

# GROUNDWATER TECHNOLOGY ®

Groundwater Technology, Inc.

November 30, 1994

15010 W. 106th Street, Lenexa, KS 66215 USA  
Tel: (913) 599-0262 Fax: (913) 599-1043

Ms. Libby Hauschmidt  
Corrective Actions Supervisor  
Bureau of Underground Storage Tank Regulations  
9221 Ravenna Road, Suite D7-D8  
Twinsburg, Ohio 44087-2443

Subject: Site Assessment Report  
Sears Store 1310  
300 Midway Boulevard  
Elyria, Ohio  
Incident No. 4732300-00

Dear Ms. Hauschmidt:

Enclosed is the Site Assessment Report for the above-referenced site. Groundwater Technology is submitting this report on behalf of the Sears Merchandise Group.

Based upon results of field screening and chemical analysis of collected samples, it is the opinion of Groundwater Technology and Sears that no further regulatory action at this site is required.

If you have any questions concerning the enclosed report, please call me at (304) 755-5171, at your convenience.

Sincerely,  
Groundwater Technology, Inc.

  
John A. Frankenthal  
Zone Project Manager

Enclosure

c: Ms. Bernadine G. Palka, P.E., Sears Merchandise Group  
Mr. David W. Daniels, Groundwater Technology, Inc.



Sears Merchandise Group  
Department 824C A2 - 160B  
3333 Beverly Road  
Hoffman Estates, Illinois 60179  
708 / 286 8864

November 30, 1994

Corrective Actions Supervisor  
Bureau Of Underground Storage Tank Regulations  
8895 East Main Street  
Reynoldsburg, OH 43068 - 0687

Re: Site Assessment Report  
Sears #1310  
300 Midway Boulevard  
Elyria, Ohio  
**Incident No. 4732300 - 00**

Dear Corrective Actions Supervisor:

Enclosed is the Site Assessment Report which was prepared on behalf of Sears by Groundwater Technology, Inc. for the above referenced site. Based upon results of field screening and chemical analysis of collected samples, it is the opinion of Groundwater Technology, Inc. and Sears that no further regulatory action at this site is required.

If you have any questions concerning the enclosed report, please call John Frankenthal of GTI ( 304 / 755 - 5171 ) or me.

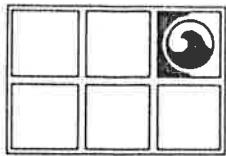
Thank you for your attention to this matter.

Sincerely,  
Sears, Roebuck and Co.

Bernadine G. Palka, P.E.  
Manager Environmental Engineering

Enclosure

cc: John Frankenthal, Groundwater Technology, Inc.  
David Daniels, Groundwater Technology, Inc.



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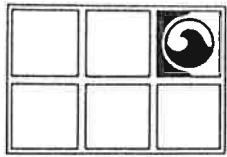
If you have any questions concerning the enclosed report, please call me at (304) 755-5171, at your convenience.

Sincerely,  
Groundwater Technology, Inc.

*John A. Frankenthal*  
John A. Frankenthal  
Zone Project Manager

Enclosure

c: Ms. Bernadine G. Palka, P.E., Sears Merchandise Group  
Mr. David W. Daniels, Groundwater Technology, Inc.



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Tel: (913) 599-0262 Fax: (913) 599-1043

**SITE ASSESSMENT REPORT  
SEARS STORE 1310  
300 MIDWAY BOULEVARD  
ELYRIA, LORAIN COUNTY, OHIO  
INCIDENT NO. 4732300-00**

GTI Project 012015039

November 30, 1994

Prepared for:

Ms. Bernadine G. Palka, P.E.  
Manager of Environmental Engineering  
**Sears Merchandise Group**  
Department 824C, Bldg. A2-160B  
3333 Beverly Road  
Hoffman Estates, Illinois 60179

**Groundwater Technology, Inc.**  
Prepared by:

*Bernhard Dirska*  
Bernhard Dirska *HMF*  
Geologist

**Groundwater Technology, Inc.**  
Reviewed by:

*John A. Frankenthal*  
John A. Frankenthal  
Zone Project Manager

*Chris Higgins*

Chris Higgins  
Remedial Technical Specialist

**Site Assessment Checklist and Recommended Table of Contents (Page 1 of 2)**  
(Received by the SFM within 180 days of reporting the release)

Date:	<u>November 30, 1994</u>	Facility:	<u>Sears Store 1310</u>
Owner/Operator*:	<u>Sears Merchandise Group</u>	Address:	<u>300 Midway Boulevard</u>
Address:	<u>3333 Beverly Drive</u>	County:	<u>Elyria, Ohio 44035</u>
	<u>Hoffman Estates, Illinois</u>		
Phone #:	<u>(708) 286-8864</u>	Incident #:	<u>4732300-00</u>

check pg #

Each Site Assessment report must include the following:

- vi,1 A. A brief summary of the activities to date, which includes
  1. The nature of the release.
  2. Immediate corrective actions taken.
  3. Free product removal activities.
  4. The results of soil/ground-water results from a site check, closure assessment or other assessment (table of sample results and site map depicting location and depth).
  
- 2 B. A summary of the assessment activities, which includes
  1. An explanation of how soil boring locations were chosen.
  2. A determination of the vertical and horizontal extent of the release in soil and ground water.
  3. A description of soil core drilling and monitor well installation (drilling logs and monitor well diagrams included as an appendix.)
  4. Determination of the direction and gradient of ground-water flow if ground water is encountered.
  5. Data collection for monitoring wells, such as depth to product, product thickness, depth of water from top of casing, elevation to top of casing, and location of arbitrary benchmark.
  
- app A C. A map that accurately depicts the locations of the UST system, buildings or other structures within 1,000 feet of the suspect UST system, on-site storm sewers, water lines, underground telephone lines, natural gas lines, and other structures and utilities which may act as a route of migration for contaminants. In addition, the map must accurately depict the locations of the soil core borings, monitoring well locations, and surface water samples.

## Site Assessment Checklist and Recommended Table of Contents (Page 2 of 2)

(Received by the SFM within 180 days of reporting the release)

check pg #

app C D. Results of sampling in table format with actual analytical results for  
 app C 1. Results of soil samples.  
 5 2. Result of surface water sampling from ditches, storm sewers, streams, lakes, or  
other surface waters affected by the release.  
 6 3. Results of ground-water samples from monitoring wells.  
 6 4. Results of water samples from private drinking-water wells.

app A, B E. Any other pertinent information such as access agreements, boring logs, and lab data sheets.

Preparer Name: John Frankenthal

Preparer Signature: John Frankenthal Date: 11/29/94

Owner/Operator\*: Sears Merchandise Group  
Name **BERNADINE G. PALKA**

Owner/Operator\*: Bernadine Palka Date: 11/30/94  
Signature

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- B. Drilling Logs**
- C. Laboratory Reports for Soil Samples**
- D. SFSS Chart**

## EXECUTIVE SUMMARY

The site is an active Sears Automotive Service Facility at 300 Midway Boulevard in Elyria, Ohio. On May 24, and September 1, 1994, Groundwater Technology, on behalf of Sears Merchandise Group, conducted site assessment activities at the facility.

The assessment was conducted in response to the detection of petroleum hydrocarbons during the removal of one 1,000-gallon used-oil underground storage tank from the facility on January 7, 1994.

The site assessment was performed in two stages. The initial phase was performed during May 1994, involved a Strataprobe sampler and an on-site mobile laboratory. Four soil borings were advanced, and soil samples were analyzed both on-site and in the laboratory. None of the samples contained hydrocarbons in excess of BUSTR Category 3 Action Levels. Groundwater was not encountered in any of the boreholes advanced.

Subsequent conversations with BUSTR representatives indicated site closure based solely on data collected during the Strataprobe investigation was unacceptable and an assessment using standard drilling techniques was necessary.

The second phase of the site assessment included the advancement of three additional soil borings, and sampling and analysis of soil. Two soil samples from each boring were submitted for laboratory analysis. None of the samples contained adsorbed-phase hydrocarbon concentrations in excess of BUSTR Category 3 Action Levels. Groundwater was not encountered.

Based upon results of field screening and chemical analysis of samples collected, it is the opinion of Groundwater Technology and Sears that no further regulatory action at this site is required.

## **A. SUMMARY OF ACTIVITIES TO DATE**

This site is an active Sears facility from which the underground storage tank (UST) system was removed. Laboratory results from the UST system removal indicated that the soil at this site is impacted with low levels of adsorbed-phase petroleum hydrocarbons. On the basis of the information gathered during the UST system removal, Sears elected to initiate a site assessment. This report documents the findings of the site assessment.

### **1. Nature of Release**

Sears contracted Groundwater Technology to remove the UST system from the site. The USTs removed in January 1994 contained used oil.

Analysis of soil samples collected during the system removal indicated there had been a release of petroleum hydrocarbons from the UST system. The sample from the north wall of the excavation contained total petroleum hydrocarbon (TPH) concentrations above BUSTR Category 3 Action Levels. Details of the UST removal are documented in the report entitled *Underground Storage Tank Removal and Closure Report, Sears Store 1310, 300 Midway Boulevard, Elyria, Ohio*, submitted September 1, 1994.

### **2. Immediate Corrective Actions**

No immediate corrective actions were required.

### **3. Removal of Liquid-Phase Hydrocarbons**

No liquid-phase hydrocarbons were encountered during UST removal activities.

### **4. Results of Site Check**

A site check was not performed.

## **B. SUMMARY OF ASSESSMENT ACTIVITIES**

### **1. Location of Soil Boreholes**

The four Strataprobe boring locations were chosen in an effort to delineate the extent of hydrocarbon impact from the former used-oil UST system. Borings could not be advanced immediately east of the UST vault because the facility building was adjacent to the UST.

Boring locations for the second phase of the site assessment were based upon the results of the Strataprobe investigation. Because the Strataprobe investigation did not encounter petroleum hydrocarbons, the drill rig boreholes were located in close proximity to the UST.

The locations of the borings are shown on the site map (figure 1, appendix A).

### **2. Soil Boring and Monitoring Well Installation**

#### **a. Safety Considerations**

Groundwater Technology developed a Site Safety Plan to provide a safe working environment and to comply with Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.120. This plan addressed specific environmental work-site hazards and presented contingency plans for site personnel. All Groundwater Technology and subcontractor personnel working at the site reviewed the plan and followed the guidelines.

#### **b. Decontamination**

Before the drilling of each borehole and collection of soil samples, downhole equipment was washed with hot water from a high-pressure steamer. This was conducted for quality assurance/quality control purposes and to prevent cross-contamination.

### c. Soil Boring

Groundwater Technology personnel supervised the drilling of all boreholes. Borehole locations were selected using the rationale described in section B.1. and are depicted in figure 1 in appendix A. The boreholes installed during the initial phase of the assessment were advanced using Strataprobe technology. The boreholes advanced during the second phase of the assessment were drilled using a hollow-stem auger drill rig. A Groundwater Technology geologist was present to log the lithology of each borehole, note visible indications of petroleum hydrocarbon impact, and collect soil samples. Drilling logs are contained in appendix B.

### d. Soil Sampling

Soil from each borehole drilled during the Strataprobe assessment was sampled at intervals shown on the drilling logs (see appendix B), generally every five feet. Soils from each borehole drilled during the second phase of the assessment were continuously sampled from two feet below the ground surface to the bottom of exploration. All soil samples were obtained using a split spoon soil sampler. Duplicate soil samples were collected, one set of samples was collected for field screening, and the second set was properly labeled and preserved as required by EPA protocol, and placed in a cooler with ice for submittal to a laboratory for chemical analysis.

### e. Field Screening

After one set of samples had approximated ambient temperature, the headspace was screened for total ionizable vapors. A photoionization detector (PID) was used for the field screening. Before screening, each sample container was shaken to facilitate the partitioning of vapors from the soil into the headspace. The detector probe was inserted into the headspace of the container, and the headspace vapors were tested for approximately 5 seconds, and recorded.

Soil samples from the Strataprobe investigation were analyzed on-site, using a mobile laboratory. Two samples from each boring (except SB-2) were sent for laboratory analysis. One sample from SB-2 was sent to the laboratory for analysis.

Soil samples obtained using the drill rig were sent for laboratory analysis. Two soil samples from each boring were submitted; bottom of exploration, and the vadose zone sample exhibiting the highest PID reading.

f. Monitoring Well Installation and Borehole Abandonment

None of the boreholes were completed as permanent monitoring wells.

After drilling and soil sample collection were completed, the boreholes were abandoned. Bentonite was placed in each borehole from the total depth to several inches below surface grade. The boreholes were capped at the surface with asphalt or concrete, depending upon the surrounding paving surface.

g. Site Survey

The site features, including the boring locations, were horizontally located to generate a site map. Surrounding features were also located for inclusion on the site map.

h. Well Gauging

No monitoring wells were installed during the assessments.

i. Groundwater Sampling

No groundwater was encountered during the site assessment. Therefore, no groundwater samples were collected.

j. Laboratory Analysis

Selected soil samples were submitted to the laboratory for chemical analysis in accordance with BUSTR protocol. The descriptions of samples collected, targeted analytes, and analytical methods used, including a copy of the analytical report from the mobile laboratory, are presented in appendix C.

No surface water sampling was conducted (see section D.2.).

No groundwater samples were collected.

#### **k. Waste Disposal**

Water and liquids used to decontaminate the equipment were placed in a labeled 55-gallon drum. The drum remains on-site pending disposal by a licensed subcontractor.

Drill cuttings were placed into three 55-gallon drums. One composite sample was obtained from each drum, and field screened with a PID. The sample exhibiting the highest PID reading was submitted to the laboratory for characterization analysis to determine an appropriate disposal method. Results are shown on the laboratory reports in appendix C. The three drums of drill cuttings remain on-site pending disposal by a licensed subcontractor.

### **3. Monitoring Well Data**

No monitoring wells were installed during any assessment activities.

### **C. SITE MAP**

The site map (see figure 1 in appendix A) illustrates the former location of the UST system, on-site buildings and structures, and utilities that may act as a route of migration. The map also depicts locations of the soil boreholes.

### **D. ANALYSIS RESULTS**

Analytical results from the initial Strataprobe investigation and site assessment are contained in the laboratory reports in appendix C.

#### **1. Soil Samples**

Results for soil samples analyzed by the mobile and fixed-base laboratories are in appendix C. Tables summarizing soil analytical results and copies of laboratory reports are included in appendix C.

#### **2. Surface Water Samples**

No surface water body was observed within 1,000 feet of the subject site, therefore; collection of surface water samples was not necessary.

### **3. Groundwater Samples**

No monitoring wells were installed during the second phase of the assessment; therefore, no groundwater samples were collected.

### **4. Drinking Water Well Samples**

No drinking water well was identified within 1,000 feet of the subject site.

## **E. DISCUSSION**

### **1. SFSS Amendments**

A SFSS Chart was included with the UST closure report. Additional information obtained during drilling requires that one of the site features be modified. Site feature 2, depth to groundwater, is changed from "greater than 50 feet" to "15-30 feet or unknown". This modification has no effect upon the action levels, and the site remains classified as a Category 3 site. The updated SFSS chart is included in appendix D.

### **2. Geology/Hydrogeology**

Stratigraphy in the areas of the soil borings is classified as stiff clay with traces of silty sand extending to approximately 18 feet below grade. A Shelby tube sampler was used to collect a soil sample from boring SB-7 at the 6 to 8 foot interval. The sample was submitted for analysis of geophysical parameters including moisture and organic content, bulk density, specific gravity, porosity, and particle density. A summary of the geophysical analysis is included in appendix C. No groundwater was encountered. Therefore, groundwater must lie below the maximum boring depth of twenty feet.

### **3. Conclusions**

Based upon results of the drilling investigations, the extent of hydrocarbon impact to the soils in the vicinity of the former used-oil UST has been delineated. Laboratory analytical reports from both assessment investigations indicated total BTEX and TPH concentrations were not detected or were below BUSTR action levels. Based on these results, it is the opinion of Groundwater Technology and Sears that no further regulatory action at this site is required.

## **F. SUPPORTING INFORMATION**

### **1. Results of Site Check**

No site check was performed.

### **2. Drilling Logs**

Drilling logs from the soil assessment are contained in appendix B.

### **3. Field Testing Results**

Field testing results from the soil assessment are shown on the drilling logs in appendix D.

### **4. Monitoring Well Diagrams**

No monitoring wells were installed.

### **5. Elevation Survey**

No monitoring wells were installed.

## **APPENDIX A**

### **FIGURES**

LEGEND

⊗ SOIL SAMPLE LOCATION  
 — AREA OF EXCAVATION



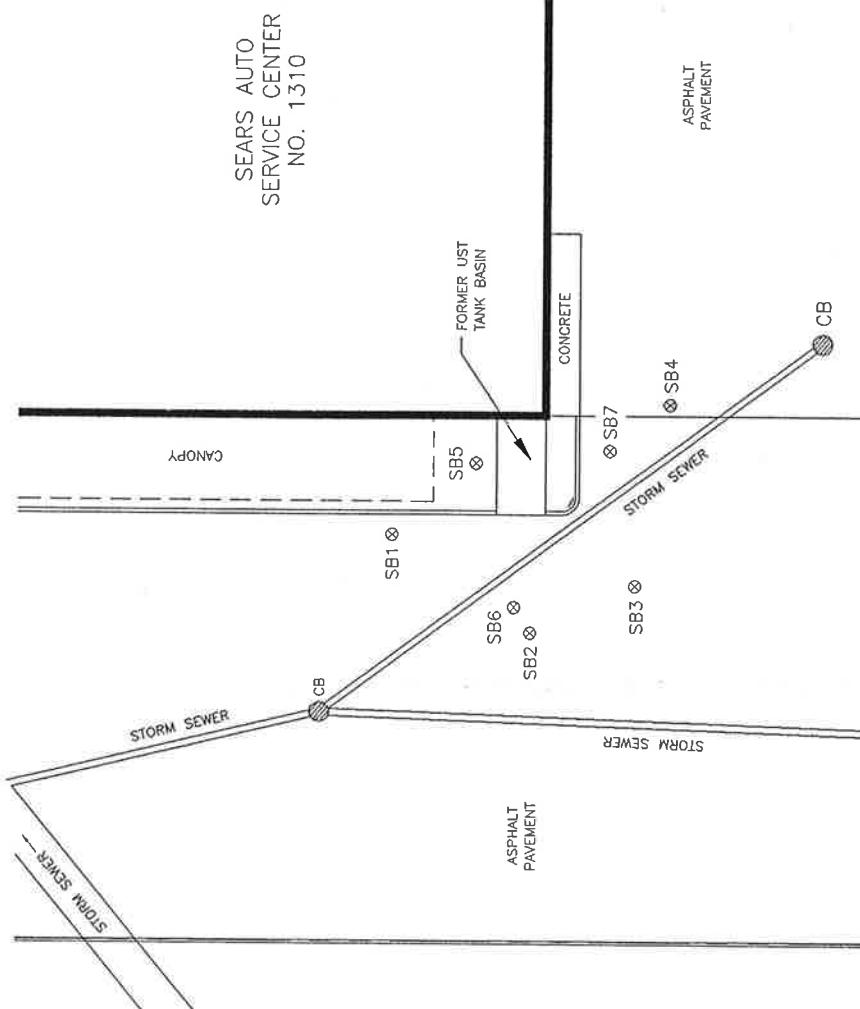
SOURCE: GROUNDWATER TECHNOLOGY

1244-B EXECUTIVE BLVD.  
 CHESAPEAKE, VA 23320  
 (804) 436-7881  
 GROUNDWATER  
 TECHNOLOGY

REV. NO.: DRAWING DATE: ACAD FILE: 5039-SITE  
 11/22/94

## SITE AND SOIL SAMPLE LOCATION MAP

CLIENT:	SEARS MERCANDISE GROUP	FM:
LOCATION:	STORE NO. 1310 300 MIDWAY BOULEVARD ELYRIA, OHIO	PE/RG:
DESIGNED:	PROJECT NO.:	FIGURE:
BD	PJC	012015039



PLAT OF SURVEY FOR:  
**GROUNDWATER TECHNOLOGY**  
 SITUATED IN THE STATE OF OHIO, COUNTY OF LORAIN, CITY OF  
 ELYRIA, AND BEING A PART OF LOT 30 WEST OF THE BLACK  
 RIVER IN ORIGINAL ELYRIA TOWNSHIP

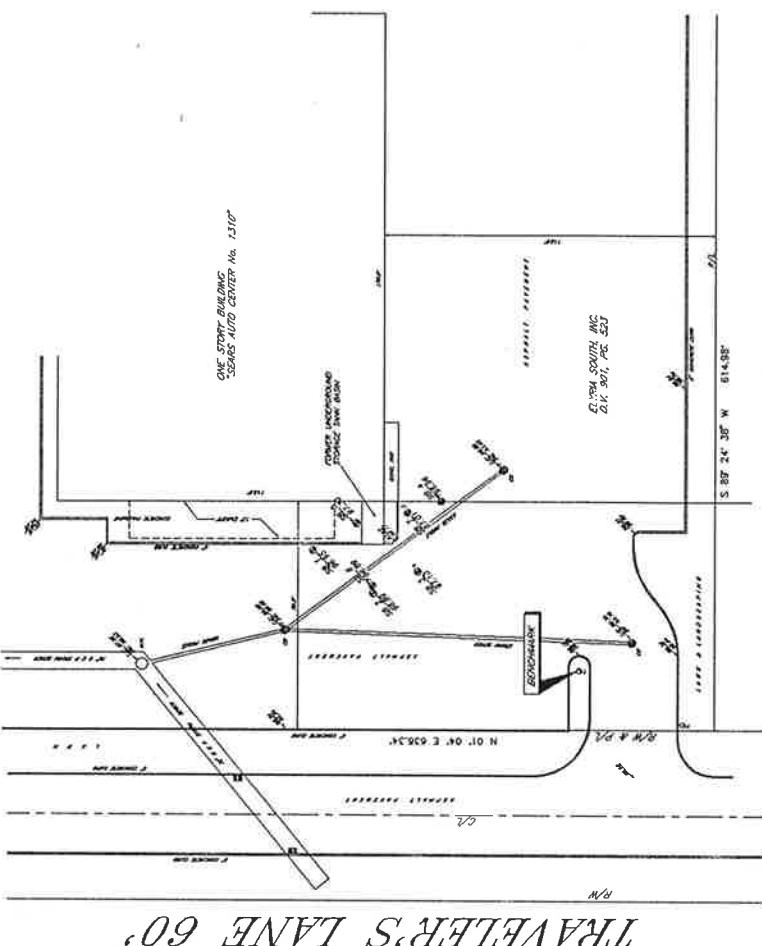
PLAT OF SURVEY FOR:  
**GROUNDWATER TECHNOLOGY**

OHIO SURVEYS, INC  
 Surveying - Land Development Consulting Services

(216) 865-7800 FAX (216) 865-7801

50 Baker Blvd., Suite 11 - Akron, Ohio - 44333

PROPERTY MAP



BENCHMARK: CROSS CUT ON CONC  
 LIGHT POLE BASE  
 ELEVATION.....100.00 (ASSUMED)



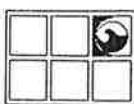
I HEREBY CERTIFY THAT THE PLAT IS CORRECT IN ALL RESPECTS AND THAT THE INFORMATION CONTAINED THEREIN IS A TRUE AND ACCURATE STATEMENT OF THE INFORMATION SHOWN THEREIN AND IS BASED UPON THE ACTUAL SURVEY ACCORDING TO THE REQUIREMENTS OF THE OHIO SURVEY CODE.

ANTHONY J. SHAMROCK, P.S.  
 REGISTERED SURVEYOR No. 7120

PROJECT No. 94115

## **APPENDIX B**

### **DRILLING LOGS**



GROUNDWATER  
TECHNOLOGY

## Drilling Log

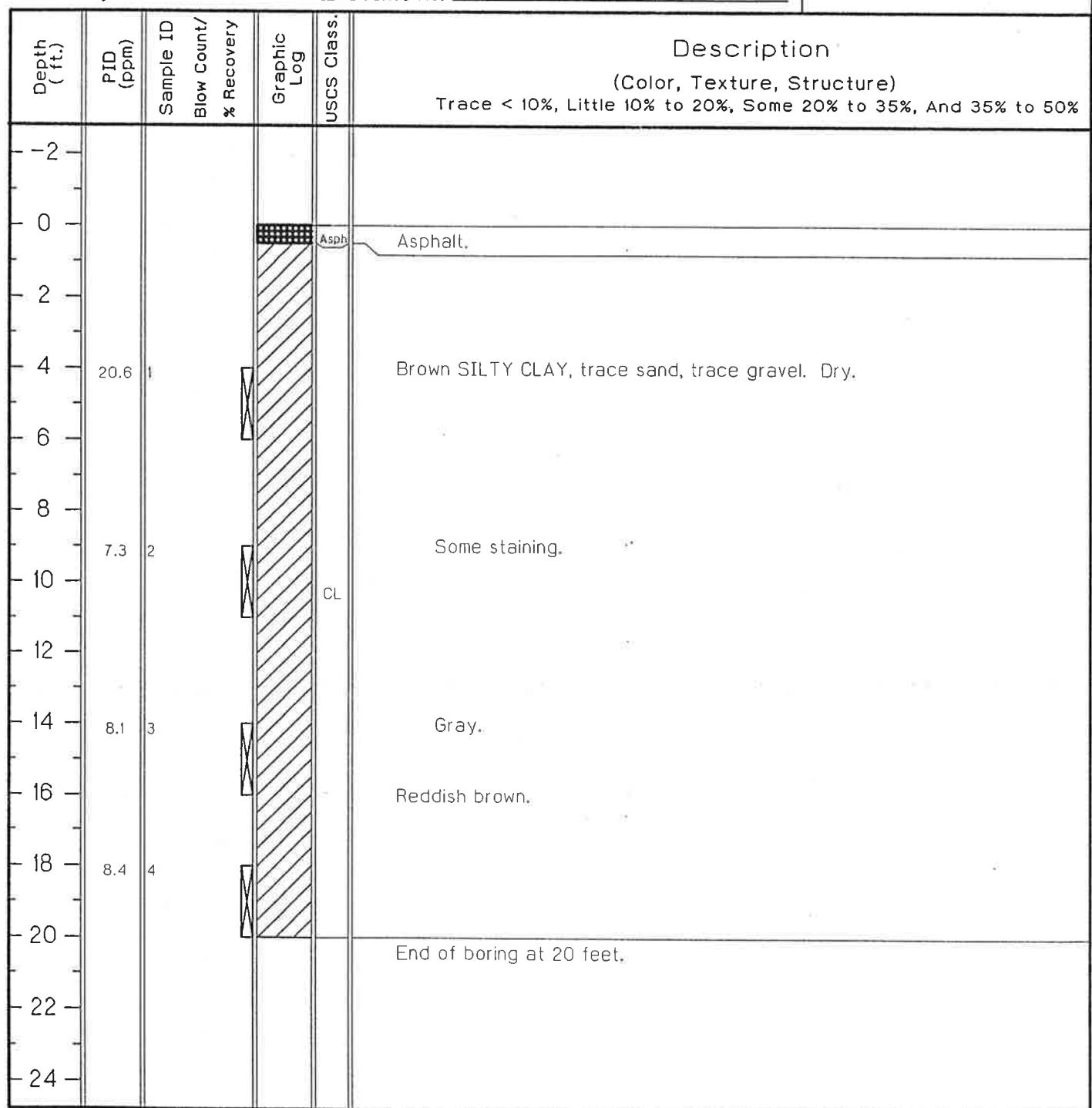
Soil Boring SB-1

Project SEARS #1310 Owner SEARS  
Location Elyria, Ohio Proj. No. 012015039  
Surface Elev. \_\_\_\_\_ Total Hole Depth 20 ft. Diameter 2 in.  
Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
Fill Material \_\_\_\_\_ Rig/Core Geoprobe  
Drill Co. TEG Method Geoprobe  
Driller Randy Pollock Log By Tom Brinkman Date 05/24/94 Permit # \_\_\_\_\_  
Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with asphalt.





GROUNDWATER  
TECHNOLOGY

## Drilling Log

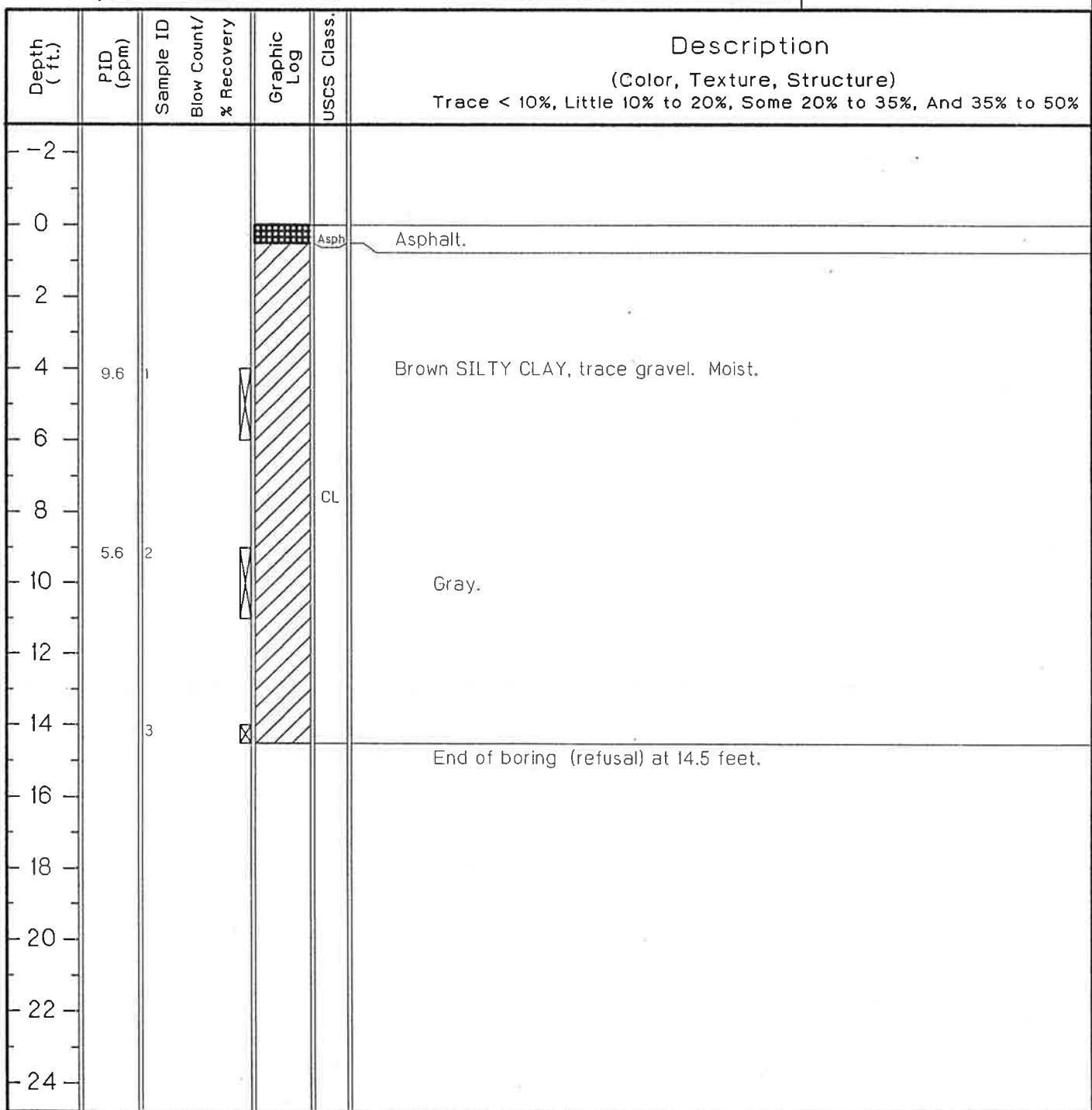
Soil Boring SB-2

Project SEARS #1310 Owner SEARS  
Location Elyria, Ohio Proj. No. 012015039  
Surface Elev. \_\_\_\_\_ Total Hole Depth 14.5 ft. Diameter 2 in.  
Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
Fill Material \_\_\_\_\_ Rig/Core Geoprobe  
Drill Co. TEG Method Geoprobe  
Driller Randy Pollock Log By Tom Brinkman Date 05/24/94 Permit # \_\_\_\_\_  
Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with asphalt.





GROUNDWATER  
TECHNOLOGY

## Drilling Log

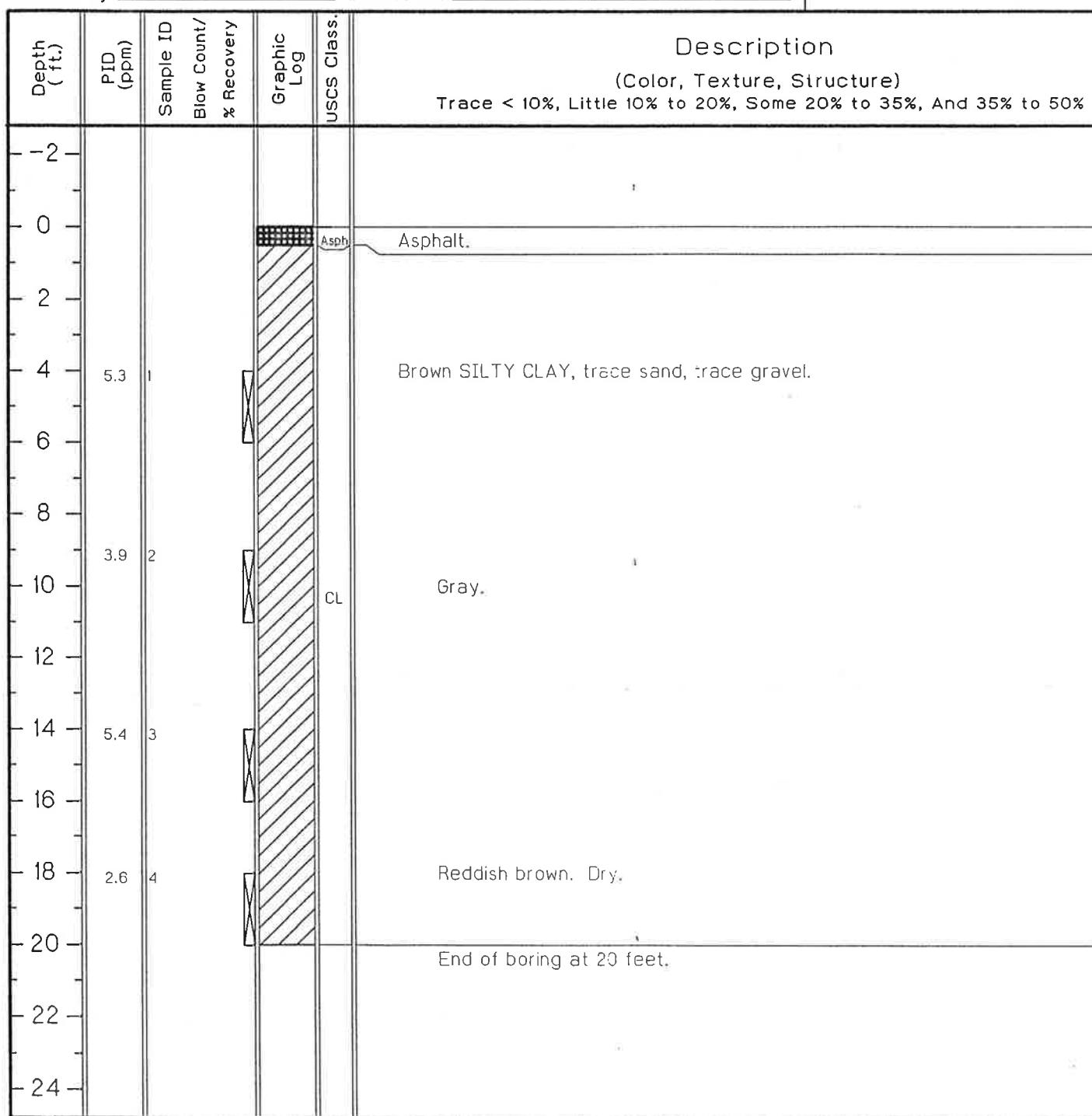
Soil Boring SB-3

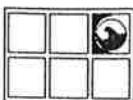
Project SEARS #1310 Owner SEARS  
 Location Elyria, Ohio Proj. No. 012015039  
 Surface Elev. \_\_\_\_\_ Total Hole Depth 20 ft. Diameter 2 in.  
 Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
 Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
 Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
 Fill Material \_\_\_\_\_ Rig/Core Geoprobe  
 Drill Co. TEG Method Geoprobe  
 Driller Randy Pollock Log By Tom Brinkman Date 05/24/94 Permit # \_\_\_\_\_  
 Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with asphalt.





GROUNDWATER  
TECHNOLOGY

## Drilling Log

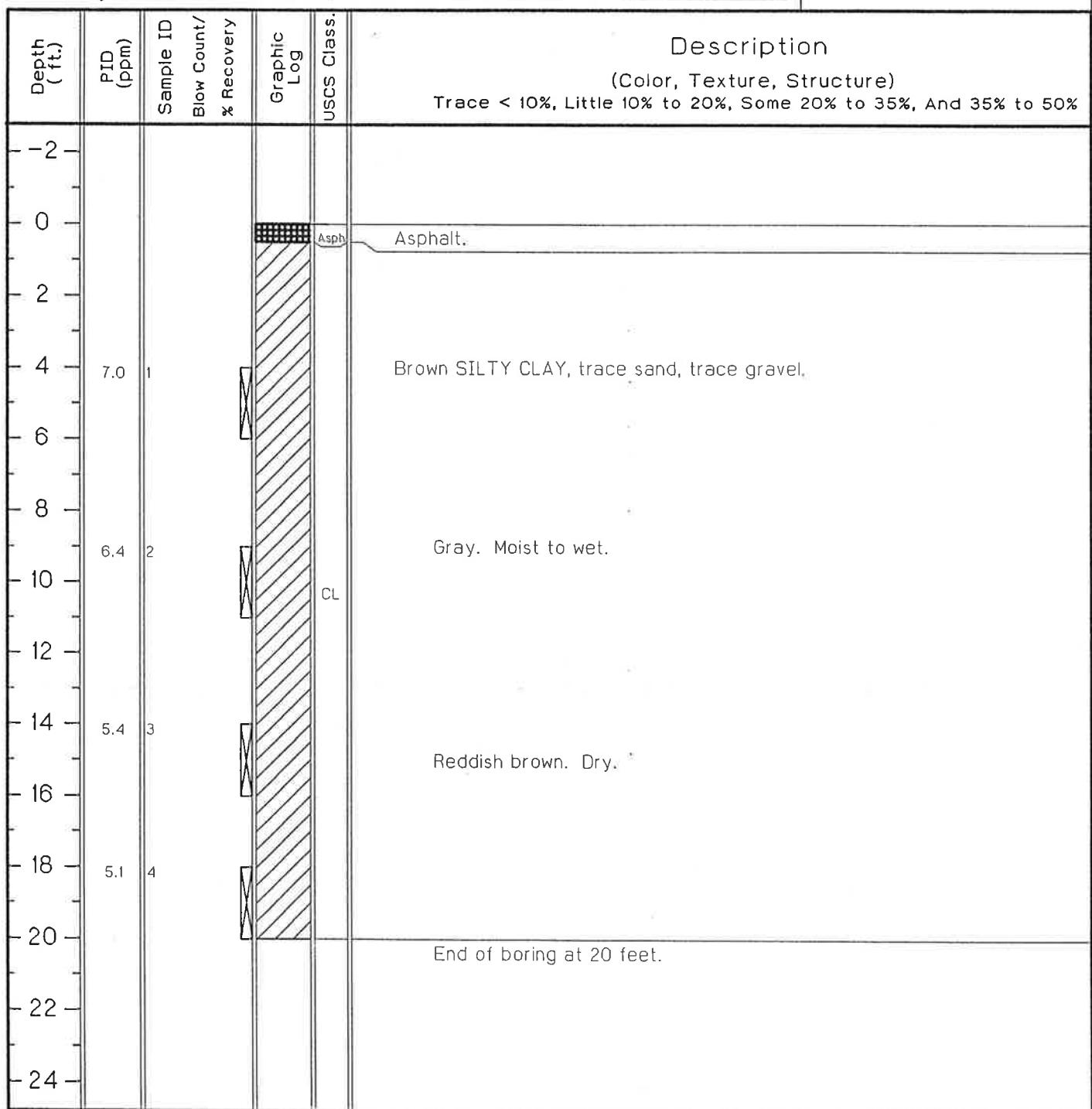
Soil Boring SB-4

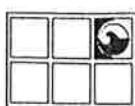
Project SEARS #1310 Owner SEARS  
Location Elyria, Ohio Proj. No. 012015039  
Surface Elev. \_\_\_\_\_ Total Hole Depth 20 ft. Diameter 2 in.  
Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
Fill Material \_\_\_\_\_ Rig/Core Geoprobe  
Drill Co. TEG Method Geoprobe  
Driller Randy Pollock Log By Tom Brinkman Date 05/24/94 Permit # \_\_\_\_\_  
Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with asphalt.





GROUNDWATER  
TECHNOLOGY

## Drilling Log

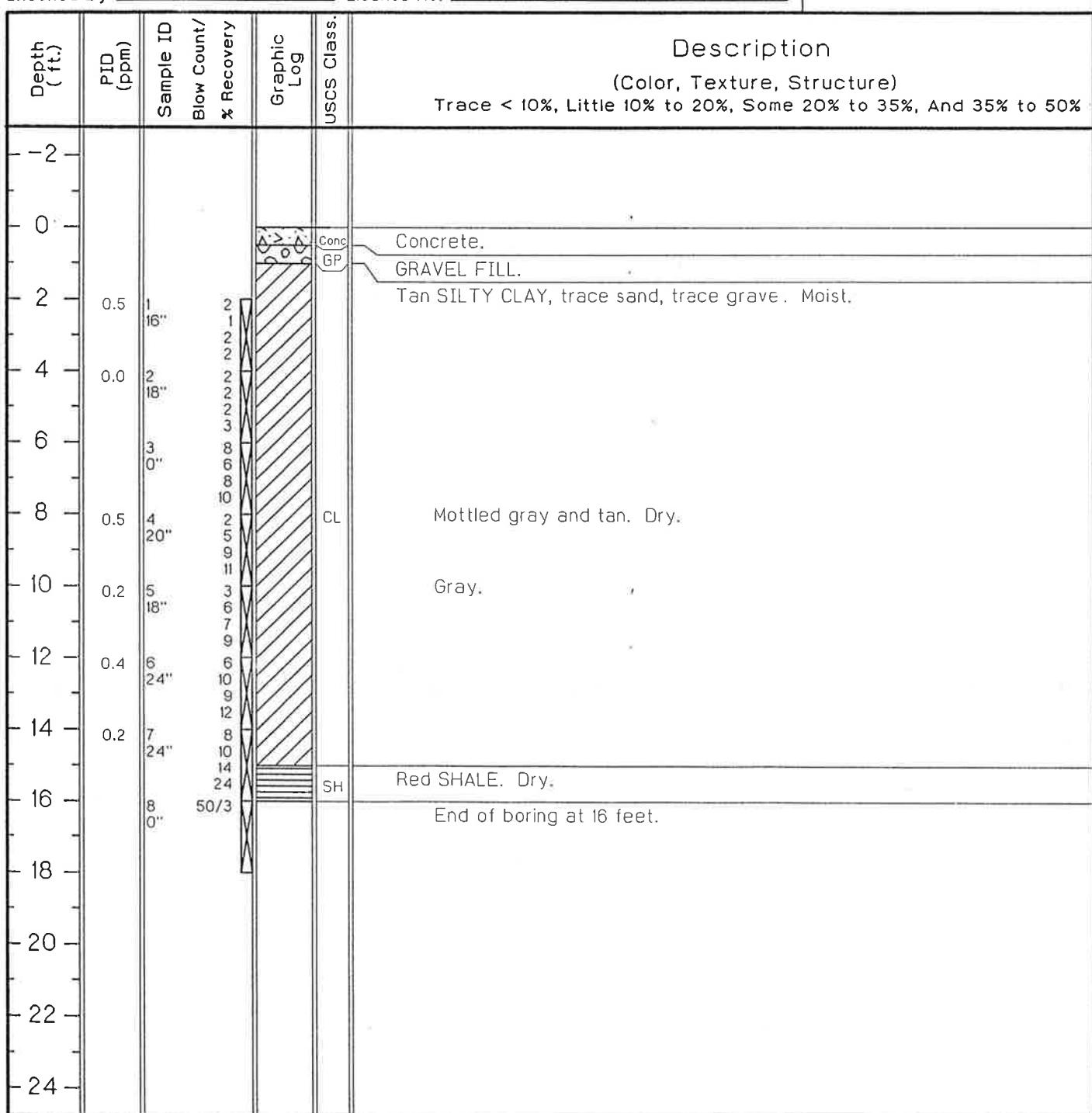
Soil Boring SB-5

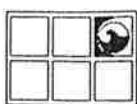
Project SEARS #1310 Owner SEARS  
 Location Elyria, Ohio Proj. No. 012015039  
 Surface Elev. \_\_\_\_\_ Total Hole Depth 16 ft. Diameter 10 in.  
 Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
 Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
 Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
 Fill Material \_\_\_\_\_ Rig/Core CME 75C  
 Drill Co. Summit Drilling Method Hollow Stem Auger  
 Driller Mike Pucci Log By Bernhard Dirska Date 09/01/94 Permit # \_\_\_\_\_  
 Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with concrete.





GROUNDWATER  
TECHNOLOGY

## Drilling Log

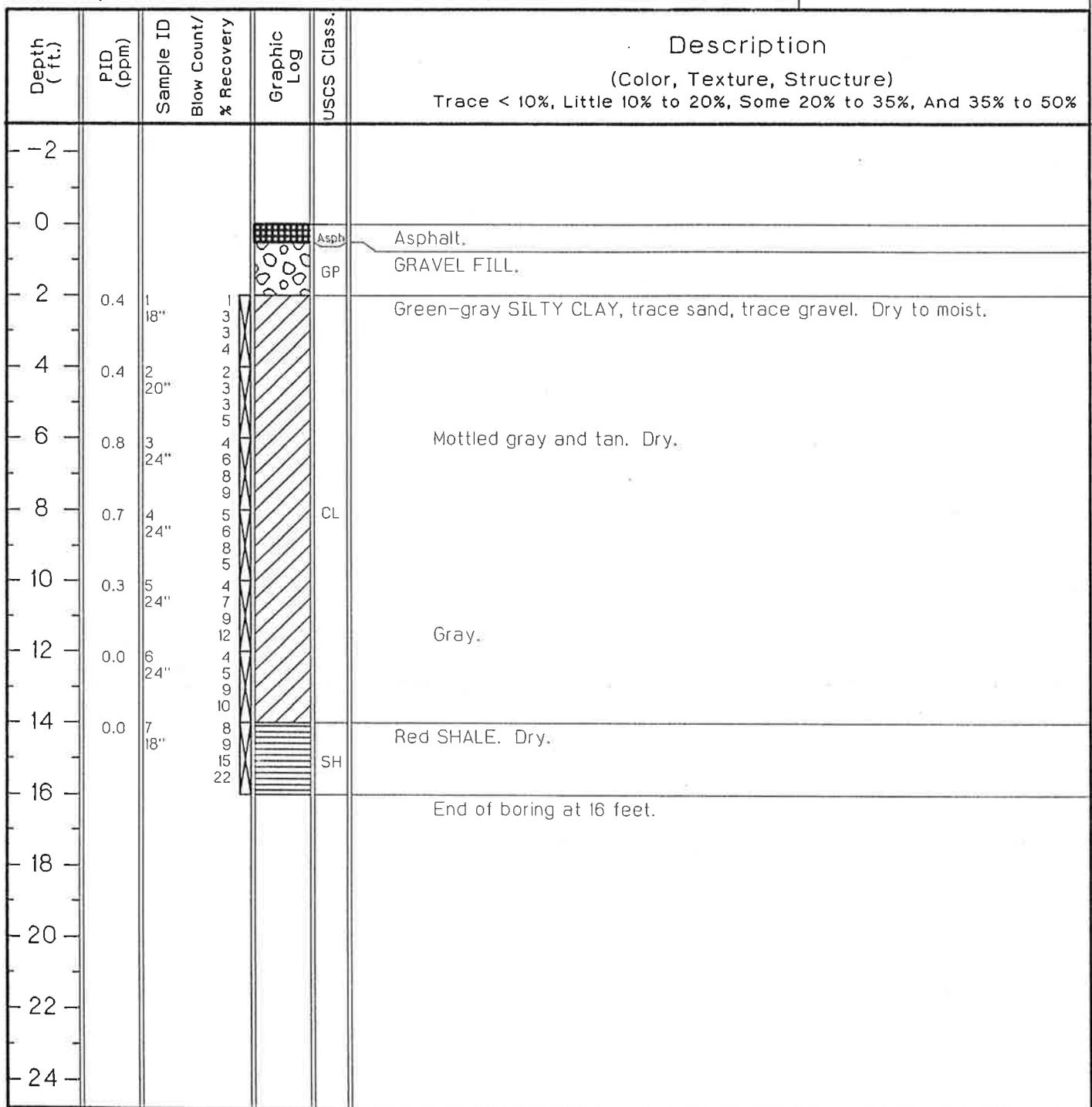
Soil Boring SB-6

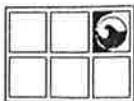
Project SEARS #1310 Owner SEARS  
Location Elyria, Ohio Proj. No. 012015039  
Surface Elev. \_\_\_\_\_ Total Hole Depth 16 ft. Diameter 10 in.  
Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
Fill Material \_\_\_\_\_ Rig/Core CME 75C  
Drill Co. Summit Drilling Method Hollow Stem Auger  
Driller Mike Pucci Log By Bernhard Dirksa Date 09/01/94 Permit # \_\_\_\_\_  
Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with asphalt.





GROUNDWATER  
TECHNOLOGY

## Drilling Log

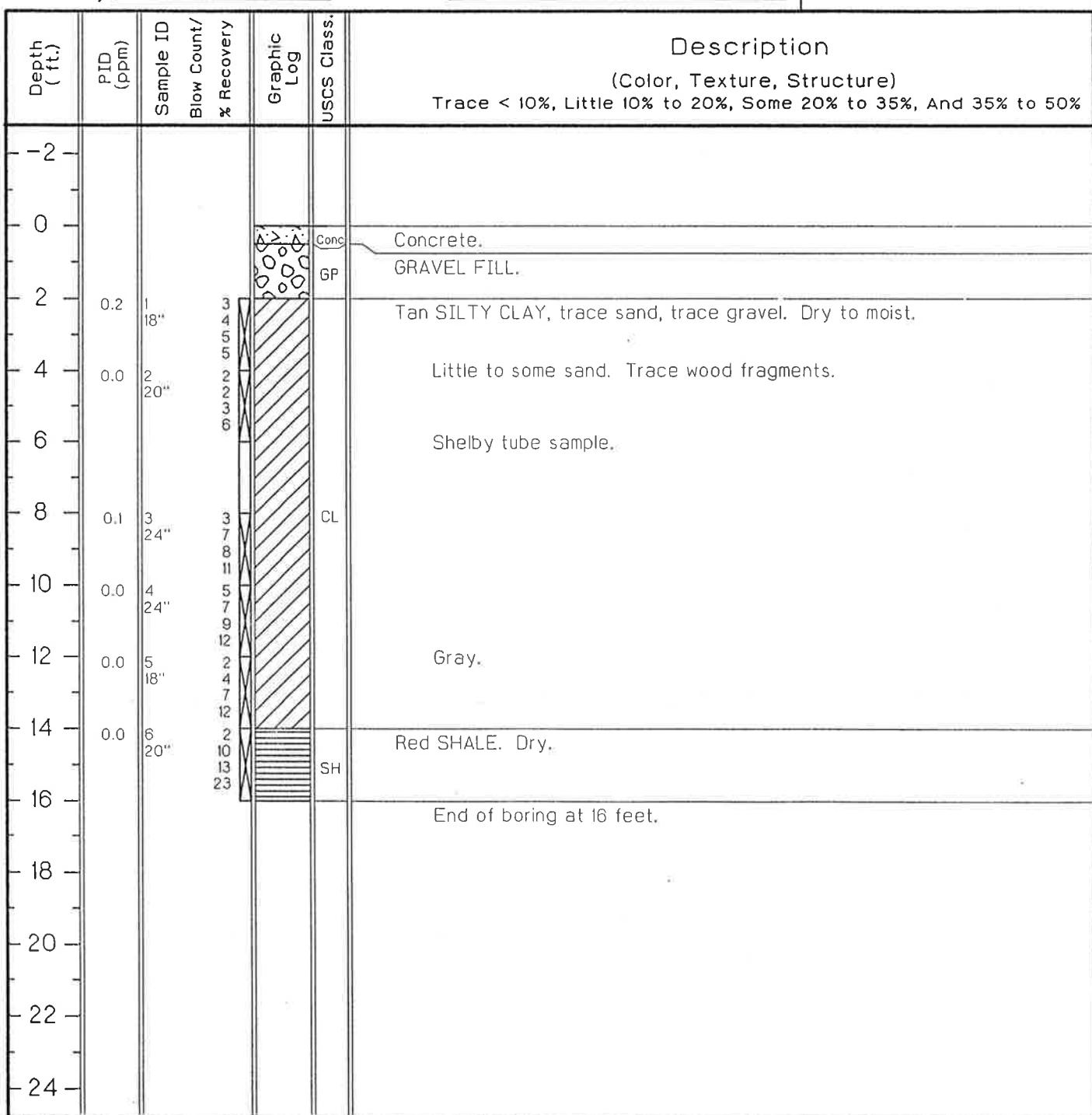
Soil Boring SB-7

Project SEARS #1310 Owner SEARS  
Location Elyria, Ohio Proj. No. 012015039  
Surface Elev. \_\_\_\_\_ Total Hole Depth 16 ft. Diameter 10 in.  
Top of Casing \_\_\_\_\_ Water Level Initial \_\_\_\_\_ Static \_\_\_\_\_  
Screen: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type/Size \_\_\_\_\_  
Casing: Dia \_\_\_\_\_ Length \_\_\_\_\_ Type \_\_\_\_\_  
Fill Material \_\_\_\_\_ Rig/Core CME 75C  
Drill Co. Summit Drilling Method Hollow Stem Auger  
Driller Mike Pucci Log By Bernhard Dirska Date 09/01/94 Permit # \_\_\_\_\_  
Checked By John Frankenthal License No. \_\_\_\_\_

See Site Map  
For Boring Location

COMMENTS:

Boring backfilled with bentonite, capped at surface with concrete.



## **APPENDIX C**

### **LABORATORY REPORTS FOR SOIL SAMPLES**

**TABLE 1**  
**Summary of Mobile Laboratory Results for Soil Samples, May 24, 1994**  
**(All Measurements Reported in Parts Per Million Unless Otherwise Noted)**

Sears Store 1310  
Elyria, Ohio

Sample ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH (418.1)
SB-1 4'-6'	<0.05	<0.05	<0.05	<0.05	<10
SB-1 14'-16'	<0.05	<0.05	<0.05	<0.05	<10
SB-1 18'-20'	<0.05	<0.05	<0.05	<0.05	<10
SB-2 4'-6'	<0.05	<0.05	<0.05	<0.05	<10
SB-2 9'-11'	<0.05	<0.05	<0.05	<0.05	<10
SB-3 4'-6'	<0.05	<0.05	<0.05	<0.05	<10
SB-3 14'-16'	<0.05	<0.05	<0.05	<0.05	<10
SB-3 18'-20'	<0.05	<0.05	<0.05	<0.05	<10
SB-4 4'-6'	<0.05	<0.05	<0.05	<0.05	<10
SB-4 14'-16'	<0.05	<0.05	<0.05	<0.05	<10
SB-4 18'-20'	<0.05	<0.05	<0.05	<0.05	<10

Source: Transglobal Environmental Geochemistry, 1994.

**TABLE 2A**  
 Summary of Fixed-Base Laboratory Results for Soil Samples, May 24, 1994  
 (All Measurements Reported in Parts Per Million Unless Otherwise Noted)

Sears Store 1310  
 Elyria, Ohio

Sample ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH (418.1)
CATEGORY 3 ACTION LEVEL	0.335	9.0	14	67	904
SB-1 9'-11'	<0.005	<0.005	<0.005	<0.005	110
SB-1 18'-20'	<0.005	<0.005	<0.005	<0.005	<33
SB-2 9'-11'	<0.005	<0.005	<0.005	<0.005	180
SB-3 9'-11'	<0.005	<0.005	<0.005	<0.005	180
SB-3 18'-20'	<0.005	<0.005	<0.005	<0.005	<34
SB-4 9'-11'	<0.005	<0.005	<0.005	<0.005	210
SB-4 18'-20'	<0.005	<0.005	<0.005	<0.005	<36

Source: GTEL Environmental Laboratories, Inc., 1994.

**TABLE 2B**  
**Summary of Fixed-Base Laboratory Results for Soil Samples, September 1, 1994**  
**(All Measurements Reported in Parts Per Million Unless Otherwise Noted)**

Sears Store 1310  
 Elyria, Ohio

Sample ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH (418.1)
CATEGORY 3 ACTION LEVEL	0.335	9.0	14	67	904
SB-5 8'-10'	<0.005	<0.005	<0.005	<0.005	190
SB-5 14'-16'	<0.005	<0.005	<0.005	<0.005	<40
SB-6 6'-8'	<0.005	0.0053	<0.005	<0.005	<40
SB-6 14'-16'	<0.005	<0.005	<0.005	<0.005	<40
SB-7 2'-4'	<0.005	0.007	<0.005	<0.005	70
SB-7 14'-16'	<0.005	<0.005	<0.005	<0.005	<40
Soil Cuttings	<0.005	<0.005	<0.005	<0.005	190

Source: GTEL Environmental Laboratories, Inc., 1994.

## Sample Test Summary

Client: Groundwater Technologies, Inc.  
Project Name: Sears #1310  
Project Location: Elyria, OH

GTX #: 620  
Date: 10/06/94

Sample ID: SB-7 (6-8 ft)

Type: Tube

Analysis, units	Method	Result
Moisture Content, %	ASTM D2216	15.5
Organic Content, %	ASTM D2974	1.32
Visual Classification	ASTM D2488	Stiff gray/brown clay with trace of gravel
Bulk Density,pcf	EM 1110	136.5
Specific Gravity	ASTM D854	2.72
Porosity	ASTM D854 & EM1110	0.30
Particle Density, pcf	ASTM D854	169.6
Permeability, cm/sec	ASTM D5084	$3.8 \times 10^{-8}$

Comments:



teg

GROUNDWATER TECHNOLOGY, INC.  
6573-T COCHRAN RD.  
CLEVELAND, OH

SEARS AUTO CENTER #1310  
ELYRIA, OH  
CLIENT PROJECT #01201-5039

TEG PROJECT # 940524G1

TPH (EPA 418.1) & BTEX (EPA 8020) ANALYSES OF SOIL

SAMPLE NUMBER	DATE ANALYZED	TPH (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZ (mg/kg)	XYLENES (mg/kg)	TOT. BTEX (mg/kg)
M. BLANK	05/24/94	ND	ND	ND	ND	ND	ND
SB1 4-6'	05/24/94	ND	ND	ND	ND	ND	ND
SB1 14-16'	05/24/94	ND	ND	ND	ND	ND	ND
SB1 18-20'	05/24/94	ND	ND	ND	ND	ND	ND
SB2 4-6'	05/24/94	ND	ND	ND	ND	ND	ND
SB2 9-11'	05/24/94	ND	ND	ND	ND	ND	ND
SB3 4-6'	05/24/94	ND	ND	ND	ND	ND	ND
SB3 14-16'	05/24/94	ND	ND	ND	ND	ND	ND
SB3 18-20'	05/24/94	ND	ND	ND	ND	ND	ND
SB4 4-6'	05/24/94	ND	ND	ND	ND	ND	ND
SB4 14-16'	05/24/94	ND	ND	ND	ND	ND	ND
SB4 18-20'	05/24/94	ND	ND	ND	ND	ND	ND
SB4 18-20' DUP	05/24/94	ND	ND	ND	ND	ND	ND
DETECTION LIMITS:		10	0.05	0.05	0.05	0.05	

"ND" INDICATES ANALYTE NOT DETECTED AT LISTED DETECTION LIMITS



QA/QC DATA - MATRIX SPIKE ANALYSES (SOIL)

05/24/94	TPH418.1	BENZENE	TOLUENE	ETHYLBENZ	XYLENES
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<b>MATRIX SPIKE</b>					
Spiked Conc.	500	1.00	1.00	1.00	3.00
Measured Conc.	490	0.79	0.81	0.84	2.57
% Recovery	98.0%	79.0%	81.0%	84.0%	85.7%
<b>MATRIX SPIKE DUPLICATE</b>					
Spiked Conc.	500	1.00	1.00	1.00	3.00
Measured Conc.	488	0.80	0.83	0.86	2.52
% Recovery	97.6%	80.0%	83.0%	86.0%	84.0%
RELATIVE PERCENT DIFFERENCE (RPD)	0.4%	1.3%	2.4%	2.4%	2.0%

ACCEPTABLE RECOVERY LIMITS: 65% - 135%

ACCEPTABLE RPD: 0 - 20%

ANALYSES PERFORMED ON SITE IN TEG'S EPA CERTIFIED MOBILE LABORATORY.  
CERTIFICATION # 1890.

ANALYSES PERFORMED BY: BARTON MOORE

DATA REVIEWED BY: MARK HANKINSON



TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

# CHAIN-OF-CUSTODY RECORD

CLIENT: Groundwater Technology  
 ADDRESS: 6573 - T COURIER AND CUSTODIAL, OR 97413  
 PHONE: 971-3419 - 0004 FAX: 971-2419 - 00874  
 CLIENT PROJECT #: 01301 50039 PROJECT MANAGER: TRINITY ENVIRONMENTAL

Sample Number	Depth	Time	Sample Type	Container Type	FIELD NOTES																						
					ANALYSES	VQA 601/8010	VQA 624/8020	VQA 625/8270	TPH 4181	TPH 8015 (gasoline)	TPH 8015 (diesel)	PNA 61018100	HEX CHROME	PESTICIDES 8080	ORGANIC LEAD	PH	TOTAL LEAD	ASBESTOS	COLLECTOR: <u>TRINITY ENVIRONMENTAL</u>	DATE OF COLLECTION: <u>5/6/91</u>	LOCATION: <u>Seattle, WA</u>	TEG PROJECT #: <u>94052461</u>	DATE: <u>5/6/91</u>	PAGE: <u>94052461</u>	OF: <u>1</u>	OF: <u>1</u>	NOTE NUMBER: <u>5/6/91</u>
5B1	4.6	8:38	501L	2.02 (gasoline)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5B1	14.16	9:23	501L	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B1	13.20	9:35	501L	B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B2	4.6	10:01	501L	A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B2	9-11	10:52	501L	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B3	4.6	10:28	501L	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B3	14.16	11:04	501L	J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B3	18-20	11:31	501L	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B4	4-6	12:30	501L	J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B4	14.16	1:12	501L	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5B4	18-20	1:26	501L	J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

RELINQUISHED BY: (Signature) James J. Cook DATE/TIME: 5/6/91 2:53 RECEIVED BY: (Signature) Christy Moore DATE/TIME: 5/24/94 3:22  
 RELINQUISHED BY: (Signature) DATE/TIME: RECEIVED BY: (Signature) DATE/TIME:

**SAMPLE DISPOSAL INSTRUCTIONS**  
 TEG DISPOSAL @ \$2.00 each  Return  Pickup

**SAMPLE RECEIPT**  
 TOTAL NUMBER OF CONTAINERS: 1  
 CHAIN OF CUSTODY SEALS Y/N/NA: Y  
 SEALS INTACT? Y/N/NA: Y  
 RECEIVED GOOD COND./COLD: Y

NOTES:



**Northeast Region**

Meadowbrook Industrial Park  
Milford, NH 03055  
(603) 672-4835  
(603) 673-8105 (FAX)

June 17, 1994

John Frankenthal  
Groundwater Technology, Inc.  
4200 First Avenue  
Nitro, WV 25143

---

RE: GTEL Client ID: 012015039  
Login Number: M4060076  
Project ID (number): 1310  
Project ID (name): SEARS, ELYRIA, OH

---

Dear John Frankenthal:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 06/03/94 under Chain-of-Custody Number(s) 60173.

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.

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

Sincerely,  
GTEL Environmental Laboratories, Inc.

*Lynn Sullivan for SU*

Susan C. Uhler  
Laboratory Director

Client Number: 012015039  
Project ID: 1310 SEARS, ELY-  
RIA, OH  
Login Number: M4-06-0076

Login #: M4-06-0076

Analysis: 8240

Instrument ID: J

Date of Last Cal.: 05/10/94

Analyst(s): Patricia Leazott

Analysis: TPH 418.1 in Soil

Instrument ID: PE1420

Date of Last Cal.: 06/03/94

Analyst(s): Michele Engel

Client Number: 012015039  
Project ID: 1310 SEARS, ELY-  
RIA, OH  
Login Number: M4-06-0076

## CONFORMANCE/NONCONFORMANCE SUMMARY

(X = Requirements Met      \* = See Comments      NA = Not Applicable)

#	Conformance Item	VOA GC/MS	VOA GC	SV GC/MS	SV GC	Metals	Wet Chem
1	GC/MS Tune	X	NA	--	NA	NA	NA
2	Initial Calibration	X	--	--	--	--	X
3	Continuing Calibration	X	--	--	--	--	X
4	Surrogate Recovery	X	--	--	--	NA	NA
5	Holding Time	X	--	--	--	--	X
6	Method Accuracy	X	--	--	--	--	X
7	Method Precision	X	--	--	--	--	X

8      Blank Contamination - List/ND (None Detected)/\*(See Comments)

VOA:      ND  
SV:      --  
Metals:      --  
Wet Chem:      ND

9      Comments:      **Method 8240:**

Internal Standard Areas exceeded acceptability limits in samples. Reanalysis of the samples yielded similar results. Sample specific matrix effect has been demonstrated and data is flagged as estimated.

GTEL Client ID: 012015039  
 Login Number: M4060076  
 Project ID (number): 1310  
 Project ID (name): SEARS, ELYRIA, OH

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 8240A  
 Matrix: Low Soil

GTEL Sample Number	M4060076-01	M4060076-02	M4060076-03	M4060076-04
Client ID	SB-1 (9-11)	SB-1 (18-20)	SB-2 (9-11)	SB-3 (9-11)
Date Sampled	05/24/94	05/24/94	05/24/94	05/24/94
Date Analyzed	06/06/94	06/06/94	06/06/94	06/06/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting		Concentration: Dry Weight		
	Limit	Units			
Chloromethane	10.	ug/kg	< 10.	< 10.	< 10.
Bromomethane	10.	ug/kg	< 10.	< 10.	< 10.
Vinyl chloride	10.	ug/kg	< 10.	< 10.	< 10.
Chloroethane	10.	ug/kg	< 10.	< 10.	< 10.
Methylene chloride	5.0	ug/kg	< 5.0	< 5.0	10.
Acetone	20.	ug/kg	< 20.	< 20.	< 20.
Carbon disulfide	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethene (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Chloroform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Butanone	20.	ug/kg	< 20.	< 20.	< 20.
1,1,1-Trichloroethane	5.0	ug/kg	19.	18.	< 5.0
Carbon tetrachloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Vinyl acetate	20.	ug/kg	< 20.	< 20.	< 20.
Bromodichloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Trichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Dibromochloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Benzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Chloroethyl vinyl ether	10.	ug/kg	< 10.	< 10.	< 10.
trans-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Bromoform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone	20.	ug/kg	< 20.	< 20.	< 20.
2-Hexanone	20.	ug/kg	< 20.	< 20.	< 20.
Tetrachloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Toluene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Chlorobenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Ethylbenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Styrene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Xylenes (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,4-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,2-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
Percent Solids	--	%	85.7	93.9	87.5

Notes:

Dilution Factor:

The dilution factor indicates the adjustments made by the laboratory to results and sample reporting limits for dilutions.

GTEL Milford, NH

M4060076:1

GTEL Client ID: 012015039  
Login Number: M4060076  
Project ID (number): 1310  
Project ID (name): SEARS, ELYRIA, OH

ANALYTICAL RESULTS

Volatile Organics  
Method: EPA 8240A  
Matrix: Low Soil

GTEL Sample Number	M4060076-01	M4060076-02	M4060076-03	M4060076-04
Client ID	SB-1 (9-11)	SB-1 (18-20)	SB-2 (9-11)	SB-3 (9-11)
Date Sampled	05/24/94	05/24/94	05/24/94	05/24/94
Date Analyzed	06/06/94	06/06/94	06/06/94	06/06/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration: Dry Weight
---------	--------------------	-------	---------------------------

EPA 8240A:

\*Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846\*, Third Edition, Revision 1, US EPA July 1992. Analyte list modified to include additional compounds.

M4060076-01:

Estimated concentration for all analytes. Internal standard areas demonstrated sample specific matrix effect.

M4060076-03:

Estimated concentration for all analytes. Internal standard areas demonstrated sample specific matrix effect.

GTEL Client ID: 012015039  
 Login Number: M4060076  
 Project ID (number): 1310  
 Project ID (name): SEARS, ELYRIA, OH

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 8240A  
 Matrix: Low Soil

GTEL Sample Number	M4060076-05	M4060076-06	M4060076-07	--
Client ID	SB-3 (18-20)	SB-4 (9-11)	SB-4 (18-20)	--
Date Sampled	05/24/94	05/24/94	05/24/94	--
Date Analyzed	06/06/94	06/06/94	06/06/94	--
Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting		Concentration: Dry Weight		
	Limit	Units			
Chloromethane	10.	ug/kg	< 10.	< 10.	< 10.
Bromomethane	10.	ug/kg	< 10.	< 10.	< 10.
Vinyl chloride	10.	ug/kg	< 10.	< 10.	< 10.
Chloroethane	10.	ug/kg	< 10.	< 10.	< 10.
Methylene chloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Acetone	20.	ug/kg	< 20.	< 20.	< 20.
Carbon disulfide	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethene (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Chloroform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Butanone	20.	ug/kg	< 20.	< 20.	< 20.
1,1,1-Trichloroethane	5.0	ug/kg	36.	< 5.0	< 5.0
Carbon tetrachloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Vinyl acetate	20.	ug/kg	< 20.	< 20.	< 20.
Bromodichloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Trichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Dibromochloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Benzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Chloroethyl vinyl ether	10.	ug/kg	< 10.	< 10.	< 10.
trans-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Bromoform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone	20.	ug/kg	< 20.	< 20.	< 20.
2-Hexanone	20.	ug/kg	< 20.	< 20.	< 20.
Tetrachloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Toluene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Chlorobenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Ethylbenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Styrene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Xylenes (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,4-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,2-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
Percent Solids	--	%	93.7	87.5	93.5

Notes:

Dilution Factor:

The dilution factor indicates the adjustments made by the laboratory to results and sample reporting limits for dilutions.

GTEL Milford, NH

M4060076:3

GTEL Client ID: 012015039  
Login Number: M4060076  
Project ID (number): 1310  
Project ID (name): SEARS, ELYRIA, OH

ANALYTICAL RESULTS

Volatile Organics  
Method: EPA 8240A  
Matrix: Low Soil

GTEL Sample Number	M4060076-05	M4060076-06	M4060076-07	--
Client ID	SB-3 (18-20) <sup>1</sup>	SB-4 (9-11) <sup>1</sup>	SB-4 (18-20) <sup>1</sup>	--
Date Sampled	05/24/94	05/24/94	05/24/94	--
Date Analyzed	06/06/94	06/06/94	06/06/94	--
Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting		Concentration: Dry Weight
	Limit	Units	

EPA 8240A:

"Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846", Third Edition, Revision 1, US EPA July 1992. Analyte list modified to include additional compounds.

M4060076-06:

Estimated concentration for all analytes. Internal standard areas demonstrated sample specific matrix effect.

Client Number: 012015039  
Project ID: 1310 SEARS, ELY-  
RIA, OH  
Login Number: M4-06-0076

### SURROGATE RECOVERY SUMMARY

Volatile Organics in Soil - Low Level  
Modified EPA Method 8240

GTEL No.	Percent Recovery, %			
	S1 (TOL)	S2 (BFB)	S3 (DCE)	TOTAL OUT
BL060694JA	99.2	99.0	97.7	0
060076-01	109	94.4	95.9	0
060076-02	110	94.7	98.1	0
060076-03	109	92.4	93.8	0
060076-04	115	90.0	95.8	0
060076-05	104	93.0	95.2	0
060076-06	121	80.6	91.7	0
060076-07	111	86.7	103	0
MS060076-07	104	94.4	93.7	0
MD060076-07	111	85.8	102	0

#### Surrogates

			Amount Spiked, ug/L	Recovery Limits <sup>a</sup>
S1	TOL	Toluene-d8	50	81-117
S2	BFB	Bromofluorobenzene	50	74-121
S3	DCE	1,2-Dichloroethane-d4	50	70-121

\* Indicates values outside of acceptability limits.

a Acceptability limits are derived from USEPA Contract Laboratory Program (CLP) guidelines.

D Diluted out. Percent Recovery is not calculated when surrogate compound(s) are diluted out.

MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) SUMMARY  
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)

Volatile Organics in Soil—Low Level  
Modified EPA Method 8240

Sample spiked: 060076-07 Client ID: Batch QC  
Solution ID: MS94MS045 Date analyzed: 6/2/94

Analyte	Spike Added ug/kg	Sample Concentration ug/kg	MS Concentration ug/kg	MS Percent Recovery	Limits, %(a)	
1,1-Dichloroethene	52	0	56		107	59-172
Trichloroethene	52	0	50		96	62-137
Benzene	52	0	53		102	66-142
Toluene	52	0	52		99	59-139
Chlorobenzene	52	0	48		92	60-133
Analyte	Spike Added ug/kg	MSD Concentration ug/kg	MS Percent Recovery	RPD, %	Acceptability limits (a) RPD % Recovery	
1,1-Dichloroethene	52	51	99	8	22	59-172
Trichloroethene	52	44	85	12	24	62-137
Benzene	52	53	102	0	21	66-142
Toluene	52	56	109	9	21	59-139
Chlorobenzene	52	49	94	1	21	60-133

\* Indicates values outside of acceptability limits.

a Acceptability limits are derived from USEPA Contract Laboratory Program (CLP) requirements.

D Diluted out. Percent Recovery and RPD are not calculated when spike compound(s) are diluted out.

Client Number: 012015039  
Project ID: 1310 SEARS, ELY-  
RIA, OH  
Login Number: M4-06-0076

### METHOD BLANK RESULTS

#### Volatile Organics in Soil - Low Level Modified EPA Method 8240<sup>a</sup>

GTEL File ID		BL060694JA
Date Analyzed		06/06/94
Analyte	Reporting Limit, ug/kg	Concentration, ug/kg
Chloromethane	10	< 10
Bromomethane	10	< 10
Vinyl Chloride	10	< 10
Chloroethane	10	< 10
Methylene Chloride	5	< 5
Acetone	20	< 20
Carbon Disulfide	5	< 5
1,1-Dichloroethene	5	< 5
1,1-Dichloroethane	5	< 5
1,2-Dichloroethene (total) <sup>b</sup>	5	< 5
Chloroform	5	< 5
1,2-Dichloroethane	5	< 5
2-Butanone	20	< 20
1,1,1-Trichloroethane	5	< 5
Carbon Tetrachloride	5	< 5
Vinyl Acetate	20	< 20
Bromodichloromethane	5	< 5
1,2-Dichloropropane	5	< 5
cis-1,3-Dichloropropene	5	< 5
Trichloroethene	5	< 5
Dibromochloromethane	5	< 5

Client Number: 012015039  
Project ID: 1310 SEARS, ELY-  
RIA, OH  
Login Number: M4-06-0076

### METHOD BLANK RESULTS

Volatile Organics in Soil - Low Level  
Modified EPA Method 8240<sup>a</sup>

GTEL File ID		BL060694JA
Date Analyzed		06/06/94
Analyte	Reporting Limit, ug/Kg	Concentration, ug/kg
1,1,2-Trichloroethane	5	< 5
Benzene	5	< 5
2-Chloroethyl Vinyl Ether	10	< 10
trans-1,3-Dichloropropene	5	< 5
Bromoform	5	< 5
4-Methyl-2-Pentanone	20	< 20
2-Hexanone	20	< 20
Tetrachloroethene	5	< 5
1,1,2,2-Tetrachloroethane	5	< 5
Toluene	5	< 5
Chlorobenzene	5	< 5
Ethylbenzene	5	< 5
Styrene	5	< 5
Xylenes (total)	5	< 5
1,3-Dichlorobenzene	10	< 10
1,4-Dichlorobenzene	10	< 10
1,2-Dichlorobenzene	10	< 10

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986; heated purge and trap for sample preparation. This method is modified to include additional compounds. Results are calculated on a dry weight basis.
- b Total 1,2-dichloroethene is the sum of the *cis*- and *trans*- isomers.

Client Number: 012015039  
Project ID: 1310 SEARS, ELY-  
RIA, OH  
Login Number: M4-06-0076

#### ANALYTICAL RESULTS

Total Recoverable Petroleum Hydrocarbons in Soil  
by Infrared Spectrometry  
Modified EPA Method 418.1<sup>a</sup>

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Percent Solids, %	Detection Limit, mg/kg	Concentration, mg/kg
GTEL No.	Client ID	--	--	--	--	--	--
060076-01	SB-1 (9-11)'	05/24/94	06/06/94	06/07/94	85.7	37	<b>110</b>
060076-02	SB-1 (18-20)'	05/24/94	06/06/94	06/07/94	93.9	33	< 33
060076-03	SB-2 (9-11)'	05/24/94	06/06/94	06/07/94	87.4	38	<b>180</b>
060076-04	SB-3 (9-11)'	05/24/94	06/06/94	06/07/94	87.5	39	<b>180</b>
060076-05	SB-3 (18-20)'	05/24/94	06/06/94	06/07/94	93.7	34	< 34
060076-06	SB-4 (9-11)'	05/24/94	06/06/94	06/07/94	87.5	35	<b>210</b>
060076-07	SB-4 (18-20)'	05/24/94	06/06/94	06/07/94	93.5	36	< 36

a      EPA 600/4-79-020, March 1983 revision. Extraction modified for soils (Soxhlet). Concentration calculated on a dry weight basis.

### Reporting Conventions

The table below summarizes the reporting conventions which appear on the enclosed QC Package for inorganic analyses. These conventions are consistent with EPA Contract Laboratory Program (CLP), except for classical chemistry analyses.

Flag	Interpretation
Column Heading: C	Concentration qualifier:
U	The analyte was analyzed for but not detected.
Column Heading: Q	Qualifier-Specified entries and their meanings are as follows:
N	Spiked sample recovery not within control limits.
*	Duplicate analysis not in control.
Column Heading: M	Method Used:
F	Furnace AA.
P	Inductively Coupled Plasma (ICP).
CV	Cold Vapor AA.
FP	Closed-cup Tester.
C	Colorimetric.
E	Electrode.
T	Titrimetric.
IR	Infra-Red.
G	Gravimetric.

Data for soils are reported on a dry weight basis.

### SPIKED SAMPLE RECOVERY SUMMARY

GTEL Sample Spiked: 060067-02  
Date Analyzed: 06/07/94  
Concentration Units: mg/kg  
Matrix: Solid Waste

Analyte	Spiked Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	Recovery %	Lim	Q	M
Total Petroleum Hydrocarbons	11331.0925		9854.9517		617.8588	NA	a		IR

a Control Limits for Total Petroleum Hydrocarbons by Infra-Red in Solid Waste (28-94%) are derived from Laboratory Practice.  
NA Not applicable when sample results are greater than four times the amount added.

## LABORATORY DUPLICATE SAMPLE RESULTS

GTEL Sample I.D.: MS060067-02  
Date Analyzed: 06/07/94  
Concentration Units: mg/kg  
Matrix: Solid Waste

Analyte	Sample Result	C	Duplicate Result	C	RPD, %	Control Limit <sup>a</sup>	Q	M
Total Petroleum Hydrocarbons	11331.0925		12109.5165		6.6	50		IR

<sup>a</sup> Control limits are derived from Laboratory Practice.  
MS Matrix Spike

LABORATORY CONTROL SAMPLE

Date Analyzed: 06/07/94  
Units: mg/kg

Analyte	True	Found	C	Recovery, %	Control Limits, % <sup>a</sup>
Total Petroleum Hydrocarbons	380.1310	284.5091		74.8	60-140

a Control limits are derived from Laboratory Practice.

## BLANK RESULTS

Date Analyzed:  
Preparation Blank Units:  
Matrix:

06/07/94  
mg/kg  
Solid Waste

Analyte	Preparation Blank		
	C	M	
Total Petroleum Hydrocarbons	40.0000	U	IR





**Northeast Region**

Meadowbrook Industrial Park  
Milford, NH 03055  
(603) 672-4835  
(603) 673-8105 (FAX)

September 22, 1994

John Frankenthal  
Groundwater Technology, Inc.  
4200 First Avenue  
Nitro, WV 25143

---

RE: GTEL Client ID: 012015039  
Login Number: M4090062  
Project ID (number): 1310  
Project ID (name): SEARS ELYRIA

---

Dear John Frankenthal:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 09/02/94 under Chain-of-Custody Number(s) 19137.

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.

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

Sincerely,  
GTEL Environmental Laboratories, Inc.

*Robert S. Koslak* *so*  
Susan C. Uhler  
Laboratory Director

Client Number: 012015039  
Project ID: 1310  
SEARS ELYRIA  
Work Order Number: M4-09-0062

Login #: M4-09-0062

Analysis: 8240

Instrument ID: J

Date of Last Cal.: 08/15/94

Instrument ID: --

Date of Last Cal.: --

Analyst(s): Patricia Leazott

Login #: M4-09-0062

Analysis: 418.1

Instrument ID: PE-1420

Date of Last Cal.: 08/16/94

Instrument ID: --

Date of Last Cal.: --

Analyst(s): Michele Engel

Client Number: 012015039  
Project ID: 1310  
SEARS ELYRIA  
Work Order Number: M4-09-0062

## CONFORMANCE/NONCONFORMANCE SUMMARY

(X = Requirements Met \* = See Comments NA = Not Applicable)

#	Conformance Item	VOA GC/MS	VOA GC	SV GC/MS	SV GC	Metals	Wet Chem
1	GC/MS Tune	X	NA	--	NA	NA	NA
2	Initial Calibration	X	--	--	--	--	X
3	Continuing Calibration	X	--	--	--	--	X
4	Surrogate Recovery	X	--	--	--	NA	NA
5	Holding Time	X	--	--	--	--	X
6	Method Accuracy	X	--	--	--	--	X
7	Method Precision	X	--	--	--	--	X

8 Blank Contamination - List/ND (None Detected)/\*(See Comments)

VOA: ND

SV: --

Metals: --

Wet Chem: ND

9 Comments: --

GTEL Client ID: 012015039  
 Login Number: M4090062  
 Project ID (number): 1310  
 Project ID (name): SEARS ELYRIA

### ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 8240A  
 Matrix: Low Soil

GTEL Sample Number	M4090062-01	M4090062-02	M4090062-03	M4090062-04
Client ID	SB-5 8'-10'	SB-5 14'-16'	SB-6 6'-8'	SB-6 14'-16'
Date Sampled	09/01/94	09/01/94	09/01/94	09/01/94
Date Analyzed	09/13/94	09/13/94	09/15/94	09/13/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting		Concentration: Dry Weight		
	Limit	Units			
Chloromethane	10.	ug/kg	< 10.	< 10.	< 10.
Bromomethane	10.	ug/kg	< 10.	< 10.	< 10.
Vinyl chloride	10.	ug/kg	< 10.	< 10.	< 10.
Chloroethane	10.	ug/kg	< 10.	< 10.	< 10.
Methylene chloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Acetone	20.	ug/kg	< 20.	< 20.	< 20.
Carbon disulfide	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethene (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Chloroform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Butanone	20.	ug/kg	< 20.	< 20.	< 20.
1,1,1-Trichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Vinyl acetate	20.	ug/kg	< 20.	< 20.	< 20.
Bromodichloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Trichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Dibromochloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Benzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Chloroethyl vinyl ether	10.	ug/kg	< 10.	< 10.	< 10.
trans-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Bromoform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone	20.	ug/kg	< 20.	< 20.	< 20.
2-Hexanone	20.	ug/kg	< 20.	< 20.	< 20.
Tetrachloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Toluene	5.0	ug/kg	< 5.0	< 5.0	5.3
Chlorobenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Ethylbenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Styrene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Xylenes (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,4-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,2-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
Percent Solids	--	%	86.5	87.6	88.4

Notes:

Dilution Factor:

The dilution factor indicates the adjustments made by the laboratory to results and sample reporting limits for dilutions.

GTEL Milford, NH

M4090062:1

GTEL Client ID: 012015039  
Login Number: M4090062  
Project ID (number): 1310  
Project ID (name): SEARS ELYRIA

ANALYTICAL RESULTS

Volatile Organics  
Method: EPA 8240A  
Matrix: Low Soil

GTEL Sample Number	M4090062-01	M4090062-02	M4090062-03	M4090062-04
Client ID	SB-5 8'-10'	SB-5 14'-16'	SB-6 6'-8'	SB-6 14'-16'
Date Sampled	09/01/94	09/01/94	09/01/94	09/01/94
Date Analyzed	09/13/94	09/13/94	09/15/94	09/13/94
Dilution Factor	1.00	1.00	1.00	1.00

Reporting Analyte	Limit	Units	Concentration: Dry Weight
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EPA 8240A:

"Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846", Third Edition, Revision 1, US EPA July 1992. Analyte list modified to include additional compounds.

GTEL Client ID: 012015039  
 Login Number: M4090062  
 Project ID (number): 1310  
 Project ID (name): SEARS ELYRIA

ANALYTICAL RESULTS

Volatile Organics  
 Method: EPA 8240A  
 Matrix: Low Soil

GTEL Sample Number	M4090062-05	M4090062-06	M4090062-07	
Client ID	SB-7 2'-4'	SB-7 14'-16'	SOIL CUTTINGS	
Date Sampled	09/01/94	09/01/94	09/01/94	
Date Analyzed	09/15/94	09/13/94	09/13/94	
Dilution Factor	1.00	1.00	1.00	

Analyte	Reporting		Concentration: Dry Weight		
	Limit	Units			
Chloromethane	10.	ug/kg	< 10.	< 10.	< 10.
Bromomethane	10.	ug/kg	< 10.	< 10.	< 10.
Vinyl chloride	10.	ug/kg	< 10.	< 10.	< 10.
Chloroethane	10.	ug/kg	< 10.	< 10.	< 10.
Methylene chloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Acetone	20.	ug/kg	31.	< 20.	< 20.
Carbon disulfide	5.0	ug/kg	5.0	< 5.0	< 5.0
1,1-Dichloroethene	5.0	ug/kg	5.0	< 5.0	< 5.0
1,1-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethene (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Chloroform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Butanone	20.	ug/kg	< 20.	< 20.	< 20.
1,1,1-Trichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Vinyl acetate	20.	ug/kg	< 20.	< 20.	< 20.
Bromodichloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Trichloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Dibromochloromethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Benzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
2-Chloroethyl vinyl ether	10.	ug/kg	< 10.	< 10.	< 10.
trans-1,3-Dichloropropene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Bromoform	5.0	ug/kg	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone	20.	ug/kg	< 20.	< 20.	< 20.
2-Hexanone	20.	ug/kg	< 20.	< 20.	< 20.
Tetrachloroethene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Toluene	5.0	ug/kg	7.0	< 5.0	< 5.0
Chlorobenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Ethylbenzene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Styrene	5.0	ug/kg	< 5.0	< 5.0	< 5.0
Xylenes (total)	5.0	ug/kg	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,4-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
1,2-Dichlorobenzene	10.	ug/kg	< 10.	< 10.	< 10.
Percent Solids	--	%	85.1	90.8	89.9

Notes:

Dilution Factor:

The dilution factor indicates the adjustments made by the laboratory to results and sample reporting limits for dilutions.

GTEL Milford, NH

M4090062:3

GTEL Client ID: 012015039  
Login Number: M4090062  
Project ID (number): 1310  
Project ID (name): SEARS ELYRIA

ANALYTICAL RESULTS

Volatile Organics  
Method: EPA 8240A  
Matrix: Low Soil

	GTEL Sample Number	M4090062-05	M4090062-06	M4090062-07	
	Client ID	SB-7 2'-4'	SB-7 14'-16'	SOIL CUTTINGS	--
	Date Sampled	09/01/94	09/01/94	09/01/94	--
	Date Analyzed	09/15/94	09/13/94	09/13/94	--
	Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting			Concentration: Dry Weight
	Limit	Units		

EPA 8240A:

"Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, SW-846", Third Edition, Revision 1, US EPA July 1992. Analyte list modified to include additional compounds.

Client Number: 012015039  
 Project ID: 1310  
 SEARS ELYRIA  
 Work Order Number: M4-09-0062

SURROGATE RECOVERY SUMMARY

Volatile Organics in Soil - Low Level  
 Modified EPA Method 8240

GTEL No.	Percent Recovery, %			
	S1 (TOL)	S2 (BFB)	S3 (DCE)	TOTAL OUT
BL091394J	96.7	103	101	0
BL091594JB	100	103	91.7	0
090062-01	106	100	95.7	0
090062-02	107	97.3	100	0
090062-03	108	95.0	101	0
090062-04	108	95.9	94.8	0
090062-05	107	99.4	103	0
090062-06	110	95.7	103	0
090062-07	108	95.9	101	0
MS090062-07	103	103	92.1	0
MD090062-07	104	96.9	93.3	0
MS090061-01	100	104	104	0
MD090061-01	108	102	102	0

Surrogates

Amount Spiked,

ug/L

Recovery Limits<sup>a</sup>

S1	TOL	Toluene-d8	50	81-117
S2	BFB	Bromofluorobenzene	50	74-121
S3	DCE	1,2-Dichloroethane-d4	50	70-121

\* Indicates values outside of acceptability limits.

a Acceptability limits are derived from USEPA Contract Laboratory Program (CLP) guidelines.

D Diluted out. Percent Recovery is not calculated when surrogate compound(s) are diluted out.

MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) SUMMARY  
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)

Volatile Organics in Soil—Low Level  
Modified EPA Method 8240

Sample spiked:	090061-01		Client ID:	Batch QC		
Solution ID:	MS94MS075		Date analyzed:	9/13/94		
Analyte	Spike ug/kg	Sample Concentration ug/kg	MS Concentration ug/kg	MS Percent Recovery	Limits, % (a)	
1,1-Dichloroethene	50	0	62	123	59-172	
Trichloroethene	50	0	61	121	62-137	
Benzene	50	0	63	125	66-142	
Toluene	50	0	63	126	59-139	
Chlorobenzene	50	0	57	113	60-133	
Analyte	Spike Added ug/kg	MSD Concentration ug/kg	MS Percent Recovery	RPD, %	Acceptability limits (a) RPD % Recovery	
1,1-Dichloroethene	50	64	130	5	22	59-172
Trichloroethene	50	60	121	0	24	62-137
Benzene	50	63	127	1	21	66-142
Toluene	50	65	132	5	21	59-139
Chlorobenzene	50	55	112	1	21	60-133

Recoveries are calculated based on a wet weight concentration.

\* Indicates values outside of acceptability limits.

a Acceptability limits are derived from USEPA Contract Laboratory Program (CLP) requirements.

D Diluted out. Percent Recovery and RPD are not calculated when spike compound(s) are diluted out.

MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD) SUMMARY  
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)

Volatile Organics in Soil—Low Level  
Modified EPA Method 8240

Sample spiked: 090062-07 Client ID: Batch QC

Solution ID: MS94MS075 Date analyzed: 9/15/94

Analyte	Spike ug/kg	Sample Concentration ug/kg	MS Concentration ug/kg	MS Percent Recovery	Limits, %(a)
1,1-Dichloroethene	50	0	61	123	59-172
Trichloroethene	50	0	60	120	62-137
Benzene	50	0	66	132	66-142
Toluene	50	4	66	125	59-139
Chlorobenzene	50	0	54	109	60-133

Analyte	Spike Added ug/kg	MSD Concentration ug/kg	MS Percent Recovery	RPD, %	Acceptability limits (a) RPD % Recovery
1,1-Dichloroethene	50	66	132	7	22 59-172
Trichloroethene	50	60	121	1	24 62-137
Benzene	50	62	125	5	21 66-142
Toluene	50	66	125	0	21 59-139
Chlorobenzene	50	52	105	4	21 60-133

Recoveries are calculated based on a wet weight concentration.

\* Indicates values outside of acceptability limits.

a Acceptability limits are derived from USEPA Contract Laboratory Program (CLP) requirements.

D Diluted out. Percent Recovery and RPD are not calculated when spike compound(s) are diluted out.

Client Number: 012015039  
Project ID: 1310  
SEARS ELYRIA  
Work Order Number: M4-09-0062

#### METHOD BLANK RESULTS

##### Volatile Organics in Soil - Low Level Modified EPA Method 8240a

GTEL File ID		BL091394J	
Date Analyzed		09/13/94	
Analyte	PQL, ug/kg <sup>b</sup>	Concentration, ug/kg <sup>c</sup>	
Chloromethane	10	10	U
Bromomethane	10	10	U
Vinyl Chloride	10	10	U
Chloroethane	10	10	U
Methylene Chloride	5	5	U
Acetone	10	10	U
Carbon Disulfide	5	5	U
1,1-Dichloroethene	5	5	U
1,1-Dichloroethane	5	5	U
1,2-Dichloroethene (total) <sup>d</sup>	5	5	U
Chloroform	5	5	U
1,2-Dichloroethane	5	5	U
2-Butanone	10	10	U
1,1,1-Trichloroethane	5	5	U
Carbon Tetrachloride	5	5	U
Vinyl Acetate	10	10	U
Bromodichloromethane	5	5	U
1,2-Dichloropropane	5	5	U
cis-1,3-Dichloropropene	5	5	U
Trichloroethene	5	5	U
Dibromochloromethane	5	5	U

Client Number: 012015039  
Project ID: 1310  
SEARS ELYRIA  
Work Order Number: M4-09-0062

#### METHOD BLANK RESULTS

##### Volatile Organics in Soil - Low Level Modified EPA Method 8240<sup>a</sup>

GTEL File ID		BL091394J	
Date Analyzed		09/13/94	
Analyte	PQL, ug/kg <sup>b</sup>	Concentration, ug/kg <sup>c</sup>	
1,1,2-Trichloroethane	5	5	U
Benzene	5	5	U
2-Chloroethyl Vinyl Ether	10	10	U
trans-1,3-Dichloropropene	5	5	U
Bromoform	5	5	U
4-Methyl-2-Pentanone	10	10	U
2-Hexanone	10	10	U
Tetrachloroethene	5	5	U
1,1,2,2-Tetrachloroethane	5	5	U
Toluene	5	5	U
Chlorobenzene	5	5	U
Ethylbenzene	5	5	U
Styrene	5	5	U
Xylenes (total)	5	5	U

Client Number: 012015039  
Project ID: 1310  
SEARS ELYRIA  
Work Order Number: M4-09-0062

#### METHOD BLANK RESULTS

##### Volatile Organics in Soil - Low Level Modified EPA Method 8240<sup>a</sup>

- a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, Table 2, US EPA November 1986; sample prepared by low level solvent extraction and purge and trap. Method modified to include additional compounds.
- b Practical quantitation limit. The PQL limits are as published in SW846. Individual sample PQL's are adjusted for dry weight.
- c Data Flag Definitions
  - U Indicates compound was analyzed for but not detected.
  - J Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the quantitation limit, but greater than zero, or when reporting an estimated concentration for a tentatively identified compound.
- d Total 1,2-dichloroethene is the sum of the cis- and trans- isomers.

GTEL Client ID: 012015039  
Login Number: M4090062  
Project ID (number): 1310  
Project ID (name): SEARS ELYRIA

ANALYTICAL RESULTS

Total Petroleum Hydrocarbons  
Method: EPA 418.1  
Matrix: Soil

GTEL Sample Number	M4090062-01	M4090062-02	M4090062-03	M4090062-04
Client ID	SB-5 8'-10'	SB-5 14'-16'	SB-6 6'-8'	SB-6 14'-16'
Date Sampled	09/01/94	09/01/94	09/01/94	09/01/94
Date Analyzed	09/07/94	09/07/94	09/07/94	09/07/94
Date Prepped	09/06/94	09/06/94	09/06/94	09/06/94
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting			Concentration: Dry Weight		
	Limit	Units				
Total Petroleum Hydrocarbons	40.	mg/kg	190	< 40.	< 40.	< 40.
Percent Solids	--	%	86.5	87.6	85.5	88.4

Notes:

Dilution Factor:

The dilution factor indicates the adjustments made by the laboratory to results and sample reporting limits for dilutions.

EPA 418.1 Modified:

"Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79--020, USEPA EMSL, Cincinnati, OH, Revised, March 1983. Extraction modified for soils.

GTEL Client ID: 012015039  
Login Number: M4090062  
Project ID (number): 1310  
Project ID (name): SEARS ELYRIA

ANALYTICAL RESULTS

Total Petroleum Hydrocarbons  
Method: EPA 418.1  
Matrix: Soil

GTEL Sample Number	M4090062-05	M4090062-06	M4090062-07
Client ID	SB-7 2'-4'	SB-7 14'-16'	SOIL CUTTINGS
Date Sampled	09/01/94	09/01/94	09/01/94
Date Analyzed	09/07/94	09/07/94	09/07/94
Date Prepped	09/06/94	09/06/94	09/06/94
Dilution Factor	1.00	1.00	1.00

Analyte	Reporting			Concentration: Dry Weight
	Limit	Units		
Total Petroleum Hydrocarbons	40.	mg/kg	70.	< 40. 190
Percent Solids	--	%	85.1	90.8 89.9

Notes:

Dilution Factor:

The dilution factor indicates the adjustments made by the laboratory to results and sample reporting limits for dilutions.

EPA 418.1 Modified:

"Methods for Chemical Analysis of Water and Wastes". EPA 600/4-79-020. USEPA EMSL, Cincinnati, OH. Revised, March 1983. Extraction modified for soils.

### Reporting Conventions

The table below summarizes the reporting conventions which appear on the enclosed QC Package for inorganic analyses. These conventions are consistent with EPA Contract Laboratory Program (CLP), except for classical chemistry analyses.

Flag	Interpretation
Column Heading: C	Concentration qualifier:
U	The analyte was analyzed for but not detected.
Column Heading: Q	Qualifier-Specified entries and their meanings are as follows:
N	Spiked sample recovery not within control limits.
*	Duplicate analysis not in control.
Column Heading: M	Method Used:
F	Furnace AA.
P	Inductively Coupled Plasma (ICP).
CV	Cold Vapor AA.
FP	Closed-cup Tester.
C	Colorimetric.
E	Electrode.
T	Titrimetric.
IR	Infra-Red.
G	Gravimetric.

Data for soils are reported on a dry weight basis.

### SPIKED SAMPLE RECOVERY SUMMARY

GTEL Sample Spiked: 080631-41  
Date Analyzed: 09/07/94  
Concentration Units: mg/kg  
Matrix: Solid Waste

Analyte	Spiked Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	Recovery %	Lim	Q	M
Total Petroleum Hydrocarbons	532525.8410		321150.8451		480.9178	NA	NA		IR

NA Not applicable when sample results are greater than four times the amount added.

## LABORATORY DUPLICATE SAMPLE RESULTS

GTEL Sample I.D.: MS080631-41  
Date Analyzed: 09/07/94  
Concentration Units: mg/kg  
Matrix: Solid Waste

Analyte	Sample Result	C	Duplicate Result	C	RPD, %	Control Limit <sup>a</sup>	Q	M
Total Petroleum Hydrocarbons	532525.8410		326853.7691		47.9	50		IR

a Control limits are derived from Laboratory Practice.  
MS Matrix Spike

LABORATORY CONTROL SAMPLE

Date Analyzed: 09/07/94  
Units: mg/kg

Analyte	True	Found	C	Recovery, %	Control Limits, % <sup>a</sup>
Total Petroleum Hydrocarbons	381.8623	372.2372		97.5	60-140

a Control limits are derived from Laboratory Practice.

## BLANK RESULTS

Date Analyzed:

09/07/94

Preparation Blank Units:

mg/kg

Matrix:

Solid Waste

Analyte	Preparation Blank		
	C	M	
Total Petroleum Hydrocarbons	40.0000	U	IR



## **APPENDIX D**

### **SFSS CHART**

**SFM SITE FEATURE SCORING SYSTEM (SFSS) CHART**  
**(USE "SFSS GUIDELINES" TO COMPLETE THIS CHART)**

<b>I. OWNERSHIP OF TANKS</b>		<b>II. LOCATION OF TANKS</b>	
Sears Merchandise Group 3333 Beverly Drive Hoffman Estates, Illinois 60179 Contact: Bernadine Palka (708) 286-8864		Incident No. 4732300 Sears Store #1310 300 Midway Boulevard Elyria, Lorain County, Ohio 44035 Contact: Jim Dwyer (216) 324-2411	

Site Features	COLUMN A		COLUMN B		COLUMN C		COLUMN D	
	Score 20	Enter Score	Score 15	Enter Score	Score 10	Enter Score	Score 5	Enter Score
1. Distance of UST system from closest potable-water supply source currently in use is:	> 1000 ft.	20	300 - 1000 ft.		< 300 ft.		Inside of designated sensitive area	
2. Depth to groundwater is:	> 50 ft.		31 - 50 ft.		15 - 30 ft. or unknown	10	< 15 ft.	
3. Predominant soil type of substratum is:	Clay or shale	20	Silt or clayey sands or fine sandstone		Silty sand or fine sand, unknown, or sandstone		Clean sand, gravel, or conglomerate	
4. Natural and/or man-made conduits or receptors -- See Worksheet Below	< 8		8 - 10		11 - 13	10	> 13	
Subtotals:		40				20		
<b>TOTAL SCORE (SUBTOTALS)</b>							<b>60</b>	

**SITE FEATURE 4 WORKSHEET:**

Basements or subsurface foundations within 100 feet of UST system	4 points	4
Storm sewer within 50 feet of UST system	4 points	4
Sanitary sewer within 50 feet of UST system	4 points	4
Septic system leach field within 50 feet of UST system	2 points	
Water line main within 50 feet of UST system	1 points	
Natural gas line main within 50 feet of UST system	1 points	
Bedrock area prone to dissolution along joints of fractures within 100 feet of UST system	1 points	
Faults or known fractures within 100 feet of UST system	1 points	
Buried telephone/television cable main within 50 feet of UST system	1 points	
Buried electrical cable within 50 feet of UST system	1 points	1
<b>TOTAL POINTS</b>		<b>13</b>

CONSTITUENT	CATEGORY 1	CATEGORY 2	CATEGORY 3	CATEGORY 4
TOTAL SCORE	< 31	31-50	51-70	> 71
Soil BTEX	.006/4/6/28	.170/7/10/47	.335/9/14/67	.500/12/18/85
Groundwater BTEX	.005/1/.700/10	.005/1/.700/10	.005/1/.700/10	.005/1/.700/10
Soil TPH (Gasoline)	105	300	450	600
Soil TPH (Others)	380	642	904	1156