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**DRAFT REPORT  
UNDERGROUND FUEL INVESTIGATION  
COMPREHENSIVE SITE ASSESSMENT**

**VOLUME II  
(APPENDICES)**

**CAMP GEIGER FUEL FARM  
MARINE CORPS BASE**

**CAMP LEJEUNE, NORTH CAROLINA**

**November 6, 1991**

**Law Engineering Job No. J47590-6014**

**Law Engineering, Inc.  
Raleigh, North Carolina**

DRAFT

**APPENDIX A**  
**COMPREHENSIVE SITE ASSESSMENT WORKPLAN**

**COMPREHENSIVE SITE  
ASSESSMENT WORKPLAN**

**UNDERGROUND FUEL INVESTIGATION  
CAMP GEIGER FUEL FARM  
MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA**

**July 25, 1991**

**Law Engineering Job No. J47591-6014**

**Law Engineering, Inc.  
Raleigh, North Carolina**

July 25, 1991

Trueman Seamans  
c/o Commander  
6500 Hampton Boulevard  
Building A - 2nd Floor  
Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511-6287

Subject: **UNDERGROUND FUEL INVESTIGATION, COMPREHENSIVE  
SITE ASSESSMENT WORKPLANS  
CAMP GEIGER FUEL FARM  
MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA  
CONTRACT NO. N62470-90-D-7625  
LAW ENGINEERING JOB NO. J47590-6014**

Dear Mr. Seamans:

Please find enclosed two copies of the above referenced Workplan document. This document covers those tasks designed to identify and delineate subsurface contamination and estimate its direction and rate of movement at the Camp Geiger Fuel Farm.

Please review the enclosed document and contact me regarding any questions or comments. Also note that we plan to begin field activities on August 5, 1991.

Law Engineering appreciates the opportunity to continue to provide services to you and LANTDIV on your environmental projects.

I look forward to hearing from you soon.

Sincerely,

**LAW ENGINEERING, INC.**

W. Douglass Dixon, P.E.  
Senior Engineer/Project Manager

WDD/alc

J. Allen Kibler, Jr., P.G.  
Principal Geologist  
Licensed, North Carolina 1077

ENCLOSURES

cc: Stephany Del Re' Johnson - Camp Lejeune w/enclosures  
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## TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SITE CHARACTERIZATION	1
2.1	<u>Regional Hydrogeology</u>	1
2.2	<u>Site Hydrology/Hydrogeology</u>	2
3.0	PREVIOUS INVESTIGATIONS	3
4.0	UNDERGROUND FUEL LINE TESTING	3
5.0	HYDROGEOLOGIC FIELD INVESTIGATION	5
5.1	<u>Hydropunch Sampling and Soil Test Borings</u>	6
5.1.1	Hydropunch Sampling	6
5.1.2	Soil Test Borings	6
5.2	<u>Monitoring Well Network</u>	7
5.2.1	Well Locations	7
5.2.2	Well Design and Construction	7
5.2.3	Detailed Well Installation Procedures	8
5.2.4	Well Development	10
5.2.5	Drilling and Well Installation Equipment Decontamination	10
5.2.6	Disposal of Borehole Cuttings and Development Water	11
5.3	<u>Borehole Sampling for Chemical Testing</u>	11
5.4	<u>Surveying</u>	12
5.5	<u>Ground-Water Sampling</u>	12
5.5.1	Ground-Water Level and Free Product Thickness Measurement	12
5.5.2	Well Purging	13
5.5.3	Sample Identification	14
5.5.4	Sample Collection	14
5.5.5	Sample Analysis	15
5.5.6	Ground-Water Sample Collection Equipment Decontamination	15
5.5.7	Chain of Custody (COC)	16
6.0	EVALUATION OF ASSESSMENT MONITORING DATA	17
7.0	ESTIMATION OF THE RATE OF CONSTITUENT MIGRATION	18
8.0	PROJECT SCHEDULE	19
9.0	REFERENCES	19

## **DRAWINGS**

- 1.1 General Site Location**
- 3.1 Existing Ground-Water Monitoring Network**
- 5.1 Hydropunch Sampling Location Plan**
- 5.2 Test Boring Record**
- 5.3 Monitoring Well Schematic-Developed Areas**
- 5.4 Monitoring Well Schematic-Undeveloped Areas**
- 5.5 Well Construction Record**
- 5.6 Monitoring Well Sampling and Field Data Worksheet**
- 5.7 Water Elevation Worksheet**
- 5.8 Chain of Custody Record Form**
- 5.9 Analytical Request Form**
- 8.1 Project Schedule**

## **APPENDICES**

- A - Tracer Research Corporation's Tracer Tight (tm)  
Standard Operating Procedures**
- B - Health and Safety Plan**

## **1.0 INTRODUCTION**

The purpose of this Comprehensive Site Assessment Workplan (Workplan) is to serve as a guidance document and procedural manual for performing tasks to aid in determining the magnitude and extent of soil and ground-water contamination; identifying possible free product accumulation; and assessing potential exposure to possible subsurface contaminants at the Camp Geiger Fuel Farm. The location of the Fuel Farm within the Marine Corps Base is shown in Drawing 1.1.

This Workplan was prepared in accordance with the Scope of Work (SOW) developed by the Naval Facilities Engineering Command and requirements listed as Tasks I through VIII of the document entitled "Comprehensive Site Assessments at LUST Sites: Basic Tasks and Minimal Elements" prepared by the Groundwater Section of the North Carolina Department of Environment, Health and Natural Resources (NCDEHNR). Significant information and data has already been compiled during previous investigations with which to address Tasks IX and X listed in the State document. The objective of the Comprehensive Site Assessment is to provide sufficient data to meet the requirements of Sections 280.63 and 280.65 of 40 CFR Part 280, Federal Technical Standards for Underground Storage Tanks and Sections .0704 and .0706 of Title 15A, Chapter 2, Subchapter 2N, North Carolina Criteria and Standards Applicable to Underground Storage Tanks.

## **2.0 SITE CHARACTERIZATION**

### **2.1 Regional Hydrogeology**

In the Camp Lejeune area, sediments deposited in marine or near-marine environments are about 1,500 feet thick and overlie igneous and metamorphic basement rocks. The aquifers of the Camp Lejeune area are the surficial, Castle Hayne, Beaufort, Peedee, Black Creek, and upper and lower Cape Fear aquifers. They are separated by less permeable clay and silt beds (confining units) that serve to impede the flow of ground water between the aquifers (Harned, 1989).

The surficial aquifer is a series of sediments, primarily sand and clay, which commonly extend to depths of 50 to 100 feet. This unit is not used for water supply on the Base. The principal water-supply aquifer for the Base is the series of sand and limestone beds that occur between 50 and 300 feet below land surface. This series of sediments generally is known as the Castle Hayne aquifer. The Castle Hayne aquifer is about 150 to 350 feet thick in the area and is the most productive aquifer in North Carolina. It is a critical water-supply source, not only for Camp Lejeune but also for the southern coast and east-central Coastal Plain of North Carolina (Harned, 1989).

Camp Lejeune is situated in an area where the Castle Hayne aquifer contains freshwater, although the proximity of saltwater in deeper layers just below the aquifer and in the New River estuary is of concern in managing water withdrawals from the aquifer. The aquifers that lie below the Castle Hayne consist of a thick sequence of sand and clay. Although some of these aquifers are used for water supply elsewhere in the Coastal Plain, they contain saltwater in the Camp Lejeune area (Harned, 1989).

Water levels in wells tapping the surficial aquifer vary seasonally. The surficial aquifer receives more recharge in the winter than in the summer when much of the water being evaporated or is transpired by plants before it can reach the water table. Therefore, the water table generally is highest in the winter months and lowest in summer or early fall. The hydraulic head in a confined aquifer, such as the Castle Hayne, shows a different pattern of variation over time than that in an unconfined aquifer. Some seasonal variation also is common in the water levels of the Castle Hayne aquifer, but the changes tend to be slower and over a smaller range than for water-table wells (Harned, 1989).

## 2.2 Site Hydrology/Hydrogeology

The following information regarding site hydrology/hydrogeology contained in this section is taken directly from the report entitled Draft Field Investigation/Focused Feasibility Study, Camp Geiger Fuel Spill Site, prepared by NUS Corporation and dated December 1990.

Surface waters and runoff from the site generally flow in an easterly direction into Brinson Creek. One drainage way originates in the northwestern corner of the site and is an open ditch that routes stormwater runoff from the Base into Brinson Creek. Prior to its confluence with Brinson Creek, the ditch merges with another storm water runoff ditch that originates in the southwestern portion of the site and passes approximately 50 feet south of the central project study area. Another drainage ditch originates in the western portion of the site and terminates near the central part of the study area. This ditch no longer flows, but currently has ponded water in it due to recent digging at the site by Base personnel. Brinson Creek flows in a southeasterly direction approximately 200 feet east of the site and flows into the New River approximately 3/4 of a mile downstream. Brinson Creek and the two storm water runoff ditches are strongly influenced by the tides (NUS, 1990).

The shallow subsurface geology of the study area consists of a surficial layer of unconsolidated fine-grained sand with trace amounts of silt and clay, which is underlain by a layer of fine-grained sand with thin, discontinuous clay and gravel lenses. Soil density ranges from very loose to medium dense (NUS, 1990).

The depth of the water table at the Fuel Farm study area ranges from one to eight feet below land surface (BLS). The water table reportedly fluctuates approximately 1 foot with tidal advances, rising to near the ground surface in the low lying portions of the study area during high tide. Based on the potentiometric surface data, groundwater flow direction across the site is generally to the northeast toward Brinson Creek. The flow direction is consistent with the expected hydraulic gradient, given the existing topography and local surface drainage. Based on this information, as well as the general topography west of Brinson Creek, it is likely that ground-water discharges into Brinson Creek from both the site and the surrounding areas west of the creek (NUS, 1990).

### **3.0 PREVIOUS INVESTIGATIONS**

Previous investigations related to contamination of natural resources at the Camp Geiger Fuel Farm were conducted by several environmental companies in 1984, 1986 and 1990. Results of the investigations indicate that soil and ground-water contamination by petroleum-fuel related hydrocarbons is present in the vicinity of and downgradient from the Fuel Farm. During the 1986 and 1990 investigations, a total of seven ground-water monitoring wells were installed in the vicinity of the Fuel Farm. The locations of these wells are exhibited in Drawing 3-1.

### **4.0 UNDERGROUND FUEL LINE TESTING**

On May 29, 1991, representatives of Law Engineering performed a reconnaissance of the fuel storage and distribution system at Camp Geiger. Information regarding current operations of the fuel farm was also obtained through discussions with Mr. Anthony Koonce, civilian-in-charge of fuel dispensing at the Camp Geiger Fuel Farm and Mr. Don Finney, Assistant, Officer-In-Charge of Direct Support Stock Control at Camp Lejeune. The following active system components were observed during the site visit:

#### **Aboveground Storage Tanks**

- One 10,000-gallon capacity diesel fuel
- One 10,000-gallon capacity unleaded gasoline
- One 15,000-gallon capacity unleaded gasoline
- One 15,000-gallon capacity diesel fuel
- One 15,000-gallon capacity kerosene

### Underground Fuel Transmission Lines

- **Unleaded gasoline**
  - from unloading to pump (approximately 40 feet)
  - from pump to vehicle dispensers (approximately 120 feet)
- **Diesel Fuel**
  - from unloading to pump (approximately 40 feet)
  - from pump to vehicle dispenser (approximately 105 feet)
  - from pump to overhead tanker dispenser (approximately 80 feet)
- **Kerosene**
  - from unloading to pump (approximately 110 feet)
  - from pump to overhead tanker dispenser (approximately 130 feet)

In an effort to determine if the underground fuel transmission lines are contributing to subsurface contamination in the vicinity of the Fuel Farm, the above-referenced lines will be tested using the Tracer Tight tightness testing method. Briefly, the Tracer Tight method will be performed as follows:

- Inoculate each tank system with a tracer (bromotrifluoromethane) by depositing the tracer into each fill port immediately prior to a scheduled delivery.
- Allow sufficient time (normally 21 days) for the tracer to be distributed throughout each tank system.
- Place probes in the subsurface along the underground lines at approximately 25-foot intervals.
- Extract a soil gas sample from each probe and analyze the sample for presence of the tracer and total volatile petroleum hydrocarbons by gas chromatography; analysis will be conducted in the field.

A more detailed description of the Tracer Tight Standard Operating Procedures is contained in Appendix A. Upon completion of the line testing and review of the test data, the Navy will be verbally notified of the results. Written test results will be included in the Comprehensive Site Assessment report and will include leak status (pass or fail); location and relative severity of detected leaks; and a scale drawing showing piping location, soil gas probe locations, fuel dispensers and other pertinent site features.

## **5.0 HYDROGEOLOGIC FIELD INVESTIGATION**

The major objectives of the hydrogeologic field investigation and ground-water assessment program are to (1) identify source(s) of subsurface petroleum fuel contamination at the Camp Geiger Fuel Farm; (2) define the approximate lateral and vertical extent of free product accumulation (if any) and dissolved-phase ground-water contamination resulting from possible discharge of petroleum fuels at the Fuel Farm; and (3) determine the approximate direction and rate of migration of ground-water contaminant constituents at the project site. In order to accomplish these objectives in a systematic and cost-effective manner, the investigation will be carried out in a two-phase approach. Field activities will be performed in adherence to procedures and guidelines contained in the project Health and Safety Plan (Appendix B).

Phase I will involve the acquisition of approximately twenty ground-water samples via Hydropunch sampling technique and the drilling of approximately six soil borings in order to accomplish the following:

- Obtain lithological data with which to define near-surface geologic conditions;
- Determine whether contaminant constituents are present in the unsaturated zone areas of the soil borings. Several borings will be advanced in the immediate vicinity of a suspected underground storage tank located approximately 150 feet west of the fuel storage area;
- Develop a preliminary evaluation of the lateral extent of dissolved-phase ground-water contamination;
- Determine the need for and optimal location of monitoring wells to define the lateral extent of potential free product accumulation and dissolved-phase contamination.

Phase II investigatory work will be designed based on the results obtained during Phase I activities and will include installation of up to twenty monitoring well "pairs". The wells will provide for:

- Acquisition of data necessary to further define the lithology beneath the project site;
- Acquisition of data necessary to develop a water table contour map and determine the direction of ground-water flow across the project site;
- Acquisition of data to ascertain the lateral extent and approximate thickness of the free product plume, if present;

- Acquisition of data necessary to establish the approximate geometric dimensions (vertical and lateral) of the dissolved-phase contaminant plume(s), if present; and
- Reproducible sampling points in the upper and lower portions of the surficial aquifer.

## 5.1 Hydropunch Sampling and Soil Test Borings

### 5.1.1 Hydropunch Sampling

Proposed Hydropunch sampling locations are shown on Drawing 5.1. Collection of these ground-water samples will be accomplished by the Hydropunch ground-water sampling system being driven through the unsaturated zone into the water-bearing zone. The Hydropunch will then be opened to allow ground water to enter into the sample chamber. Samples will be collected by lowering a small-diameter, Teflon bailer into the sample chamber. The samples will be analyzed for purgeable aromatics using EPA Method 602. Sample identification and chain-of-custody procedures, as outlined in Sections 5.5.3 and 5.5.7 of this Workplan, will be followed.

The locations of these samples were selected based on suspected contaminant source locations and the anticipated direction of ground-water flow. The sampling grid is based on approximate 150-foot centers and is intended to provide complete coverage of the possible spatial extent of the dissolved-phase plume(s). Where petroleum contamination is detected, the information from the Hydropunch samples will be used to locate monitoring well "pairs" in the appropriate lateral directions.

### 5.1.2 Soil Test Borings

Locations of proposed soil borings to be drilled during Phase I of the investigation will be determined based on data gathered during the underground fuel line testing and verification of the actual location of the suspected underground storage tank. The network consists of six borings advanced to a depth of twelve to fifteen feet below land surface (BLS). Locations will also be subject to subsurface utility and fuel transmission line clearance. This network is intended to provide a determination as to the presence or absence of petroleum contamination in the immediate vicinity of suspected leak locations. If petroleum contamination is detected, the information from the borings will be used to assist with location of monitoring well "pairs".

Soil samples for general site characterization will be obtained from the six soil test borings at the following depths: 0.0-ft to 1.5 ft; 1.5-ft to 3.0 ft; 3.0-ft to 4.5-ft; and 5.0-ft centers thereafter. The soil samples will be obtained using a split spoon sampler driven in accordance with ASTM D-1586. Soil samples will be identified in the field by an engineer or geologist trained in using visual/manual techniques as



described in ASTM D-2487 and D-2488. The soils will be classified in accordance with the Unified Soils Classification System and a test boring record of each borehole will be produced. A sample test boring record used for final presentation of standard test boring data is shown as Drawing 5.2.

Samples for chemical analysis will be collected and analyzed in accordance with procedures outlined in Section 5.3 of this Workplan.

## **5.2 Monitoring Well Network**

### **5.2.1 Well Locations**

The locations of the proposed monitoring well "pairs" will be selected based on laboratory analytical results of the Hydropunch samples along with observations of topography, local discharge features and estimated ground-water flow direction.

### **5.2.2 Well Design and Construction**

All "paired" monitoring wells will be constructed of 2-inch diameter PVC, machine slotted wells screens and 2-inch diameter Schedule 40 PVC riser pipe. Piping will be flush jointed and threaded, and wells will be constructed without the use of glue. Screen slot widths will be 0.010 inches. Sand packs will be constructed of washed silica Torpedo sand (ASTM C190).

The well "pairs" will be constructed to include two separate wells in each borehole. The deeper well will be constructed with a 3-foot section of well screen situated approximately 12 to 15 feet below the bottom of the paired shallow well. The shallow well will be constructed with a 10-foot section of well screen to extend above and below the water table. A bentonite seal will be placed above the deeper well screen to prevent downward vertical migration of contaminants along the annular space. Typical monitoring well construction details are shown on Drawings 5.3 (developed areas) and 5.4 (undeveloped areas).

The well drilling will be performed with drilling rigs fully equipped for dry auger drilling. All wells will be installed by a qualified driller registered in the State of North Carolina and well installation will be supervised in the field by a staff geologist or engineer specializing in subsurface investigation. No grease or oil will be used on drill pipe joints. However, Teflon tape, vegetable oil, or phosphate-free laboratory detergent such as Liquinox will be used for lubrication, if required. A registered professional engineer specializing in subsurface contaminant investigations will provide overall technical oversight of well installation practices.

### 5.2.3 Detailed Well Installation Procedures

All PVC screen and riser used in well construction will be pre-cleaned and packaged by the manufacturer. All well casing and screens will be transported and stored at the site in original packaging. Personnel handling these items will not handle tools or drilling equipment while installing the well. Clean, new disposable latex rubber gloves will be worn when handling well screens or casing. The wells will be installed as follows:

- Boreholes will be advanced with 3.75-inch I.D. hollow stem auger drilling technique to a depth of approximately 28 feet below land surface (BLS).
- Samples for chemical analysis will be collected via split spoon sampling in accordance with procedures outlined in Sections 5.12 and 5.3 of this Workplan.
- At two well "pair" locations, soil samples from the upper and lower screen elevations will be collected and analyzed for grain size distribution in order to obtain additional information regarding the hydraulic and physical properties of the aquifer material.
- The augers will be removed from the borehole.
- The borehole will be enlarged with 10.25-inch I.D. hollow stem auger drilling technique to a depth of approximately 28 feet BLS.
- The desired sections of 2-inch well screen and riser pipe for the "deep" well will be assembled and lowered to the bottom of the augers.
- The lengths of all screen and riser casing sections and bottom plugs will be measured and recorded.
- Washed silica filter sand will be poured into the augers to construct a continuous filter pack within the augers which will extend from approximately one foot below the bottom of the well screen to a maximum of two feet above the slotted section. The depth to the sand pack will be frequently measured through the augers using a decontaminated weight attached to a fiberglass measuring tape while "pulling" the augers without rotating them to maintain the sand inside the augers as the filter pack is constructed.
- A 3-foot-thick bentonite seal will be emplaced above the sand filter pack by pouring bentonite pellets into the augers in the manner described above. Distilled water will be added to the annular space at ten-minute

intervals to aid in the hydration of the bentonite seal. The bentonite seal will be allowed to hydrate in accordance with manufacturer's recommendations prior to emplacement of the "shallow" monitoring well.

- The desired sections of 2-inch well screen and riser pipe for the "shallow" well will be assembled and lowered to within one foot of the bentonite seal.
- Washed silica filter sand will be poured through the augers while the augers are pulled back incrementally to construct a continuous filter pack within the augers which will extend from approximately one foot below the bottom of the "shallow" well screen to a minimum of two feet above the slotted section. The depth to the sand pack will be frequently measured through the augers using a decontaminated weight attached to a fiberglass measuring tape to maintain the sand inside the augers as the filter pack is constructed.
- A one-foot-thick bentonite seal will be constructed above the sand filter pack by pouring bentonite pellets into the annular space in the manner described above. Distilled water will be added to the borehole at ten minute intervals to aid in the hydration of the bentonite seal. The bentonite seal will be allowed to hydrate prior to placement of grout.
- The annular space above the bentonite seal will be tremie grouted from bottom to within approximately 3 feet of land surface with neat cement grout.
- After allowing the grout to set, the concrete pad and well bore cover will be installed to complete the installation.
- In developed areas, each well will be protected with three Schedule 40 steel pipes, 3-inch I.D., imbedded in a minimum of 2.5-feet of 3,000 psi concrete. A security pipe with a hinged locking cap will be installed over the well casings having an embedment depth of 2.5 feet into the grout. The security pipes will extend a minimum 2.5 feet and maximum 4.0 feet above the ground surface. The security pipes will be filled with concrete and painted day-glow yellow or an equivalent. A concrete apron constructed of 3,000 psi concrete and measuring 5-foot by 5-foot by 0.5 foot will be constructed around each well located in developed areas (Drawing No. 5.3).

- In undeveloped areas, the annular space between the casing and the borehole will be grouted to a depth of at least 2.5 feet and finished with a concrete collar and pad. The collar and pad will be constructed of 3,000 psi concrete and will be formed to extend approximately 6 inches above land surface (Drawing 5.4).
- Final well construction details will be provided on the forms included as Drawing 5.5.

#### 5.2.4 Well Development

Well development will be performed no sooner than 48 hours after grouting is completed. Wells will be developed by continuous low yield pumping and the pumps will be set at bottom of each well. As the wells are developed, ground-water temperature, pH, and specific conductance will be monitored as indicator parameters. The turbidity of the development water will be noted visually and recorded. Well development will continue until indicator parameters are stable (<10% change between 4 consecutive measurements) and the water is relatively free of suspended sediments.

#### 5.2.5 Drilling and Well Installation Equipment Decontamination

Equipment used for drilling and monitoring well installation and development will be cleaned and handled in accordance with the following guidelines:

- Drill rigs and all support equipment will be cleaned of excess grease, oils and caked-on soil prior to arrival at the site. Equipment which leaks fuel, coolant, or lubricants will not be used on site.
- Down-hole tools and equipment will be cleaned with high pressure steam cleaning equipment using potable water from the Camp Geiger Marine Corps Base water supply system after arrival and prior to commencement of the work; at completion of the work; and between boring and well locations. A potable water supply sampled collected from the spigot at the Fuel Farm was analyzed for and shown to be free of purgeable aromatic hydrocarbons.
- Steam cleaning of drilling equipment will be performed at the site on the truck unloading ramp located at Tank Farm.
- Equipment such as pumps and pump lines will be flushed thoroughly with potable water prior to use.

### 5.2.6 Disposal of Borehole Cuttings and Development Water

Borehole cuttings and well development water will be field tested for presence of volatile organic compounds using a photoionization detector (PID). Borehole cuttings which do not exhibit evidence of contamination will be spread on land surface in the immediate vicinity of the wellhead. Borehole cuttings which exhibit evidence of contamination will be removed from the drill site, transported to a deserted concrete roadway located northwest of the project site and encapsulated with plastic to prevent runoff. Ultimate disposal of the material will be based on analytical results and/or regulatory consultation to ascertain whether the waste material is designated hazardous or non-hazardous. Disposition of this material is not within the scope of this Workplan.

Development water which does not contain evidence of contamination will be discharged to land surface in the vicinity of the wellhead. Development water which exhibits evidence of contamination will be containerized and discharged to a sanitary sewer access located at the Fuel Farm. All free product collected during well development will be containerized for subsequent pickup and disposition by Marine Corps personnel.

### 5.3 Borehole Sampling for Chemical Testing

Sampling activities will be conducted during drilling of boreholes in order to ascertain the presence of petroleum fuel related compounds in the unsaturated zone and identify areas of suspected near-surface releases of petroleum fuels.

During drilling of each soil boring, soil samples will be retrieved via split spoon sampler as described in Section 5.1.2. Two portions of each sample will be removed from the sampling device and placed in pre-labeled, airtight, plastic "twin" bags. After several minutes, the gas contained in the "headspace" or void area within one of the twin bags will be tested with a photoionization detector (PID).

The duplicates of the two samples from each borehole exhibiting the highest headspace readings will be submitted to the laboratory for analysis. However, sampling locations and quantities may be adjusted in the field to provide adequate definition of the contamination. Soil samples collected for chemical analysis will be analyzed for the following parameters using the listed methods:

<u>Parameter</u>	<u>Method</u>
Flash Point (10 samples only)	SW846/1010
Total Petroleum Hydrocarbons	SW846/5030/3550
TCLP Metals (Lead only)	Extraction 1311

## 5.4 Surveying

Horizontal and vertical locations of all wellheads, soil borings and Hydropunch sampling points will be surveyed in reference to mean sea level (if a data point is within reasonable distance of the Fuel Farm) or an assumed datum at the site. Surveys will be supervised by a registered land surveyor.

## 5.5 Ground-Water Sampling

The ground water sampling program has been developed to determine the magnitude and extent of free product accumulation and dissolved-phase ground-water contamination that may be present as a result of petroleum fuel releases at the Fuel Farm. The sampling program will consist of purging and sampling all existing and newly-constructed monitoring wells. Purging and sampling will proceed from the least contaminated areas to the highest contaminated areas based on review of Hydropunch sampling data and field conditions observed during Phase I activities. The sampling program will include collection of samples for laboratory analysis; field analysis of pH, specific conductance, and temperature; ground-water level measurements; and product thickness measurements.

The Law Engineering Monitoring Well Sampling and Field Data Worksheet (Drawing 5.6) will be used to record all measurements made during well purging and sampling. This form was designed to be used as a checklist and as documentation for all ground-water sampling activities for an individual well.

### 5.5.1 Ground-Water Level and Free Product Thickness Measurement

Prior to well purging and sampling, water level and free product thickness measurements will be performed in all monitoring wells at the site no sooner than 48 hours after completion of well development activities. Measurements will be performed in all monitoring wells at the site on the same day to provide a complete set of comparable measurements. These measurements will be used to calculate hydraulic gradients, determine direction of ground-water flow at the site, and estimate thickness of free product (if present) in the subsurface beneath the Fuel Farm area.

Water level and free product thickness measurements will be performed using an electronic interface probe. The liquid levels will be measured by slowly lowering the instrument probe into the well. When the probe reaches the water or free product surface, the circuit is completed and a buzzer is activated. A constant buzzing indicates free product while an intermittent buzzing indicates water. The distance from the surveyed marker on the top of the well casing to either the water or free product level is then measured and recorded. If free product is present, the thickness will be measured to the nearest 0.01 foot. Water levels will be measured to the

nearest 0.01 foot. The instrument probe will be decontaminated between wells by detergent wash and distilled water rinse.

A complete set of water level measurements taken on the same day will be recorded on the Water Elevation Worksheet (Drawing 5.7). When the well cap is removed, a photoionization detector will be used to test the air space within the top of the well casing. The level of gross volatile organics detected (ppm) and odors noted will also be recorded.

### 5.5.2 Well Purging

Each well will be purged prior to sample collection to remove stagnant water from the well and well bore in an effort to collect samples that are representative of the water quality in the formation surrounding each well. For wells that recover quickly, three standing well volumes of water will be removed. Specific conductance, pH, and water temperature will be measured periodically during well purging. Wells that can be purged to dryness with less than three well volumes being removed will be sampled as soon as the well has recovered enough to yield sufficient volume for a sample. All purge water removed from the wells during purging procedures will be disposed in accordance with procedures for disposal of development water as described in Section 5.2.6 of this Workplan.

Well purging will be accomplished using decontaminated, clear Teflon bailers. New nylon rope will be used at each monitoring well location. Care will be taken to prevent contact between the rope and the ground during well purging and sample collection. Purging techniques will be performed in accordance with recommended practices described in the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities (Solid Waste Section, 1987). The volume of water to be purged is calculated using the following equation:

$$V = \pi r^2 h$$

where:

$$\pi = 3.14159$$

*r* = Radius of well casing

*h* = Height of water column in well (total well depth - depth to ground water prior to purging)

*V* = Volume of water in well (standing well volume)

$$\text{Minimum purge volume} = V \times 3$$

### 5.5.3 Sample Identification

Prior to collecting each sample, sample bottles will be labeled with the following information:

- Date and time of sample collection;
- Project identification number;
- Sample location number;
- Initials of person who collected sample;
- Type of preservative added to sample; and
- Parameter(s) or parameter group to be analyzed.

Additional specific information, such as sampling interval, may be added. The sample location number on the label will correspond to the sample location numbers assigned on the field site map.

### 5.5.4 Sample Collection

Samples will be collected immediately upon purging of the well in accordance with the following procedures:

- Chemical preservatives, if applicable, will be added to sample bottles by the laboratory.
- Sample bottles will be labeled prior to sample collection.
- Sample bottles will be filled directly from the Teflon bailer. Volatile organic samples will be collected first.
- The pH, temperature, and specific conductance of the sample will be measured and recorded. These measurements will be taken from a sample deposited in a separate container. Visual characteristics of the sample, including insoluble materials, will be recorded.
- Caps will be secured on bottles.
- Volatile organic sample containers will be placed in plastic bags and the bags sealed.
- Documentation, including Chain-Of-Custody Record and laboratory analytical request form, will be completed for all samples.
- Samples will be packed in coolers with "bubble wrap" and ice packs for shipment.



- Chain-Of-Custody Record and analytical request form will be placed inside cooler sealed with security tape.
- Samples will be shipped via overnight express to the analytical laboratory within 24 hours following collection.
- Laboratory will be advised of each sample shipment.

#### 5.5.5 Sample Analysis

Ground-water samples collected from each monitoring well will be analyzed for the following parameters using the listed methods:

<u>Parameter</u>	<u>Method</u>
Purgeable Halocarbons	EPA Method 601
Purgeable Aromatics (including MTBE)	EPA Method 602
Polynuclear Aromatic Hydrocarbons (5 samples only)	EPA Method 610
Lead-total	EPA Method 239.2

As part of our quality control program, one trip blank with each sample shipment and five equipment rinse blanks will be analyzed for purgeable aromatics via EPA Method 602. Two duplicate samples will be analyzed for all parameters listed above.

#### 5.5.6 Ground-Water Sample Collection Equipment Decontamination

Teflon bailers used for ground-water sampling are routinely decontaminated and stored as follows:

- Washed with phosphate-free detergent and tap water using a brush to remove any particulate matter or surface film.
- Rinsed thoroughly with distilled water.
- Rinsed thoroughly with a 10% nitric acid mixture.
- Rinsed thoroughly with distilled water.
- Rinsed with isopropanol.

- Allowed to air dry.
- Wrapped completely with aluminum foil and sealed in airtight plastic bags.

#### 5.5.7 Chain of Custody (COC)

Procedures will be followed to establish documentation to trace sample possession from the time of collection until completion of analysis. In order to accomplish this objective, as few people as possible will handle sample(s) and the sampler will be responsible for the care and custody of the samples until they are delivered to the laboratory or dispatched for shipment. An accurate record of sample collection, transport and analysis will be maintained and documented. COC procedures will be instituted and followed throughout the investigation.

Samples will be stored by those individuals or facilities designated on the COC Record form (Drawing 5.8). The following methodologies will be used to effect proper transfer documentation:

- Samples will be accompanied by a COC Record at all times.
- Samples will be packed properly for shipment so that bottles will not dislodge and/or break during shipment.
- Samples will be shipped via an overnight delivery service and the air bill number will be recorded to facilitate tracking of the package, if necessary;
- Methodology of shipment, courier name(s), and other pertinent information will be recorded on COC Record;
- When samples are split with an outside source or government agency, the split will be noted;
- An Analytical Request Form (Drawing 5.9), which includes a request for laboratory analysis, will be furnished with each sample shipment; and
- All records pertaining to the shipment of a sample will be retained (freight bills, post office receipts, and bills of lading) and maintained with the project files.

The COC Record will be used by personnel responsible for ensuring the integrity of samples from the time of collection to shipment to the laboratory. The laboratory will not proceed with sample analysis without a correctly prepared COC Record and

Analytical Request Form. The laboratory will be responsible for maintaining COC of the sample(s) from time of receipt to disposal.

The COC Record will be signed by each individual who has maintained custody of the samples. Preparation of the COC Record will be as follows:

- The COC Record will be initiated in the field by the person collecting the samples. Every sample will be assigned a unique identification number as described in Section 5.5.3 that is entered on the COC Record. Samples may be grouped for overnight shipment using a single Record.
- The Record will be completed in the field to indicate project, sampling team, etc.
- If the person collecting the sample does not transport the samples to the laboratory or deliver the sample containers for shipment, the first block for "Relinquished By \_\_\_\_\_ Received By \_\_\_\_\_" will be completed in the field.
- The person transporting the samples to the laboratory or delivering them for shipment will sign the Record as "Relinquished By \_\_\_\_\_."
- If the samples are shipped to the laboratory by commercial carrier, the COC Record will be sealed in a watertight container, placed in the shipping container, and the shipping container sealed prior to being given to the carrier.
- If the samples are directly transported to the laboratory, the COC Record will be maintained in the possession of the person delivering the samples.
- For samples shipped by commercial carrier, the waybill will serve as an extension of the COC Record between the final field custodian and receipt in the laboratory.

## 6.0 EVALUATION OF ASSESSMENT MONITORING DATA

An evaluation of the assessment monitoring data will be performed in order to establish and communicate the spatial boundaries of contaminant plume(s) identified; and identify and communicate contaminant concentration gradients throughout the contaminated area. Accomplishment of these objectives will aid in (1) identifying contaminant source areas, migration pathways and potential receptors; and (2) establishing a basis for corrective action plans, if necessary.

The initial step in the evaluation process involves data reduction. Analytical results will be reviewed and all ground-water contaminant constituents exhibiting a positive detection will be listed. Concentrations of listed constituents will then be recorded for all sampling points. Additional information to be recorded for each constituent/sampling event combination includes:

- Sampling point identification number (or quality control designation).
- Sampling date.
- Practical quantitation limit.
- Reported concentration.
- Reported approximate concentration, if below practical quantitation limit.

The next step involves a quantitative ranking of constituent concentration/sampling point combinations in order to identify likely source areas and establish concentration gradients within the contaminated area. Based on these results, a representative number of constituents or groups of constituents will be selected with which to define the spatial limits of contamination and develop contaminant isopleth contours.

The third step of the evaluation process will be to develop graphical representations of the horizontal and vertical limits of the contamination as well as the approximate gradients of constituent concentrations within the contaminated area(s). Contaminant isopleth contours for selected constituents or groups of constituents will be drawn on plan maps to exhibit lateral extent of contamination.

## 7.0 ESTIMATION OF THE RATE OF CONSTITUENT MIGRATION

Groundwater travel time or average linear ground-water flow velocity will serve as the basis for estimating the rate of contaminant migration at the facility. Ground-water flow rates should represent the maximum rate of contaminant migration with variations among contaminants due to geohydrochemical processes including molecular diffusion, mechanical mixing, sorption-desorption, ion-exchange, hydrolysis and biodegradation. However, due to the difficulties in estimating the effects of many of the processes on contaminant migration rates and the desire to produce relatively conservative (higher) estimates, only sorption processes will be incorporated into rate calculations.

Ground-water flow velocities will be calculated using the following modification of Darcy's Law:

$$V = K/n(dh/dl)$$

where:  $K$  = Hydraulic conductivity (ft/day)  
 $n$  = Effective porosity (unitless)  
 $dh/dl$  = Hydraulic gradient (ft/ft)

Initial estimates of hydraulic conductivity will be determined from results of grain size distribution analyses of soil samples as discussed in Section 5.2.3. Hydraulic gradients will be calculated from water level measurements obtained as described in Section 5.5.1.

Distribution coefficients for metals will be obtained directly from published literature, whereas, distribution coefficients for organic chemicals will be calculated from octanol water partition coefficients and estimates of organic carbon content of the aquifer media. Octanol-water partitioning coefficients for organic constituents will be obtained directly from published literature. Estimates of bulk density and porosity will be determined from results of visual/manual classification of soils and standard penetration resistance tests as described in Section 5.1.2. Average velocities of contaminant constituents will then be calculated in accordance with the following equation (USEPA, 1985):

$$v_c = v/R$$

where:

$v_c$  = Average velocity of contaminant constituent (ft/day)

$v$  = Average linear groundwater flow velocity (ft/day)

$R$  = Retardation factor (unitless)

## 8.0 PROJECT SCHEDULE

A schedule for implementation of the Comprehensive Site Assessment Workplan, along with appropriate milestones, is exhibited in Drawing 8-1.

## 9.0 REFERENCES

Driscoll, F.G., 1986. Groundwater and Wells, Johnson Division, St. Paul, Minnesota, 1089 p.

Federal Register Vol. 49, No. 209, 40 CFR Part 136, Test Procedures for the Analysis of Pollutants Under the Clean Water Act, October 26, 1984.

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Solid Waste Section, North Carolina Department of Environmental, Health and Natural Resources, North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities, Document No. SW-1001-87, 1987.

United States Environmental Protection Agency (USEPA), 1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water - Parts I & II, Environmental Research Laboratory, Office of Research and Development, Athens, Georgia.

United States Environmental Protection Agency, 1986. Test Methods for Evaluating Solid Wastes (SW-846), 3rd Edition, Vol. II, Office of Solid Waste, Washington, DC.

**DRAWINGS**  
DRAFT



NORTH

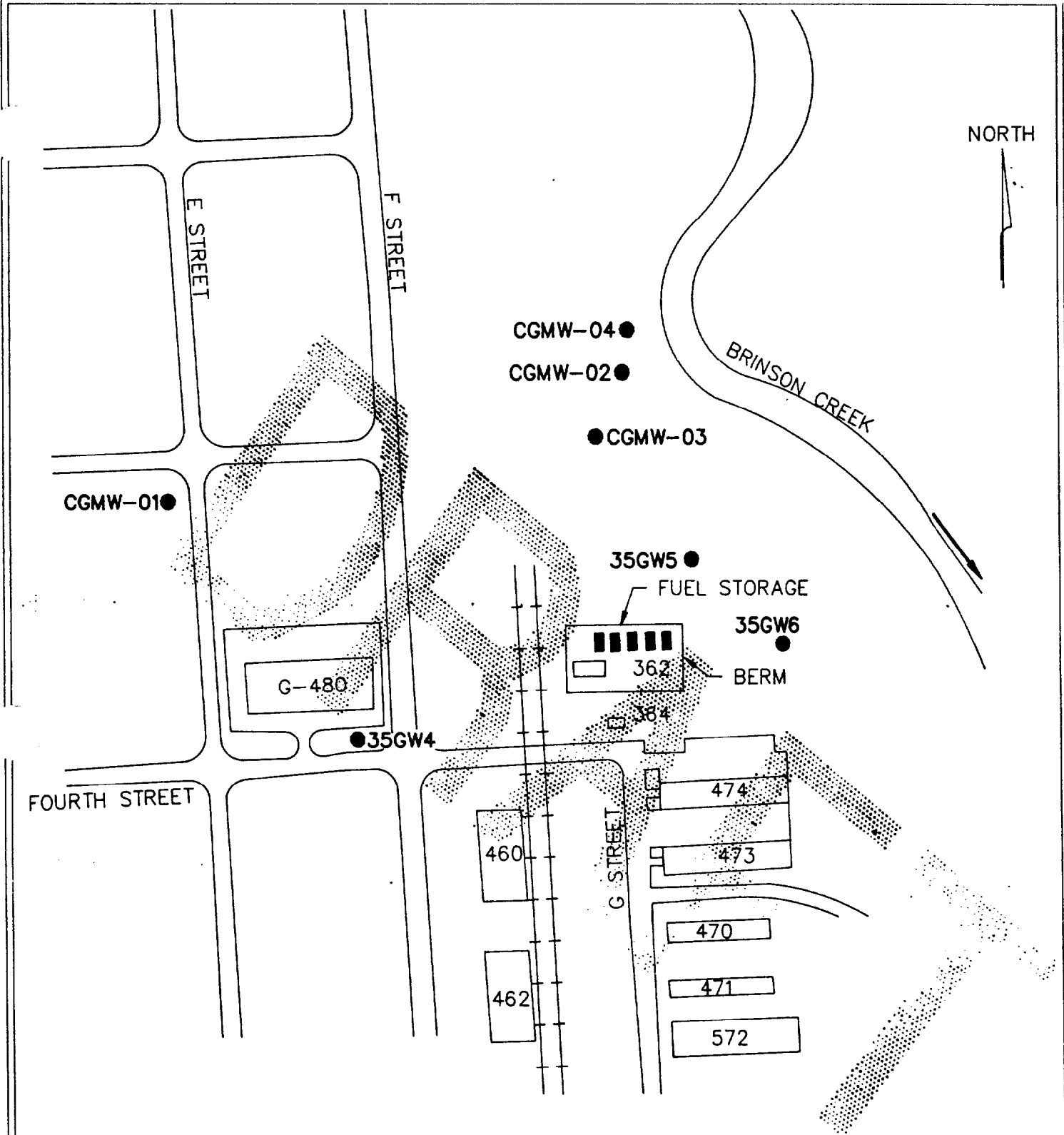


LAW ENGINEERING  
RALEIGH, NORTH CAROLINA

GENERAL SITE LOCATION  
CAMP GEIGER FUEL FARM  
NAVY UST/GROUND-WATER ASSESSMENT  
CAMP LEJEUNE, NORTH CAROLINA

DRAWN: <i>[Signature]</i>	DATE: JULY 1991
DFT CHECK: <i>[Signature]</i>	SCALE: 1"=1000'
ENG CHECK: <i>WDDixon</i>	JOB: J47590-6014
APPROVAL: <i>WDDixon</i>	DWG: 1.1





**LEGEND**

- EXISTING MONITORING WELL
- 460 BUILDING OR STRUCTURE ID NUMBER

J6014804

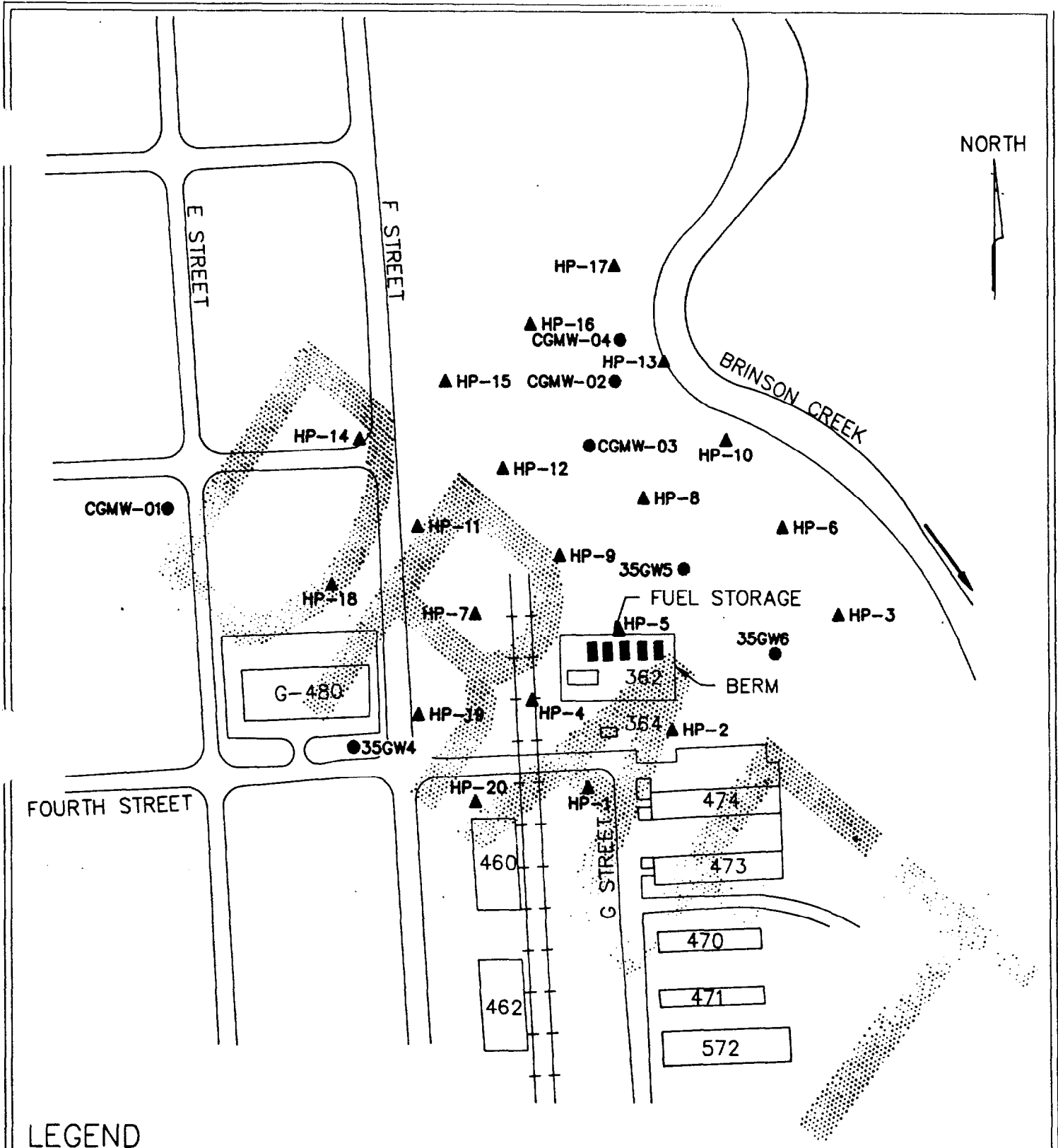


LAW ENGINEERING  
RALEIGH, NORTH CAROLINA

DRAWN: <i>[Signature]</i>	DATE: JULY 1991
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ENG CHECK: <i>[Signature]</i>	JOB: J47590-6014
APPROVAL: <i>[Signature]</i>	DWG: 3.1

EXISTING GROUND-WATER MONITORING NETWORK  
CAMP GEIGER FUEL FARM  
NAVY UST/GROUND-WATER ASSESSMENT  
CAMP LEJEUNE, NORTH CAROLINA

REFERENCE: WATER AND AIR RESEARCH, INC.; 1983; ESE, 1987.



NORTH

**LEGEND**

- ▲ PROPOSED HYDROPUNCH SAMPLE LOCATION
- EXISTING MONITORING WELL
- 460 BUILDING OR STRUCTURE ID NUMBER

J6014805

**LAW ENGINEERING**  
**RALEIGH, NORTH CAROLINA**

HYDROPUNCH SAMPLE LOCATION MAP  
 CAMP GEIGER FUEL FARM  
 NAVY UST/GROUND-WATER ASSESSMENT  
 CAMP LEJEUNE, NORTH CAROLINA

DRAWN: <i>[Signature]</i>	DATE: JULY 1991
DFT CHECK: <i>[Signature]</i>	SCALE: 1"=200'
ENG CHECK: <i>WDDixon</i>	JOB: J47590-6014
APPROVAL: <i>WDDixon</i>	DWG: 5.1

REFERENCE: WATER AND AIR RESEARCH, INC.; 1983; ESE, 1987.

DEPTH  
(FT.)

DESCRIPTION

ELEVATION  
(FT.)

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	0	10	20	30	40	60	80	100


REMARKS:

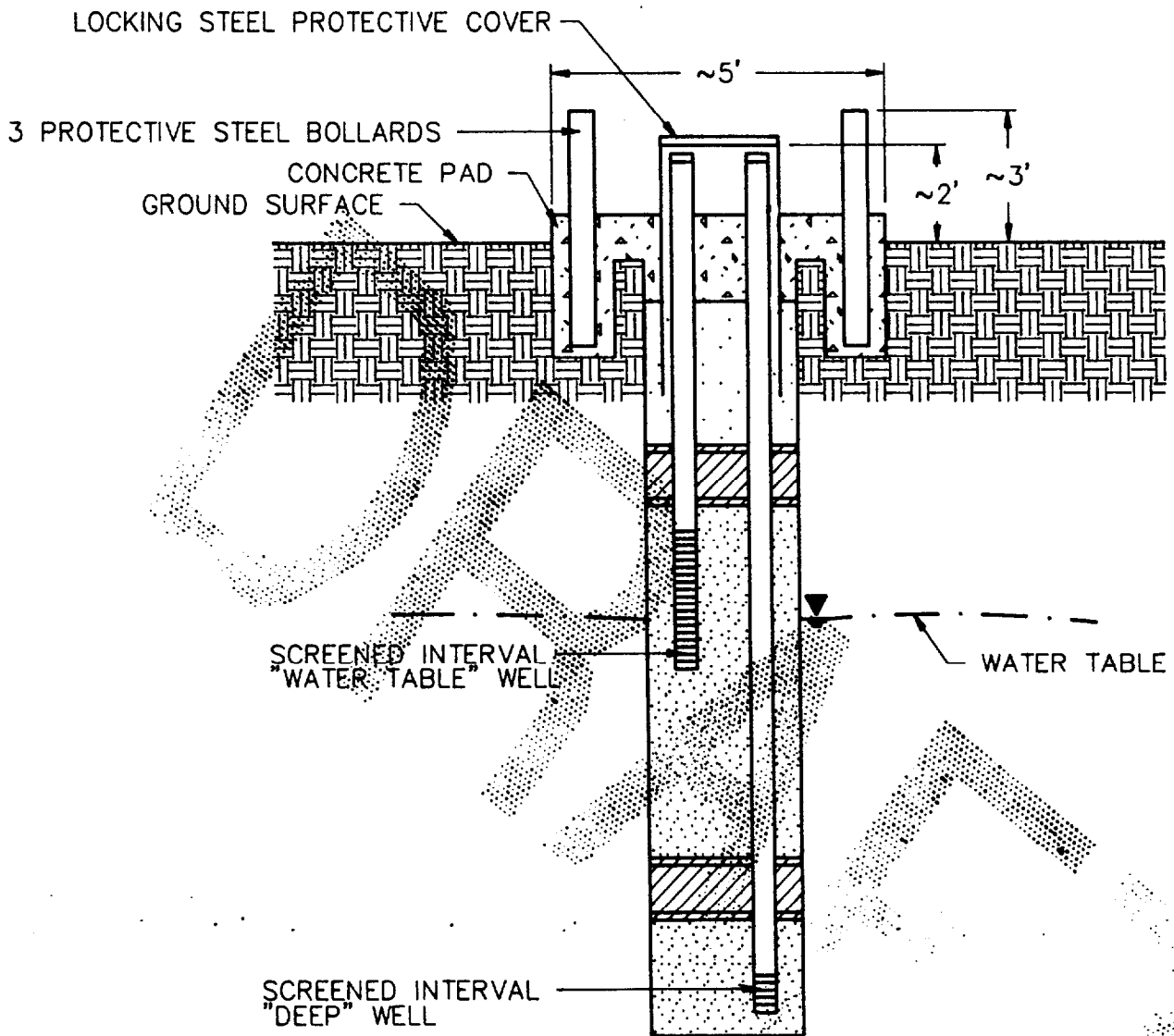
**TEST BORING RECORD**

BORING NUMBER  
DATE DRILLED  
PROJECT NUMBER  
PROJECT  
PAGE OF





Drawing No. 5.2

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

 **LAW ENGINEERING**



**LEGEND**


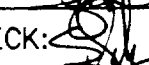
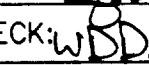
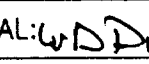
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-  GROUT
-  BENTONITE PELLET SEAL
-  GRANULAR BACKFILL

J6014R01

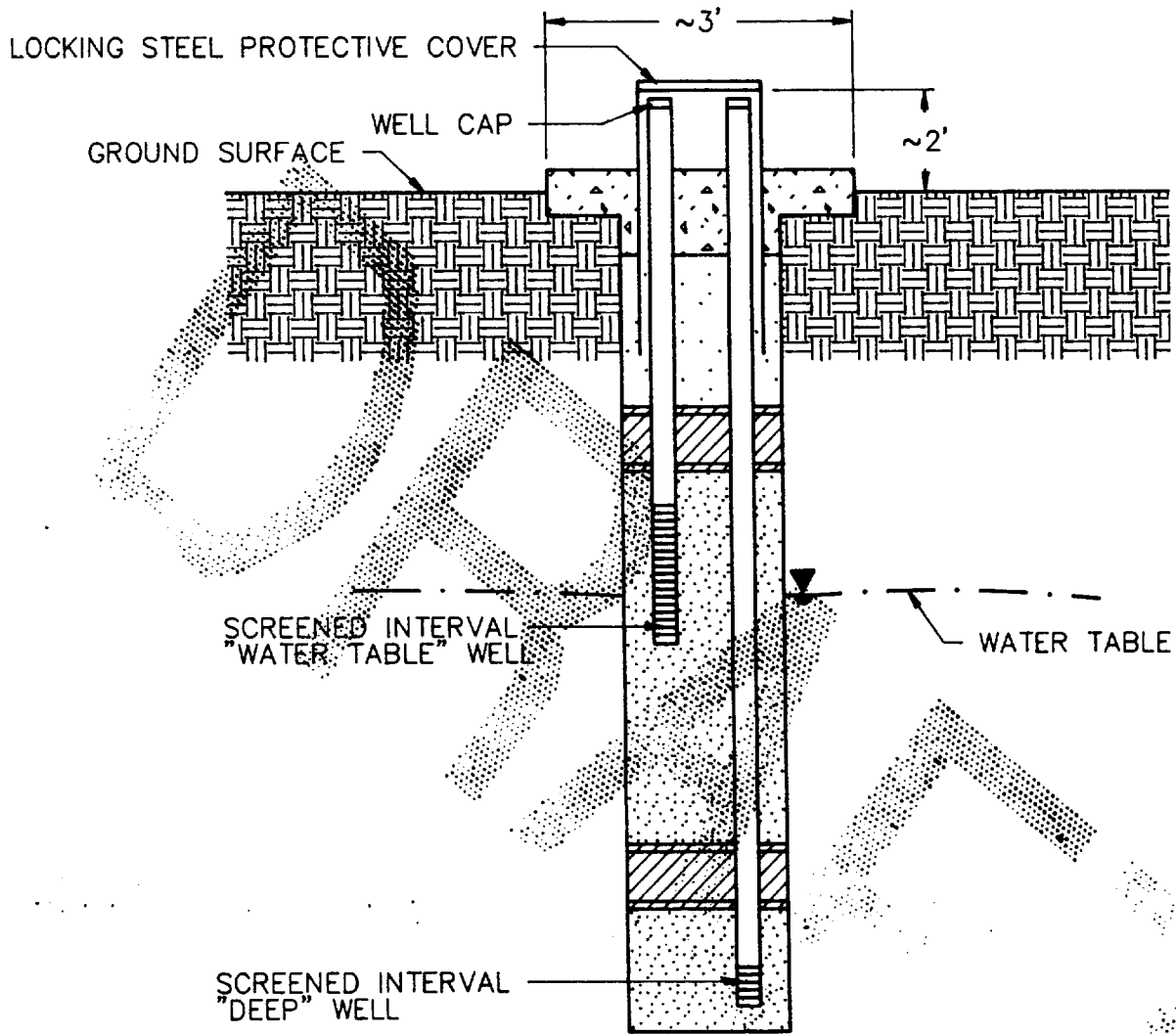


LAW ENGINEERING  
RALEIGH, NORTH CAROLINA





PAIRED MONITORING WELL SCHEMATIC  
DEVELOPED AREAS  
CAMP GEIGER FUEL FARM  
CAMP LEJEUNE, NORTH CAROLINA

DRAWN: 	DATE: JULY 1991
DFT CHECK: 	SCALE: NOT TO SCALE
ENG CHECK: 	JOB: J47590-6014
APPROVAL: 	DWG: 5.3

REFERENCE:



**LEGEND**


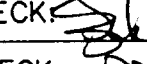
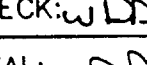
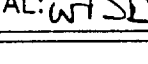
-  CONCRETE
-  GROUT
-  BENTONITE PELLET SEAL
-  GRANULAR BACKFILL

J8014R03



LAW ENGINEERING  
RALEIGH, NORTH CAROLINA

PAIRED MONITORING WELL SCHEMATIC  
UNDEVELOPED AREAS  
CAMP GEIGER FUEL FARM  
CAMP LEJEUNE, NORTH CAROLINA

DRAWN: 	DATE: JULY 1991
DFT CHECK: 	SCALE: NOT TO SCALE
ENG CHECK: 	JOB: J47590-6014
APPROVAL: 	DWG: 5.4

REFERENCE:

FOR OFFICE USE ONLY			
Quad. No.	_____	Serial No.	_____
Lat.	_____	Long.	_____ P.C. _____
Minor Basin	_____		
Basin Code	_____		
Header Ent.	_____	GW-1 Ent.	_____

## WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR \_\_\_\_\_  
DRILLER REGISTRATION NUMBER \_\_\_\_\_

STATE WELL CONSTRUCTION  
PERMIT NUMBER: \_\_\_\_\_

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: \_\_\_\_\_  
\_\_\_\_\_  
(Road, Community, or Subdivision and Lot No.)

County: \_\_\_\_\_

2. OWNER \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
(Street or Route No.)  
\_\_\_\_\_  
City or Town State Zip Code

Depth		DRILLING LOG Formation Description
From	To	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. DATE DRILLED \_\_\_\_\_ USE OF WELL \_\_\_\_\_  
4. TOTAL DEPTH \_\_\_\_\_ CUTTINGS COLLECTED:  Yes  No  
5. DOES WELL REPLACE EXISTING WELL?  Yes  No  
6. STATIC WATER LEVEL: \_\_\_\_\_ FT.  above TOP OF CASING  
 below  
TOP OF CASING IS \_\_\_\_\_ FT. ABOVE LAND SURFACE

7. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_  
WATER ZONES (depth): \_\_\_\_\_

9. CHLORINATION: Type \_\_\_\_\_ Amount \_\_\_\_\_

10. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From _____ To _____ Ft. _____	_____	_____	_____
From _____ To _____ Ft. _____	_____	_____	_____
From _____ To _____ Ft. _____	_____	_____	_____

If additional space is needed use back of form.

11. GROUT:

Depth	Material	Method
From _____ To _____ Ft. _____	_____	_____
From _____ To _____ Ft. _____	_____	_____

12. SCREEN:

Depth	Diameter	Slot Size	Material
From _____ To _____ Ft. _____	_____ in. _____ in.	_____ in.	_____
From _____ To _____ Ft. _____	_____ in. _____ in.	_____ in.	_____
From _____ To _____ Ft. _____	_____ in. _____ in.	_____ in.	_____

13. GRAVEL PACK:

Depth	Size	Material
From _____ To _____ Ft. _____	_____	_____
From _____ To _____ Ft. _____	_____	_____

REMARKS: \_\_\_\_\_

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

Drawing No. 5.5

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.



Law Engineering  
3301 Atlantic Avenue  
Raleigh, North Carolina 27604

ENVIRONMENTAL DEPARTMENT

MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER \_\_\_\_\_ MONITORING WELL NUMBER \_\_\_\_\_

SITE NAME \_\_\_\_\_

DATE (MO/DAY/YR) \_\_\_\_\_ TIME (MILITARY) \_\_\_\_\_

FIELD PERSONNEL \_\_\_\_\_

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_

WEATHER CONDITIONS \_\_\_\_\_

AIR TEMPERATURE \_\_\_\_\_ °C

TOTAL WELL DEPTH (TWD) \_\_\_\_\_ 1/100 FT.

DEPTH TO GROUNDWATER (DGW) \_\_\_\_\_ 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = \_\_\_\_\_ 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC x \_\_\_\_\_ GAL

THREE STANDING WELL VOLUMES = 3 x SWV = \_\_\_\_\_ GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION \_\_\_\_\_

TOTAL VOLUME OF WATER REMOVED \_\_\_\_\_ GAL

CASING DIAMETER \_\_\_\_\_

CASING MATERIAL PVC \_\_\_\_\_ S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION \_\_\_\_\_ DATUM \_\_\_\_\_

HEIGHT OF RISER (ABOVE LAND SURFACE) \_\_\_\_\_

SCREENED INTERVAL \_\_\_\_\_

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES \_\_\_\_\_ NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)				
pH (S.U.)				
SP. COND. (µMHOS/CM)				
WATER TEMP. (°C)				
EH (mV)				
TURBIDITY*				

\*VISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

Drawing No. 5.6



Law Engineering  
3301 Atlantic Avenue  
Raleigh, North Carolina 27604

ENVIRONMENTAL DEPARTMENT

MONITORING WELL CASING AND WATER  
ELEVATION WORKSHEET

PROJECT NAME \_\_\_\_\_ JOB NUMBER \_\_\_\_\_  
LOCATION \_\_\_\_\_ DATE \_\_\_\_\_  
SURVEY DATUM \_\_\_\_\_ FIELD PERSONNEL \_\_\_\_\_  
MEASURING DEVICE \_\_\_\_\_

WELL NUMBER	MEASURING POINT CALCULATIONS			DEPTH TO WATER (FT)	ELEV OF WATER (FT)	PRODUCT THICKNESS (ET)	COMMENTS ODOR, WELL COND., LOCK PROTECTIVE COVER CONDITION
	ROD HEIGHT (FT)	INSTR. HT. (V+I)	ELEV OF CASING (FT)				

Drawing No. 5.7

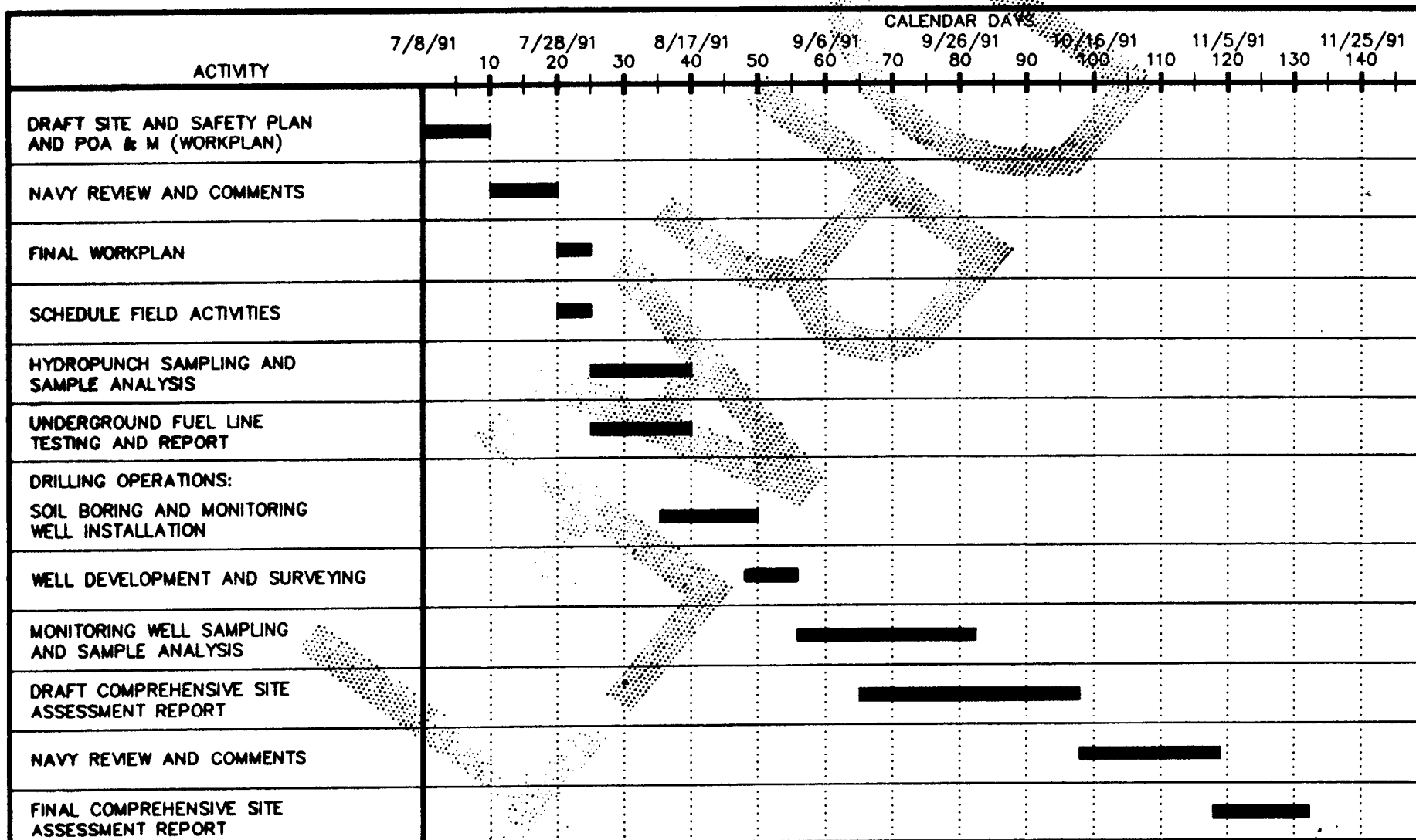






**DRAWING NO. 8.1 - PROJECT SCHEDULE**

DEPARTMENT OF THE NAVY  
 ATLANTIC DIVISION  
 NAVAL FACILITIES ENGINEERING COMMAND  
 UNDERGROUND FUEL INVESTIGATIONS  
 CAMP GEIGER FUEL FARM  
 CAMP LEJEUNE, NORTH CAROLINA





**APPENDIX A**

**TRACER RESEARCH CORPORATION'S  
TRACER TIGHT (tm)  
Standard Operating Procedures**



**TRACER RESEARCH CORPORATION'S**  
**TRACER TIGHT(™)**  
**STANDARD OPERATING PROCEDURES**

DRAFT

**MAY 1991**



TABLE OF CONTENTS

	Page #
TRACER TIGHT (LEAK) TANKS TESTS .....	1
METHOD OF ADDING THE TRACER .....	3
TANK TEST METHOD .....	4
CRITERIA FOR PASSING OR FAILING TEST .....	8
ADDITIONAL LEAK VERIFICATION & LOCATION TECHNIQUES .....	9
CERTIFICATION .....	11

Figures

Figure 1 .....	5
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### TRACER TIGHT(™) TANK TESTS

TRACER TIGHT(™) is TRC's patented tank tightness testing method. TRACER TIGHT(™) is performed by mixing a tracer, a volatile chemical concentrate, with the product inside of a tank or pipe. If the product leaks out of the system the tracer escapes from the liquid product by evaporation. The tracer vapors are released into the soil and migrate in all directions from the leak through the soil porosity.

Special probes or tubing are placed in the soil near the tanks and pipes to collect the tracer vapors that will appear in the soil in the event of a leak. The vapors are collected from the soil and analyzed for the presence of tracer by means of an extremely sensitive chromatographic measurement.

The tracer is added to the product in very low concentrations typically only a few ppm. Thus, it has no impact on the physical properties of the product. The tracer vapors can be detected in the low parts per trillion level in the soil. For this reason the method is capable of detecting very small leaks in the tanks and pipes.

The tracer chemical, being highly volatile, distributes itself into both the fuel and the vapor space above the fuel inside the tank. Because of its ability to escape through leaks in the vapor space of a partially full tank, there is no requirement to top-off tanks with fuel before testing.



There are several fundamental advantages to the non-volumetric TRACER TIGHT(tm) test over the volumetric testing approach. First, the use of the TRACER TIGHT(tm) method provides leak testing with a much greater degree of convenience and assurance. For example, the tracer method is completely non-disruptive to normal operations involving the tanks. Two to three weeks prior to testing, a tracer is released into the product inside the tank. Only normal fuel usage is required to distribute the tracer throughout the entire system. No addition of fuel to top off the tank is required. No additional personnel are required to coordinate the day to day activities of the leak detection operations.

All leaks are typically identified and located without any tank modifications or digging. As a result, the TRACER TIGHT(tm) method is much more convenient to both the tank users and contract administrators than volumetric tank testing.

The TRACER TIGHT(tm) method will also bring much greater assurance of quality than volumetric testing. The TRC method, like other non-volumetric vapor detection methods, is known to be a quantum leap beyond volumetric methods in terms of sensitivity. For example, when the U.S. Army Corps of Engineers evaluated the TRACER TIGHT(tm) method along with several volumetric methods at March AFB in June 1986, TRC





detected and quantified leakage simulated as low as 0.0003 gallons per hour.

Because variables such as tank size, thermal expansion of fuel, air pockets, or other variables that effect volumetric methods, do not impact the tracer testing method, the results are far less ambiguous. Therefore, the greater sensitivity couples with absence of potentially misleading variables makes the tracer method the most accurate and most quality assured method available.

#### METHOD OF ADDING THE TRACER

The initial step involves inoculating a tracer into each tank. Tracer kits are mailed to designated site personnel. A set of written instructions detail the very simple procedure of adding tracer to the tanks. If multiple tanks are located in the same excavation, different tracers are provided for adjacent tanks. This will identify the tank system that has the leak. Once the tracer has been added the tank system should be used normally. The target concentration for tracer in the tank is typically 10 ppm (1 quart tracer per 50,000 gallons of fuel). However, if the throughput of fuel is great enough to remove the tracer completely in two or three days, a higher concentration will be initiated, up to 100 ppm.



### TANK TEST METHOD

The testing of the tank(s) is typically performed approximately 21 days after tracer has been inoculated. This time period is necessary to allow sufficient time for any leakage to occur and time for the tracer vapors to migrate into the backfill to a substantial distance away from the source. Typically, tracer from a leak will disperse into an area at least 25 feet in diameter in this time period. As such, it is easy to detect using probes placed on 10 or 12 foot centers around the tank.

Sample Collection: The procedures for collecting a sample use a 3/4" galvanized steel probe that is driven into the ground by the hydraulic pusher/puller mechanism of the mobile laboratory. If there is concrete or pavement over a sample location, TRC field professionals use a Kango rotohammer to drill a 1-1/2" diameter hole through the surface material. This is useful for going through up to 2" of concrete or 10" of asphalt. A rock drill and air compressor are used on sites with thicker concrete cover.

After 3-5 probe volumes have been drawn through the probe using a vacuum pump, a gas sample is collected with a 10cc glass syringe that is inserted through a section of silicone tubing (leading to the vacuum pump) and through the metal tubing of a special adaptor (Figure 1). Gas samples only

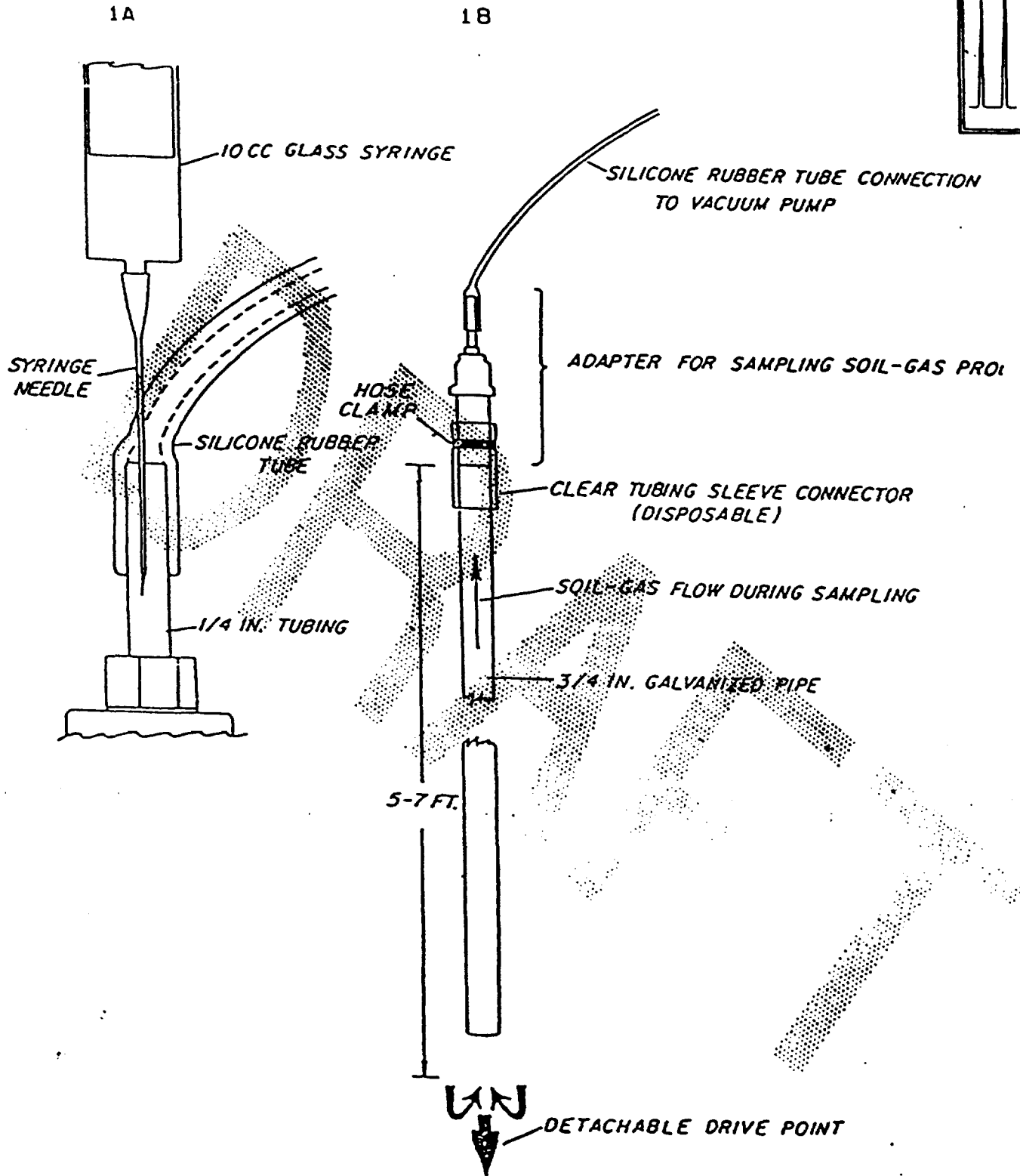


FIGURE 1. SAMPLING APPARATUS

- 1A. CLOSE-UP OF SYRINGE SOIL GAS SAMPLING THROUGH EVACUATION LINE
- 1B. DIAGRAM OF SOIL GAS SAMPLING PROBE WITH ADAPTOR FOR SAMPLING AND EVACUATION OF THE PROBE AFTER IT IS DRIVEN INTO THE GROUND



contact decontaminated metal surfaces and are never in contact with potentially sorbing materials (i.e. tubing, hose, pump diaphragm). A vacuum gauge monitors the negative pressure in the evacuation line to assure that there is no impedance to gas flow caused by clayey or water-saturated soils.

The time to conduct the tank test depends on the amount of time required to install the soil gas sample probes. Once a sample is obtained it is analyzed for tracer presence and total volatile petroleum hydrocarbons (tvphc).

**Sample Analyses:** The sample is immediately injected into the GC for analyses of tracer and TVPHC which is accomplished in less than ten (10) minutes per sample. The analytical procedures identify the halocarbon and hydrocarbon compounds (if any) by chromatographic retention time.

Quantification of compounds is achieved by comparison of the detector response of the sample with the response measured for calibration standards(external standardization). At the beginning of each day, standards are analyzed to calibrate the analytical equipment and determine daily response factors. Chemical standards are prepared in water from commercially available pure standards stored in methanol. Prior the running standards, the water for standards is analyzed for purity. At least three standard



injections are analyzed until resultant responses fall within 25% of each other. Response factors are then calculated based on these standard responses. Analyses for halocarbons are run on the electron capture detector (ECD) and those for hydrocarbons are run on the flame ionization detector (FID) as the samples are collected.

**Decontamination:** All sampling equipment (i.e. probes and syringes, etc) are used only once and then decontaminated. The probes are decontaminated with soap and high pressure hot water spray or steam-cleaned to eliminate the possibility of cross-contamination. Forty to sixty probes are carried on each van to avoid the need to reuse any during the day. The special probe adaptors, used to connect the sample probe to the vacuum pump thus eliminating the possibility of exposing the active sampling stream to any part of the adaptor. Associated tubing connecting the adaptor to the vacuum pump is replaced periodically as needed during the job to insure cleanliness and good fit. At the end of each day, the adaptor is cleaned with soap and water and subsequently baked in the GC oven. Silicon tubing used to connect the adaptor to the vacuum pump is replaced as needed to insure proper sealing around the syringe needle. This tubing does not directly contact the samples.

The analytical equipment is decontaminated every night.



Glass syringes are used for only one sample per day and are washed and baked each night. GC injection port septa through which soil gas samples are injected into the chromatograph are replaced on a daily basis to prevent possible gas leaks from the chromatographic column. The decontamination is verified by using the syringes to inject nitrogen carrier gas into the gas chromatograph each day.

#### CRITERIA FOR PASSING OR FAILING THE TEST

Since the tracer is not previously present in the environment around the tank, detection of tracer with the very sensitive laboratory grade gas chromatograph will indicate leakage. To verify the existence of a leak, a comparison is made to the total hydrocarbon content of a sample from the same probe. An abnormally high hydrocarbon content tends to confirm the presence of a leak. It is possible that tracer can be discharged to the environment from surface spills or sloppiness in adding the tracer to the tank contents. However, in the case of a surface spill, the extreme volatility of the tracer results in it evaporating before it can penetrate the ground. What little does contact the ground will not penetrate very deeply and this becomes obvious when the samples are analyzed. Additional verification is obtained during the location process which is



described in the following section that provides details on the pass/fail criteria.

#### **ADDITIONAL LEAK VERIFICATION & LOCATION TECHNIQUES**

After tracer is detected, additional probing on five foot centers is performed to locate the source of the leakage. The leak is considered to be closest to the highest tracer concentration observed. Once a leak is detected, it is classified to provide information about the severity of the problem.

The classification of leakage is based on the concentration of tracer detected. Measurements of hydrocarbons outside of the tank is provided for the benefit of the tank owner. The following criteria are used for the classification of leaks when tracer is detected.

#### **LEAK STATUS**

**PASS** - Leak rate less than 0.05 gallons per hour.

**Criteria:**

- if tracer is less than 0.1 ug/l at 5-6 feet below grade; or
- if tracer is less than 1.0 ug/l & if concentration decreases with an increase in depth.

**FAIL** - Leak rate equal to or greater than 0.05 gallons per hour.

**Criteria:**

- if tracer is greater than or equal to 1.0 ug/l at any depth; or



if tracer is greater than or equal to 0.1 ug/l &  
if the concentration sustains \* or increases  
with an increase in depth.

\* Sustaining concentrations are those concentrations  
which are within 50% of the concentration detected  
at the shallow depth.

The above system for interpreting the magnitude of leakage based on the distribution of tracer and hydrocarbon vapors in the soil was developed out of TRC's experience in detecting leakage that has been either quantified by leak rate measurements or confirmed by excavations. Accurate leak rate measurement can be performed using TRC's high volume air evacuation method, but this procedure is relatively expensive in view of the purpose that the leak rate information serves. The magnitude of the leak can be adequately described for the purpose of deciding on corrective action using the information obtained from the passive test.

The TRC field professionals make a scale drawing of the site showing the tank location, apparent or probable piping locations, all of the soil gas probe locations and other pertinent features such as tank fill and vent locations, fuel dispensers, concrete aprons and portions of adjacent buildings. The distribution of contamination is also shown on the site map if leakage is detected.

All of the data collected by TRC is first generated by a gas chromatograph in the form of instrument printouts called





chromatograms. The data from the chromatogram is entered into a computer where it is reduced and manipulated. In addition to the computer generated data sheets, a hand-drawn map view of the tanks and all sampling locations is generated. The samples are noted on the map and numbered. The sample number is written on the chromatogram and entered into the computer where it is referenced to the chromatogram by the injection time.

#### CERTIFICATION

The TRACER TIGHT<sup>(tm)</sup> tank and pipeline testing method was evaluated using the EPA test protocol "Standard Test Procedures for Evaluating Leak Detection Methods: Non-volumetric Tank Tightness Methods." The results indicate that the method is capable of detecting leaks of 0.05 gallons per hour with a Probability of Detection of 0.97 and Probability of False Alarm of 0.029. With these results, the method exceeds the federal requirements that leak detection systems be capable of detecting leaks of 0.1 gallons per hour with a Probability of 0.95 or greater.

Tracer Research Corporation also participated in an evaluation of tank testing methods in June of 1986. The test was conducted at March AFB by Midwest Research Institute (MRI) for the Army Corps of Engineers. In this test, each of



the participating companies were given a 50,000 gallon JP4 tank to test. In order to obtain immediate results, TRC used a high rate of air evacuation from the probes. MRI evaluated each of the company's methods by simulating leakage. Each company was required to detect the simulated leakage and make an estimate of the leak rate. TRC was able to detect leakage of 0.00032 gallons per hour (gph). TRC estimated the leak rate at 0.0004 gph which was within 25% of the actual leak rate.

The report provided by MRI to the Army Corps of Engineers details the method used and the test results. The MRI report clearly points out that the tracer method is not impacted by tank size, thermal effects or product vapors outside the tank and recommends it as the best available method for large tanks.

DRAFT

**APPENDIX B**

**HEALTH AND SAFETY PLAN**

# HEALTH AND SAFETY PLAN CAMP GEIGER FUEL FARM INVESTIGATION

PROJECT NAME: *Camp Geiger Fuel Farm Assessment*  
LOCATION OF SITE: Camp Geiger MCAS  
LAW JOB NO.: J47590-6014  
CLIENT: United States Navy Department-Atlantic Division

## REVIEW AND APPROVAL

Principal Geologist J. Allen Kibler, Jr., P.G.  
Project Manager W. Douglass Dixon, P.E.  
Site Manager Rick Kolb

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## DATE OF PLAN PREPARATION

July 24, 1991

## DATES OF PLANNED FIELD ACTIVITIES

August 5 - September 30, 1991

SAFETY MEETING CONDUCTED: (LOCATION): \_\_\_\_\_ (DATE): \_\_\_\_\_

## EMERGENCY PHONE NUMBERS

Base Naval Hospital: Building G770  
Hospital route is shown on attached Drawing 1.1.

Base Naval Hospital: 451-0595  
Base Fire Department: 911  
Military Police: 451-2555

Senior Project Professional: J. Allen Kibler (919) 876-0416  
Health and Safety Officer: Stanley J. Harward (919) 876-0416  
Military Contact: Stephany Del Re'-Johnson (919) 451-5093

## DESCRIPTION OF POTENTIAL HAZARDS

- Exposure to petroleum fuels through inhalation, skin absorption or ingestion
- Fire or Explosion
- Vehicular Traffic

**PERSONNEL ACCESS**

Personnel who attended LAW's site safety meeting and are authorized to enter this site:

- 1) Floyd C. Cox (11) Steve Hancock
- 2) Morwood R. Baylly (10) [Signature]
- 3) Keith Sandly
- 4) Chris Carpenter
- 5) W. Douglas Dixon
- 6) Rick Cobb
- 7) [Signature]
- 8) Morwood R. Baylly
- 9) [Signature]
- 10) Wendell Winchell

By signing this form, the listed individual acknowledges that he has read, and understands, and will comply with the requirements of this Health and Safety Plan.

**PLANNED FIELD ACTIVITIES**

- Perform 20 Hydropunch samples to an approximate depth of 10 feet.
- Perform 6 soil test borings to an approximate depth of 10 feet.
- Install 20 "paired" ground-water monitoring wells to an approximate depth of 30 feet.
- Decontamination of drilling equipment.
- Develop and sample monitoring wells.
- Dispose of drill cuttings and purged water.

**MONITORING PROCEDURES**

Ambient air monitoring for the presence of volatile organic compounds with a photoionization detector (PID) will be periodically performed in the drilling area. Testing will be conducted for approximately three minutes at a minimum of one test per hour or at other times when site conditions (e.g. evidence of free product, increase in detectable odors, site workers sensitivity) exhibit the need for additional testing. The Site Manager will record the time, location and result of each test. In the event that PID readings exceed a level of 50 ppm for more than one-half of any three-minute testing interval, the work site will be evacuated pending additional testing or proper ventilation. The action level of 50 ppm represents the permissible exposure limit (PEL) for naphtha and coal tars as established by the Occupational Safety and Health Administration (OSHA). If further testing reveals that ambient air contains volatile organic compounds in excess of 50 ppm, respirators designed for removal of toxic organics will be required for all site workers. Should concentrations exceed 2500 ppm, all site work will cease and the site will be evacuated pending guidance from the Corporate Health and Safety Officer.

**PERSONNEL ACCESS**

Personnel who attended LAW's site safety meeting and are authorized to enter this site:

- 1) Floyd C. Cox
- 2) Norman R. Bennett
- 3) Keith Bradley
- 4) Chris Capriles
- 5) W. Douglas Dixon
- 6) Pickalls
- 7) H. Gordon Dale
- 8) Van Kahan
- 9) \_\_\_\_\_
- 10) \_\_\_\_\_

By signing this form, the listed individual acknowledges that he has read, and understands, and will comply with the requirements of this Health and Safety Plan.

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Continuous ambient air monitoring for the presence of explosive gases with an explosimeter will be performed in the drilling area at suspect locations. All personnel access/work in the drilling area must STOP if air readings exceed 20% of Lower-Explosive Limit (LEL) until readings consistently exhibit concentrations of gases at less than 20% LEL.

### **DECONTAMINATION** (Petroleum products)

- Skin - wash with soap and water
- Eyes - flush with copious amounts of water
- Clothing - wash with detergent and rinse thoroughly
- Equipment - steam clean or detergent wash

### **MEDICAL SURVEILLANCE**

All Law Engineering field personnel participate in the corporate annual environmental medical surveillance program.

Avoid frequent or prolonged skin contact. Monitor skin and eyes for dermatitis, allergic reaction, and eye irritation. If these or other symptoms develop, seek qualified medical attention.

Symptoms of Acute Exposure to Petroleum Hydrocarbons: High vapor levels can cause irritation of the respiratory tract, headaches, nausea and mental confusion. Loss of consciousness occurs with very high concentrations. Liquid contact with skin may cause defatting, drying and irritation. Both vapor and liquid phases are irritating to the eyes.

### **EMERGENCY PROCEDURES** (Petroleum products)

- Skin - wash with soap and water, rinse well
- Inhalation - move to fresh air at least 50 feet upwind from vapor source. Seek qualified medical attention.
- Ingestion - do not induce vomiting. If conscious, give water or milk to drink. Seek qualified medical attention.
- Eyes - flush for a minimum of ten minutes with clean water while holding eyes open. Seek qualified medical attention.

## **HEAT STRESS**

Symptoms of heat stress include pale, cool or moist skin, excessive sweating, dizziness, nausea, and muscle spasms. Symptoms of heat stroke include red, hot and unusually dry skin, reduced perspiration, nausea, dizziness or confusion, rapid pulse rate and coma.

To prevent heat stress, adjust work schedule, provide shaded rest areas, and maintain body fluids.

## **CLOTHING AND PROTECTIVE GEAR**

REQUIRED at work site during drilling activities: Nitrile rubber gloves, steel-toed boots, protective eyewear, hard hats.

\*\* The Project Manager or the Senior Professional should be contacted prior to changes in personal protective equipment usage.

To be READILY AVAILABLE on site:

- Full face respirator with volatile organic cartridges.
- Nitrile rubber boots
- Tyvek suits
- Cotton glove liners, if needed

## **IN THE EVENT OF PERSONNEL INJURY**

Provide basic first aid procedures as required and note time and circumstances of injuries. Call for an ambulance or transport to nearest medical facility (Drawing 1.1) as appropriate. Notify Project Manager and Military Contact.

Only emergency medical care is available in Government facilities to Contractor employees who suffer on-the-job injury or disease. Care will be rendered under the conditions and at the rates in effect at the time of treatment. The contractor shall reimburse the Naval Regional Medical Center Collection Agent promptly upon receipt of statement.

Non-emergency medical services may be obtained at the nearest civilian hospital which is: Onslow Memorial Hospital, 317 Western Boulevard, Jacksonville, North Carolina (919-577-2345).



## **IN THE EVENT OF POTENTIAL OR ACTUAL FIRE OR EXPLOSION**

Evacuate the area immediately. Assemble in the predesignated area and conduct a head count of all personnel. Notify base fire department. **DO NOT** attempt to fight the fire. Notify Project Manager, Military Contact and the Base Fire Department.

## **ACCIDENT REPORTING**

Personnel injuries and vehicle accidents should be reported to the Branch Safety Officer within 24 hours of incident.

## **WORK PRECAUTIONS**

- 1) No smoking, eating, drinking or chewing of gum or tobacco products while on the site. Avoid hand to mouth contact. A designated smoking and break area may be established off site. Any such facility must be a minimum of 100 feet from any vapor source and shall be tested for flammable gases and vapors at the start of work and prior to scheduled break periods each day.
- 2) Hard hats are required to be worn at all times at drilling locations. Face shields or goggles will be worn whenever the potential for chemical splash or flying debris is present. Use of Nitrile gloves and safety glasses are required.
- 3) Barricade work areas if located in a high vehicular traffic area.
- 4) Decontamination of equipment, clothing and personnel shall be in accordance with the previous section entitled "Decontamination".
- 5) Removal and transfer of flammable liquids from a container to receiving vessel requires proper grounding of the container to the receiving vessel in order to prevent build-up and discharge of static electricity.
- 6) Personnel must wash all exposed skin areas with soap and water before departing the site or going on break.
- 7) Prior to the start of work, LAW personnel shall be briefed on the contents of this plan by the Project Manager.

**SITE MANAGER SUMMARY**

During the work covered by this Safety Plan, there were:

- \_\_\_ No observed violations of the Safety Plan provisions.
- \_\_\_ The following violations of the Safety Plan provisions (give details in space below and indicate corrective action taken for each violation noted.)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

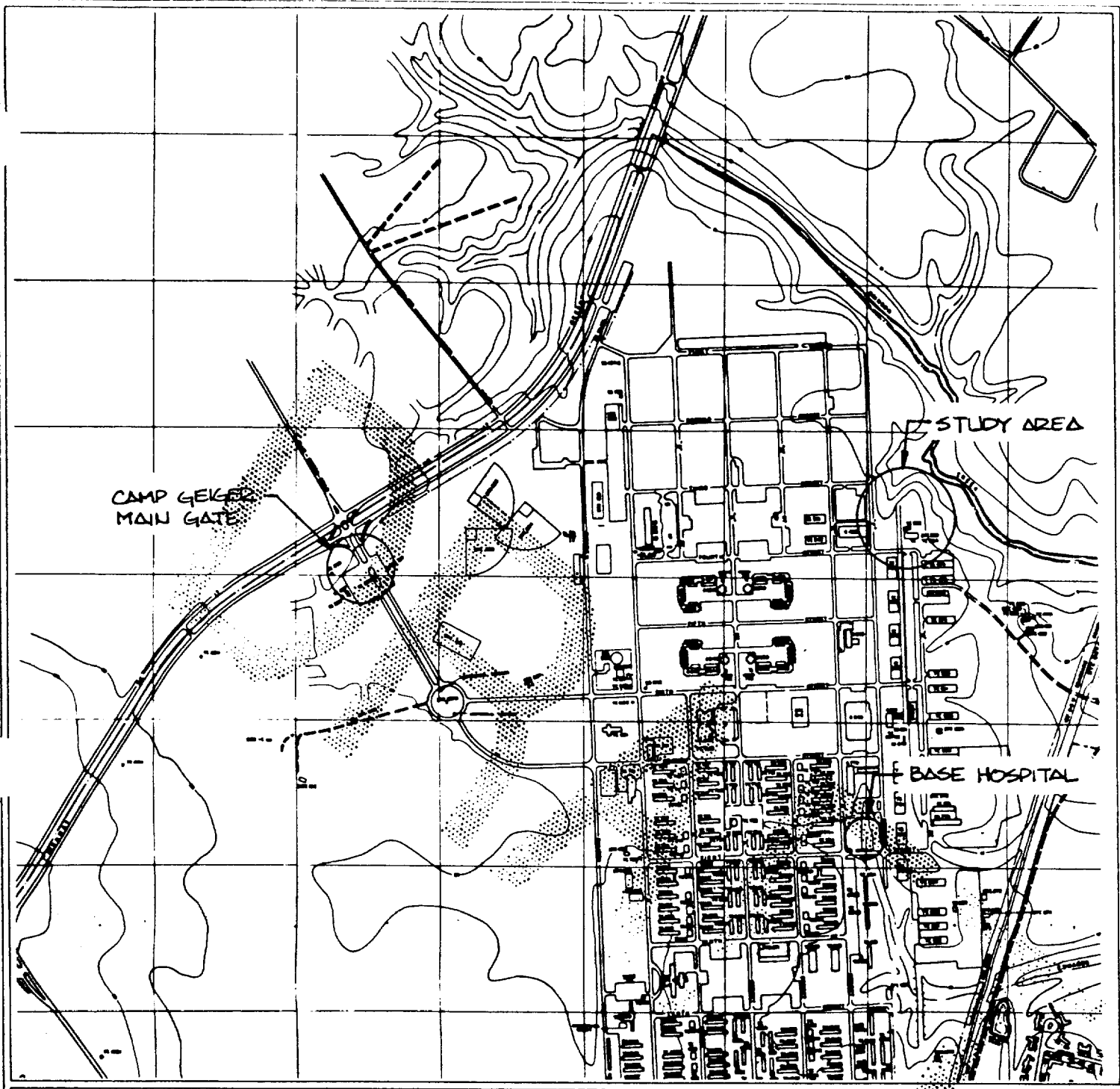
\_\_\_\_\_

Signature

\_\_\_\_\_

**SITE MANAGER**

**DATE**



NORTH



LAW ENGINEERING  
RALEIGH, NORTH CAROLINA

GENERAL SITE LOCATION  
CAMP GEIGER FUEL FARM  
NAVY UST/GROUND-WATER ASSESSMENT  
CAMP LEJEUNE, NORTH CAROLINA

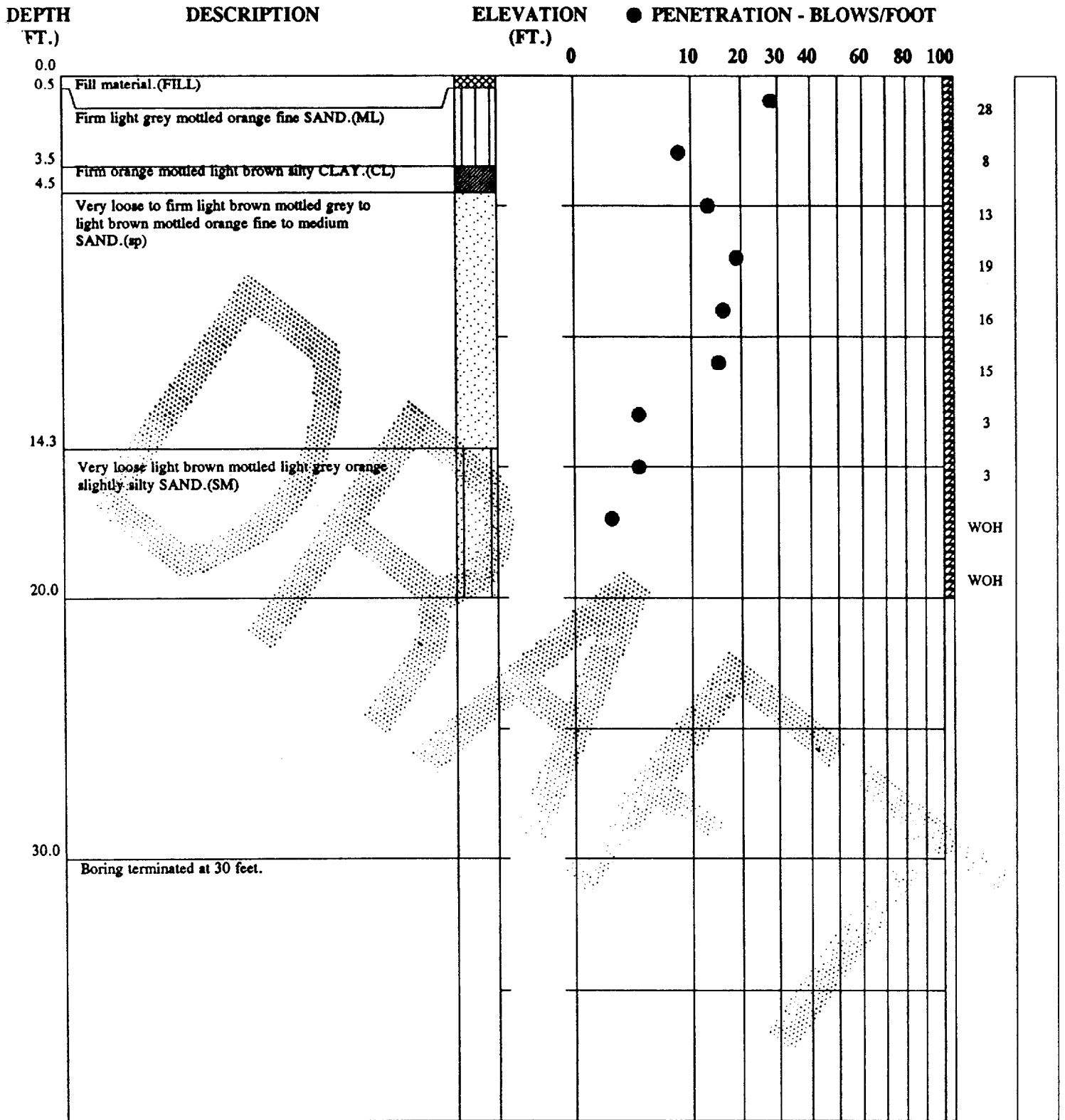
DRAWN: <i>[Signature]</i>	DATE: JULY 1991
DFT CHECK: <i>[Signature]</i>	SCALE: 1"=1000'
ENG CHECK: WDDixon	JOB: J47590-6014
APPROVAL: WDDixon	DWG: 1.1

DRAFT

**APPENDIX B**

**RECORDS OF SOIL-TEST BORING**



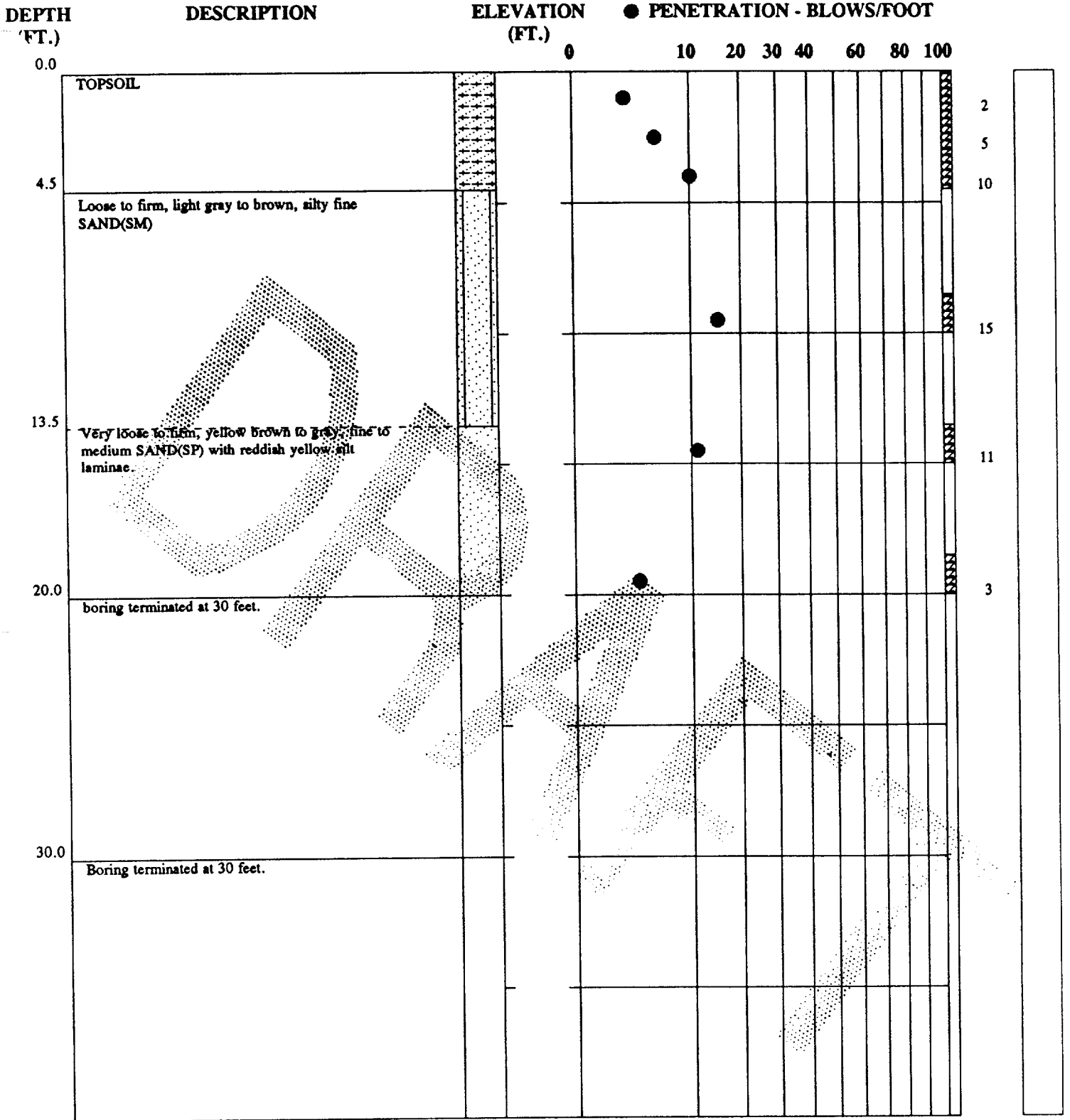


**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE


TEST BORING RECORD	
<b>BORING NUMBER</b>	MW-9
<b>DATE DRILLED</b>	August 16, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
▲ LAW ENGINEERING	

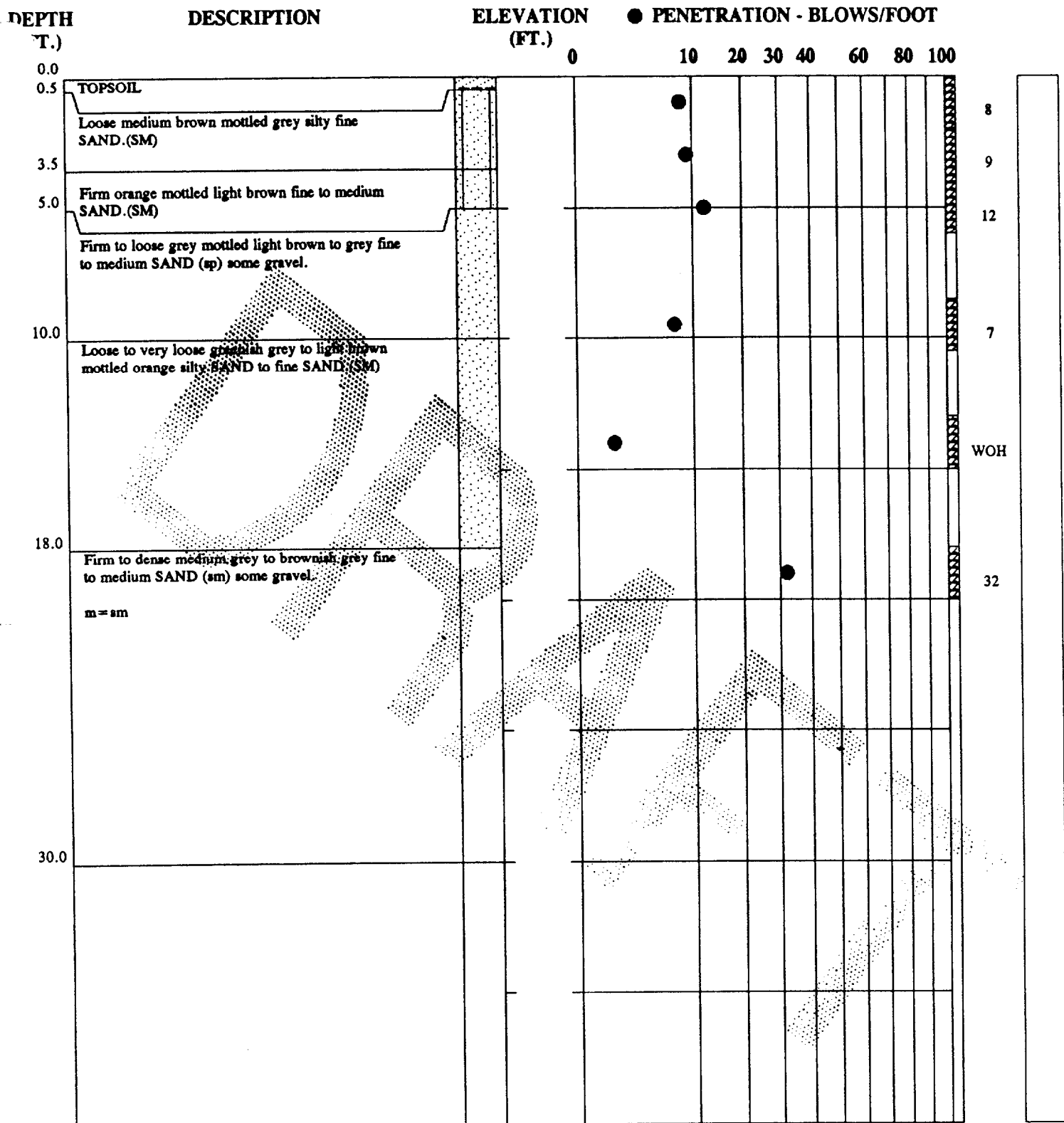


**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE


TEST BORING RECORD	
<b>BORING NUMBER</b>	MW-10
<b>DATE DRILLED</b>	August 19, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
 <b>LAW ENGINEERING</b>	



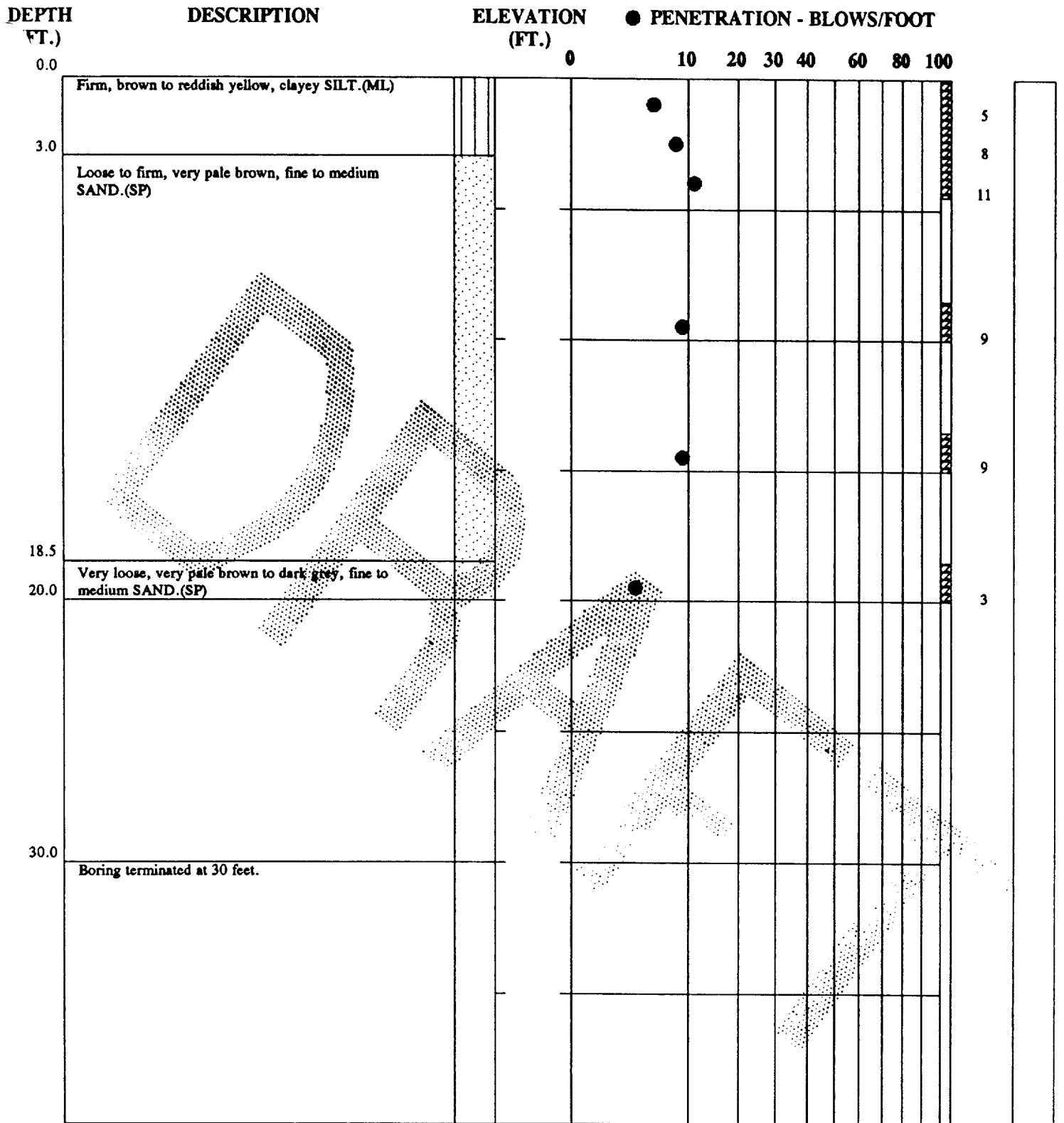
**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	MW-11
DATE DRILLED	August 16, 1991
PROJECT NUMBER	J6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	




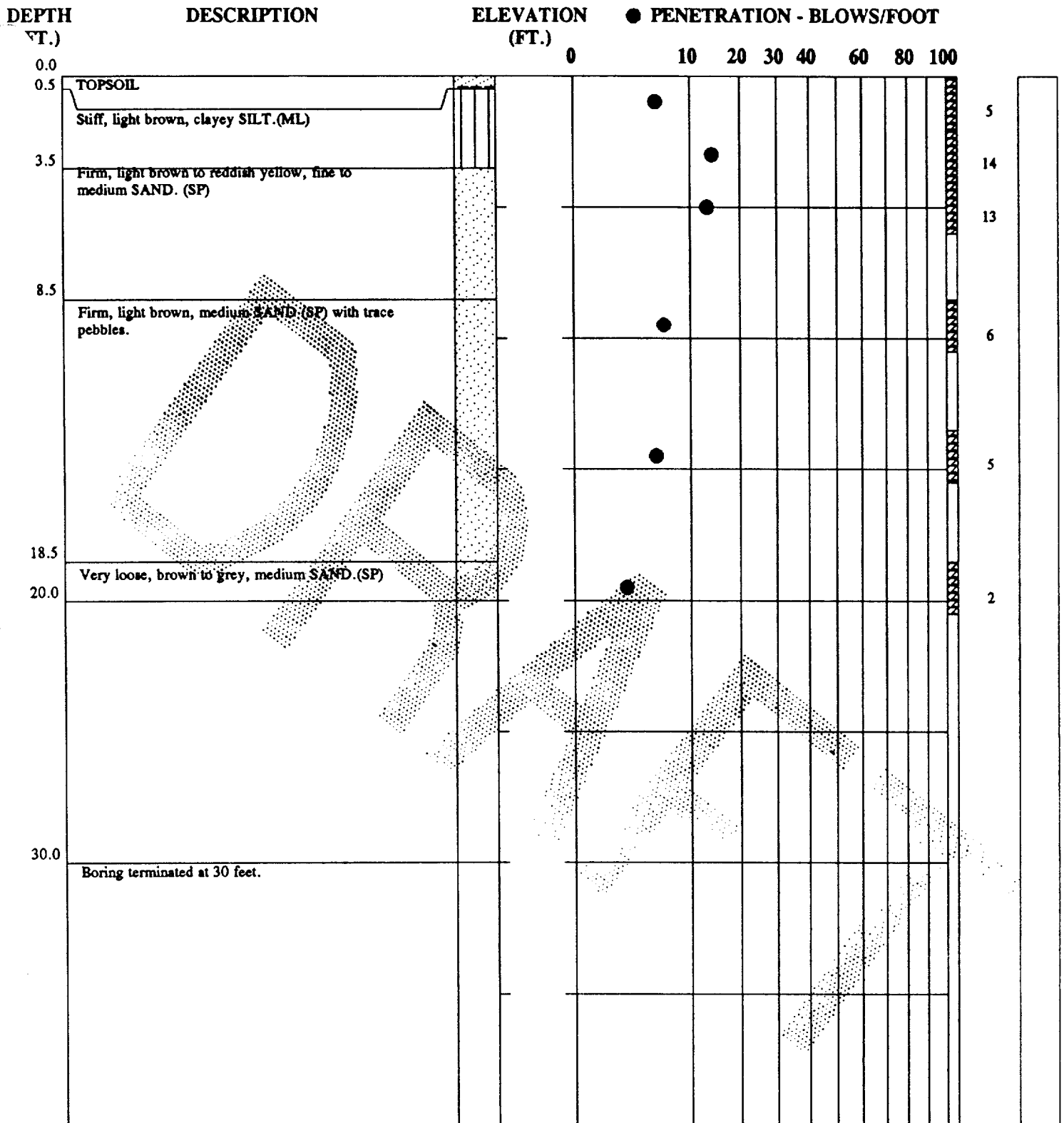


**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE


TEST BORING RECORD	
BORING NUMBER	MW-12
DATE DRILLED	August 19, 1991
PROJECT NUMBER	J6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	

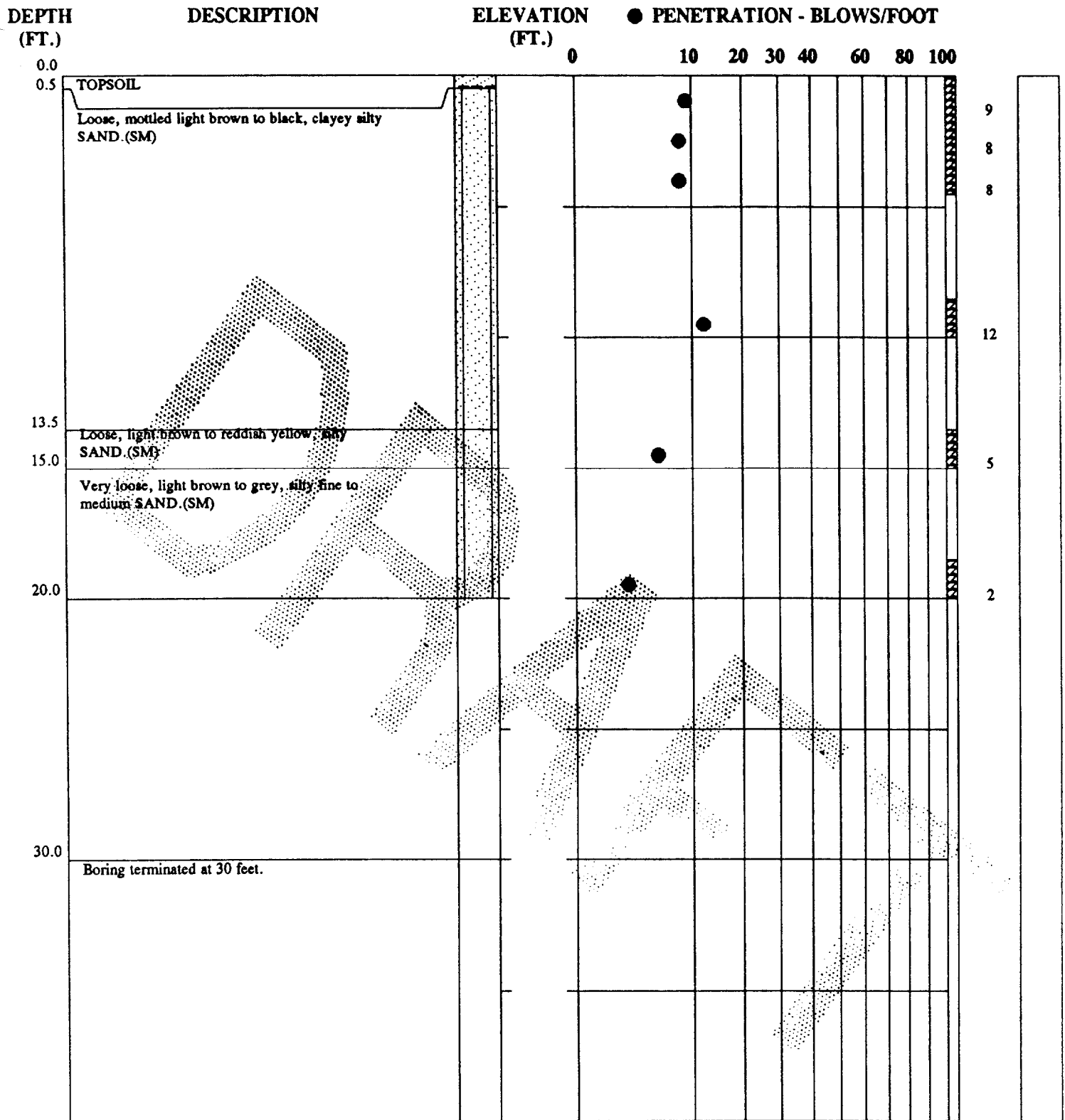


**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	MW-13
DATE DRILLED	August 20, 1991
PROJECT NUMBER	J6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	

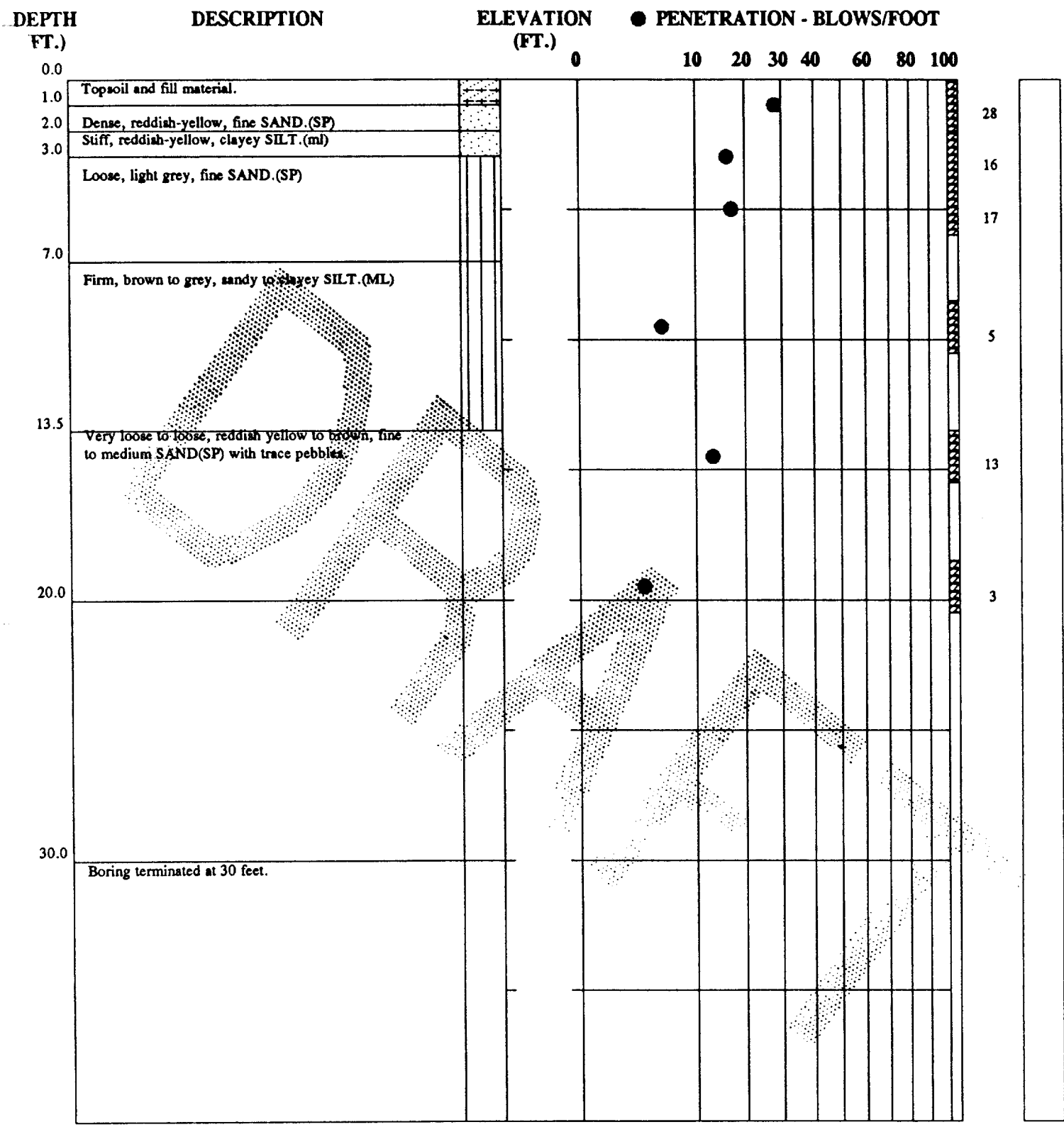


**REMARKS:**


Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

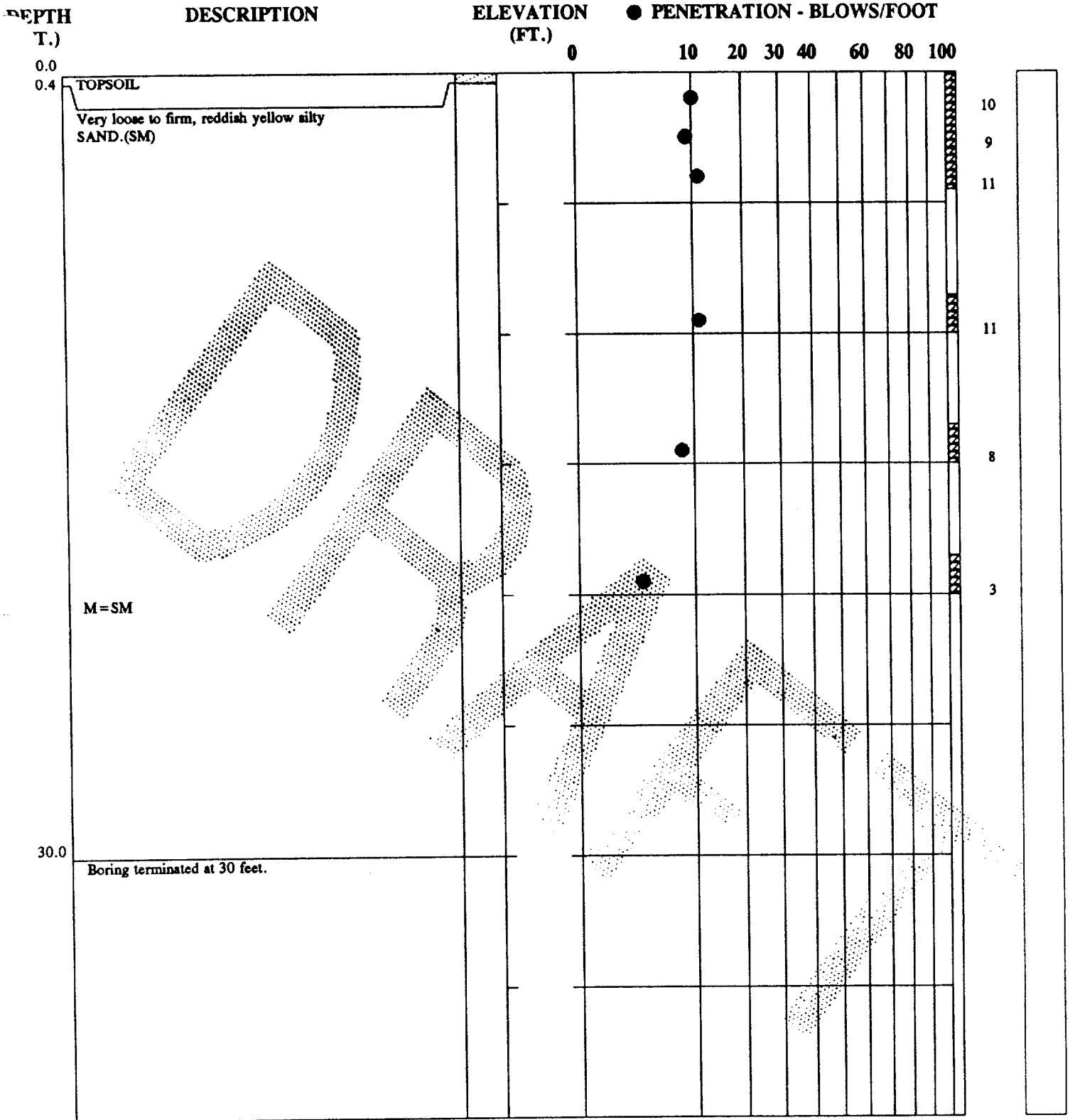
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<b>DATE DRILLED</b>	August 20, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
▲ LAW ENGINEERING	



**REMARKS:**  
 Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

TEST BORING RECORD	
<b>BORING NUMBER</b>	MW-15
<b>DATE DRILLED</b>	August 21, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



**REMARKS:**

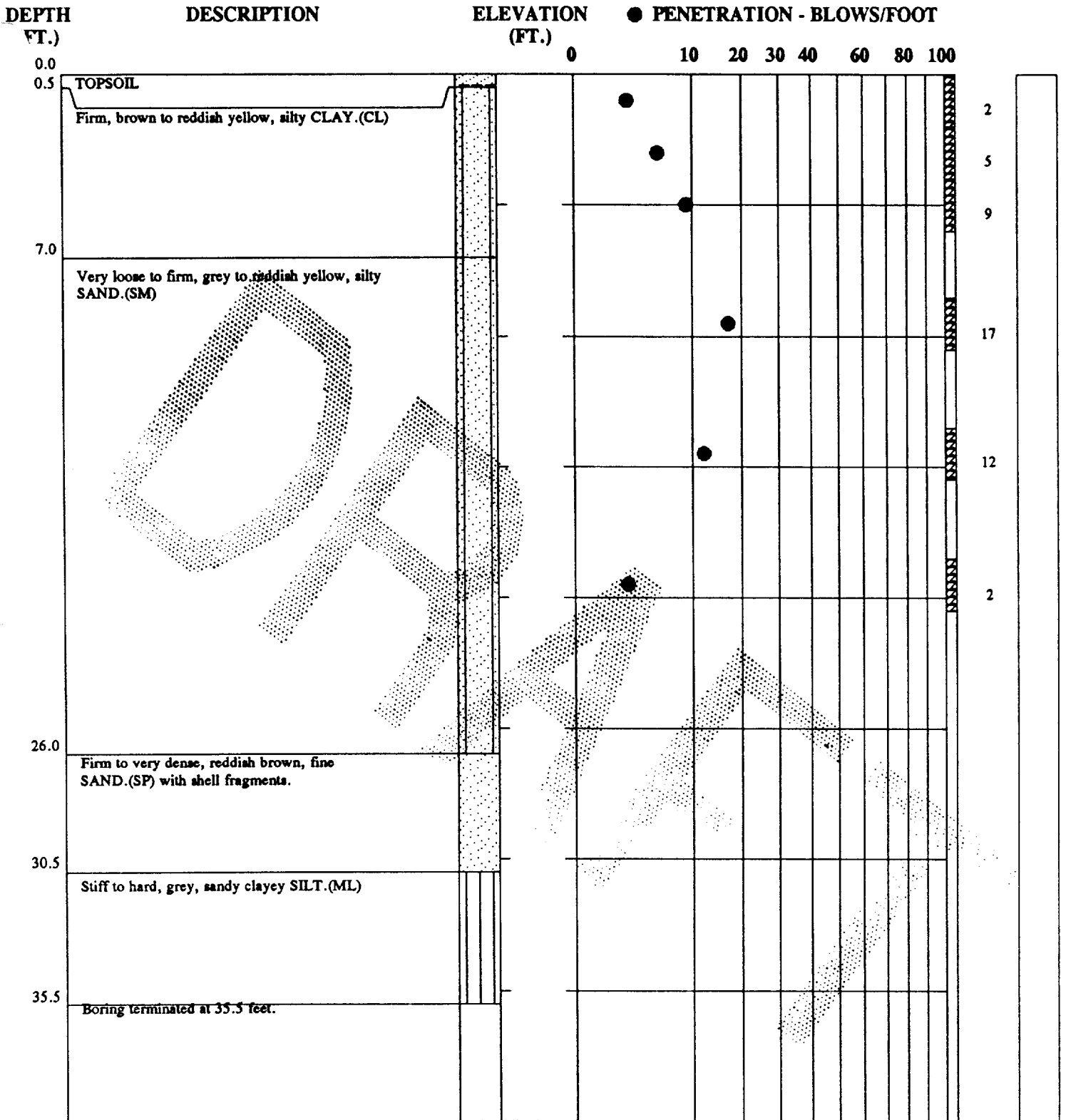
Boring terminated at 30 feet. No split spoon samples obtained beyond 20 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

**TEST BORING RECORD**

<b>BORING NUMBER</b>	MW-16
<b>DATE DRILLED</b>	August 21, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE






**REMARKS:**

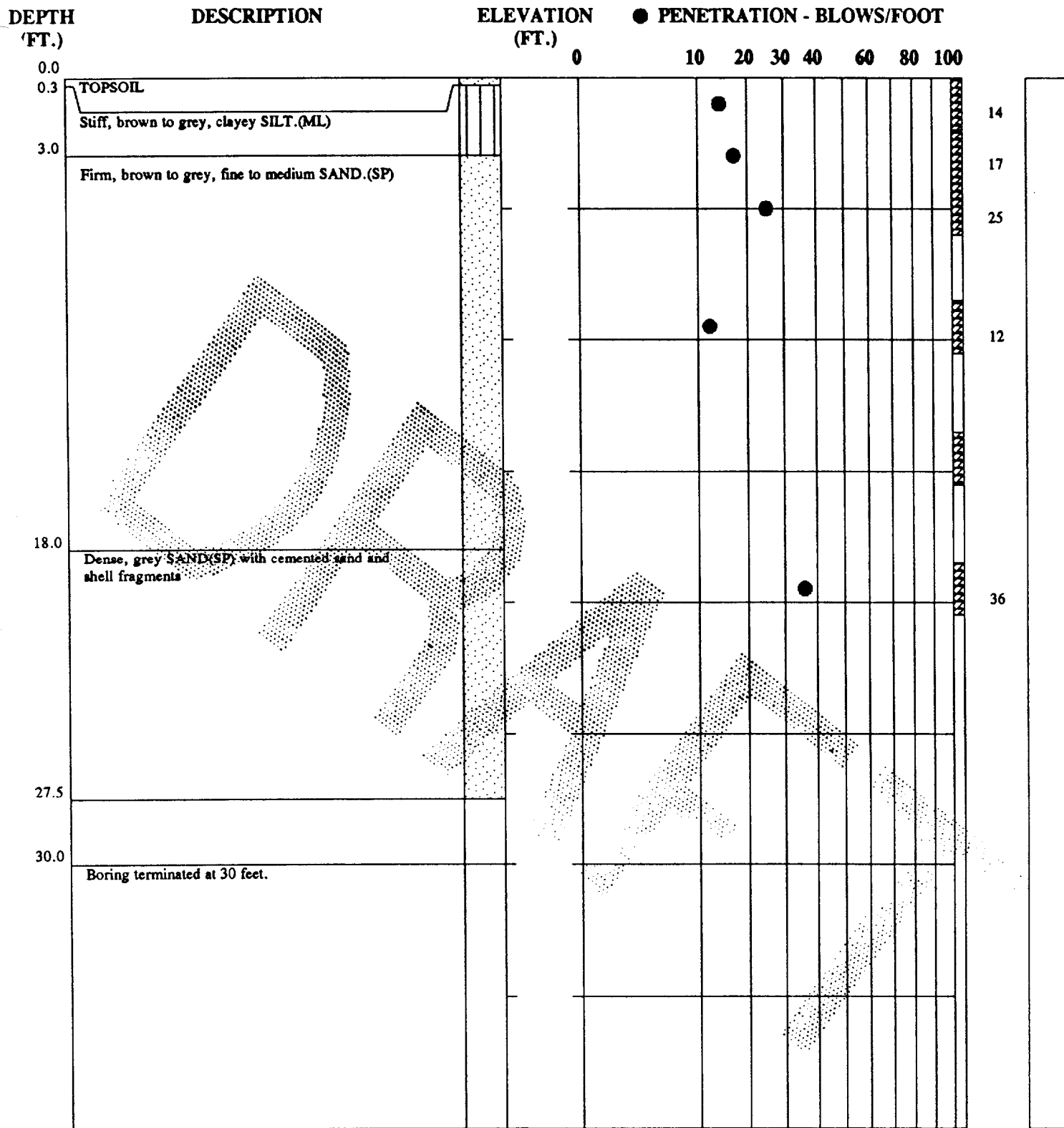
Boring terminated at 35.5 feet. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	MW-19
DATE DRILLED	August 23, 1991
PROJECT NUMBER	J6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	





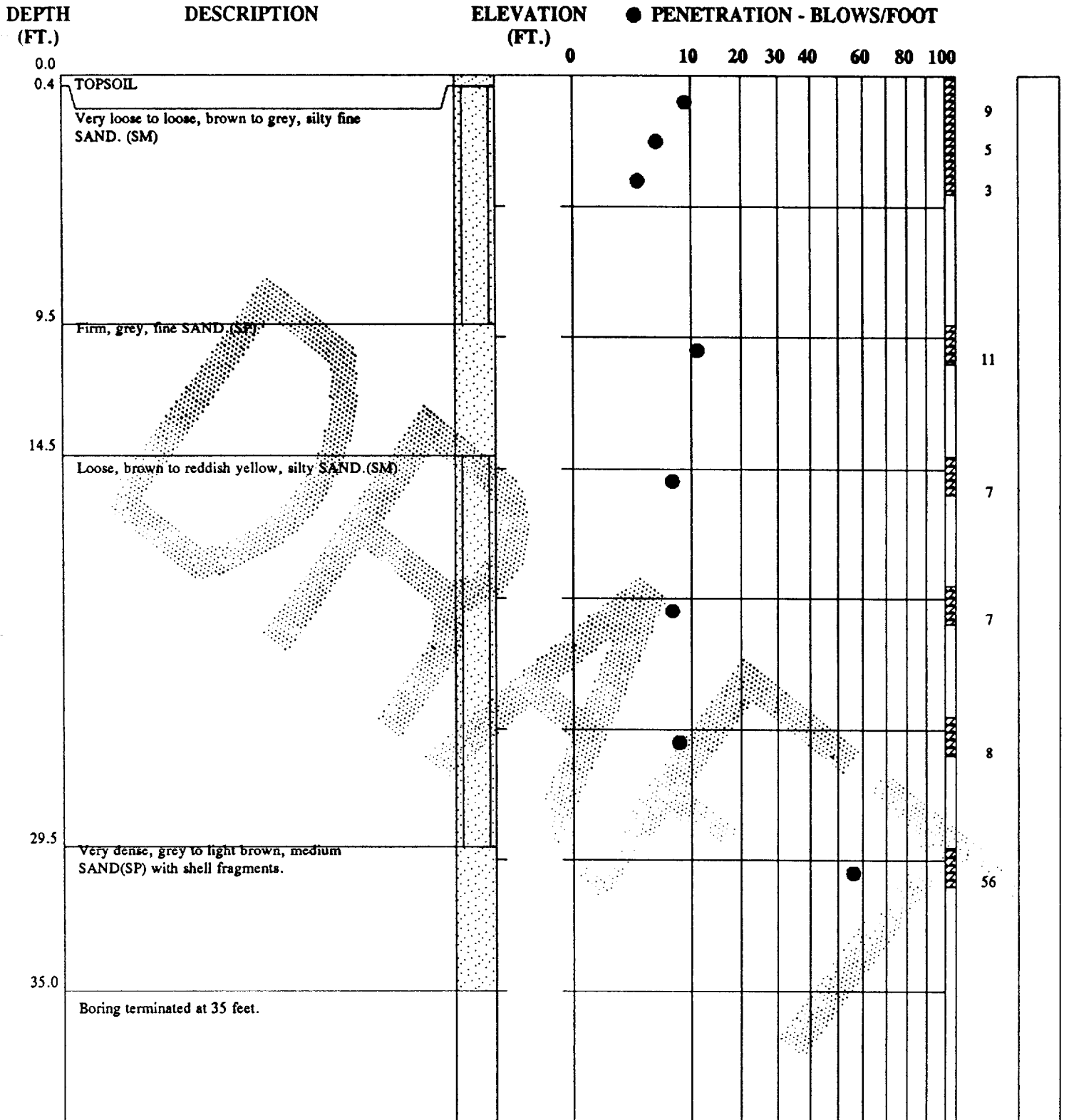


**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 27.5 due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.


SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	MW-21
DATE DRILLED	August 23, 1991
PROJECT NUMBER	J6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
▲ LAW ENGINEERING	

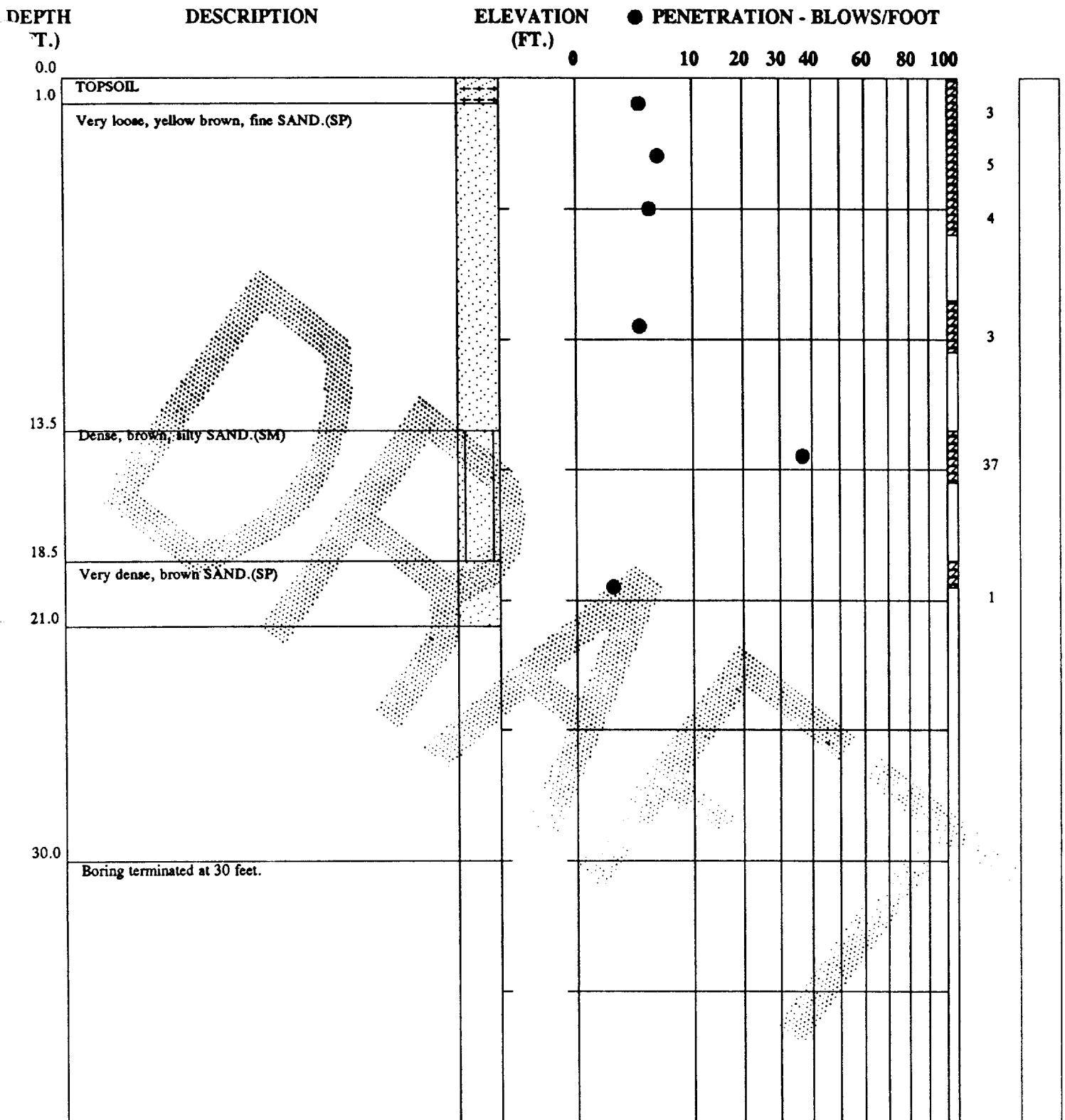


**REMARKS:**

Boring terminated at 35 feet. Upon boring completion, paired well installed. See well construction records for details.

TEST BORING RECORD	
BORING NUMBER	MW-22
DATE DRILLED	August 28, 1991
PROJECT NUMBER	J47590-6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	


SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

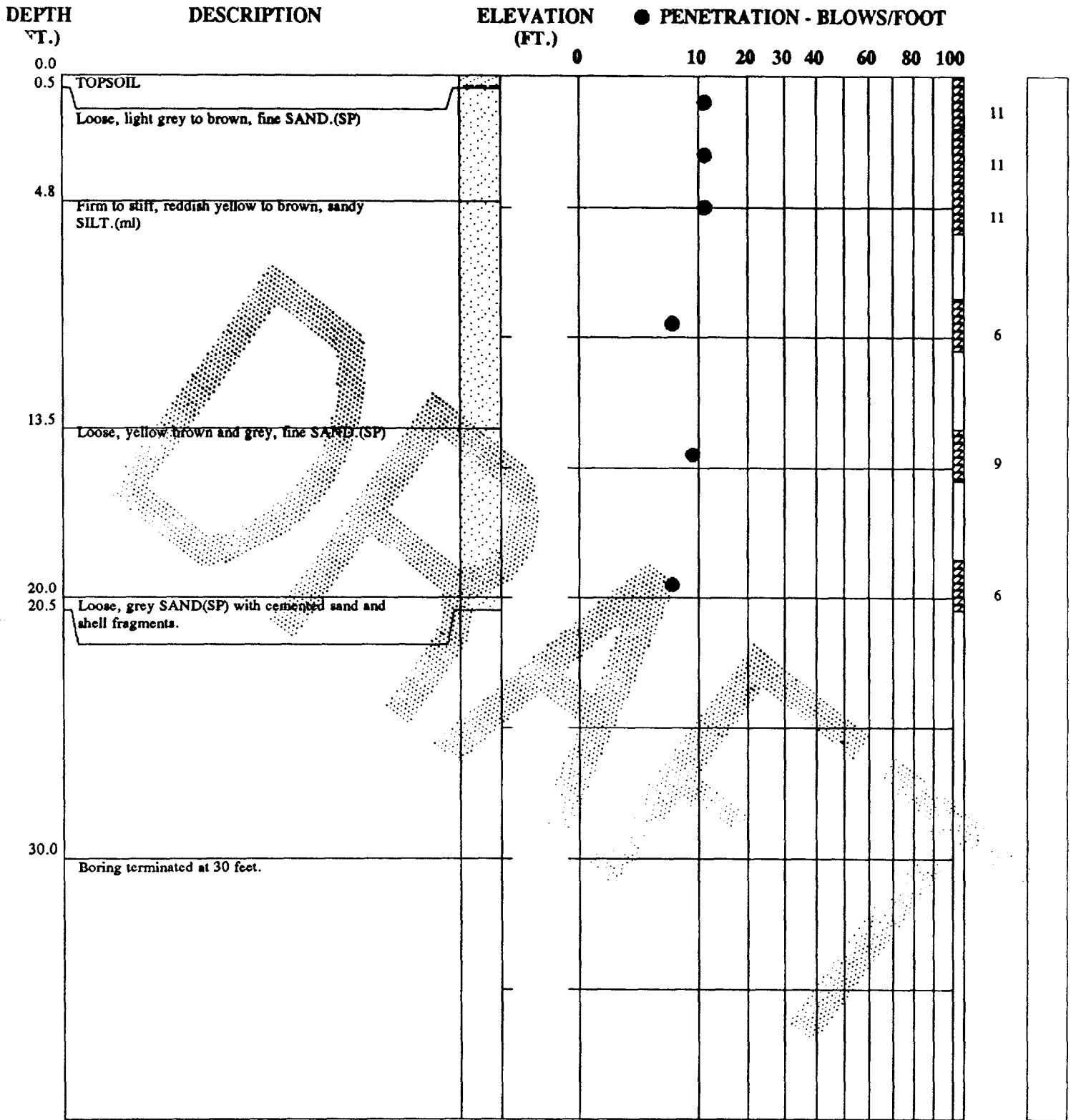


**REMARKS:**

Boring terminated at 30 feet. No split spoon samples obtained beyond 21 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD	
BORING NUMBER	MW-23
DATE DRILLED	August 27, 1991
PROJECT NUMBER	J6014
PROJECT	Camp Geiger Fuel Farm
PAGE 1 OF 1	
 <b>LAW ENGINEERING</b>	



**REMARKS:**  
 Boring terminated at 30 feet. No split spoon samples obtained beyond 20.5 feet due to heaving sands. Upon boring completion, paired well installed. See well construction records for details.

TEST BORING RECORD	
<b>BORING NUMBER</b>	MW-24
<b>DATE DRILLED</b>	August 28, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
▲ LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



DEPTH  
(FT.)

DESCRIPTION

ELEVATION  
(FT.)

● PENETRATION - BLOWS/FOOT

0.0

10 20 30 40 60 80 100

Augered to 20 feet.

20.0

Dense to very dense, grey coarse SAND (SP) with shell fragments.

56  
61  
48  
37

**REMARKS:**

Boring terminated at 44.5 feet.

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

**TEST BORING RECORD**

**BORING NUMBER** SB-1  
**DATE DRILLED** August 27, 1991  
**PROJECT NUMBER** J6014  
**PROJECT** Camp Geiger Fuel Farm  
**PAGE 1 OF 2**

**LAW ENGINEERING**

DEPTH  
FT.)

DESCRIPTION

ELEVATION  
(FT.)

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100

43.0

44.5

Stiff, dark grey, CLAY.(ML)

14

**REMARKS:**

Boring terminated at 44.5 feet.

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

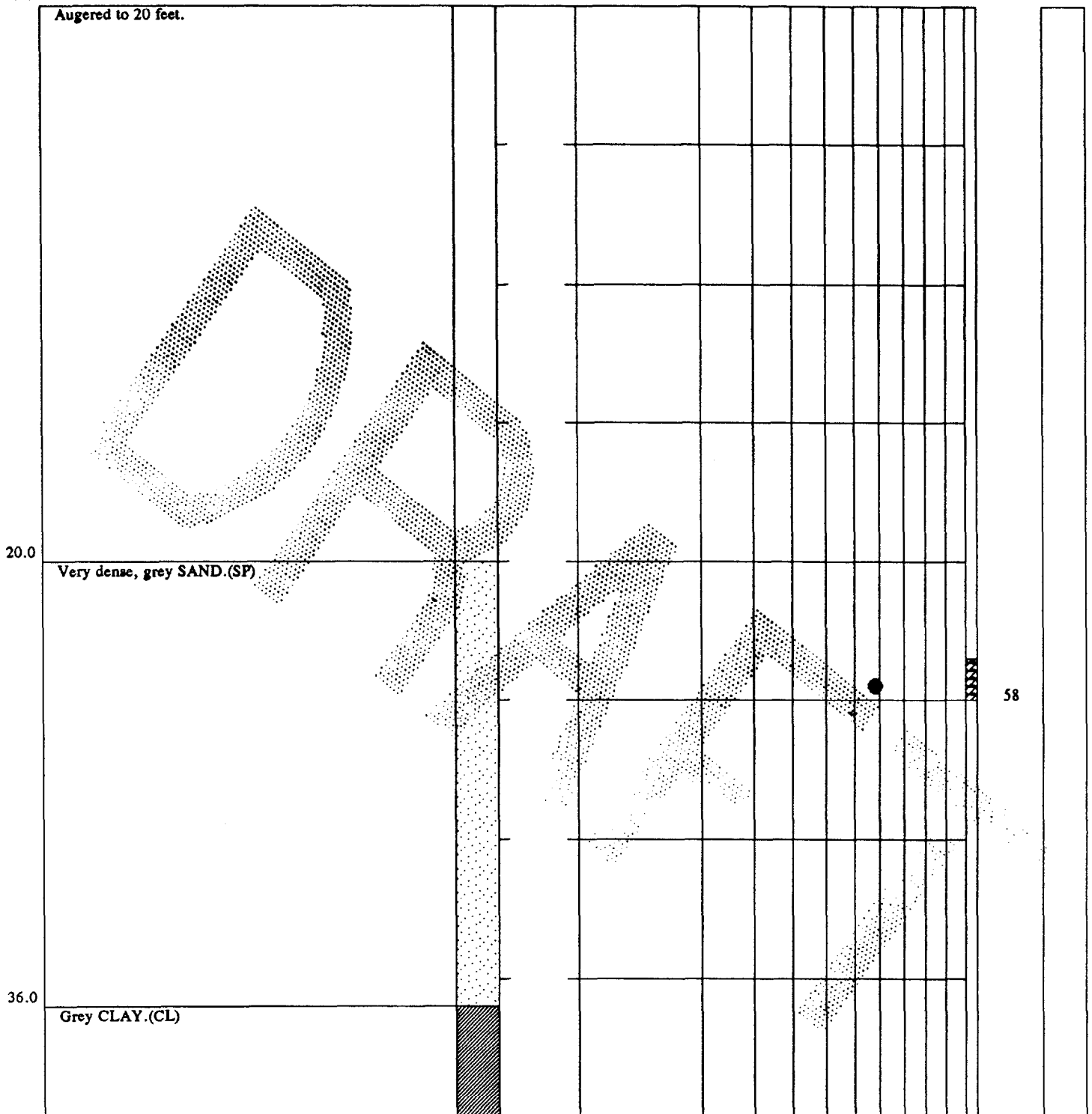
**TEST BORING RECORD**

**BORING NUMBER** SB-1  
**DATE DRILLED** August 27, 1991  
**PROJECT NUMBER** J6014  
**PROJECT** Camp Geiger Fuel Farm  
**PAGE 2 OF 2**

 **LAW ENGINEERING**

DEPTH (FT.)      DESCRIPTION      ELEVATION (FT.)      ● PENETRATION - BLOWS/FOOT

0.0      0      10      20      30      40      60      80      100



**REMARKS:**  
Boring terminated at 42.5 feet.

TEST BORING RECORD	
<b>BORING NUMBER</b>	SB-2
<b>DATE DRILLED</b>	August 27, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 2</b>	
LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



DEPTH  
(FT.)

DESCRIPTION

ELEVATION  
(FT.)

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100

42.5

Boring terminated at 42.5 feet.

**REMARKS:**

Boring terminated at 42.5 feet.

SEE KEY SHEET FOR EXPLANATION OF  
SYMBOLS AND ABBREVIATIONS USED ABOVE

**TEST BORING RECORD**

**BORING NUMBER** SB-2  
**DATE DRILLED** August 27, 1991  
**PROJECT NUMBER** J6014  
**PROJECT** Camp Geiger Fuel Farm  
**PAGE 2 OF 2**

 **LAW ENGINEERING**



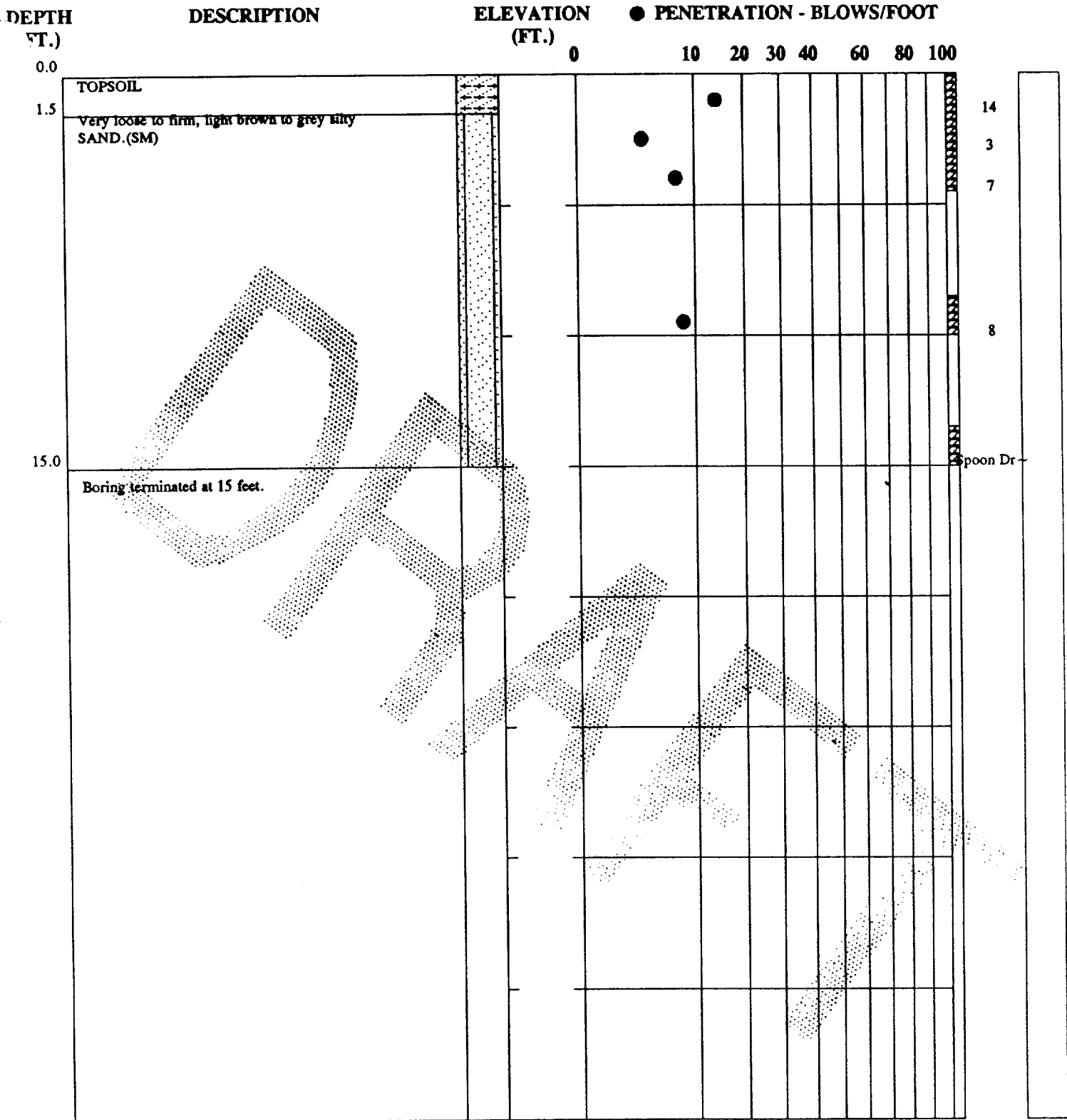


DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
0.0	CONCRETE																			
0.6	GRAVEL fill.																			
4.0	Grey SAND.(SM)																			
15.5	Boring terminated at 15.5 feet.																			


**REMARKS:**  
Boring terminated at 15.5 feet.

TEST BORING RECORD	
<b>BORING NUMBER</b>	B-2
<b>DATE DRILLED</b>	August 29, 1991
<b>PROJECT NUMBER</b>	J47590-6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
▲ <b>LAW ENGINEERING</b>	

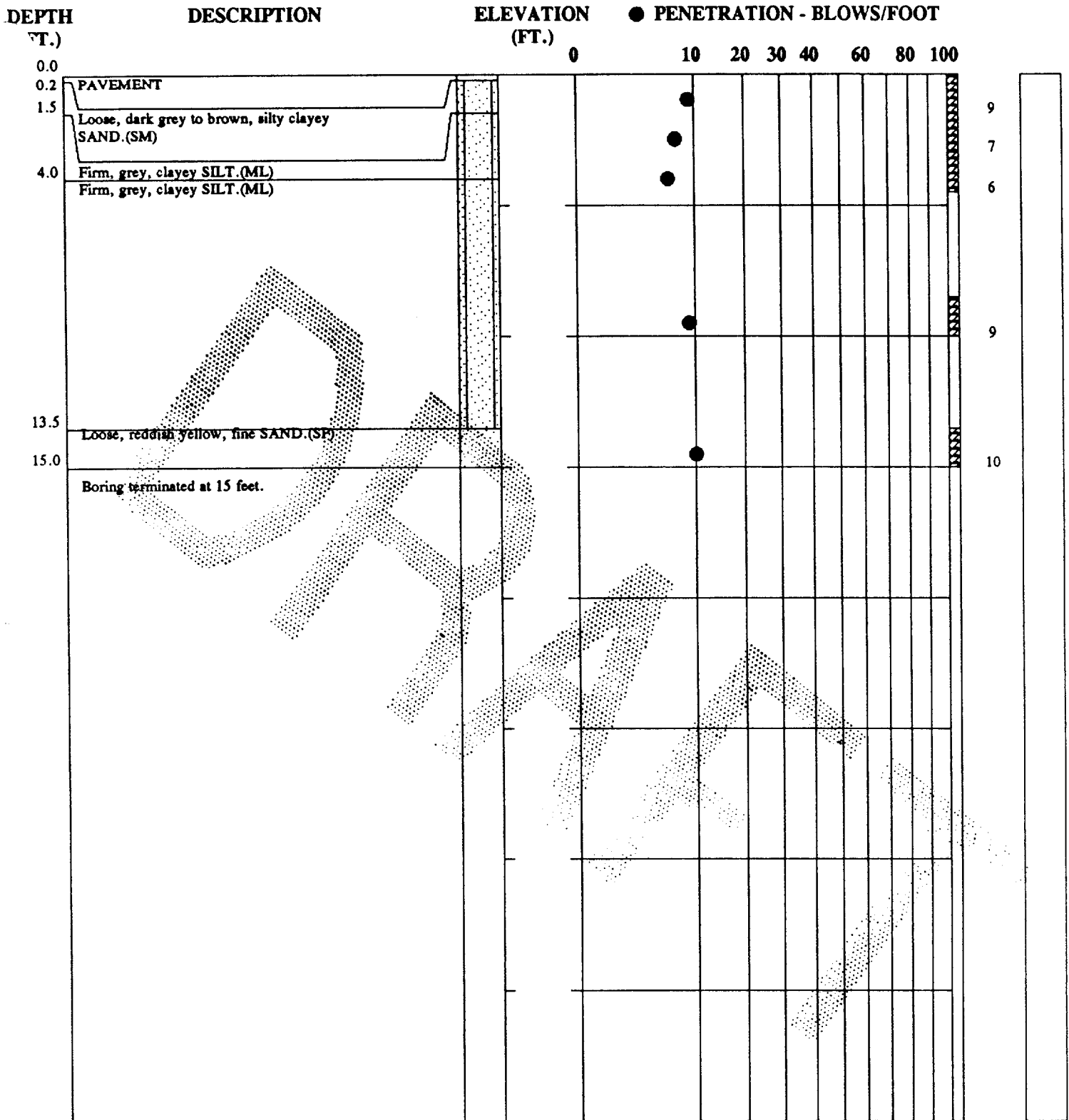
SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE




**REMARKS:**  
Boring terminated at 15 feet.

TEST BORING RECORD	
<b>BORING NUMBER</b>	B-4
<b>DATE DRILLED</b>	August 30, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
 <b>LAW ENGINEERING</b>	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



**REMARKS:**  
Boring terminated at 15 feet.

TEST BORING RECORD	
<b>BORING NUMBER</b>	B-5
<b>DATE DRILLED</b>	August 30, 1991
<b>PROJECT NUMBER</b>	J6014
<b>PROJECT</b>	Camp Geiger Fuel Farm
<b>PAGE 1 OF 1</b>	
 <b>LAW ENGINEERING</b>	

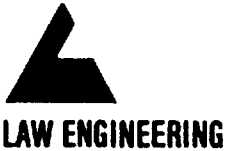
SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE



**APPENDIX C**

**TEST DATA OF GRAIN-SIZE DISTRIBUTION AND  
CALCULATIONS OF HYDRAULIC CONDUCTIVITY**





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 919-876-0416

JOB NO. J6014 SHEET 1 OF 3  
 JOB NAME Camp Geiger  
 SUBJECT CW Flow  
 BY PAK DATE 10/2/91  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

CAMP GEIGER PVEL FARM MW-24 13.5' - 15'

$$d_{16} = 0.1538$$

KRUMBEIN'S  $\phi$  UNITS

$$d_{84} = 0.28$$

$$\phi = -\log_2 d$$

$$d_5 = 0.07$$

$$= -\log_2 (0.1538)$$

$$d_{95} = 0.35$$

$$= \frac{\ln 0.1538}{\ln 2} = \frac{-1.8721}{0.6931} = 2.7009 \quad d_{16} = 2.70$$

$$d_{50} = 0.20$$

$$\phi = -\log_2 (0.28)$$

$$= \frac{\ln 0.28}{\ln 2} = \frac{-1.27}{0.69} = 1.84 \quad d_{84} = 1.84$$

$$\phi = -\log_2 (0.07)$$

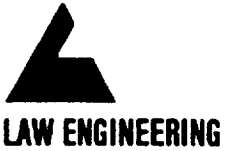
$$= \frac{\ln 0.07}{\ln 2} = \frac{-2.66}{0.69} = 3.86 \quad d_5 = 3.86$$

$$\phi = -\log_2 (0.35)$$

$$= \frac{\ln 0.35}{\ln 2} = \frac{-1.05}{0.69} = 1.52 \quad d_{95} = 1.52$$

$$\phi = -\log_2 (0.20)$$

$$= \frac{\ln 0.20}{\ln 2} = \frac{-1.61}{0.69} = 2.33 \quad d_{50} = 2.33$$



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JOB NO. J6014 SHEET 2 OF 3  
JOB NAME Camp Geigh  
SUBJECT Our Flow  
BY RAA DATE 10/2/91  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

### INCLUSIVE STANDARD DEVIATION (SIZE SORTING)

$$\sigma_1 = \frac{d_{16} - d_{84}}{4} + \frac{d_5 - d_{95}}{6.6}$$
$$= \frac{2.70 - 1.84}{4} + \frac{3.86 - 1.52}{6.6} = 0.22 + 0.35 = 0.57$$

$$K = 0.60 \text{ cm/min}$$

$$(0.60 \text{ cm/min}) (0.0328 \text{ ft/cm}) (1440 \text{ min/day}) = 28.35 \text{ ft/day}$$



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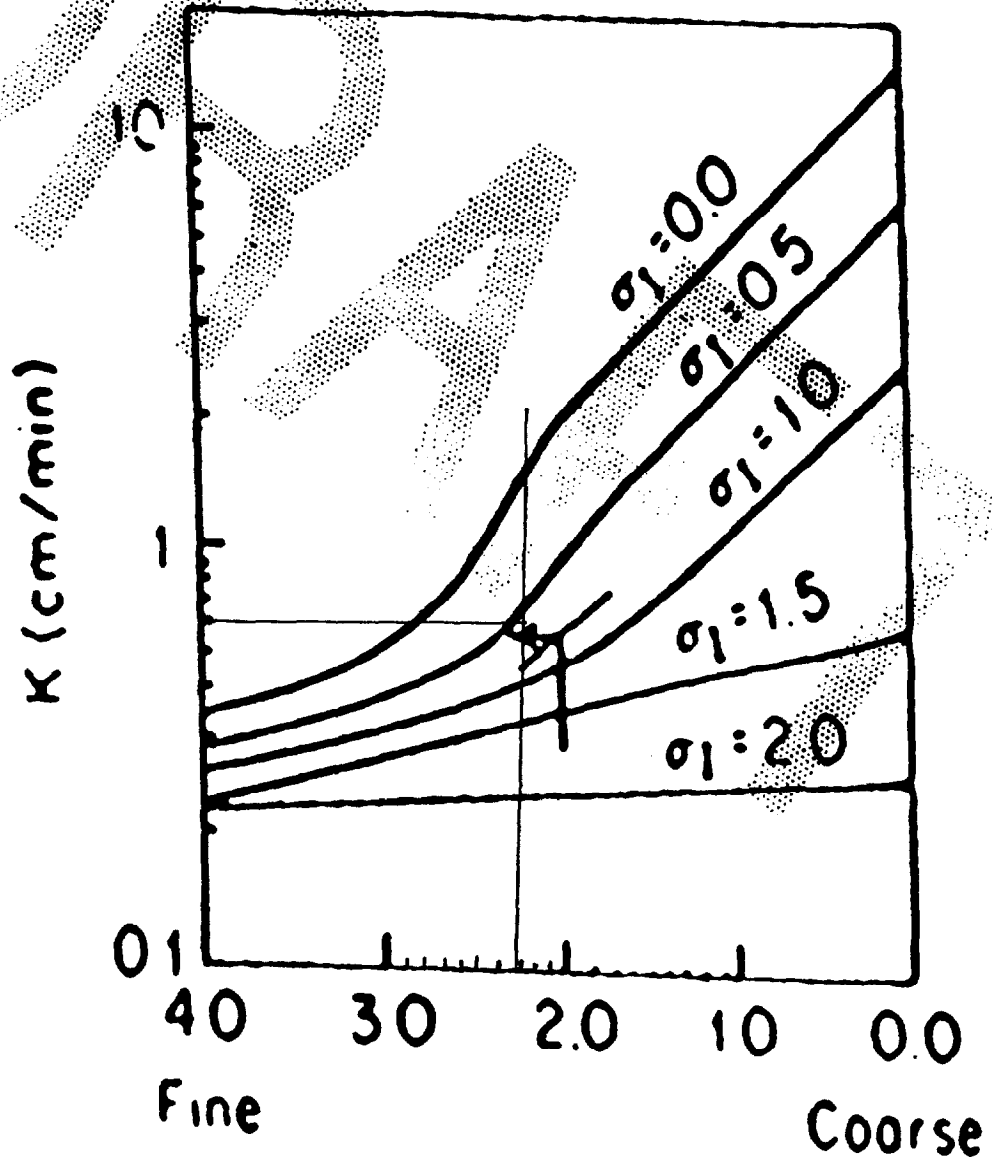
JOB NO. J6014 SHEET 3 OF 3

JOB NAME Camp Geiger

SUBJECT Groundwater Flow/K

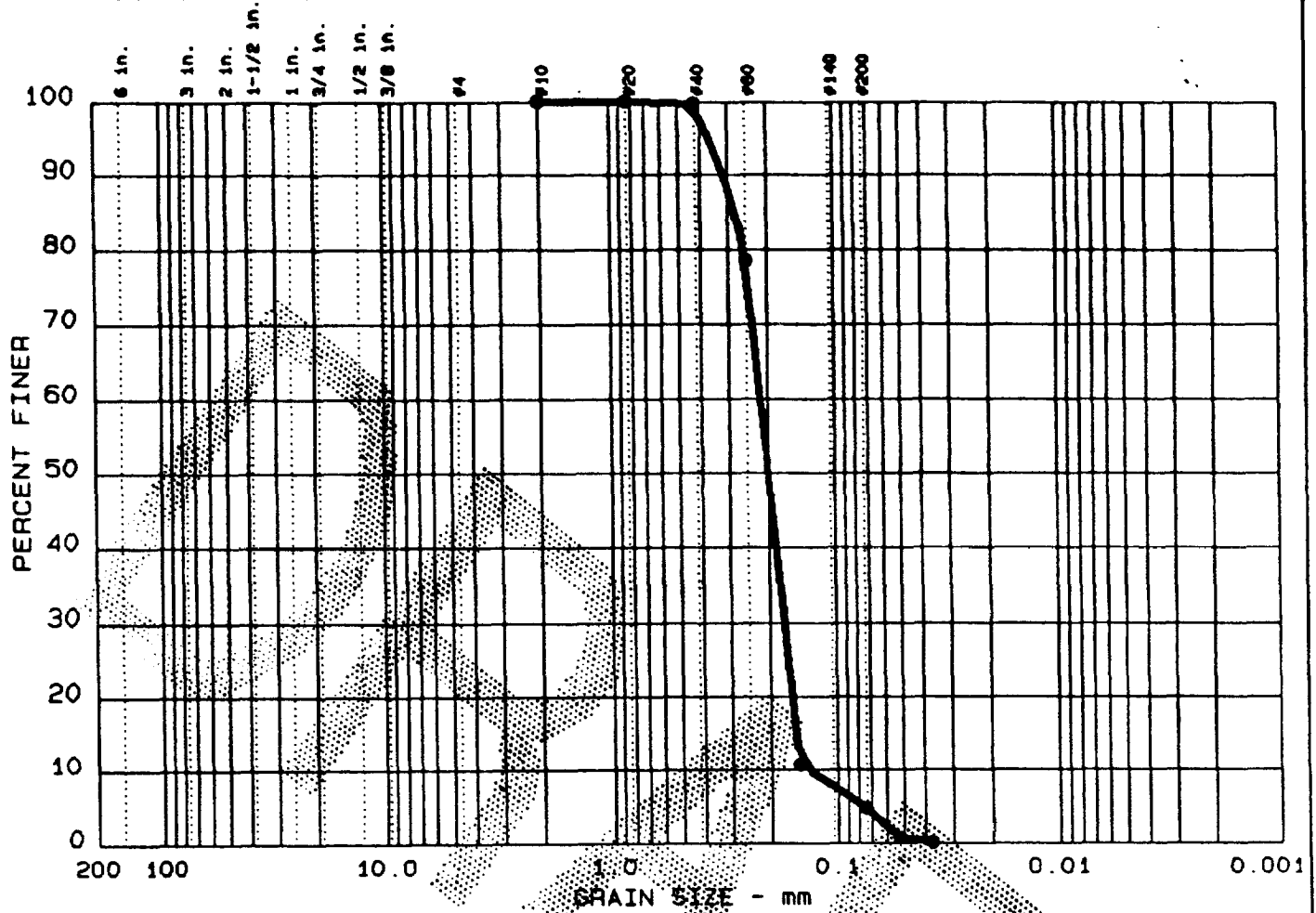
BY RAK DATE 10/2/91

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_



$d_{50}$  ( $\phi$  units)  
(b)

# GRAIN SIZE DISTRIBUTION TEST REPORT



% +75 mm	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	95.2	4.8	

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
		0.28	0.22	0.20	0.173	0.1538	0.1371	1.00	1.6

MATERIAL DESCRIPTION	USCS	AASHTO
● SS		

Project No.: J47591-6014 Project: CAMP LEJEUNE ● Location: MW-24, 13.5'-15'  Date: 9-17-91	Remarks:
--	----------

**GRAIN SIZE DISTRIBUTION TEST DATA**

Test No.: 3

Date: 9-17-91  
 Project No.: J47591-6014  
 Project: CAMP LEJEUNE

**Sample Data**

Location of Sample: MW-24, 13.5'-15'  
 Sample Description: SS  
 JSCS Class: Liquid limit:  
 AASHTO Class: Plasticity index:

**Notes**

Remarks:

Fig. No.: 3

**Mechanical Analysis Data**

Initial

Dry sample and tare = 474.03  
 Tare = 0.00  
 Dry sample weight = 474.03  
 Sample split on number 10 sieve  
 Split sample data:  
 Sample and tare = 57.43 Tare = 0 Sample weight = 57.43  
 Cumulative weight retained tare = 0

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.20	99.7
# 60	12.30	78.6
# 100	51.30	10.7
# 200	54.70	4.8

**Hydrometer Analysis Data**

Separation sieve is number 10  
 Percent -# 10 based on complete sample = 100.0  
 Weight of hydrometer sample: 57.43  
 Calculated biased weight = 57.43  
 Automatic temperature correction  
 Composite correction at 20 deg C = -6

Meniscus correction only = -1  
 Specific gravity of solids = 2.65  
 Specific gravity correction factor = 1.000

Hydrometer type: 152H    Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.0	22.0	6.0	0.4	0.0133	5.0	15.5	0.0524	0.7
2.0	22.5	5.5	0.0	0.0132	4.5	15.6	0.0369	0.1

-----  
Fractional Components  
-----

% + 75mm. = 0.0    % GRAVEL = 0.0    % SAND = 95.2  
% FINES = 4.8

D 5= 0.28    D60= 0.217    D50= 0.201  
D 0= 0.1726    D15= 0.15382    D10= 0.13709  
Cc = 1.0023    Cu = 1.5812

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JOB NO. J6014 SHEET 1 OF 3

JOB NAME Camp Geiger

SUBJECT Gas flow

BY RAK DATE 10/2/91

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

CAMP GEIGER FUEL FARM MW-23 8.5'-10.5'

$$d_{16} = 0.1507$$

$$\phi = -\log_2 d$$

$$= -\log_2 (0.1507)$$

$$= \frac{\ln 0.1507}{\ln 2} = \frac{-1.8925}{0.6931} = 2.7305 \quad (d_{16} = 2.73)$$

$$d_{84} = 0.24$$

$$d_5 = 0.08$$

$$d_{95} = 0.3$$

$$d_{50} = 0.19$$

$$\phi = -\log_2 (0.24)$$

$$= \frac{-\log_2 (0.24)}{-\log_2 2} = \frac{-1.43}{0.69} = 2.07 \quad (d_{84} = 2.07)$$

$$\phi = -\log_2 (0.08)$$

$$= \frac{-\log_2 0.08}{\log_2 2} = \frac{-2.53}{0.69} = 3.67 \quad (d_5 = 3.67)$$

$$\phi = -\log_2 (0.3)$$

$$= \frac{-\ln 0.3}{\ln 2} = \frac{-1.2}{0.69} = 1.74 \quad (d_{95} = 1.74)$$

$$\phi = -\log_2 (0.19)$$

$$= \frac{\ln 0.19}{\ln 2} = \frac{-1.66}{0.69} = 2.41 \quad (d_{50} = 2.41)$$



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JOB NO. J6014 SHEET 2 OF 3

JOB NAME Camp Geiger

SUBJECT GW Flow

BY RAK DATE 10/2/91

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

INCLUSIVE STANDARD DEVIATION (SIZE SORTING)

$$\begin{aligned}\sigma_i &= \frac{d_{16} - d_{84}}{4} + \frac{d_5 - d_{95}}{6.6} \\ &= \frac{2.73 - 2.07}{4} + \frac{3.67 - 1.74}{6.6} \\ &= 0.17 + 0.29 = 0.46\end{aligned}$$

$K = 0.6 \text{ cm/min}$

$(0.6 \text{ cm/min})(0.03281 \text{ ft/cm})(1440 \text{ min/day}) = 28.35 \text{ ft/day}$





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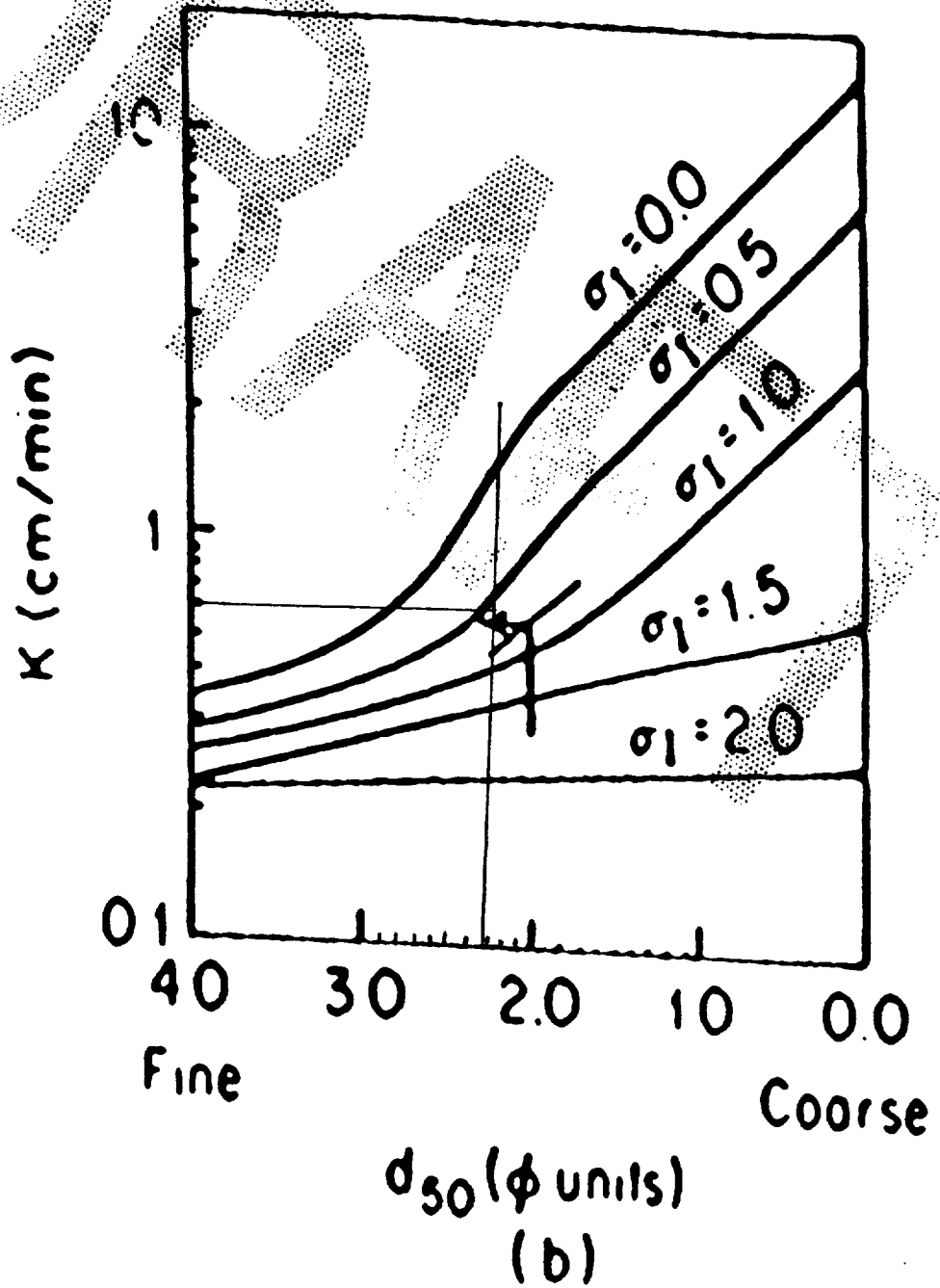
JOB NO. J6014 SHEET 3 OF 3

JOB NAME Camp Geiger

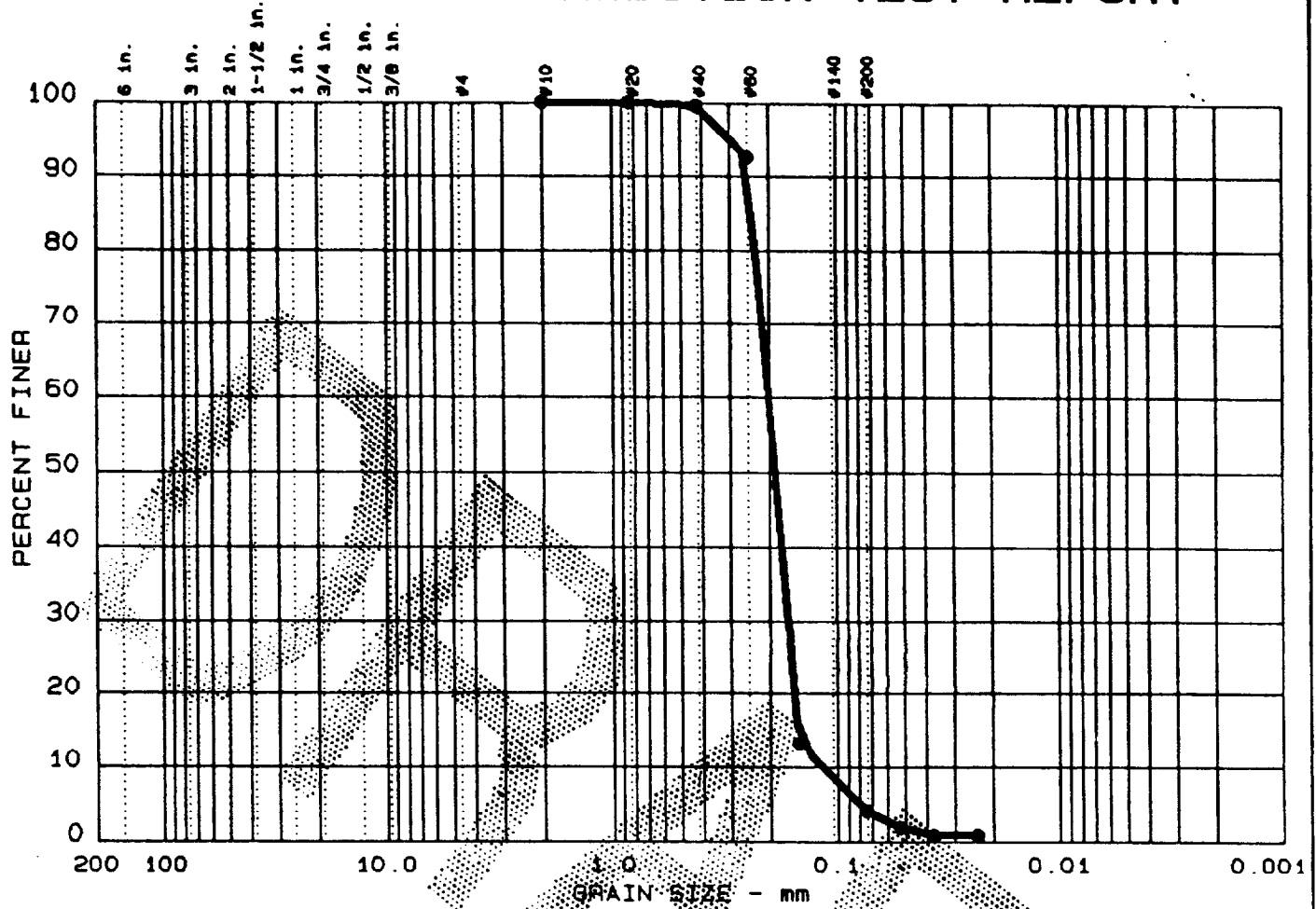
SUBJECT Groundwater Flow/K

BY RAK DATE 10/2/91

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_



# GRAIN SIZE DISTRIBUTION TEST REPORT



% +75mm	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	95.0	4.0	

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	G <sub>c</sub>	C <sub>u</sub>
		0.24	0.20	0.19	0.166	0.1507	0.1156	1.18	1.7

MATERIAL DESCRIPTION	USCS	AASHTO
● SS		

Project No.: J47591-6014  
 Project: CAMP LEJEUNE  
 ● Location: MW-23, 8.5'-10.5'  
  
 Date: 9-17-91

Remarks:

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 4

Date: 9-17-91  
 Project No.: J47591-6014  
 Project: CAMP LEJEUNE

Sample Data

Location of Sample: MW-23, 8.5'-10.5'  
 Sample Description: SS  
 USCS Class: Liquid limit:  
 AASHTO Class: Plasticity index:

Notes

Remarks:

Fig. No.: 4

Mechanical Analysis Data

Initial  
 Dry sample and tare = 208.78  
 Tare = 0.00  
 Dry sample weight = 208.78  
 Sample split on number 10 sieve  
 Split sample data:  
 Sample and tare = 50.13 Tare = 0 Sample weight = 50.13  
 Cumulative weight retained tare = 0  
 Tare for cumulative weight retained = 0

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.20	99.6
# 60	3.70	92.6
# 100	43.50	13.2
# 200	48.10	4.0

Hydrometer Analysis Data

Separation sieve is number 10  
 Percent -# 10 based on complete sample = 100.0  
 Weight of hydrometer sample: 50.13  
 Calculated biased weight = 50.13  
 Automatic temperature correction  
 Composite correction at 20 deg C = -6  
 Meniscus correction only = -1  
 Specific gravity of solids = 2.65  
 Specific gravity correction factor = 1.000

ydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.0	22.0	6.5	0.9	0.0133	5.5	15.4	0.0523	1.8
2.0	22.0	6.0	0.4	0.0133	5.0	15.5	0.0371	0.8
5.0	22.0	6.0	0.4	0.0133	5.0	15.5	0.0234	0.8

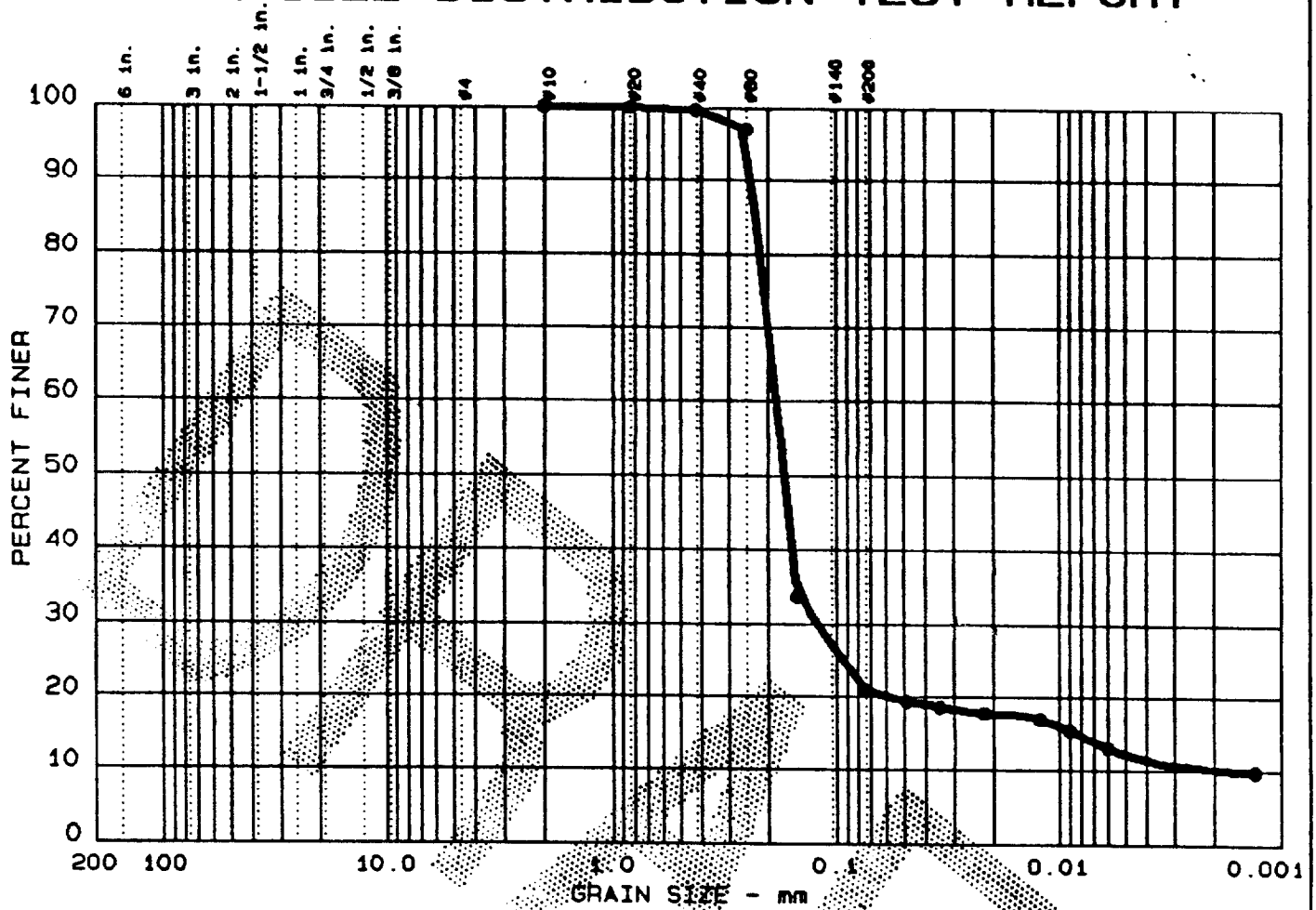
Fractional Components

% + 75mm. = 0.0    % GRAVEL = 0.0    % SAND = 96.0  
% FINES = 4.0

D85= 0.24    D60= 0.202    D50= 0.189  
D30= 0.1661    D15= 0.15066    D10= 0.11561  
Cc = 1.1817    Cu = 1.7478

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# GRAIN SIZE DISTRIBUTION TEST REPORT



% +75 mm	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	79.1	8.7	12.2

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
		0.23	0.18	0.17	0.122	0.0084	0.0017	47.75	109.9

MATERIAL DESCRIPTION	USCS	AASHTO
● SB-1, SS, 43' - 44.5'		

Project No.: J-6014  
 Project: CAMP GEIGER FUEL FARM  
 ● Location: SB-1, SS, 43' - 44.5'

Date: 10-10-91

Remarks:

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 11

Date: 10-10-91  
 Project No.: J-6014  
 Project: CAMP GEIGER FUEL FARM

Sample Data

Location of Sample: SB-1, SS, 43'- 44.5'  
 Sample Description: SB-1, SS, 43'- 44.5'  
 JSCS Class: Liquid limit:  
 AASHTO Class: Plasticity index:

Notes

Remarks:

Fig. No.: 11

Mechanical Analysis Data

Initial

Dry sample and tare= 86.63  
 Tare = 0.00  
 Dry sample weight = 86.63  
 Sample split on number 10 sieve  
 Split sample data:  
 Sample and tare = 62.81 Tare = 0 Sample weight = 62.81  
 Cumulative weight retained tare= 0  
 Weight for cumulative weight retained= 0

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.05	99.9
# 40	0.30	99.5
# 60	1.91	97.0
# 100	41.65	33.7
# 200	49.71	20.9

Hydrometer Analysis Data

Separation sieve is number 10  
 Percent -# 10 based on complete sample= 100.0  
 Weight of hydrometer sample: 62.81  
 Calculated biased weight= 62.81  
 Automatic temperature correction  
 Composite correction at 20 deg C =-6  
 Meniscus correction only=-1  
 Specific gravity of solids= 2.65  
 Specific gravity correction factor= 1.000

Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.0	23.0	17.5	12.2	0.0132	16.5	13.6	0.0485	19.4
2.0	23.0	17.0	11.7	0.0132	16.0	13.7	0.0344	18.6
5.0	23.0	16.5	11.2	0.0132	15.5	13.8	0.0218	17.8
16.0	23.0	16.0	10.7	0.0132	15.0	13.8	0.0122	17.0
30.0	23.0	15.0	9.7	0.0132	14.0	14.0	0.0090	15.4
69.0	23.0	13.5	8.2	0.0132	12.5	14.2	0.0060	13.0
1497.0	23.0	11.5	6.2	0.0132	10.5	14.6	0.0013	9.8

Fractional Components

% + 75mm. = 0.0    % GRAVEL = 0.0    % SAND = 79.1  
% SILT = 8.7    % CLAY = 12.2

D85= 0.23    D60= 0.185    D50= 0.170  
D30= 0.1218    D15= 0.00847    D10= 0.00168  
Cc = 47.7529    Cu = 109.9006

**APPENDIX D**  
**WELL-CONSTRUCTION RECORDS AND**  
**GROUND-WATER MONITORING WELL INSTALLATION DETAILS**



FOR OFFICE USE ONLY		
QUAD NO.	SERIAL NO.	
Lat.	Long.	Pa.
Minor Basin		
Basin Code		
Header Ent.		GW-1 Emb

**WELL CONSTRUCTION RECORD**

DRAWING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION  
 PERMIT NUMBER: 66-0237-W1-0232

DRILLER REGISTRATION NUMBER: 332

1. WELL LOCATION: (Show sketch of the location below) MW-8  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See Address Below

ADDRESS \_\_\_\_\_  
 (Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/15/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.0' D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=8.24 FT. D=8.24'  
 (Use \* if Above Top of Casing)

\*\* 8. TOP OF CASING IS S=2.35' FT. Above Land Surface\* D=2.50'

Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

2. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>20.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

3. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>15.0</u> To <u>18.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>20.5</u> To <u>29.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

5. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>15.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>18.0</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
_____	_____	<u>See attached test boring records</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

LOCATION SKETCH

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

See attached site location map.

\*\*S = Shallow monitoring well  
 D = Deep monitoring well

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287  
 Attn: Code 1821, Mr. Frueman Seamans

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

Richard A. Kell

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

FOR OFFICE USE ONLY			
QUAD NO.	SERIAL NO.		
Lat	Long	Y	Pa
Minor Basin			
Basin Code			
Header File	GW-1 File		

**WELL CONSTRUCTION RECORD**

INSTALLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION PERMIT NUMBER: 66-0237-WM-0232

DRILLER REGISTRATION NUMBER: 332

1. WELL LOCATION: (Show sketch of the location below) MW-9  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See Address Below

ADDRESS \_\_\_\_\_  
 (Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/16/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=13.0' D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: 3-6.95 FT. D=6.99'  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.12 FT. Above Land Surface\*

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>3.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>25.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>13.0</u> To <u>16.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

Attn: Code 1821, Mr. Truman Seamans

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.5</u> To <u>12.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>25.5</u> To <u>29.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well

D=Deep monitoring well

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>13.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>16.0</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Kern*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY		
QUAD. NO.	SERIAL NO.	
Lat.	Long.	Pa.
Minor Basin		
Basin Code		
Header Ent. <span style="float: right;">GW-1 Ent.</span>		

**WELL CONSTRUCTION RECORD**

INSTALLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-10  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS

(Street or Route No.)  
 City or Town State Zip Code

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.0 D=30.0

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=7.05 FT. D=6.78'  
 (Use \* if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.49 FT. Above Land Surface\* D=2.51'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued  
 in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>25.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.			

13. GROUT:

Depth	Material	Method
From <u>1</u> To <u>2</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>16</u> To <u>19</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>25.5</u> To <u>29.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.			

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2</u> To <u>14</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>19</u> To <u>30</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
		<u>See attached test boring records</u>

**LOCATION SKETCH**  
 (Show direction and distance from at least two State Roads, or other map reference points)  
See attached site location map

\* Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287  
 Attn: Code 181, Mr. Trobman Seamans

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

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

Richard A. Kelly

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO. _____	SERIAL NO. _____
Minor Basin _____	Basin Code _____
Date _____	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-11  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See Address Below  
 ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.0' D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=8.27 FT. D=8.60  
 (Use "\*" if Above Top of Casing)

\*\*8. TOP OF CASING IS S=2.51 FT. Above Land Surface\* D=2.59

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth) N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.0	Ft.	2"	SCH 40	PVC
0	25.0	Ft.	2"	SCH 40	PVC
From	To	Ft.			

13. GROUT:

From	To	Depth	Material	Method
1.0	2.0	Ft.	Bentonite	Pour
19.5	22.5	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
4.5	13.5	Ft.	2 in.	.010 in.	PVC
25.5	29.5	Ft.	2 in.	.010 in.	PVC
From	To	Ft.	in.	in.	

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.0	19.5	Ft.	Torpedo	Sand
22.5	30.0	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
		See Attached Test boring records

If additional space is needed use back of form

**LOCATION SKETCH**

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

See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Kell*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD. NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	_____
Basin Code _____	_____
Header Exp. _____	_____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-12

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.5' D=28.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=9.58 FT. D=10.34'

(Use "\*" if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.72 FT. Above Land Surface\* D=2.75

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>23.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>2.0</u> To <u>3.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>15.5</u> To <u>19.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From _____ To _____ Ft.	_____	_____

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>5.0</u> To <u>14.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>24.0</u> To <u>28.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>3.0</u> To <u>14.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>19.0</u> To <u>28.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From _____ To _____ Ft.	_____	_____

16. REMARKS: Concrete from 0' to 1.0'

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

Richard A. Kelly

8/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY		
QUAD. NO.	SERIAL NO.	
Lat.	Long.	Pa.
Mining Basin		
Basin Code		
Holder Ent.		GW-1 Ent.

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

RILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-13

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town

State

Zip Code

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=15.0' D=30.0'

CUTTINGS COLLECTED YES  NO

DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=9.83 FT. D=9.96

(Use "\*" if Above Top of Casing)

\*: TOP OF CASING IS S=2.50 FT. Above Land Surface\* D=2.58'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

9. WATER ZONES (depth): N/A

10. FLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

2. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>5.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>25.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

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

See attached site location map

3. GROUT:

Depth	Material	Method
From <u>2.0</u> To <u>3.0</u> Ft.	<u>Bentonite</u>	<u>Pellets</u>
From <u>18.5</u> To <u>22.5</u> Ft.	<u>Bentonite</u>	<u>Pellets</u>

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>5.5</u> To <u>14.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>25.5</u> To <u>29.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

5. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>3.0</u> To <u>18.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>22.5</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

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

Richard A. Koll

8/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD. NO.	SERIAL NO.
Lat.	Long.
Minor Basin	
Basin Code	

**WELL CONSTRUCTION RECORD**

DILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION PERMIT NUMBER: 66-0237-WM-0232

DRILLER REGISTRATION NUMBER: 332

1. WELL LOCATION: (Show sketch of the location below) MW-14  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.) \_\_\_\_\_  
 City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/20/91 USE OF WELL Monitoring  
 4. TOTAL DEPTH S=13.8 D=30.0'  
 5. CUTTINGS COLLECTED YES  NO   
 6. DOES WELL REPLACE EXISTING WELL? YES  NO   
 7. STATIC WATER LEVEL Below Top of Casing: S=9.58 FT. D=9.51'  
 (Use "\*" if Above Top of Casing)

8. TOP OF CASING IS S=2.51 FT. D=2.47' Above Land Surface\*  
 \* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>3.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>24.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>18.0</u> To <u>21.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.5</u> To <u>12.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>24.5</u> To <u>28.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>13.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>21.0</u> To <u>29.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
_____	_____	<u>See Attached Test Boring Records</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If additional space is needed use back of form

**LOCATION SKETCH:**  
 (Show direction and distance from at least two State Roads, or other map reference points)  
 See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well  
 Attn: Code 1821, Mr. Trueman Seamans

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

Richard A. Kall 10/14/91

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Lat.	Long.
Minor Basin	
GWJ File	

**WELL CONSTRUCTION RECORD**

CALLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-15  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/20/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.0 D=30.0

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=10.60 FT. D=10.70  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.55 FT. Above Land Surface\* D=2.52'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.0	Ft.	2"	SCH 40	PVC
0	25.0	Ft.	2"	SCH 40	PVC
From _____	To _____	Ft. _____			

13. GROUT:

From	To	Depth	Material	Method
1.5	2.5	Ft.	Bentonite	Pour
17.5	23.0	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
4.5	13.5	Ft.	2 in.	.010 in.	PVC
25.5	29.5	Ft.	2 in.	.010 in.	PVC
From _____	To _____	Ft. _____	in. _____	in. _____	

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.5	17.5	Ft.	Torpedo	Sand
25.0	30.0	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
		See attached test boring records

**LOCATION SKETCH**  
 (Show direction and distance from at least two State Roads, or other map reference points)  
 See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well  
 Attn: Code 1821, Mr. Trueman Seamans

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

Richard A. Hall 10/14/91  
 SIGNATURE OF CONTRACTOR OR AGENT DATE  
 Submit original to Division of Environmental Management and copy to well owner.



FOR OFFICE USE ONLY	
QUAD. NO. _____	SERIAL NO. _____
Lat _____	Long _____
Minor Basin _____	
Basin Code _____	
Header Ent. _____	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-16

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/21/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.5' D=29.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=12.87FT. D=12.92

(Use "+" if Above Top of Casing)

\*\*8. TOP OF CASING IS S=2.62 FT. Above Land Surface\* D=2.58

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.5	Ft.	2"	SCH 40	PVC
0	24.0	Ft.	2"	SCH 40	PVC
From	To	Ft.			

13. GROUT:

From	To	Depth	Material	Method
1.0	2.0	Ft.	Bentonite	Pour
17.5	20.5	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
5.0	14.0	Ft.	2 in.	.010 in.	PVC
24.0	28.5	Ft.	2 in.	.010 in.	PVC
From	To	Ft.	in.	in.	

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.0	17.5	Ft.	Torpedo	Sand
20.0	24.5	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
		See attached test boring records

If additional space is needed use back of form

**LOCATION SKETCH:**

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

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

See attached site location map

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Kell*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

**FOR OFFICE USE ONLY**

QUAD NO. \_\_\_\_\_ SERIAL NO. \_\_\_\_\_  
 Lat. \_\_\_\_\_ Long. \_\_\_\_\_ Po. \_\_\_\_\_  
 Minor Basin \_\_\_\_\_  
 Basin Code \_\_\_\_\_  
 Project No. \_\_\_\_\_

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

DRILLER REGISTRATION NUMBER: 332

STATE WELL CONSTRUCTION

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-17  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.) \_\_\_\_\_  
 City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/21/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=17.0' D=29.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

~ 7. STATIC WATER LEVEL Below Top of Casing S=1.07 FT. D=10.92'  
 (Use "S" if Above Top of Casing)

8. TOP OF CASING IS S=2.56 FT. D=2.50' Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>7.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>24.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>3.5</u> To <u>4.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>19.5</u> To <u>22.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>7.5</u> To <u>16.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>25.0</u> To <u>29.0</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>4.5</u> To <u>19.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>22.5</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 3.5'

DEPTH		DRILLING LOG
From	To	Formation Description
_____	_____	<u>See attached test boring records</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If additional space is needed use back of form

**LOCATION SKETCH**

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

See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Kelly*

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY		
QUAD NO.	SERIAL NO.	
Lat.	Long.	Fe.
Minor Basin		
Basin Code		
County	GW-1 Ent	

**WELL CONSTRUCTION RECORD**

INSTALLING CONTRACTOR: Law Engineering

DRILLER REGISTRATION NUMBER: 332

**STATE WELL CONSTRUCTION**

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-18  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*see address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town

State

Zip Code

3. DATE DRILLED 8/21/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTHS=12.5 S=D=25.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: 3.96 FT. D=7.96'  
 (Use "S" if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.64 FT. Above Land Surface\* D=2.62'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

**LOCATION SKETCH**

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

See attached site location map

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>2.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>20.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>0.5</u> To <u>1.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>14.0</u> To <u>17.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.0</u> To <u>12.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>20.5</u> To <u>24.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>1.5</u> To <u>14.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>17.0</u> To <u>25.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 0.5'

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

*Richard A. Kell*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Minor Basin	
Basin Code	
Header	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-19  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_  
 (Street or Route No.)  
 City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

DEPTH

DRILLING LOG

From To

Formation Description

See attached test boring records

3. DATE DRILLED 8/22/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.0' D=25.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing 33.54 FT. D=3.02  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.62 FT. Above Land Surface\* D=2.58'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>22.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

LOCATION SKETCH

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>17.0</u> To <u>20.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>22.5</u> To <u>24.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>15.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>20.0</u> To <u>25.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 1.0'

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

Richard A. Howell

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Lat.	Long.
Minor Basin	
Basin Code	
Header Br.	GW-1 Br.

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

DRILLER REGISTRATION NUMBER: 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-20  
Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
(Road, Community, or Subdivision and Lot No.)

2. OWNER\*See address below  
ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town

State

Zip Code

3. DATE DRILLED 8/23/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH 12.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: 9.08 FT.

(Use "-" if Above Top of Casing)

8. TOP OF CASING IS 2.38 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	Depth	To	Diameter	Wall Thickness or Weight/Ft.	Material
<u>0</u>	<u>2.5</u>	<u>Ft.</u>	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

13. GROUT:

From	Depth	To	Material	Method
<u>.5</u>	<u>1.5</u>	<u>Ft.</u>	<u>Bentonite</u>	<u>Pour</u>

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

14. SCREEN:

From	Depth	To	Diameter	Slot Size	Material
<u>3.0</u>	<u>12.0</u>	<u>Ft.</u>	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

15. SAND/GRAVEL PACK:

From	Depth	To	Size	Material
<u>12.5</u>	<u>1.5</u>	<u>Ft.</u>	<u>Torpedo</u>	<u>Sand</u>

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

16. REMARKS: Concrete from 0 to 0.5'

**DEPTH**

From To

**DRILLING LOG**

Formation Description

See attached test

boring records

If additional space is needed use back of form

**LOCATION SKETCH**

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

See attached site location map

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

Attn: Code 1821, Mr. Truman Seamans

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

Richard A. Kell

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

2. OWNER \*see address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/23/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.0 D=27.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=8.50 FT. D=8.62'

(Use "\*" if Above Top of Casing)

8. TOP OF CASING IS S=2.47 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.0	Ft.	2"	SCH 40	PVC
0	24.5	Ft.	2"	SCH 40	PVC
From	To	Ft.			

13. GROUT:

From	To	Depth	Material	Method
1.0	2.0	Ft.	Bentonite	Pour
19.0	22.0	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
4.5	13.5	Ft.	2 in.	.010 in.	PVC
25.5	27.0	Ft.	2 in.	.010 in.	PVC
From	To	Ft.	in.	in.	

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.0	14.0	Ft.	Torpedo	Sand
22.0	28.5	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
		<u>See attached test boring records</u>

If additional space is needed use back of form

LOCATION SKETCH

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

See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Hall*

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
DATE	
TIME	
DRILLER	
PERMIT NO.	GW-1111

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-22

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_  
 (Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/28/91 USE OF WELL Monitoring

4. TOTAL DEPTH S=15.0' D=35.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: S=11.67 FT. D=11.85'  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.91 FT. Above Land Surface\* D=2.91'

\*Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

FLUORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>5.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>32.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>2.0</u> To <u>3.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>25.5</u> To <u>29.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From _____ To _____ Ft.	_____	_____

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>5.5</u> To <u>14.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>32.5</u> To <u>35.0</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>3.0</u> To <u>25.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>29.0</u> To <u>35.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From _____ To _____ Ft.	_____	_____

16. REMARKS: Concrete from 0 to 2.0'

DEPTH		DRILLING LOG
From	To	Formation Description
_____	_____	<u>See attached test boring records</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If additional space is needed use back of form

**LOCATION SKETCH**

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

See attached site location map

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well

D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

Richard A. Kell

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Lat	Long
Minor Basin	
Basin Code	
Header Ent.	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering  
 DRILLER REGISTRATION NUMBER: 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-23  
 Nearest Town: Jacksonville County: Onslow  
Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_  
 (Street or Route No.)  
 City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/27/91 USE OF WELL Monitoring  
 \*\*4. TOTAL DEPTH S=9.5\* D=20.0'  
 5. CUTTINGS COLLECTED YES  NO   
 6. DOES WELL REPLACE EXISTING WELL? YES  NO   
 \*\*7. STATIC WATER LEVEL Below Top of Casing: 5.50 FT. D=4.02

\* 3. TOP OF CASING IS 2.35 FT. Above Land Surface \*D=2.35  
 \*Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_  
 10. WATER ZONES (depth) N/A  
 CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	2.0	Ft.	2"	SCH 40	PVC
0	17.0	Ft.	2"	SCH 40	PVC
From	To	Ft.			

13. GROUT:

From	To	Depth	Material	Method
0.5	1.0	Ft.	Bentonite	Pour
10.0	13.0	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
2.5	9.5	Ft.	2 in.	.010 in.	PVC
17.5	20.0	Ft.	2 in.	.010 in.	PVC
From	To	Ft.	in.	in.	

5. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
1.0	10.0	Ft.	Torpedo	Sand
13.0	21.0	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0 to 0.5'

DEPTH		DRILLING LOG
From	To	Formation Description
		See attached test boring records

**LOCATION SKETCH**  
 (Show direction and distance from at least two State Roads, or other map reference points)  
 See attached site location map  
 \*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287  
 \*\*S=Shallow monitoring well  
 D=Deep monitoring well  
 Attn: Code 1821, Mr. Trueman Seamans

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

Richard A. Koll 10/14/91  
 SIGNATURE OF CONTRACTOR OR AGENT DATE





FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Lot	Fe
Minor Basin	
Basin Code	
Utility Encl.	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-25  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/29/91 USE OF WELL Monitoring

4. TOTAL DEPTH S=14.0 D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: S=7.65 FT. D=7.13  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.21 FT. Above Land Surface\* D=2.19

Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

11. CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>27.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>22.0</u> To <u>25.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>27.5</u> To <u>30.0</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>22.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>25.0</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 1.0'

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

*Richard A. Kott*

*12/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

**APPENDIX D**  
**WELL-CONSTRUCTION RECORDS AND**  
**GROUND-WATER MONITORING WELL INSTALLATION DETAILS**

FOR OFFICE USE ONLY		
QUAD NO.	SERIAL NO.	
Lat.	Long.	Co.
Minor Basin		
Basin Code		
Water Use		
GW-1 Erb		

**WELL CONSTRUCTION RECORD**

CONSULTING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-W1-0232

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Jacksonville County: Onslow MW-8

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See Address Below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/13/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.0' D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing S=8.24 FT. D=8.24'

(Use \* if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.35 FT. Above Land Surface\* D=2.50'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>20.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

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

See attached site location map.

\*\*S = Shallow monitoring well  
 D = Deep monitoring well

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23514-6287  
 Attn: Code 1821, Mr. Frueman Seamans

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>15.0</u> To <u>18.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>20.5</u> To <u>29.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>15.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>18.0</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Kell*

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	Major Basin _____
Water Use _____	GW Use _____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-9

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See Address Below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/16/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=13.0' D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=6.95 FT. D=6.99'

(Use \* if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.12 FT. Above Land Surface\*

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

11. CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

2. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>3.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>25.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>13.0</u> To <u>16.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.5</u> To <u>12.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>25.5</u> To <u>29.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>13.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>16.0</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

**LOCATION SKETCH**  
 (Show direction and distance from at least two State Roads, or other map reference points)  
 See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287  
 Attn: Code 1821, Mr. Truman Seamans

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

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

*Richard A. Kell*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY		
QUAD. NO. _____	SERIAL NO. _____	
Lat _____	Long _____	Pa _____
Minor Basin _____		
Basin Code _____		
Header Ent _____		

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

RILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-10

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.0 D=30.0

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=2.05 FT. D=6.38'

(Use "\*" if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.49 FT. Above Land Surface\* D=2.51'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

11. CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>25.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1</u> To <u>2</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>16</u> To <u>19</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\* Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287  
 Attn: Code 181, Mr. Trieman Seamans

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>25.5</u> To <u>29.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2</u> To <u>14</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>19</u> To <u>30</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Holt*

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

**FOR OFFICE USE ONLY**

QUAD NO. \_\_\_\_\_ SERIAL NO. \_\_\_\_\_

Minor Basin \_\_\_\_\_

Basin Code \_\_\_\_\_

Head \_\_\_\_\_

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

DRILLER REGISTRATION NUMBER: 332

STATE WELL CONSTRUCTION PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-11  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See Address Below

ADDRESS \_\_\_\_\_  
 (Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.0' D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=8.27 FT. D=8.60  
 (Use "\*" if Above Top of Casing)

\*\*8. TOP OF CASING IS S=2.51 FT. Above Land Surface\* D=2.59

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth) N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.0	Ft.	2"	SCH 40	PVC
0	25.0	Ft.	2"	SCH 40	PVC
From	To	Ft.			

13. GROUT:

From	To	Depth	Material	Method
1.0	2.0	Ft.	Bentonite	Pour
19.5	22.5	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
4.5	13.5	Ft.	2 in.	.010 in.	PVC
25.5	29.5	Ft.	2 in.	.010 in.	PVC
From	To	Ft.	in.	in.	

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.0	19.5	Ft.	Torpedo	Sand
22.5	30.0	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

DEPTH		DRILLING LOG
From	To	Formation Description
		See Attached Test boring records

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

See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Kell*

*8/14/91*

SIGNATURE OF CONTRACTOR OR AGENT DATE  
 Submit original to Division of Environmental Management and copy to well owner.

FOR OFFICE USE ONLY	
QUAD. NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	_____
Basin Code _____	_____
Header Ent. _____	_____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-12

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.5' D=28.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=9.58 FT. D=10.34'

(Use "+" if Above Top of Casing)

\* 8. TOP OF CASING IS S=2.72 FT. Above Land Surface\* D=2.75

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.5	Ft.	2"	SCH 40	PVC
0	23.5	Ft.	2"	SCH 40	PVC
_____	_____	Ft.	_____	_____	_____

13. GROUT:

From	To	Depth	Material	Method
2.0	3.0	Ft.	Bentonite	Pour
15.5	19.0	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
5.0	14.0	Ft.	2 in.	.010 in.	PVC
24.0	28.0	Ft.	2 in.	.010 in.	PVC
_____	_____	Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
3.0	14.5	Ft.	Torpedo	Sand
19.0	28.5	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

**LOCATION SKETCH**

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

See attached site location map

\*Commander

Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well

D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

Richard A. Kell

8/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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



FOR OFFICE USE ONLY		
QUAD. NO. _____	SERIAL NO. _____	
Lat. _____	Long. _____	Pa. _____
Minor Basin _____		
Basin Code _____		
Header Ent. _____		GW-1 Ent. _____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-13

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/19/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=15.0\* D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=9.83 FT. D=9.96

(Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.50 FT. Above Land Surface\* D=2.58'

\*Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

FLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	5.0	Ft.	2"	SCH 40	PVC
0	25.0	Ft.	2"	SCH 40	PVC
_____	_____	Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

From	To	Depth	Material	Method
2.0	3.0	Ft.	Bentonite	Pellets
18.5	22.5	Ft.	Bentonite	Pellets

\*Commander

Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
5.5	14.5	Ft.	2 in.	.010 in.	PVC
25.5	29.5	Ft.	2 in.	.010 in.	PVC
_____	_____	Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
3.0	18.5	Ft.	Torpedo	Sand
22.5	30.0	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Koltz*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY		
QUAD NO.	SERIAL NO.	
Lat.	Long.	Pa.
Minor Basin		
Basin Code		
Major Basin		GW-1

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-14

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.) \_\_\_\_\_

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/20/91 USE OF WELL Monitoring

4. TOTAL DEPTH S=13.0 D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: S=9.58 FT. D=9.51'

(Use "\*" if Above Top of Casing)

8. TOP OF CASING IS S=2.51 FT. Above Land Surface\* D=2.47'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>3.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>24.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>18.0</u> To <u>21.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.5</u> To <u>12.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>24.5</u> To <u>28.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well

D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>13.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>21.0</u> To <u>29.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Kelly*

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Lat. _____	Long. _____
Minor Basin _____	Basin Code _____
Hydro. _____	GW-1 Form

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-15  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/26/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.8 D=30.0

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=10.60FT. D=10.70  
 (Use \* if Above Top of Casing)

\*8. TOP OF CASING IS S=2.55 FT. Above Land Surface\* D=2.52'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.0	Ft.	2"	SCH 40	PVC
0	25.0	Ft.	2"	SCH 40	PVC
From _____	To _____	Ft. _____	_____	_____	_____

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

See attached site location map

13. GROUT:

From	To	Depth	Material	Method
1.5	2.5	Ft.	Bentonite	Pour
17.5	23.0	Ft.	Bentonite	Pour
From _____	To _____	Ft. _____	_____	_____

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
4.5	13.5	Ft.	2 in.	.010 in.	PVC
25.5	29.5	Ft.	2 in.	.010 in.	PVC
From _____	To _____	Ft. _____	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.5	17.5	Ft.	Torpedo	Sand
25.0	30.0	Ft.	Torpedo	Sand
From _____	To _____	Ft. _____	_____	_____

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Hall*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD. NO. _____	SERIAL NO. _____
Lot _____	Line _____
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: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-16

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/23/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=14.5' D=29.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=12.87 FT. D=12.92

(Use \* if Above Top of Casing)

\*\*8. TOP OF CASING IS S=2.62 FT. Above Land Surface\* D=2.58

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>24.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>17.5</u> To <u>20.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From _____ To _____ Ft.	_____	_____

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>5.0</u> To <u>14.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>24.0</u> To <u>28.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>17.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>20.0</u> To <u>24.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From _____ To _____ Ft.	_____	_____

16. REMARKS: Concrete from 0' to 1.0'

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

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

See attached site location map

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Kohn*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

**FOR OFFICE USE ONLY**

QUAD. NO. \_\_\_\_\_ SERIAL NO. \_\_\_\_\_

LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ PO. \_\_\_\_\_

Minor Basin \_\_\_\_\_

State Code \_\_\_\_\_

Section \_\_\_\_\_

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

DRILLER REGISTRATION NUMBER: 332

**STATE WELL CONSTRUCTION**

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-17  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/21/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=17.0' D=29.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=31.07 FT. D=10.92'  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.56 FT. Above Land Surface\* D=2.50'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>7.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>24.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>3.5</u> To <u>4.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>19.5</u> To <u>22.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>7.5</u> To <u>16.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>25.0</u> To <u>29.0</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>4.5</u> To <u>19.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>22.5</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 3.5'

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

*Richard A. Kelly*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY		
QUAD NO.	SERIAL NO.	
Lat. _____	Long. _____	Co. _____
Minor Basin _____	_____	
Basin Code _____	_____	
_____	GW-1 Ent.	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-18  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lpt No.)

2. OWNER \*see address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/21/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTHS=12.5' D=25.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: 7.96 FT. D=7.96'  
 (Use "\*" if Above Top of Casing)

8. TOP OF CASING IS S=2.64 FT. Above Land Surface\* D=2.62'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

11. CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>2.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>20.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>0.5</u> To <u>1.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>14.0</u> To <u>17.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.0</u> To <u>12.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>20.5</u> To <u>24.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well

D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>1.5</u> To <u>14.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>17.0</u> To <u>25.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 0.5'

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

*Richard A. Kell*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

FOR OFFICE USE ONLY	
QUAD NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	
Basin Code _____	
Header No. _____	

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-19

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/22/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.0' D=25.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=3.54 FT. D=3.02

(Use "S" if Above Top of Casing)

8. TOP OF CASING IS S=2.62 FT. Above Land Surface\* D=2.38'

\* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>22.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>17.0</u> To <u>20.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>22.5</u> To <u>24.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well

D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>15.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>20.0</u> To <u>25.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 1.0'

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

Richard A. Holt

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
Lat. _____	Long. _____
Minor Basin _____	
Basin Code _____	
Header Ent. _____	GW/Ent. _____

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

DRILLER REGISTRATION NUMBER: 332

**STATE WELL CONSTRUCTION**

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-20  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER\*See address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/23/93 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH 12.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: 9.98 FT.

(Use \* if Above Top of Casing)

\* 8. TOP OF CASING IS 2.38 FT. Above Land Surface\*

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>2.5</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>.5</u> To <u>1.5</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From _____ To _____ Ft.	_____	_____

\*Commander

Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>3.0</u> To <u>12.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____
From _____ To _____ Ft.	_____ in.	_____ in.	_____

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>12.5</u> To <u>1.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From _____ To _____ Ft.	_____	_____

16. REMARKS: Concrete from 0 to 0.5'

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

Richard A. Kell

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE



FOR OFFICE USE ONLY		
QUAD NO.	SERIAL NO.	
Lat.	Long.	Fe.
Minor Basin		

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

STATE WELL CONSTRUCTION PERMIT NUMBER: 66-0237-WM-0232

DRILLER REGISTRATION NUMBER: 332

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

2. OWNER \*see address below

ADDRESS \_\_\_\_\_  
 (Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/23/91 USE OF WELL Monitoring

\*\* 4. TOTAL DEPTH S=14.0 D=27.5'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\* 7. STATIC WATER LEVEL Below Top of Casing: S=8.50 FT. D=8.62'  
 (Use "\*" if Above Top of Casing)

8. TOP OF CASING IS S=2.47 FT. Above Land Surface\*

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	4.0	Ft.	2"	SCH 40	PVC
0	24.5	Ft.	2"	SCH 40	PVC
_____	_____	Ft.	_____	_____	_____

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

See attached site location map

13. GROUT:

From	To	Depth	Material	Method
1.0	2.0	Ft.	Bentonite	Pour
19.0	22.0	Ft.	Bentonite	Pour

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
4.5	13.5	Ft.	2 in.	.010 in.	PVC
25.5	27.0	Ft.	2 in.	.010 in.	PVC
_____	_____	Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
2.0	14.0	Ft.	Torpedo	Sand
22.0	28.5	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0' to 1.0'

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

*Richard A. Kott*

10/14/91

FOR OFFICE USE ONLY	
QUAD NO.	SERIAL NO.
DATE	TIME
DRILLER	DRILLER
DRILLER	DRILLER

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-22

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Form  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/28/91 USE OF WELL Monitoring

4. TOTAL DEPTH S=15.0' D=35.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: S=11.67 FT. D=11.85'  
 (Use "\*" if Above Top of Casing)

8. TOP OF CASING IS S=2.91 FT. Above Land Surface\* D=2.91'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

CHLORINATION: Type N/A Amount \_\_\_\_\_

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>5.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>32.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

13. GROUT:

Depth	Material	Method
From <u>2.0</u> To <u>3.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>25.5</u> To <u>29.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>5.5</u> To <u>14.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>32.5</u> To <u>35.0</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>3.0</u> To <u>25.5</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>29.0</u> To <u>35.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 2.0'

DEPTH		DRILLING LOG
From	To	Formation Description
_____	_____	<u>See attached test boring records</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If additional space is needed use back of form

**LOCATION SKETCH**

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

See attached site location map

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6207

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

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

*Richard A. Kell*

10/14/91

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

FOR OFFICE USE ONLY	
WELL NO.	SERIAL NO.
Lat.	Lo.
Minor Basin	
Basin Code	
Health Eff.	GW-1

**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-23

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

3. DATE DRILLED 8/27/91 USE OF WELL Monitoring

\*\*4. TOTAL DEPTH S=9.5' D=20.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

\*\*7. STATIC WATER LEVEL Below Top of Casing: S=5.50 FT. D=4.02  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.35 FT. Above Land Surface \*D=2.35'

\* Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth) N/A

11. CHLORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From <u>0</u> To <u>2.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>17.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>0.5</u> To <u>1.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>10.0</u> To <u>13.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander  
 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>2.5</u> To <u>9.5</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From <u>17.5</u> To <u>20.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>1.0</u> To <u>10.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>13.0</u> To <u>21.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 0.5'

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

*Richard A. Koll*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

FOR OFFICE USE ONLY	
QUAD. NO. _____	SERIAL NO. _____
Lat. _____	Long. _____
Minor Basin _____	Basin Code _____
Water Use _____	GW/PA _____

**WELL CONSTRUCTION RECORD**

INSTALLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-24

Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm

(Road, Community, or Subdivision and Lot No.)

2. OWNER \*see address below

ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

3. DATE DRILLED 8/28/91 USE OF WELL Monitoring

4. TOTAL DEPTH S=18.0' D=29.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: S=2.96 FT. D=12.12'  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.20' FT. Above Land Surface\* D=2.38'

Casing Terminated at/or below land surface is illegal unless a variance is issued  
 in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

11. FLOUORINATION: Type N/A Amount \_\_\_\_\_

2. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
0	8.0	Ft.	2"	SCH 40	PVC
0	26.0	Ft.	2"	SCH 40	PVC
_____	_____	Ft.	_____	_____	_____

3. GROUT:

From	To	Depth	Material	Method
0	3.0	Ft.	Bentonite	Pour
20.0	23.0	Ft.	Bentonite	Pour

14. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
8.5	17.5	Ft.	2 in.	.010 in.	PVC
26.5	29.0	Ft.	2 in.	.010 in.	PVC
_____	_____	Ft.	_____ in.	_____ in.	_____

5. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
4.0	20.0	Ft.	Torpedo	Sand
23.0	29.0	Ft.	Torpedo	Sand

16. REMARKS: Concrete from 0 to 3.0'

DEPTH		DRILLING LOG
From	To	Formation Description
_____	_____	See attached test boring records
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If additional space is needed use back of form

**LOCATION SKETCH**

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

See attached site location map

\*Commander

Atlantic Division

Naval Facilities Engineering Command

Norfolk, Virginia 23511-6287

\*\*S=Shallow monitoring well

D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

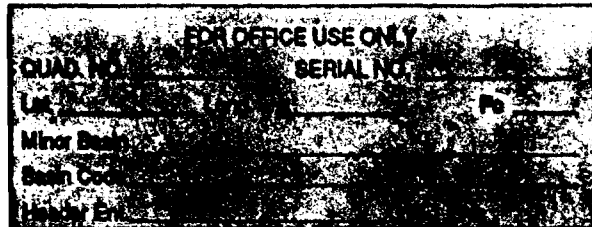
I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

*Ri'char A. Kolt*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE



**WELL CONSTRUCTION RECORD**

DRILLING CONTRACTOR: Law Engineering

**STATE WELL CONSTRUCTION**

DRILLER REGISTRATION NUMBER: 332

PERMIT NUMBER: 66-0237-WM-0232

1. WELL LOCATION: (Show sketch of the location below) MW-25  
 Nearest Town: Jacksonville County: Onslow

Camp Geiger Fuel Farm  
 (Road, Community, or Subdivision and Lot No.)

2. OWNER \*See address below  
 ADDRESS \_\_\_\_\_

(Street or Route No.)

City or Town

State

Zip Code

3. DATE DRILLED 8/29/91 USE OF WELL Monitoring

4. TOTAL DEPTH S=14.0 D=30.0'

5. CUTTINGS COLLECTED YES  NO

6. DOES WELL REPLACE EXISTING WELL? YES  NO

7. STATIC WATER LEVEL Below Top of Casing: S=7.65 FT. D=7.13  
 (Use \* if Above Top of Casing)

8. TOP OF CASING IS S=2.21 FT. Above Land Surface D=2.19

Casing Terminated at or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118

9. YIELD (gpm): N/A METHOD OF TEST \_\_\_\_\_

10. WATER ZONES (depth): N/A

FLUORINATION: Type N/A Amount \_\_\_\_\_

If additional space is needed use back of form

12. CASING:

Depth	Diameter	Wall Thickness or Weight/FL	Material
From <u>0</u> To <u>4.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From <u>0</u> To <u>27.0</u> Ft.	<u>2"</u>	<u>SCH 40</u>	<u>PVC</u>
From _____ To _____ Ft.	_____	_____	_____

**LOCATION SKETCH**

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

See attached site location map

13. GROUT:

Depth	Material	Method
From <u>1.0</u> To <u>2.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>
From <u>22.0</u> To <u>25.0</u> Ft.	<u>Bentonite</u>	<u>Pour</u>

\*Commander

Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511-6287

14. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>4.5</u> To <u>13.5</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From <u>27.5</u> To <u>30.0</u> Ft.	<u>2 in.</u>	<u>.010 in.</u>	<u>PVC</u>
From _____ To _____ Ft.	_____ in.	_____ in.	_____

\*\*S=Shallow monitoring well  
 D=Deep monitoring well

Attn: Code 1821, Mr. Trueman Seamans

15. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>2.0</u> To <u>22.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>
From <u>25.0</u> To <u>30.0</u> Ft.	<u>Torpedo</u>	<u>Sand</u>

16. REMARKS: Concrete from 0 to 1.0'

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

*Richard A. Kell*

*10/14/91*

SIGNATURE OF CONTRACTOR OR AGENT

DATE

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

**APPENDIX E**  
**MONITORING WELL CASING AND**  
**WATER-ELEVATION WORKSHEETS**

LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT

MONITORING WELL CASING AND WATER ELEVATION WORKSHEET

PROJECT NAME Camp Geiger Fuel Farm

JOB NUMBER J47590-6014

LOCATION Camp Lejeune, North Carolina

DATE 9/3/91

SURVEY DATUM Mean Sea Level

FIELD PERSONNEL Cornelissen

MEASURING DEVICE MMC Oil-Water Interface Probe Model D-2401-2UI

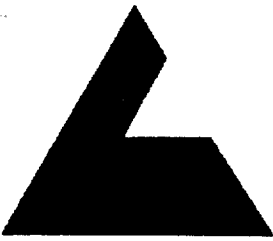
WELL NUMBER	MEASURING POINT CALCULATIONS			DEPTH TO WATER (FT)	ELEV OF WATER (FT)	PRODUCT THICKNESS (FT)	COMMENTS (ODOR, WELL COND., PROTECTIVE COVER CONDITION)
	ROD HEIGHT (FT)	INSTR. HT. (FT)	ELEV OF CASING (FT)				
EMW-1	*	*	19.16	7.50	11.66	**	***
EMW-2	*	*	6.11	1.63	4.48	**	***
MW-3	*	*	7.00	2.44	4.56	**	***
EMW-4	*	*	5.56	2.54	3.02	**	***
EMW-5	*	*	17.98	8.11	9.87	**	***
EMW-6	*	*	15.97	12.12	3.85	**	***
EMW-7	*	*	18.49	9.12	9.37	**	***
MW-8S	*	*	19.02	8.24	10.78	**	***
MW-8D	*	*	19.17	8.24	10.93	**	***
MW-9S	*	*	19.09	6.95	12.14	**	***
MW-9D	*	*	19.05	6.99	12.06	**	***
MW-10S	*	*	18.57	7.05	11.52	**	***
MW-10D	*	*	18.59	6.78	11.81	**	***
MW-11S	*	*	18.31	8.27	10.04	**	***
MW-11D	*	*	18.39	8.60	9.79	**	***
MW-12S	*	*	20.08	9.58	10.50	**	***
MW-12D	*	*	20.11	10.36	9.75	**	***
MW-13S	*	*	16.87	9.83	7.04	**	***

Notes:

\* Data not provided by surveyors.

None detected; interface probe capable of detecting  $\geq 0.01$  feet of free product.

\* Wellhead not completed when depth to water measurements were taken 9/3/91.



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT

MONITORING WELL CASING AND WATER ELEVATION WORKSHEET

PROJECT NAME Camp Geiger Fuel Farm JOB NUMBER J47590-6014

LOCATION Camp Lejeune, North Carolina DATE 9/3/91

SURVEY DATUM Mean Sea Level FIELD PERSONNEL Cornelissen

MEASURING DEVICE MMC Oil-Water Interface Probe Model D-2401-2UI

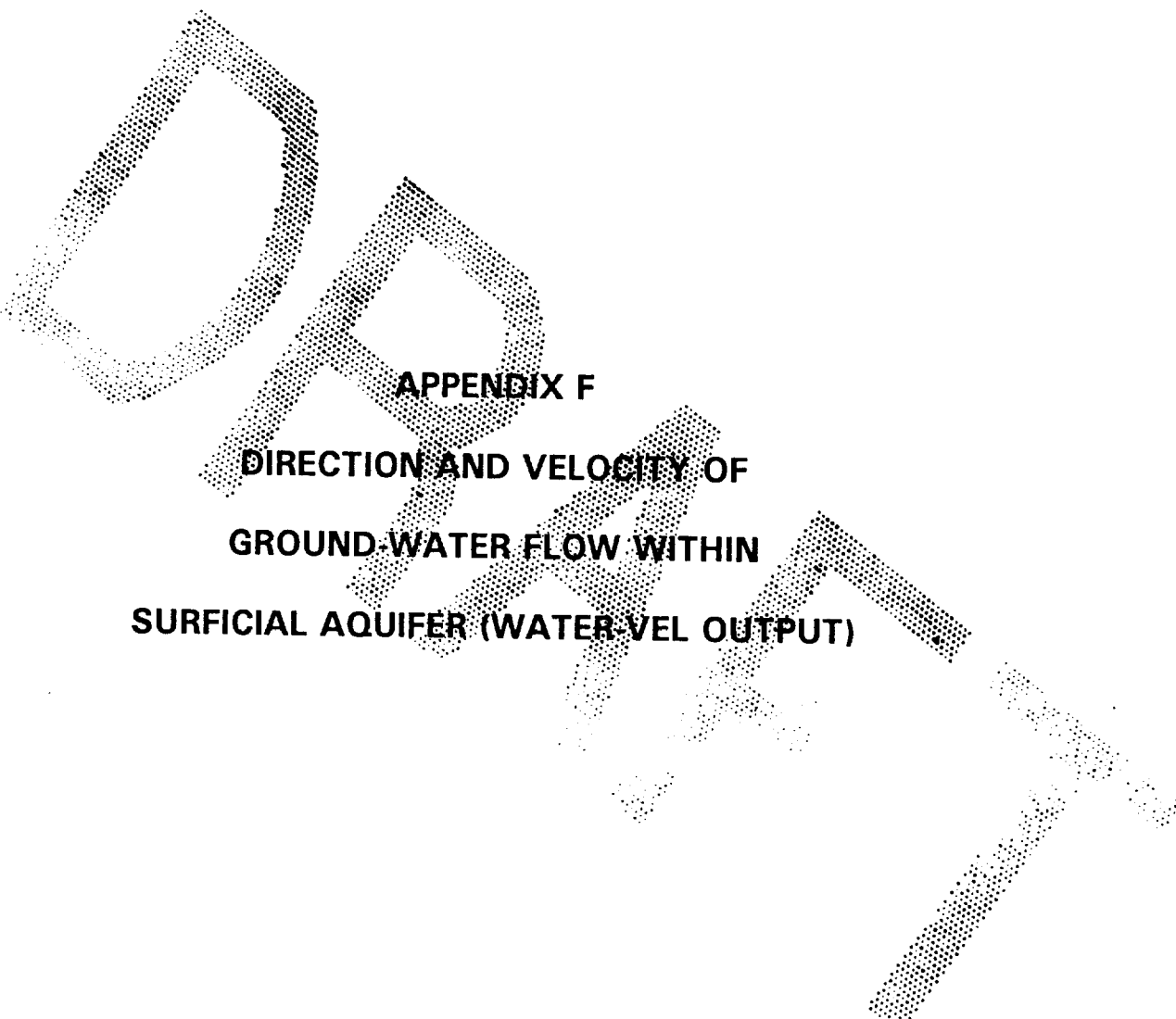
WELL NUMBER	MEASURING POINT CALCULATIONS			DEPTH TO WATER (FT)	ELEV OF WATER (FT)	PRODUCT THICKNESS (FT)	COMMENTS (ODOR, WELL COND., PROTECTIVE COVER CONDITION)
	ROD HEIGHT (FT)	INSTR. HT (FT)	ELEV OF CASING (FT)				
MW-13D	*	*	16.95	8.98	6.99	**	***
MW-14S	*	*	17.32	9.58	7.74	**	***
I-14D	*	*	17.28	9.51	7.77	**	***
MW-15S	*	*	18.08	10.60	7.48	**	***
MW-15D	*	*	18.05	10.78	7.35	**	***
MW-16S	*	*	19.55	12.87	6.68	**	***
MW-16D	*	*	19.51	12.92	6.59	**	***
MW-17S	*	*	16.31	11.07	5.24	**	***
MW-17D	*	*	16.25	10.92	5.33	**	***
MW-18S	*	*	13.42	7.96	5.46	**	***
MW-18D	*	*	13.40	7.96	5.44	**	***
MW-19S	*	*	8.24	3.54	4.70	**	***
MW-19D	*	*	8.20	3.02	5.18	**	***
MW-20S	*	*	15.97	9.08	6.89	**	***
MW-21S	*	*	17.65	8.50	9.15	**	***
MW-21D	*	*	17.74	8.62	9.12	**	***
MW-22S	*	*	19.18	11.67	7.51	**	***
MW-22D	*	*	19.18	11.85	7.33	**	***

Notes:

- \* Data not provided by surveyors.
- one detected; interface probe capable of detecting  $\geq 0.01$  feet of free product.
- Wellhead not completed when depth to water measurements were taken 9/3/91.







**APPENDIX F**  
**DIRECTION AND VELOCITY OF**  
**GROUND-WATER FLOW WITHIN**  
**SURFICIAL AQUIFER (WATER-VEL OUTPUT)**

In-Situ Inc. Groundwater Velocity Program (V2.2)

---

Camp Geiger

Output file is : j6014a.out  
 Input file is : j6014.a

Isotropic hydraulic cond. = 28.35 ft/d  
 Effective porosity = 15.00 %

Least squares match to groundwater table:

N	X(ft)	Y(ft)	Meas. head (ft)	Calc. head (ft)
1	1119.50	734.50	10.78	10.33
2	947.50	596.40	12.14	12.18
3	923.80	402.10	11.52	13.01
4	1219.00	865.90	9.79	9.09
5	1210.90	998.20	10.50	8.72
6	1364.60	1126.50	7.84	7.05
7	1349.60	631.40	7.74	8.80
8	1462.60	606.80	7.48	7.96
9	1618.90	646.60	6.68	6.56
10	1613.40	878.00	5.24	5.85
11	1728.00	764.30	5.46	5.29
12	1883.60	583.90	4.70	4.62
13	1396.40	965.00	6.89	7.32
14	1280.20	799.90	9.15	8.81
15	1556.90	519.70	7.51	7.48
16	1653.10	1026.40	2.72	5.04
17	1547.00	702.20	10.58	6.96
18	1479.60	1026.00	5.60	6.45

Calc. Head (ft) =  $-8.125E-03*X - 3.284E-03*Y + 2.184E+01$

Natural groundwater flow = 1.66E+00 ft/day ( 6.05E+02 ft/yr )  
 at 22.01 deg to the positive X-axis

WATER-VEL COMPLETED.

In-Situ Inc. Groundwater Velocity Program (V2.2)

---

Camp Geiger

Output file is : j6014a.out  
 Input file is : j6014.a

Isotropic hydraulic cond. = 28.35 ft/d  
 Effective porosity = 20.00 %

Least squares match to groundwater table:

N	X(ft)	Y(ft)	Meas. head (ft)	Calc. head (ft)
1	1119.50	734.50	10.78	10.33
2	947.50	896.40	12.14	12.18
3	923.80	402.10	11.52	13.01
4	1219.00	865.90	9.79	9.09
5	1210.90	998.20	10.50	8.72
6	1364.60	1126.50	7.04	7.05
7	1349.60	631.40	7.74	8.80
8	1462.60	606.80	7.48	7.96
9	1618.90	646.60	6.68	6.56
10	1613.40	878.00	5.24	5.85
11	1728.00	764.30	5.46	5.29
12	1883.60	583.90	4.70	4.62
13	1396.40	965.00	6.89	7.32
14	1280.20	799.90	9.15	8.81
15	1556.90	519.70	7.51	7.48
16	1653.10	1026.40	2.72	5.04
17	1547.00	702.20	10.58	6.96
18	1479.60	1026.00	5.60	6.45

$$\text{Calc. Head (ft)} = -8.125\text{E-}03\text{*X} - 3.284\text{E-}03\text{*Y} + 2.184\text{E+}01$$

Natural groundwater flow = 1.24E+00 ft/day ( 4.53E+02 ft/yr )  
 at 22.01 deg to the positive X-axis

WATER-VEL COMPLETED.

In-Situ Inc. Groundwater Velocity Program (V2.2)

---

Camp Geiger

Output file is : j6014a.out  
 Input file is : j6014.a

Isotropic hydraulic cond. = 28.35 ft/d  
 Effective porosity = 25.00 %

Least squares match to groundwater table:

N	X(ft)	Y(ft)	Meas. head (ft)	Calc. head (ft)
1	1119.50	734.50	10.78	10.33
2	947.50	596.40	12.14	12.18
3	923.80	402.10	11.52	13.01
4	1219.00	865.90	9.79	9.09
5	1210.90	998.20	10.50	8.72
6	1364.60	1126.50	7.04	7.05
7	1349.60	631.40	7.74	8.80
8	1462.60	606.80	7.48	7.96
9	1618.90	646.60	6.68	6.56
10	1613.40	878.00	5.24	5.85
11	1728.00	764.30	5.46	5.29
12	1883.60	583.90	4.70	4.62
13	1396.40	965.00	6.89	7.32
14	1280.20	799.90	9.15	8.81
15	1556.90	519.70	7.51	7.48
16	1653.10	1026.40	2.72	5.04
17	1547.00	702.20	10.58	6.96
18	1479.60	1026.00	5.60	6.45

Calc. Head (ft) =  $-8.125E-03 * X - 3.284E-03 * Y + 2.184E+01$

Natural groundwater flow = 9.94E-01 ft/day ( 3.63E+02 ft/yr )  
 at 22.01 deg to the positive X-axis

WATER-VEL COMPLETED.

DRAFT

**APPENDIX G**

**RESULTS OF TRACER TIGHT LEAK TESTING**



**PREPARED FOR:**

**Law Engineering  
3301 Atlantis Ave.  
Raleigh, North Carolina 27604  
(919) 876-0416**

**DRAFT**

**Tracer Tight™ LEAK TEST  
OF  
400 FEET UNDERGROUND PIPELINES  
CAMP GEIGER**

**JACKSONVILLE, NORTH CAROLINA**

**AUGUST 1991**

**SUBMITTED BY:**

  
**TRACER RESEARCH CORPORATION**

**GEIG425.REP  
2-91-425-T**



**TABLE OF CONTENTS**

**INTRODUCTION** ..... 1

**CONCEPT OF OPERATION AND IMPLEMENTATION** ..... 1

**CRITERIA FOR CLASSIFICATION OF LEAKAGE** ..... 1

**TESTING RESULTS** ..... 2

**CERTIFICATION** ..... 3

**APPENDIX A: ANALYTICAL DATA** ..... 7

**APPENDIX B: FIGURES** ..... 9

DRAFT





## **INTRODUCTION**

Tracer Research Corporation (TRC) performed Tracer Tight™ leak testing on approximately 400 linear feet of underground pipeline from four above ground storage tanks at Camp Geiger located in Jacksonville, North Carolina. Tracer was added to the tanks in early August 1991 and testing was conducted August 19, 1991.

## **CONCEPT OF OPERATION AND IMPLEMENTATION**

The tracer leak detection method relies upon the addition of a highly volatile liquid chemical tracer to the fuel in the fuel system. If a leak occurs in the underground fuel system, fuel is released into the surrounding soil. The tracer escapes from the fuel by vaporization and disperses into the soil by molecular diffusion. Various means are used to sample the soil vapors in the immediate vicinity of the underground tanks and pipes. In this case, sampling was performed by driving probes into the ground in the vicinity of the pipes. Each probe has an effective detection radius of approximately 10 to 12 feet. This means that a given probe should detect a leak anywhere within the area described by the 10 foot radius around the probe. The tracer is placed in the fuel system at least two weeks prior to the probe sampling for this method to be effective. This process of leak detection by placing a liquid tracer in a liquid product followed by detection of the tracer underground in the vapor phase is protected under TRC patents.

## **CRITERIA FOR CLASSIFICATION OF LEAKAGE**

The following criteria are used for the classification of leakage when tracer is detected.

**Pass** - Leak rate less than 0.05 gallons per hour.

### Tracer

less than 0.1 ug/L

less than 1.0 ug/L  
but greater than 0.1 ug/L

### Depth below grade

At 5-6 feet

If concentration decreases with an increase in depth.



**FAIL** - Leak rate equal to or greater than 0.05 gallons per hour.

<u>Tracer</u>	<u>Depth below grade</u>
greater than or equal to 1.0 ug/L	At any depth
greater than or equal to 0.1 ug/L but less than 1.0 ug/L	If concentration sustains or increases with an increase in depth.*

\* Sustaining concentrations are those concentrations that are within 50% of the concentration detected at the shallow depth.

**TESTING RESULTS**

Testing was performed on the following underground fuel line:

<u>Fuel Line</u>	<u>Length of pipeline (ft)</u>	<u>Product</u>	<u>Tracer</u>
Fuel Oil Storage	400	Fuel Oil	114B2

The final concentration of tracer in each tank was approximately 10 ppm.

Samples were collected from sampling locations placed in the vicinity of the piping. Samples were collected at depths of 1.5 feet below grade. The samples were analyzed for BCF, DDM, 114B2, and total volatile hydrocarbons (TVHC). The analytical data is reported in Appendix A. Appendix B includes Figure 1 which shows the map view of the tanks and the pipelines as well as the position of sampling locations.

**Camp Geiger Fuel Oil Storage (Figure 1)**

No tracer (DDM and 114B2) was detected in any of the samples collected near the piping in the fuel oil storage area. This data indicates that the pipelines pass with a leak rate of less than 0.05 gallons per hour. The total volatile hydrocarbon (TVHC) concentrations in samples collected at this site ranged from non-detect (<0.1 ug/L) to 33,000 ug/L at sampling location 5 (Figure 2). The TVHC detected at this site could be evidence of spillage or past releases of fuel.



**CERTIFICATION**

2-91-425-T

Location: **Camp Geiger**  
**Jacksonville, North Carolina**

Date: August 19, 1991

<u>Fuel Line</u>	<u>Length of pipeline (ft)</u>	<u>Product</u>	<u>Tracer</u>	<u>Pass/Fail</u>
Fuel Oil Storage	400	Fuel Oil	114B2	Pass

Tracer Research Corporation certifies that the tank and pipe systems listed in the above table have been tested by means of Tracer Tight™, which meets the criteria set forth in NFPA 329 for a precision leak test. According to EPA standard test procedures for evaluating leak detection methods, the Tracer Tight™ method is capable of detecting leaks of 0.05 gallons per hour with a Probability of Detection ( $P_D$ ) of 0.97 and Probability of False Alarm ( $P_{FA}$ ) of 0.029.

Submitted by:

*Pete Belvo*  
 Tracer Research Corporation

The classification of leakage is based on the concentration of tracer detected. Measurement of hydrocarbons outside of the tank is provided for the benefit of the tank owner.

**Pass** - Leak rate less than 0.05 gallons per hour.

Criteria: <u>Tracer</u>	<u>Depth below grade</u>
less than 0.1 ug/L	At 5-6 feet
less than 1.0 ug/L but greater than 0.1 ug/L	If concentration decreases with an increase in depth.

**FAIL** - Leak rate equal to or greater than 0.05 gallons per hour.

Criteria: <u>Tracer</u>	<u>Depth below grade</u>
greater than or equal to 1.0 ug/L	At any depth
greater than or equal to 0.1 ug/L but less than 1.0 ug/L	If concentration sustains or increases with an increase in depth.*

\* Sustaining concentrations are those concentrations which are within 50% of the concentration detected at the shallow depth.



Results of U.S. EPA Standard Evaluation  
Nonvolumetric Tank Tightness Testing Method

This form tells whether the tank tightness testing method described below complies with the performance requirements of the federal underground storage tank regulation. The evaluation was conducted by the equipment manufacturer or a consultant to the manufacturer according to the U.S. EPA's "Standard Test Procedure for Evaluating Leak Detection Methods: Nonvolumetric Tank Tightness Testing Methods." The full evaluation report also includes a form describing the method and a form summarizing the test data.

Tank owners using this leak detection system should keep this form on file to prove compliance with the federal regulations. Tank owners should check with State and local agencies to make sure this form satisfies their requirements.

**Method Description**

Name: Tracer Research Corporation  
Vendor: Tracer Research Corporation  
3855 North Business Center Drive  
(street address)  
Tucson Arizona 85705 (602) 888-9400  
(city) (state) (zip) (phone)

**Evaluation Results**

This method, which declares a tank to be leaking when a threshold amount of Tracer chemical is detected as a vapor in the soil outside the tank, has an estimated probability of false alarms [P(FA)] of 2.9 % based on the test results of 1 false alarms out of 34 tests. A 95% confidence interval for P(FA) is from 0 to 8.5 %.

The corresponding probability of detection [P(D)] of a 0.005 gallon per hour leak is 97.1 % based on the test results of 33 detections out of 34 simulated leak tests. A 95% confidence interval for P(D) is from 91.5 to 100 %.

Does this method use additional modes of leak detection?  Yes  No  
If Yes, complete additional evaluation results on page 3 of this form.

Based on the results above, and on page 3 if applicable, this method  does  does not meet the federal performance standards established by the U.S. Environmental Protection Agency (0.10 gallon per hour at P(D) of 95% and P(FA) of 5%).

**Test Conditions During Evaluation**

The evaluation testing was conducted in a varying size gallon  steel  fiberglass tank that was \_\_\_\_\_ inches in diameter and \_\_\_\_\_ inches long, installed in \_\_\_\_\_ backfill.

The ground-water level was varying inches above the bottom of the tank.



Nonvolumetric TTT Method Tracer Tight (TM)  
Version \_\_\_\_\_

### Test Conditions During Evaluation (continued)

The tests were conducted with the tank varying percent full.

The temperature difference between product added to fill the tank and product already in the tank ranged from N/A °F to N/A °F, with a standard deviation of N/A °F.

The product used in the evaluation was varying gasoline, diesel, jet fuel and heating oil.

This method may be affected by other sources of interference. List these interferences below and give the ranges of conditions under which the evaluation was done. (Check None if not applicable.)

None

**Interferences**

**Range of Test Conditions**

Interferences	Range of Test Conditions
_____	_____
_____	_____
_____	_____

### Limitations on the Results

- \* The performance has not been substantially changed.
- \* The vendor's instructions for using the method are followed.
- \* The tank contains a product identified on the method description form.
- \* The tank capacity is \_\_\_ gallons or smaller.
- \* The difference between added and in-tank product temperatures is no greater than + or - \_\_\_\_\_ degrees Fahrenheit.

Check if applicable:

Temperature is not a factor because Tracer detection outside of tank does not depend on fuel temperature inside tank. Temperature does not affect the amount of Tracer released.

- \* The waiting time between the end of filling the test tank and the start of the test data collection is at least \_\_\_ hours.
- \* The waiting time between the end of "topping off" to final testing level and the start of the test data collection is at least <x hours.
- \* The total data collection time for the test is at least \_\_\_ hours.
- \* The product volume in the tank during testing is 0-100 % full.
- \* This method  can  cannot be used if the ground-water level is above the bottom of the tank.

Other limitations specified by the vendor or determined during testing:

1. After Tracer chemical is added, you must wait at least 14 days to collect samples from vapor probes.
2. Alternative approaches must be used if top of tank is under water. These approaches are available through Tracer Research Corp.



Nonvolumetric TTT Method Tracer Tight (TM)  
Version \_\_\_\_\_

> **Safety Disclaimer:** This test procedure only addresses the issue of the method's ability to detect leaks. It does not test the equipment for safety hazards.

### Additional Evaluation Results (if applicable)

This method, which declares a tank to be leaking when \_\_\_\_\_ has an estimated probability of false alarms [P(FA)] of \_\_\_\_\_ % based on the test results of \_\_\_\_\_ false alarms out of \_\_\_\_\_ tests. Note: A perfect score during testing does not mean that the method is perfect. Based on the observed results, a 95% confidence interval for P(FA) is from 0 to \_\_\_\_\_ %.

The corresponding probability of detection [P(D)] of a \_\_\_\_\_ gallon per hour leak is \_\_\_\_\_ % based on the test results of \_\_\_\_\_ detections out of \_\_\_\_\_ simulated leak tests. Note: A perfect score during testing does not mean that the method is perfect. Based on the observed results, a 95% confidence interval for P(D) is from 0 to \_\_\_\_\_ %.

> **Water detection mode (if applicable)**

Using a false alarm rate of 5%, the *minimum water level* that the water sensor can detect with a 95% probability of detection is N/A inches.

Using a false alarm rate of 5%, the *minimum change in water level* that the water sensor can detect with a 95% probability of detection is N/A inches.

Based on the minimum water level and change in water level that the water sensor can detect with a false alarm rate of 5% and a 95% probability of detection, the *minimum time* for the system to detect an increase in water level at an incursion rate of 0.10 gallon per hour is N/A minutes in a N/A - gallon tank.

### Certification of Results

I certify that the nonvolumetric tank tightness testing method was installed and operated according to the vendor's instruction. I also certify that the evaluation was performed according to the standard EPA test procedure to nonvolumetric tank tightness testing methods and that the results presented above are those obtained during the evaluation.

H. Kendall Wilcox  
(printed name)

Ken Wilcox Associates  
(organization performing evaluation)

H. Kendall Wilcox  
(signature)

Blue Springs, Missouri 64015  
(city, state, zip)

October 4, 1990  
(date)

(816) 229-0860  
(phone number)



DRAFT

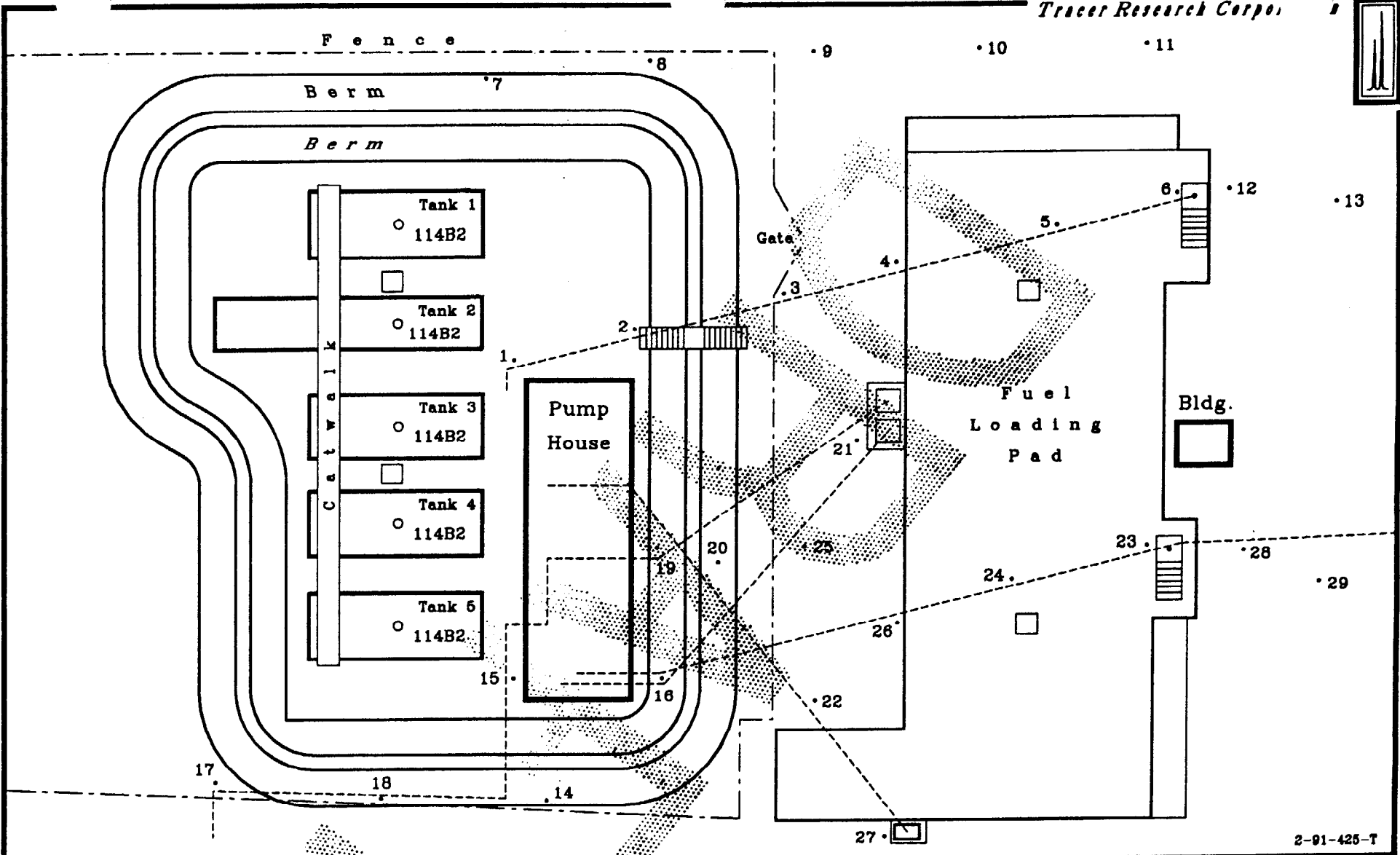
**APPENDIX A: ANALYTICAL DATA**

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DRP  
APPENDIX B: FIGURES  
F

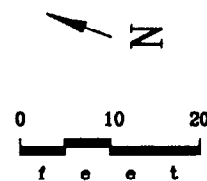




2-91-425-T

EXPLANATION

- 1 Sampling Probe Location
- Approximate Pipeline Location

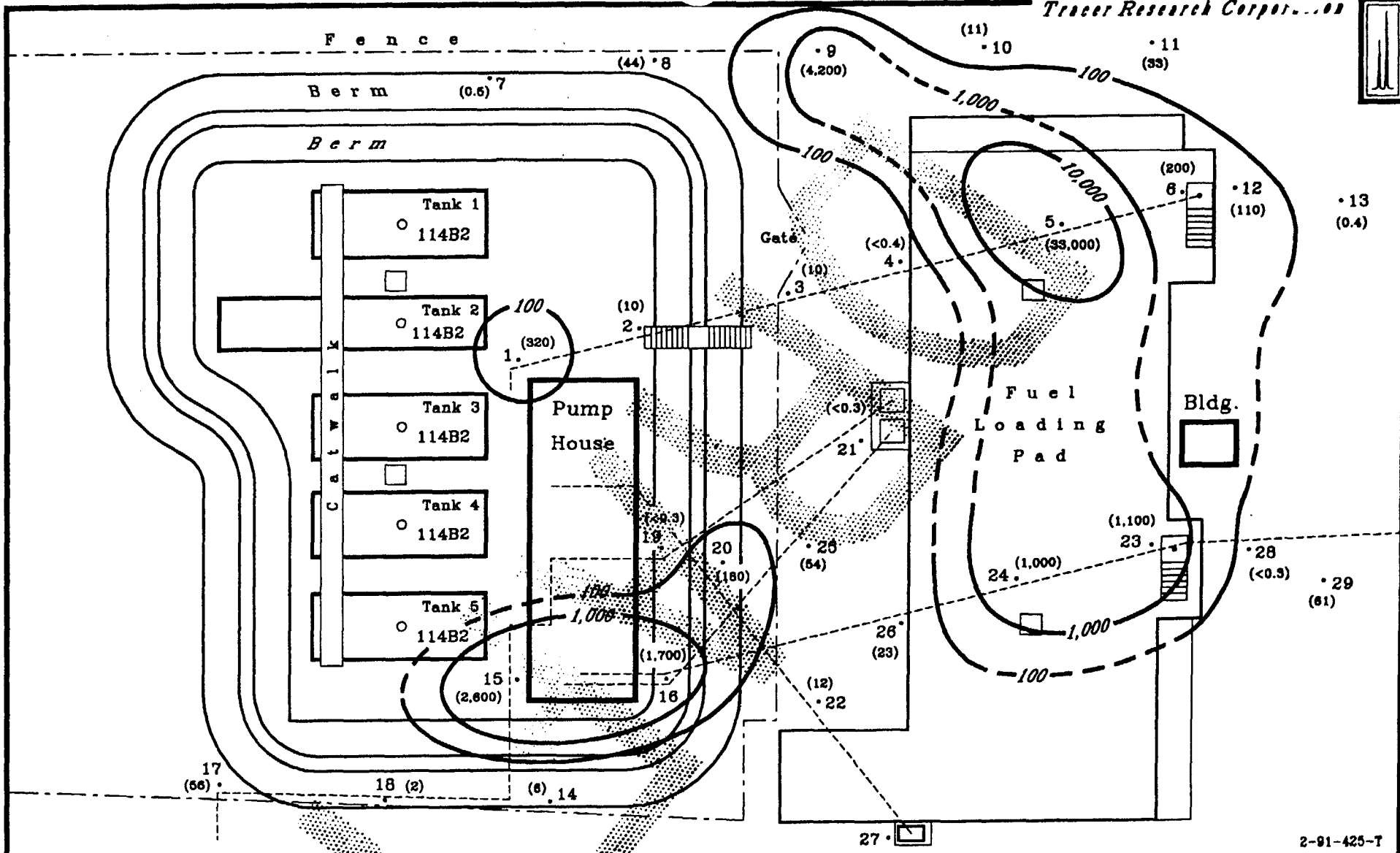


CAMP GEIGER

JACKSONVILLE, NORTH CAROLINA

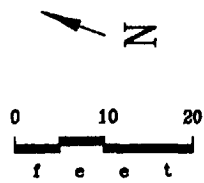
SAMPLING LOCATIONS

Figure 1



EXPLANATION

- 1 Sampling Probe Location
- Approximate Pipeline Location
- (320) Soil Gas Sample Value (µg/l)
- ~100~ Isoconcentration Line (µg/l)



CAMP GEIGER  
 JACKSONVILLE, NORTH CAROLINA  
 T V H C

Figure 2

2-91-425-T

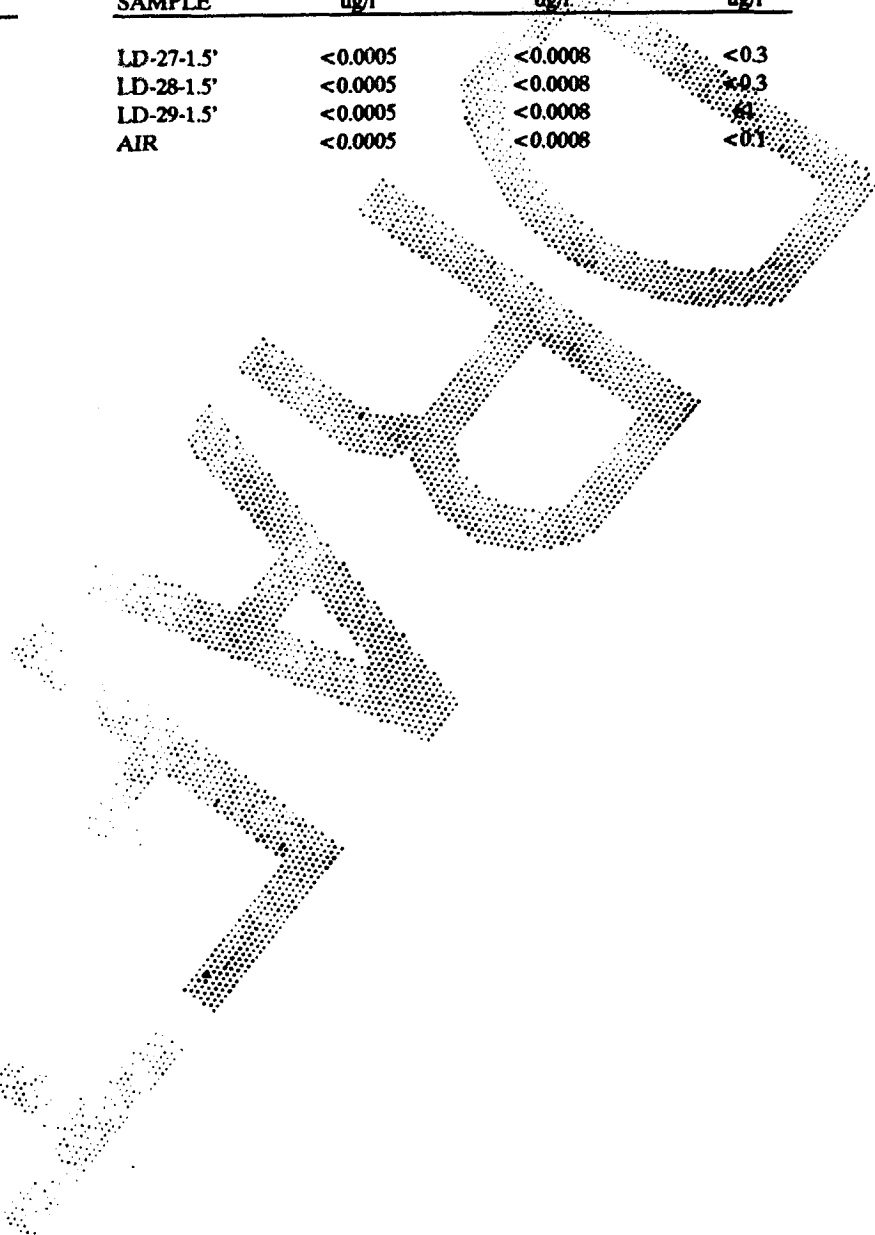
LAW ENGINEERING/CAMP GEIGER/JACKSONVILLE NORTH CAROLINA/JOB #2-91-425-T

08/19/91

CONDENSED DATA

SAMPLE	DDM ug/l	114B2 ug/l	TVHC ug/l
AIR	<0.0005	<0.0008	<0.1
LD-1-1.5'	<0.0005	<0.0008	320
LD-2-1.5'	<0.0005	<0.0008	10
LD-3-1.5'	<0.0005	<0.0008	10
LD-4-1.5'	<0.0005	<0.0008	<0.4
LD-7-1.5'	<0.0005	<0.0008	0.5
LD-8-1.5'	<0.0005	<0.0008	44
LD-9-1.5'	<0.0005	<0.0008	4200
LD-10-1.5'	<0.0005	<0.0008	11
LD-1-1-1.5'	<0.0005	<0.0008	33
LD-12-1.5'	<0.0005	<0.0008	110
AIR	<0.0005	<0.0008	<0.1
LD-13-1.5'	<0.0005	<0.0008	0.4
LD-14-1.5'	<0.0005	<0.0008	6
LD-15-1.5'	<0.0005	<0.0008	2600
LD-16-1.5'	<0.0005	<0.0008	1700
LD-17-1.5'	<0.0005	<0.0008	56
LD-18-1.5'	<0.0005	<0.0008	2
LD-19-1.5'	<0.0005	<0.0008	<0.3
LD-20-1.5'	<0.0005	<0.0008	180
LD-2-1-1.5'	<0.0005	<0.0008	<0.3
LD-22-1.5'	<0.0005	<0.0008	12
LD-5-1.5'	<0.0005	<0.0008	33000
LD-6-1.5'	<0.0005	<0.0008	200
LD-23-1.5'	<0.0005	<0.0008	1100
LD-24-1.5'	<0.0005	<0.0008	1000
LD-25-1.5'	<0.0005	<0.0008	54
LD-26-1.5'	<0.0005	<0.0008	23

SAMPLE	DDM ug/l	114B2 ug/l	TVHC ug/l
LD-27-1.5'	<0.0005	<0.0008	<0.3
LD-28-1.5'	<0.0005	<0.0008	<0.3
LD-29-1.5'	<0.0005	<0.0008	41
AIR	<0.0005	<0.0008	<0.1



Analyzed by: D. Ho

Proofed by: PWR



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**APPENDIX H**  
**LABORATORY ANALYTICAL TEST REPORTS**

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



September 17, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Ave.  
Raleigh, NC 27604  
Clt.#12024 Proj.#475-90-6014

Dear Mr. Cornelissen:

Below are results of analysis of 13 samples received for examination on September 3, 1991:

Location code: GEIGERS Loc. Desc.: B-2 8.5'-10.5  
LAB I.D. AA12869 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/29/91 Collection Time: 16:30  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	630	13.0
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	7600	150.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGERS Loc. Desc.: B-2 5.5-6.0  
LAB I.D. AA12870 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/29/91 Collection Time: 16:30  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-------------------	-------	----------------	--------------------

Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
Page: 2  
September 17, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
------	------	---------	------

-----  
Location code: GEIGERS Loc. Desc.: HA-3  
LAB I.D. AA12871 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 18:40  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB  
-----

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-------------------	-------	----------------	--------------------

Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	17	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

-----  
Location code: GEIGERS Loc. Desc.: HA-4A  
LAB I.D. AA12872 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 18:50  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB  
-----

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-------------------	-------	----------------	--------------------

2310-LDRL Ext. Met. S. EPA 1311		done	
---------------------------------	--	------	--

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Mr. Chris Cornelissen  
Page: 3  
September 17, 1991

2310-LDRL Metals EPA 6010 (continued):

Lead ug/L 42 34.0

-----  
Location code: GEIGERS Loc. Desc.: HA-4B  
LAB I.D. AA12873 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 18:50  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

-----  
TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
-----  
2323-Tot. Pet. Hydro. Prep. Soil done  
-----  
Multicomponent analysis: 2321-TPHX Cal-DHS  
Diesel mg/Kg Not Det 32.0  
-----

Location code: GEIGERS Loc. Desc.: HA-4B  
LAB I.D. AA12874 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 18:50  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

-----  
TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
-----  
Multicomponent analysis: 2321-TPHVS Cal-DHS  
Gasoline mg/Kg Not Det 0.2  
-----

Location code: GEIGERS Loc. Desc.: B-4A  
LAB I.D. AA12875 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 11:50  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

-----  
TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
-----  
Multicomponent analysis: 2321-TPHVS Cal-DHS  
Gasoline mg/Kg Not Det 35.0  
2323-Tot. Pet. Hydro. Prep. Soil done

Sample AA12875 (continued)

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	8400	580.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGERS Loc. Desc.: B-4B  
 LAB I.D. AA12876 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 08/30/91 Collection Time: 12:00  
 Submittal Date: 09/03/91 Submittal Time: 13:51  
 Sample collector: RICK KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	2.0
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	5100	310.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGERS Loc. Desc.: B-5A  
 LAB I.D. AA12877 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 08/30/91 Collection Time: 13:15  
 Submittal Date: 09/03/91 Submittal Time: 13:51  
 Sample collector: RICK KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS



Mr. Chris Cornelissen  
Page: 5  
September 17, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	980	170.0
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Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
2310-LDRL Ext. Met. S. EPA 1311		done	

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Location code: GEIGERS Loc. Desc.: B-5B  
LAB I.D. AA12878 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 13:25  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB  
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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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2310-LDRL Ext. Met. S. EPA 1311		done	
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Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Gasoline	mg/Kg	Not Det	0.2
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Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	280	33.0
2323-Tot. Pet. Hydro. Prep. Soil		done	

-----  
Location code: GEIGERS Loc. Desc.: B-6A  
LAB I.D. AA12879 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 14:15  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB  
-----

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Mr. Chris Cornelissen  
Page: 6  
September 17, 1991

Sample AA12879 (continued)

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	7	4.0
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Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Location code: GEIGERS Loc. Desc.: B-6B  
LAB I.D. AA12880 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 14:30  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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2310-LDRL Ext. Met. S. EPA 1311		done	
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Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
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Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	6200	160.0
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Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	13.0
2323-Tot. Pet. Hydro. Prep. Soil		done	

Location code: GEIGERS Loc. Desc.: HA-7  
LAB I.D. AA12881 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/30/91 Collection Time: 16:10  
Submittal Date: 09/03/91 Submittal Time: 13:51  
Sample collector: RICK KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
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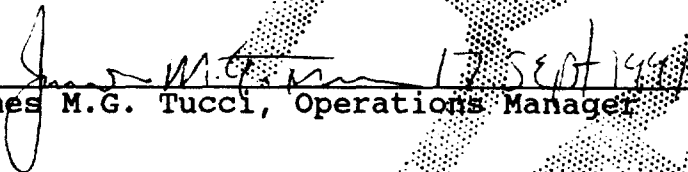
Mr. Chris Cornelissen  
Page: 7  
September 17, 1991

2321-TPHVS Cal-DHS (continued):			
Gasoline	mg/Kg	Not Det	2.0
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	5700	270.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

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Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



September 7, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Ave.  
Raleigh, NC 27604  
Clt. #12024 Proj. #J47590-6014

Dear Mr. Cornelissen:

Below are results of analysis of 12 samples received for examination on August 26, 1991:

Location code: GEIGER5 Loc. Desc.: MW-16A  
LAB I.D. AA12616 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/21/91 Collection Time: 10:00  
Submittal Date: 08/26/91 Submittal Time: 16:35  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det done	0.2
2323-Tot. Pet. Hydro. Prep. Soil			
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	Not Det done	3.0
2310-LDRL Ext. Met. S. EPA 1311			
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGER5 Loc. Desc.: MW-16B  
LAB I.D. AA12617 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/21/91 Collection Time: 09:30  
Submittal Date: 08/26/91 Submittal Time: 16:35  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
 Page: 2  
 September 7, 1991

2321-TPHVS Cal-DHS (continued):  
 Gasoline mg/Kg 1 0.2  
 2323-Tot. Pet. Hydro. Prep. Soil done

Multicomponent analysis: 2321-TPHXS Cal-DHS  
 Diesel mg/Kg 8 4.0  
 2310-LDRL Ext. Met. S. EPA 1311 done

Multicomponent analysis: 2310-LDRL Metals EPA 6010  
 Lead ug/L Not Det 34.0

Location code: GEIGER5 Loc. Desc.: MW-17 4.0-6.0'  
 LAB I.D. AA12618 P.O./Project No. J4759060 Client No. 12024  
 Collection Date: 08/21/91 Collection Time: 15:00  
 Submittal Date: 08/26/91 Submittal Time: 16:35  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	Not Det	4.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGER5 Loc. Desc.: MW-17 18.5-20.5'  
 LAB I.D. AA12619 P.O./Project No. J4759060 Client No. 12024  
 Collection Date: 08/21/91 Collection Time: 15:07  
 Submittal Date: 08/26/91 Submittal Time: 16:35  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Mr. Chris Cornelissen  
Page: 3  
September 7, 1991

Sample AA12619 (continued)

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel 2310-LDRL Ext. Met. S. EPA 1311	mg/Kg	Not Det done	3.0
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGERS5 Loc. Desc.: MW-18A  
LAB I.D. AA12620 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/21/91 Collection Time: 17:35  
Submittal Date: 08/26/91 Submittal Time: 16:35  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline 2323-Tot. Pet. Hydro. Prep. Soil	mg/Kg	Not Det done	0.2
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel 2310-LDRL Ext. Met. S. EPA 1311	mg/Kg	Not Det done	3.0
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGERS5 Loc. Desc.: MW-18B  
LAB I.D. AA12621 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/21/91 Collection Time: 17:40  
Submittal Date: 08/26/91 Submittal Time: 16:35  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
 Page: 4  
 September 7, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Location code: GEIGER5 Loc. Desc.: MW-19 2.0-4.0'  
 LAB I.D. AA12622 P.O./Project No. J4759060 Client No. 12024  
 Collection Date: 08/22/91 Collection Time: 12:30  
 Submittal Date: 08/26/91 Submittal Time: 16:35  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGER5 Loc. Desc.: MW-19 8.5-10.5'  
 LAB I.D. AA12623 P.O./Project No. J4759060 Client No. 12024  
 Collection Date: 08/22/91 Collection Time: 12:35  
 Submittal Date: 08/26/91 Submittal Time: 16:35  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Mr. Chris Cornelissen  
Page: 5  
September 7, 1991

Sample AA12623 (continued)

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel 2310-LDRL Ext. Met. S. EPA 1311	mg/Kg	Not Det done	4.0
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Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
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Location code: GEIGER5 Loc. Desc.: MW-15 4.0-6.0'  
LAB I.D. AA12624 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/21/91 Collection Time: 09:25  
Submittal Date: 08/26/91 Submittal Time: 16:35  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline 2323-Tot. Pet. Hydro. Prep. Soil	mg/Kg	Not Det done	0.2
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Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel 2310-LDRL Ext. Met. S. EPA 1311	mg/Kg	Not Det done	3.0
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Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
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Location code: GEIGER5 Loc. Desc.: MW-15 8.5-10.5'  
LAB I.D. AA12625 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/21/91 Collection Time: 09:30  
Submittal Date: 08/26/91 Submittal Time: 16:35  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS



Mr. Chris Cornelissen

Page: 6

September 7, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	2.0
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	3500	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Location code: GEIGER5 Loc. Desc.: B-1A

LAB I.D. AA12626 P.O./Project No. J4759060 Client No. 12024

Collection Date: 08/21/91 Collection Time: 15:50

Submittal Date: 08/26/91 Submittal Time: 16:35

Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Location code: GEIGER5 Loc. Desc.: B-1B

LAB I.D. AA12627 P.O./Project No. J4759060 Client No. 12024

Collection Date: 08/21/91 Collection Time: 15:45

Submittal Date: 08/26/91 Submittal Time: 16:35

Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

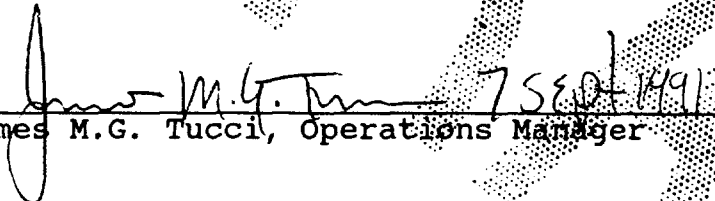
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Mr. Chris Cornelissen  
Page: 7  
September 7, 1991

Sample AA12627 (continued)

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHXS Cal-DHS Petroleum Hydrocarbons 2310-LDRL Ext. Met. S. EPA 1311	mg/Kg	Not Det done	4.0
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Please advise should you have questions concerning these data.  
Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
 Pensacola Branch  
 7215 Pine Forest Road  
 Pensacola, Florida 32526



September 13, 1991

Mr. Chris Cornelissen  
 Law Engineering, Inc.  
 3301 Atlantic Ave.  
 Raleigh, NC 27604  
 Clt. #12024 Proj. #J47591-6014

Dear Mr. Cornelissen:

Below are results of analysis of 2 samples received for examination on August 19, 1991:

Location code: GEIGER2 Loc. Desc.: MW-8 6.0-8.0'  
 LAB I.D. AA12268 P.O./Project No. J4759160 Client No. 12024  
 Collection Date: 08/15/91 Collection Time: 13:00  
 Submittal Date: 08/19/91 Submittal Time: 13:37  
 Sample collector: THALMAN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	9100	290.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	1.0

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Location code: GEIGER2 Loc. Desc.: MW-8 14.0-16.0'  
 LAB I.D. AA12269 P.O./Project No. J4759160 Client No. 12024  
 Collection Date: 08/15/91 Collection Time: 13:05  
 Submittal Date: 08/19/91 Submittal Time: 13:37  
 Sample collector: THALMAN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
2323-Tot. Pet. Hydro. Prep. Soil		done	

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



June 5, 1991

RECEIVED

JUN 06 1991

LAW ENGINEERING  
RALEIGH

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Ave.  
Raleigh, NC 27604  
Clt. #12024 Proj. #47590-6014

Dear Mr. Cornelissen:

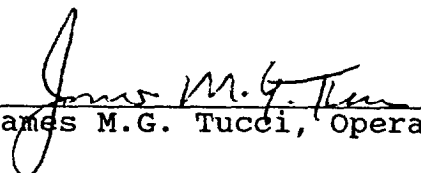
Below are results of analysis of 1 sample received for examination on May 31, 1991:

Location code: GEIGER Loc. Desc.: Potable Water  
LAB I.D. AA09242 P.O. #Project No. J6014 Client No. 12024  
Collection Date: 05/29/91 Collection Time: 15:07  
Submittal Date: 05/31/91 Submittal Time: 13:47  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VDA W. by GC EPA 602			
Benzene	ug/L	Not Det	0.2
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

5 JUNE 1991

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526

August 12, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Avenue  
Raleigh, NC 27604  
Clt. #12024 Proj. #J6014

Dear Mr. Cornelissen:

Below are results of analysis of 16 samples received for examination on August 8, 1991:

Location code: LEJEUNE2 Loc. Desc.: HP-4  
LAB I.D. AA11671 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 15:10  
Submittal Date: 08/08/91 Submittal Time: 13:26  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 602			
Benzene	ug/L	.2	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	1	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	13	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-5  
LAB I.D. AA11672 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 16:15  
Submittal Date: 08/08/91 Submittal Time: 13:26  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen

Page: 2

August 12, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	610	20.0
Chlorobenzene	ug/L	Not Det	30.0
1,2-Dichlorobenzene	ug/L	Not Det	30.0
1,3-Dichlorobenzene	ug/L	Not Det	30.0
1,4-Dichlorobenzene	ug/L	Not Det	30.0
Ethylbenzene	ug/L	520	50.0
Toluene	ug/L	130	100.0
Xylenes (total)	ug/L	1900	100.0
Methyl tert-butyl ether	ug/L	Not Det	60.0

Location code: LEJEUNE2 Loc. Desc.: HP-7  
LAB I.D. AA11673 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 15:40  
Submittal Date: 08/08/91 Submittal Time: 13:26  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	8	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	1	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	1	1.0
Methyl tert-butyl ether	ug/L	83	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-15  
LAB I.D. AA11674 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 14:25  
Submittal Date: 08/08/91 Submittal Time: 13:26  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
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Mr. Chris Cornelissen

Page: 3

August 12, 1991

2321-VOA W. by GC EPA 602 (continued):

Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-16

LAB I.D. AA11675 P.O./Project No. J6014 Client No. 12024

Collection Date: 08/06/91 Collection Time: 13:42

Submittal Date: 08/08/91 Submittal Time: 13:26

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-17

LAB I.D. AA11676 P.O./Project No. J6014 Client No. 12024

Collection Date: 08/06/91 Collection Time: 13:05

Submittal Date: 08/08/91 Submittal Time: 13:26

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3

Mr. Chris Cornelissen  
Page: 4  
August 12, 1991

2321-VOA W. by GC EPA 602 (continued):

1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	2	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: TRIP BLANK  
LAB I.D. AA11677 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 08/08/91 Submittal Time: 13:26

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-13  
LAB I.D. AA11678 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 11:40  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3



Mr. Chris Cornelissen

Page: 5

August 12, 1991

2321-VOA W. by GC EPA 602 (continued):

Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-11  
LAB I.D. AA11679 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 08:56  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	350	20.0
Chlorobenzene	ug/L	Not Det	30.0
1,2-Dichlorobenzene	ug/L	Not Det	30.0
1,3-Dichlorobenzene	ug/L	Not Det	30.0
1,4-Dichlorobenzene	ug/L	Not Det	30.0
Ethylbenzene	ug/L	350	50.0
Toluene	ug/L	Not Det	100.0
Xylenes (total)	ug/L	540	100.0
Methyl tert-butyl ether	ug/L	Not Det	60.0

Location code: LEJEUNE2 Loc. Desc.: HP-12  
LAB I.D. AA11680 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 11:01  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	100	20.0
Chlorobenzene	ug/L	Not Det	30.0
1,2-Dichlorobenzene	ug/L	Not Det	30.0
1,3-Dichlorobenzene	ug/L	Not Det	30.0
1,4-Dichlorobenzene	ug/L	Not Det	30.0
Ethylbenzene	ug/L	350	50.0

Mr. Chris Cornelissen  
Page: 6  
August 12, 1991

2321-VOA W. by GC EPA 602 (continued):

Toluene	ug/L	170	100.0
Xylenes (total)	ug/L	820	100.0
Methyl tert-butyl ether	ug/L	Not Det	60.0

Location code: LEJEUNE2 Loc. Desc.: HP-14  
LAB I.D. AA11681 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 09:42  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.4	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	32	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	24	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE2 Loc. Desc.: HP-18  
LAB I.D. AA11682 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 10:25  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	260	20.0
Chlorobenzene	ug/L	Not Det	30.0
1,2-Dichlorobenzene	ug/L	Not Det	30.0
1,3-Dichlorobenzene	ug/L	Not Det	30.0
1,4-Dichlorobenzene	ug/L	Not Det	30.0
Ethylbenzene	ug/L	310	50.0
Toluene	ug/L	Not Det	100.0

Mr. Chris Cornelissen  
Page: 7  
August 12, 1991

2321-VOA W. by GC EPA 602 (continued):

Xylenes (total)	ug/L	740	100.0
Methyl tert-butyl ether	ug/L	Not Det	60.0

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Location code: LEJEUNE2 Loc. Desc.: HP-19  
LAB I.D. AA11683 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 08:16  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN  
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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

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Location code: LEJEUNE2 Loc. Desc.: HP-20  
LAB I.D. AA11684 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 07:43  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN  
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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
Page: 8  
August 12, 1991

2321-VOA W. by GC EPA 602 (continued):  
Methyl tert-butyl ether ug/L

Not Det 0.6

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Location code: LEJEUNE2 Loc. Desc.: RINSE BLANK  
LAB I.D. AA11685 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/06/91 Collection Time: 10:08  
Submittal Date: 08/08/91 Submittal Time: 14:22  
Sample collector: CORNELISSEN

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TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

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Location code: LEJEUNE2 Loc. Desc.: TRIP BLANK  
LAB I.D. AA11686 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 08/08/91 Submittal Time: 14:22

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TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
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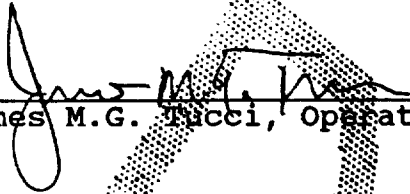
Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Mr. Chris Cornelissen  
Page: 9  
August 12, 1991

Please advise should you have questions concerning these data.

Respectfully submitted,

 12 Aug 1991  

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James M.G. Tucci, Operations Manager

DRAFT

Law Environmental, Inc.  
 Pensacola Branch  
 7215 Pine Forest Road  
 Pensacola, Florida 32526



August 13, 1991

Mr. Chris Cornelissen  
 Law Engineering, Inc.  
 3301 Atlantic Avenue  
 Raleigh, NC 27604  
 Clt. #12024 Proj. #J6014

Dear Mr. Cornelissen:

Below are results of analysis of 3 samples received for examination on August 6, 1991:

Location code: LEJEUNE Loc. Desc.: Potable Water  
 LAB I.D. AA11635 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 08/05/91 Collection Time: 08:35  
 Submittal Date: 08/06/91 Submittal Time: 18:59  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 601			
Bromodichloromethane	ug/L	14	0.3
Bromoform	ug/L	16	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	9	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	27	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0

Mr. Chris Cornelissen

Page: 2

August 13, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	Not Det	1.0
2310-Furnace Dig W. EPA 3020		done	

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Location code: LEJEUNE Loc. Desc.: HP-1  
LAB I.D. AA11636 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/05/91 Collection Time: 15:50  
Submittal Date: 08/06/91 Submittal Time: 18:59  
Sample collector: CORNELISSEN  
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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

-----  
Location code: LEJEUNE Loc. Desc.: Trip Blank  
LAB I.D. AA11637 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 08/06/91 Submittal Time: 18:59  
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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3

Mr. Chris Cornelissen

Page: 3

August 13, 1991

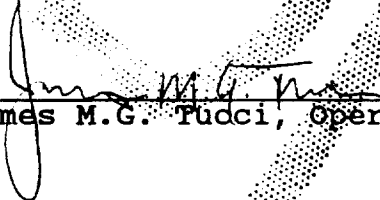
2321-VOA W. by GC EPA 602 (continued):

1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

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Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

13 AUG 1991



Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



August 13, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Avenue  
Raleigh, NC 27604  
Clt. #12024 Proj. #J6014

Dear Mr. Cornelissen:

Below are results of analysis of 9 samples received for examination on August 9, 1991:

Location code: LEJEUNE3 Loc. Desc.: HP-2  
LAB I.D. AA11734 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 06:50  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VGA W. by GC EPA 602			
Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE3 Loc. Desc.: HP-3  
LAB I.D. AA11735 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 08:10  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
Page: 2  
August 13, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	.7	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	.6	0.6

Location code: LEJEUNE3 Loc. Desc.: HP-6  
LAB I.D. AA11736 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 08:50  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	240	10.0
Chlorobenzene	ug/L	Not Det	2.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
Ethylbenzene	ug/L	14	3.0
Toluene	ug/L	Not Det	5.0
Xylenes (total)	ug/L	Not Det	5.0
Methyl tert-butyl ether	ug/L	410	30.0

Location code: LEJEUNE3 Loc. Desc.: HP-8  
LAB I.D. AA11737 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 09:55  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
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Mr. Chris Cornelissen  
Page: 3  
August 13, 1991

2321-VOA W. by GC EPA 602 (continued):

Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE3 Loc. Desc.: HP-9  
LAB I.D. AA11738 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 10:32  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	3	0.6

Location code: LEJEUNE3 Loc. Desc.: HP-10  
LAB I.D. AA11739 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 09:25  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	11	0.2
Chlorobenzene	ug/L	Not Det	0.3

Mr. Chris Cornelissen

Page: 4

August 13, 1991

2321-VOA W. by GC EPA 602 (continued):

1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	.6	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	2	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE3 Loc. Desc.: RINSE BLANK  
LAB I.D. AA11740 P.O./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 09:15  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE3 Loc. Desc.: TRIP BLANK  
LAB I.D. AA11741 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 08/09/91 Submittal Time: 12:33

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3

Mr. Chris Cornelissen  
Page: 5  
August 13, 1991

2321-VOA W. by GC EPA 602 (continued):

Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: LEJEUNE3 Loc. Desc.: HP-21  
LAB I.D. AA11742 P.D./Project No. J6014 Client No. 12024  
Collection Date: 08/07/91 Collection Time: 11:16  
Submittal Date: 08/09/91 Submittal Time: 12:33  
Sample collector: CORNELISSEN

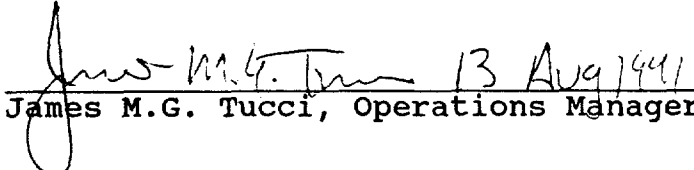
TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Mr. Chris Cornelissen  
Page: 2  
September 13, 1991

Sample AA12269 (continued)

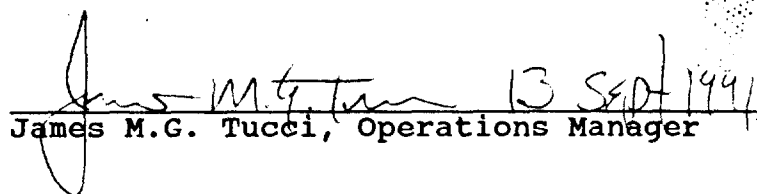
TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	14600	260.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	1.0

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
 Pensacola Branch  
 7215 Pine Forest Road  
 Pensacola, Florida 32526



September 13, 1991

Mr. Chris Cornelissen  
 Law Engineering, Inc.  
 3301 Atlantic Ave.  
 Raleigh, NC 27604  
 Clt.#12024 Proj.#475-90-6014

Dear Mr. Cornelissen:

Below are results of analysis of 8 samples received for examination on August 29, 1991:

Location code: GEIGER7 Loc. Desc.: MW-22A  
 LAB I.D. AA12790 P.O./Project No. 47590601 Client No. 12024  
 Collection Date: 08/28/91 Collection Time: 11:00  
 Submittal Date: 08/29/91 Submittal Time: 16:50  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	5	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGER7 Loc. Desc.: MW-22B  
 LAB I.D. AA12791 P.O./Project No. 47590601 Client No. 12024  
 Collection Date: 08/28/91 Collection Time: 11:10  
 Submittal Date: 08/29/91 Submittal Time: 16:50  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
 Page: 2  
 September 13, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	540	14.0
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	8900	310.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Location code: GEIGER7 Loc. Desc.: MW-23 0-2'

LAB I.D. AA12792 P.O./Project No. 47590601 Client No. 12024

Collection Date: 08/27/91 Collection Time: 16:00

Submittal Date: 08/29/91 Submittal Time: 16:50

Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Location code: GEIGER7 Loc. Desc.: MW-23 13.5-15.5'

LAB I.D. AA12793 P.O./Project No. 47590601 Client No. 12024

Collection Date: 08/27/91 Collection Time: 16:00

Submittal Date: 08/29/91 Submittal Time: 16:50

Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Mr. Chris Cornelissen  
 Page: 3  
 September 13, 1991

Multicomponent analysis: 2321-TPHVS Cal-DHS  
 Gasoline mg/Kg Not Det 0.2  
 2323-Tot. Pet. Hydro. Prep. Soil done

Multicomponent analysis: 2321-TPHXS Cal-DHS  
 Diesel mg/Kg Not Det 3.0  
 2310-LDRL Ext. Met. S. EPA 1311 done

Multicomponent analysis: 2310-LDRL Metals EPA 6010  
 Lead ug/L Not Det 34.0

Location code: GEIGER7 Loc. Desc.: MW-24 2-4'  
 LAB I.D. AA12794 P.O./Project No. 47590601 Client No. 12024  
 Collection Date: 08/28/91 Collection Time: 10:30  
 Submittal Date: 08/29/91 Submittal Time: 16:50  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGER7 Loc. Desc.: MW-24 8.5-10.5'  
 LAB I.D. AA12795 P.O./Project No. 47590601 Client No. 12024  
 Collection Date: 08/28/91 Collection Time: 10:30  
 Submittal Date: 08/29/91 Submittal Time: 16:50  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
 Page: 4  
 September 13, 1991

2321-TPHVS Cal-DHS (continued):  
 Gasoline mg/Kg Not Det 0.2  
 2323-Tot. Pet. Hydro. Prep. Soil done

Multicomponent analysis: 2321-TPHXS Cal-DHS  
 Diesel mg/Kg 21 3.0  
 2310-LDRL Ext. Met. S. EPA 1311 done

Multicomponent analysis: 2310-LDRL Metals EPA 6010  
 Lead ug/L Not Det 34.0

Location code: GEIGER7 Loc. Desc.: MW-25 2-4'  
 LAB I.D. AA12796 P.O./Project No. 47590601 Client No. 12024  
 Collection Date: 08/28/91 Collection Time: 17:15  
 Submittal Date: 08/29/91 Submittal Time: 16:50  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	8700	290.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGER7 Loc. Desc.: MW-25 4-6'  
 LAB I.D. AA12797 P.O./Project No. 47590601 Client No. 12024  
 Collection Date: 08/28/91 Collection Time: 17:25  
 Submittal Date: 08/29/91 Submittal Time: 16:50  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

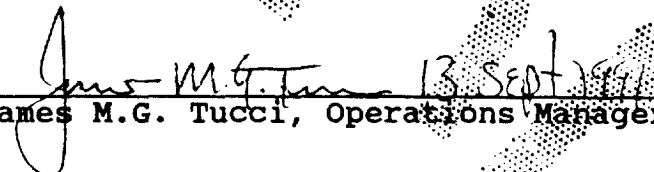
Mr. Chris Cornelissen  
Page: 5  
September 13, 1991

Sample AA12797 (continued)

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	5700	320.0
2310-LDRL Ext. Met. S. EPA 1311		done	
-----			
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
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Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



September 7, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Ave.  
Raleigh, NC 27604  
Clt. #12024 Proj. #J47590-6014

Dear Mr. Cornelissen:

Below are results of analysis of 10 samples received for examination on August 22, 1991:

Location code: GEIGER4 Loc. Desc.: MW-10A  
LAB I.D. AA12483 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/19/91 Collection Time: 11:20  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det done	0.2
2323-Tot. Pet. Hydro. Prep. Soil			
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	Not Det done	3.0
2310-LDRL Ext. Met. S. EPA 1311			
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGER4 Loc. Desc.: MW-11 4-6'  
LAB I.D. AA12484 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/19/91 Collection Time: 14:00  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
Page: 2  
September 7, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	0.5
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	2100	290.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1016	degrees F	200	75

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Location code: GEIGER4 Loc. Desc.: MW-12A  
LAB I.D. AA12485 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/19/91 Collection Time: 17:10  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Location code: GEIGER4 Loc. Desc.: MW-14B  
LAB I.D. AA12486 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/20/91 Collection Time: 15:35  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Mr. Chris Cornelissen  
Page: 3  
September 7, 1991

Multicomponent analysis: 2321-TPHVS Cal-DHS  
Gasoline mg/Kg Not Det 0.2  
2323-Tot. Pet. Hydro. Prep. Soil done

Multicomponent analysis: 2321-TPHXS Cal-DHS  
Diesel mg/Kg Not Det 3.0  
2310-LDRL Ext. Met. S. EPA 1311 done

Multicomponent analysis: 2310-LDRL Metals EPA 6010  
Lead ug/L Not Det 34.0

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Location code: GEIGER4 Loc. Desc.: MW-10B  
LAB I.D. AA12487 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/19/91 Collection Time: 11:25  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

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Location code: GEIGER4 Loc. Desc.: MW-11 8.5-10.5'  
LAB I.D. AA12488 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/19/91 Collection Time: 14:05  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
Page: 4  
September 7, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	4	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Location code: GEIGER4 Loc. Desc.: MW-12B  
LAB I.D. AA12489 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/19/91 Collection Time: 17:15  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS			
Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS			
Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010			
Lead	ug/L	Not Det	34.0

Location code: GEIGER4 Loc. Desc.: MW-13 8.5-10.5'  
LAB I.D. AA12490 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/20/91 Collection Time: 14:00  
Submittal Date: 08/22/91 Submittal Time: 07:53  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Mr. Chris Cornelissen  
 Page: 5  
 September 7, 1991

Multicomponent analysis: 2321-TPHVS Cal-DHS  
 Gasoline mg/Kg Not Det 0.2  
 2323-Tot. Pet. Hydro. Prep. Soil done

Multicomponent analysis: 2321-TPHXS Cal-DHS  
 Diesel mg/Kg Not Det 3.0  
 2310-LDRL Ext. Met. S. EPA 1311 done

Multicomponent analysis: 2310-LDRL Metals EPA 6010  
 Lead ug/L Not Det 34.0

Location code: GEIGER4 Loc. Desc.: MW-13 18.5-20.5  
 LAB I.D. AA12491 P.O./Project No. J4759060 Client No. 12024  
 Collection Date: 08/20/91 Collection Time: 14:10  
 Submittal Date: 08/22/91 Submittal Time: 07:53  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGER4 Loc. Desc.: MW-14A  
 LAB I.D. AA12492 P.O./Project No. J4759060 Client No. 12024  
 Collection Date: 08/20/91 Collection Time: 15:30  
 Submittal Date: 08/22/91 Submittal Time: 07:53  
 Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS



Mr. Chris Cornelissen  
Page: 6  
September 7, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	.3	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

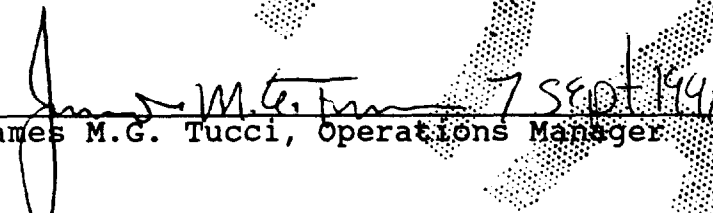
Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
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Please advise should you have questions concerning these data.  
Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



September 7, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Ave.  
Raleigh, NC 27604  
Clt. #12024 Proj. #J47590-6014

Dear Mr. Cornelissen:

Below are results of analysis of 4 samples received for examination on August 27, 1991:

Location code: GEIGER6 Loc. Desc.: MW-20A  
LAB I.D. AA12656 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/23/91 Collection Time: 13:40  
Submittal Date: 08/27/91 Submittal Time: 07:50  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	0.2
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	14	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0

Location code: GEIGER6 Loc. Desc.: MW-20B  
LAB I.D. AA12657 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/23/91 Collection Time: 13:45  
Submittal Date: 08/27/91 Submittal Time: 07:50  
Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Mr. Chris Cornelissen  
Page: 2  
September 7, 1991

2321-TPHVS Cal-DHS (continued):

Gasoline	mg/Kg	Not Det	140.0
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	22000	600.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Location code: GEIGERS Loc. Desc.: MW-21 2-4'

LAB I.D. AA12658 P.O./Project No. J4759060 Client No. 12024

Collection Date: 08/23/91 Collection Time: 12:55

Submittal Date: 08/27/91 Submittal Time: 07:50

Sample collector: KOLB

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-TPHVS Cal-DHS

Gasoline	mg/Kg	Not Det	0.4
2323-Tot. Pet. Hydro. Prep. Soil		done	

Multicomponent analysis: 2321-TPHXS Cal-DHS

Diesel	mg/Kg	5200	1400.0
2310-LDRL Ext. Met. S. EPA 1311		done	

Multicomponent analysis: 2310-LDRL Metals EPA 6010

Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Mr. Chris Cornelissen  
Page: 3  
September 7, 1991

Location code: GEIGER6 Loc. Desc.: MW-21 4-6'  
LAB I.D. AA12659 P.O./Project No. J4759060 Client No. 12024  
Collection Date: 08/23/91 Collection Time: 13:00  
Submittal Date: 08/27/91 Submittal Time: 07:50  
Sample collector: KOLB

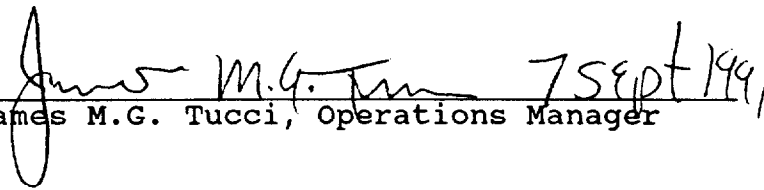
TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	19.0
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	21000 done	1400.0
2310-LDRL Ext. Met. S. EPA 1311			
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
Pensacola Branch  
7215 Pine Forest Road  
Pensacola, Florida 32526



September 6, 1991

Mr. Chris Cornelissen  
Law Engineering, Inc.  
3301 Atlantic Ave.  
Raleigh, NC 27604  
Clt.#12024 Proj.#J47591-6014

Dear Mr. Kolb:

Below are results of analysis of 2 samples received for examination on August 19, 1991:

Location code: GEIGER3 Loc. Desc.: MW-9 6.0-8.0'  
LAB I.D. AA12307 P.O./Project No. J4759160 Client No. 12024  
Collection Date: 08/16/91 Collection Time: 10:00  
Submittal Date: 08/19/91 Submittal Time: 16:43  
Sample collector: THALMAN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
2323-Tot. Pet. Hydro. Prep. Soil		done	
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel	mg/Kg	Not Det	3.0
2310-LDRL Ext. Met. S. EPA 1311		done	
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead	ug/L	Not Det	34.0
2310-Ignitability EPA 1010	degrees F	200	75
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	1.0

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Location code: GEIGER3 Loc. Desc.: MW-9 16.0-18.0'  
LAB I.D. AA12308 P.O./Project No. J4759160 Client No. 12024  
Collection Date: 08/16/91 Collection Time: 10:05  
Submittal Date: 08/19/91 Submittal Time: 16:43  
Sample collector: THALMAN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
2323-Tot. Pet. Hydro. Prep. Soil		done	

Mr. Chris Cornelissen  
Page: 2  
September 6, 1991

Sample AA12308 (continued)

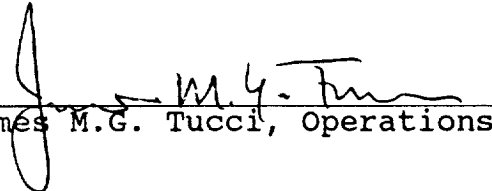
TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: 2321-TPHXS Cal-DHS Diesel 2310-LDRL Ext. Met. S. EPA 1311	mg/Kg	Not Det done	4.0
Multicomponent analysis: 2310-LDRL Metals EPA 6010 Lead 2310-Ignitability EPA 1010	ug/L degrees F	Not Det 200	34.0 75
Multicomponent analysis: 2321-TPHVS Cal-DHS Gasoline	mg/Kg	Not Det	1.0

Comments:

Ignitability temperature for this sample should be considered greater than 200 degrees.

Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager 6 Sept 1991

Law Environmental, Inc.  
 Pensacola Branch  
 7215 Pine Forest Road  
 Pensacola, Florida 32526



September 24, 1991

Mr. Chris Cornelissen  
 Law Engineering, Inc.  
 3301 Atlantic Ave.  
 Raleigh, NC 27604  
 Clt. #12024 Proj. #475-90-6014

Dear Mr. Cornelissen:

Below are results of analysis of 31 samples received for examination on September 6, 1991:

Location code: GEIGER9 Loc. Desc.: CGMW-01  
 LAB I.D. AA12922 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/03/91 Collection Time: 17:00  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 601			
Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
 Page: 2  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	14	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-9S  
 LAB I.D. AA12923 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/03/91 Collection Time: 18:35  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0



Mr. Chris Cornelissen  
 Page: 3  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	45	5.0
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	4	1.0
Methyl tert-butyl ether	ug/L	46	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	Not Det	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-9D  
 LAB I.D. AA12924 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/03/91 Collection Time: 18:23  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0

Mr. Chris Cornelissen

Page: 4

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	.9	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	14	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.3	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	14	1.0
2310-Furnace Dig W. EPA 3020		done	

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Location code: GEIGER9 Loc. Desc.: MW-10S  
LAB I.D. AA12925 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/03/91 Collection Time: 17:20  
Submittal Date: 09/06/91 Submittal Time: 12:43  
Sample collector: CORNELISSEN

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TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Mr. Chris Cornelissen

Page: 5

September 24, 1991

Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethyl vinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	17	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	170	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	3	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	7	0.5
Toluene	ug/L	5	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	3	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
 Page: 6  
 September 24, 1991

Location code: GEIGER9 Loc. Desc.: MW-10D  
 LAB I.D. AA12926 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/03/91 Collection Time: 17:45  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	110	15.0
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	810	15.0
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	6	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	3	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	1	0.5
Toluene	ug/L	2	1.0
Xylenes (total)	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
Page: 7  
September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Methyl tert-butyl ether ug/L Not Det 0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L 11 1.0  
2310-Furnace Dig W. EPA 3020 done

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Location code: GEIGER9 Loc. Desc.: TRIP BLANK  
LAB I.D. AA12927 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 09/04/91 Submittal Time: 12:43

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TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

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Location code: GEIGER9 Loc. Desc.: 35GW4  
LAB I.D. AA12928 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/04/91 Collection Time: 15:45  
Submittal Date: 09/06/91 Submittal Time: 12:43  
Sample collector: CORNELISSEN

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TEST UNITS TEST DETECTION  
PARAMETER RESULT LIMIT  
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0

2321-VOA W. by GC EPA 601 (continued):

Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	.7	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	3	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.4	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	75	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-15S

LAB I.D. AA12929 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91

Collection Time: 13:55

Submittal Date: 09/06/91

Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Mr. Chris Cornelissen

Page: 9

September 24, 1991

Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	4	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	3	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	29	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	5	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
 Page: 10  
 September 24, 1991

Location code: GEIGER9 Loc. Desc.: MW-15D  
 LAB I.D. AA12930 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 14:19  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0



Mr. Chris Cornelissen  
 Page: 11  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Methyl tert-butyl ether ug/L Not Det 0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L 5 1.0  
 2310-Furnace Dig W. EPA 3020 done

Location code: GEIGER9 Loc. Desc.: MW-14S

LAB I.D. AA12931 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 14:55

Submital Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	3	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	44	6.0
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	110	6.0
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
 Page: 12  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	.6	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	2	1.0
2310-Furnace Dig W. EPA 3020		done	

Multicomponent analysis: 2322-Poly Aro Hydro W. EPA 610

Acenaphthene	ug/L	Not Det	0.5
Acenaphthylene	ug/L	Not Det	0.5
Anthracene	ug/L	Not Det	0.5
Benzo[a]anthracene	ug/L	Not Det	0.3
Benzo[b]fluoranthene	ug/L	Not Det	1.0
Benzo[k]fluoranthene	ug/L	Not Det	1.0
Benzo[ghi]perylene	ug/L	Not Det	1.0
Benzo[a]pyrene	ug/L	Not Det	0.7
Chrysene	ug/L	Not Det	0.3
Dibenzo[a,h]anthracene	ug/L	Not Det	1.0
Fluoranthene	ug/L	Not Det	0.4
Fluorene	ug/L	Not Det	0.7
Indeno[1,2,3-cd]pyrene	ug/L	Not Det	1.0
1-Methylnaphthalene	ug/L	Not Det	0.4
2-Methylnaphthalene	ug/L	Not Det	0.4
Naphthalene	ug/L	Not Det	0.3
Phenanthrene	ug/L	Not Det	0.4
Pyrene	ug/L	Not Det	0.3

2323-BN Liq. Liq. Ext. EPA 3520 done

Location code: GEIGER9 Loc. Desc.: MW-14D

LAB I.D. AA12932 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 15:20

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Mr. Chris Cornelissen

Page: 13

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	7	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	13	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.8	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	14	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
 Page: 14  
 September 24, 1991

Location code: GEIGER9 Loc. Desc.: MW-20S  
 LAB I.D. AA12933 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 11:55  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601			
Bromodichloromethane	ug/L	Not Det	60.0
Bromoform	ug/L	Not Det	120.0
Bromomethane	ug/L	Not Det	1000.0
Carbon tetrachloride	ug/L	Not Det	200.0
Chloroethane	ug/L	Not Det	1000.0
2-Chloroethylvinyl ether	ug/L	Not Det	200.0
Chloroform	ug/L	Not Det	400.0
Chloromethane	ug/L	Not Det	1000.0
Dibromochloromethane	ug/L	Not Det	180.0
1,2-Dichlorobenzene	ug/L	Not Det	60.0
1,3-Dichlorobenzene	ug/L	Not Det	60.0
1,4-Dichlorobenzene	ug/L	Not Det	60.0
1,1-Dichloroethane	ug/L	Not Det	120.0
1,2-Dichloroethane	ug/L	Not Det	200.0
1,1-Dichloroethene	ug/L	Not Det	180.0
trans-1,2-Dichloroethene	ug/L	Not Det	120.0
1,2-Dichloropropane	ug/L	Not Det	60.0
cis-1,3-Dichloropropene	ug/L	Not Det	120.0
trans-1,3-Dichloropropene	ug/L	Not Det	120.0
Methylene chloride	ug/L	Not Det	1000.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	400.0
Tetrachloroethene	ug/L	Not Det	200.0
1,1,1-Trichloroethane	ug/L	Not Det	200.0
1,1,2-Trichloroethane	ug/L	Not Det	180.0
Trichloroethene	ug/L	Not Det	120.0
Trichlorofluoromethane	ug/L	Not Det	180.0
Vinyl chloride	ug/L	Not Det	1000.0
Multicomponent analysis: 2321-VOA W. by GC EPA 602			
Benzene	ug/L	140	40.0
Chlorobenzene	ug/L	Not Det	60.0
1,2-Dichlorobenzene	ug/L	Not Det	60.0
1,3-Dichlorobenzene	ug/L	Not Det	60.0
1,4-Dichlorobenzene	ug/L	Not Det	60.0
Ethylbenzene	ug/L	320	100.0
Toluene	ug/L	280	200.0
Xylenes (total)	ug/L	830	200.0

Mr. Chris Cornelissen  
 Page: 15  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Methyl tert-butyl ether ug/L Not Det 120.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L Not Det 1.0

2310-Furnace Dig W. EPA 3020 done

Location code: GEIGER9 Loc. Desc.: MW-21S

LAB I.D. 2312934 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 13:00

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	60.0
Bromoform	ug/L	Not Det	120.0
Bromomethane	ug/L	Not Det	1000.0
Carbon tetrachloride	ug/L	Not Det	200.0
Chloroethane	ug/L	Not Det	1000.0
2-Chloroethylvinyl ether	ug/L	Not Det	200.0
Chloroform	ug/L	Not Det	400.0
Chloromethane	ug/L	Not Det	1000.0
Dibromochloromethane	ug/L	Not Det	180.0
1,2-Dichlorobenzene	ug/L	Not Det	60.0
1,3-Dichlorobenzene	ug/L	Not Det	60.0
1,4-Dichlorobenzene	ug/L	Not Det	60.0
1,1-Dichloroethane	ug/L	Not Det	120.0
1,2-Dichloroethane	ug/L	Not Det	200.0
1,1-Dichloroethene	ug/L	Not Det	180.0
trans-1,2-Dichloroethene	ug/L	Not Det	120.0
1,2-Dichloropropane	ug/L	Not Det	60.0
cis-1,3-Dichloropropene	ug/L	Not Det	120.0
trans-1,3-Dichloropropene	ug/L	Not Det	120.0
Methylene chloride	ug/L	Not Det	1000.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	400.0
Tetrachloroethene	ug/L	Not Det	200.0
1,1,1-Trichloroethane	ug/L	Not Det	200.0
1,1,2-Trichloroethane	ug/L	Not Det	180.0
Trichloroethene	ug/L	Not Det	120.0
Trichlorofluoromethane	ug/L	Not Det	180.0
Vinyl chloride	ug/L	Not Det	1000.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
 Page: 16  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	220	40.0
Chlorobenzene	ug/L	Not Det	60.0
1,2-Dichlorobenzene	ug/L	Not Det	60.0
1,3-Dichlorobenzene	ug/L	Not Det	60.0
1,4-Dichlorobenzene	ug/L	Not Det	60.0
Ethylbenzene	ug/L	590	100.0
Toluene	ug/L	Not Det	200.0
Xylenes (total)	ug/L	1100	200.0
Methyl tert-butyl ether	ug/L	Not Det	120.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	4	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-21D

LAB I.D. AA12935 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 13:20

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	2	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0

Mr. Chris Cornelissen  
 Page: 17  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	6	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.4	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	17	0.5
Toluene	ug/L	13	1.0
Xylenes (total)	ug/L	93	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	3	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-22S

LAB I.D. AA12936 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91

Collection Time: 16:00

Submittal Date: 09/06/91

Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	30.0
Bromoform	ug/L	Not Det	60.0
Bromomethane	ug/L	Not Det	500.0
Carbon tetrachloride	ug/L	Not Det	100.0
Chloroethane	ug/L	Not Det	500.0
2-Chloroethylvinyl ether	ug/L	Not Det	100.0
Chloroform	ug/L	Not Det	200.0
Chloromethane	ug/L	Not Det	500.0
Dibromochloromethane	ug/L	Not Det	90.0
1,2-Dichlorobenzene	ug/L	Not Det	30.0
1,3-Dichlorobenzene	ug/L	Not Det	30.0

2321-VOA W. by GC EPA 601 (continued):

1,4-Dichlorobenzene	ug/L	Not Det	30.0
1,1-Dichloroethane	ug/L	Not Det	60.0
1,2-Dichloroethane	ug/L	Not Det	100.0
1,1-Dichloroethene	ug/L	Not Det	90.0
trans-1,2-Dichloroethene	ug/L	Not Det	60.0
1,2-Dichloropropane	ug/L	Not Det	30.0
cis-1,3-Dichloropropene	ug/L	Not Det	60.0
trans-1,3-Dichloropropene	ug/L	Not Det	60.0
Methylene chloride	ug/L	Not Det	500.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	200.0
Tetrachloroethene	ug/L	Not Det	100.0
1,1,1-Trichloroethane	ug/L	Not Det	100.0
1,1,2-Trichloroethane	ug/L	Not Det	90.0
Trichloroethene	ug/L	Not Det	60.0
Trichlorofluoromethane	ug/L	Not Det	90.0
Vinyl chloride	ug/L	Not Det	500.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	2300	100.0
Chlorobenzene	ug/L	Not Det	30.0
1,2-Dichlorobenzene	ug/L	Not Det	30.0
1,3-Dichlorobenzene	ug/L	Not Det	30.0
1,4-Dichlorobenzene	ug/L	Not Det	30.0
Ethylbenzene	ug/L	560	250.0
Toluene	ug/L	Not Det	100.0
Xylenes (total)	ug/L	740	500.0
Methyl tert-butyl ether	ug/L	Not Det	60.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	3	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-22D

LAB I.D. AA12937 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 16:15

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6



Mr. Chris Cornelissen

Page: 19

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	50	10.0
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	10	0.5
Toluene	ug/L	1	1.0
Xylenes (total)	ug/L	8	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	10	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen

Page: 20

September 24, 1991

Location code: GEIGER9 Loc. Desc.: MW-26S

LAB I.D. AA12938 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91

Submittal Date: 09/06/91

Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	3	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	51	6.0
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	120	6.0
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.6	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
Page: 21  
September 24, 1991

2321-VOA W. by GC EPA 602 (continued):  
Methyl tert-butyl ether ug/L

Not Det 0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L 2 1.0  
2310-Furnace Dig W. EPA 3020 done

Multicomponent analysis: 2322-Poly Aro Hydro W. EPA 610

Acenaphthene	ug/L	Not Det	0.5
Acenaphthylene	ug/L	Not Det	0.5
Anthracene	ug/L	Not Det	0.5
Benzo[a]anthracene	ug/L	Not Det	0.3
Benzo[b]fluoranthene	ug/L	Not Det	1.0
Benzo[k]fluoranthene	ug/L	Not Det	1.0
Benzo[ghi]perylene	ug/L	Not Det	1.0
Benzo[a]pyrene	ug/L	Not Det	0.7
Chrysene	ug/L	Not Det	0.3
Dibenzo[a,h]anthracene	ug/L	Not Det	1.0
Fluoranthene	ug/L	Not Det	0.4
Fluorene	ug/L	Not Det	0.7
Indeno[1,2,3-cd]pyrene	ug/L	Not Det	1.0
1-Methylnaphthalene	ug/L	Not Det	0.4
2-Methylnaphthalene	ug/L	Not Det	0.4
Naphthalene	ug/L	Not Det	0.3
Phenanthrene	ug/L	Not Det	0.4
Pyrene	ug/L	Not Det	0.3
2323-BN Liq. Liq. Ext. EPA 3520		done	

Location code: GEIGER9 Loc. Desc.: RINSE BLANK  
LAB I.D. AA12939 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/04/91 Collection Time: 14:01  
Submittal Date: 09/06/91 Submittal Time: 12:43  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
 Page: 22  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Xylenes (total)	ug/L	2	1.0
Methyl tert-butyl ether	ug/L	1	0.6

Location code: GEIGER9 Loc. Desc.: TRIP BLANK  
 LAB I.D. AA12940 P.O./Project No. J6014 Client No. 12024  
 Submittal Date: 09/06/91 Submittal Time: 12:43

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	2	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: GEIGER9 Loc. Desc.: MW-8S  
 LAB I.D. AA12941 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 09:15  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	15.0
Bromoform	ug/L	Not Det	30.0
Bromomethane	ug/L	Not Det	250.0
Carbon tetrachloride	ug/L	Not Det	50.0
Chloroethane	ug/L	Not Det	250.0
2-Chloroethylvinyl ether	ug/L	Not Det	50.0
Chloroform	ug/L	Not Det	100.0
Chloromethane	ug/L	Not Det	250.0
Dibromochloromethane	ug/L	Not Det	45.0
1,2-Dichlorobenzene	ug/L	Not Det	15.0

2321-VOA W. by GC EPA 601 (continued):

1,3-Dichlorobenzene	ug/L	Not Det	15.0
1,4-Dichlorobenzene	ug/L	Not Det	15.0
1,1-Dichloroethane	ug/L	Not Det	30.0
1,2-Dichloroethane	ug/L	Not Det	50.0
1,1-Dichloroethene	ug/L	Not Det	45.0
trans-1,2-Dichloroethene	ug/L	Not Det	30.0
1,2-Dichloropropane	ug/L	Not Det	15.0
cis-1,3-Dichloropropene	ug/L	Not Det	30.0
trans-1,3-Dichloropropene	ug/L	Not Det	30.0
Methylene chloride	ug/L	Not Det	250.0
1,1,2,2-Tetrachloroethane	ug/L	Not Det	100.0
Tetrachloroethene	ug/L	Not Det	50.0
1,1,1-Trichloroethane	ug/L	Not Det	50.0
1,1,2-Trichloroethane	ug/L	Not Det	45.0
Trichloroethene	ug/L	Not Det	30.0
Trichlorofluoromethane	ug/L	Not Det	45.0
Vinyl chloride	ug/L	Not Det	250.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	52	10.0
Chlorobenzene	ug/L	Not Det	15.0
1,2-Dichlorobenzene	ug/L	Not Det	15.0
1,3-Dichlorobenzene	ug/L	Not Det	15.0
1,4-Dichlorobenzene	ug/L	Not Det	15.0
Ethylbenzene	ug/L	73	25.0
Toluene	ug/L	Not Det	50.0
Xylenes (total)	ug/L	420	50.0
Methyl tert-butyl ether	ug/L	Not Det	30.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	5	1.0
2310-Furnace Dig W. EPA 3020		done	

Multicomponent analysis: 2322-Poly Aro Hydro W. EPA 610

Acenaphthene	ug/L	Not Det	25.0
Acenaphthylene	ug/L	Not Det	25.0
Anthracene	ug/L	Not Det	25.0
Benzo[a]anthracene	ug/L	Not Det	15.0
Benzo[b]fluoranthene	ug/L	Not Det	50.0
Benzo[k]fluoranthene	ug/L	Not Det	50.0
Benzo[ghi]perylene	ug/L	Not Det	50.0
Benzo[a]pyrene	ug/L	Not Det	35.0
Chrysene	ug/L	Not Det	15.0
Dibenzo[a,h]anthracene	ug/L	Not Det	50.0
Fluoranthene	ug/L	Not Det	20.0
Fluorene	ug/L	Not Det	35.0
Indeno[1,2,3-cd]pyrene	ug/L	Not Det	50.0

Mr. Chris Cornelissen

Page: 24

September 24, 1991

2322-Poly Aro Hydro W. EPA 610 (continued):

1-Methylnaphthalene	ug/L	450	20.0
2-Methylnaphthalene	ug/L	460	20.0
Naphthalene	ug/L	Not Det	15.0
Phenanthrene	ug/L	Not Det	20.0
Pyrene	ug/L	Not Det	15.0
2323-BN Liq. Lig. Ext. EPA 3520		done	

Location code: GEIGER9 Loc. Desc.: MW-8D

LAB I.D. #12942 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 09:40

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	.7	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Mr. Chris Cornelissen  
 Page: 25  
 September 24, 1991

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	1	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	26	3.0
Toluene	ug/L	3	1.0
Xylenes (total)	ug/L	52	5.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	8	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-11S  
 LAB I.D. AA12943 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 10:04  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	2.0
Bromoform	ug/L	Not Det	3.0
Bromomethane	ug/L	Not Det	25.0
Carbon tetrachloride	ug/L	Not Det	5.0
Chloroethane	ug/L	Not Det	25.0
2-Chloroethylvinyl ether	ug/L	Not Det	5.0
Chloroform	ug/L	Not Det	10.0
Chloromethane	ug/L	Not Det	25.0
Dibromochloromethane	ug/L	Not Det	5.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
1,1-Dichloroethane	ug/L	Not Det	3.0
1,2-Dichloroethane	ug/L	Not Det	5.0
1,1-Dichloroethene	ug/L	Not Det	5.0
trans-1,2-Dichloroethene	ug/L	Not Det	3.0
1,2-Dichloropropane	ug/L	Not Det	2.0
cis-1,3-Dichloropropene	ug/L	Not Det	3.0
trans-1,3-Dichloropropene	ug/L	Not Det	3.0

Mr. Chris Cornelissen  
 Page: 26  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Methylene chloride	ug/L	Not Det	25.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	10.0
Tetrachloroethene	ug/L	Not Det	5.0
1,1,1-Trichloroethane	ug/L	Not Det	5.0
1,1,2-Trichloroethane	ug/L	Not Det	5.0
Trichloroethene	ug/L	Not Det	3.0
Trichlorofluoromethane	ug/L	Not Det	5.0
Vinyl chloride	ug/L	Not Det	25.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	1.0
Chlorobenzene	ug/L	Not Det	2.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
Ethylbenzene	ug/L	80	3.0
Toluene	ug/L	Not Det	5.0
Xylenes (total)	ug/L	170	130.0
Methyl tert-butyl ether	ug/L	Not Det	3.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	Not Det	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-11D

LAB I.D. AA12944 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 10:45

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	2.0
Bromoform	ug/L	Not Det	3.0
Bromomethane	ug/L	Not Det	25.0
Carbon tetrachloride	ug/L	Not Det	5.0
Chloroethane	ug/L	Not Det	25.0
2-Chloroethylvinyl ether	ug/L	Not Det	5.0
Chloroform	ug/L	Not Det	10.0
Chloromethane	ug/L	Not Det	25.0
Dibromochloromethane	ug/L	Not Det	5.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0



2321-VOA W. by GC EPA 601 (continued):

1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
1,1-Dichloroethane	ug/L	Not Det	3.0
1,2-Dichloroethane	ug/L	Not Det	5.0
1,1-Dichloroethene	ug/L	Not Det	5.0
trans-1,2-Dichloroethene	ug/L	Not Det	3.0
1,2-Dichloropropane	ug/L	Not Det	2.0
cis-1,3-Dichloropropene	ug/L	Not Det	3.0
trans-1,3-Dichloropropene	ug/L	Not Det	3.0
Methylene chloride	ug/L	Not Det	25.0
1,1,2,2-Tetrachloroethane	ug/L	Not Det	10.0
Tetrachloroethene	ug/L	Not Det	5.0
1,1,1-Trichloroethane	ug/L	Not Det	5.0
1,1,2-Trichloroethane	ug/L	Not Det	5.0
Trichloroethene	ug/L	Not Det	3.0
Trichlorofluoromethane	ug/L	Not Det	5.0
Vinyl chloride	ug/L	Not Det	25.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	1.0
Chlorobenzene	ug/L	Not Det	2.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
Ethylbenzene	ug/L	Not Det	3.0
Toluene	ug/L	Not Det	5.0
Xylenes (total)	ug/L	9	5.0
Methyl tert-butyl ether	ug/L	Not Det	3.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	10	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-12S

LAB I.D. AA12945 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 08:13

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
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Mr. Chris Cornelissen

Page: 28

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	16	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
Page: 29  
September 24, 1991

Location code: GEIGER9 Loc. Desc.: MW-12D  
LAB I.D. AA12946 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/04/91 Collection Time: 08:37  
Submittal Date: 09/06/91 Submittal Time: 12:43  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
 Page: 30  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Methyl tert-butyl ether ug/L Not Det 0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L 9 1.0

2310-Furnace Dig W. EPA 3020 done

Location code: GEIGER9 Loc. Desc.: MW-13S  
 LAB I.D. 2212947 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 07:30  
 Submittal Date: 09/05/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
 Page: 31  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	7	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-13D

LAB I.D. AA12948 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 07:55

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0

2321-VOA W. by GC EPA 601 (continued):

1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	Not Det	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	3	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: MW-25S

LAB I.D. AA12949 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 11:15

Submittal Date: 09/06/91 Submittal Time: 12:43

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	8.0
Bromoform	ug/L	Not Det	15.0
Bromomethane	ug/L	Not Det	130.0
Carbon tetrachloride	ug/L	Not Det	25.0
Chloroethane	ug/L	Not Det	130.0
2-Chloroethylvinyl ether	ug/L	Not Det	25.0
Chloroform	ug/L	Not Det	50.0
Chloromethane	ug/L	Not Det	130.0
Dibromochloromethane	ug/L	Not Det	23.0
1,2-Dichlorobenzene	ug/L	Not Det	8.0
1,3-Dichlorobenzene	ug/L	Not Det	8.0

Mr. Chris Cornelissen

Page: 33

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,4-Dichlorobenzene	ug/L	Not Det	8.0
1,1-Dichloroethane	ug/L	Not Det	15.0
1,2-Dichloroethane	ug/L	Not Det	25.0
1,1-Dichloroethene	ug/L	Not Det	23.0
trans-1,2-Dichloroethene	ug/L	Not Det	15.0
1,2-Dichloropropane	ug/L	Not Det	8.0
cis-1,3-Dichloropropene	ug/L	Not Det	15.0
trans-1,3-Dichloropropene	ug/L	Not Det	15.0
Methylene chloride	ug/L	Not Det	130.0
1,1,2,2-Tetrachloroethane	ug/L	Not Det	50.0
Tetrachloroethene	ug/L	Not Det	25.0
1,1,1-Trichloroethane	ug/L	Not Det	25.0
1,1,2-Trichloroethane	ug/L	Not Det	23.0
Trichloroethene	ug/L	Not Det	15.0
Trichlorofluoromethane	ug/L	Not Det	23.0
Vinyl chloride	ug/L	Not Det	130.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	26	5.0
Chlorobenzene	ug/L	Not Det	8.0
1,2-Dichlorobenzene	ug/L	Not Det	8.0
1,3-Dichlorobenzene	ug/L	Not Det	8.0
1,4-Dichlorobenzene	ug/L	Not Det	8.0
Ethylbenzene	ug/L	190	13.0
Toluene	ug/L	160	25.0
Xylenes (total)	ug/L	500	25.0
Methyl tert-butyl ether	ug/L	Not Det	15.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	1	1.0
2310-Furnace Dig W. EPA 3020		done	

Multicomponent analysis: 2322-Poly Aro Hydro W. EPA 610

Acenaphthene	ug/L	Not Det	10.0
Acenaphthylene	ug/L	Not Det	10.0
Anthracene	ug/L	Not Det	10.0
Benzo[a]anthracene	ug/L	Not Det	6.0
Benzo[b]fluoranthene	ug/L	Not Det	20.0
Benzo[k]fluoranthene	ug/L	Not Det	20.0
Benzo[ghi]perylene	ug/L	Not Det	20.0
Benzo[a]pyrene	ug/L	Not Det	14.0
Chrysene	ug/L	Not Det	6.0
Dibenzo[a,h]anthracene	ug/L	Not Det	20.0
Fluoranthene	ug/L	Not Det	8.0
Fluorene	ug/L	Not Det	14.0
Indeno[1,2,3-cd]pyrene	ug/L	Not Det	20.0
1-Methylnaphthalene	ug/L	190	8.0

Mr. Chris Cornelissen  
 Page: 34  
 September 24, 1991

2322-Poly Aro Hydro W. EPA 610 (continued):

2-Methylnaphthalene	ug/L	270	8.0
Naphthalene	ug/L	220	6.0
Phenanthrene	ug/L	Not Det	8.0
Pyrene	ug/L	Not Det	6.0
2323-BN Liq. Liq. Ext. EPA 3520		done	

Location code: GEIGER9 Loc. Desc.: MW-25D  
 LAB I.D. A212950 P.O. /Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 11:30  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	3.0
Bromoform	ug/L	Not Det	6.0
Bromomethane	ug/L	Not Det	50.0
Carbon tetrachloride	ug/L	Not Det	10.0
Chloroethane	ug/L	Not Det	50.0
2-Chloroethylvinyl ether	ug/L	Not Det	10.0
Chloroform	ug/L	Not Det	20.0
Chloromethane	ug/L	Not Det	50.0
Dibromochloromethane	ug/L	Not Det	9.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
1,1-Dichloroethane	ug/L	Not Det	6.0
1,2-Dichloroethane	ug/L	Not Det	10.0
1,1-Dichloroethene	ug/L	Not Det	9.0
trans-1,2-Dichloroethene	ug/L	Not Det	6.0
1,2-Dichloropropane	ug/L	Not Det	3.0
cis-1,3-Dichloropropene	ug/L	Not Det	6.0
trans-1,3-Dichloropropene	ug/L	Not Det	6.0
Methylene chloride	ug/L	Not Det	50.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	20.0
Tetrachloroethene	ug/L	Not Det	10.0
1,1,1-Trichloroethane	ug/L	Not Det	10.0
1,1,2-Trichloroethane	ug/L	Not Det	9.0
Trichloroethene	ug/L	Not Det	6.0
Trichlorofluoromethane	ug/L	Not Det	9.0
Vinyl chloride	ug/L	Not Det	50.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602



Mr. Chris Cornelissen  
 Page: 35  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	Not Det	2.0
Chlorobenzene	ug/L	Not Det	3.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
Ethylbenzene	ug/L	110	5.0
Toluene	ug/L	33	10.0
Xylenes (total)	ug/L	290	100.0
Methyl tert-butyl ether	ug/L	Not Det	6.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	Not Det	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER9 Loc. Desc.: RINSE BLANK  
 LAB I.D. AA12951 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 10:25  
 Submittal Date: 09/06/91 Submittal Time: 12:43  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	2	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: GEIGER9 Loc. Desc.: TRIP BLANK  
 LAB I.D. AA12952 P.O./Project No. J6014 Client No. 12024  
 Submittal Date: 09/06/91 Submittal Time: 12:43

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
Page: 36  
September 24, 1991

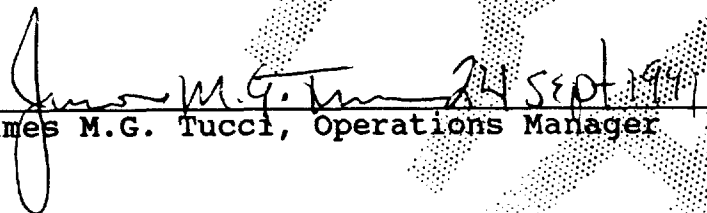
2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	2	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

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Please advise should you have questions concerning these data.

Respectfully submitted,

  
James M.G. Tucci, Operations Manager

Law Environmental, Inc.  
 Pensacola Branch  
 7215 Pine Forest Road  
 Pensacola, Florida 32526



September 24, 1991

Mr. Chris Cornelissen  
 Law Engineering, Inc.  
 3301 Atlantic Ave.  
 Raleigh, NC 27604  
 Clt. #12024 Proj. #475-90-6014

Dear Mr. Cornelissen:

Below are results of analysis of 23 samples received for examination on September 6, 1991:

Location code: GEIGER10 Loc. Desc.: CGMW-02  
 LAB I.D. AA12971 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/05/91 Collection Time: 09:10  
 Submittal Date: 09/06/91 Submittal Time: 19:40  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601			
Bromodichloromethane	ug/L	Not Det	2.0
Bromoform	ug/L	Not Det	3.0
Bromomethane	ug/L	Not Det	25.0
Carbon tetrachloride	ug/L	Not Det	5.0
Chloroethane	ug/L	Not Det	25.0
2-Chloroethylvinyl ether	ug/L	Not Det	5.0
Chloroform	ug/L	Not Det	10.0
Chloromethane	ug/L	Not Det	25.0
Dibromochloromethane	ug/L	Not Det	5.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
1,1-Dichloroethane	ug/L	Not Det	3.0
1,2-Dichloroethane	ug/L	Not Det	5.0
1,1-Dichloroethene	ug/L	Not Det	5.0
trans-1,2-Dichloroethene	ug/L	Not Det	3.0
1,2-Dichloropropane	ug/L	Not Det	2.0
cis-1,3-Dichloropropene	ug/L	Not Det	3.0
trans-1,3-Dichloropropene	ug/L	Not Det	3.0
Methylene chloride	ug/L	Not Det	25.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	10.0
Tetrachloroethene	ug/L	Not Det	5.0
1,1,1-Trichloroethane	ug/L	Not Det	5.0

Mr. Chris Cornelissen  
 Page: 2  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1,2-Trichloroethane	ug/L	Not Det	5.0
Trichloroethene	ug/L	Not Det	3.0
Trichlorofluoromethane	ug/L	Not Det	5.0
Vinyl chloride	ug/L	Not Det	25.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	40	1.0
Chlorobenzene	ug/L	Not Det	2.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
Ethylbenzene	ug/L	41	3.0
Toluene	ug/L	12	5.0
Xylenes (total)	ug/L	76	5.0
Methyl tert-butyl ether	ug/L	Not Det	3.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	Not Det	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: CGMW-03  
 LAB I.D. AA12972 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/05/91 Collection Time: 10:25  
 Submittal Date: 09/06/91 Submittal Time: 19:40  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0

Mr. Chris Cornelissen  
 Page: 3  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	2	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	8	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	2	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: CGMW-04

LAB I.D. AA12973 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91 Collection Time: 08:30

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0

Mr. Chris Cornelissen

Page: 4

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	.6	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	13	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	.7	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	2	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	28	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: 35GW6

LAB I.D. AA12974 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91 Collection Time: 06:55

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Mr. Chris Cornelissen

Page: 5

September 24, 1991

Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.6
Bromoform	ug/L	Not Det	2.0
Bromomethane	ug/L	Not Det	10.0
Carbon tetrachloride	ug/L	Not Det	2.0
Chloroethane	ug/L	Not Det	10.0
2-Chloroethylvinyl ether	ug/L	Not Det	2.0
Chloroform	ug/L	Not Det	4.0
Chloromethane	ug/L	Not Det	10.0
Dibromochloromethane	ug/L	Not Det	2.0
1,2-Dichlorobenzene	ug/L	Not Det	0.6
1,3-Dichlorobenzene	ug/L	Not Det	0.6
1,4-Dichlorobenzene	ug/L	Not Det	0.6
1,1-Dichloroethane	ug/L	Not Det	2.0
1,2-Dichloroethane	ug/L	Not Det	2.0
1,1-Dichloroethene	ug/L	Not Det	2.0
trans-1,2-Dichloroethene	ug/L	18	2.0
1,2-Dichloropropane	ug/L	Not Det	0.6
cis-1,3-Dichloropropene	ug/L	Not Det	2.0
trans-1,3-Dichloropropene	ug/L	Not Det	2.0
Methylene chloride	ug/L	Not Det	10.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	4.0
Tetrachloroethene	ug/L	Not Det	2.0
1,1,1-Trichloroethane	ug/L	Not Det	2.0
1,1,2-Trichloroethane	ug/L	Not Det	2.0
Trichloroethene	ug/L	59	2.0
Trichlorofluoromethane	ug/L	Not Det	2.0
Vinyl chloride	ug/L	Not Det	10.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.4
Chlorobenzene	ug/L	Not Det	0.6
1,2-Dichlorobenzene	ug/L	Not Det	0.6
1,3-Dichlorobenzene	ug/L	Not Det	0.6
1,4-Dichlorobenzene	ug/L	Not Det	0.6
Ethylbenzene	ug/L	Not Det	1.0
Toluene	ug/L	Not Det	2.0
Xylenes (total)	ug/L	Not Det	2.0
Methyl tert-butyl ether	ug/L	Not Det	2.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	12	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
 Page: 6  
 September 24, 1991

Location code: GEIGER10 Loc. Desc.: MW-16S  
 LAB I.D. AA12975 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/05/91 Collection Time: 12:30  
 Submittal Date: 09/06/91 Submittal Time: 19:40  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	15.0
Bromoform	ug/L	Not Det	30.0
Bromomethane	ug/L	Not Det	250.0
Carbon tetrachloride	ug/L	Not Det	50.0
Chloroethane	ug/L	Not Det	250.0
2-Chloroethylvinyl ether	ug/L	Not Det	50.0
Chloroform	ug/L	Not Det	100.0
Chloromethane	ug/L	Not Det	250.0
Dibromochloromethane	ug/L	Not Det	45.0
1,2-Dichlorobenzene	ug/L	Not Det	15.0
1,3-Dichlorobenzene	ug/L	Not Det	15.0
1,4-Dichlorobenzene	ug/L	Not Det	15.0
1,1-Dichloroethane	ug/L	Not Det	30.0
1,2-Dichloroethane	ug/L	Not Det	50.0
1,1-Dichloroethene	ug/L	Not Det	45.0
trans-1,2-Dichloroethene	ug/L	Not Det	30.0
1,2-Dichloropropane	ug/L	Not Det	15.0
cis-1,3-Dichloropropene	ug/L	Not Det	30.0
trans-1,3-Dichloropropene	ug/L	Not Det	30.0
Methylene chloride	ug/L	Not Det	250.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	100.0
Tetrachloroethene	ug/L	Not Det	50.0
1,1,1-Trichloroethane	ug/L	Not Det	50.0
1,1,2-Trichloroethane	ug/L	Not Det	45.0
Trichloroethene	ug/L	Not Det	30.0
Trichlorofluoromethane	ug/L	Not Det	45.0
Vinyl chloride	ug/L	Not Det	250.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	40	10.0
Chlorobenzene	ug/L	Not Det	15.0
1,2-Dichlorobenzene	ug/L	Not Det	15.0
1,3-Dichlorobenzene	ug/L	Not Det	15.0
1,4-Dichlorobenzene	ug/L	Not Det	15.0
Ethylbenzene	ug/L	76	25.0
Toluene	ug/L	230	50.0
Xylenes (total)	ug/L	800	50.0



Mr. Chris Cornelissen  
 Page: 7  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):  
 Methyl tert-butyl ether ug/L

Not Det 30.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L 6 1.0  
 2310-Furnace Dig W. EPA 3020 done

Location code: GEIGER10 Loc. Desc.: MW-16D

LAB I.D. RA12976 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91 Collection Time: 12:55

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	3.0
Bromoform	ug/L	Not Det	6.0
Bromomethane	ug/L	Not Det	50.0
Carbon tetrachloride	ug/L	Not Det	10.0
Chloroethane	ug/L	Not Det	50.0
2-Chloroethylvinyl ether	ug/L	Not Det	10.0
Chloroform	ug/L	Not Det	20.0
Chloromethane	ug/L	Not Det	50.0
Dibromochloromethane	ug/L	Not Det	9.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
1,1-Dichloroethane	ug/L	Not Det	6.0
1,2-Dichloroethane	ug/L	Not Det	10.0
1,1-Dichloroethene	ug/L	Not Det	9.0
trans-1,2-Dichloroethene	ug/L	Not Det	6.0
1,2-Dichloropropane	ug/L	Not Det	3.0
cis-1,3-Dichloropropene	ug/L	Not Det	6.0
trans-1,3-Dichloropropene	ug/L	Not Det	6.0
Methylene chloride	ug/L	Not Det	50.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	20.0
Tetrachloroethene	ug/L	Not Det	10.0
1,1,1-Trichloroethane	ug/L	Not Det	10.0
1,1,2-Trichloroethane	ug/L	Not Det	9.0
Trichloroethene	ug/L	Not Det	6.0
Trichlorofluoromethane	ug/L	Not Det	9.0
Vinyl chloride	ug/L	Not Det	50.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
 Page: 8  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	12	2.0
Chlorobenzene	ug/L	Not Det	30.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
Ethylbenzene	ug/L	21	5.0
Toluene	ug/L	23	10.0
Xylenes (total)	ug/L	100	10.0
Methyl tert-butyl ether	ug/L	Not Det	6.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	9	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-17S

LAB I.D. AA12977 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91 Collection Time: 11:50

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	1	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0

Mr. Chris Cornelissen

Page: 9

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	.6	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.5	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	1	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	6	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-17D

LAB I.D. AA12978 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91

Collection Time: 12:15

Submittal Date: 09/06/91

Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3

Mr. Chris Cornelissen  
 Page: 10  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	.6	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	7	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-18S

LAB I.D. AA12979 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91

Collection Time: 07:18

Submittal Date: 09/06/91

Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	2.0
Bromoform	ug/L	Not Det	3.0

Mr. Chris Cornelissen

Page: 11

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Bromomethane	ug/L	Not Det	25.0
Carbon tetrachloride	ug/L	Not Det	5.0
Chloroethane	ug/L	Not Det	25.0
2-Chloroethylvinyl ether	ug/L	Not Det	5.0
Chloroform	ug/L	Not Det	10.0
Chloromethane	ug/L	Not Det	25.0
Dibromochloromethane	ug/L	Not Det	5.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
1,1-Dichloroethane	ug/L	Not Det	3.0
1,2-Dichloroethane	ug/L	Not Det	5.0
1,1-Dichloroethene	ug/L	Not Det	5.0
trans-1,2-Dichloroethene	ug/L	Not Det	3.0
1,2-Dichloropropane	ug/L	Not Det	2.0
cis-1,3-Dichloropropene	ug/L	Not Det	3.0
trans-1,3-Dichloropropene	ug/L	Not Det	3.0
Methylene chloride	ug/L	Not Det	25.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	10.0
Tetrachloroethene	ug/L	Not Det	5.0
1,1,1-Trichloroethane	ug/L	Not Det	5.0
1,1,2-Trichloroethane	ug/L	Not Det	5.0
Trichloroethene	ug/L	Not Det	3.0
Trichlorofluoromethane	ug/L	Not Det	5.0
Vinyl chloride	ug/L	Not Det	25.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	52	1.0
Chlorobenzene	ug/L	Not Det	2.0
1,2-Dichlorobenzene	ug/L	Not Det	2.0
1,3-Dichlorobenzene	ug/L	Not Det	2.0
1,4-Dichlorobenzene	ug/L	Not Det	2.0
Ethylbenzene	ug/L	Not Det	3.0
Toluene	ug/L	Not Det	5.0
Xylenes (total)	ug/L	Not Det	5.0
Methyl tert-butyl ether	ug/L	32	3.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	9	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
 Page: 13  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Methyl tert-butyl ether ug/L 1 0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead ug/L 5 1.0

2310-Furnace Dig W. EPA 3020 done

Location code: GEIGER10 Loc. Desc.: MW-19S

LAB I.D. AA12981 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/04/91 Collection Time: 17:54

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	5	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	12	2.0
Tetrachloroethene	ug/L	1	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	31	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Mr. Chris Cornelissen  
 Page: 14  
 September 24, 1991

2321-VOA W. by GC EPA 602 (continued):

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	36	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-19D  
 LAB I.D. AA12982 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/04/91 Collection Time: 18:18  
 Submittal Date: 09/06/91 Submittal Time: 19:40  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	15.0
Bromoform	ug/L	Not Det	30.0
Bromomethane	ug/L	Not Det	250.0
Carbon tetrachloride	ug/L	Not Det	50.0
Chloroethane	ug/L	Not Det	250.0
2-Chloroethylvinyl ether	ug/L	Not Det	50.0
Chloroform	ug/L	Not Det	100.0
Chloromethane	ug/L	Not Det	250.0
Dibromochloromethane	ug/L	Not Det	45.0
1,2-Dichlorobenzene	ug/L	Not Det	15.0
1,3-Dichlorobenzene	ug/L	Not Det	15.0
1,4-Dichlorobenzene	ug/L	Not Det	15.0
1,1-Dichloroethane	ug/L	Not Det	30.0
1,2-Dichloroethane	ug/L	Not Det	50.0
1,1-Dichloroethene	ug/L	Not Det	45.0
trans-1,2-Dichloroethene	ug/L	92	30.0
1,2-Dichloropropane	ug/L	Not Det	15.0
cis-1,3-Dichloropropene	ug/L	Not Det	30.0
trans-1,3-Dichloropropene	ug/L	Not Det	30.0
Methylene chloride	ug/L	Not Det	250.0



Mr. Chris Cornelissen  
 Page: 15  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,1,2,2,-Tetrachloroethane	ug/L	Not Det	100.0
Tetrachloroethene	ug/L	Not Det	50.0
1,1,1-Trichloroethane	ug/L	Not Det	50.0
1,1,2-Trichloroethane	ug/L	Not Det	45.0
Trichloroethene	ug/L	630	30.0
Trichlorofluoromethane	ug/L	Not Det	45.0
Vinyl chloride	ug/L	Not Det	250.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	2.0
Chlorobenzene	ug/L	Not Det	3.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
Ethylbenzene	ug/L	Not Det	5.0
Toluene	ug/L	Not Det	10.0
Xylenes (total)	ug/L	Not Det	10.0
Methyl tert-butyl ether	ug/L	Not Det	6.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	9	1.0
2310-Furnace Dig W. EPA 3030		done	

Location code: GEIGER10 Loc. Desc.: MW-23S

LAB I.D. AA12983 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91 Collection Time: 09:30

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3

Mr. Chris Cornelissen

Page: 16

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	.6	0.6
Trichlorofluoromethane	ug/L	.9	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	2	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-23D

LAB I.D. AA12984 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91 Collection Time: 09:50

Submittal Date: 09/06/91 Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6

Mr. Chris Cornelissen

Page: 17

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L		.7
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	2	1.0
2310-Furnace Dig W. EPA 3020		done	

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Mr. Chris Cornelissen  
Page: 18  
September 24, 1991

Location code: GEIGER10 Loc. Desc.: RINSE BLANK  
LAB I.D. AA12985 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/05/91 Collection Time: 09:40  
Submittal Date: 09/06/91 Submittal Time: 19:40  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 602			
Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	1	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: GEIGER10 Loc. Desc.: RINSE BLANK  
LAB I.D. AA12986 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/05/91 Collection Time: 07:25  
Submittal Date: 09/06/91 Submittal Time: 19:40  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 602			
Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Mr. Chris Cornelissen  
Page: 19  
September 24, 1991

Location code: GEIGER10 Loc. Desc.: TRIP BLANK  
LAB I.D. AA12987 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 09/06/91 Submittal Time: 19:40

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Location code: GEIGER10 Loc. Desc.: 35GW5  
LAB I.D. AA12988 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/05/91 Collection Time: 14:20  
Submittal Date: 09/06/91 Submittal Time: 19:40  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6

Mr. Chris Cornelissen  
 Page: 20  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9
Trichloroethene	ug/L	.6	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.3	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	3	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	Not Det	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-24S

LAB I.D. AA12989 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91

Collection Time: 14:44

Submittal Date: 09/06/91

Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	3.0
Bromoform	ug/L	Not Det	6.0
Bromomethane	ug/L	Not Det	50.0
Carbon tetrachloride	ug/L	Not Det	10.0
Chloroethane	ug/L	Not Det	50.0
2-Chloroethylvinyl ether	ug/L	Not Det	10.0
Chloroform	ug/L	Not Det	20.0

2321-VOA W. by GC EPA 601 (continued):

Chloromethane	ug/L	Not Det	50.0
Dibromochloromethane	ug/L	Not Det	9.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
1,1-Dichloroethane	ug/L	Not Det	6.0
1,2-Dichloroethane	ug/L	Not Det	10.0
1,1-Dichloroethene	ug/L	Not Det	9.0
trans-1,2-Dichloroethene	ug/L	Not Det	6.0
1,2-Dichloropropane	ug/L	Not Det	3.0
cis-1,3-Dichloropropene	ug/L	Not Det	6.0
trans-1,3-Dichloropropene	ug/L	Not Det	6.0
Methylene chloride	ug/L	Not Det	50.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	20.0
Tetrachloroethene	ug/L	Not Det	10.0
1,1,1-Trichloroethane	ug/L	Not Det	10.0
1,1,2-Trichloroethane	ug/L	Not Det	9.0
Trichloroethene	ug/L	Not Det	6.0
Trichlorofluoromethane	ug/L	Not Det	9.0
Vinyl chloride	ug/L	Not Det	50.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	11	2.0
Chlorobenzene	ug/L	Not Det	3.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
Ethylbenzene	ug/L	10	5.0
Toluene	ug/L	Not Det	10.0
Xylenes (total)	ug/L	43	10.0
Methyl tert-butyl ether	ug/L	Not Det	6.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	5	1.0
2310-Furnace Dig W. EPA 3020		done	

Multicomponent analysis: 2322-Poly Aro Hydro W. EPA 610

Acenaphthene	ug/L	Not Det	0.5
Acenaphthylene	ug/L	Not Det	0.5
Anthracene	ug/L	Not Det	0.5
Benzo[a]anthracene	ug/L	Not Det	0.3
Benzo[b]fluoranthene	ug/L	Not Det	1.0
Benzo[k]fluoranthene	ug/L	Not Det	1.0
Benzo[ghi]perylene	ug/L	Not Det	1.0
Benzo[a]pyrene	ug/L	Not Det	0.7
Chrysene	ug/L	Not Det	0.3
Dibenzo[a,h]anthracene	ug/L	Not Det	1.0

Mr. Chris Cornelissen

Page: 22

September 24, 1991

2322-Poly Aro Hydro W. EPA 610 (continued):

Fluoranthene	ug/L	Not Det	0.4
Fluorene	ug/L	1	0.7
Indeno[1,2,3-cd]pyrene	ug/L	Not Det	1.0
1-Methylnaphthalene	ug/L	64	0.4
2-Methylnaphthalene	ug/L	63	0.4
Naphthalene	ug/L	41	0.3
Phenanthrene	ug/L	Not Det	0.4
Pyrene	ug/L	Not Det	0.3

2323-BN Liq. Liq. Ext. EPA 3520

done

Location code: GEIGER10 Loc. Desc.: MW-24D

LAB I.D. AA12990 P.O./Project No. J6014 Client No. 12024

Collection Date: 09/05/91

Collection Time: 15:05

Submittal Date: 09/06/91

Submittal Time: 19:40

Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	0.3
Bromoform	ug/L	Not Det	0.6
Bromomethane	ug/L	Not Det	5.0
Carbon tetrachloride	ug/L	Not Det	1.0
Chloroethane	ug/L	Not Det	5.0
2-Chloroethylvinyl ether	ug/L	Not Det	1.0
Chloroform	ug/L	Not Det	2.0
Chloromethane	ug/L	Not Det	5.0
Dibromochloromethane	ug/L	Not Det	0.9
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
1,1-Dichloroethane	ug/L	Not Det	0.6
1,2-Dichloroethane	ug/L	Not Det	1.0
1,1-Dichloroethene	ug/L	Not Det	0.9
trans-1,2-Dichloroethene	ug/L	Not Det	0.6
1,2-Dichloropropane	ug/L	Not Det	0.3
cis-1,3-Dichloropropene	ug/L	Not Det	0.6
trans-1,3-Dichloropropene	ug/L	Not Det	0.6
Methylene chloride	ug/L	Not Det	5.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	2.0
Tetrachloroethene	ug/L	Not Det	1.0
1,1,1-Trichloroethane	ug/L	Not Det	1.0
1,1,2-Trichloroethane	ug/L	Not Det	0.9



Mr. Chris Cornelissen  
 Page: 23  
 September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

Trichloroethene	ug/L	.6	0.6
Trichlorofluoromethane	ug/L	Not Det	0.9
Vinyl chloride	ug/L	Not Det	5.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	.7	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	1	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	3	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	7	1.0
2310-Furnace Dig W. EPA 3020		done	

Location code: GEIGER10 Loc. Desc.: MW-27S  
 LAB I.D. AA12991 P.O./Project No. J6014 Client No. 12024  
 Collection Date: 09/05/91  
 Submittal Date: 09/06/91 Submittal Time: 19:40  
 Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
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Multicomponent analysis: 2321-VOA W. by GC EPA 601

Bromodichloromethane	ug/L	Not Det	3.0
Bromoform	ug/L	Not Det	6.0
Bromomethane	ug/L	Not Det	50.0
Carbon tetrachloride	ug/L	Not Det	10.0
Chloroethane	ug/L	Not Det	50.0
2-Chloroethylvinyl ether	ug/L	Not Det	10.0
Chloroform	ug/L	Not Det	20.0
Chloromethane	ug/L	Not Det	50.0
Dibromochloromethane	ug/L	Not Det	9.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
1,1-Dichloroethane	ug/L	Not Det	6.0
1,2-Dichloroethane	ug/L	Not Det	10.0
1,1-Dichloroethene	ug/L	Not Det	9.0

Mr. Chris Cornelissen

Page: 24

September 24, 1991

2321-VOA W. by GC EPA 601 (continued):

trans-1,2-Dichloroethene	ug/L	Not Det	6.0
1,2-Dichloropropane	ug/L	Not Det	3.0
cis-1,3-Dichloropropene	ug/L	Not Det	6.0
trans-1,3-Dichloropropene	ug/L	Not Det	6.0
Methylene chloride	ug/L	Not Det	50.0
1,1,2,2,-Tetrachloroethane	ug/L	Not Det	20.0
Tetrachloroethene	ug/L	Not Det	10.0
1,1,1-Trichloroethane	ug/L	Not Det	10.0
1,1,2-Trichloroethane	ug/L	Not Det	9.0
Trichloroethene	ug/L	Not Det	6.0
Trichlorofluoromethane	ug/L	Not Det	9.0
Vinyl chloride	ug/L	Not Det	50.0

Multicomponent analysis: 2321-VOA W. by GC EPA 602

Benzene	ug/L	12	2.0
Chlorobenzene	ug/L	Not Det	3.0
1,2-Dichlorobenzene	ug/L	Not Det	3.0
1,3-Dichlorobenzene	ug/L	Not Det	3.0
1,4-Dichlorobenzene	ug/L	Not Det	3.0
Ethylbenzene	ug/L	10	5.0
Toluene	ug/L	Not Det	10.0
Xylenes (total)	ug/L	43	10.0
Methyl tert-butyl ether	ug/L	Not Det	6.0

Multicomponent analysis: 2310-Fur. Metals W. EPA 7000

Lead	ug/L	7	1.0
2310-Furnace Dig W. EPA 3020		done	

Multicomponent analysis: 2322-Poly Aro Hydro W. EPA 610

Acenaphthene	ug/L	.7	0.5
Acenaphthylene	ug/L	Not Det	0.5
Anthracene	ug/L	Not Det	0.5
Benzo[a]anthracene	ug/L	Not Det	0.3
Benzo[b]fluoranthene	ug/L	Not Det	1.0
Benzo[k]fluoranthene	ug/L	Not Det	1.0
Benzo[ghi]perylene	ug/L	Not Det	1.0
Benzo[a]pyrene	ug/L	Not Det	0.7
Chrysene	ug/L	Not Det	0.3
Dibenzo[a,h]anthracene	ug/L	Not Det	1.0
Fluoranthene	ug/L	Not Det	0.4
Fluorene	ug/L	Not Det	0.7
Indeno[1,2,3-cd]pyrene	ug/L	Not Det	1.0
1-Methylnaphthalene	ug/L	42	0.4
2-Methylnaphthalene	ug/L	42	0.4
Naphthalene	ug/L	31	0.3
Phenanthrene	ug/L	Not Det	0.4
Pyrene	ug/L	Not Det	0.3

2323-BN Liq. Liq. Ext. EPA 3520

done

Mr. Chris Cornelissen  
Page: 25  
September 24, 1991

Location code: GEIGER10 Loc. Desc.: RINSE BLANK  
LAB I.D. AA12992 P.O./Project No. J6014 Client No. 12024  
Collection Date: 09/05/91 Collection Time: 14:55  
Submittal Date: 09/06/91 Submittal Time: 19:40  
Sample collector: CORNELISSEN

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 602			
Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	1	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6


Location code: GEIGER10 Loc. Desc.: TRIP BLANK  
LAB I.D. AA12993 P.O./Project No. J6014 Client No. 12024  
Submittal Date: 09/06/91 Submittal Time: 19:40

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
-----			
Multicomponent analysis: 2321-VOA W. by GC EPA 602			
Benzene	ug/L	Not Det	0.2
Chlorobenzene	ug/L	Not Det	0.3
1,2-Dichlorobenzene	ug/L	Not Det	0.3
1,3-Dichlorobenzene	ug/L	Not Det	0.3
1,4-Dichlorobenzene	ug/L	Not Det	0.3
Ethylbenzene	ug/L	Not Det	0.5
Toluene	ug/L	Not Det	1.0
Xylenes (total)	ug/L	Not Det	1.0
Methyl tert-butyl ether	ug/L	Not Det	0.6

Mr. Chris Cornelissen  
Page: 26  
September 24, 1991

Please advise should you have questions concerning these data.

Respectfully submitted,

  
~~James M.G. Tucci~~ 24 SEPT 1991  
James M.G. Tucci, Operations Manager

DRAFT



**LAW ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

**CHAIN OF CUSTODY RECORD**

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME					JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE)							40 MUG VOA HCl 1 L.G. P (HNO <sub>3</sub> ) 1 L.G. P (NaOH) 1 L.G. P (H <sub>2</sub> SO <sub>4</sub> ) 1 L.P. (NaOH + Ascorbic Acid) 1 L.P. Teflon 1 L.G. P 12% Acetate + NaOH 8 oz. G 1 L.G. Amber 1 L.P. Blue 250 ml/G - Amber 40 MUG VOA												
SAMPLING DATE																			
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
1507	X		W	Potable Water		3													AA09242
RELINQUISHED BY: <i>Chris Cantone</i> (SIGNATURE)				DATE/TIME 5/26/91	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)				DATE/TIME 1					
RELINQUISHED BY: (SIGNATURE)				DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)				RECEIVED AT LABORATORY: <i>N.S. Grindel</i> (SIGNATURE)				DATE/TIME 5-30 9:30					

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

\* SOURCE CODES:  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL

Law Environmental, Inc.  
7215 Pine Forest Road  
Pensacola, Florida 32526



Analytical Request Form

To: LEI

Attn: SAMPLE RECEIVING

From: LAW ENV  
(Branch/Company Name)

CARIS COOPERISSEN  
(Dept or Name)

CDC Number: 1896

Project Name: Camp Buccell

Project Number: 142590-6014

Date Shipped: 5/28/81

Date results requested: 10 day

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
Potable Water	APP 602 BTEX + MTBE		H <sub>2</sub> O	

Comments:

SILTRON -  
Please send back my new cockle

CARIS



ENVIRONMENTAL, INC.  
NATIONAL LABORATORIES  
7215 PINE FOREST ROAD  
PENSACOLA, FLORIDA 32526  
(904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
STREET ADDRESS: \_\_\_\_\_

PROJECT NAME <i>Camp Lyall</i>				JOB NO. <i>16014</i>		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE) <i>Chris Curshen</i>				SAMPLING DATE <i>8/2/91</i>			40 ml G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	1 L G (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml Amber	
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION															
1510	X		HP	HP-4		3												3	AA11671
1615	X		HP	HP-5		3												3	AA11672
1540	X		HP	HP-7		3												3	AA11673
1425	X		HP	HP-15		3												3	AA11674
1342	X		HP	HP-16		3												3	AA11675
1305	X		HP	HP-17		3												3	AA11676
				Trip Blank		3												3	AA11677

RELINQUISHED BY: *Chris Curshen* (SIGNATURE) DATE / TIME: *8/2/91 1750* RECEIVED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
RECEIVED BY LABORATORY: *MS. Perle* (SIGNATURE) DATE / TIME: *8-7-91 11:35*

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS: Shipped Federal Express

\*SOURCE CODES  
RECOVERY WELL - RW  
RCRA MONITORING WELL - MW  
SOIL / SEDIMENT - SO  
SLUDGE - SL  
Hickory - HP  
NPDES DISCHARGE - ND  
DRINKING WATER - DW  
HAZARDOUS WASTE - HW  
SURFACE WATER - SW  
NON-AQUEOUS - NA



**RW ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

**SAMPLING INFORMATION**      **NAME OF FACILITY:** \_\_\_\_\_  
**NPDES NUMBER**      **STREET ADDRESS:** \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.				
CAMP LEYONE					↓ 6014				40 ml G VOA HCl / 1 L G - AMBER / 8 oz. G. W/M / 2 oz. G. W/M / 1 L G (H <sub>2</sub> SO <sub>4</sub> ) / 500 ml - AMBER / 1 L PL (HNO <sub>3</sub> ) / 1 L PL (H <sub>2</sub> SO <sub>4</sub> ) / 1 L PL (NaOH + Ascorbic Acid) / 1 L PL (Zn Acetate + NaOH) / 1 L PL / 250 ml PL / 1 L TEFLON / 40 ml G VOA												
SAMPLERS (SIGNATURE) <i>Chris Carlsen</i>					SAMPLING DATE 8/6/91																
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1140	X		RP	HP B																3	AA11678
0856	X		HP	HP-11																3	AA11679
1101	X		HP	HP-12																3	AA11680
0942	X		HP	HP-14																3	AA11681
1035	✓		HP	HP-18																3	AA11682
0814	✓		HP	HP-19																3	AA11683
0743	X		HP	HP-20																3	AA11684
1008	X		HP	Rinse Blank																3	AA11685
				TRIP BLANK																3	AA11686
RELINQUISHED BY: <i>Chris Carlsen</i> (SIGNATURE)			DATE / TIME 8/6/91 1745	RECEIVED BY: (SIGNATURE)			DATE / TIME	RELINQUISHED BY: (SIGNATURE)			RECEIVED BY LABORATORY: <i>[Signature]</i> (SIGNATURE)			DATE / TIME 8/7/91 11:40							

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**REMARKS**  
 \_\_\_\_\_  
 Shipped via Federal Express  
 \_\_\_\_\_  
 \_\_\_\_\_

- \*SOURCE CODES**
- |                           |                      |
|---------------------------|----------------------|
| RECOVERY WELL - RW        | NPDES DISCHARGE - ND |
| RCRA MONITORING WELL - MW | DRINKING WATER - DW  |
| SOIL / SEDIMENT - SO      | HAZARDOUS WASTE - HW |
| SLUDGE - SL               | SURFACE WATER - SW   |
| Hydroponic - HP           | NON-AQUEOUS - NA     |



Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: Sample Receiver

From: CHRIS CORNELISSEN  
 (Branch/Company Name)

LAW ENV  
 (Dept or Name)

COC Number: 4257

Project Name: Camp Levee

Project Number: 147590-6014

Date Shipped: 8/6/91

Date results requested: 5 DAY

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method	
HP-4	Full Pesticide Screenings		Water	EPA 602	
HP-5	[Large handwritten 'S' scribble covering the table content]				
HP-7					
HP-15					
HP-16					
HP-17					
TRIP BLANK					

Comments:

Please analyze for full EPA 602 (include 417B)

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEVL

Attn: SAMPLE RECEIVING

From: LAW ENV  
 (Branch/Company Name)

CHRIS CORVECCISEN  
 (Dept or Name)

COC Number: 4256

Project Name: CAMP LEVINE

Project Number: 147590-6014

Date Shipped: 2/6/91

Date results requested: 5 DAY

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
HP-13	Full Pesticide Screenings (include MTBE)		Water	EPA 602
HP-11	}	}	}	}
HP-12				
HP-14				
HP-18				
HP-19				
HP-20				
Rinse Blank				
TRIP Blank				

Comments:

Please run full EPA 602 on all samples (include MTBE)



**W ENVIRONMENTAL, INC.**  
 ANALYTICAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

**CHAIN OF CUSTODY RECORD**

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE											LENL LAB NO.							
SAMPLERS (SIGNATURE)				16011		40 MUG VOA HCl 1 LG. P. HNO <sub>3</sub> 1 LG. P. (NaOH) 1 LG. P. H <sub>2</sub> SO <sub>4</sub> 1 LG. P. 1 LP. (NaOH) 1 L. Teflon 1 LG. P. (Zn Acetate/MSD) 8 oz. G. P. 1 LG. Amber 1 LP. Opac 200 MUG Amber 40 M. P. P (HNO <sub>3</sub> ) 1 LG. UC																		
SAMPLING DATE																								
TIME	GRAB	COMP.	SOURCE CODE			SAMPLE STATION DESCRIPTION																		
0855	X			Potable Water	4																		13	AA11635
RELINQUISHED BY:		DATE/TIME		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:		DATE/TIME		RELINQUISHED BY:		RECEIVED AT LABORATORY:		DATE/TIME								
<i>Chris Corbett</i>		8/5/91 11:14		_____		_____		_____		8-6-91		_____		<i>AP. Gerhart</i>		11:00								
(SIGNATURE)				(SIGNATURE)		(SIGNATURE)		(SIGNATURE)				(SIGNATURE)		(SIGNATURE)										
RELINQUISHED BY:		DATE/TIME		RECEIVED BY:		RELINQUISHED BY:		RECEIVED AT LABORATORY:		DATE/TIME		RELINQUISHED BY:		RECEIVED AT LABORATORY:		DATE/TIME								
_____				_____		_____		_____				_____		_____										
(SIGNATURE)				(SIGNATURE)		(SIGNATURE)		(SIGNATURE)				(SIGNATURE)		(SIGNATURE)										

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
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REMARKS: SAMPLED PORTABLE EXPRESS

- \* SOURCE CODES:
- RECOVERY WELL - RW
- RCRA MONITORING WELL - MW
- SOIL/SEDIMENT - SO
- SLUDGE - SL
- NPDES DISCHARGE - ND
- DRINKING WATER - DW
- HAZARDOUS WASTE - HW



**ENVIRONMENTAL, INC.**  
 ENVIRONMENTAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

**CHAIN OF CUSTODY RECORD**

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.		
SAMPLERS (SIGNATURE)						40 mg VOA HCl 1 L G. P. (HNO <sub>3</sub> ) 1 L G. P. (NaOH) 1 L G. P. (H <sub>2</sub> SO <sub>4</sub> ) 1 L P. (NaOH) 1 L Telson 1 L G. P. (Zn Acetate + Ascorbic Acid) 8 oz. G. P. 1 L G. Amber 1 L P. Amber 250 mL Amber 1 L G. VOA														
SAMPLING DATE																				
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																
15:20	X		HP	HP-1	3															AA11636
				TRIP Block	3															AA11637
RELINQUISHED BY:				DATE/TIME	RECEIVED BY:				RECEIVED BY:				DATE/TIME							
<i>[Signature]</i>				5/5/91 1745	<i>[Signature]</i>				<i>[Signature]</i>											
(SIGNATURE)					(SIGNATURE)				(SIGNATURE)											
RELINQUISHED BY:				DATE/TIME	RECEIVED BY:				RECEIVED BY:				DATE/TIME							
<i>[Signature]</i>					<i>[Signature]</i>				<i>[Signature]</i>				8-6-91 1100							
(SIGNATURE)					(SIGNATURE)				(SIGNATURE)											

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REMARKS: shipped out via express

- \* SOURCE CODES:
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL/SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEUL

Attn: Sample Receiver

From: LAW ENV  
 (Branch/Company Name)

CHRIS CAMELISEA  
 (Dept or Name)

COC Number: 2796

Project Name: CAMP LEUL

Project Number: 1601

Date Shipped: 8/5/91

Date results requested: 8/13/91

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
Potable water	Lead Total		water	EPA 239.2
"	Purgeable Volcanburg		"	EPA 601

Comments:

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



**Analytical Request Form**

To: LENL

Attn: SAMPLE RECEIVING

From: Law Env.  
 (Branch/Company Name)

PARIS CORUJESSEN  
 (Dept or Name)

COC Number: 2241

Project Name: Group Leg...

Project Number: 141590-0014

Date Shipped: 8/5/91

Date results requested: 5 WORK DAY

Sample ID	Analysis Requested (incl. Ref. #)	Detection Limits Req.	Sample Type	Method
HP-1	Purgeable Organics TOXIC SUBSTANCES		WATER	EPA 602
TRIP Blank				

Comments:

Please include Roll Paper and  
 EPA 602 methodology



**ENVIRONMENTAL, INC.**  
 ANALYTICAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

STRAIN OF CLOSURE...

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.
SAMPLERS (SIGNATURE)						40 ml VG VOA HCl	1 L G. P (HNO <sub>3</sub> )	1 L G. P (NaOH)	1 L G. P (H <sub>2</sub> SO <sub>4</sub> )	1 L P. (NaOH + Acetone EtOH)	1 L G. P (Zn Acetate EtOH)	8 oz G.P.	1 L G. Amber	250 ml Amber	250 ml Amber				
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
06:50	Y		HP	HP-2												FA11734 ✓			
08:10	Y		HP	HP-3												FA11735 ✓			
08:50	Y		HP	HP-6												FA11736 ✓			
09:55	Y		HP	HP-8												FA11737 ✓			
10:32	Y		HP	HP-9												FA11738 ✓			
09:35	Y		HP	HP-10												FA11739 ✓			
09:15	Y			Rinse Blank												FA11740 ✓			
				TRIP Blank												FA11741 ✓			
11:14	Y		HP	HP-21												FA11742 ✓			

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:	DATE/TIME
<i>[Signature]</i>	8/1/15	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	RECEIVED AT LABORATORY:	DATE/TIME
<i>[Signature]</i>		<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	8/1/15

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REMARKS: SHIPMENT FEDERAL EXPRESS

- \* SOURCE CODES:  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 RECOVERY WELL - RW



ENVIRONMENTAL, INC.  
 ANALYTICAL LABORATORIES  
 1215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

MAIN CONTROL RECORD

22

SAMPLING INFORMATION

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE)				8-7-91		40 mgb VOA HCl 1 L.G. P (HNO <sub>3</sub> ) 1 L.G. P (NaOH) 1 L.G. P (NaOH) 1 L.G. P (H <sub>2</sub> SO <sub>4</sub> ) 1 L.P. (NaOH + NaOH) 1 L. Teflon + Ascorbic Acid 8 oz. G. P (Zn Acetate + NaOH) 1 L.G. P 1 L.P. - Amber 250 ml G. - Amber												
SAMPLING DATE																		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION														
0650	Y		HP	HP-2													AA11734	
0810	Y		HP	HP-3													AA11735	
0850	Y		HP	HP-6													AA11736	
0955	Y		HP	HP-8													AA11737	
1032	Y		HP	HP-9													AA11738	
0925	Y		HP	HP-10													AA11739	
0915	Y			Rinse Blank													AA11740	
				TRIP Blank													AA11741	
1114	Y		HP	HP-21													AA11742	

RELINQUISHED BY: <i>Chris Conlisen</i> (SIGNATURE)	DATE/TIME 8/7/91 11:20	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME 
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME 	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: <i>N.S. Brinkley</i> (SIGNATURE)	DATE/TIME 8-8-91 11:15

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REMARKS: SHIPMENT FEDERAL Express

- \* SOURCE CODES:  
 Hydroponics - HP  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW



Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: SAMPLE RECEIVING

From: LAW ENV  
 (Branch/Company Name)

CHRIS CORNELISSEN  
 (Dept or Name)

COC Number: 2867

Project Name: Camp Lejeune

Project Number: 147990-6014

Date Shipped: 8/7/91

Date results requested: 5 DAY

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
HP-2	Full Purgeable Analytes to include MTBE		Water	EPA 602
HP-3	[Large handwritten scribble]			
HP-6				
HP-8				
HP-9				
HP-10				
Rinse Blank				
TRIP Blank				
HP-21				

Comments:

PLEASE Analyze all samples for ALL parameters UNDER EPA 602 to include MTBE



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

**SAMPLING INFORMATION**  
 NPDES NUMBER: \_\_\_\_\_  
 NAME OF FACILITY: CAMP GEEGER  
 STREET ADDRESS: Hwy 17 S  
JACKSONVILLE, NC

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
CAMP GEEGER		J6014			40 ml G VDA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL (H <sub>2</sub> SO <sub>4</sub> )	250 ml PL	
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION													
1630	✓	SO	<del>HA-3</del> B-2	8-29-91 8.5'-10.5'	4	2	2										AA12869
1630	✓	SO	B-2	5.5-6.0 8-29-91	4	2	2										AA12870
1840	✓	SO	HA-3	8-30-91	4	2	2										AA12871
1850	✓	SO	HA-4A	8-30-91	1	1											AA12872
1850	✓	SO	HA-4AB	8-30-91	1	1											AA12873
1850	✓	SO	HA-4B	8-30-91	2	2											AA12874
		SO	B-3A		4	2	2										DID NOT RECEIVE
		SO	B-3B		4	2	2										DID NOT RECEIVE
1150	✓	SO	B-4A	8-30-91	4	2	2										AA12875
<del>1200</del>	✓	SO	B-4B	8-30-91	4	2	2										AA12876
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		RECEIVED BY LABORATORY:		DATE / TIME					
<u>RALCOH</u>		8/30/1991		<u>[Signature]</u>				<u>[Signature]</u>		<u>N.B. Grinkel</u>		8-31-91				12:10	
(SIGNATURE)				(SIGNATURE)				(SIGNATURE)		(SIGNATURE)							

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**REMARKS**

B-3A Did not received (U) 8-31-91

B-3B did not received (U) 8-31-91

- \*SOURCE CODES**
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

1469

**SAMPLING INFORMATION**  
 NAME OF FACILITY: CAMP GEIGER  
 STREET ADDRESS: HWY 17 S  
JACKSONVILLE, NC  
 NPDES NUMBER: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.	
CAMP GEIGER		J6014			40 ml G. VOA HCl	1 L G. - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G. (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PF-W/M	250 ml PL		1 L TEFLON
TIME	GRAB	COMP.	*SOURCE CODE		SAMPLE STATION DESCRIPTION													
1315	✓		SO	B-5A	4	2	2										AA12877	
1325	✓		SO	B-5B	4	2	2										AA12878	
1415	✓		SO	B-6A	4	2	2										AA12879	
1430	✓		SO	B-6B	4	2	2										AA12880	
1610	✓		SO	HA-7	4	2	2										AA12881	
RELINQUISHED BY:		DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:		DATE / TIME										
RAKOLL		8/31/91				NB. Jenkel		8-31-91										
(SIGNATURE)			(SIGNATURE)		(SIGNATURE)	(SIGNATURE)		10										

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**REMARKS**

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**\*SOURCE CODES**

- RECOVERY WELL - RW
- RCRA MONITORING WELL - MW
- SOIL / SEDIMENT - SO
- SLUDGE - SL
- NPDES DISCHARGE - ND
- DRINKING WATER - DW
- HAZARDOUS WASTE - HW
- SURFACE WATER - SW
- NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: Law Labs  
 From: Law Env Rallig  
 (Branch/Company Name)

Attn: Sample Receiving  
475  
 (Dept or Name)

COC Number: 2473

Project Name: Camp Geiger

Project Number: J6014

Date Shipped: 8/30/91

Date results requested: 2 weeks

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
→ B-2 8.5'-10.5'	TPH 3550/5030	10	Soil	
→ B-2 5.5'-6'	TPH 3550/5030	10	Soil	
→ B-2 8.5'-10.5'	Lead 1311		Soil	
→ B-2 5.5'-6'	Lead 1311		Soil	
HA-4A	<del>TPH</del> Lead 1311		Soil	
HA-4AB	TPH 3550	10	Soil	
HA-4B	TPH 5030	10	Soil	
B-4A	TPH 3550/5030	10	Soil	
B-4A	Pb 1311		Soil	
B-4B	TPH 3550/5030	10	Soil	
B-4B	Pb 1311		Soil	

Comments:  
 SAMPLE HA-3 WAS OMITTED FROM  
 ANALYTICAL REQUEST. ASSUMED ANALYSIS  
 ARE TPH 5030/3550 & Pb. NG  
8/30/91





Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEAL

Attn: SAMPLE RECEIVING

From: Raleigh, NC / LAW ENVIRONMENTAL  
 (Branch/Company Name)

475  
 (Dept or Name)

COC Number: 2859

Project Name: CAMP CENTER

Project Number: 54759D-6014

Date Shipped: 8/22/91

Date results requested: 2 wks

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
✓ MW-15 4.0-6.0'	TPH, LDRL	ppm	SO	5030, 3550, 1311
✓ MW-15 8.5-10.5'	TPH, LDRL	1		5030, 3550, 1311
✓ MW-16 A	TPH, LDRL			5030, 3550, 1311
✓ MW-16 B	TPH, LDRL			5030, 3550, 1311
✓ MW-17 4-6'	TPH, LDRL			5030, 3550, 1311
✓ MW-17 15.5-20.5'	TPH, LDRL			5030, 3550, 1311
✓ MW-18 A	TPH, LDRL			5030, 3550, 1311
✓ MW-18 B	TPH, LDRL			5030, 3550, 1311
✓ MW-19 2.0-4.0'	TPH, LDRL			5030, 3550, 1311
✓ MW-19 8.5-10.5'	TPH, LDRL			5030, 3550, 1311

Comments:



**ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

**CHAIN OF CUSTODY CORD**

**SAMPLING INFORMATION**

NAME OF FACILITY: Carroll Center Food Process  
 STREET ADDRESS: Route 17 South  
 CITY/STATE: Waxhamsville, NC ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE)						40 mg VOA(HCl)	1 L.G.P. (HNO <sub>3</sub> )	1 L.G.P. (NaOH)	1 L.G.P. (H <sub>2</sub> SO <sub>4</sub> )	1 L.P. (H <sub>2</sub> SO <sub>4</sub> )	1 L.P. (NaOH + Acetic Acid)	1 L.G.P. (Zn Acetate + NaOH)	8 oz. G.P.	1 L.G. Amber	1 L.P. Orange	250 ml G. Amber		
SAMPLING DATE																		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION														
13:00			SO	MW-8, 6.0-8.0'	3									X		AA12308		
13:05			SO	MW-8, 14.0-16.0'	3									X		AA12309		

RELINQUISHED BY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME: <u>8/15/91</u> <u>11:36</u>	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME: _____
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME: _____	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME: <u>8/15/91</u>

**DISTRIBUTION:** ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS:** \_\_\_\_\_  
 \_\_\_\_\_

- \* SOURCE CODES:  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW





AW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

4450

**SAMPLING INFORMATION**  
 NPDES NUMBER: \_\_\_\_\_  
 NAME OF FACILITY: CAMP GEEGER FUEL TANK  
 STREET ADDRESS: MWY 17 S JACKSONVILLE, NC

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
CAMP GEEGER		J6014			40 ml G VOA HCl	1 L G - AMBER	8 oz B - W/MPPA 350/26/1311	2 oz G - W/MPPA 350/26/1311	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH-Ascorbic Acid)	1 L PL (Zn Acetate/NaOH)	250 ml PL	1 L TEFLON	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION													
8 1100	✓		SD	MW-22A	4	2	2										AA12790
8 1110	✓		SD	MW-22B	5	2	2								1		AA12791
7 16:00	✓		SD	MW-23, 0.0-2.0'	4	2	2										AA12792
7 16:00	✓		SD	MW-23, 13.5-15.5'	4	2	2										AA12793
8 1030	✓		SD	MW-24, 2.0-4.0'	4	2	2										AA12794
8 1030	✓		SD	MW-24, 8.5-10.5'	4	2	2										AA12795
8 1715	✓		SD	MW-25, 2.0-4.0'	4	2	2										AA12796
8 1725	✓		SD	MW-25 4.0-6.0'	4	2	2										AA12797

RELINQUISHED BY: EMCOW (SIGNATURE) DATE / TIME: 8/28/91 1800  
 RECEIVED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ (SIGNATURE) RECEIVED BY LABORATORY: UP. Gentel (SIGNATURE) DATE / TIME: 8-29-91 11:30

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**REMARKS**

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**\*SOURCE CODES**

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LAW LABS  
 From: RALEIGH LAW ENG.  
 (Branch/Company Name)

Attn: SAMPLE RECEIVING  
ENVIRON  
 (Dept or Name)

COC Number: 4458

Project Name: CAMP GEEBEE

Project Number: 96014

Date Shipped: 8/28/91

Date results requested: 2 WKS

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-22A	TPH 3550/5030	10 ppm	Soil	
	Lead 1311			
MW-22b	TPH 3550/5030	10 ppm		
	Lead 1311			
	Flashpoint 1010			
MW-23 0.0-2.0'	TPH 3550/5030	10 ppm		
	LDRL (Pb) 1311			
MW-23 13.5-15.5'	TPH 3550/5030	10 ppm		
	LDRL (Pb) 1311			
MW-24 2.0-4.0'	TPH 3550/5030	10 ppm		
	LDRL (Pb) 1311			
MW-24 8.5-10.5'	TPH 3550/5030	10 ppm		
	LDRL (Pb) 1311			
MW-25	TPH 3550/5030	10 ppm		
Comments:	LDRL (Pb) 1311			
MW-25	TPH 3550/5030	10 ppm		
	LDRL (Pb) 1311			



**A.W. ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

**SAMPLING INFORMATION**  
 NPDES NUMBER

NAME OF FACILITY: CAMP GEIGER  
 STREET ADDRESS: JACKSONVILLE (RT. 17 SOUTH)

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 LG - AMBER	8 OZ G - W/M	2 OZ G - W/M	1 L G V SO <sub>2</sub>	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascortinic Acid)	1 L PL (Zn Acetate + H <sub>2</sub> O <sub>2</sub> )	250 ml PL	1 L TEFELON	
SAMPLING DATE					8/19/19	8/20/19	TPH 3500	TPH 5030									
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION													
				<del>MW-9</del>	<del>4</del>												
1120	✓	So		MW-10A	4	1	2							1		AA12483	
1400	✓	So		MW-11 4'-6' *	4	1	2							1	1	AA12484	
1710	✓	So		MW-12A	4	1	2							1		AA12485	
1530	✓	So		MW-14B	4	1	2							1		AA12486	
				<del>MW-9</del>													
1125	✓	So		MW-10B	2	0	2									AA12487	
1405	✓	So		MW-11 8.5-10.5' *	5	1	2							1	1	AA12488	
1715	✓	So		MW-12B	4	1	2							1		AA12489	
1400	✓	So		MW-13, 8.5'-10.5'	4	1	2							1		AA12490	
1410	✓	So		MW-13, 18.5'-20.5'	4	1	2							1		AA12491	
1530	✓	So		MW-14A	4	1	2							1		AA12492	

RELINQUISHED BY: RALPH (SIGNATURE) DATE / TIME: 8/20/19  
 RECEIVED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RECEIVED BY LABORATORY: APACORUS (SIGNATURE) DATE / TIME: 8/21/19

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**REMARKS**

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**\*SOURCE CODES**

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: SAMPLE CONTROL  
 From: LAKEHURST BRANCH  
 (Branch/Company Name)

Attn: HYDROCARBON LAB  
SAMPLE CONTROL  
 (Dept or Name)

COC Number: \_\_\_\_\_

Project Name: CAMP GUNN

Project Number: 597591-6014

Date Shipped: 8/21/91

Date results requested: HYDROCARBON STANDARD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
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11-102 MW-10 A	TPH, LDRL (Pb only)	PPM	SO	5030, 3550, 1311
10-11 MW-10 B	TPH LDRL (Pb only)		SO	5030, 3550, 1311
112484 MW-11 4.0'-6.0'	TPH, Flashpt, LDRL (Pb only)		SO	5030, 3550, 1311
11-88 MW-11 8.5'-10.5'	TPH, Flashpt, LDRL (Pb only)		SO	5030, 3550, 1311
112485 MW-12 A	TPH, LDRL (Pb only)		SO	5030, 3550, 1311
11-189 MW-12 B	TPH, LDRL (Pb only)		SO	5030, 3550, 1311
11-190 MW-13 8.5'-10.5'	TPH, LDRL (Pb only)		SO	5030, 3550, 1311
112491 MW-13 18.5'-20.5'	TPH & LDRL (Pb only)		SO	5030, 3550, 1311

Comments:

Please Do Flashpt. by. SW846/1010



**W ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

**SAMPLING INFORMATION**  
 NAME OF FACILITY: CAMP GEIGER  
 STREET ADDRESS: HWY 175 JACKSONVILLE, NC  
 NPDES NUMBER: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.	
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	80z G W/M	20z G W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4oz PL W/M	250 ml PL	1 L TEFLON		
SAMPLING DATE					1 L G - AMBER	80z G W/M	20z G W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4oz PL W/M	250 ml PL	1 L TEFLON			
TIME	GRAB	COMP.	*SOURCE CODE		SAMPLE STATION DESCRIPTION	40 ml G VOA HCl	1 L G - AMBER	80z G W/M	20z G W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4oz PL W/M	250 ml PL		1 L TEFLON
CAMP GEIGER		J6014			20z GLASS - FLASH POINT 8oz amber PLASTIC														
Rick Kolb																			
8/23/91																			
1340	✓			MW-20A	4	2	2												AA12656
1345	✓			MW-20B	5	2	2										1		AA12657
1255	✓			MW-21 2'-4'	5	2	2											1	AA12658
1300	✓			MW-21 4'-6'	5	2	2											1	AA12659
RELINQUISHED BY: Rick Kolb		DATE / TIME: 8/23/91 1900		RECEIVED BY:		DATE / TIME:		RELINQUISHED BY:		RECEIVED BY: Shana Taha		LABORATORY:		DATE / TIME: 08/24/91 1100					

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 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS**

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- \*SOURCE CODES**
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: Law Env. Nat'l Lab  
 From: Raleigh Law Eng.  
 (Branch/Company Name)

Attn: Sample receiving  
Environmental Plid 6616  
 (Dept or Name)

COC Number: 4474

Project Name: Camp Geiger

Project Number: J6014

Date Shipped: 8/23/91

Date results requested: 2 weeks

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
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2156 MW-20A	TPH 3550/5030	10	Soil	
MW-20A	Lead / 1311		Soil	
MW-20B	TPH 3550/5030	10	Soil	
2157 MW-20B	Lead / 1311		Soil	
MW-20B	Flashpoint		Soil	
MW-21 2'-4'	TPH 3550/5030	10	Soil	
2158 MW-21 2'-4'	Lead / 1311		Soil	
MW-21 2'-4'	Flashpoint		Soil	
MW-21 4'-6'	TPH 3550/5030	10	Soil	
121659 MW-21 4'-6'	Lead / 1311		Soil	
MW-21 4'-6'	Flashpoint		Soil	

Comments:

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LAW ENV - KENNESAW

Attn: RHONDA ARWINE

From: LAW ENV - PENSACOLA  
 (Branch/Company Name)

\_\_\_\_\_  
 (Dept or Name)

COC Number: 4391

Project Name: CAMP GEESE

Project Number: J6014

Date Shipped: 8-26-91

Date results requested: 9-8-91

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
AA12657	FLASHPOINT		SOIL	
AA12658	FLASHPOINT		SOIL	
AA12659	FLASHPOINT		SOIL	

Comments: SEND INVOICE, RESULTS, & COOLER TO

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, FL 32526-3908  
 (904)944-9772

Attn: JAMES M.G. TUCCI



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

### CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION

NAME OF FACILITY: Camp Greber Fuel Farm  
 STREET ADDRESS: Rt 17 South  
 CITY/STATE: Jacksonville, NC ZIP: \_\_\_\_\_

PROJECT NAME <u>Camp Greber Fuel Farm</u>				JOB NO. <u>J47591-6014</u>	TOTAL NO. OF CONTAINERS	CONTAINER TYPE 40 ml/100 VOA (K) 1 L G. R. (HNO <sub>3</sub> ) 1 L G. P. (HNO <sub>3</sub> ) 1 L G. P. (H <sub>2</sub> SO <sub>4</sub> ) 1 L P. 1 L (NH <sub>4</sub> OH + Ascorbic Acid) 1 L G. P. (Zn Acetate + H <sub>2</sub> OHI) 1 L G. P. 1 L G. Amber 1 L G. Amber 250 ml/G. Amber
SAMPLERS (SIGNATURE) <u>[Signature]</u>						
SAMPLING DATE <u>8-16-97</u>						
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION		LENL LAB NO.

10:00	/		SO	MW-9, 6.0' - 8.0'	1	X one	AA12307
10:00	/		SO	MW-9, 6.0' - 8.0'	1	X Sample	
10:00	/		SO	MW-9, 6.0' - 8.0'	1	X	
10:05	/		SO	MW-9 16.0' - 18.0'	1	X one	AA12308
10:05	/		SO	MW-9 16.0' - 18.0'	1	X sample	
10:05	/		SO	MW-9 16.0' - 18.0'	1	X	

RELINQUISHED BY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>8/16/97 15:45</u>	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME _____
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME _____	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>8/17/97 11:30</u>

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REMARKS: \_\_\_\_\_

\* SOURCE CODES:  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW



Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: HYDRO CARBON LAB

Attn: \_\_\_\_\_

From: F. C. THALMANN / RALEIGH, NC  
 (Branch/Company Name)

\_\_\_\_\_ (Dept or Name)

Law Envir. Raleigh, NC

COC Number: \_\_\_\_\_

Project Name: CAMP (RIVER FUEL FARM)

Project Number: 547591-6014

Date Shipped: 8/16/91

Date results requested: Hydrocarbon Standard

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-9 6.0-8.0'	Flashpoint (SW846/1010)	PPM	So	1010
MW-9 6.0-8.0'	TPH (SW846/3550)			3550-Semi's
MW-9 6.0-8.0'	LDRL (PB ONLY - 1311)			1311
MW-9 11.0-18.0'	Flashpoint (SW846/1010)			1010
MW-9 11.0-18.0'	TPH (SW846/3550)			3550-Semi vols
MW-9 16.0-18.0'	LDRL (PB ONLY - 1311)			1311

Comments:



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

1065

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME				JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.		
SAMPLERS (SIGNATURE)							40 ml G VOA HCl	1 L G - AMBER	802 G W/M	202 G W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	402 G W/M	250 ml PL	1 L TEFLON		500 ml PL	40 ml G VOA
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																		
Camp George fuel farm				16014																		
SAMPLERS (SIGNATURE)																						
SAMPLING DATE				9/3/91																		
1700	X		MW	CGMW-01		4														AA12922		
1835	X		MW	MW-9S		4														AA12923		
1823	X		MW	MW-9D		4														AA12924		
1720	X		MW	MW-10S		4														AA12925		
1745	X		MW	MW-10D		4														AA12926		
				TRIP BLANK		3														AA12927		
RELINQUISHED BY:				DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:				RECEIVED BY LABORATORY:				DATE / TIME				
[Signature]				9/4/91 1745		[Signature]		1		[Signature]				NS. Gentel				9-5-91 11:35				

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 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS  
 SHIPPED VIA FEDERAL EXPRESS  
 GMW-01 Time not match on bottle label on log 19:00 9-5-91 Ng

\*SOURCE CODES  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME <i>Land being built for</i>				JOB NO. <i>J1014</i>	TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.								
SAMPLERS (SIGNATURE) <i>Chris Lamberson</i>				SAMPLING DATE <i>9/4/91</i>		40 ml G VOA HCl 1 L G - AMBER 8 oz G - W/M 2 oz G - W/M 1 L G (H <sub>2</sub> O) 500 ml - AMBER 1 L PL (HNO <sub>3</sub> ) 1 L PL (H <sub>2</sub> SO <sub>4</sub> ) 1 L PL (NaOH + Ascorbic Acid) 1 L PL (Zn Acetate + HNO <sub>3</sub> ) 1 L PL 4oz PL W/M 250 ml PL 1 L TEFLON 40 ml G VOA HCl 500 ml PL (HNO <sub>3</sub> )																					
TIME	GRAB	COMP.	SOURCE CODE		SAMPLE STATION DESCRIPTION																						
1545	Y		MW	356W4	4																						AA12928
1355	f		MW	MW-155	4																						AA12929
1419	x		MW	MW-15D	4																						AA12930
1153	f		MW	MW-145	5																						AA12931
1500	f		MW	MW-14D	4																						AA12932
1155	Y		MW	MW-205	4																						AA12933
1300	f		MW	MW-215	4																						AA12934
1300	f		MW	MW-21D	4																						AA12935
1600	f		MW	MW-225	4																						AA12936
1615	f		MW	MW-22D	4																						AA12937
	f		MW	MW-265	5																						AA12938
RELINQUISHED BY: <i>Chris Lamberson</i>			DATE / TIME <i>9/4/91 1745</i>	RECEIVED BY: _____			DATE / TIME _____	RELINQUISHED BY: _____			RECEIVED BY LABORATORY: <i>N.S. Benkel</i>			DATE / TIME <i>9-5-91 1135</i>													
(SIGNATURE)				(SIGNATURE)				(SIGNATURE)			(SIGNATURE)																

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS  
 \_\_\_\_\_  
*Shipped via Fed Ex Express*  
 \_\_\_\_\_  
 \_\_\_\_\_

\*SOURCE CODES  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	250 ml PL	1 L TEFLON	
SAMPLING DATE					1 L G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	250 ml PL	1 L TEFLON	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION												LENL LAB NO.	
1401	X			Rinse Blank												3	AA12939
	Y			Trip Blank												3	AA12940
RELINQUISHED BY:		DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:			RECEIVED BY LABORATORY:	DATE / TIME								
<i>[Signature]</i>		9/4/91 1245	<i>[Signature]</i>		<i>[Signature]</i>			<i>[Signature]</i>									

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- \*SOURCE CODES**
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.			
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 LG - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate+NaOH)	4oz PL W/M	250 ml PL		1 L TEFLON	40 x 1 G VOA	5oz PL (HNO <sub>3</sub> )
TIME	GRAB	COMP.	SOURCE CODE		SAMPLE STATION DESCRIPTION															
0915	X		MW	MW-8S	5	1											1A3		AA12841	
0940	X		MW	MW-8D	4	1											1A3		AA12842	
1004	X		MW	MW-11S	4	1											1A3		AA12843	
1045	X		MW	MW-11D	4												1A3		AA12844	
0913	X		MW	MW-13S	4												1A3		AA12845	
0937	X		MW	MW-10D	1												1A3		AA12846	
0730	X		MW	MW-13S	4												1A3		AA12847	
0755	X		MW	MW-13D	1												1A3		AA12848	
1115	X		MW	MW-25S	5	1											1A3		AA12849	
1130	✓		MW	MW-25D	4												1A3		AA12850	
1025	X			Rinse Blank	3												1A3		AA12851	
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		RECEIVED BY LABORATORY:		DATE / TIME								
Chris Conelstein		9/4/91		[Signature]		[Signature]		[Signature]		MS. [Signature]		9-5-91								
(SIGNATURE)				(SIGNATURE)		(SIGNATURE)		(SIGNATURE)		(SIGNATURE)										

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS: Shipped via Federal Express  
MW-11S Receive 1 liter not listed on C.O.C. 9-5-91

\*SOURCE CODES  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA



Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEOL

Attn: SAMPLE RECEIVING

From: LAW ENG  
 (Branch/Company Name)

CHRIS CORNELISEN  
 (Dept or Name)

COC Number: 4265

Project Name: CAMP BRIGGS fuel FERM

Project Number: 147590-6014

Date Shipped: 9/4/91

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
CGMW-01	PURGEABLE Halocarbon, full Purgeable Aromatics, Total Lead		Water	EPA 601, EPA 602 EPA 839.2
MW-9S				
MW-9D				
MW-10S				
MW-10D				
TRIP Blank	Full Purgeable Aromatics			EPA 602

Comments:

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



**Analytical Request Form**

To: LEEL

Attn: Sample Received

From: LAW  
 (Branch/Company Name)

C. COZZI/SSEX  
 (Dept or Name)

COC Number: 737 + 282

Project Name: Loop Geop. Ind. Form Project Number: 147590-6014

Date Shipped: 9/4/91

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
35GW7	Possible Hexachlorocyclopentadiene, Total Lead		Water	EPA 801, 802 239.2
MW-15S				
MW-15D				
MW-14D				
MW-20S				
MW-21S				
MW-21D				
MW-22S				
MW-22D				
MW-14C	Possible Hexachlorocyclopentadiene, Total Lead, PCBs			EPA 801, 802 239.2, 610
MW-26S				
Ring Block	Soil Hexachlorocyclopentadiene			EPA 802
TRIP Block				

Comments:



Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: SAMPLE RECEIVING

From: LAW ENL  
 (Branch/Company Name)

CHRIS CARVELISSEN  
 (Dept or Name)

CDC Number: 5387 1949

Project Name: CAMP GEIGER  
Fuel Farm

Project Number: 147540-6014

Date Shipped: 9/4/91

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-8S	Purgeable Halocarbons, full Purgeable Aromatics, Total Lead, PN4		WATER	601, 602, 239.2 610
MW-8D	Purgeable Halocarbons, full Purgeable Aromatics, Total Lead			601, 602, 239.2
MW-11S				
MW-11D				
MW-12S				
MW-12D				
MW-13S				
MW-13D				
MW-25S	Purgeable Halocarbons, full Purgeable Aromatics Total Lead PN4			601, 602, 239.2 610
MW-25D	Purgeable Halocarbons, full Purgeable Aromatics Total Lead			601, 602, 239.2
Rinse Blank	Purgeable Aromatics			602
TRIP Blank				602

Comments:

All methods ARE EPA Methods



W ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.						
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz. G. W/M	2 oz. G. W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + Ascorbic)	1 L PL	4 oz. PL W/M		250 ml PE	1 L TEFLON	40 ml HCl	500 ml PL (HCl)		
SAMPLING DATE					40 ml G VOA HCl	1 L G - AMBER	8 oz. G. W/M	2 oz. G. W/M	1 L G (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + Ascorbic)	1 L PL	4 oz. PL W/M		250 ml PE	1 L TEFLON	40 ml HCl	500 ml PL (HCl)		
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																			
0910	X		MW	GMW-02	4																3	1	AA12971
1025	X		MW	CGMW-03	4																3	1	AA12972
0630	X		MW	CGMW-04	4																3	1	AA12973
0655	X		MW	35 GW 4	4																3	1	AA12974
1030	X		MW	MW-16S	4																3	1	AA12975
1255	X		MW	MW-16D	4																3	1	AA12976
1150	X		MW	MW-17S	4																3	1	AA12977
1215	X		MW	MW-17D	4																3	1	AA12978
0715	X		MW	MW-18S	4																3	1	AA12979
0740	X		MW	MW-18D	4																3	1	AA12980
1754	X		MW	MW-19S	4																3	1	AA12981

RELINQUISHED BY: [Signature] DATE / TIME: 9/5/91 12:12 RECEIVED BY: \_\_\_\_\_ DATE / TIME: \_\_\_\_\_  
 RECEIVED BY LABORATORY: [Signature] DATE / TIME: 9/6/91 10:45

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS: Shipped via Airborne Express

- \*SOURCE CODES
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA



**ENVIRONMENTAL, INC.**  
 ANALYTICAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

CHAIN OF CUSTODY FORM ID

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.	
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml/G VOA HCl	1 L.G. P (HNO <sub>3</sub> )	1 L.G. P (HNO <sub>3</sub> )	1 L.G. P (H <sub>2</sub> SO <sub>4</sub> )	1 L.G. P (H <sub>2</sub> SO <sub>4</sub> )	1 L.P. (NaOH + Ascorbic Acid)	1 L.G. P (Zn Acetate + NaOH)	8 oz. G. P	1 L.G. - Amber	250 ml/G - Amber	500 ml - Amber	VEA		PI (HNL)
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION														
1818	X		MW	MW 19D	4													AA12982
0930	X		MW	MW-235	4													AA12983
0950	X		MW	MW-23D	4													AA12984
0940	X			Rinse Blank	3													AA12985
0725	X			Rinse Blank	3													AA12986
				Trip Blank	3													AA12987

RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME: 9/11/91	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME: 9/11/91
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME: _____	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: _____ (SIGNATURE)	DATE/TIME: 9/11/91 10:45

**DISTRIBUTION:** ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS:** sampled via Airborne Express.

- \* SOURCE CODES:
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL/SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW



**ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

**CHAIN OF CUSTODY RECORD**

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.				
Camp Geigel fuel farm					↓6014				40 mg/L VOA (HCl)   I.L.G. P. (HNO <sub>3</sub> )   I.L.G. P. (NaOH)   I.L.G. P. (H <sub>2</sub> SO <sub>4</sub> )   I.L.P. (NaOH)   I.L. Teflon   I.L.G. P. (Zn Acetate)   Boz. G. P.   I.L.G. P.   I.L.P. Amber   250 ml (G) Amber   JSC   PL (HNO <sub>3</sub> )													
SAMPLERS (SIGNATURE)					Chris Cochran																	
SAMPLING DATE					9/5/91																	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																		
1420	X		MW	356W 5				1														AA12988
1444	X		MW	MW-245				5	1													AA12989
1505	X		MW	MW-241D				4													AA12990	
	X		MW	MW-275				5	1													AA12991
1:55	X		MW	Rinse Blank				3													AA12992	
				TRIP Blank				3													AA12993	
RELINQUISHED BY:				DATE/TIME		RECEIVED BY:				RELINQUISHED BY:				RECEIVED BY:				DATE/TIME				
Chris Cochran				9/5/91																		
(SIGNATURE)						(SIGNATURE)				(SIGNATURE)				(SIGNATURE)								
RELINQUISHED BY:				DATE/TIME		RECEIVED BY:				RELINQUISHED BY:				RECEIVED AT LABORATORY:				DATE/TIME				
														Alvarado				9/10/91				
(SIGNATURE)						(SIGNATURE)				(SIGNATURE)				(SIGNATURE)								

**DISTRIBUTION:** ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS:** Shipped via AirBorne Express

- \* SOURCE CODES:
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL/SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: Sample Reception

From: Law  
 (Branch/Company Name)

CHRIS F. VANLISSEN  
 (Dept or Name)

COC Number: 19479 3383

Project Name: Camp Hooker  
Soil

Project Number: 147590-6014

Date Shipped: 9/5/81

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
CGW-02	Possible Hexachlorocyclopentadiene Possible Brominated Toluene		water	EPA 601, 602 239 Z
CGW-03	(Large handwritten scribble)			
CGW-04				
35 CW6				
MW-16S				
MW-16D				
MW-17S				
MW-17D				
MW-18S				
MW-18D				
MW-19S				
MW-19D				
MW-23S				
MW-23D				

Comments:

Raise Blank Full Possible Hexachlorocyclopentadiene EPA 602  
 Raise Blank  
 T.P. Blank

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEU

Attn: Sample Receiving

From: LAW  
 (Branch/Company Name)

Chris Covert  
 (Dept or Name)

COC Number: 1946

Project Name: Camp Binger Fuel Farm

Project Number: JAY590-6014

Date Shipped: 9/5

Date results requested: ST 1

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
35GW5	Purgeable Halocarbons, soil Purgeable Aromatics Total Lead		Water	EPA 601, 602, 2392
MW-241	~ ~ ~			~ ~ ~
MW-245	Purgeable Halocarbons, soil Purgeable Aromatics Total Lead PVA			EPA 601, 602, 2392, 610
MW-275	~ ~ ~			~ ~ ~
Diase Black	Soil Purgeable Aromatics			EPA 602
TRIP Black	~ ~ ~			~ ~ ~

Same

Comments:

**APPENDIX I**  
**MONITORING WELL AND SAMPLING FIELD DATA WORKSHEETS**

LAW ENGINEERING  
 3301 ATLANTIC AVENUE  
 RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
 MONITORING WELL AND SAMPLING  
 FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-1

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/3/91 TIME (MILITARY) 1840

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 18.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.50 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 10.50 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 66 = 6.93 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 20.79 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 20 GAL.

CASING DIAMETER 4"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.16 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 1.83 (FT.)

SCREENED INTERVAL 8.5 - 17.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES  NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES  NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES  NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	10	20	
pH (S.U.)	6.98	6.10	5.72	
SP. COND. (µMHOS/CM)	99.4	69.3	56.4	
WATER TEMP. (C)	25.1	23.2	23.0	
TURBIDITY*	1	1	1	

\*VISUAL DETERMINATION ONLY  
 CLEAR (2) SLIGHT (3) MODERATE (4) HIGH





LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-2

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0845

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 12.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 1.63 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 10.37 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .66 = 6.84 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 20.52 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 22 GAL.

CASING DIAMETER 4"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 6.11 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.75 (FT.)

SCREENED INTERVAL 1.87 - 10.87 (FT.)

STEEL GUARD PIPE AROUND CASING YES  NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES  NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES  NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW  MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	11	22	
pH (S.U.)	6.98	6.61	6.52	
SP. COND. (µMHOS/CM)	470	430	404	
WATER TEMP. (°C)	27.4	26.8	26.6	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-3

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1000

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 12.56 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 2.44 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 10.12 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 60 = 6.70 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 20.10 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 12 GAL.

CASING DIAMETER 4"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 7.00 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.31 (FT.)

SCREENED INTERVAL 3.06 - 12.06 (FT.)

STEEL GUARD PIPE AROUND CASING YES  NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES  NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES  NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW  MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	10	12	
pH (S.U.)	7.14	7.1	7.13	
SP. COND. (µMHOS/CM)	437	423	413	
WATER TEMP. (°C)	22.8	22.6	22.3	
TURBIDITY*	1	1	1	

VISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

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ENVIRONMENTAL DEPARTMENT  
 MONITORING WELL AND SAMPLING  
 FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-4

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0805

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 12.11 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 2.54 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 9.57 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .69 = 6.31 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 18.93 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 30 GAL.

CASING DIAMETER 4"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 5.56 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.48 (FT.)

SCREENED INTERVAL 2.61 - 11.61 (FT.)

STEEL GUARD PIPE AROUND CASING YES  NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES  NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES  NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	10	20	
pH (S.U.)	7.08	6.89	7.11	
SP. COND. (µMHOS/CM)	397	442	378	
WATER TEMP. (C)	21.6	22.2	22.2	
TURBIDITY*	1	4	4	

VISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

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ENVIRONMENTAL DEPARTMENT  
 MONITORING WELL AND SAMPLING  
 FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-5

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1531

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 25.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.11 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 16.87 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 17 = 2.87 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 8.61 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 9 GAL.

PIPE DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 17.98 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 1.92 (FT.)

SCREENED INTERVAL DATA UNKNOWN (FT.)

STEEL GUARD PIPE AROUND CASING YES X NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES X NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES X NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_ \*\*

WELL YIELD LOW \_\_\_\_\_ MODERATE X HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	4.5	9	
pH (S.U.)	7.53	7.23	6.17	
SP. COND. (µMHOS/CM)	420	352	325	
WATER TEMP. (C)	24.7	25.2	25.5	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
 (1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH  
 \*\*WELL CONTAINS DEDICATED PVC BAILER



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ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-6

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1408

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 25.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 12.12 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 12.88 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 0.17 = 2.19 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 6.57 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 7 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_  TEFLON \_\_\_\_\_  OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.49 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 1.78 (FT.)

SCREENED INTERVAL DATA UNKNOWN (FT.)

STEEL GUARD PIPE AROUND CASING YES  NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES  NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES  NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_ \*\*

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	3.5	7	
pH (S.U.)	7.61	7.23	7.02	
SP. COND. (µMHOS/CM)	633	481	577	
WATER TEMP. (C)	22.5	23.4	22.2	
TURBIDITY*	1	4	4	

ISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

\*\*WELL CONTAINS DEDICATED PVC BAILER

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ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER EMW-7

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0640

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 25.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.12 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 15.88 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 1.3 = 2.70 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 8.10 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 8 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 15.97 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.05 (FT.)

SCREENED INTERVAL DATA UNKNOWN (FT.)

STEEL GUARD PIPE AROUND CASING YES  NO \_\_\_\_\_ COMMENTS \_\_\_\_\_

LOCKING CAP YES  NO \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES  NO \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_ \*\*

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	4	8	
pH (S.U.)	6.99	6.91	7.06	
SP. COND. (µMHOS/CM)	377	441	480	
WATER TEMP. (C)	20.5	20.5	20.2	
TURBIDITY*	1	4	4	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH  
\*\* WELL CONTAINS DEDICATED PVC BAILER

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ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-8S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0905

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.24 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 5.76 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .96 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.88 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.02 (FT.) DATUM: MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.35 (FT.)

SCREENED INTERVAL 4.5 - 13.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3	
pH (S.U.)	6.80	6.66	6.61	
SP. COND. (µMHOS/CM)	950	972	952	
WATER TEMP. (C)	25.6	26.2	26.2	
TURBIDITY*	2	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-8D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0923

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.24 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 21.76 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 17 = 3.69 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 11.07 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 12 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.17 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.50 (FT.)

SCREENED INTERVAL 20.5 - 29.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	6	12	
pH (S.U.)	6.61	6.58	6.59	
SP. COND. (µMHOS/CM)	651	627	623	
WATER TEMP. (C)	23.3	24.9	23.4	
TURBIDITY*	1	4	4	

VISUAL DETERMINATION ONLY  
1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-9S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/3/91 TIME (MILITARY) 1750

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 13.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 6.95 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 6.05 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 17 = 1.02 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 3.06 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3.0 GAL.

SING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.09 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.12 (FT.)

SCREENED INTERVAL 3.5 - 12.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW X MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3.0
pH (S.U.)	7.13	6.97	6.77
SP. COND. (µMHOS/CM)	783	1056	1177
WATER TEMP. (C)	24.8	24.6	24.2
TURBIDITY*	4	4	4

VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-9D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/3/91 TIME (MILITARY) 1800

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 6.99 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 23.01 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 17 = 3.91 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 11.73 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 12 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.05 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.08 (FT.)

SCREENED INTERVAL 25.5 - 29.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	6	12	
pH (S.U.)	6.61	6.53	6.63	
SP. COND. (µMHOS/CM)	532	479	477	
WATER TEMP. (C)	21.9	21.1	21.2	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

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ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-10S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/3/91 TIME (MILITARY) 1700

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.05 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 6.95 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 1.18 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 3.54 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 4 GAL.

PIPE DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.57 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.49 (FT.)

SCREENED INTERVAL 4.5 - 13.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	2	4	
pH (S.U.)	6.20	6.14	6.22	
SP. COND. (µMHOS/CM)	1092	1041	1038	
WATER TEMP. (°C)	24.0	24.9	24.5	
TURBIDITY*	4	4	4	

VISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-10D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/3/91 TIME (MILITARY) 1725

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 6.78 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 23.22 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.94 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 11.82 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 12 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.59 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.51 (FT.)

SCREENED INTERVAL 25.5 - 29.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	6	12	
pH (S.U.)	6.37	6.35	6.74	
SP. COND. (µMHOS/CM)	561	532	556	
WATER TEMP. (°C)	22.2	21.6	23.2	
TURBIDITY*	1	4	4	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-11S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0950

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.27 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 5.73 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .97 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.91 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.31 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.51 (FT.)

SCREENED INTERVAL 4.5 - 13.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3	
pH (S.U.)	6.58	6.47	5.74	
SP. COND. ( $\mu$ MHOS/CM)	600	557	6.47	
WATER TEMP. (°C)	24.4	24.2	24.2	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-11D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1008

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.60 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 21.40 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.64 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 10.91 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 11 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.39 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.59 (FT.)

SCREENED INTERVAL 25.5 - 29.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5.5	11	
pH (S.U.)	6.55	6.67	6.86	
SP. COND. (µMHOS/CM)	727	758	776	
WATER TEMP. (°C)	22.6	23.0	22.3	
TURBIDITY*	1	4	4	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-12S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0801

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.58 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 4.92 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .84 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.52 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 20.08 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.72 (FT.)

SCREENED INTERVAL 5.0 - 14.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE X HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3	
pH (S.U.)	6.73	6.61	6.89	
SP. COND. (µMHOS/CM)	654	754	686	
WATER TEMP. (°C)	22.1	23.4	22.4	
TURBIDITY*	4	4	4	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
 3301 ATLANTIC AVENUE  
 RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-12D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0817

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 28.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 10.38 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 18.14 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.08 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 9.25 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. TEFLON OTHER

MEASURING POINT ELEVATION 20.11 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.75 (FT.)

SCREENED INTERVAL 24.0 - 28.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	6.91	6.89	6.96	
SP. COND. (µMHOS/CM)	478	429	420	
WATER TEMP. (C)	21.6	22.7	22.5	
TURBIDITY*	2	2	2	

\*VISUAL DETERMINATION ONLY  
 (1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH





LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-13S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0720

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 15.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.83 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 5.17 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .88 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.64 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 16.87 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.50 (FT.)

SCREENED INTERVAL 5.5 - 14.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3.0	
pH (S.U.)	6.51	6.41	6.47	
SP. COND. (µMHOS/CM)	567	597	584	
WATER TEMP. (°C)	21.5	21.7	21.2	
TURBIDITY*	1	4	4	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-13D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 0737

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.96 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 20.04 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.4 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 10.2 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 16.95 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.58 (FT.)

SCREENED INTERVAL 25.5 - 29.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	6.66	6.69	6.74	
SP. COND. (µMHOS/CM)	404	367	380	
WATER TEMP. (°C)	20.0	19.4	19.3	
TURBIDITY*	4	2	2	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-14S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1430

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 13.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.58 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 3.42 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .58 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 1.74 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 2 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 17.32 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.51 (FT.)

SCREENED INTERVAL 3.5 - 12.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1	2	
pH (S.U.)	7.48	7.13	7.18	
SP. COND. (µMHOS/CM)	872	876	877	
WATER TEMP. (°C)	24.5	23.9	24.3	
TURBIDITY*	1	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-14D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1505

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.51 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 20.49 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.48 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 10.44 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 17.28 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.47 (FT.)

SCREENED INTERVAL 24.5 - 28.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	7.23	7.21	7.21	
SP. COND. (µMHOS/CM)	540	530	534	
WATER TEMP. (°C)	21.7	22.1	22.1	
TURBIDITY*	4	3	3	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-15S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1340

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 10.60 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 3.40 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .58 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 1.74 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 2 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.08 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.55 (FT.)

SCREENED INTERVAL 4.5 - 13.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1	2	
pH (S.U.)	7.44	6.83	6.76	
SP. COND. ( $\mu$ MHOS/CM)	910	869	886	
WATER TEMP. (C)	25.3	24.9	25.4	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-15D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1358

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 10.70 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 19.30 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.28 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 9.9 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.05 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.52 (FT.)

SCREENED INTERVAL 25.5 - 29.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	6.89	6.91	7.09	
SP. COND. (µMHOS/CM)	606	551	558	
WATER TEMP. (C)	24.2	21.3	22.2	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-16S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1220

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 12.87 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 1.63 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .28 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = .84 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 2 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_  TEFLON \_\_\_\_\_  OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.55 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.62 (FT.)

SCREENED INTERVAL 5.0 - 14.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1	2	
pH (S.U.)	6.84	6.77	6.88	
SP. COND. (µMHOS/CM)	475	554	616	
WATER TEMP. (-C)	24	25.5	25.9	
TURBIDITY*	1	1	4	

VISUAL DETERMINATION ONLY  
CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J8014 MONITORING WELL NUMBER MW-18D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1235

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 29.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 12.92 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 16.08 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X 17 = 2.73 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 8.19 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 8 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.51 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.58 (FT.)

SCREENED INTERVAL 24.5 - 28.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	4	8
pH (S.U.)	7.07	7.14	7.18
SP. COND. (µMHOS/CM)	517	530	528
WATER TEMP. (°C)	23.9	23.0	24.0
TURBIDITY*	1	2	2

VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH





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ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-17S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1140

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 17.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 11.07 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 5.93 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 1.00 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 3.00 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 16.31 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.56 (FT.)

SCREENED INTERVAL 7.5 - 16.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3	
pH (S.U.)	7.10	6.95	6.88	
SP. COND. (µMHOS/CM)	776	775	762	
WATER TEMP. (C)	22.4	21.5	21.6	
TURBIDITY*	1	2	2	

\*VISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-17D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1156

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 29.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 10.92 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 18.52 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.15 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 9.45 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 16.25 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.50 (FT.)

SCREENED INTERVAL 25.0 - 29.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	7.11	7.15	7.21	
SP. COND. ( $\mu$ MHOS/CM)	492	448	463	
WATER TEMP. (C)	21.0	20.5	20.3	
TURBIDITY*	1	2	2	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-18S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0710

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 12.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.98 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 4.54 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .77 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.31 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 13.42 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.64 (FT.)

SCREENED INTERVAL 3.0 - 12.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE X HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3	
pH (S.U.)	7.14	6.95	7.06	
SP. COND. (µMHOS/CM)	709	742	684	
WATER TEMP. (C)	20.7	21.4	20.8	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-18D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0720

FIELD PERSONNEL CORNELIJSSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 25.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.89 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 17.04 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 2.89 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 8.67 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 9 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 13.40 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.62 (FT.)

SCREENED INTERVAL 20.5 - 24.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	4.5	9	
pH (S.U.)	7.04	7.14	7.13	
SP. COND. (µMHOS/CM)	499	493	488	
WATER TEMP. (°C)	19.6	19.7	19.5	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-19S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1741

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 3.54 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 10.46 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 1.78 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 5.34 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 5 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 8.24 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.62 (FT.)

SCREENED INTERVAL 4.5 - 13.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	2.5	5	
pH (S.U.)	7.92	7.24	6.72	
SP. COND. ( $\mu$ MHOS/CM)	564	567	538	
WATER TEMP. (C)	22.1	22.0	21.7	
TURBIDITY*	1	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-19D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1758

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 25.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 3.02 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 21.98 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.73 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 11.19 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 12 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 8.20 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.58 (FT.)

SCREENED INTERVAL 22.5 - 24.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	6	12	
pH (S.U.)	6.77	6.89	7.02	
SP. COND. (µMHOS/CM)	522	515	493	
WATER TEMP. (C)	21.1	20.3	20.7	
TURBIDITY*	1	3	3	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-20S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1140

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 12.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 9.08 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 3.42 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .58 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 1.74 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 1 GAL.

ASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 15.97 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.38 (FT.)

SCREENED INTERVAL 3.0 - 12.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	.5	1	
pH (S.U.)	6.98	6.60	6.61	
SP. COND. (µMHOS/CM)	864	812	799	
WATER TEMP. (°C)	24	23.6	24.2	
TURBIDITY*	1	4	4	

VISUAL DETERMINATION ONLY

(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-21S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1250

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.50 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 5.5 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .96 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.88 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 17.65 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.47 (FT.)

SCREENED INTERVAL 4.5 - 13.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3	
pH (S.U.)	6.69	6.52	6.50	
SP. COND. ( $\mu$ MHOS/CM)	966	938	922	
WATER TEMP. (°C)	25.4	24.3	24.6	
TURBIDITY*	1	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH





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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-21D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1305

FIELD PERSONNEL CORNELIJSSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 27.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 8.82 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 18.68 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.21 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 9.63 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 17.74 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.56 (FT.)

SCREENED INTERVAL 25.5 - 27.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	6.93	6.99	7.02	
SP. COND. (µMHOS/CM)	6.81	697	708	
WATER TEMP. (C)	24.2	24.5	23.9	
TURBIDITY*	1	2	2	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
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RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-22S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1551

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 15.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 11.67 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 3.33 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .57 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 1.71 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 2 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.18 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.91 (FT.)

SCREENED INTERVAL 5.5 - 14.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1	2	
pH (S.U.)	6.63	6.58	6.61	
SP. COND. (µMHOS/CM)	7.51	759	764	
WATER TEMP. (°C)	27.0	25.9	26.1	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-22D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1604

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 35.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 11.85 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 23.15 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.94 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 11.82 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 10 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 19.18 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.91 (FT.)

SCREENED INTERVAL 32.5 - 35.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH X COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	5	10	
pH (S.U.)	6.85	7.04	7.09	
SP. COND. ( $\mu$ MHOS/CM)	580	552	537	
WATER TEMP. (C)	23.6	23.4	22.6	
TURBIDITY*	4	4	3	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-23S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0920

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 9.5 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 5.50 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 4.00 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = .68 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 2.04 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 2 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 8.22 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.35 (FT.)

SCREENED INTERVAL 2.5 - 9.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE  HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1	2	
pH (S.U.)	7.33	734	732	
SP. COND. ( $\mu$ MHOS/CM)	360	329	417	
WATER TEMP. (C)	22.6	23.0	22.4	
TURBIDITY*	1	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-23D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 0935

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 20.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 4.02 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 15.98 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC x .17 = 2.71 GAL.

THREE STANDING WELL VOLUMES = 3 x SWV = 8.13 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 8 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 8.22 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.35 (FT.)

SCREENED INTERVAL 17.5 - 20.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	4	8	
pH (S.U.)	7.31	7.33	7.34	
SP. COND. (µMHOS/CM)	345	386	375	
WATER TEMP. (°C)	20.4	19.8	19.5	
TURBIDITY*	1	1	2	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-24D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1450

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 29.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 12.12 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 16.88 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 2.87 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 8.61 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 8 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.72 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.38 (FT.)

SCREENED INTERVAL 26.5 - 29.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE X HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	4	8	
pH (S.U.)	7.30	7.11	7.12	
SP. COND. (µMHOS/CM)	578	540	529	
WATER TEMP. (C)	22.4	21.3	22.4	
TURBIDITY*	1	1	1	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-25S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1100

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 14.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.65 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 6.35 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 1.08 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 3.24 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 3 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC X S.S. TEFLON OTHER

MEASURING POINT ELEVATION 13.25 (FT.) DATUM MEAN SEA LEVEL (FT.)

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.21 (FT.)

SCREENED INTERVAL 4.5 - 13.5

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO X COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO X \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO X \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES X NO \_\_\_\_\_

WELL YIELD LOW X MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	1.5	3.0	
pH (S.U.)	6.97	6.83	6.69	
SP. COND. ( $\mu$ MHOS/CM)	1001	965	946	
WATER TEMP. (C)	22.6	22.7	21.9	
TURBIDITY*	1	4	1	

\* VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH



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3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J8014 MONITORING WELL NUMBER MW-25D

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/4/91 TIME (MILITARY) 1110

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 30.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.13 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 22.87 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 3.89 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 11.66 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 12 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 13.23 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.19 (FT.)

SCREENED INTERVAL 27.5 - 30.0 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW \_\_\_\_\_ MODERATE \_\_\_\_\_ HIGH  COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	6	12	
pH (S.U.)	7.12	6.92	7.01	
SP. COND. ( $\mu$ MHOS/CM)	384	371	350	
WATER TEMP. (C)	20.7	19.7	19.2	
TURBIDITY*	4	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH





LAW ENGINEERING  
3301 ATLANTIC AVENUE  
RALEIGH, NORTH CAROLINA 27604

ENVIRONMENTAL DEPARTMENT  
MONITORING WELL AND SAMPLING  
FIELD DATA WORKSHEET

LAW JOB NUMBER J6014 MONITORING WELL NUMBER MW-24S

SITE NAME CAMP GEIGER FUEL FARM

DATE (MO/DAY/YR) 9/5/91 TIME (MILITARY) 1430

FIELD PERSONNEL CORNELISSEN

UPGRADIENT \_\_\_\_\_ DOWNGRADIENT \_\_\_\_\_ CROSSGRADIENT \_\_\_\_\_

WEATHER CONDITIONS WARM, SUNNY

TOTAL WELL DEPTH (TWD) 18.0 1/10 FT.

DEPTH TO GROUNDWATER (DGW) 7.98 1/100 FT.

LENGTH OF WATER COLUMN (LWC) = TWD - DGW = 10.04 1/100 FT.

ONE STANDING WELL VOLUME (SWV) = LWC X .17 = 1.70 GAL.

THREE STANDING WELL VOLUMES = 3 X SWV = 5.10 GAL = STANDARD EVACUATION VOLUME

METHOD OF WELL EVACUATION TEFLON BAILER

TOTAL VOLUME OF WATER REMOVED 4 GAL.

CASING DIAMETER 2"

CASING MATERIAL PVC  S.S. \_\_\_\_\_ TEFLON \_\_\_\_\_ OTHER \_\_\_\_\_

MEASURING POINT ELEVATION 18.54 (FT.) DATUM MEAN SEA LEVEL

HEIGHT OF RISER (ABOVE LAND SURFACE) 2.20 (FT.)

SCREENED INTERVAL 8.5 - 17.5 (FT.)

STEEL GUARD PIPE AROUND CASING YES \_\_\_\_\_ NO  COMMENTS \_\_\_\_\_

LOCKING CAP YES \_\_\_\_\_ NO  \_\_\_\_\_

PROTECTIVE POST/ABUTMENT YES \_\_\_\_\_ NO  \_\_\_\_\_

WELL INTEGRITY SATISFACTORY YES  NO \_\_\_\_\_

WELL YIELD LOW  MODERATE \_\_\_\_\_ HIGH \_\_\_\_\_ COMMENTS \_\_\_\_\_

FIELD ANALYSES

VOLUME (GAL.)	0	2.5	4	
pH (S.U.)	7.14	6.95	6.77	
SP. COND. (µMHOS/CM)	866	985	1059	
WATER TEMP. (°C)	24.5	24.4	25.2	
TURBIDITY*	1	4	4	

\*VISUAL DETERMINATION ONLY  
(1) CLEAR (2) SLIGHT (3) MODERATE (4) HIGH

DRAFT

**APPENDIX J**  
**CHAIN-OF-CUSTODY FORMS**



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

### CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME <i>Camp Geiger</i>				JOB NO. <i>46014</i>	TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO.
SAMPLERS (SIGNATURE) <i>[Signature]</i>						40 mg/L VOA (HCl)	ILG, P (HNO <sub>3</sub> )	ILG, P (NaOH)	ILG, P (H <sub>2</sub> SO <sub>4</sub> )	ILP, (NaOH)	IL, Teflon	ILG, P (Zn Acetate + NaOH)	ILG, P (As)	250 ml/G - Amber	40 ml/G - Amber	40 ml/G - Amber		
SAMPLING DATE						TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION							NO.	

1507	X		W	Potable Water	3														3	AA09242	

RELINQUISHED BY: <i>[Signature]</i> (SIGNATURE)	DATE/TIME <i>5/26/91</i> 1905	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME _____
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME _____	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: <i>[Signature]</i> (SIGNATURE)	DATE/TIME <i>5-30-91</i> 30

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

\* SOURCE CODES:  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL

Law Environmental, Inc.  
7015 Pine Forest Road  
Pensacola, Florida 32526



Analytical Request Form

To: LEVI

Attn: SIMPLE PENDING

From: LAW ENV  
(Branch/Company Name)

CHRIS CORDESSON  
(Dept or Name)

COC Number: 18916

Project Name: Camp Guice

Project Number: 147590-6014

Date Shipped: 5/29/91

Date results requested: 10 days

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
FORNIBLE Water	EPA 602 BTEX + MTBE		H <sub>2</sub> O	

Comments:

SILKON -  
Please send back my NEW cockle

MIRIK



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.														
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L.G. - AMBER	8 oz G. W/M	2 oz G. W/M	1 L.G. (H <sub>2</sub> O)	300 ml. AMBER	1 L. PL (HNO <sub>3</sub> )	1 L. PL (H <sub>2</sub> SO <sub>4</sub> )	1 L. PL (NaOH+Ascorbic Acid)	1 L. PL (Zn Acetate + EDTA)	1 L. PL	100 ml PL	1 L. TEFLON															
TIME	GRAB	COMP	*SOURCE CODE		SAMPLE STATION DESCRIPTION																											
Camp Lyxide		J6014		3	A large diagonal watermark reading "SAMPLED" is overlaid on the table.																											
Chris [Signature]																																
8/2/91																																
1510	X		HP															HP 4													3	AA11671
1615	X		HP															HP-5													3	AA11672
1540	X		HP															HP 7													3	AA11673
1425	X		HP															HP-15													3	AA11674
1342	X		HP															HP-16													3	AA11675
1305	X		HP	HP-17													3	AA11676														
				Trip Blank													3	AA11677														
RELINQUISHED BY: [Signature]		DATE / TIME: 8/2/91 1750		RECEIVED BY: [Signature]		DATE / TIME:		RELINQUISHED BY:		RECEIVED BY LABORATORY: NB. [Signature]		DATE / TIME: 8-7-91 11:35																				

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REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 Stopped for express \_\_\_\_\_  
 \_\_\_\_\_

- \*SOURCE CODES
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - Hydro-nal - HP
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

**SAMPLING INFORMATION**

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

NPDES NUMBER: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LEML LAB NO.					
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL - W/M	250 ml PL		1 L TEFLON	40 ml G VOA			
TIME	GRAB	COMP.	*SOURCE CODE		SAMPLE STATION DESCRIPTION																		
1140	X		HP	HP 13	3																3	AA11678	
0856	X		HP	HP-11	3																	3	AA11679
1101	X		HP	HP 12	3																	3	AA11680
0942	X		HP	HP-14	3																	3	AA11681
1005	V		HP	HP 18	3																	3	AA11682
0816	V		HP	HP-19	3																	3	AA11683
0743	X		HP	HP 20	3																	3	AA11684
1008	X		HP	Rinse Blank	3																	3	AA11685
				Trip Blank	3																	3	AA11686
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		RECEIVED BY LABORATORY:		DATE / TIME											
<i>[Signature]</i>		8/6/91 1745		<i>[Signature]</i>				<i>[Signature]</i>		<i>[Signature]</i>		8/7/91 11:40											

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 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS:**

shipped via Federal Express

- \*SOURCE CODES**
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NON-AQUEOUS NA
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW

HP 12-20-11 - HP

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: Sample Receiver

From: CHRIS CORNELISSEN  
 (Branch/Company Name)

Law ENL  
 (Dept or Name)

CDC Number: 4257

Project Name: Camp Lake

Project Number: 147590-6014

Date Shipped: 8/6/91

Date results requested: 5 DAY

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method	
HP-4	Full Pesticide Screening		Water	EPA 602	
HP-5	[Large handwritten scribble]				
HP-7					
HP-15					
HP-16					
HP-17					
TRIP Blank					

Comments: Please analyze for full EPA 602 (include MET)

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEL

Attn: SAMPLE RECEIVING

From: LAW ENV  
 (Branch/Company Name)

CHRIS CORNECISSEN  
 (Dept or Name)

COC Number: 1256

Project Name: CAMP

Project Number: 147590-6014

Date Shipped: 2/6/91

Date results requested: 5 DAY

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
HP-13	Full Toxicologic Screenings (include MTBE)		Water	EPA 602
HP-11	}		}	
HP-12				
HP-14				
HP-18				
HP-19				
HP-20				
Rinse Blank				
TRIP Blank				

Comments:  
 Please run full EPA 602 on all samples (include 4780)







Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LECL

Attn: Sample Receiving

From: Law Env  
 (Branch/Company Name)

CHRIS CANCELISEA  
 (Dept or Name)

COC Number: 3794

Project Name: CAMP

Project Number: 1601-1

Date Shipped: 8/5/91

Date results requested: 2/13/91

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
Potable Water	Lead Total		water	EPA 939.2
"	Purgeable Volatiles		"	EPA 601

Comments:





IAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME  
 Camp Lejeune

JOB NO.  
 16014

SAMPLERS (SIGNATURE)  
 Chris [Signature]

SAMPLING DATE  
 8-7-71

TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION
------	------	-------	--------------	----------------------------

TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LEML LAB NO.	
	4 (MG) VOL HCl	1 L.G. P. (HNO <sub>3</sub> )	1 L.G. P. (NaOH)	1 L.G. P. (H <sub>2</sub> SO <sub>4</sub> )	1 L.G. P.	1 L. Teflon	1 L.G. P. + Ascorbic Acid	1 L.G. P. (Zn Acetate + HClO <sub>4</sub> )	1 L.G. P. Amber	1 L.G. P. Orange	1 L.G. P. Amber	1 L.G. P. Amber		
														AP11734 ✓
														AP11735 ✓
														AP11736 ✓
														AP11737 ✓
														AP11738 ✓
														AP11739 ✓
														AP11740 ✓
														AP11741 ✓
														AP11742 ✓

RELINQUISHED BY: [Signature] (SIGNATURE)	DATE/TIME 8/7/71 1530	RECEIVED BY: [Signature] (SIGNATURE)	RELINQUISHED BY: [Signature] (SIGNATURE)	RECEIVED BY: [Signature] (SIGNATURE)	DATE/TIME 8/8/71 1115
RELINQUISHED BY: [Signature] (SIGNATURE)	DATE/TIME	RECEIVED BY: [Signature] (SIGNATURE)	RELINQUISHED BY: [Signature] (SIGNATURE)	RECEIVED AT LABORATORY: [Signature] (SIGNATURE)	DATE/TIME

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
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REMARKS: (K11741) FEDERAL EXPRESS

\* SOURCE CODES:  
 RW - RECOVERY WELL  
 MW - RCRA MONITORING WELL  
 SO - SOIL/SEDIMENT  
 SL - SLUDGE  
 ND - NPDES DISCHARGE  
 DW - DRINKING WATER



**ENVIRONMENTAL, INC.**  
**ATIONAL LABORATORIES**  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
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**CHAIN OF CUSTODY RECORD**

**SAMPLING INFORMATION**

**NAME OF FACILITY:** \_\_\_\_\_  
**STREET ADDRESS:** \_\_\_\_\_  
**CITY/STATE:** \_\_\_\_\_ **ZIP:** \_\_\_\_\_

**PROJECT NAME**  
 Camp Lejeune

**JOB NO.**  
 46014

**SAMPLERS (SIGNATURE)**  
 Chris Conlisen

**SAMPLING DATE**  
 8-7-91

TOTAL NO. OF CONTAINERS	CONTAINER TYPE											
	40 MG VOA/NO	1 L.G. P. (HNO <sub>3</sub> )	1 L.G. P. (H <sub>2</sub> SO <sub>4</sub> )	1 L.G. P. (H <sub>2</sub> SO <sub>4</sub> )	1 L.G. P. (H <sub>2</sub> SO <sub>4</sub> )	1 L.G. P. (H <sub>2</sub> SO <sub>4</sub> )	1 L. Yellow	1 L.G. P. (NaOH) + Acetate	1 L.G. P. (Zn Acetate + NaOH)	1 L.G. P.	1 L.P. Amber	1 L.P. Orange

TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION
------	------	-------	-------------	----------------------------

TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION	LEN. LAB NO.
0650	Y		HP	HP-2	AA11734
0810	Y		HP	HP-3	AA11735
0850	Y		HP	HP-6	AA11736
0955	Y		HP	HP-8	AA11737
1032	Y		HP	HP-9	AA11738
0925	Y		HP	HP-10	AA11739
0915	Y			RINSE Blank	AA11740
				TRIP Blank	AA11741
1114	Y		HP	HP-21	AA11742

RELINQUISHED BY: <i>Chris Conlisen</i> (SIGNATURE)	DATE/TIME: 8/7/91 11:20	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME: _____ (SIGNATURE)
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: <i>NB. Penick</i> (SIGNATURE)	DATE/TIME: 8-8-91 11:15

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**REMARKS:** SHIPMENT LIBERTY EXPRESS

\* SOURCE CODES:  
 Recovery Well - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: SAMPLE RECEIVING

From: LAW ENG  
 (Branch/Company Name)

CHRIS CORNELISSEN  
 (Dept or Name)

COC Number: 0867

Project Name: CAMP ELECURE

Project Number: 147590-6014

Date Shipped: 8/2/91

Date results requested: 5 DAY

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
HP-2	Full Purgeable Aromatics to include MTBE		Water	EPA 602
HP-3	[Large handwritten scribble]			
HP-6				
HP-8				
HP-9				
HP-10				
Rinse Blank				
TRIP Blank				
HP-21				

Comments: Please Analyze all samples FOR ALL parameters UNDER EPA 602 to include MTBE



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
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# CHAIN OF CUSTODY RECORD

1175

**SAMPLING INFORMATION**  
 NPDES NUMBER: \_\_\_\_\_  
 NAME OF FACILITY: CAMP GEGGER  
 STREET ADDRESS: HWY 17 S JACKSONVILLE, NC

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LEML LAB NO						
CAMP GEGGER		J6014			40 ml G. VOA HCl	1 L G. - AMBER	8oz G. W/M	2 oz G. W/M	1 L G. (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH, Ascorbic Acid)	1 L PL (Zn Acetate + KBrPH)	250 ml PL	1 L TEFLON							
SAMPLERS (SIGNATURE)	SAMPLING DATE			TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION	DATE	CONTAINERS													
RAICOLL	8/29 + 8/30/91																						
	✓		SO	<del>B-2</del> B-2	8-29-91	8.5'	10.5'	4		2	2											AA12869	
	✓		SO	B-2	5.5-6.0	8-29-91		4		2	2											AA12870	
	✓		SO	HA-3	8-30-91			4		2	2											AA12871	
	✓		SO	HA-4A	8-30-91			1		1												AA12872	
	✓		SO	HA-4AB	8-30-91			1		1												AA12873	
	✓		SO	HA-4B	8-30-91			2		2												AA12874	
			SO	B-3A				4		2	2											DID NOT RECEIVE	
			SO	B-3B				4		2	2											DID NOT RECEIVE	
	✓		SO	B-4A	8-30-91			4		2	2											AA12875	
	✓		SO	B-4B	8-30-91			4		2	2											AA12876	

RELINQUISHED BY: RAICOLL (SIGNATURE) DATE / TIME: 8/30/1990  
 RECEIVED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RECEIVED BY LABORATORY: N.B. Grink (SIGNATURE) DATE / TIME: 8-31-91 12:10

**DISTRIBUTION:** ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS**  
B-3A Did not received (initials) 8-31-91  
B-3B did not received (initials) 8-31-91

- \*SOURCE CODES**
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA





LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

1467

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: CAMP GEIGER  
 STREET ADDRESS: HWY 17 S  
JACKSONVILLE NC

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO	
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8oz G. W/M	2oz G. W/M	1/2 G (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (7% Acetate Buffer)	1 L PL (W/M)	250 ml PL		1 L TEFLON
TIME	GRAB	COMP.	*SOURCE CODE		SAMPLE STATION DESCRIPTION													
CAMP GEIGER		J6014		4													AA12877	
RALCO		8/30/91																AA12878
1315	✓		SO		B-5A	2	2											AA12879
1325	✓		SO		B-5B	2	2											AA12880
1415	✓		SO		B-6A	2	2											AA12881
1430	✓		SO	B-6B	2	2												
1610	✓		SO	HA-7	2	2												
RELINQUISHED BY: <u>RALCO</u> (SIGNATURE)				DATE / TIME: <u>8/31/1990</u>	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME: _____	RELINQUISHED BY: _____ (SIGNATURE)				RECEIVED BY LABORATORY: <u>N.B. Skinkley</u> (SIGNATURE)				DATE / TIME: <u>8-31-91</u> <u>8/10</u>			

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REMARKS  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- \*SOURCE CODES
- RECOVERY WELL - RW
  - RCRA MONITORING WELL - MW
  - SOIL / SEDIMENT - SO
  - SLUDGE - SL
  - NPDES DISCHARGE - ND
  - DRINKING WATER - DW
  - HAZARDOUS WASTE - HW
  - SURFACE WATER - SW
  - NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: Law Labs

Attn: Sample Receiving

From: Laundry Rallig  
 (Branch/Company Name)

475  
 (Dept or Name)

COC Number: 2473

Project Name: Camp Geiger

Project Number: J8014

Date Shipped: 8/30/91

Date results requested: 2 weeks

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
B-2 8.5'-10.5'	TPH 3550/5030	10	Soil	
B-2 5.5'-6'	TPH 3550/5030	10	Soil	
B-2 8.5'-10.5'	Lead 1311		Soil	
B-2 5.5'-6'	Lead 1311		Soil	
HA-4A	<del>TPH</del> Lead 1311		Soil	
HA-4AB	TPH 3550	10	Soil	
HA-4B	TPH 5030	10	Soil	
B-4A	TPH 3550/5030	10	Soil	
B-4A	Pb 1311		Soil	
B-4B	TPH 3550/5030	10	Soil	
B-4B	Pb 1311		Soil	

Comments:

SAMPLE HA-3 WAS OMITTED FROM ANALYTICAL REQUEST. ASSUMED ANALYSIS ARE TPH 5030/3550 & Pb. Neg.

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LAW LABS

Attn: SAMPLE RECEIVING

From: LAW ENG - RALEIGH  
 (Branch/Company Name)

475  
 (Dept or Name)

COC Number: 4467

Project Name: CAMP GEIGER

Project Number: J8014

Date Shipped: 8/30/91

Date results requested: 2 WKS.

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
B-5A	TPH 3550/5030	10	Soil	
B-5B	Pb 1311		Soil	
B-6A	TPH 3550/5030	10	Soil	
B-6B	Pb 1311		Soil	
HA-7	TPH 3550/5030	10	Soil	
HA-7	Pb 1311		Soil	

Comments:



**ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

**CHAIN OF CUSTODY**

**SAMPLING INFORMATION**

**NAME OF FACILITY:** CAMP GRIDER MARINE BAS  
**STREET ADDRESS:** Route 17 South  
**CITY/STATE:** JACKSONVILLE, NC **ZIP:** \_\_\_\_\_

<b>PROJECT NAME</b> <u>CAMP GRIDER FUEL FARM</u>				<b>JOB NO.</b> <u>34790 6014</u>			
<b>SAMPLERS (SIGNATURE)</b> <u>H. O. [Signature] Rice Kees et.</u>							
<b>SAMPLING DATE</b> <u>8-21-91</u>							
<b>TIME</b>	<b>GRAB</b>	<b>COMP.</b>	<b>SOURCE CODE</b>	<b>SAMPLE STATION DESCRIPTION</b>	<b>TOTAL NO. OF CONTAINERS</b>	<b>CONTAINER TYPE</b>	<b>LENL LAB NO.</b>

TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE	LENL LAB NO.
10:00	/		SO	MW-16 A	4	40 MW (VOA/HC)	HA12616
09:30	/			B	4	1 L.G. P. (KNO <sub>3</sub> )	HA12617
15:00	/			MW-17 4.0-6.0'	4	1 L.G. P. (NaOH)	AA12618
15:07	/			B 18.5-20.5'	4	1 L.G. P. (H <sub>2</sub> SO <sub>4</sub> )	AA12617
17:35	/			MW-18 A	4	1 L.G. P.	HA12620
17:40	/			B	4	1 L.P. (NaOH + Alcotox AR10)	HA12621
12:30	/			MW-19 2.0-4.0' 8-22-91	4	1 L.G. P. (Zn Acetate + NaOH)	HA12623
12:35	/			8-22-91 4.0-6.0' 8.5-10.5'	4	1 L.G. P. Amber	HA12623
09:25	/			MW-15 4.0-6.0'	4	1 L.P. Opaque	HA12624
09:30	/			8.5-10.5'	4	1 L.G. P.	HA12625
1550/1545	/			B-1A/B-1B	4/4	1 L.P. Amber	HA12626 AA12627

<b>RELINQUISHED BY:</b> <u>[Signature]</u> (SIGNATURE)	<b>DATE/TIME</b> <u>8/22/91 1745</u>	<b>RECEIVED BY:</b> _____ (SIGNATURE)	<b>RELINQUISHED BY:</b> _____ (SIGNATURE)	<b>RECEIVED BY:</b> _____ (SIGNATURE)	<b>DATE/TIME</b> _____ _____ _____
<b>RELINQUISHED BY:</b> _____ (SIGNATURE)	<b>DATE/TIME</b> _____ _____	<b>RECEIVED BY:</b> _____ (SIGNATURE)	<b>RELINQUISHED BY:</b> _____ (SIGNATURE)	<b>RECEIVED AT LABORATORY:</b> <u>N.S. Drifley</u> (SIGNATURE)	<b>DATE/TIME</b> <u>8-23-91</u> <u>1130</u>

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**REMARKS:** \_\_\_\_\_

- \* SOURCE CODES:
- RECOVERY WELL - RW
- RCRA MONITORING WELL - MW
- SOIL/SEDIMENT - SO
- SLUDGE - SL
- NPDES DISCHARGE - ND
- DRINKING WATER - DW
- HAZARDOUS WASTE - HW

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEAL

Attn: Samuel B. Perrino

From: RALEIGH, NC / LAW ENGINEERING  
 (Branch/Company Name)

475  
 (Dept or Name)

COC Number: 2859

Project Name: CAMP GEIGER

Project Number: J4759D-6014

Date Shipped: 8/22/91

Date results requested: Jul 85

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
✓ MW-15 4.0-6.0'	TPH, LDRL	PPM	SO	5030, 3550, 1311
✓ MW-15 8.5-10.5'	TPH, LDRL	↑		5030, 3550, 1311
✓ MW-16 1'	TPH, LDRL			5030, 3550, 1311
✓ MW-16 B	TPH, LDRL			5030, 3550, 1311
✓ MW-17 4-6'	TPH, LDRL			5030, 3550, 1311
✓ MW-17 10.5-20.5'	TPH, LDRL			5030, 3550, 1311
✓ MW-18 A	TPH, LDRL			5030, 3550, 1311
✓ MW-18 B	TPH, LDRL			5030, 3550, 1311
✓ MW-19 <sup>2.0-4.0'</sup> 11.0m	TPH, LDRL			5030, 3550, 1311
✓ MW-19 <sup>8.5-10.5'</sup> 8.0m	TPH, LDRL			5030, 3550, 1311

Comments:



**ENVIRONMENTAL, INC.**  
NATIONAL LABORATORIES  
7215 PINE FOREST ROAD  
PENSACOLA, FLORIDA 32526  
(904) 944-9772

### CHAIN OF CUSTODY

**ORD**

**SAMPLING INFORMATION**

NAME OF FACILITY: Camp Center Inc. 4-2002  
STREET ADDRESS: Road 17 South  
CITY/STATE: Sylva, NC ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE										LENL LAB NO.			
<u>Camp Center Inc. 4-2002</u> SAMPLERS (SIGNATURE) _____ SAMPLING DATE <u>8-15-91 @</u>				<u>517591-6011</u>				<u>10 mg VOA HCl</u> <u>1 L G.P. (HNO<sub>3</sub>)</u> <u>1 L G.P. (NaOH)</u> <u>1 L G.P. (H<sub>2</sub>SO<sub>4</sub>)</u> <u>1 L P.</u> <u>1 L P. (NaOH)</u> <u>1 L Teflon</u> <u>1 L G.P. (Acetic Acid)</u> <u>1 L G.P. (Zr Acetate 5% NaOH)</u> <u>1 L G.P.</u> <u>1 L P. Amber</u> <u>1 L P. Opaque</u> <u>500 mL Amber</u>											
								TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION	1	2	3		4	5	6
<u>13:00</u>			<u>SC</u>	<u>MW-8, 6.0-8.0'</u>	<u>3</u>													<u>AA12368</u>	
<u>15:05</u>			<u>SC</u>	<u>MW-8, 14.0-16.0'</u>	<u>3</u>													<u>AA12369</u>	
RELINQUISHED BY: _____ (SIGNATURE)			DATE/TIME <u>8/15/91</u> <u>11:36</u>	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME <u>8/16/91</u>												
RELINQUISHED BY: _____ (SIGNATURE)			DATE/TIME	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>8/16/91</u>												

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**REMARKS:** \_\_\_\_\_

\* SOURCE CODES:  
RECOVERY WELL - RW  
RCRA MONITORING WELL - MW  
SOIL/SEDIMENT - SO  
SLUDGE - SL  
NPDES DISCHARGE - ND  
DRINKING WATER - DW  
HAZARDOUS WASTE - HW



LAW ENVIRONMENTAL, INC.  
NATIONAL LABORATORIES  
7215 PINE FOREST ROAD  
PENSACOLA, FLORIDA 32526  
(904) 944-9772

# CHAIN OF CUSTODY RECORD

4450

**SAMPLING INFORMATION**  
 NAME OF FACILITY: CAMP GEEGER FUEL FARM  
 STREET ADDRESS: MAY 17 S JACKSONVILLE, NC  
 NPDES NUMBER: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE										LENL LAB NO					
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G - AMBER	2oz G - W/M	1 L G - W/M	1 L G - (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)		1 L PL (Zn Acetate + H <sub>2</sub> O)	1 L PL	1 L PL	250 ml PL	1 L TEFLON
TIME	GRAB	COMP	*SOURCE CODE	SAMPLE STATION DESCRIPTION																
1100	✓		SD	MW-22A	4	2	2													AA12790
1110	✓		SD	MW-22B	5	2	2											1		AA12791
16:00	✓		SD	MW-23, 0.0-2.0'	4	2	2													AA12792
16:00	✓		SD	MW-23, 13.5-15.5'	4	2	2													AA12793
1030	✓		SD	MW-24, 2.0-4.0'	4	2	2													AA12794
1030	✓		SD	MW-24, 8.5-10.5'	4	2	2													AA12795
1715	✓		SD	MW-25, 2.0-4.0'	4	2	2													AA12796
1725	✓		SD	MW-25 4.0-6.0'	4	2	2													AA12797

RELINQUISHED BY: PAWSON (SIGNATURE) DATE / TIME: 8/27/91 (800)  
 RECEIVED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RECEIVED BY LABORATORY: U.S. Parked (SIGNATURE) DATE / TIME: 8/29/91 11:30

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 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

**REMARKS**

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**\*SOURCE CODES**

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LAW LABS  
 From: RALEIGH LAW ENG  
 (Branch/Company Name)

Attn: SAMPLE RECEIVING  
ENVIRON  
 (Dept or Name)

COC Number: 4458

Project Name: CAMP GENDER

Project Number: J6014

Date Shipped: 8/28/91

Date results requested: 2 WKS

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-22A	TPH 3550/5030 Lead 1311	10 ppm	Soil	
MW-22b	TPH 3550/5030 Lead 1311 Flash point 1010	10 ppm		
MW-23 0.0-2.0	TPH 3550/5030 LDRL (Pb) 1311	10 ppm		
MW-23 13.5-15.5	TPH 3550/5030 LDRL (Pb) 1311	10 ppm		
MW-24 2.0-4.0	TPH 3550/5030 LDRL (Pb) 1311	10 ppm		
MW-24 8.5-10.5	TPH 3550/5030 LDRL (Pb) 1311	10 ppm		
MW-25	TPH 3550/5030 LDRL (Pb) 1311	10 ppm		
MW-25	TPH 3550/5030 LDRL (Pb) 1311	10 ppm		





LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: CAMP GEIGER  
 STREET ADDRESS: JACKSONVILLE (RT. 17 SO. 17th)

PROJECT NAME <u>CAMP GEIGER</u>		JOB NO. <u>J6014</u>		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO	
SAMPLERS (SIGNATURE) <u>Rick Kolb</u>		SAMPLING DATE <u>8/19/91 + 8/20/91</u>			40 ml G VOA HCl	1 L G - AMBER	8 oz. G. WAX	2 oz. G. W/M	1 L. G. (H <sub>2</sub> O <sub>2</sub> )	500 ml - AMBER	1 L. PL (HNO <sub>3</sub> )	1 L. PL (H <sub>2</sub> SO <sub>4</sub> )	1 L. PL (NaOH + Ascorbic Acid)	1 L. PL (Zn Acetate + Nitric)	4 oz. PL WAX	250 ml - PL	1 L. TEFELON		8 oz. Amber Lead
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION															
				<del>MW-9</del>	<del>4</del>														
1120	✓		So	MW-10A	4		1	2									1		AA12483
1400	✓		So	MW-11 4'-6' *	5		1	2									1	1	AA12484
1710	✓		So	MW-12A	4		1	2									1		AA12485
1535	✓		So	MW-14B	4		1	2									1		AA12486
				<del>MW-9</del>															
1125	✓		So	MW-10B	2		0	2											AA12487
1405	✓		So	MW-11 8.5'-10.5' *	5		1	2									1	1	AA12488
1715	✓		So	MW-12B	4		1	2									1		AA12489
1400	✓		So	MW-13, 8.5'-10.5'	4		1	2									1		AA12490
1410	✓		So	MW-13, 18.5'-20.5'	4		1	2									1		AA12491
1530	✓		So	MW-14A	4		1	2									1		AA12492
RELINQUISHED BY: <u>Rick Kolb</u>		DATE / TIME <u>8/20/91</u>		RECEIVED BY: <u>[Signature]</u>		DATE / TIME <u>[Signature]</u>		RELINQUISHED BY: <u>[Signature]</u>		DATE / TIME <u>[Signature]</u>		RECEIVED BY LABORATORY: <u>[Signature]</u>		DATE / TIME <u>8/21/2000</u>					

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

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\*SOURCE CODES

RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT - SO  
 SLUDGE - SL

NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: SAMPLE CONTROL  
 From: Lakeview Branch  
 (Branch/Company Name)

Attn: HYDROCARBON LAB  
SAMPLE CONTROL  
 (Dept or Name)

COC Number: \_\_\_\_\_

Project Name: CAMP GINGER

Project Number: 597591-6014

Date Shipped: 8/21/91

Date results requested: HYDROCARBON STANDARD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-10 A	TPH, LDRL (Pb only)	PPM	SO	50 30, <sup>3550</sup> 1311
487 MW-10 B	TPH LDRL (Pb only)		SO	50 30, 3550, 1311
12484 MW-11 4.0'-6.0'	TPH, Flashpt, LDRL (Pb only)		SO	50 30, 3550, 1311
12488 MW-11 8.5'-10.5'	TPH, Flashpt, LDRL (Pb only)		SO	50 30, 3550, 1311
7485 MW-12 A	TPH, LDRL (Pb only)		SO	50 30, 3550, 1311
12489 MW-12 B	TPH, LDRL (Pb only)		SO	50 30, 3550, 1311
2490 MW-13 8.5'-10.5'	TPH, LDRL (Pb only)		SO	50 30, 3550, 1311
2491 MW-13 18.5'-20.5'	TPH & LDRL (Pb only)		SO	50 30, 3550, 1311

Comments: Please Do Flashpt. by. SW846/1010



ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: CAMP GEIGER  
 STREET ADDRESS: HWY 175 JACKSONVILLE, NC

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO		
CAMP GEIGER		J6014			40 ml G VOA HCl	1 L G - AMBER	8 oz G - AMBER	2 oz G - W/M	1 L G (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL		1 L TEFLOW	2 oz. GRASS - FLASHING
SAMPLERS (SIGNATURE)		SAMPLING DATE		TIME	GRAB	COMP	SOURCE CODE	SAMPLE STATION DESCRIPTION											
Rick Korb		8/23/91																	
1340	✓							MW-20A	4	2	2								AA12656
1345	✓							MW-20B	5	2	2					1			AA12657
1255	✓							MW-21 2'-4'	5	2	2						1		AA12658
1300	✓							MW-21 4'-6'	5	2	2						1		AA12659

RELINQUISHED BY: Rick Korb (SIGNATURE) DATE / TIME: 8/23/91 1900  
 RECEIVED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ (SIGNATURE) DATE / TIME: \_\_\_\_\_  
 RECEIVED BY LABORATORY: Sharon Taha (SIGNATURE) DATE / TIME: 08/24/91 1100

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REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\*SOURCE CODES  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA



Analytical Request Form

To: Law Env. Nat'l Lab  
 From: Raleigh Law Eng.  
 (Branch/Company Name)

Attn: Sample receiving  
Environmental Plid Ko 16  
 (Dept or Name)

COC Number: 4474

Project Name: Camp Geiger

Project Number: J6014

Date Shipped: 8/23/91

Date results requested: 2 weeks

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
126 MW-20A	TPH 3550/5030	10	Soil	
MW-20A	Lead / 1311		Soil	
MW-20B	TPH 3550/5030	10	Soil	
657 MW-20B	Lead / 1311		Soil	
MW-20B	Flashpoint		Soil	
MW-21 2'-4'	TPH 3550/5030	10	Soil	
658 MW-21 2'-4'	Lead / 1311		Soil	
MW-21 2'-4'	Flashpoint		Soil	
MW-21 4'-6'	TPH 3550/5030	10	Soil	
12659 MW-21 4'-6'	Lead / 1311		Soil	
MW-21 4'-6'	Flashpoint		Soil	

Comments:

Law Environmental, Inc.  
7215 Pine Forest Road  
Pensacola, Florida 32526  
904/944-9772



Analytical Request Form

To: LAW ENV - KENNESAW  
From: LAW ENV - PENSACOLA  
(Branch/Company Name)

Attn: RONDA ARNONE  
(Dept or Name)

COC Number: 4391

Project Name: CAMP GEEGER

Project Number: J6014

Date Shipped: 8-26-91

Date results requested: 9-8-91

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
AA12657	FLASHPOINT		SOIL	
AA12658	FLASHPOINT		SOIL	
AA12659	FLASHPOINT		SOIL	

Comments: SEND INVOICE, RESULTS, & COOLER TO

Law Environmental, Inc.  
7215 Pine Forest Road  
Pensacola, FL 32526-3908  
(904)944-9772



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

1762

SAMPLING INFORMATION

NAME OF FACILITY: Camp Greer Fuel Farm  
 STREET ADDRESS: Rte 17 South  
 CITY/STATE: Jacksonville, NC ZIP: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.			
<u>Camp Greer Fuel Farm</u>		<u>547591-6014</u>			40 MMS VOACG 1 LG P (MND) 1 LG P (MNH) 1 LG P (KASO) 1 LG P 1 L (NASH) • Alcoholic Acid 1 LG P (Zn Acetate • NESH) 8 GRG P 1 LG P 1 LG P 20 M/G Amber																
SAMPLERS (SIGNATURE) <u>[Signature]</u>																					
SAMPLING DATE <u>8-16-90</u>																					
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
10:00	/		SO	MW-9, 6.0' - 8.0'	1														X	one	
10:00	/		SO	MW-9, 6.0' - 8.0'	1														X	Sample	AA12307
10:00	/		SO	MW-9, 6.0' - 8.0'	1														X		
10:05	/		SO	MW-9 16.0' - 18.0'	1														X	one	
10:05	/		SO	MW-9 16.0' - 18.0'	1														X	Sample	AA12308
10:05	/		SO	MW-9 16.0' - 18.0'	1														X		

RELINQUISHED BY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>8/16/90 15:45</u>	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME _____
RELINQUISHED BY: _____ (SIGNATURE)	DATE/TIME _____	RECEIVED BY: _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED AT LABORATORY <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>8/17/90 11:30</u>

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
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\* SOURCE CODES:  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND

REMARKS:

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: HYDRO CARBON LAB

Attn: \_\_\_\_\_

From: F. C. THALMANN / RALEIGH, NC

(Branch/Company Name)

(Dept or Name)

Law Env. Raleigh, NC

COC Number: \_\_\_\_\_

Project Name: CAMP LEWER FUEL FARM

Project Number: J47591-6014

Date Shipped: 8/16/91

Date results requested: Hydrocarbon Standards

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-9 6.0-8.0'	Flashpoint (SW846/1010)	PPM	So	1010
MW-9 6.0-8.0'	TPH (SW846/3550)			3550-Semi's
MW-9 6.0-8.0'	LDRL (Pb ONLY - 1311)			1311
MW-9 11.0-18.0'	Flashpoint (SW846/1010)			1010
MW-9 11.0-18.0'	TPH (SW846/3550)			3550-Semi's
MW-9 16.0-18.0'	LDRL (Pb ONLY - 1311)			1311

Comments:



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO					
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 LG - AMBER	8 oz G. W/M	2 oz G. W/M	1 L. PL (H <sub>2</sub> O)	500 ml - AMBER	1 L. PL (HNO <sub>3</sub> )	1 L. PL (H <sub>2</sub> SO <sub>4</sub> )	1 L. PL (NaOH + Ascorbic Acid)	1 L. PL (Zn Acetate + NaOH)	1 L. PL	250 ml PL	1 L. TEFLON		500 ml PL (HNO <sub>3</sub> )	40 ml G VOA			
TIME	GRAB	COMP.	SOURCE CODE		SAMPLE STATION DESCRIPTION																		
1700	X		MW	CGMW-01	4															1	3	AA12922	
1835	X		MW	MW-95	4															1	3	AA12923	
1823	X		MW	MW-9D	4															1	3	AA12924	
1720	X		MW	MW-10S	4															1	3	AA12925	
1745	X		MW	MW-10D	4															1	3	AA12926	
				TRIP BLANK	3																3	AA12927	
RELINQUISHED BY: <i>[Signature]</i>		DATE / TIME: 9/3/91 1745		RECEIVED BY: _____		DATE / TIME: _____		RELINQUISHED BY: _____		RECEIVED BY LABORATORY: <i>[Signature]</i>		DATE / TIME: 9-5-91 11:35											

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
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REMARKS  
 SILPAD via FEDERAL EXPRESS  
 GWM-01 Time not match on bottle label on bag 19:00 9-5-91 Np

\*SOURCE CODES  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA





**LAW ENVIRONMENTAL, INC.**  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

**SAMPLING INFORMATION**  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME <i>Amr George fuel farm</i>		JOB NO. <i>116014</i>		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LEML LAB NO				
SAMPLERS (SIGNATURE) <i>Chris Conlon</i>					40 ml G VOA HCl	1 LG - AMBER	8 oz G - W/M	2 oz G - W/M	12 G (H <sub>2</sub> O)	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	12 PL (H <sub>2</sub> SO <sub>4</sub> )	12 PL (NaOH + Ascorbic Acid)	12 PL (Zn Acetate + NaOH)	1 L PL	250 ml PL	1 L TEFLON		40 ml PL	500 ml PL		
SAMPLING DATE <i>9/4/91</i>				TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION														
	1145	Y		MW	356W4				1											3	1	AA12928
	1355	Y		MW	MW-15S				1													AA12929
	1419	Y		MW	MW-15D				4													AA12930
	1155	Y		MW	MW-14S				5													AA12931
	1526	Y		MW	MW-14D				4													AA12932
	1155	Y		MW	MW-20S				4													AA12933
	1300	Y		MW	MW-21S				4													AA12934
	1520	Y		MW	MW-21D				4													AA12935
	1600	Y		MW	MW-22S				4													AA12936
	1615	Y		MW	MW-22D				4													AA12937
		Y		MW	MW-26S				5	1												AA12938
RELINQUISHED BY: <i>Chris Conlon</i> (SIGNATURE)				DATE / TIME <i>9/4/1991</i>	RECEIVED BY:  (SIGNATURE)		DATE / TIME  	RELINQUISHED BY:  (SIGNATURE)		RECEIVED BY LABORATORY: <i>NS. Benkel</i> (SIGNATURE)		DATE / TIME <i>9-5-91</i> <i>1435</i>										

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**REMARKS**  
 \_\_\_\_\_  
*Shipped via FedEx Express*  
 \_\_\_\_\_  
 \_\_\_\_\_

**\*SOURCE CODES**

- RECOVERY WELL - RW
- RCRA MONITORING WELL - MW
- SOIL / SEDIMENT - SO
- SLUDGE - SL
- NPDES DISCHARGE - ND
- DRINKING WATER - DW
- HAZARDOUS WASTE - HW
- SURFACE WATER - SW
- NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
 NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE											LEML LAB NO		
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	TE-PL (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	TE-PL (H <sub>2</sub> SO <sub>4</sub> )	TE-PL (NaOH+Ascorbic Acid)	TE-PL (Zn Acetate + NaOH)	1 L PL		250 ml PL	1 L TEFLON
SAMPLING DATE					1 L G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	TE-PL (H <sub>2</sub> SO <sub>4</sub> )	500 ml - AMBER	1 L PL (HNO <sub>3</sub> )	TE-PL (H <sub>2</sub> SO <sub>4</sub> )	TE-PL (NaOH+Ascorbic Acid)	TE-PL (Zn Acetate + NaOH)	1 L PL		250 ml PL	1 L TEFLON
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION														
1401	X			Rinse Blank													3	AA12939
	Y			Trail Blank													3	AA12990
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		RECEIVED BY LABORATORY:		DATE / TIME						
<i>[Signature]</i>		7/4/91 1745		<i>[Signature]</i>				<i>[Signature]</i>		<i>[Signature]</i>								

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.  
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REMARKS: Shipped via Federal Express

\*SOURCE CODES  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL / SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW  
 SURFACE WATER - SW  
 NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION NPDES NUMBER \_\_\_\_\_ NAME OF FACILITY: \_\_\_\_\_ STREET ADDRESS: \_\_\_\_\_

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LEML LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOVA HCl	1 LG - AMBER	8 oz G. W/M	2 oz G. W/M	1 L (1.50)	500 ml - AMBER	1 L PC (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	250 ml W/M	1 L Teflon	
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION													
0915	X		MW	MW-8S	5	1										103	AA12841
0940	X		MW	MW-8D	4	1										103	AA12842
1004	X		MW	MW-11S	4	1										103	AA12843
1045	X		MW	MW-11D	4											103	AA12844
0913	X		MW	MW-13S	4											103	AA12845
0937	X		MW	MW-12D	4											103	AA12846
0730	X		MW	MW-13S	4											103	AA12847
0755	X		MW	MW-13D	4											103	AA12848
1115	X		MW	MW-25S	5	1										103	AA12849
1130	X		MW	MW-25D	4											103	AA12850
1025	X			Rinse Blank	3											103	AA12951
RELINQUISHED BY: <i>Chris Conlon</i>		DATE / TIME: 9/4/11 1245		RECEIVED BY: _____		DATE / TIME: _____		RELINQUISHED BY: _____		RECEIVED IN LABORATORY: <i>Ms. Bailey</i>		DATE / TIME: 9-5-11 11:30					

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

Shipped via Federal Express  
 MW-11S Receive 1 liter not listed on C.O.C. 9-5-11

\*SOURCE CODES

- RECOVERY WELL - RW
- RCRA MONITORING WELL - MW
- SOIL / SEDIMENT - SO
- SLUDGE - SL
- NPDES DISCHARGE - ND
- DRINKING WATER - DW
- HAZARDOUS WASTE - HW
- SURFACE WATER - SW
- NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.  
 NATIONAL LABORATORIES  
 7215 PINE FOREST ROAD  
 PENSACOLA, FLORIDA 32526  
 (904) 944-9772

CHAIN OF CUSTODY CORD

SAMPLING INFORMATION

NAME OF FACILITY: \_\_\_\_\_  
 STREET ADDRESS: \_\_\_\_\_  
 CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PROJECT NAME				JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE											LENL LAB NO.						
SAMPLERS (SIGNATURE)						40 MUG VOA (H) 1 LG. P. (HNO <sub>3</sub> ) 1 LG. P. (NaOH) 1 LG. P. (H <sub>2</sub> SO <sub>4</sub> ) 1 LP. (NaOH) 1 LG. P. (NaOH + Acetic Acid) 1 LG. P. (Zn Acetate 20% OH) 1 LG. Amber 1 LP. Orange 20 MUG Amber 40 MUG Amber 40 MUG VOA																	
SAMPLING DATE																							
TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION																			
	X			Trip Blank	3																3	AA12952	
RELINQUISHED BY: <i>Chris...</i>				DATE/TIME: 9/4/91 1745	RECEIVED BY: _____				RELINQUISHED BY: _____				RECEIVED BY: _____				DATE/TIME: _____						
(SIGNATURE)					(SIGNATURE)				(SIGNATURE)				(SIGNATURE)										
RELINQUISHED BY: _____				DATE/TIME: _____	RECEIVED BY: _____				RELINQUISHED BY: _____				RECEIVED AT LABORATORY: <i>Ms. Birel</i>				DATE/TIME: 9-5-91						
(SIGNATURE)					(SIGNATURE)				(SIGNATURE)				(SIGNATURE)				11/25						

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 PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY

REMARKS: Shipped U.A. Federal Express

\* SOURCE CODES:  
 RECOVERY WELL - RW  
 RCRA MONITORING WELL - MW  
 SOIL/SEDIMENT - SO  
 SLUDGE - SL  
 NPDES DISCHARGE - ND  
 DRINKING WATER - DW  
 HAZARDOUS WASTE - HW

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEOL  
 From: LAW ENG  
 (Branch/Company Name)

Attn: SAMPLE RECEIVING  
CHRIS CORNELISSEN  
 (Dept or Name)

CDC Number: 4265

Project Name: Camp Geisler fuel farm Project Number: 147590-6014

Date Shipped: 9/4/91

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
CGMW-01	PURGEABLE HALOGENIDES, full Purgeable Aromatics, Total Lead		Water	EPA 601, EPA 602 EPA 239.2
MW-95				
MW-9D				
MW-10S				
MW-10D				
TRIP Blank	Full Purgeable Aromatics			EPA 602

Comments:

Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LECL

Attn: Senja R...

From: LAW  
 (Branch/Company Name)

C. COOPERISSE  
 (Dept or Name)

COC Number: 14730-6014

Project Name: SNP C... Project Number: 14730-6014

Date Shipped: 5/1/11

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
356W4	Permissible inorganic anions, soil Permissible inorganic cations, Total Lead		Water	EPA 601, 602 239.2
MW-15S				
MW-15D				
MW-14D				
MW-20S				
MW-21S				
MW-21D				
MW-22S				
MW-22D				
MW-14S	Permissible inorganic anions, soil Permissible inorganic cations, Total Lead, PVA's			EPA 601, 602 239.2, 610
MW-26S				
Run Blank	Soil Permissible inorganic anions			EPA 602
TRIP Blank				

Comments:

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 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LENL

Attn: SAMPLE RECEIVING

From: LAW ENG  
 (Branch/Company Name)

CHRIS CRUELISSEN  
 (Dept or Name)

COC Number: 3387-1949

Project Name: CMP Greiner Fuel Farm

Project Number: 147540-6014

Date Shipped: 9/4/91

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
MW-5S	Purgeable Halobenzenes, full Purgeable Aromatics, Total Lead PNA		WATER	601, 602, 239.2 610
MW-5D	Purgeable Halobenzenes, full Purgeable Aromatics, Total Lead			601, 602, 239.2
MW-11S				
MW-11D				
MW-12S				
MW-12D				
MW-13S				
MW-13D				
MW-25S	Purgeable Halobenzenes, full Purgeable Aromatics, Total Lead PNA			601, 602, 239.2 610
MW-25D	Purgeable Halobenzenes, full Purgeable Aromatics, Total Lead			601, 602, 239.2
Reuse Blank	Purgeable Aromatics			602
TEP Blank				602

Comments:

All methods ARE EPA Methods



LAW ENVIRONMENTAL, INC.  
NATIONAL LABORATORIES  
7215 PINE FOREST ROAD  
PENSACOLA, FLORIDA 32526  
(904) 944-9772

# CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION  
NPDES NUMBER

NAME OF FACILITY: \_\_\_\_\_  
STREET ADDRESS: \_\_\_\_\_

PROJECT NAME: Coal Gasifier Fuel Feas JOB NO.: 16014  
SAMPLERS (SIGNATURE): [Signature]  
SAMPLING DATE: \*9/4/91 : 9/5/91

TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE												LENL LAB NO									
						40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H <sub>2</sub> O)	200 ml - AMBER	1 L PL (HNO <sub>3</sub> )	1 L PL (H <sub>2</sub> SO <sub>4</sub> )	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M		1 L TEFLON	30 ml HCl	500 ml PL (HCl)						
0910	X		MW	GMW-02	4													3	1							AA12971	
1025	X		MW	CGMW-03	4														3	1							AA12972
0930	X		MW	CGMW-04	4														3	1							AA12973
0655	X		MW	35GW4	4														3	1							AA12974
1030	X		MW	MW-16S	4														3	1							AA12975
1255	X		MW	MW-16D	4														3	1							AA12976
1150	X		MW	MW-17S	4														3	1							AA12977
1215	X		MW	MW-17D	4														3	1							AA12978
0718	X		MW	MW-18S	4														3	1							AA12979
0740	X		MW	MW-18D	4														3	1							AA12980
1754	X		MW	MW-19S	4														3	1							AA12981

RELINQUISHED BY: [Signature] DATE / TIME: 9/5/91 11:19 RECEIVED BY: \_\_\_\_\_ DATE / TIME: \_\_\_\_\_  
RECEIVED BY LABORATORY: [Signature] DATE / TIME: 9/6/91 10:45

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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS: Shipped via Airborne Express

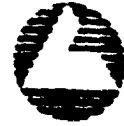
\*SOURCE CODES  
RECOVERY WELL - RW  
RCRA MONITORING WELL - MW  
SOIL / SEDIMENT - SO  
SLUDGE - SL  
NPDES DISCHARGE - ND  
DRINKING WATER - DW  
HAZARDOUS WASTE - HW  
SURFACE WATER - SW  
NON-AQUEOUS - NA







Law Environmental, Inc.  
 7215 Pine Forest Road  
 Pensacola, Florida 32526  
 904/944-9772



Analytical Request Form

To: LEML

Attn: Sample Received

From: Law  
 (Branch/Company Name)

Chris J. A. NELISSEN  
 (Dept or Name)

COC Number: 1947-3333

Project Name: Camp Gessick  
 -Jel

Project Number: 147590-6014

Date Shipped: 5/5/87

Date results requested: STD

Sample ID	Analysis Requested	Detection Limits Req.	Sample Type	Method
GMW-02	Purgeable Hydrocarbons, Full Purgeable Aromatics, Total Lead		Water	EPA 601, 602 239.2
GMW-03				
GMW-04				
35 Gwb				
MW-16S				
MW-16D				
MW-17S				
MW-17D				
MW-18S				
MW-18D				
MW-19S				
MW-19D				
MW-23S				
MW-23D				
ments	Full Purgeable Aromatics			EPA 602
Raise Blank				
Raise Blank				
T2.P Blank				

DRAFT

**APPENDIX K**  
**CONTAMINANT VELOCITY CALCULATIONS**



LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL  
& CONSTRUCTION MATERIALS  
CONSULTANTS

3301 ATLANTIC AVE.  
P.O. BOX 18288  
RALEIGH, NC 27619  
919-876-0416

JOB NO. J6014 SHEET 2 OF 2

JOB NAME CAMP GEISER

SUBJECT CONTAMINANT VELOCITIES

BY RAE DATE 10/30/91

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

CAMP GEISER FUEL FARM

$f = \frac{5}{100} = 0.05$   $v = 1.24 \text{ ft/day}$  @ 20% EFFECTIVE POROSITY

$K_{oc}^s = 0.025$

$K_{oc}^f = 0.065$

$K_{oc} = 0.63 \text{ ml/g} \cdot 100 \text{ (Benzene)} = 63 \text{ ml/g}$

$K_{oc} = 0.63 \text{ ml/g} \cdot 2300 \text{ (Naphthalene)} = 1449 \text{ ml/g}$

$C = K_{oc} [0.2(1-f)K_{oc}^s + fK_{oc}^f]$

n Benzene

$C = 63 \text{ ml/g} [0.2(1-0.05)(0.025) + 0.05(0.065)]$

$= 63 \text{ ml/g} [0.00475 + 0.00325] = 63 \text{ ml/g} \cdot 0.008$

$= 0.504 \text{ ml/g}$  (1 ml = 1 cm<sup>3</sup>)

$R = 1 + (C d / p)$   $d = 1.55 \text{ g/cm}^3$  (Table VII-2, p. 314),  $p = 0.43$  (Table VII-4, p. 318)

$= 1 + (0.504 \text{ ml/g} \cdot 1.55 \text{ g/cm}^3 / 0.43) = 1 + 1.82$

$= 2.82$

$V_c = \frac{v}{R} = \frac{1.24 \text{ ft/day}}{2.82} = 0.44 \text{ ft/day}$

Naphthalene

$C = 1449 \text{ ml/g} [0.008] = 11.6$

$R = 1 + (11.6 \text{ ml/g} \cdot 1.55 \text{ g/cm}^3 / 0.43) = 42.8$

$= \frac{1.24 \text{ ft/day}}{42.8} = 2.9 \times 10^{-2} \text{ ft/day}$



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& CONSTRUCTION MATERIALS  
CONSULTANTS

3301 ATLANTIC AVE.  
P.O. BOX 18288  
RALEIGH, NC 27619  
919-876-0416

JOB NO. J6014 SHEET 1 OF 2  
JOB NAME Camp Geiger  
SUBJECT Contaminant velocities  
BY RAK DATE 10/30/91  
CHECKED BY DATE

### RETARDATION FACTOR

$$R = 1 + (C d/p)$$

R = Retardation factor (unitless)

C =  $K_p - K_d$  = Distribution coefficient (ml/g)

d = Bulk density (g/ml) → Table VII-2

p = Porosity (unitless)

where

$$C = K_{oc} [0.2(1-f) X_{oc}^s + f X_{oc}^c]$$

where

f =  $\frac{\text{mass of silt and clay}}{\text{mass of silt, clay and sand}}$  ( $0 \leq f \leq 1$ )

$K_{oc}$  → ORGANIC CARBON  
PARTITION COEFFICIENT

$X_{oc}^s$  = organic fraction of sand ( $0 \leq X_{oc}^s \leq 0.1$ )

$K_{ow}$  → OCTANOL-WATER  
PARTITION COEFFICIENT

$K_{oc} = (0.63 \text{ ml/g}) (K_{ow})$  → Equation II-18, p. 51  
→  $K_{ow}$  value obtained from Table II-9

### AVERAGE VELOCITY OF CONTAMINANT

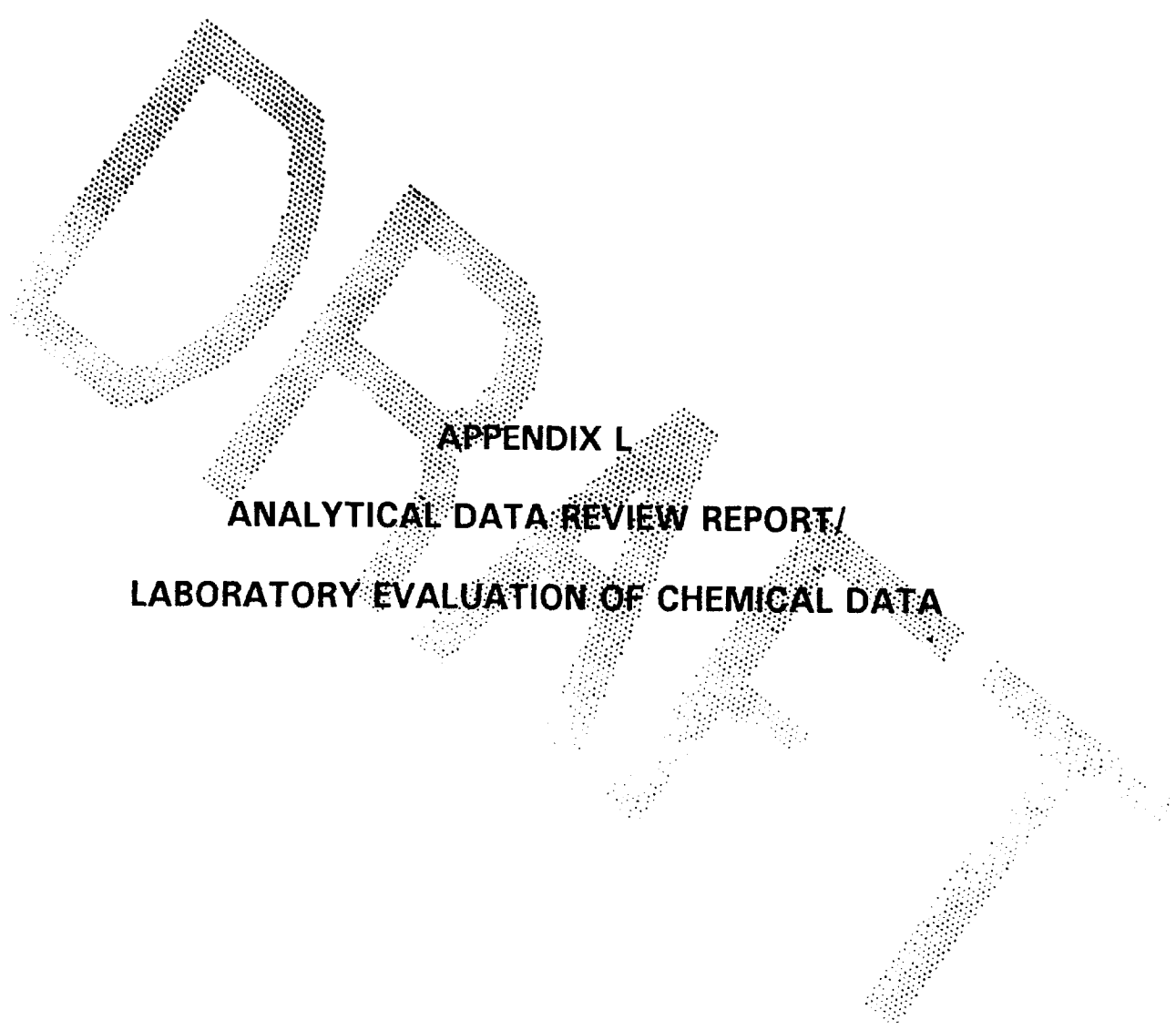
$$V_c = v/R$$

$V_c$  = AVERAGE VELOCITY of contaminant constituent (ft/day)

v = Average linear velocity of ground-water flow (ft/day)

R = Retardation factor (unitless)

United States Environmental Protection Agency, 1985, Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water, Parts I and II, Environmental Research Laboratory, Office of Research and Development, Athens, GA.



**APPENDIX L**  
**ANALYTICAL DATA REVIEW REPORT/  
LABORATORY EVALUATION OF CHEMICAL DATA**



**LAW ENVIRONMENTAL, INC.**

NATIONAL LABORATORIES DIVISION  
7215 PINE FOREST ROAD  
PENSACOLA, FLORIDA 32526  
904-944-9772  
FAX 904-944-9463

October 17, 1991

Douglas Dixon  
Law Engineering, Inc.  
3301 Atlantic Avenue  
Raleigh, NC 27604

Dear Mr. Dixon:

Please find enclosed the laboratory report data evaluation on the samples analyzed from Camp Geiger, Law project #J6014. Attachment (1) addresses specific findings and is subdivided into QA/QC, Holding Times, Blank Contamination, Documentation, and General Comment sections. All items presented in Attachment (1) are not considered to have a major impact on the data reported.

If you have any further questions concerning this report, please feel free to contact me at (904) 944-9772.

Sincerely,  
Law Environmental, Inc.

*D. Abbott*

D. Abbott  
MIS Manager

encl Attachment (1)

cc James Tucci, LENL-Pensacola



Camp Geiger  
Analytical Data Review

---

QA/QC:

All surrogates from 601/602 and 610 analyses were within control limits.

All internal standards from 602 and 610 analyses were within control limits. All 601 internal standards were within control limits with the exception of the sample listed below. This standard was out of control due to mis-identification. No data adjustments are necessary.

<u>Sample ID</u>	<u>Lab ID</u>
CGMW03	AA12972

Initial and Continuing Calibration Verification (ICV/CCV):

<u>Run</u>	<u>Failure</u>	<u>Samples Associated with CCV</u>
GC	Chloroform=126%	MW-14S (AA12931)
Lead	Lead=111%	MW-9S (AA12923) MW-10S (AA12925) MW-20S (AA12933) MW-8S (AA12941) MW-8D (AA12942) MW-11D (AA12944)

All ICV/CCV failures are marginal, in both cases, the acceptance criteria was missed by 1%. This margin does not represent any significant biases in the data.

A final analysis of Method of Standard Addition to confirm the matrix effect for lead analysis was not performed for MW-13S (AA12947).

The samples listed below were reported over calibration for Diesel. In all cases, the results reported were obtained on the 2nd or 3rd injection.

CGMW02	(AA12791)
MW-25 2-4'	(AA12796)
MW-25 4-6'	(AA12797)

Camp Geiger  
Analytical Data Review

---

Holding Times:

All analyses were performed within specified holding times.

Blank Contamination:

Low levels of contaminants were observed in the Trip/Rinse Blanks listed below:

<u>Sample ID</u>	<u>Lab ID</u>	<u>Compound Present (Concentration)</u>
Rinse Blank	AA12992	Xylene (1.3 ug/L)
Rinse Blank	AA12985	Xylene (1.4 ug/L)
Rinse Blank	AA12951	Xylene (1.9 ug/L)
Rinse Blank	AA12939	Xylene (1.5 ug/L), MTBE (1.1 ug/L)
Trip Blank	AA12940	Xylene (2.0 ug/L)

The laboratory blanks listed below also exhibited low level contamination:

Blank ID: A193A3 09/12/91 12:08  
Contamination: Benzene 0.3 ug/L

Samples associated with blank with the contaminant present:

36GW5	AA12988	Due to the low levels present in the blanks, no sample adjustments are necessary.
CGMW02	AA12971	
CGMW04	AA12973	
MW-16S	AA12975	
MW-17S	AA12977	
MW-18S	AA12979	
MW-24D	AA12990	
MW-24S	AA12989	
MW-27S	AA12991	

Blank ID: A194A3 09/16/91 11:06  
Contamination: Trichloroethene 0.9 ug/L

Samples associated with blank with the contaminant present:

None

Camp Geiger  
Analytical Data Review

---

The samples listed below were not closed out with a valid instrument blank due to analyst oversight:

MW-8S	AA12941	All three samples were associated with a single run. The method blank was within acceptable limits as well as the other instrument blanks in this run. No data adjustments are needed.
MW-8D	AA12942	
MW-11D	AA12944	

Documentation (Final Report):

1. No date collected: Potable Water (AA11636), HP-1 (AA11636)
2. Time not listed on chain of custody: MW-27S (AA12991), MW-26S (AA12938)
3. Time listed on chain of custody does not match sample container: CGMW01 (AA12922)
4. The concentrations reported for 1-Methylnaphthalene and 2-Methylnaphthalene should be changed from 470 and 490 to 450 and 460, respectively for MW-8S (AA12941).
5. The Detection Limit reported for lead for the samples listed below should be 5 ug/L instead of 1 ug/L:

MW-20S (AA12933)  
MW-16D (AA12976)  
MW-24S (AA12989)  
MW-27S (AA12991)  
MW-9S (AA12923)

General Comments:

An instrument response was present for MW-10A (AA12483) and HA-4AB (AA12873) which did not match any standard overlays for the Total Petroleum Hydrocarbons - Extractables.

Approximately 690 mg/Kg of Kerosine was present for MW-15 8.5-10.5' (AA12625).