	SLUDGE	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	NONE	OTHER	DATE
MW7		0107	X				X						12/21	1230

CHAIN-OF-CUSTODY RECORD No 74-7655 AND ANALYSIS REQUEST

ANALYSIS REQUEST

<input checked="" type="checkbox"/> BTEX 602P 8020 with MTBE + 200	
<input type="checkbox"/> BTEX/TPH Gas: 602/8015 <input type="checkbox"/> 8020/8015 <input type="checkbox"/> MTBE	
<input type="checkbox"/> TPH as <input type="checkbox"/> Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Jet Fuel	
<input type="checkbox"/> Product I.D. by GC (SIMDIS) <input type="checkbox"/>	
<input type="checkbox"/> Total Oil & Grease: 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/> 503A	
<input type="checkbox"/> Total Petroleum Hydrocarbons: 418.1 <input type="checkbox"/> 503E	
<input checked="" type="checkbox"/> EPA 601X 8010 <input type="checkbox"/> DCA only <input type="checkbox"/>	
<input type="checkbox"/> EPA 602 8020	
<input type="checkbox"/> EPA 608 8080 <input type="checkbox"/> PCBs only <input type="checkbox"/>	
<input type="checkbox"/> EPA 610 8310	
<input type="checkbox"/> EPA 624 8240 <input type="checkbox"/> NBS +15	
<input checked="" type="checkbox"/> EPA 625 8270 <input type="checkbox"/> NBS +25	
<input type="checkbox"/> EPTOX: Metals <input type="checkbox"/> Pesticides <input type="checkbox"/> Herbicides	
<input type="checkbox"/> TCLP Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi VOA <input type="checkbox"/>	
<input type="checkbox"/> EPA Priority Pollutant Metals <input type="checkbox"/> HSL <input type="checkbox"/>	
<input type="checkbox"/> LEAD 7420 <input type="checkbox"/> 7421 <input type="checkbox"/> 239.2 <input type="checkbox"/> 6010 <input type="checkbox"/> Org. Lead	
<input type="checkbox"/> CAM Metals <input type="checkbox"/> STLC <input type="checkbox"/> TLC	
<input type="checkbox"/> Corrosivity <input type="checkbox"/> Flashpoint <input type="checkbox"/> Reactivity	

SPECIAL DETECTION LIMITS (Specify)

SPECIAL HANDLING

- 24 HOURS
- EXPEDITED 48 Hours
- SEVEN DAY
- OTHER 510 (#) BUSINESS DAYS
- QA/QC CLP Level  Blue Level
- FAX

REMARKS:

EPA 625 modified

30

SPECIAL REPORTING REQUIREMENTS (Specify)

Lab Use Only  Storage Location T-Box  
Lot #: C3120449 Work Order #: T-31

Relinquished by Sampler: Kevin Hill  
Date: 12/1/93 Time: 1700

Relinquished by: Kevin Hill  
Date: 12/22/93 Time: 10:00

Received by: Felix Riu  
Date: 12/21/93 Time: 1700

Received by Laboratory: Kevin Hill  
Date: 12/22/93 Time: 10:00

CUSTODY RECORD

Way bill #

# GTEL

ENVIRONMENTAL  
LABORATORIES, INC.

4080 Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 Inside CA  
(800) 423-7143 Outside CA  
(510) 825-0720 FAX

Client Number: 053245445  
Project ID: Sun/Sunsh Ave.  
Greensboro, NC  
Work Order Number: C4-08-0373

RECEIVED  
SEP 13 1994

September 13, 1994

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park Drive, Suite 1  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 08/24/94, under chain of custody record 30054.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

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Sincerely,  
GTEL Environmental Laboratories, Inc.

*William L. Lusk*

*for*  
Rashmi Shah  
Laboratory Director

Client Number: 053245445  
 Project ID: Sun/Burnit Ave.  
 Greenboro, NC  
 Work Order Number: CA-08-0373

**ANALYTICAL RESULTS**  
 Matrix: Soil

Sample Number		Sample Identification		Date Sampled		Date Analyzed		Test Result	
Test Description	Units	Detection Limit	Method	Date Analyzed	Test Result	Test Result	Test Result	Test Result	Test Result
Flashpoint	°F	65	EPA 1010	08/30/94	NF ≤ 160				
Sulfide Screen	mg/Kg	1	ASTM D4978-89A	08/30/94	< 1				
Cyanide Screen	mg/Kg	1	ASTM D5049-90C	08/30/94	< 1				
pH	NA	NA	EPA 9045	08/30/94	7.2				

Note: Test Methods for Evaluating Solid Waste, SW-846, 3rd edition, Rev. O, U.S. EPA, November, 1986. NA = Not Applicable.  
 ASTM = American Society for Testing and Materials, 1990.  
 NF ≤ 160 = No flash at temperature less than or equal to 160°.



Client Number: 053215445  
 Project ID: Sun/Summit Ave.  
 Greenboro, NC  
 Work Order Number: C4-08-0373

**ANALYTICAL RESULTS**  
**Metals in TCLP Leachate^a**

GTEL Sample Number	10	082994 MET		
Client Identification	CSS-SU	METHOD BLANK		
Date Sampled	08/23/94	-		
Date Leached Start	08/25/94	08/25/94		
Date Leached End	08/26/94	08/26/94		
Date Digested	08/29/94	08/29/94		
Date Analyzed (Method 6010)	08/29/94	08/29/94		
Date Analyzed (Method 7060)	08/29/94	08/29/94		
Date Digested and Analyzed (Method 7470)	08/29/94	08/29/94		
<b>Analyte</b>	<b>Method^b</b>	<b>Detection Limit, mg/L</b>	<b>Leachate Concentration, mg/L</b>	
Arsenic	EPA 7060 ^e	0.5	<0.5	<0.5
Barium	EPA 6010 ^c	5	<5	<5
Cadmium	EPA 6010 ^c	0.1	<0.1	<0.1
Chromium, total	EPA 6010 ^c	0.1	<0.1	<0.1
Lead	EPA 6010 ^c	0.5	<0.5	<0.5
Mercury	EPA 7470 ^d	0.004	<0.004	<0.004
Selenium	EPA 6010 ^c	0.5	<0.5	<0.5
Silver	EPA 6010 ^c	0.1	<0.1	<0.1
Detection Limit Multiplier		1	1	

- a. Federal Register, June 29, 1990, 40 CFR, Part 261, Appendix II - Method 1311. Update of November 24, 1992 removed bias adjustment based on spike recoveries.
- b. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1996.
- c. Inductively Coupled Argon Plasma (ICP)
- d. Cold Vapor Atomic Absorption (CVAA)
- e. Graphite Furnace Atomic Absorption (GFAA)

Client Number: 053245445  
 Project ID: Sun/SunR Ave.  
 Greenboro, NC  
 Work Order Number: C4-08-0373

**ANALYTICAL RESULTS**  
 Semi-Volatile Organics in Water  
 EPA Method 625^A

GTEL Sample Number		08	09	082294 BNW-1	
Client Identification		VMW-8	MW-9	METHOD BLANK	
Date Sampled		08/23/94	08/23/94	--	
Date Extracted		08/25/94	08/25/94	08/25/94	
Date Analyzed		08/26/94	08/26/94	08/26/94	
Analyte	Detection Limit, ug/L	Concentration, ug/L			
bis(2-Chloroethyl)ether	10	<10	<10	<10	
1,3-Dichlorobenzene	10	<10	<10	<10	
1,4-Dichlorobenzene	10	<10	<10	<10	
1,2-Dichlorobenzene	10	<10	<10	<10	
bis-(2-Chloroisopropyl)ether	10	<10	<10	<10	
N-Nitroso-di-propylamine	10	<10	<10	<10	
Hexachloroethane	10	<10	<10	<10	
Nitrobenzene	10	<10	<10	<10	
Isophorone	10	<10	<10	<10	
bis(2-Chloroethoxy)methane	10	<10	<10	<10	
1,2,4-Trichlorobenzene	10	<10	<10	<10	
Naphthalene	10	<10	<10	<10	
Hexachlorobutadiene	10	<10	<10	<10	
2-Methylnaphthalene	10	<10	<10	<10	
Hexachlorocyclopentadiene	10	<10	<10	<10	
2-Chloronaphthalene	10	<10	<10	<10	
Dimethylphthalate	10	<10	<10	<10	
Acenaphthylene	10	<10	<10	<10	
Acenaphthene	10	<10	<10	<10	
Dibenzofuran	10	<10	<10	<10	

Client Number: 053245445  
 Project ID: Sun/Sun#2 Ave.  
 Greensboro, NC  
 Work Order Number: C4-08-0373

**ANALYTICAL RESULTS**  
 Semi-Volatile Organics in Water  
 EPA Method 625^a

GTEL Sample Number		08	09	082594 BNW-1
Client Identification		VMW-8	MW-9	METHOD BLANK
Date Sampled		08/23/94	08/23/94	-
Date Extracted		08/25/94	08/25/94	08/25/94
Date Analyzed		08/26/94	08/26/94	08/26/94
Analyte	Detection Limit, ug/L	Concentration, ug/L		
2,4-Dinitrotoluene	10	<10	<10	<10
2,6-Dinitrotoluene	10	<10	<10	<10
Diethylphthalate	10	<10	<10	<10
4-Chlorophenyl-phenylether	10	<10	<10	<10
Fluorene	10	<10	<10	<10
N-Nitrosodiphenylamine	10	<10	<10	<10
4-Bromophenyl-phenylether	10	<10	<10	<10
Hexachlorobenzene	10	<10	<10	<10
Phenanthrene	10	<10	<10	<10
Anthracene	10	<10	<10	<10
Di-n-butylphthalate	10	<10	<10	<10
Fluoranthene	10	<10	<10	<10
Pyrene	10	<10	<10	<10
Butylbenzylphthalate	10	<10	<10	<10
3,3'-Dichlorobenzidine	20	<20	<20	<20
Benzo(a)anthracene	10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	10	<10	<10	<10
Chrysene	10	<10	<10	<10
Di-n-octylphthalate	10	<10	<10	<10
Benzo(b)fluoranthene	10	<10	<10	<10
Benzo(k)fluoranthene	10	<10	<10	<10
Benzo(a)pyrene	10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	10	<10	<10	<10
Dibenz(a,h)anthracene	10	<10	<10	<10
Benzo(g,h,i)perylene	10	<10	<10	<10
Detection Limit Multiplier		1	1	1
d5-Nitrobenzene surr., % rec.		83.4	83.6	76.6
2-Fluorobiphenyl surr., % rec.		73.4	74.2	80.6
d14-Terphenyl surr., % rec.		68.6	57.2	84.0

^a Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.

GTEL Client ID: 053245445  
 Login Number: C4080373  
 Project ID (number): 053245445  
 Project ID (name): Sun/Summit Ave., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 601  
 Matrix: Aqueous

Client ID	Sample Number	Client ID	Sample Number
053245445	C4080373-08	053245445	C4080373-19
053245445	VM-8	053245445	VM-9
053245445	08/23/94	053245445	08/23/94
053245445	08/29/94	053245445	08/29/94
053245445	1.00	053245445	1.00

Analyte	Reporting Limit	Units	Concentration:
Dichlorodifluoromethane	0.5	ug/L	< 0.5
Chloromethane	0.5	ug/L	< 0.5
Vinyl chloride	1.0	ug/L	< 1.0
Bromomethane	0.5	ug/L	< 0.5
Chloroethane	0.5	ug/L	< 0.5
Trichlorofluoromethane	0.5	ug/L	< 0.5
1,1-Dichloroethene	0.5	ug/L	< 0.5
Methylene chloride	0.5	ug/L	< 0.5
1,2-Dichloroethene (total)	0.5	ug/L	< 0.5
1,1-Dichloroethane	0.5	ug/L	< 0.5
Chloroform	0.5	ug/L	9.4
1,1,1-Trichloroethane	0.5	ug/L	< 0.5
Carbon tetrachloride	0.5	ug/L	< 0.5
1,2-Dichloroethane	0.5	ug/L	1.6
Trichloroethene	0.5	ug/L	< 0.5
1,2-Dichloropropane	0.5	ug/L	< 0.5
Bromodichloromethane	0.5	ug/L	2.0
2-Chloroethyl vinyl ether	1.0	ug/L	< 1.0
cis-1,3-Dichloropropene	0.5	ug/L	< 0.5
trans-1,3-Dichloropropene	0.5	ug/L	< 0.5
1,1,2-Trichloroethane	0.5	ug/L	< 0.5
Tetrachloroethene	0.5	ug/L	1.7
Dibromochloromethane	0.5	ug/L	< 0.5
Chlorobenzene	0.5	ug/L	< 0.5
Bromobenzene	0.5	ug/L	< 0.5
1,1,2,2-Tetrachloroethane	0.5	ug/L	< 0.5
1,3-Dichlorobenzene	0.5	ug/L	< 0.5
1,4-Dichlorobenzene	0.5	ug/L	< 0.5
1,2-Dichlorobenzene	0.5	ug/L	< 0.5

VMW-8  
 601  
 8/23/94

Note  
 malocubans  
 Chloroform > 2L (0.19 ppb)  
 1,2-DC4 > 2L (0.38 ppb)  
 D-methylenchlorine  
 PCE > 2L (0.7)

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 601:

"Test Procedures for Analysis of Organic Pollutants", Code of Federal Regulations, 40CFR Part 136, Appendix A. 1,2-Dichloroethene (total) is the sum of cis and trans 1,2-Dichloroethene. BFB surrogate recovery acceptability limits are 65 - 130%.

GTEL Concord, CA  
 C4080373:1





100

100



GTEL Client ID: 053245445  
 Login Number: C4080373  
 Project ID (number): 053245445  
 Project ID (name): Sun/Summit Ave., Greensboro, NC

QUALITY CONTROL RESULTS

Volatile Organics  
 Method: EPA 601  
 Matrix: Aqueous

Method Blank Results

QC Batch No: C082994-1  
 Date Analyzed: 29-AUG-94

Analyte	Method: EPA 601	Concentration: ug/L
Dichlorodifluoromethane	< 0.50	
Chloromethane	< 0.50	
Vinyl chloride	< 1.0	
Bromomethane	< 0.50	
Chloroethane	< 0.50	
Trichlorofluoromethane	< 0.50	
1,1-Dichloroethene	< 0.50	
Methylene chloride	< 0.50	
1,2-Dichloroethene (total)	< 0.50	
1,1-Dichloroethane	< 0.50	
Chloroform	< 0.50	
1,1,1-Trichloroethane	< 0.50	
Carbon tetrachloride	< 0.50	
1,2-Dichloroethane	< 0.50	
Trichloroethene	< 0.50	
1,2-Dichloropropane	< 0.50	
Bromochloromethane	< 0.50	
2-Chloroethyl vinyl ether	< 1.0	
cis-1,3-Dichloropropene	< 0.50	
trans-1,3-Dichloropropene	< 0.50	
1,1,2-Trichloroethane	< 0.50	
Tetrachloroethene	< 0.50	
Dibromochloromethane	< 0.50	
Chlorobenzene	< 0.50	
Bromobenzene	< 0.50	
1,1,2,2-Tetrachloroethane	< 0.50	
1,3-Dichlorobenzene	< 0.50	
1,4-Dichlorobenzene	< 0.50	
1,2-Dichlorobenzene	< 0.50	

Notes:

GTEL Client ID: 053245445  
 Login Number: C4080373  
 Project ID (number): 053245445  
 Project ID (name): Sun/Summit Ave., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 602  
 Matrix: Aqueous

GTEL Sample Number	C4080373-01	C4080373-02	C4080373-03	C4080373-04
Client ID	MM-1	MM-2	MM-3	MM-4
Date Sampled	08/23/94	08/23/94	08/23/94	08/23/94
Date Analyzed	09/03/94	09/03/94	09/03/94	09/04/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:	Concentration:	Concentration:	Concentration:
Benzene	0.3	ug/L	0.9	130	< 0.3	< 0.3
Toluene	0.3	ug/L	< 0.3	< 0.3	< 0.3	< 0.3
Ethylbenzene	0.3	ug/L	< 0.3	< 0.3	< 0.3	< 0.3
Xylenes (total)	0.5	ug/L	< 0.5	< 0.5	< 0.5	1.0
MDE	5.0	ug/L	220	< 5.0	< 5.0	1000
IPE	1.0	ug/L	20.	120	< 1.0	140
B.B. (Surrogate)			97.6	96.3	94.5	96.2

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 602:

"Test Procedures for Analysis of Organic Pollutants", Code of Federal Regulations, 40CFR Section 136, Appendix A, July 1992. Analyte list modified to include additional compounds.

GTEL Concord, CA  
 C4080373:1



GTEL Client ID: 053245445  
 Login Number: C4080373  
 Project ID (number): 053245445  
 Project ID (name): Sun/Summit Ave., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 602  
 Matrix: Aqueous

GTEL Sample Number	C4080373-05	C4080373-06	C4080373-07	C4080373-08
Client ID	MM65	MM65	MM7	MM65
Date Sampled	08/23/94	08/23/94	08/23/94	08/23/94
Date Analyzed	09/03/94	09/03/94	09/05/94	09/05/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting		Concentration:			
	Limit	Units				
Benzene	0.3	ug/L	75.	520	< 0.3	2.2
Toluene	0.3	ug/L	< 0.3	7.4	< 0.3	< 0.3
Ethylbenzene	0.3	ug/L	< 0.3	6.0	< 0.3	< 0.3
Xylenes (Total)	0.5	ug/L	< 0.5	20	< 0.5	< 0.5
MTBE	5.0	ug/L	< 5.0	1600	6.4	8.8
EP	1.0	ug/L	49.	14.	67.	18.
BFB (Surrogate)	--	%	88.8	91.8	89.3	88.1

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 602:

"Test Procedures for Analysis of Organic Pollutants". Code of Federal Regulations, 40CFR Section 136, Appendix A, July 1992. Analyte list modified to include additional compounds.

GTEL Concord, CA  
 C4080373:2



GTEL Client ID: 053245445  
 Login Number: C4080373  
 Project ID (number): 053245445  
 Project ID (name): Sun/Summit Ave., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 602  
 Matrix: Aqueous

GTEL Sample Number: C4080373-09  
 Client ID: M-9  
 Date Sampled: 08/23/94  
 Date Analyzed: 09/05/94  
 Dilution Factor: 1.00

Analyte	Reporting Limit	Units	Concentration:
Benzene	0.3	ug/L	0.7
Toluene	0.3	ug/L	< 0.3
Ethylbenzene	0.3	ug/L	< 0.3
Xylenes (total)	0.5	ug/L	3.6
HTB	5.0	ug/L	< 5.0
IPE	1.0	ug/L	< 1.0
BFB (Surrogate)		%	88.5

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 602:

"Test Procedures for Analysis of Organic Pollutants", Code of Federal Regulations, 40CFR Section 136, Appendix A, July 1992. Analyte list modified to include additional compounds.

GTEL Concord, CA  
 C4080373:3



GTEL Client ID: 053245445  
Login Number: C4080373  
Project ID (number): 053245445  
Project ID (name): Sun/Summit Ave., Greensboro, NC

QUALITY CONTROL RESULTS

Volatile Organics  
Method: EPA 602  
Matrix: Aqueous

Method Blank Results

QC Batch No: G090394-5  
Date Analyzed: 03-SEP-94

Analyte	Method: EPA 602	Concentration: ug/L
Benzene	0.30	
Toluene	< 0.30	
Ethylbenzene	0.30	
Xylenes (Total)	< 0.50	
MIBK	< 5.0	

Notes:



ENVIRONMENTAL  
LABORATORIES, INC.

4080 Pike Lane  
Concord, CA 94520  
(510) 685-7852  
(800) 544-3422 Inside CA  
(800) 423-7143 Outside CA  
(510) 825-0720 FAX

Client Number: 053245445  
Project ID: Sun/Sumit Ave.  
Greenboro, NC  
Work Order Number: C4-08-0373

September 13, 1994

Teresa Watson  
Groundwater Technology, Inc.  
1000 Perimeter Park Drive, Suite I  
Morrisville, NC 27560

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 08/24/94, under chain of custody record 30054.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

GTEL is also certified by the State of North Carolina Department of Environmental, Health and Natural Resources, certification number 385, to perform analyses for wastewater according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,  
GTEL Environmental Laboratories, Inc.

*William Sushoda*

*for*  
Rashmi Shah  
Laboratory Director

Client Number: 052245445  
 Project ID: Sun/Summit Ave.  
 Greensboro, NC  
 Work Order Number: C4-08-0373

**ANALYTICAL RESULTS**  
**1,2-Dibromoethane in Water**  
**EPA Method 504a**

GTEL Sample Number		08	09	BW083194
Client Identification		VMW-8	MW-9	METHOD BLANK
Date Sampled		08/23/94	08/23/94	-
Date Extracted		08/31/94	08/31/94	08/31/94
Date Analyzed		09/12/94	09/12/94	09/12/94
Analyte	Detection Limit, ug/L	Concentration, ug/L		
1,2-Dibromoethane	0.02	<0.02	<0.02	<0.02
Detection Limit Multiplier		1	1	1
DBCP surrogate, % recovery		NA	NA	NA

a. Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Revision 2.0, USEPA, December 1988. NA = Not Applicable.

**QUALITY CONTROL RECORD AND ANALYSIS REQUEST**

**GTEL**  
 4050 PIKE LANE, SUITE 200  
 CONCORD, CA 94520  
 (510) 685-7852  
 (800) 423-7143

Company Name: GTEL  
 Phone #: 919 467-2297  
 FAX #: 919 467-2299  
 Company Address: Morrisville, NC  
 Site Location: Summit LLC  
 Project Manager: Terisa W.  
 Client Project ID: (#) 053245445  
 Sampler Name (Print): Randolph Jarosik

Field Sample ID	GTEL Lab # (Lab Use only)	Matrix			Method Preserved			Sampling		
		WATER	SOIL	SLUDGE	OTHER	ISO	ISO	ISO	DATE	TIME
MN-1	01	X				X	X	X	X	13:15
MN-2	02	X				X	X	X	X	13:25
MN-3	03	X				X	X	X	X	13:35
MN-4	04	X				X	X	X	X	13:45
MN-5	05	X				X	X	X	X	13:55
MN-6	06	X				X	X	X	X	14:05
MN-7	07	X				X	X	X	X	14:15
MN-8	08	X				X	X	X	X	14:25
MN-9	09	X				X	X	X	X	14:35
CS5-5U	10	X				X	X	X	X	14:45
CS5-5U	11	X				X	X	X	X	14:45

**SPECIAL DETECTION LIMITS**

Special Handling: _____  
 GTEL Contact: _____  
 Quote/Contract #: _____  
 Confirmation #: _____  
 P.O. #: _____

**SPECIAL REPORTING REQUIREMENTS**

Lab Use Only Lot #: _____  
 Storage Location: _____  
 Work Order #: C4680373  
 Received by: CHT Exp  
 Received by: _____

Relinquished by Sampler:	Date	Time
<u>Randolph Jarosik</u>	<u>8-23-94</u>	<u>19:00</u>
Relinquished by:	Date	Time
Relinquished by:	<u>8/24/94</u>	<u>09:00</u>

**CUSTOMY RECORD**

Blue:  CLP:  Other:

Received by Laboratory: Randolph Jarosik

Analysis Request	Other
EPA 608 [ ] 8080 [ ] PCB only [ ]	
EPA 624/PPL [ ] 8240/TAL [ ] NBS (-15) [ ]	
EPA 625/PPL [ ] 8270/TAL [ ] NBS (-25) [ ]	
EPA 610 [ ] 8310 [ ]	
EP TOX Metals [ ] Pesticides [ ] Herbicides [ ]	
TCP Metals [ ] VOA [ ] Semi-VOA [ ] Pest [ ] Herb [ ]	
EPA Metals - Priority Pollutants [ ] TAL [ ] RCRA [ ]	
CAM Metals TMLC [ ] STLC [ ]	
Lead 239.2 [ ] 200.7 [ ] 7420 [ ] 7421 [ ] 8010 [ ]	
Organic Lead [ ]	
Comorbidity [ ] Flash Point [ ] Reactivity [ ]	
Rex by 002 + MTRB & IPC	
EPA 625 (Rose neutrals only)	
R.C.T.	

**REMARKS:**

_____