5148

US Army Corps
of Engineers

Toxic and Hazardous
Materials Agency

PRELIMINARY SITE INSPECTION REPORT FOR FORT STEWART MILITARY RESERVATION

APPENDICES

FINAL

September 1992

Prepared For:
U.S. Army Corps of Engineers
Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, MD

Contract No. DAAA15-90-D-0001, Task 9

Prepared By:
Advanced Sciences, Inc.
1250 Brass Mill Road
Belcamp, MD 21017

APPENDIX A
SITE INSPECTION REPORT

APPENDIX A

SITE INSPECTION REPORT

Basic Information

Facility Name: Fort Stewart

EPA ID# 37-26-1382-TC

City Hinesville County Bryan State GA

Facility Commanding Officer
or Chief Executive Officer Major General Barry R. McCaffrey
Address: Commanding General, Headquarters
24th Infantry Division (m)
Fort Stewart, GA 31314-5000
Phone # (912) 767 - 1110

Facility Environmental
Officer or Coordinator Thomas Houston
Address: AFZP-DEV
24th Infantry Division (m)
Fort Stewart GA 31314-5000
Phone # (912) 767 - 2010

Facility Environmental
Command or Agency Contact LTC Bungard, Directorate of Engineering and Housing
Address: AFZP-DE
24th Infantry Division (m)
Fort Stewart, GA 31314-5000
Phone # (912) 767 - 8356

Facility Major Command or
Headquarters Contact
Address:

Phone # ( ) -

Facility Primary Mission or Purpose:
The primary mission of Fort Stewart is to train and maintain a mechanized division.

Secondary Mission or Purpose:
Provide training facilities for U.S. Army Reserve and Army National Guard units.

Hazardous Waste Types Generated
by Facility Operations:

See Appendix E.

Other Hazardous Substances
Present on Facility:

See Appendix E.

CERCLA 103C
Submitted? (Date) _____

RCRA PART A
Submitted? (Date) _____

RCRA PART B
Submitted? (Date) 5/15/85
ISSUED 8/17/87

Additional Hazardous Waste Data (check where applicable):

X Generator	_____ Small Quantity Generator	X Interim Status
_____ TSD Facility	_____ Corrective Action Order	_____ Violations

Other Permits: See Attachment

RCRA Corrective Actions:

CERCLA Remedial Actions:

None

Environmental Information

Land Uses Within Facility Boundary:

X Urban	X Suburban	X Agricultural	X Recreational
_____ Industrial	X Commercial	X Residential	_____ Institutional

Potable Water System Serving Within the Facility Boundary:

Name: Floridian Aquifer

Number of Connections: 31 (9 in use, 20 unused, 2 on standby)

Source Type: Groundwater X Surface Water _____

_____ Intake, _____ Well, or _____ Well Field
Distance (feet) from Nearest Facility Boundary: _____

Land Uses With 4-Miles of Facility Boundary: Irrigation of Crop, Livestock

_____ Intake, X Well, or _____ Well Field
Distance (feet) from Nearest Facility Boundary: _____

All Municipal Systems Serving Groundwater Within 4 miles or Surface Water Within 15 miles of Facility Boundary:

Name: Cities of Pembroke, Richmond [illegible], Finesville, Glenwood [illegible] Dairy

Number of Connections: _____

Source Type: Groundwater X Surface Water _____

_____ Intake, X Well, or _____ Well Field
Distance (feet) from Nearest Facility Boundary: 4640, 4042, 133[illegible] 7040 respectively

1 mile = 5280'
1609 meters
1760 yds

Name: _____

Number of Connections: _____

Source Type: Groundwater _____ Surface Water _____

_____ Intake _____ Well, or _____ Well Field
Distance (feet) from Nearest Facility Boundary: _____

Number of Private Potable Groundwater Wells
Within 4 miles of Facility Boundary: _____

Geologic and Hydrogeologic Information

Local Bedrock Geophysical Features:

_____ Karst _____ Fractures _____ Solution Pits _____ Faults

Predominant Local Unsaturated Zone Soil Type:

_____ Sands _____ Silts _____ Clays

Local Average Depth (feet) to Water Table: 2-10

Local Aquifers in Descending Order:

Water Table Aquifer - Name Surficial
Depth (feet) Below Land Surface 2-10
Thickness (feet) 140

Aquifer - Name Upper Floridian
Depth (feet) Below Land Surface
Thickness (feet) 200-260

Aquifer - Name Lower Floridian
Depth (feet) Below Land Surface 450
Thickness (feet) 400

Aquifer - Name
Depth (feet) Below Land Surface
Thickness (feet)

Local Geologic Formations in Descending Order:

Unit Name Surficial Sediments
Depth (feet) Below Land Surface zero
Thickness (feet) 15

Unit Name Pleistocene
Depth (feet) Below Land Surface 15
Thickness (feet) 30

Unit Name Pliocene
Depth (feet) Below Land Surface
Thickness (feet)

Unit Name Upper Miocene
Depth (feet) Below Land Surface
Thickness (feet)

Source: Huddleston [illegible]
Clark, Hack [illegible]

Distance (feet) to Private Potable Groundwater Well
Closest to Facility Boundary: _____

Number of Houses Served by Private Potable Groundwater
Wells Within 4 miles of Facility Boundary: _____

Estimate Total Population Served by Groundwater
Within 4 miles of Facility Boundary: _____

Estimate Total Population Served by Surface Water
Within 15 miles of Facility Boundary: None

Sensitive Environments on Facility:

X Wetlands	___ Critical Habitat or Area
X Endangered or Threatened Species	___ Fisheries
X Commerical, Subsistance, or Recreational Fishing	___ National Monument or Park

Sensitive Environments Within 1-mile of Facility Boundary:

X Wetlands	___ Critical Habitat or Area
X Endangered or Threatened Species	___ Fisheries
X Commerical, Subsistance, or Recreational Fishing	___ National Monument or Park

Sensitive Environments from 1 mile to 15 miles of Facility Boundary:

X Wetlands	X Critical Habitat or Area
X Endangered or Threatened Species	X Fisheries
X Commerical, Subsistance, or Recreational Fishing	X National Monument or Park

Facility on: ___ 10-year X 100-year ___ 500-year Floodplain

Distance (feet) to Nearest Off-Facility Residence: _____

Number of Workers Living on Facility: _____

Number of Other Residents on Facility: 6799

Number of Workers Working on Facility: military 16 699/CIVILIAN 3746/TRAINING 3582 = 24,027

Describe the Facility Access Controls:

_____

_____

_____

_____

_____

Water Use Survey for Individual Residences

Name and address of resident(s)

_____

_____

_____

(_____)_____

Check water source(s) used by resident(s)

1. Drilled well _____ depth (feet) _____ water level (feet) _____
2. Dug well _____ depth (feet) _____ water level (feet) _____
3. Spring _____ Artesian _____ Gravity _____
4. Surface Water _____ _____
5. Public Supply _____ _____
6. Other _____ _____

Check water use(s) and specify water source of each

Drinking _____ Number of users _____ Source _____

Household _____ Number of users _____ Source _____

Irrigation _____ acres _____ crop _____ Source _____

Other _____

Any problems with water? _____

_____

How long have sources been is use? _____

Any monitoring wells on property? _____

Prepared by _____ Date _____

Comments: _____

EPA Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: GA | CERCLIS Number: GA 9210020872

CERCLIS Discovery Date: July 1, 1980

1. General Site Information

Name:	Street Address:					
Fort Stewart military Reservation						
City:	**State:**	**Zip Code:**	**County:**	**Co. Code:**	**Cong. Dist:**	
Hinesville	GA	31314-5000	Liberty			
Latitude:	**Longitude:**	**Approximate Area of Site:**	**Status of Site:**			
31° 51' N._"	81° 36' W._"	279,270 Acres _____ Square Ft	☒ Active ☐ Inactive ☐ Not Specified ☐ NA (GW plume, etc.)			

2. Owner/Operator Information

Owner: U.S. Army Forces Command	Operator:
Street Address: Fort Gillem	Street Address:
City: Forest Park	City:
State: GA / Zip Code: 30305-6000 / Telephone: (404)	State: / Zip Code: / Telephone: ( )

Type of Ownership:
- ☐ Private
- ☒ Federal Agency — Name U.S Army
- ☐ State
- ☐ Indian
- ☐ County
- ☐ Municipal
- ☐ Not Specified
- ☐ Other

How Initially Identified:
- ☐ Citizen Complaint
- ☐ PA Petition
- ☐ State/Local Program
- ☐ RCRA/CERCLA Notification
- ☐ Federal Program
- ☐ Incidental
- ☐ Not Specified
- ☐ Other

3. Site Evaluator Information

Name of Evaluator: John D. McGowan	Agency/Organization: Advanced Sc...	Date Prepared: October 30, 199...
Street Address: 165 Mitchell Road	City: Oak Ridge	State: TN
Name of EPA or State Agency Contact: J.C Mereta	Street Address:	
City: Atlanta	State: GA	Telephone: (404) 347-3...

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
☐ Yes ☐ No Date: _____	☐ Higher Priority SI ☐ Lower Priority SI ☐ NFRAP ☐ RCRA ☐ Other _____ Date: _____	Name (typed): Position:

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number: GA9210020872

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):

- ☒ Industrial
- ☒ Commercial
- ☒ Residential
- ☒ Forest/Fields
- ☒ Agriculture
- ☐ Mining
- ☐ DOD
- ☐ DOE
- ☐ DOI
- ☐ Other Federal Facility
- ☐ Other _____

Site Setting:

- ☒ Urban
- ☒ Suburban
- ☒ Rural

Years of Operation:

Beginning Year 1940

Ending Year Present

☐ Unknown

Type of Site Operations (check all that apply):

- ☐ Manufacturing (must check subcategory)
  - ☐ Lumber and Wood Products
  - ☐ Inorganic Chemicals
  - ☐ Plastic and/or Rubber Products
  - ☐ Paints, Varnishes
  - ☐ Industrial Organic Chemicals
  - ☐ Agricultural Chemicals (e.g., pesticides, fertilizers)
  - ☐ Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)
  - ☐ Primary Metals
  - ☐ Metal Coating, Plating, Engraving
  - ☐ Metal Forging, Stamping
  - ☐ Fabricated Structural Metal Products
  - ☐ Electronic Equipment
  - ☐ Other Manufacturing
- ☐ Mining
  - ☐ Metals
  - ☐ Coal
  - ☐ Oil and Gas
  - ☐ Non-metallic Minerals
- ☐ Retail
- ☐ Recycling
- ☐ Junk/Salvage Yard
- ☐ Municipal Landfill
- ☐ Other Landfill
- ☒ DOD
- ☐ DOE
- ☐ DOI
- ☐ Other Federal Facility _____
- ☒ RCRA
  - ☒ Treatment, Storage, or Disposal
  - ☒ Large Quantity Generator
  - ☐ Small Quantity Generator
  - ☐ Subtitle D
    - ☐ Municipal
    - ☐ Industrial
  - ☐ "Converter"
  - ☐ "Protective Filer"
  - ☐ "Non- or Late Filer"
- ☐ Not Specified
- ☐ Other _____

Waste Generated:

- ☒ Onsite
- ☐ Offsite
- ☐ Onsite and Offsite

Waste Deposition Authorized By:

- ☒ Present Owner
- ☐ Former Owner
- ☐ Present & Former Owner
- ☐ Unauthorized
- ☐ Unknown

Waste Accessible to the Public:

- ☐ Yes
- ☒ No

Distance to Nearest Dwelling, School, or Workplace:

_____ Feet

6. Waste Characteristics Information

Source Type: (check all that apply)	Source Waste Quantity: (include units)	Tier*:
☒ Landfill		A
☐ Surface Impoundment		
☒ Drums		
☒ Tanks and Non-Drum Containers		
☐ Chemical Waste Pile		
☐ Scrap Metal or Junk Pile		
☐ Tailings Pile		
☒ Trash Pile (open dump)		
☐ Land Treatment		
☐ Contaminated Ground Water Plume (unidentified source)		
☐ Contaminated Surface Water/Sediment (unidentified source)		
☒ Contaminated Soil		
☐ Other _____		
☐ No Sources		

* C = Constituent, W = Wastestream, V = Volume, A = Area

General Types of Waste (check all that apply)

- ☒ Metals
- ☒ Organics
- ☒ Inorganics
- ☒ Solvents
- ☒ Paints/Pigments
- ☒ Laboratory/Hospital Waste
- ☐ Radioactive Waste
- ☒ Construction/Demolition Waste
- ☒ Pesticides/Herbicides
- ☒ Acids/Bases
- ☒ Oily Waste
- ☒ Municipal Waste
- ☐ Mining Waste
- ☒ Explosives
- ☐ Other _____

Physical State of Waste as Deposited (check all that apply)

- ☒ Solid
- ☒ Sludge
- ☐ Powder
- ☐ Liquid
- ☐ Gas

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 3 of 4

CERCLIS Number: GA 9210020872

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
- ☒ Yes
- ☐ No

Type of Drinking Water Wells Within 4 Miles (check all that apply):
- ☒ Municipal
- ☒ Private
- ☐ None

Is There a Suspected Release to Ground Water:
- ☒ Yes
- ☐ No

Have Primary Target Drinking Water Wells Been Identified:
- ☐ Yes
- ☐ No

If Yes, Enter Primary Target Population:

_____ People

Depth to Shallowest Aquifer:

_____ Feet

Karst Terrain/Aquifer Present:
- ☐ Yes
- ☒ No

Nearest Designated Wellhead Protection Area:
- ☐ Underlies Site
- ☐ >0 - 4 Miles
- ☐ None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - ¼ Mile	_____
> ¼ - ½ Mile	_____
> ½ - 1 Mile	_____
> 1 - 2 Miles	_____
> 2 - 3 Miles	_____
> 3 - 4 Miles	_____
Total Within 4 Miles	_____

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):
- ☒ Stream ☒ River ☐ Pond ☐ Lake
- ☐ Bay ☐ Ocean ☐ Other _____

Shortest Overland Distance From Any Source to Surface Water:

_____ Feet

_____ Miles

Is There a Suspected Release to Surface Water:
- ☐ Yes
- ☐ No

Site is Located in:
- ☐ Annual - 10 yr Floodplain
- ☒ >10 yr - 100 yr Floodplain
- ☐ >100 yr - 500 yr Floodplain
- ☐ >500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:
- ☐ Yes
- ☒ No

Have Primary Target Drinking Water Intakes Been Identified:
- ☐ Yes
- ☐ No

If Yes, Enter Population Served by Primary Target Intakes:

_____ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served

Total within 15 Miles _____

Fisheries Located Along the Surface Water Migration Path:
- ☐ Yes
- ☐ No

Have Primary Target Fisheries Been Identified:
- ☐ Yes
- ☐ No

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 4 of 4

CERCLIS Number: GA 9210020872

8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:
- ☒ Yes
- ☐ No

Have Primary Target Wetlands Been Identified:
- ☐ Yes
- ☐ No

List Secondary Target Wetlands:

Water Body	Flow (cfs)	Frontage Miles

Other Sensitive Environments Located Along the Surface Water Migration Path:
- ☐ Yes
- ☐ No

Have Primary Target Sensitive Environments Been Identified:
- ☐ Yes
- ☐ No

List Secondary Target Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination:
- ☐ Yes
- ☒ No

If Yes, Enter Total Resident Population:

_____ People

Number of Workers Onsite:
- ☐ None
- ☐ 1 - 100
- ☐ 101 - 1,000
- ☒ > 1,000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:
- ☒ Yes
- ☐ No

If Yes, List Each Terrestrial Sensitive Environment:

_____

_____

10. Air Pathway

Is There a Suspected Release to Air:
- ☐ Yes
- ☒ No

Enter Total Population on or Within:

Onsite	
0 - ¼ Mile	
> ¼ - ½ Mile	
> ½ - 1 Mile	
> 1 - 2 Miles	
> 2 - 3 Miles	
> 3 - 4 Miles	
Total Within 4 Miles	

Wetlands Located Within 4 Miles of the Site:
- ☒ Yes
- ☐ No

Other Sensitive Environments Located Within 4 Miles of the Site:
- ☒ Yes
- ☐ No

List All Sensitive Environments Within ½ Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area (acres)
Onsite	
0 - ¼ Mile	
> ¼ - ½ Mile	

APPENDIX B
PERMITS ISSUED TO FORT STEWART

State of Georgia
Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION

LAND APPLICATION SYSTEM PERMIT

Permit No. GA 03-624

In accordance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), and the Rules and Regulations promulgated pursuant thereto, this permit is issued to the following:

UNITED STATES DEPARTMENT OF THE ARMY
Directorate of Engineering and Housing
Fort Stewart, Georgia 31314

is authorized to operate the land application system located at

Camp Oliver, Evans County

This permit is conditioned upon the permittee complying with the effluent limitations, monitoring requirements and other conditions set forth in the permit; with the statements and supporting data submitted with the application dated July 30, 1990 ; and with the approved plan of operation and management, all of which are filed with the Environmental Protection Division of the Department of Natural Resources.

This permit is effective on the date signed by the Director of the Environmental Protection Division and is subject to revocation on evidence of noncompliance with any of the provisions of the Georgia Water Quality Control Act or any of the Rules and Regulations promulgated pursuant thereto; or with any presentation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any conditions of this permit.

This permit shall expire at midnight. August 31, 1995.

Signed this 25th. **date of** October, 1990.

Director
Environmental Protection Division

Permit Conditions

1. The system shall be operated at maximum efficiency at all times. The average daily flow to the wastewater treatment facility shall not exceed 0.070 MGD. The following effluent standards for the discharge to the land application system apply:

   (A) Biochemical Oxygen Demand (5-Day): The monthly average shall not exceed 50 mg/l.

   (B) Suspended Solids: The monthly average shall not exceed 90 mg/l.

   (C) Fecal Coliform Bacteria: The monthly geometric mean shall not exceed 200 per 100 ml.

2. Quarterly operating reports shall be submitted to the Environmental Protection Division by the responsible Class III Operator. The operating reports shall be submitted no later than the 15th day of the month following the reporting period to:

   Georgia Environmental Protection Division
   Industrial Wastewater Program
   205 Butler Street, S.E.
   Suite 1070, Floyd Towers East
   Atlanta, Georgia 30334

   This operation report should contain the analytical results of samples taken at the treatment facility, the groundwater monitoring wells, and/or the surface streams as specified in the approved "Plan of Operation and Management." These sampling requirements may be revised if approved by the Division.

   All analysis shall be made in accordance with the latest edition of Standard Methods for the Examination of Water and Wastes, Methods for Chemical Analysis of Water and Wastes, or other required methods.

3. The wastewater and disposal system must be maintained as a no-discharge system; therefore, additional land for spraying must be utilized if the application rate cannot satisfactorily be handled by the currently approved spray field.

4. Certification Requirements (Operation)

   The permittee shall insure that the person in responsible charge of this wastewater treatment plant is a Certified Operator in accordance with the Georgia Certification of Water and Wastewater Plant Operators Act, as amended, and the Rules promulgated thereunder and holds a classification consistent with the plant classification specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control.

5. Certification Requirements (Laboratory)

The permittee shall insure that the person in responsible charge of the laboratory that is completing the laboratory analysis for this wastewater treatment plant is a certified Laboratory Analyst in accordance with the Georgia Certification of Water and Wastewater Plant Operators Act, as amended, and the Rules promulgated thereunder.

6. Land Application System Monitoring Requirements

(A) Preapplication Treatment Monitoring Requirements

Discharge to Sprayfields

Parameter	Frequency
Flow	Daily*
Biochemical Oxygen Demand (5-Day)**	One/Month
Suspended Solids**	One/Month
pH	One/Month
Fecal Coliform Bacteria	One/Quarter
NO_3-N	One/Quarter

* Continuous recording measurements required.

** Influent to wastewater treatment pond must also be monitored on same frequency.

(B) Groundwater monitoring and wells may be required upon written notification by the Division.

(C) Soil Monitoring

Parameter	Frequency
pH	One/Year
Cation Exchange Capacity	If pH changes by one unit
Percent Base Saturation	If pH changes by one unit
Phosphorus Adsorption	If pH changes by one unit

7. Groundwater

Groundwater leaving the land application system boundaries must meet primary maximum contaminant levels for drinking water. If groundwater samples indicate contamination, the permittee will be required, upon written notification by the Division, to develop a plan which will insure that the primary maximum contaminant levels for drinking water are not exceeded. The plan will be implemented by the permittee immediately upon Division approval.

Georgia Department of Natural Resources
205 Butler Street, S.E., Suite 1252, Atlanta, Georgia 30334
Joe D. Tanner, Commissioner
404/656-3500

March 4, 1991

Mr. Thomas D. Houston, Chief
U. S. Department of the Army
Headquarters Fort Stewart
Environmental Office
Building 1139
Fort Stewart, Georgia 31314-5000

Re: NPDES Permit No. GA 0004308

Dear Mr. Houston:

Pursuant to the Georgia Water Quality Control Act, as amended, the Federal Clean Water Act, as amended, and the Rules and Regulations promulgated thereunder, we have issued the attached National Pollutant Discharge Elimination System (NPDES) permit for the specified wastewater treatment facility.

Please be advised that on and after the effective date indicated in the attached NPDES permit, the permittee must comply with all the terms, conditions and limitations of this permit.

Sincerely,

Joe D. Tanner
Commissioner

JDT:bk
Attachment

cc: Mr. John T. Marlar (w/attachment)
U. S. EPA, Region IV

PERMIT NO. GA0004308

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the "State Act," the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.), hereinafter called the "Federal Act," and the Rules and Regulations promulgated pursuant to each of these Acts,

UNITED STATES DEPARTMENT OF THE ARMY
Headquarters Fort Stewart
Fort Stewart, Georgia 31314

is authorized to discharge from a facility located at

Fort Stewart, Liberty and Bryan Counties

to receiving waters Tributaries to the Canoochee River

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on March 4, 1991.

This permit and the authorization to discharge shall expire at midnight, February 28, 1996.

Signed this 4th. **day of** March, 1991.

Director
Environmental Protection Division

EPD 2.21-1

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning effective date and lasting through February 28, 1996, the permittee is authorized to discharge from outfall(s) serial number(s) 001 - Evans Army Heliport Package Treatment Plant, Fort Stewart.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements		
	Mass Based		Concentration Based		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Flow (MGD)	.035	.035	-	-	Daily	Flow Measuring Device	Effluent
Biochemical Oxygen Demand (mg/l)	-	-	20	30	Monthly	24-Hr.Composite	Effluent
Suspended Solids (mg/l)	-	-	30	45	Monthly	24-Hr.Composite	Effluent
Fecal Coliform Bacteria (number per 100 ml of sample)	-	-	200	400	Monthly	Grab	Effluent
Ammonia Nitrogen (mg/l)	-	-	5.0	7.5	Monthly	24-Hr.Composite	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per month by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

2. During the period beginning effective date and lasting through February 28, 1996, the permittee is authorized to discharge from outfall(s) serial number(s) 002 - Tac-X Package Treatment Plant, Fort Stewart.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements		
	Mass Based		Concentration Based		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Flow (MGD)	.035	.035	-	-	Daily	Flow Measuring Device	Effluent
Biochemical Oxygen Demand (mg/l)	-	-	20	35	Monthly	24-Hr.Composite	Effluent
Suspended Solids (mg/l)	-	-	30	45	Monthly	24-Hr.Composite	Effluent
Fecal Coliform Bacteria (number per 100 ml of sample)	-	-	200	400	Monthly	Grab	Effluent
Ammonia Nitrogen (mg/l)	-	-	5.0	7.5	Monthly	24-Hr.Composite	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per month by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

3. During the period beginning effective date and lasting through February 28, 1996, the permittee is authorized to discharge from outfall(s) serial number(s) 003 - Industrial Waste Treatment.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements		
	Mass Based		Concentration Based (mg/l)				
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow (MGD)	1.5	1.5	-	-	Two/Month	Flow Measuring Device	Effluent
Biochemical Oxygen Demand	-	-	30	45	Two/Month	Grab	Effluent
Suspended Solids	-	-	30	45	Two/Month	Grab	Effluent
Phenols	-	-	.25	.50	Two/Month	Grab	Effluent
Oil & Grease	-	-	10	15	Two/Month	Grab	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored twice per month by a grab sample of the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person who has the authority to act for or on behalf of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Georgia Environmental Protection Division
Industrial Wastewater Program
205 Butler Street, S.E.
Suite 1070
Atlanta, Georgia 30334

All instances of noncompliance not reported under Part I. B. and C. and Part II. A shall be reported at the time the operation monitoring report is submitted.

3. Definitions

a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.

b. The "daily maximum" discharge means the total discharge by weight during any calendar day.

c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentration made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.

d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.

e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.

f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;

b. The dates the analyses were performed, and the person(s) who performed the analyses;

c. The analytical techniques or methods used; and

d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

   a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

   b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 µg/l, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 µg/l for acrolein and acrylonitrile, 500 µg/l for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.

   c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 µg/l, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

   If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

   a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and

2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

b. Any diversion from or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA) and the Resource Conservation and Recovery Act (RCRA). For land application of nonhazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of nonhazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

8. **Power Failures**

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and

b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;

b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and

c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or

d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:

(1) is different in conditions or more stringent than any effluent limitation in the permit; or

(2) controls any pollutant not limited in the permit.

5. Toxic Pollutants and Best Available Technology Economically Achievable

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) and Section 301(b)2 of the Federal Clean Water Act for pollutants, toxic and otherwise,

which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. **Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.

b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Stormwater Runoff

In addition to the outfalls identified in Part I, Section A. of this permit, the permittee is authorized to discharge stormwater runoff from point sources at this facility provided that these discharges do not cause violations of State water quality standards in the receiving streams.

17. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

PART III

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Certification Requirements

The permittee shall insure that the person in responsible charge of this wastewater treatment plant is a Certified Operator in accordance with the Georgia Certification of Water and Wastewater Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder and holds a classification consistent with the plant classification specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control. Operators, other than the person in responsible charge, must obtain certification in Class III operator classification or higher within one year of obtaining employment as an operator of a public wastewater treatment plant.

The permittee shall insure that, when required, the person in responsible charge of the laboratory that is performing the laboratory analyses for this wastewater treatment plant is a certified Laboratory Analyst in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder.

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The permittee may not discharge toxic wastes in concentrations or combinations which are harmful to humans, fish or aquatic life. The permittee shall ensure that the effluent being discharged does not kill 10% or more of the exposed test organisms in 96 hours or less, when the test solution contains volumes of effluent and stream water proportional to the plant design flow and the 7Q10 flow of the receiving stream.

1. If toxicity is suspected in the permittee's effluent, the Division may require the permittee to develop a program for whole effluent biomonitoring. The schedule will be as follows;

   a. Within 90 days of Division notification, a study plan detailing the test methodology and test organisms shall be submitted for conducting forty-eight hour acute static renewal tests of the final effluent. If residual chlorine is present in the final effluent from treatment and/or disinfection processes, a prechlorinated or dechlorinated sample will also be tested.

   b. Within 90 days of Division approval of the study plan, the permittee will conduct and submit the results of the forty-eight hour static renewal tests.

2. If toxicity is found in the permittee's effluent, the permittee shall, within 90 days of written notification by the Division, submit a Toxicity Reduction Evaluation (TRE) plan to the Division. The TRE plan shall detail the action the permittee will implement to eliminate toxicity. Within 270 days of Division approval of the TRE plan, the permittee shall complete implementation of the TRE plan and conduct follow-up biomonitoring of the effluent in accordance with the approved TRE plan. If toxicity is still indicated, the permittee shall continue the TRE plan. The TRE plan shall not be complete until the permittee has eliminated the toxicity in its effluent. On a case specific basis, chronic toxicity testing procedures may be required for the definitive determination that toxicity has been eliminated.

3. If toxicity is not indicated initially, or if there are substantial changes in the effluent composition, the permittee may be required to repeat the forty-eight hour static renewal test upon notification by the Division. On a case specific basis, chronic toxicity testing procedures may also be required.

Upon approval by the Division, all study plans and TRE plans will become part of the requirements of this permit.

ENVIRONMENTAL PROTECTION DIVISION
DEPARTMENT OF NATURAL RESOURCES
STATE OF GEORGIA

PERMIT TO USE GROUNDWATER

PERMIT NUMBER **089-0003 (Renewal)** DATE: **August 28, 1990**

PERMITTEE'S NAME **Department of the Army - Fort Stewart**

PERMITTEE'S ADDRESS **Headquarters, 24th Infantry Division, AFZP-DEV, Ft. Stewart, Georgia 31314-5000**

In accordance with the Provisions of the Groundwater Use Act, (Ga.Laws 1972, p.976, et seq., as amended by Ga. Laws 1973, p.1273, et seq.) and the Rules and Regulations promulgated pursuant thereto, this Permit is issued to withdraw obtain, or utilize groundwater in the amount of **5,500,000(a) 4,500,000(b)** gallons per day from **5** well(s) located at **Fort Stewart, Georgia - Liberty County** for the purpose of **a consumptive use for central water supply.**

This Permit is conditioned upon the permittee complying with the following: **(a)Monthly Avg. Withdrawal Limit**
(b)Annual Avg. Withdrawal Limit

STANDARD CONDITIONS

(1) The provisions of the Groundwater Use Act, as amended, or any of the Rules and Regulations promulgated pursuant thereto;

(2) The Permit shall not be transferred except with the approval of the Division;

(3) The Groundwater Use Report shall be submitted SEMI-ANNUALLY,unless otherwise designated by the Division,starting sixty (60)days after the above date and every six (6)months thereafter;

(4) The use of groundwater is limited to the quantities and purpose of the water herein specified.

SPECIAL CONDITIONS

(5) This Permit is valid for ground water withdrawal from the Floridan Aquifer. No other aquifer can be used without the approval of the Division.

(6) The replacement of any permitted well must receive prior approval from the Division.

And the additional attached conditions,if any,which are hereby made a part of this Permit.

In accordance with the application dated **8-21-90** and in conformity with the statements and supporting data entered therein or attached thereto,all of which are filed with the Environmental Protection Division of the Department of Natural Resources and are hereby made part of this Permit

This Permit is effective from the date first above written and is subject to revocation on evidence of noncompliance with any of the provisions of the Groundwater Use Act, as amended, or any of the Rules and Regulations promulgated pursuant thereto;or with any representation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

Absent prior revocation in accordance with the above language, this Permit shall expire on the **28th** day of **August** xx **2000**

DIRECTOR'S SIGNATURE Bonnie C. Bantt DATE: August 28, 1990

Director
Environmental Protection Division
Department of Natural Resources

EPD 2.24

ENVIRONMENTAL PROTECTION DIVISION
DEPARTMENT OF NATURAL RESOURCES
STATE OF GEORGIA

PERMIT TO USE GROUNDWATER

PERMIT NUMBER 089-0003 DATE: February 11, 1980

PERMITTEE'S NAME Department of the Army - Fort Stewart

PERMITTEE'S ADDRESS 24th Inf. Div. & Ft. Stewart - Fort Stewart, Ga. 31313 - Liberty County

In accordance with the Provisions of the Groundwater Use Act, (Ga.Laws 1972, p.976, et seq., as amended by Ga. Laws 1973, p.1273, et seq.) and the Rules and Regulations promulgated pursuant thereto, this Permit is issued to withdraw obtain, or utilize groundwater in the amount of 2,500,000 gallons per day from 4 well(s) located at Fort Stewart, Georgia - Liberty County for the purpose of Consumptive Use For Central Water Supply.

This Permit is conditioned upon the permittee complying with the following:

STANDARD CONDITIONS

(1) The provisions of the Groundwater Use Act, as amended, or any of the Rules and Regulations promulgated pursuant thereto;

(2) The Permit shall not be transferred except with the approval of the Division;

(3) The Groundwater Use Report shall be submitted SEMI-ANNUALLY,unless otherwise designated by the Division,starting sixty (60)days after the above date and every six (6)months thereafter;

(4) The use of groundwater is limited to the quantities and purpose of the water herein specified.

SPECIAL CONDITIONS

5) This permit is valid only for the groundwater withdrawal of 2,500,000 gpd from the Ocala limestone aquifer. No other aquifer can be used without the approval of the Division.

6) No replacement well(s) shall be constructed without prior approval of the Division.

And the additional attached conditions,if any,which are hereby made a part of this Permit.

In accordance with the application dated Nov. 5, 1979 and in conformity with the statements and supporting data entered therein or attached thereto,all of which are filed with the Environmental Protection Division of the Department of Natural Resources and are hereby made part of this Permit

This Permit is effective from the date first above written and is subject to revocation on evidence of noncompliance with any of the provisions of the Groundwater Use Act, as amended, or any of the Rules and Regulations promulgated pursuant thereto;or with any representation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

Absent prior revocation in accordance with the above language, this Permit shall expire on the 11th day of February 19 90.

DIRECTOR'S SIGNATURE J. Leonard Ledbetter

Director
Environmental Protection Division
Department of Natural Resources

EPD 12.24

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PERMIT NO. 2089 J 1236

COUNTY LIBERTY

EFFECTIVE DATE OF PERMIT:
DECEMBER 4, 1982

MODIFIED:
MARCH 7, 1986

PERMIT TO OPERATE A PUBLIC WATER SYSTEM

In compliance with the provisions of the GEORGIA SAFE DRINKING WATER ACT of 1977, OCGA 12-5-170 et. seq., and the RULES, CHAPTER 391-3-5, adopted pursuant to the ACT

UNITED STATES ARMY

is issued a PERMIT TO OPERATE A PUBLIC WATER SYSTEM named the

, A Community Water System

FORT STEWART - MAIN

and located at

FORT STEWART, GEORGIA

THIS PERMIT to operate the above public water system shall become effective on the date shown above and the permit shall expire at midnight, December 3, 1992 absent any prior revocation or modification.

THIS PERMIT is issued subject to the terms, conditions and schedules of compliance as follows:

1. *THE PERMITTEE shall at all times operate the public water system in full compliance with the GEORGIA SAFE DRINKING WATER ACT of 1977, and the RULES, CHAPTER 391-3-5, adopted under the ACT. THE DIRECTOR may modify, suspend or revoke this permit as provided therein.*

2. *THIS PERMIT is transferrable only with a change of ownership. Any Transferee becomes the Permittee and assumes the responsibilities under this Permit. Such Transferee must notify the Division of the transfer in writing immediately.*

3. *THIS PERMIT is further subject to the terms, conditions and schedules of compliance specified on the attached pages.*

J. Leonard Ledbetter

DIRECTOR
ENVIRONMENTAL PROTECTION DIVISION

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Owner: United States Army

Effective: December 4, 1982
Modified: March 7, 1986

System: Fort Stewart-Main Water System

Permit No.: 2089 J 1236

PERMIT CONDITIONS

4. This permit is for the operation of five (5) wells as sources of water supply as indicated on your application. Any additional sources must have written approval from the Director before installation. Failure to comply will be considered a permit violation.

5. The permittee must continuously chlorinate all water distributed by the system to maintain a free chlorine residual of at least 0.5 parts per million in all parts of the distribution system.

6. The permittee shall collect and submit, or have collected and submitted to a state certified water supply laboratory, a minimum of twenty-two (22) drinking water samples per month for coliform density analysis on the date assigned during which the system provides water to the public. Date assigned to submit samples: third Tuesday.

Results of these analyses must be maintained by the permittee and reported to the Division in accordance with Section 391-3-5-.15 and .25 of the Rules. Results reported to the Division must be identified by the system ID number 308 922 181 and the results sent to the following address:

Environmental Protection Division
Ground Water Program
Floyd Towers East, Room 1066
205 Butler Street, S. E.
Atlanta, Georgia 30334

7. Operation records must be maintained by the permittee on or near the premises of the water system and available for inspection. A true and correct copy of these records must be sent, by the tenth day of the month following the month being reported, to the following address:

Environmental Protection Division
Southeast Regional Office
1200 Glynn Ave.
Brunswick, Georgia 31523

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Owner: United States Army

Effective: December 4, 1982
Modified: March 7, 1986

System: Fort Stewart-Main Water System

Permit No.: 2089 J 1236

PERMIT CONDITIONS

8. The permittee shall insure that the person in responsible charge of this public water system is a certified operator in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules adopted thereunder, and holds a certification classification consistent with the public water system classification specified by Subparagraph 391-3-5-.48 of the Rules for Safe Drinking Water. A public water system whose only source of water supply is groundwater and serves a population of less than 1000 is only required to have a trained operator.

9. The permittee shall insure that any person employed by the water system as a laboratory analyst, is a certified laboratory analyst in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules adopted thereunder. A public water system whose only source of water supply is groundwater and serves a population of less than 1000 is not required to have a certified laboratory analyst.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PERMIT NO. CG1790024

COUNTY Liberty

EFFECTIVE DATE OF PERMIT:

May 28, 1991

PERMIT TO OPERATE A PUBLIC WATER SYSTEM

In compliance with the provisions of the GEORGIA SAFE DRINKING WATER ACT of 1977, OCGA 12-5-170 et. seq., and the RULES, CHAPTER 391-3-5, adopted pursuant to the ACT

United States Army

is issued a PERMIT TO OPERATE A PUBLIC WATER SYSTEM named the

Fort Stewart Main Water System *A Community Water System*

and located at Fort Stewart, Georgia

THIS PERMIT to operate the above public water system shall become effective on the date shown above and the permit shall expire at midnight, May 27, 2001 *absent any prior revocation or modification.*

THIS PERMIT is issued subject to the terms, conditions and schedules of compliance as follows:

1. *THE PERMITTEE shall at all times operate the public water system in full compliance with the GEORGIA SAFE DRINKING WATER ACT of 1977, and the RULES, CHAPTER 391-3-5, adopted under the ACT. THE DIRECTOR may modify, suspend or revoke this permit as provided therein.*

2. *THIS PERMIT is transferrable only with a change of ownership. Any Transferee becomes the Permittee and assumes the responsibilities under this Permit. Such Transferee must notify the Division of the transfer in writing immediately.*

3. *THIS PERMIT is further subject to the terms, conditions and schedules of compliance specified on the attached pages.*

DIRECTOR
ENVIRONMENTAL PROTECTION DIVISION

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

OWNER: **United States Army** EFFECTIVE DATE: **May 28, 1991**

SYSTEM: **Fort Stewart Main Water System** PERMIT NO.: **CG1790024**

PERMIT CONDITIONS

4. This Permit is for the **operation of five (5) well(s)** as source(s) of water supply as indicated on your application. Any additional sources must have written approval from the Director before use.

5. The permittee must provide continuous disinfection by chlorinating all water distributed by the system to **maintain a detectable residual of free chlorine in the recommended amount of 0.2 milligrams per liter** in all parts of the distribution system, or as specified in Section 391-3-5-.14, as amended, of the Rules for Safe Drinking Water.

6. The permittee shall analyze or have analyzed by an EPD certified water supply laboratory **a minimum of twenty (20) drinking water samples(s) per month for coliform organisms.**

Summaries of these coliform analyses must be maintained by the permittee and reported to the Division as specified in Section 391-3-5-.15 and .30 of the Rules. **Results reported to the Division must be identified by the system ID number 1790024** and the results sent, by the tenth day of the month following the month being reported, to the following address:

Environmental Protection Division
Drinking Water Program
Floyd Towers East, Suite 1066
205 Butler Street, SE
Atlanta, Georgia 30334

7. Operation records must be maintained by the permittee on the premises of the water system and be available for inspection. **A true and correct copy of the operation records must be sent, by the tenth day of the month following the month being reported, to the following address:**

Environmental Protection Division
Southeast Georgia Regional Office
1 Conservation Way
Brunswick, Georgia 31523-8602

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

OWNER: **United States Army** EFFECTIVE DATE: **May 28, 1991**

SYSTEM: **Fort Stewart Main Water System** PERMIT NO.: **CG1790024**

PERMIT CONDITIONS

8. The permittee shall insure that the person in responsible charge of this public water system is certified as specified in the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules adopted thereunder. The certification classification must be consistent with the public water system classification as specified in Section 391-3-5-.39 of the Rules for Safe Drinking Water.

9. Drinking water distributed by the permittee shall not contain any impurity which will cause offense to the sense of sight, taste or smell and shall not be excessively corrosive as to cause degradation of the water quality or deterioration of the distribution system, as specified in Section 391-3-5-.19 and .26 of the Rules for Safe Drinking Water.

11. The permittee is required to have a water conservation and cross-connection control plan on file with the Division.

ENVIRONMENTAL PROTECTION DIVISION
DEPARTMENT OF NATURAL RESOURCES
STATE OF GEORGIA

PERMIT
SOLID WASTE HANDLING

Permit Number: 089-010D(SL) Date: August 23, 1982

Permittee: Name Department of the Army
HQ 24th Infantry Division & Fort Stewart
Address ATTN: AFZP-FE (DFAE, Dale Kiefer)
Fort Stewart, Georgia 31313

In accordance with the provisions of the Georgia Solid Waste Management Act, Ga. Laws, pp. 1002 et. seq., as amended, and the Rules promulgated pursuant thereto, this permit is issued for the following operation:

Liberty County, Department of the Army, Disposal Site (Sanitary Landfill) Cantonment Area, Fort Stewart, Hinesville; located east of SR 144 north of main post area.

This permit is conditioned upon the permittee complying with the attached conditions of operation, which are hereby made a part of this permit.

All statements and supporting data submitted to the Environmental Protection Division of the Department of Natural Resources have been evaluated, considered and relied upon in the issuance of this permit.

Unless appealed, this permit is final and effective thirty (30) days after the date shown above, and is subject to modification or revocation on evidence of noncompliance with any of the provisions of the Georgia Solid Waste Management Act, as amended, or any of the Rules promulgated pursuant thereto; or with any representation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

J. Leonard Ledbetter

J. Leonard Ledbetter, Director
Environmental Protection Division
Department of Natural Resources

5/82 SWM-4

Permit No: 089-010D(SL)

Issued To: Department of the Army, Fort Stewart

Conditions for Sanitary Landfill Operation:

1. The disposal site shall be under the supervision of a responsible individual, at the disposal site, at all times during operation.

2. Solid waste unloading shall be restricted to the working face of the operation in such a manner that waste may be easily incorporated into the sanitary landfill with available equipment.

3. Solid waste shall be spread in uniform layers and compacted to its smallest practical volume before covering with earth.

4. A uniform compacter layer of clean earth cover at least six (6) inches in depth shall be placed over all exposed solid waste by the end of each day's operation, or more frequently as may be determined by the Division. In no case may solid waste be left uncovered for more than 24 hours.

5. A uniform compacted layer of clean earth cover not less than one (1) foot in depth shall be placed over each portion of any intermediate lift following completion of that lift.

6. A uniform compacted layer of clean earth cover not less than two (2) feet in depth shall be placed over the final lift not later than one month following placement of solid waste within that lift.

7. All-weather access roads shall be provided to the disposal site and provisions shall be made for prompt equipment repair or replacement when needed.

8. Access to the sanitary landfill shall be limited to authorized entrances which shall be closed when the site is not in operation.

9. The disposal site shall be graded and drained to minimize runoff onto the sanitary landfill, to prevent erosion and to drain water from the surface of the sanitary landfill.

10. Scattering of wastes by wind shall be controlled by fencing or other barriers and the entire site shall be policed daily.

11. Hazardous wastes shall not be disposed of at this site.

12. Suitable measures to control fires that may start shall be provided. Stockpiled soil is considered to be the most satisfactory fire fighting material.

13. An area method of landfilling shall be used.

14. Adequate surface drainage shall be provided.

Georgia Department of Natural Resources
205 Butler Street, S.E., Suite 1252, Atlanta, Georgia 30334
J. Leonard Ledbetter, Commissioner
404/656-3500

September 1, 1989

Lieutenant Colonel Bernard A. Fontaine, GAARNG
Department of Defense, Military Division
Office of the Adjutant General
Post Office Box 17965
Atlanta, Georgia 30316-0965

RE: GA. National Guard Training Center
NPDES Permit No. GA0027685
Liberty County

Dear Lt. Colonel Fontaine:

Pursuant to the Georgia Water Quality Control Act, as amended, the Federal Water Pollution Control Act, as amended, and the Rules and Regulations promulgated thereunder, we have issued the attached National Pollutant Discharge Elimination System (NPDES) permit for the specified wastewater treatment facility.

Please be advised that on and after the effective date indicated in the attached NPDES permit, the permittee must comply with all the terms, conditions and limitations of this permit.

Sincerely,

J. Leonard Ledbetter

J. Leonard Ledbetter
Commissioner

JLL:bk
Attachment

cc: Mr. John T. Marlar (w/attachment)
U. S. EPA, Region IV

PERMIT NO. GA0027685

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the "State Act," the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.), hereinafter called the "Federal Act," and the Rules and Regulations promulgated pursuant to each of these Acts,

GEORGIA DEPARTMENT OF DEFENSE, MILITARY DIVISION
Office of the Adjutant General
P. O. Box 17965
Atlanta, Georgia 30316-0965

is authorized to discharge from a facility located at

National Guard Training Center - Fort Stewart
Troupe Avenue and E. 16th Street
Liberty County

to receiving waters

Medway River in the Ogeechee River Basin

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on September 1, 1989.

This permit and the authorization to discharge shall expire at midnight, August 31, 1994.

Signed this 1st **day of** September, 1989.

J. Leonard Ledbetter
Director,
Environmental Protection Division

PART I

Note: EPD or Division as used herein means the Environmental Protection Division of the Department of Natural Resources.

A. SPECIAL CONDITIONS

1. MONITORING

The concentration of pollutants in the discharge will be limited as indicated by the table(s) labeled "Effluent Limitations and Monitoring Requirements".

a. The monthly average, other than for Fecal Coliform Bacteria, is the arithmetic mean of values for samples collected in a period of 30 consecutive days.

b. The daily maximum is the value for samples collected for the respective time period in (f) and (g) below.

c. Fecal Coliform Bacteria will be reported as the geometric mean of the values for the samples collected for the respective time periods in (a) and (b) above.

d. Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC) may be substituted for Biochemical Oxygen Demand (BOD) when a long term BOD:COD or BOD:TOC correlation has been demonstrated.

e. BOD_5 samples for treatment plant effluents shall be collected upstream from point of disinfection.

f. A composite sample shall consist of samples collected at 2 hour intervals for a period of at least 8 hours, and composited according to flow.

g. The permittee shall have a primary flow measuring device, installed in accordance with accepted engineering practice. For flow, continuous recording measurements are required.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning effective date and lasting through March 31, 1990, the permittee is authorized to discharge from outfall(s) serial number(s) 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 40A, and 41 (Vehicle Wash Racks and Parts Wash Racks).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements		
	Mass Based		Concentration Based				
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow	-	-	-	-	-	-	-
Oil and Grease	-	-	10 mg/l	15 mg/l	One/Quarter	Grab	Effluent
Total Suspended Solids	-	-	25 mg/l	40 mg/l	One/Quarter	Grab	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored on the final effluent once per quarter.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

2. During the period beginning effective date and lasting through the permittee is authorized to discharge from outfall(s) serial number(s) 43 (Tactical Vehicle Wash Facility).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements		
	Mass Based		Concentration Based				
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow	-	-	-	-	Daily	Continuous Recording	Effluent
Oil and Grease	-	-	10 mg/l	15 mg/l	One/Month	Grab	Effluent
Total Suspended Solids	-	-	25 mg/l	40 mg/l	One/Month	Grab	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored on the final effluent once per month.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

   a. All effluent limitations are effective immediately upon issuance of this permit.

   b. The permittee shall eliminate all discharges from those outfalls listed on page 3 of this permit on or before March 31, 1990.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous one month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person who has the authority to act for or on behalf of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Georgia Environmental Protection Division
Industrial Wastewater Program
205 Butler Street, S.E.
Suite 1070, Floyd Towers East
Atlanta, Georgia 30334

All instances of noncompliance not reported under Part I. B. and C. and Part II. A shall be reported at the time the operation monitoring report is submitted.

3. Definitions

a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.

b. The "daily maximum" discharge means the total discharge by weight during any calendar day.

c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentration made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.

d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.

e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.

f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;

b. The dates the analyses were performed, and the person(s) who performed the analyses;

c. The analytical techniques or methods used; and

d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

   a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

   b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 µg/l, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 µg/l for acrolein and acrylonitrile, 500 µg/l for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.

   c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 µg/l, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

   If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

   a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and

2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

b. Any diversion from or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA) and the Resource Conservation and Recovery Act (RCRA). For land application of nonhazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of nonhazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and

b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;

b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and

c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or

d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:

(1) is different in conditions or more stringent than any effluent limitation in the permit; or

(2) controls any pollutant not limited in the permit.

5. Toxic Pollutants and Best Available Technology Economically Achievable

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) and Section 301(b)2 of the Federal Clean Water Act for pollutants, toxic and otherwise,

which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.

b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Stormwater Runoff

In addition to the outfalls identified in Part I, Section A. of this permit, the permittee is authorized to discharge stormwater runoff from point sources at this facility provided that these discharges do not cause violations of State water quality standards in the receiving streams.

17. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

PART III

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Certification Requirements (Operation)

The permittee shall insure that the person in responsible charge for the daily operation of this wastewater treatment plant is a Certified Operator in accordance with the Georgia Certification of Water and Wastewater Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder and holds a classification consistent with the plant classification specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control. Operators, other than the person in responsible charge, must obtain certification in Class III operator classification or higher within one year of obtaining employment as an operator of a public wastewater treatment plant.

2. Certification Requirements (Laboratory)

The permittee shall insure that, when required, the person in responsible charge of the laboratory that is performing the laboratory analyses for this wastewater treatment plant is a certified Laboratory Analyst in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder.

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The permittee may not discharge toxic wastes in concentrations or combinations which are harmful to humans, fish or aquatic life. The permittee shall ensure that the effluent being discharged does not kill 10% or more of the exposed test organisms in 96 hours or less, when the test solution contains volumes of effluent and stream water proportional to the plant design flow and the 7Q10 flow of the receiving stream.

1. If toxicity is suspected in the permittee's effluent, the Division may require the permittee to develop a program for whole effluent biomonitoring. The schedule will be as follows;

   a. Within 90 days of Division notification, a study plan detailing the test methodology and test organisms shall be submitted for conducting forty-eight hour acute static renewal tests of the final effluent. If residual chlorine is present in the final effluent from treatment and/or disinfection processes, a prechlorinated or dechlorinated sample will also be tested.

   b. Within 90 days of Division approval of the study plan, the permittee will conduct and submit the results of the forty-eight hour static renewal tests.

2. If toxicity is found in the permittee's effluent, the permittee shall, within 90 days of written notification by the Division, submit a Toxicity Reduction Evaluation (TRE) plan to the Division. The TRE plan shall detail the action the permittee will implement to eliminate toxicity. Within 270 days of Division approval of the TRE plan, the permittee shall complete implementation of the TRE plan and conduct follow-up biomonitoring of the effluent in accordance with the approved TRE plan. If toxicity is still indicated, the permittee shall continue the TRE plan. The TRE plan shall not be complete until the permittee has eliminated the toxicity in its effluent. On a case specific basis, chronic toxicity testing procedures may be required for the definitive determination that toxicity has been eliminated.

3. If toxicity is not indicated initially, or if there are substantial changes in the effluent composition, the permittee may be required to repeat the forty-eight hour static renewal test upon notification by the Division. On a case specific basis, chronic toxicity testing procedures may also be required.

Upon approval by the Division, all study plans and TRE plans will become part of the requirements of this permit.

State of Georgia

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO

HAZARDOUS WASTE FACILITY PERMIT

Amendment To
Permit No. HW-045 (S&T)

Effective Date
Of Amendment 9/27/89

In accordance with the provisions of the Georgia Hazardous Waste Management Act and the Rules, Chapter 391-3-11, (as amended through June 28, 1988), adopted pursuant to that Act, Permit No. HW-045 (S&T) issued on 8/14/87 to:

Fort Stewart

for the following:

1) Storage of 44,500 gallons of hazardous waste in containers

2) Treatment of outdated munitions by detonation

Is hereby amended as follows:

1) The approved container storage building design is modified to include berms instead of sumps; and

2) The EOD treatment facility is closed and removed from the permit.

Reason for Amendment:

Request from permittee

This Permit Amendment is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 5 page(s), which page(s) are a part of this Amendment. This Amendment is hereby made a part of Permit No. HW-045(S) and compliance with this Amendment is hereby ordered.

J Leonard Ledbetter

Director
Environmental Protection Division

SECTION III. CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS (SWMUs) AND OTHER RELEASES

A. Applicability and Certification

1. The conditions of this Section apply to the determination of need for, and subsequent implementation of, corrective action for releases from all SWMUs and other releases, both those contained within the facility property boundary and, as required by §12-8-66 of the Georgia Hazardous Waste Management Act, those extending beyond the faciiity property boundary. All submittals made under this Section shall be certified in accordance with 40 CFR 270.11.

2. The conditions of this Section specifically apply to the following SWMUs and other releases identified by the RCRA Facility Assessment (RFA) report which was completed by the Director as of the effective date of this permit as those for which an RFI plan will be required under Condition III.C.1.:

- Post Landfill
- Camp Oliver Landfill
- Tac-X Landfill
- Burn Pits (7)
- Explosive Ordnance Disposal Areas (5)
- Fire Training Pit
- Old Fire Training Pit
- DRMO Hazardous Waste Storage Site
- 724th Tanker Purging Station
- Motor Pools (30)
- 724th Battery Shop
- Industrial Waste Water Treatment Plant
  a. Equalization Pond
  b. Sludge Drying Beds
- Old Sludge Drying Beds
- Radiator Shop
- Wright Air Field
  a. Land Application
  b. Lagoon
- Evans Army Heliport POL Storage Facility

3. The conditions of this Section also apply to any other SWMUs or releases discovered subsequent to the completion of the RFA report referenced in Condition III.A.2. or not otherwise identified in the RFA report.

B. RCRA Facility Assessment (RFA)

1. For those SWMUs and releases identified in Condition III.A.3. above, the Permittee shall prepare a RFA report. The report shall describe the methods and specific actions used to determine whether a prior or continuing release of hazardous waste, hazardous constituents or

hazardous waste constituents has occurred. The report must include, at a minimum, the following information and any other appropriate information necessary to determine the need for an RFI as required under Condition III.C.:

- Type and function of unit;
- Location of each unit on a topographic map of appropriate scale;
- General dimensions and capacities;
- Dates that the unit was operated;
- Description of the wastes that were placed in the unit; and
- Description of any known releases or spills (to include groundwater data, soil analyses, and/or surface water data).

2. The report(s) required under Condition III.B.1. shall be completed and submitted to the Director within sixty (60) days of the date of discovery of any SWMU or release.

3. The Director shall review RFA report(s) required under Condition III.B.1. and determine those SWMUs and releases from which residual contamination or continuing releases have resulted, and shall notify the Permittee whether an RFI plan will be required under Condition III.C.2. for those SWMUs or releases.

C. RCRA Facility Investigation (RFI)

1. The Permittee shall complete and submit an RFI plan for those units or releases referenced in Condition III.A.2. within six (6) months of the effective date of this permit. The plan shall include a schedule of implementation and a description of the specific actions necessary to determine the nature and extent of releases identified by the RFA report, including potential migration pathways for those releases (i.e. air, land, surface water, and groundwater), actual or potential receptors and applicable background concentrations. The Permittee must provide sufficient justification that migration through a potential pathway is not likely if a potential migration pathway associated with a release is not included in the plan. Such deletions are subject to the approval of the Director.

2. The Permittee shall complete and submit an RFI plan for those SWMUs or releases referenced in Condition III.B.3. within ninety (90) days of the date of notification under Condition III.B.3. The plan shall include a schedule of implementation and a description of the specific actions necessary to determine the nature and extent of subject releases, including sources, potential migration pathways (i.e. air, land, surface water, groundwater), actual or potential receptors and applicable background concentrations. The Permittee must provide sufficient justification that migration through a potential pathway is not likely if a potential migration pathway associated with a release is not included in the plan. Such deletions are subject to the approval of the Director.

3. Upon approval by the Director of plan(s) required by Conditions III.C.1. and 2., the Permittee shall conduct the RFI in accordance with the schedule contained in the approved plan.

4. The Permittee shall complete and submit an RFI report in accordance with the schedule contained in the plan required by Conditions III.C.1. and 2. The report shall provide a summary of all activities undertaken during the RFI to implement the approved plan. The report shall provide a complete description of the nature and extent of all releases identified during the RFI including sources, migration pathways, actual or potential receptors and applicable background concentrations. The RFI report shall address all releases which extend beyond the facility property boundary unless the Permittee demonstrates to the Director's satisfaction that, despite the Permittee's best efforts, the Permittee was unable to obtain permission to undertake actions required by the plan(s), or such action is not necessary to protect public health or the environment.

D. Corrective Action

1. The Director shall review the RFI report required under Condition III.C.4. Upon determination that the report is complete, the Director shall specify to the Permittee those SWMUs or releases identified in such RFI report for which corrective action conforming to § 264.101(a) will be required.

2. Upon notification from the Director that corrective action is needed, the Permittee shall submit a corrective action plan in accordance with a schedule to be determined by the Director. The plan shall provide a description of the corrective measures to be taken with regard to those SWMUs or releases identified under Condition III.D.1., including a schedule of implementation for such corrective action.

3. Upon approval by the Director of any plan required by Condition III.D.2., the Permittee shall implement any required corrective action in accordance with the schedule in the approved plan.

4. If required to develop a corrective action plan under Condition III.D.2., the Permittee shall apply for a permit modification pursuant to § 270.41 to incorporate the plan into the permit.

E. Interim Measures

1. The Permittee may conduct interim measures to contain, remove or treat contamination resulting from the release of hazardous constituents from a SWMU or release in order to protect public health and the environment, upon approval by the Director. Such interim measures may be conducted concurrently with investigations required under the terms of this permit.

2. The Permittee shall notify the Director of any proposed interim measures at least thirty (30) days prior to implementation. The notice shall include a description and a schedule of implementation of any proposed interim measures.

3. The Permittee shall give notice to the Director as soon as possible of any planned changes, reduction or additions to the interim measures.

4. Incorporation of interim measures into the corrective action plan shall be done in accordance with Condition III.D.3.

5. Upon completion of interim measures, the Permittee shall complete and submit an interim measures report. The report shall provide the following information:

   i. A description of interim measures implemented;
   ii. A summary of all data or other information obtained during implementation of interim measures; and
   iii. A summary of the effectiveness of the interim measures in achieving the objective of Condition III.E.1.

F. Schedule of Compliance

1. If the Permittee at any time determines that any plan or report required under Condition III.B., C., D., or E. no longer satisfies the requirements of § 264.101 or this permit for prior or continuing releases of hazardous waste, hazardous constituents or hazardous waste constituents he must submit an amended plan or report to the Director within ninety (90) days of such determination.

2. All plans and schedules shall be subject to approval by the Director prior to implementation. The Permittee shall revise all submittals as specified by the Director.

3. For any schedule required by any plan or report, if the time required to complete any interim activity is more than one year, the schedule shall specify interim dates for the submission of reports of progress toward satisfaction of the interim requirements.

4. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Director based on the Permittee's demonstration that sufficient justification for the extension exists.

5. Upon approval by the Director all plans and schedules shall be enforceable as conditions of this permit.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PERMIT NO. 9711-089-8054-C

COUNTY LIBERTY

EFFECTIVE DATE
OF PERMIT: JUN 29 1981

PERMIT TO CONSTRUCT

In compliance with the provisions of Georgia's Air Quality Act of 1978 and the Rules and Regulations, Chapter 391-3-1, adopted pursuant to or in effect under that Act, U.S. ARMY CORPS OF ENGINEERS - SAVANNAH DISTRICT, Post Office Box 889, Savannah, Georgia 31402 is issued a Permit to Construct the following:

One (1) 140 million BTU per hour wood-fired boiler,
One (1) Multicyclone, and one (1) venturi scrubber

location: Central Energy Plant, Building 1412, Fort Stewart, Georgia 31314

This Permit to Construct is conditioned upon compliance with all provisions of Georgia's Air Quality Act of 1978, the Rules and Regulations of Chapter 391-3-1 adopted or in effect under that act, or any other condition of this Permit.

This Permit may be subject to revocation, suspension, modification or amendment by the Director for cause including evidence of noncompliance with any of the above; or for any misrepresentation made in the application(s) dated February 4, 1981 , supporting data entered therein or attached thereto, or any subsequent submittals or supporting data; or for any alterations affecting the emissions from this source.

Absent prior revocation, suspension, modification or amendment by the Director, this Permit shall expire at midnight, the 31st day of August 1982.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 1 page(s), which page(s) are a part of this Permit.

J. Leonard Ledbetter
Director
Environmental Protection Division

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PERMIT NO. 9711-089-8054-C

General Requirements

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

2. The Permittee shall commence construction of the permitted source within 18 months of the effective date of this permit.

3. The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The test results shall be submitted to the Division within thirty (30) days of the completion of testing. Any tests shall be performed and conducted using methods and procedures which have been previously approved by the Division.

4. In accordance with Georgia Rules for Air Quality, Chapter 391-3-1-.02(6)(a)2 for wood waste fired combination boilers, the Permittee shall install, calibrate, operate and maintain a continuous monitoring system for the measurement of opacity.

5. At no time shall the Permittee operate the wood-fired boiler while any of the existing fossil fuel-fired boilers are in operation.

6. The annual consumption of wood waste shall not exceed 100,000 tons. The annual consumption of #6 fuel oil shall not exceed 400,000 gallons.

7. When firing the boiler facilities, fuels utilized and methods of firing shall be regulated in such a manner that the total sulfur dioxide and nitrogen oxides emission rates do not exceed 250 tons per year.

Notification, Reporting and Recordkeeping

8. The Permittee shall furnish the Division written notification as follows:

   a. The anticipated date of initial startup of this source, not more than sixty (60) nor less than thirty (30) days prior to such date.

   b. The actual date of initial startup of this source, within fifteen (15) days after such date.

   For purposes of this permit, "startup" shall mean the setting in operation of a source for any purpose.

FORT STEWART

The Fort is classified as a Federal facility. It presently operates (3) three #5 fuel-fired boilers. The 3 boilers are to be shut down and replaced with (1) one 140 x 10^6 BTU/HR wood-fired boiler.

Mr. Mitchell spoke with Roger Phaff on the phone June 5, 1981. Mr. Phaff informed Mr. Mitchell that at any source not classified as a major source, if after all modifications are completed and the source is not a major source, i.e. the emissions do not individually exceed 250 tons/year, then the source is not subject to PSD review, even though it may have been a major source prior to the modification.

The pollutants from the wood-fired boiler will not exceed 250 tons/year and therefore, will not be subject to PSD.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO PERMIT

AMENDMENT TO
PERMIT NO. 9711-089-8054-C

COUNTY LIBERTY

EFFECTIVE DATE
OF AMENDMENT

DEC 9 1981

In accordance with Section 9 of Georgia's Air Quality Act of 1978 (Ga. Law 1978, page 275 et seq, as amended) and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No. issued on June 29, 1981 to US ARMY CORPS OF ENGINEERS
Savannah District
Post Office Box 889, Savannah, GA 31402

for the following: One (1) 140 million BTU per hour wood-fired boiler, One (1) multicyclone, and one (1) venturi scrubber

is hereby amended as follows: Delete conditions number 5 and 6 of the existing permit and add conditions 5,6,9, and 10 attached to this Amendment.

Reason for Amendment: Fort Stewart would like the option of operating a fuel-fired boiler while the woodwaste boiler is operating.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 1 page(s), which page(s) are a part of this Amendment.

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 9711-089-8054-C and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

J. Leonard Ledbetter
Director
Environmental Protection Division

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT
PERMIT NO. 9711-089-8054-C

General Requirements

5. The annual consumption of woodwaste shall not exceed 124,000 tons. The annual consumption of No. 6 fuel oil used for startup and flame stabilization in the woodwaste boiler shall not exceed 321,000 gallons. The sulfur content of the No. 6 fuel oil shall not exceed 2.2% by weight.

6. The total steam output of the facility, whether it be soley (SOLELY) from the woodwaste boiler or from a combination of oil-fired boiler and woodwaste boiler, shall not exceed 95,000 pounds per hour.

Notification, Reporting and Recordkeeping

9. Permittee shall report fuel analyses and usage upon request by the Division:

   a. The Permittee shall provide the Division analyses of the fuels burned, specifically to include heating value and percent sulfur by weight. The Division shall specify the frequency of sample collection, analyses and submittal. Sample collection and analyses shall be by methods approved by the Division.

   b. The Permittee shall maintain a record of boiler operation and fuel consumption sufficient to confirm the annual hours of operation of the boiler and quantity of fuel burned. The records shall be retained for inspection or submittal for two years after the year of record.

10. The Permittee shall maintain records of the occurrence and duration of the operation of any oil-fired boiler while the woodwaste boiler is in operation. Such records shall be maintained a minimum of two (2) years.

Georgia Department of Natural Resources
270 Washington Street, S.W., n 825, Atlanta, Georgia 30334
J. Leonard Ledbetter, Commissioner
Harold F. Reheis, Assistant Director
Environmental Protection Division

JUL 31 1985

Mr. Dale Kiefer
Chief, Environmental Office
HDQTRs 24th Infantry Division
AFZP-DEN-E
Environmental Office
Building 1135
Fort Stewart, Georgia 31314

RE: Amendment to Permit No.
9711-089-6355-0

Dear Mr. Kiefer:

Enclosed you will find an Amendment to your Permit No. 9711-089-6355-0, originally written for boilers, an incinerator, and fuel tanks. The new permitted items are the 72 X 10^6 BTU per hour oil-fired boiler built around 1979 and a new 140 X 10^6 BTU per hour wood-fired boiler. Please note the attached new permit conditions, specifically Nos. 5, 6, 8, 10, 11 and 12, which deal with your responsibility to monitor and control the sulfur content of your fuel oil.

The limitations placed upon you by these conditions are to prevent you from emitting more than 250 tons per year of sulfur dioxide. These limits should not be difficult to attain with the wood-fired boiler on line. I have chosen to use the formula (2.5/S) X 1,000,000 gallons per year of No. 5 fuel oil. This allows you to burn more fuel if you use oil with lower sulfur content. For example, 1.25% sulfur allows you to burn 2,000,000 gallons per year, while using 2.5% sulfur oil will mean you can only burn 1,000,000 gallons per year.

As agreed by you on July 10, 1985, you will pull a sample from each truck delivering oil to Fort Stewart. This sample shall be tested for sulfur content. If there is more than one delivery within a two day period, equal volume samples from all trucks delivering in that period shall be mixed. A sample from that mixture shall be tested for sulfur content. Fuel information shall be submitted to the Division as per Condition Nos. 10, 11 and 12.

Feel free to call me at (404)656-4867 if you have any questions.

Sincerely,

John Yntema
Environmental Engineer
Air Pollution Compliance Program

JY:lr
Enclosure
c: Southeast Georgia Regional Office

State of Georgia
Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO AIR QUALITY PERMIT

Amendment To Permit No.

9711-089-6355-0

Effective Date Of Amendment

JUL 31 1985

In accordance with Section 9 of Georgia's Air Quality Act of 1978 (Ga. Law 1978, page 275 et seq, as amended) and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No. 9711-089-6355-0 issued on Sept. 25, 1978 to Head quarters, 24th Infantry Division and Fort Stewart, DFAE, Environmental Office, Fort Stewart, GA 31314

for the following: Boilers firing natural gas, No. 2 fuel oil, and No. 5 fuel oil, Hesston Model CA-200 incinerator, and fuel storage tanks.

is hereby amended as follows: Add conditions 2 through 14 to existing condition 1.

Reason for Amendment: Additional 72 x 10^6 BTU/hr. boiler firing No. 5 fuel oil, Permit application dated August 30, 1984. Additional 140 x 10^6 BTU/hr. boiler firing waste wood; Permit application dated May 28, 1985. Supplemental information received through July 1, 1985.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 3 page(s), which page(s) are a part of this Amendment.

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 9711-089-6355-0 and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

J. Leonard Ledbetter
Director
Environmental Protection Division

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO
PERMIT NO. 9711-089-6355-O

General Requirements

2. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

3. The Permittee shall dispose of all solid waste and/or wastewater in a manner acceptable to the Division.

4. The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The test results shall be submitted to the Division within 30 days of the completion of testing. Any tests shall be performed and conducted using methods and procedures which have been previously approved by the Division.

Allowable Emissions

5. The total firing of fuel shall be limited such that the total uncontrolled annual emission of sulfur dioxide could not equal or exceed 250 tons. Allowing for some sulfur in wood being burned, the firing fuel oil shall be limited such that the total uncontrolled annual emission of sulfur dioxide could not exceed 235 tons. The annual consumption of fuel oil shall not exceed $\frac{2.5}{S} \times 1{,}000{,}000$ gallons. Where S is the average percentage of sulfur in the fuel oil.

6. The Permittee shall fire no fuel oil containing more than 2.5 percent sulfur, by weight.

Monitoring Requirements

7. The Permittee shall be required by the Division to install and operate steam flow and/or oil consumption monitors if present recordkeeping system is determined to be inadequate by the Division.

8. The Permittee shall monitor fuel oil consumption and sulfur content of fuel oil in order to provide data to verify compliance with condition No. 5. This shall be done using equipment and methods agreed upon by the Division.

Fugitive Emissions

9. The Permittee shall take all reasonable precautions with any operation, process, handling, transportation, or storage facilities to prevent fugitive emissions of air contaminants.

Notification, Reporting and Recordkeeping

10. The Permittee shall retain records of boiler operation for two years after the date and year of record. The records shall be available for inspection or submittal to the Division upon request and contain:

    a. Analyses of the fuel oil burned. The analyses shall include such properties as heating value, sulfur content, ash content, moisture and/or other properties specified by the Division. Fuel sampling and analysis frequency and methods shall be approved by the Division.

    b. Boiler usage sufficient to confirm hours of operation.

    c. Quantity of fuel oil burned.

11. The Permittee shall submit a quarterly report within thirty (30) days following each calendar quarter unless otherwise approved by the Division. The report shall be prepared from records retained in Condition 10, submitted in a manner suitable to the Division and contain:

    a. A summary of the analyses of the fuel oil burned.

    b. Total hours of boiler operation for the quarter.

    c. Total fuel oil consumption for the quarter.

12. The Permittee shall submit an annual report by January 30th of the year following the calendar year of record unless otherwise approved by the Division. The report shall be prepared from records retained in Condition 10, submitted in a manner suitable to the Division and contain.

    a. A summary of the analyses of the fuel oil burned.

    b. Total hours of boiler operation for the year.

    c. Total fuel oil consumption for the year.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO
PERMIT NO. 9711-089-6355-0

Modifications

13. The Permittee shall give written notification to the Division when there is any modification to this source. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the plant before and after the change; and the anticipated completion date of the change.

Special Conditions

14. At any time that the Division, based upon data on potentially toxic or adverse effects of the compounds emitted from this operation or the availability of improved technology to limit emissions of such compounds, determines that additional control of emissions from the facility may reasonably be needed to provide for the continued protection of public health, safety and welfare, the Division reserves the right to amend the provisions of this Permit without prior notice.

EPR No. 32-24-7038-89, 1-12 Aug 88

TABLE H-2-1. NPDES PERMIT SUMMARY, HINESVILLE REGIONAL SEWAGE TREATMENT FACILITY

Parameter	Monthly Average
BOD_5	10 mg/L
TSS	30 mg/L
Ammonia Nitrogen as N	2.0 mg/L
pH	Between 6.0 and 9.0 standard units at all times.
Dissolved Oxygen	Minimum 6.0 mg/L at all times.

TABLE H-2-2. NPDES PERMIT SUMMARY, INDUSTRIAL WASTE TREATMENT PLANT, OUTFALL 003, NPDES NO. GA0004308, FORT STEWART, GEORGIA

Parameter	Discharge Limitations (All units mg/L unless stated otherwise.) Monthly	Weekly	Monitoring Requirements Frequency	Type	Location
BOD_5	30	45	2/month	Grab	Effluent
Suspended Solids	30	45	2/month	Grab	Effluent
Phenol	1.0	2.0	2/month	Grab	Effluent
Oil & Grease	10	15	2/month	Grab	Effluent
pH	Between 6.0 and 9.0 SU at all times.		2/month	Grab	Effluent

SU: Standard Units

Source: Army Environmental Hygiene Agency, August 1988

TABLE H-2-3. EFFLUENT SUMMARY, INDUSTRIAL WASTE TREATMENT PLANT, OUTFALL 003, NPDES NO. GA0004308, FORT STEWART, GEORGIA

DATE	BOD_5 (mg/L)	TSS (mg/L)	PHENOL (mg/L)	O&G (mg/L)	pH (su)
Permit Limits	30	30	1.0	10.0	6-9
Jun-87	2	4	0.01	5	7.1
Jul-87	3	6	0.02	7.5	7.2
Aug-87	3	4	0.02	2.5	7.2
Sep-87	3	5	0.01	5	7.4
Oct-87	3	4	0.02	6	7.2
Nov-87	2	3	0.01	5	7.4
Dec-87	2	3	0.01	5	7.4
Jan-88	3	4	0.01	5	7.3
Feb-88	3	6	0.01	5	7.5
Mar-88	5	11	0.01	5	7
Apr-88	3	5	0.02	5	7.1
May-88	3	5	0.02	5	7.1
Jun-88	3	4	0.01	5	7.3
AVG	3	5	0.01	5	7
MAX	5	11	0.02	7.5	7.5

TABLE H-2-4. NPDES PERMIT SUMMARY, EVANS ARMY AIRFIELD, PACKAGE TREATMENT PLANT, OUTFALL 001, NPDES NO. GA0004308, FORT STEWART, GEORGIA

Parameter	Discharge Limitations (All units mg/L unless unless stated otherwise.) Monthly	Weekly	Monitoring Requirements Frequency	Type	Location
Flow (MGD)	0.035	0.035	Daily	Cont.	Influent or Effluent
BOD_5	20	30	1/month	Composite	Effluent
Suspended Solids	30	45	1/month	Composite	Effluent
Fecal Coliform (#/100 mL)	200	400	1/month	Grab	Effluent
Ammonia Nitrogen	5.0	7.5	1/month	Composite	Effluent
pH	Between 6.0 and 9.0 SU at all times.		1/month	Grab	Effluent

SU: Standard Units
Cont.: Continuous

TABLE H-2-5. EFFLUENT SUMMARY, EVANS ARMY AIRFIELD, PACKAGE TREATMENT PLANT, OUTFALL 001, NPDES NO. GA0004308, FORT STEWART, GEORGIA

DATE	FLOW (MGD)	BOD_5 (mg/L)	TSS (mg/L)	FC (#/100 mL)	NH_3-N (mg/L)	pH (su)
Permit Limits	0.035	20	30	200	5.0	6-9
Jun-87	0.001	6	3	0	0.03	6.9
Jul-87	0.0011	2	3	980	0.52	7.1
Aug-87	0.001056	2	5	0	0.03	7.3
Sep-87	0.001359	2	6	0	0.1	7.1
Oct-87	0.001171	3	5	0	0.03	7.4
Nov-87	0.001031		9	0	0.17	7.2
Dec-87	0.00523	4	7	0	0.02	7.4
Jan-88	0.0011	4	7	0	0.03	7.3
Feb-88	0.004185	8	6	0	0.04	7.3
Mar-88	0.00145	6	6	0	0.26	7.4
Apr-88	0.00252	4	6	0	0.03	7.3
May-88	0.002147	5	7	0	9.5	7.4
Jun-88	0.00756	6	3	0	0.03	6.9
AVG	0.0024	4	5.9	75	0.83	7.2
MAX	0.00756	8	9	980	9.5	7.4

TABLE H-2-7. NPDES PERMIT SUMMARY, TAC-X, PACKAGE TREATMENT PLANT, OUTFALL 002, NPDES NO. GA0004308, FORT STEWART, GEORGIA

Parameter	Discharge Limitations (All units mg/L unless unless stated otherwise.) Monthly	Weekly	Monitoring Requirements Frequency	Type	Location
Flow (MGD)	0.035	0.035	Daily	Cont.	Influent or Effluent
BOD_5	20	30	1/month	Composite	Effluent
Suspended Solids	30	45	1/month	Composite	Effluent
Fecal Coliform (#/100 mL)	200	400	1/month	Grab	Effluent
Ammonia Nitrogen	5.0	7.5	1/month	Composite	Effluent
pH	Between 6.0 and 9.0 SU at all times.		1/month	Grab	Effluent

SU: Standard Units
Cont.: Continuous

TABLE H-2-7. EFFLUENT SUMMARY, TAC-X, PACKAGE TREATMENT PLANT, OUTFALL 002, NPDES NO. GA0004308, FORT STEWART, GEORGIA

Date	Flow (MGD)	BOD_5 (mg/L)	TSS (mg/L)	FC (#/100 mL)	NH_3-N (mg/L)	pH (su)
Permit Limits	0.035	20	30	200	5.0	6-9
Jun-87	0.010	8	21	2000	2.9	7.1
Jul-87	0.010	11	19	158	9.6	7.3
Aug-87	0.006	11	21	0	0.03	7.0
Sep-87	0.009	10	18	0	22	7.2
Oct-87	0.008	10	16	0	0.16	7.2
Nov-87	0.009	15	26	0	0.03	7.2
Dec-87	0.008	15	19	12	6.5	7.1
Jan-88	0.009	18	19	11	3.0	7.1
Feb-88	0.012	20	16	10	1.3	7.2
Mar-88	0.011	10	7	0	0.03	7.2
Apr-88	0.012	9	16	0	10	7.1
May-88	0.009	15	25	0	18	7.2
Jun-88	0.008	8	11	0	0.03	6.8
AVG	0.0093	12	18	169	6	7
MAX	0.0122	20	26	2000	22	7.3

TABLE H-2-8. LAND APPLICATION PERMIT SUMMARY, WRIGHT ARMY AIRFIELD TREATMENT PLANT, LAS NO. GA03-834, FORT STEWART, GEORGIA

Parameter	Discharge Limitations (All units mg/L unless unless stated otherwise.) Daily	Monthly	Monitoring Requirements Frequency	Type	Location
Flow	1,800 gpd	ns	ns	ns	Discharge to spray irrigation system.
BOD_5	ns	50	ns	ns	Discharge to spray irrigation system.
Suspended Solids	ns	100	ns	ns	Discharge to spray irrigation system.

ns: Not Specified.

EPR No. 32-24-7038-89, 1-12 Aug 88

TABLE H-2-9. EFFLUENT SUMMARY, WRIGHT ARMY AIRFIELD, LAND APPLICATION SYSTEM, FORT STEWART, GEORGIA

DATE	BOD_5 (mg/L)	TSS (mg/L)
Jun-87	16	18
Jul-87	15	21
Aug-87	17	17
Sep-87	15	30
Oct-87	17	18
Nov-87	21	22
Dec-87	23	35
Jan-88	23	30
Feb-88	25	27
Mar-88	17	21
Apr-88	18	23
May-88	16	29
Jun-88	18	27
AVG	19	24
MAX	25	35

TABLE H-2-10. LAND APPLICATION PERMIT SUMMARY, CAMP OLIVER TREATMENT PLANT, LAS NO. GA03-624, FORT STEWART, GEORGIA

Parameter	Discharge Limitations (All units mg/L unless unless stated otherwise.) Daily	Quarterly	Monitoring Requirements Frequency	Type	Location
Flow	0.070 MGD	ns	ns	ns	Discharge to spray irrigation system.
BOD_5	ns	50	ns	ns	Discharge to spray irrigation system.
Suspended Solids	ns	100	ns	ns	Discharge to spray irrigation system.

ns: Not Specified

APPENDIX C
CHEMICAL DATA

Source: Environmental Science and Engineering, Inc.
October 1983

(a) A general plan that clearly identifies the exact location of the facilities, areas reserved for future expansion, access roads to the various units, and the point at which the access roads connect with existing road or street systems. It shall also show sufficient detail of the units, pipelines or any other features so as to make the proposed treatment process clearly and easily understood. The elevations of all units and water surfaces shall be shown.

(b) Detail plans which show longitudinal and transverse sections sufficient to explain the construction of each treatment unit.

(c) Flow measuring devices at appropriate points in the plan. Sampling and recording devices may be required by the Division when deemed necessary.

(d) Such other information as the Division may require.

(9) Approval of Plans and Specifications. Approval of the plans and specifications by the Division does not include or imply approval of the structural, electrical, or mechanical integrity of the sewerage system, treatment facilities, units or equipment.

(10) Deviation from Approved Plans and Specifications. No deviations from approved plans and specifications shall be made during construction unless documentation showing proposed changes has been submitted to and approved by the Division.

(11) Effective Date. This Paragraph shall become effective on June 30, 1974.

391-3-6-.03 Water Use Classifications and Water Quality Standards.*

(1) Purpose. The establishment of water quality standards.

(2) Water Quality Enhancement:

(a) The purposes and intent of the State in establishing Water Quality Standards are to provide enhancement of water quality and prevention of pollution; to protect the public health or welfare in accordance with the public interest for drinking water supplies, conservation of fish, game and other beneficial aquatic life, and agricultural, industrial, recreational, and other beneficial uses.

(b) Those waters in the State whose existing quality is better than the minimum levels established in standards on the date standards become effective will be maintained at high quality; with the State having the power to authorize new developments, when it has been affirmatively demonstrated to the State that a change is justifiable to provide necessary social or economic development; and provided further that the level of treatment required is the highest and best practicable under existing technology to protect existing beneficial water uses.

(c) In applying these policies and requirements, the State of Georgia will recognize and protect the interest of the Federal Government in interstate (including coastal and estuarine) waters. Toward this end the State will consult and cooperate with the Environmental Protection Agency on all matters affecting the Federal interest.

(3) Definitions. All terms used in this Paragraph shall be interpreted in accordance with definitions as set forth in the Act and as otherwise herein defined:

(a) "Reasonable and necessary uses" means drinking water supplies, conservation of fish, game and other aquatic life, agricultural, industrial, recreational, and other legitimate uses.

(b) "Shellfish" refers to clams, oysters, scallops, mussels, and other mollusks.

(c) "Intake temperature" is the natural or background temperature of a particular waterbody unaffected by any man-made discharge or thermal input.

(d) "Coastal waters" are those littoral recreational waters on the ocean side of the Georgia coast.

(4) Water Use Classifications. Water use classifications for which the criteria of this Paragraph are applicable are as follows:

(a) Drinking Water Supplies
(b) Recreation
(c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life
(d) Agricultural
(e) Industrial
(f) Navigation
(g) Wild River
(h) Scenic River
(i) Urban Stream

(5) General Criteria for All Waters. The following criteria are deemed to be necessary and applicable to all waters of the State:

(a) All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly or otherwise objectionable.

(b) All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to interfere with legitimate water uses.

(c) All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.

(d) All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life.

(e) Applicable State and Federal requirements and regulations for the discharge of radioactive substances shall be met at all times.

(f) No man-made physical or other alteration of stream beds that may violate established water quality standards, or reduce the waste assimilative capacity of the streams, will be permitted without the expressed approval of the Environmental Protection Division.

(6) Specific Criteria for Classified Water Usage. The following criteria are deemed necessary and shall be required for the specific water usage as shown:

(a) Drinking Water Supplies:

1. Those waters approved by the Environmental Protection Division and requiring only approved disinfection and meeting the requirements of the Federal Drinking Water Standards; or waters approved by the Environmental Protection Division for human consumption and food-processing or for any other use requiring water of a lower quality:

(i) Bacteria: Fecal coliform not to exceed a geometric mean of 50 per 100 ml based on at least four samples taken over a 30-day period and not to exceed 200 per 100 ml in more than five percent of the samples in any 90-day period.

(ii) Floating solids, settleable solids, sludge deposits or any taste, odor or color producing substances: None associated with any waste discharge.

(iii) Sewage, industrial or other wastes: None.

2. Those raw water supplies requiring approved treatment to meet the requirements of the Environmental Protection Division and the Federal Drinking Water Standards or which are approved by the Environmental Protection Division for human consumption and food processing or for any other use requiring water of a lower quality:

(i) Bacteria: Fecal coliform not to exceed a geometric mean of 1,000 per 100 ml based on at least four samples taken over a 30-day period and not to exceed a maximum of 4,000 per 100 ml.

(ii) Dissolved Oxygen: A daily average of 6.0 mg/l and no less than 5.0 mg/l at all times for waters designated as trout streams by the State Game and Fish Division. A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times for water supporting warm water species of fish.

(iii) pH: Within the range of 6.0-8.5.

(iv) No material or substance in such concentration that, after treatment, would exceed the requirements of the Environmental Protection Division and the latest edition of Federal Drinking Water Standards.

(v) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish

*Applicable to Intrastate and Interstate Waters of Georgia

Division, there shall be no elevation or depression of natural stream temperature.

(b) Recreation:

1. General recreational activities such as water skiing, boating, and swimming, or for any other use requiring water of a lower quality. These criteria are not to be interpreted as condoning water contact sports in proximity to sewage or industrial waste discharges regardless of treatment requirements:

(i) Bacteria: Fecal coliform not to exceed a geometric mean of:

(I) Coastal Waters — 100 per 100 ml

(II) All other recreational waters — 200 per 100 ml

(III) Should water quality and sanitary studies show natural fecal coliform levels exceed 200/100 ml (geometric mean) occasionally in high quality recreational waters, then the allowable geometric mean fecal coliform level shall not exceed 300 per 100 ml in lakes and reservoirs and 500 per 100 ml in free flowing fresh water streams.

I. The geometric mean will be used as the method of criteria expression. This technique will be applied to no less than four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours.

(ii) Dissolved Oxygen: A daily average of 6.0 mg/l and no less than 5.0 mg/l at all times for waters designated as trout streams by the State Game and Fish Division. A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times for waters supporting warm water species of fish.

(iii) pH: Within the range of 6.0-8.5.

(iv) Toxic Wastes, Other Deleterious Materials: None in concentrations that would harm man, fish and game or other beneficial aquatic life.

(v) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

(c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life; or for any other use requiring water of a lower quality:

1. Dissolved Oxygen: A daily average of 6.0 mg/l and no less than 5.0 mg/l at all times for waters designated as trout streams by the State Game and Fish Division. A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times for waters supporting warm water species of fish.

2. pH: Within the range of 6.0-8.5.

3. Bacteria: Fecal coliform not to exceed a geometric mean of 1,000 per 100 ml based on at least four samples taken over a 30-day period and not to exceed a maximum of 4,000 per 100 ml.

4. Bacteria: (Applicable only to waters designated as approved shellfish harvesting waters by the appropriate State agencies). The requirements will be consistent with those established by the State and Federal agencies responsible for the National Shellfish Sanitation Program.

5. Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

6. Toxic Wastes, Other Deleterious Materials: None in concentrations that would harm man, fish and game or other beneficial aquatic life.

(d) Agricultural:

1. For general agricultural uses such as stock watering and irrigating; or for any other use requiring water of a lower quality:

(i) Bacteria: Fecal coliform not to exceed a geometric mean of 5,000 per 100 ml based on at least four samples taken over a 30-day period.

(ii) Dissolved Oxygen: No less than 3.0 mg/l at any time.

(iii) pH: Within the range of 6.0-8.5.

(iv) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 dgrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

(v) Toxic Substances, Other Deleterious Materials: None in concentrations that would interfere with or adversely affect uses for general agricultural purposes or would prevent fish survival.

(e) Industrial:

1. For processing and cooling water with or without special treatment; or for any other use requiring water of a lower quality:

(i) Dissolved Oxygen: No less than 3.0 mg/l at any time.

(ii) pH: Within the range of 6.0-8.5.

(iii) Toxic Substances, Other Deleterious Materials: None in concentrations that would prevent fish survival or interfere with legitimate and beneficial industrial uses.

(iv) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

(f) Navigation:

1. To provide for commercial ship traffic and protection of seamen or crews:

(i) Bacteria: Fecal coliform not to exceed a geometric mean of 5,000 per 100 ml based on at least four samples taken over a 30-day period.

(ii) Dissolved Oxygen: No less than 3.0 mg/l at any time.

(iii) pH: Within the range of 6.0 - 8.5.

(iv) Toxic Substances, Other Deleterious Materials: None in concentrations that would damage vessels, prevent fish survival or otherwise interfere with commercial navigation.

(v) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

(g) Wild River:

1. This classification will be applicable to any waters of the State when so designated by an authorized State or Federal Agency and will be effective simultaneously with that Agency's proper designation.

2. For all waters designated as "Wild River," there shall be no alteration of natural water quality from any source.

(h) Scenic River:

1. This classification will be applicable to any waters of the State when so designated by an authorized State or Federal Agency and will be effective simultaneously with that Agency's proper designation.

2. For all waters designated as "Scenic River," there shall be no alteration of natural water quality from any source.

(i) Urban Stream:

1. This classification is applicable to streams in highly developed urban areas:

(i) All conditions specified under "General Criteria for All Waters" [391-3-6-.03(5)] will apply, and in addition, the waters so classified are to be aesthetically compatible to adjacent areas.

(ii) Bacteria: Fecal coliform not to exceed a geometric mean of 2,000 per 100 ml based on at least four samples taken over a 30-day period and not to exceed a maximum of 5,000 per 100 ml.

(iii) pH: Within the range of 6.0 - 8.5.

(iv) Dissolved Oxygen: No less than 3.0 mg/l at any time.

(7) Natural Water Quality: It is recognized that certain natural waters of the State may have a quality that will not be within

Water Quality Data--Ogeechee River at Eden

Date Sampled	Nov 13 1973	Feb 12 1974	May 8 1974	Aug 14 1974
Time sampled	1045	1130	0945	1415
Discharge	495	4930	1080	1820
pH (units)	7.3	7.0	6.8	6.4
Temperature (degree C)	5.0	10.0	21.0	26.0
Dissolved oxygen (mg/l)	13.1	10.0	5.9	6.8
Alkalinity as $CaCO_3$ (mg/l)	28	7	24	10
Dissolved nitrate plus nitrate (mg/l)	.02	.02	.11	.05
Dissolved ammonia nitrogen (mg/l)	.02	.02	.02	.02
Total phosphorus (mg/l)	.02	.04	.05	.04
Hardness, Ca Mg (mg/l)	26	12	24	18
Specific conductance (micromhos)	86	43	70	61
Color (platinum-cobalt units)	35	100	60	-
Turbidity (JTU)	3	11	5	-
Biochemical oxygen demand (mg/l)	.1	.6	.2	-
Fecal coliform (FC Broth) (MPN)	30	430	150	-
Total organic carbon (mg/l)	3.0	16	6.0	21

Source FST DEH, 1977.

Water Quality Data--Ogeechee River at Claxton

Date Sampled	Nov 12 1973	Feb 12 1974	May 7 1974	Aug 13 1974	Sep 13 1974
Time Sampled	1315	1200	1030	1400	1400
Discharge (cfs)	106	2900	69	191	143
PH (units)	5.3	5.6	6.1	5.8	6.2
Temperature (deg C)	5.0	9.0	21.0	26.0	23.0
Dissolved oxygen (mg/l)	12.0	8.6	5.4	8.1	7.5
Alkalinity as $CaCo_3$ (mg/l)	2	3	4	3	5
Dissolved nitrate plust nitrate (mg/l)	.02	.02	.08	.02	.04
Dissolved ammonia nitrogren (mg/l)	.02	.02	.04	.02	.04
Dissolved ammonia, NH_4 (mg/l)	-	-	.05	-	.05
Total phosphorus (mg/l)	.03	.02	.08	.06	.11
Hardness, Ca, Mg. (mg/l)	7	4	8	14	8
Specific conductance (micromhos)	38	32	37	44	43
Color (platinum-cobalt units)	100	100	120	120	100
Turbidity (JTU)	3	11	5	5	11
Biochemical oxygen demand (mg/l)	1.5	0.6	0.7	1.1	1.5
Fecal coliform (FC Broth) (MPN)	2300	1500	230	-	4300
Total organic carbon	14	18	15	24	18

Source: FST DFAE, 1977.

EPA STORET Data for Fort Stewart

STORET RETRIEVAL DATE 81/01/17 - INVENT - VERSION OF SEP. 1981

02030001 02203536
31 58 42.0 081 17 23.0 8
OGEECHEE RIVER - U.S. HIGHWAY 17
13051 GEORGIA
SOUTHEAST 0314
OGEECHEE RIVER BASIN
21GAEPD
0000 CLASS 00 CSN-PSP 0259494-0422111

/ITP4/AMBNT/STREAM

PARAMETER					NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	DEG C		5	14.3000	17.4500	4.17733	.216445	1.86819	25.0000	10.0000	73/01/15	73/06/11
00065	STREAM	STAGE	FEET		5	5.94000	1.83187	1.35341	.227931	.605487	7.50000	4.40000	73/01/15	73/06/11
00070	TURB	JKSN	JTU		5	5.50000	1.30003	1.14019	.203605	.509907	7.00000	4.00000	73/01/15	73/06/11
00080	COLOR	PT-CO	UNITS		5	104.000	355.000	18.8414	.172457	8.42615	125.000	80.0000	73/01/15	73/06/11
00095	CNDUCTVY	AT 25C	MICROMHO		5	61.0000	231.500	15.2170	.275049	7.50334	87.0000	42.0000	73/01/15	73/06/11
00300	DO		MG/L		5	8.49999	6.23304	2.49701	.361485	1.11669	11.0000	4.90000	73/01/15	73/06/11
00310	BOD	5 DAY	MG/L		5	.740000	.203000	.450555	.608858	.201494	1.50000	.400000	73/01/15	73/06/11
00400	PH		SU		5	6.73999	.015114	.122938	.018079	.054980	7.00000	6.70000	73/01/15	73/06/11
00410	T ALK	CACO3	MG/L		5	14.2000	8.20000	2.86356	.201660	1.28063	19.0000	12.0000	73/01/15	73/06/11
00515	RESIDUE	DISS-180	C MG/L		5	73.5000	442.300	21.0429	.285910	9.41084	108.000	54.0000	73/01/15	73/06/11
00530	RESIDUE	TOT NFLT	MG/L		5	3.00000	1.80000	1.34165	.372680	.600003	5.00000	2.00000	73/01/15	73/06/11
00610	NH3+NH4-	N TOTAL	MG/L		2	.025000	.000050	.007071	.282842	.005000	.030000	.020000	73/05/14	73/06/11
				A	3	.020000	-.232E-04	.000000		.000000	.020000	.020000	73/01/15	73/04/16
				TOT	5	.022000	.000020	.004472	.203282	.002000	.030000	.020000	73/01/15	73/06/11
00630	NO2&NO3	N-TOTAL	MG/L		2	.035000	.001250	.035355	.543930	.025000	.090000	.040000	73/05/14	73/06/11
				A	3	.020000	-.232E-04	.000000		.000000	.020000	.020000	73/01/15	73/04/16
				TOT	5	.034000	.000420	.020332	.798198	.013565	.090000	.020000	73/01/15	73/06/11
00665	PHOS-TOT		MG/L P		5	.114000	.023530	.153345	1.32237	.068600	.390000	.040000	73/01/15	73/06/11
00689	T ORG C	C	MG/L		5	11.6000	20.8001	5.17588	.446283	2.31517	18.0000	4.00000	73/01/15	73/06/11
00900	TOT HARD	CACO3	MG/L		5	14.4000	3.30011	1.81662	.126154	.812418	16.0000	12.0000	73/01/15	73/06/11
00915	CALCIUM	CA-TOT	MG/L		5	3.70000	1.48502	1.18533	.320361	.530098	4.60000	1.70000	73/01/15	73/06/11
00927	MGNSIUM	MG,TOT	MG/L		5	1.32000	.277000	.526303	.398718	.235372	2.00000	.700000	73/01/15	73/06/11
00929	SODIUM	NA,TOT	MG/L		5	9.40000	37.3000	6.10736	.727069	2.73130	18.0000	4.00000	73/01/15	73/06/11
00937	PTSSIUM	K,TOT	MG/L		5	1.26000	.123000	.350714	.278345	.156844	1.80000	.900000	73/01/15	73/06/11
00940	CHLORIDE	TOTAL	MG/L		5	12.0000	80.5000	8.97214	.747682	4.01248	26.0000	5.00000	73/01/15	73/06/11
00945	SULFATE	SO4-TOT	MG/L		3	6.00000	12.0000	3.46410	.577350	2.00000	10.0000	4.00000	73/01/15	73/06/11
				A	2	2.00000	.000000	.000000		.000000	2.00000	2.00000	73/04/16	73/05/14
				TOT	5	4.40000	10.8000	3.28634	.746895	1.46969	10.0000	2.00000	73/01/15	73/06/11
01045	IRON	FE,TOT	UG/L		5	1072.00	114920	338.999	.316230	151.605	1500.00	660.000	73/01/15	73/06/11
01055	MANGNESE	MN	UG/L		1	50.0000					50.0000	50.0000	73/06/11	73/06/11
				A	4	50.0000	.000000	.000000		.000000	50.0000	50.0000	73/05/14	73/05/14
				TOT	5	50.0000	.000000	.000000		.000000	50.0000	50.0000	73/01/15	73/06/11
31615	FEC COLI	MPN,EMED	/100ML		4	130.500	34167.0	184.953	1.41766	90.9766	430.000	30.0000	73/01/15	73/05/14
				A	1	30.0000					30.0000	30.0000	73/06/11	73/06/11
				TOT	5	114.400	22230.3	149.097	1.25027	75.1481	430.000	30.0000	73/01/15	73/06/11

STORET RETRIEVAL DATE 83/01/17 - INVENT - VERSION OF SEP. 1981

02201519
31 58 59.0 081 23 07.0 2
CANOOCHEE RIVER AT FORT STEWART, GA.
13029 GEORGIA BRYAN
031792

/TYPA/AMBNT/STREAM

112WRD 03060203000
0000 CLASS 00 CSN-RSP 0085141-0194960

PARAMETER				RMK	NUMBER	MEAN	VARIANCE	STAN DEV	COEFF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT		50	19.5796	55.1030	7.42314	.377388	1.04979	31.0000	3.00000	58/02/25	82/08/18
00020	AIR	TEMP	CENT		48	20.2042	54.0812	7.39441	.365932	1.06735	32.0000	-.249E+01	78/07/11	82/08/18
00025	BAROMTRC	PRESSURE	MM OF HG		9	758.556	21.7500	4.66369	.006148	1.55456	766.000	751.000	81/10/21	82/06/21
00065	STREAM	STAGE	FEET		25	6.06400	5.30509	2.30328	.380831	.460656	10.8000	3.20000	78/07/11	82/08/18
00070	TURB	JKSN	JTU		48	4.97916	5.68040	2.38336	.478667	.344008	13.0000	2.00000	78/07/11	82/08/18
00080	COLOR	PT-CO	UNITS		50	139.298	7706.45	87.7864	.630204	12.4149	400.000	40.0000	58/02/25	82/08/18
00095	CNDUCTVY	AT 25C	MICROMHO		30	55.9998	355.188	18.8517	.336639	3.44184	108.000	31.0000	58/02/25	82/06/21
00300	DO		MG/L		46	6.70867	3.92200	1.98040	.295201	.291995	11.2000	3.40000	78/07/11	82/08/18
00310	BOD	5 DAY	MG/L		46	1.05652	.231406	.481047	.455314	.070926	2.30000	.300000	78/07/11	82/08/18
00400	PH		SU		44	5.80454	.786014	.886574	.152738	.133656	7.80000	4.30000	58/02/25	82/08/18
00403	LAB	PH	SU		23	6.11739	.818726	.904835	.147912	.188671	7.20000	4.70000	80/10/22	82/08/18
00410	T ALK	CACO3	MG/L		26	6.46153	35.1384	5.92777	.917391	1.16253	22.0000	1.00000	58/02/25	80/08/19
00440	HCO3 ION	HCO3	MG/L		2	6.00000	.000000	.000000		.000000	6.00000	6.00000	58/02/25	58/05/31
00445	CO3 ION	CO3	MG/L		2	.000000	.000000	.000000		.000000	.000000	.000000	58/02/25	58/05/31
00530	RESIDUE	TOT NFLT	MG/L		31	7.45161	155.722	12.4789	1.67465	2.24127	70.0000	1.00000	78/07/11	82/08/18
				K	17	.999999	.000003	.001691	.001691	.000410	1.00000	.999999	78/08/08	82/03/17
				TOT	48	5.16666	109.120	10.4461	2.02182	1.50776	70.0000	.999999	78/07/11	82/08/18
00610	NH3+NH4-	N TOTAL	MG/L		34	.093947	.011679	.108068	1.15030	.017531	.510000	.020000	78/07/11	82/08/18
				K	10	.020006	.827E-09	.000029	.001439	.000009	.020000	.020000	78/10/03	80/08/19
				TOT	44	.078541	.010115	.100573	1.28050	.014516	.510000	.020000	78/07/11	82/08/18
00630	NO2&NO3	N-TOTAL	MG/L		45	.236222	.045079	.212317	.898804	.031650	.880000	.020000	78/07/11	82/08/18
				K	1	.020000	-.232E-09	.000000		.000000	.020000	.020000	79/04/12	80/04/02
				TOT	46	.222706	.044999	.212129	.952500	.030618	.880000	.020000	78/07/11	82/08/18
00665	PHOS-TOT		MG/L P		47	.186400	.015835	.125838	.673621	.018355	.490000	.040000	78/07/11	82/08/18
00680	T ORG C	C	MG/L		46	17.3260	75.5345	8.69105	.495896	1.28143	44.0000	5.00000	78/07/11	82/08/18
				K	1	1.00000					1.00000	1.00000	79/11/07	79/11/07
				TOT	47	17.1743	79.7035	8.92768	.519827	1.30224	44.0000	1.00000	78/07/11	82/08/18
00900	TOT HARD	CACO3	MG/L		2	5.50000	.500015	.707118	.128567	.500008	6.00000	5.00000	58/02/25	58/05/31
00902	NC HARD	CACO3	MG/L		2	.500000	.500000	.707107	1.41421	.500000	1.000000	.000000	58/02/25	58/05/31
00915	CALCIUM	CA,DISS	MG/L		2	1.40000	.320003	.565689	.404064	.400002	1.80000	1.000000	58/02/25	58/05/31
00925	MGNSIUM	MG,DISS	MG/L		2	.500000	.020000	.141421	.282843	.100000	.600000	.400000	58/02/25	58/05/31
00930	SODIUM	NA,DISS	MG/L		2	3.55000	.004990	.070637	.019898	.049948	3.60000	3.50000	58/02/25	58/05/31
00931	SODIUM	ADSRATIO	RATIO		2	.650000	.005001	.070717	.108795	.050005	.700000	.600000	58/02/25	58/05/31
00932	PERCENT	SODIUM	%		2	55.5000	24.5000	4.94975	.089185	3.50000	59.0000	52.0000	58/02/25	58/05/31
00935	PTSSIUM	K,DISS	MG/L		2	.500000	.020000	.141421	.282843	.100000	.600000	.400000	58/02/25	58/05/31
00940	CHLORIDE	TOTAL	MG/L		3	6.33333	.083330	.288825	.045604	.166753	6.50000	6.00000	58/02/25	80/08/19
00945	SULFATE	SO4-TOT	MG/L		2	1.30000	.500001	.707107	.543929	.500001	1.80000	.800000	58/02/25	58/05/31
00950	FLUORIDE	F,DISS	MG/L		2	.100000	-.372E-08	.000000		.000000	.100000	.100000	58/02/25	58/05/31
00955	SILICA	DISOLVED	MG/L		2	7.80000	.320007	.565692	.072525	.400005	8.20000	7.40000	58/02/25	58/05/31
01045	IRON	FE,TOT	UG/L		1	520.000					520.000	520.000	58/02/25	58/02/25
01046	IRON	FE,DISS	UG/L		1	100.0000					100.0000	100.0000	58/02/25	58/02/25

STORET RETRIEVAL DATE 83/01/17 - INVENT - VERSION OF SEP. 1981

02203519
31 58 59.0 081 23 07.0 2
CANOOCHEE RIVER AT FORT STEWART, GA.
13024 GEORGIA
HRYAN
031792

/TYPA/AMBNT/STREAM

11/WRD 03060203000
0000 CLASS 00 CSN-PSP 0085141-0194960

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	REC DATE	END DATE
31615 FEC COLI	MPN/ECMED	/100ML		14	177.295	75126.1	274.818	1.55702	47.3181	1400.00	20.0000	78/07/11	82/07/29
				10	29.9999	.001736	.041667	.001389	.011176	30.0000	30.0000	78/08/08	81/11/23
			TOT	44	141.743	62316.4	249.633	1.73459	37.6335	1400.00	20.0000	78/07/11	82/07/29
70300 RESIDUE	DISS-100	C 105/L		2	53.5000	84.5000	9.19239	.171820	6.50000	60.0000	47.0000	58/02/25	58/05/31
70303 DISS SOL	TONS PER	ACRE-FT		2	.070000	.000200	.014143	.202034	.010000	.080000	.060000	58/02/25	58/05/31
71851 NITRATE	DISS-003	MG/L		2	.250000	.045000	.212132	.848529	.150000	.400000	.100000	58/02/25	58/05/31
71885 IRON	FE	UG/L		1	970.000					970.000	970.000	58/05/31	58/05/31

Water Quality Sp Study No. 0496-77, 6-23 Jul 76

TABLE 1

WATER QUALITY ENGINEERING SPECIAL STUDY NO. P4-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 1 PERIOD 3

PARAMETER	DAY 16	DAY 17	DAY 18	DAY 19
TIME	900	830	820	825
PH	6.4	6.6	6.5	6.1
CONDUCTIVITY (UMHO/CM)	230	269	295	98
BOD5 (MG/L)	3.0	*******	*******	*******
TOC (MG/L)	31.0	31.0	30.0	21.0
NH3-N (MG N/L)	.31	.26	.38	.14
KJELDAHL N (MG N/L)	1.20	1.30	1.30	.94
NO2+NO3-N (MG N/L)	.07	.08	.10	.06
SUSPENDED SOLIDS (MG/L)	49.0	49.0	34.0	68.0
TOTAL SOLIDS (MG/L)	268	277	302	190
TOTAL DIS. SOLIDS (MG/L)	219	228	268	122
TOTAL PHOSPHATE (MG P/L)	.23	.24	.14	.11
DISSOLVED OXYGEN (MG/L)	4.70	4.50	4.20	3.95
TEMPERATURE (C)	27.5	28.0	27.5	23.5

TABLE 2

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 2 PERIOD 3

PARAMETER	DAY 16	DAY 17	DAY 18	DAY 19
TIME	900	830	830	830
PH	5.9	6.4	6.5	5.9
CONDUCTIVITY (UMHO/CM)	80	98	171	39
BOD5 (MG/L)	2.0	*******	*******	*******
TOC (MG/L)	32.0	30.0	31.0	21.0
NH3-N (MG N/L)	.35	.31	.48	.14
KJELDAHL N (MG N/L)	.62	1.30	1.70	.34
NO2+NO3-N (MG N/L)	.05	.06	.08	.04
SUSPENDED SOLIDS (MG/L)	22.0	24.0	42.0	73.0
TOTAL SOLIDS (MG/L)	153	176	239	150
TOTAL DIS. SOLIDS (MG/L)	131	152	197	77
TOTAL PHOSPHATE (MG P/L)	.16	.19	.26	.13
DISSOLVED OXYGEN (MG/L)	5.90	6.10	5.80	5.60
TEMPERATURE (C)	26.5	28.0	27.2	23.0

TABLE 3

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 3 PERIOD 3

PARAMETER	DAY 16	DAY 17	DAY 18	DAY 19
TIME	900	830	835	840
PH	4.9	5.0	5.0	5.1
CONDUCTIVITY (UMHO/CM)	79	79	85	79
BOD5 (MG/L)	1.0	*******	*******	*******
TOC (MG/L)	39.0	38.0	36.0	32.0
NH3-N (MG N/L)	.20	.26	.18	.19
KJELDAHL N (MG N/L)	1.00	1.20	1.00	1.10
NO2+NO3-N (MG N/L)	< .04	< .04	< .04	< .04
SUSPENDED SOLIDS (MG/L)	9.0	15.0	11.0	12.0
TOTAL SOLIDS (MG/L)	130	138	153	129
TOTAL DIS. SOLIDS (MG/L)	121	123	142	116
TOTAL PHOSPHATE (MG P/L)	.06	.06 <	.04 <	.04
DISSOLVED OXYGEN (MG/L)	4.30	5.10	4.05	4.50
TEMPERATURE (C)	27.0	27.0	25.5	24.0

TABLE 4

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 4 PERIOD 3

PARAMETER	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13
TIME	1000	1000	925	1230	1010
PH	6.4	6.6	6.5	*******	*******
CONDUCTIVITY (UMHO/CM)	820	1800	1580	*******	*******
BOD5 (MG/L)	1.0	2.0	2.0	*******	*******
TOC (MG/L)	30.0	28.0	28.0	*******	*******
NH3-N (MG N/L)	.11	.12	.11	*******	*******
KJELDAHL N (MG N/L)	.90	.80	.75	*******	*******
NO2+NO3-N (MG N/L)	.05	.05	.04	*******	*******
SUSPENDED SOLIDS (MG/L)	85.0	53.0	58.0	*******	*******
TOTAL SOLIDS (MG/L)	572	1067	1063	*******	*******
TOTAL DIS. SOLIDS (MG/L)	487	1014	1005	*******	*******
TOTAL PHOSPHATE (MG P/L)	.16	.10	.16	*******	*******
DISSOLVED OXYGEN (MG/L)	3.80	3.40	3.20	3.40	4.10
TEMPERATURE (C)	26.0	26.0	27.0	27.5	28.0

	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18
TIME	1215	*******	1140	1035	1040
PH	*******	*******	6.5	6.4	6.4
CONDUCTIVITY (UMHO/CM)	*******	*******	2100	1410	1130
BOD5 (MG/L)	*******	*******	1.3	*******	*******
TOC (MG/L)	*******	*******	28.2	29.0	28.0
NH3-N (MG N/L)	*******	*******	.30	.20	.15
KJELDAHL N (MG N/L)	*******	*******	1.10	1.10	1.00
NO2+NO3-N (MG N/L)	*******	*******	.04	.05	.05
SUSPENDED SOLIDS (MG/L)	*******	*******	40.0	24.0	27.0
TOTAL SOLIDS (MG/L)	*******	*******	1416	959	829
TOTAL DIS. SOLIDS (MG/L)	*******	*******	1376	935	802
TOTAL PHOSPHATE (MG P/L)	*******	*******	.08	.12	.11
DISSOLVED OXYGEN (MG/L)	3.80	3.60	2.90	3.70	3.50
TEMPERATURE (C)	28.5	29.0	30.0	30.0	30.0

DAY 19

TIME	920
PH	6.1
CONDUCTIVITY (UMHO/CM)	315
TOC (MG/L)	30.0
NH3-N (MG N/L)	.16
KJELDAHL N (MG N/L)	1.30
NO2+NO3-N (MG N/L)	.06
SUSPENDED SOLIDS (MG/L)	59.0
TOTAL SOLIDS (MG/L)	333
TOTAL DIS. SOLIDS (MG/L)	274
TOTAL PHOSPHATE (MG P/L)	.20
DISSOLVED OXYGEN (MG/L)	3.70
TEMPERATURE (C)	27.0

TABLE 5

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 4 PERIOD 4

PARAMETER		DAY 9
TIME		1400
PH		5.8
CONDUCTIVITY (UMHO/CM)		180
BOD5 (MG/L)		2.0
TOC (MG/L)		35.0
NH3-N (MG N/L)		.08
KJELDAHL N (MG N/L)		.90
NO2+NO3-N (MG N/L)	<	.04
SUSPENDED SOLIDS (MG/L)		68.0
TOTAL SOLIDS (MG/L)		227
TOTAL DIS. SOLIDS (MG/L)		159
TOTAL PHOSPHATE (MG P/L)		.14
DISSOLVED OXYGEN (MG/L)		5.09
TEMPERATURE (C)		26.0

TABLE 6

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 5 PERIOD 3

PARAMETER		DAY 16
TIME		925
PH		6.7
CONDUCTIVITY (UMHO/CM)		130
BOD5 (MG/L)		1.0
TOC (MG/L)		10.0
NH3-N (MG N/L)		.53
KJELDAHL N (MG N/L)		.83
NO2+NO3-N (MG N/L)		.10
SUSPENDED SOLIDS (MG/L)		22.0
TOTAL SOLIDS (MG/L)		97
TOTAL DIS. SOLIDS (MG/L)		75
TOTAL PHOSPHATE (MG P/L)	<	.04
DISSOLVED OXYGEN (MG/L)		5.30
TEMPERATURE (C)		25.0

TABLE 7

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 6 PERIOD 3

PARAMETER	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14
TIME	930	830	*******	830	830
PH	6.9	6.8	6.8	6.8	6.7
CONDUCTIVITY (UMHO/CM)	140	131	155	170	118
BOD5 (MG/L)	< 1.0	< 1.0	< 1.0	3.0	3.0
TOC (MG/L)	8.8	9.0	6.0	7.0	11.0
NH3-N (MG N/L)	.30	.16	.17	.18	.12
KJELDAHL N (MG N/L)	.30	.46	.32	.41	.40
NO2+NO3-N (MG N/L)	.04 <	.04 <	.04 <	.04	.07
SUSPENDED SOLIDS (MG/L)	19.0	9.0	10.0	14.0	15.0
TOTAL SOLIDS (MG/L)	139	127	104	139	112
TOTAL DIS. SOLIDS (MG/L)	120	118	94	125	97
TOTAL PHOSPHATE (MG P/L)	.08	.13	.13	.15	.17
GREASE AND OIL (MG/L)	*******	*******	******* <	1.0	*******
DISSOLVED OXYGEN (MG/L)	5.00	4.20	*******	4.20	3.20
TEMPERATURE (C)	25.0	27.5	*******	25.0	25.0

	DAY 15	DAY 16	DAY 17	DAY 18	DAY 19
TIME	830	905	915	815	840
PH	6.7	6.9	6.6	6.9	6.8
CONDUCTIVITY (UMHO/CM)	138	142	151	150	111
BOD5 (MG/L)	1.0	1.0	*******	*******	*******
TOC (MG/L)	6.0	6.0	9.0	7.0	16.0
NH3-N (MG N/L)	.24	.22	.26	.33	.35
KJELDAHL N (MG N/L)	.29	.35	.36	.42	.95
NO2+NO3-N (MG N/L)	< .04	< .04	< .04	< .04	.08
SUSPENDED SOLIDS (MG/L)	5.0	9.0	9.0	7.0	155.0
TOTAL SOLIDS (MG/L)	141	95	129	152	241
TOTAL DIS. SOLIDS (MG/L)	136	86	120	145	84
TOTAL PHOSPHATE (MG P/L)	.10	.20	.39	.14	.25
DISSOLVED OXYGEN (MG/L)	4.60	5.10	4.20	2.70	2.60
TEMPERATURE (C)	25.0	26.0	25.0	25.0	24.5

TABLE 8

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 8 PERIOD 3

PARAMETER	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13
TIME	830	1000	840	1000	930
PH	6.8	6.8	6.9	6.9	7.0
CONDUCTIVITY (UMHO/CM)	240	160	183	205	205
BODS (MG/L)	1.0	1.0 <	1.0	2.0	2.0
TOC (MG/L)	19.0	21.0	14.0	12.0	12.0
NH3-N (MG N/L)	.38	.43	.37	.44	.58
KJELDAHL N (MG N/L)	.75	1.10	1.00	.89	.85
NO2+NO3-NL (MG N/L)	.37	.23	.38	.45	.33
SUSPENDED SOLIDS (MG/L)	34.0	17.0	18.0	15.0	12.0
TOTAL SOLIDS (MG/L)	225	166	194	190	168
TOTAL DIS. SOLIDS (MG/L)	191	149	176	175	156
TOTAL PHOSPHATE (MG P/L)	.32	.16	.27	.29	.32
DISSOLVED OXYGEN (MG/L)	4.20	4.80	4.50	5.70	6.10
TEMPERATURE (C)	*******	26.0	25.0	26.5	26.5

	DAY 15	DAY 16	DAY 17	DAY 18	DAY 19
TIME	900	930	1000	925	905
PH	6.2	7.0	6.8	7.0	6.5
CONDUCTIVITY (UMHO/CM)	198	200	173	194	195
BODS (MG/L)	1.0	2.0	*******	*******	*******
TOC (MG/L)	12.0	11.0	11.0	9.0	14.0
NH3-N (MG N/L)	1.20	1.70	.95	.48	.23
KJELDAHL N (MG N/L)	1.20	1.70	1.20	.77	.89
NO2+NO3-N (MG N/L)	.43	.48	.36	.62	.20
SUSPENDED SOLIDS (MG/L)	10.0	14.0	12.0	9.0	38.0
TOTAL SOLIDS (MG/L)	162	145	161	169	120
TOTAL DIS. SOLIDS (MG/L)	152	131	149	160	82
TOTAL PHOSPHATE (MG P/L)	.31	.38	.30	.35	.20
DISSOLVED OXYGEN (MG/L)	5.20	5.30	5.10	4.50	3.30
TEMPERATURE (C)	26.0	26.5	28.0	26.5	25.0

TABLE 9

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 8 PERIOD 4

PARAMETER	DAY 6
PH	6.6
CONDUCTIVITY (UMHO/CM)	200
BODS (MG/L)	4.0
TOC (MG/L)	20.0
NH3-N (MG N/L)	.30
KJELDAHL N (MG N/L)	.93
NO2+NO3-N (MG N/L)	.30
SUSPENDED SOLIDS (MG/L)	36.0
TOTAL SOLIDS (MG/L)	208
TOTAL DIS. SOLIDS (MG/L)	172
TOTAL PHOSPHATE (MG P/L)	.17

TABLE 10

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER army AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 9 PERIOD 3

PARAMETER	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18
TIME	1015	900	1000	1000	940
PH	7.0	6.7	7.0	6.8	7.1
CONDUCTIVITY (UMHO/CM)	210	405	410	365	290
BOD5 (MG/L)	4.0	1.0	2.0	*******	*******
TOC (MG/L)	12.0	15.0	15.0	13.0	11.0
NH3-N (MG N/L)	.44	.23	.39	.19	.39
KJELDAHL N (MG N/L)	.79	1.00	1.10	1.00	.85
NO2+NO3-N (MG N/L)	.41	.44	.73	.67	.55
SUSPENDED SOLIDS (MG/L)	24.0	23.0	20.0	28.0	14.0
TOTAL SOLIDS (MG/L)	182	302	330	278	253
TOTAL DIS. SOLIDS (MG/L)	158	279	310	250	239
TOTAL PHOSPHATE (MG P/L)	.33	.30	.36	.33	.33
DISSOLVED OXYGEN (MG/L)	3.90	4.70	4.10	4.80	4.10
TEMPERATURE (C)	28.0	26.0	28.5	28.0	28.5

	DAY 19
TIME	920
PH	6.5
CONDUCTIVITY (UMHO/CM)	122
TOC (MG/L)	13.0
NH3-N (MG N/L)	.23
KJELDAHL N (MG N/L)	.76
NO2+NO3-N (MG N/L)	.22
SUSPENDED SOLIDS (MG/L)	29.0
TOTAL SOLIDS (MG/L)	147
TOTAL DIS. SOLIDS (MG/L)	118
TOTAL PHOSPHATE (MG P/L)	.23
DISSOLVED OXYGEN (MG/L)	3.20
TEMPERATURE (C)	25.0

TABLE 11

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 10 PERIOD 3

PARAMETER	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18
TIME	1020	900	1000	1000	94
PH	6.7	6.7	6.9	6.8	7.
CONDUCTIVITY (UMHO/CM)	913	520	790	482	42
BOD5 (MG/L)	2.0	2.0	3.0	*******	******
TOC (MG/L)	31.0	17.0	20.0	16.0	12.
NH3-N (MG N/L)	.22	.35	.37	.44	.2
KJELDAHL N (MG N/L)	.75	1.10	1.30	1.20	1.1
NO2+NO3-N (MG N/L)	.11	.28	.36	.49	.4
SUSPENDED SOLIDS (MG/L)	55.0	36.0	42.0	41.0	23.
TOTAL SOLIDS (MG/L)	585	376	566	359	35
TOTAL DIS. SOLIDS (MG/L)	530	340	524	318	32
TOTAL PHOSPHATE (MG P/L)	.20	.28	.32	.28	.3
DISSOLVED OXYGEN (MG/L)	4.80	4.90	4.90	4.60	6.1
TEMPERATURE (C)	28.5	27.0	29.0	28.0	30.

	DAY 19
TIME	925
PH	6.5
CONDUCTIVITY (UMHO/CM)	155
TOC (MG/L)	14.0
NH3-N (MG N/L)	.28
KJELDAHL N (MG N/L)	1.00
NO2+NO3-N (MG N/L)	.22
SUSPENDED SOLIDS (MG/L)	18.0
TOTAL SOLIDS (MG/L)	158
TOTAL DIS. SOLIDS (MG/L)	140
TOTAL PHOSPHATE (MG P/L)	.27
DISSOLVED OXYGEN (MG/L)	3.40
TEMPERATURE (C)	25.0

TABLE 12

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 11 PERIOD 3

PARAMETER	DAY 9	DAY 10	DAY 11	DAY 16	DAY 17
TIME	945	945	915	1130	1030
PH	6.4	6.5	6.5	6.5	6.5
CONDUCTIVITY (UMHO/CM)	910	1750	1720	2125	1305
BOD5 (MG/L)	1.0	2.0	1.0	2.0	*******
TOC (MG/L)	30.0	29.0	28.0	26.0	30.0
NH3-N (MG N/L)	.07	.09	.08	.21	.18
KJELDAHL N (MG N/L)	.65	.90	1.00	1.20	1.20
NO2+NO3-N (MG N/L)	.04	.05	.04	.04	.05
SUSPENDED SOLIDS (MG/L)	72.0	52.0	58.0	43.0	29.0
TOTAL SOLIDS (MG/L)	620	1017	1140	1450	868
TOTAL DIS. SOLIDS (MG/L)	548	965	1082	1407	839
TOTAL PHOSPHATE (MG P/L)	.08	.69	.14	.11	.09
DISSOLVED OXYGEN (MG/L)	3.70	3.40	2.60	2.90	3.70
TEMPERATURE (C)	26.0	26.0	28.0	30.0	30.0

	DAY 18	DAY 19
TIME	1030	945
PH	6.5	6.4
CONDUCTIVITY (UMHO/CM)	1205	400
TOC (MG/L)	28.0	26.0
NH3-N (MG N/L)	1.10	.26
KJELDAHL N (MG N/L)	1.10	1.10
NO2+NO3-N (MG N/L)	.05	.13
SUSPENDED SOLIDS (MG/L)	33.0	32.0
TOTAL SOLIDS (MG/L)	931	341
TOTAL DIS. SOLIDS (MG/L)	898	309
TOTAL PHOSPHATE (MG P/L)	.08	.15
DISSOLVED OXYGEN (MG/L)	3.65	3.60
TEMPERATURE (C)	30.0	27.0

TABLE 13

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-0496-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 11 PERIOD 4

PARAMETER	DAY 9
TIME	1400
PH	6.5
CONDUCTIVITY (UMHO/CM)	430
BOD5 (MG/L)	2.0
TOC (MG/L)	24.0
NH3-N (MG N/L)	.24
KJELDAHL N (MG N/L)	.95
NO2+NO3-N (MG N/L)	.37
SUSPENDED SOLIDS (MG/L)	67.0
TOTAL SOLIDS (MG/L)	371
TOTAL DIS. SOLIDS (MG/L)	304
TOTAL PHOSPHATE (MG P/L)	.28
DISSOLVED OXYGEN (MG/L)	1.90
TEMPERATURE (C)	27.5

TABLE 14

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 12 PERIOD 3

PARAMETER	DAY 9	DAY 10	DAY 11	DAY 16	DAY 17
TIME	935	935	905	1120	1000
PH	6.5	6.6	6.5	6.6	6.5
CONDUCTIVITY (UMHO/CM)	2500	3800	3400	3420	2750
BOD5 (MG/L)	1.0	2.0	1.0	1.0	*******
TOC (MG/L)	30.0	26.0	26.0	24.0	26.0
NH3-N (MG N/L)	.08	.09	.11	.11	.22
KJELDAHL N (MG N/L)	.90	.75	.85	1.10	.92
NO2+NO3-N (MG N/L)	.04	.05	.04	.04	.05
SUSPENDED SOLIDS (MG/L)	119.0	49.0	46.0	35.0	33.0
TOTAL SOLIDS (MG/L)	1301	2235	2137	2399	1832
TOTAL DIS. SOLIDS (MG/L)	1182	2156	2091	2364	1799
TOTAL PHOSPHATE (MG P/L)	.20	.09	.14	.05	.10
DISSOLVED OXYGEN (MG/L)	3.50	3.60	3.20	2.80	3.50
TEMPERATURE (C)	26.0	27.0	28.0	30.0	30.0

	DAY 18	DAY 19
TIME	1025	910
PH	6.6	6.4
CONDUCTIVITY (UMHO/CM)	2890	1150
TOC (MG/L)	23.0	27.0
NH3-N (MG N/L)	.20	.28
KJELDAHL N (MG N/L)	1.10	1.20
NO2+NO3-N (MG N/L)	.04	.07
SUSPENDED SOLIDS (MG/L)	33.0	32.0
TOTAL SOLIDS (MG/L)	1878	790
TOTAL DIS. SOLIDS (MG/L)	1345	758
TOTAL PHOSPHATE (MG P/L)	.10	.10
DISSOLVED OXYGEN (MG/L)	3.50	3.80
TEMPERATURE (C)	30.0	28.5

TABLE 15

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER army AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 12 PERIOD 4

PARAMETER	DAY 9
TIME	1400
PH	6.2
CONDUCTIVITY (UMHO/CM)	390
BOD5 (MG/L)	2.0
TOC (MG/L)	34.0
NH3-N (MG N/L)	.10
KJELDAHL N (MG N/L)	.85
NO2+NO3-N (MG N/L)	.04
SUSPENDED SOLIDS (MG/L)	63.0
TOTAL SOLIDS (MG/L)	335
TOTAL DIS. SOLIDS (MG/L)	272
TOTAL PHOSPHATE (MG P/L) <	.04
DISSOLVED OXYGEN (MG/L)	6.00
TEMPERATURE (C)	27.0

HSE-MS 31 July 1981
SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

RESULTS OF ANALYSES OF FORT STEWART WATER SAMPLES FOR NIPDWR MCL's

Sample Location	Sample Type	Arsenic mg/L	Barium mg/L	Cadmium mg/L	Chromium mg/L	Lead mg/L	Mercury mg/L
Well No. 1	raw	ND	ND	0.008	ND	0.007	ND
Well No. 4	raw	ND	ND	0.003	ND	ND	ND
Main Dist	treated	ND	ND	0.007	ND	ND	ND
TAC-X	treated	ND	ND	0.009	ND	ND	ND
Camp Oliver	raw	ND	ND	0.010	ND	ND	ND
Camp Oliver	treated	ND	ND	0.010	ND	ND	ND
Wright Field	treated	ND	ND	0.008	ND	ND	ND
Evans Field	treated	ND	ND	0.008	ND	ND	ND
Taylor Creek	treated	ND	ND	0.007	ND	ND	ND
Detection Limit		0.01	0.3	0.005	0.025	0.005	0.0002
NPDWR MCL		0.05	1.	0.010	0.05	0.05	0.002

milligrams per liter (mg/L)
not detected (ND)
nitrate nitrite reported as nitrogen (NO_3/NO_2 as N)
micrograms per liter (µg/L)
picocuries per liter (pCi/L)
for fluoride based upon annual average of maximum daily air temp equal to 79.1°F

Source: USAEHA, 1981a.

for William C Neals
THEODORE W. DOLZINE
CDT, MSC
Chief, Environmental Chemistry Division

Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Sample Location	Sample Type	Heptachlor µg/L	Heptepoxide µg/L	Cis-chlordane µg/L	Trans chlordane µg/L	Malathion µg/L	Chlorpryifos µg/L
Well No. 1	raw	ND	0.53	ND	ND	ND	ND
Well No. 4	raw	-	-	-	-	-	-
Main Dist	treated	ND	ND	ND	ND	ND	ND
TAC-X	treated	ND	ND	ND	ND	ND	ND
Camp Oliver	raw	ND	ND	ND	ND	ND	ND
Camp Oliver	treated	ND	ND	ND	ND	ND	ND
Wright Field	treated	ND	ND	ND	ND	ND	ND
Evans Field	treated	ND	ND	ND	ND	ND	ND
Taylor Creek	treated	ND	ND	ND	ND	ND	ND
Detection Limit		0.06	0.16	0.16	0.16	1.60	0.24

for William Crivaro

THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

Sample Location	Sample Type	HCB µg/L	BHC µg/L	DDD µg/L	DDE µg/L	DDT µg/L	Oxychlordane µg/L	Mirex µg/L	Aldrin µg/L	Chlordane µg/L	Dieldrin µg/L
Well No. 1	raw	ND	ND	1.41	ND	ND	ND	ND	ND	ND	ND
Well No. 2	raw	-	-	-	-	-	-	-	-	-	-
Main Dist	treated	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TAC-X	treated	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Camp Oliver	raw	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Camp Oliver	treated	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wright Field	treated	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Evans Field	treated	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Taylor Creek	treated	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Detection Limit		0.80	0.20	0.40	0.40	0.60	0.16	0.04	0.16	1.20	0.24

for William C Neal

THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

Engineering Survey No. [illegible]
Division and Fort Stewart, Fort Stewart, GA,
1/-26 November 1980)

SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Sample Location	Sample Type	NO_3/NO_2 as N mg/L [3]	Selenium mg/L	Silver mg/L	Fluoride mg/L	Endrin µg/L [4]	Lindane µg/L
Well No. 1	raw	0.06	ND	ND	0.55	1.27	0.57
Well No. 4	raw	0.03	ND	ND	0.54	-	-
Main Dist	treated	0.15	ND	ND	1.1	ND	ND
TAC-X	treated	0.16	ND	ND	0.37	ND	ND
Camp Oliver	raw	0.06	ND	ND	0.34	ND	ND
Camp Oliver	treated	0.06	ND	ND	0.43	ND	ND
Wright Field	treated	0.05	ND	ND	0.83	ND	ND
Evans Field	treated	0.03	ND	ND	0.40	ND	ND
Taylor Creek	treated	0.22	ND	ND	0.59	ND	ND
Detection Limit		0.04	0.005	0.025	0.1	0.04	0.08
NPDWR MCL		10	0.01	0.05	1.6 [6]	0.2	4

[3] See footnote on pg 1.
[4] See footnote on pg 1.
[6] See footnote on pg 1.

for William C. Neals

THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Sample Location	Sample Type	Methoxychlor µg/L	Toxaphene µg/L	2,4-D µg/L	Silvex µg/L	Total Trihalomethanes µg/L
Well No. 1	raw	ND	ND	ND	ND	1.5
Well No. 4	raw	-	-	-	-	0.2
Main Dist	treated	ND	ND	ND	ND	2.2
TAC-X	treated	ND	ND	ND	ND	2.3
Camp Oliver	raw	ND	ND	ND	ND	0.1
Camp Oliver	treated	ND	ND	ND	ND	14.6
Wright Field	treated	ND	ND	ND	ND	8.1
Evans Field	treated	ND	ND	ND	ND	7.6
Taylor Creek	treated	ND	ND	ND	ND	32.4
Detection Limit		1.60	1.60	3.80	0.5	0.50
NPDWR MCL		100.	5.	100.	10.	100.

see footnote on pg 2.

for William C Neald

THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

HSE-MS 31 July 1981
SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Sample Location	Sample Type	Gross Alpha pCi/L[5]	Gross Beta pCi/L	Tritium pCi/L	Strontium pCi/L
Well No. 1	raw	<1.0	2.6 ± 1.2	<410	-
Well No. 4	raw	1.2 0.8	3.2 ± 0.9	<410	-
Main Dist	treated	<1.0	2.5 ± 0.9	<410	-
TAC-X	treated	1.4 0.9	10.8 ± 1.4	<410	<0.6
Camp Oliver	raw	<1.0	3.9 ± 1.0	<410	-
Camp Oliver	treated	<1.0	4.2 ± 1.1	<410	-
Wright Field	treated	<1.0	7.2 ± 1.3	<410	-
Evans Field	treated	<1.0	7.2 ± 1.2	<410	-
Taylor Creek	treated	<1.0	3.6 ± 1.0	<410	-
Detection Limit		-	-	-	-
NIPDWR MCL		15	50	20000	8

[5]See footnote on pg 1.

for William Meads
THEODORE W. DOLZINE
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Chief, Environmental Chemistry Division

SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

RESULTS OF ANALYSES OF FORT STEWART WATER SAMPLES FOR NSDWR MCL's

Sample Location	Sample Type	Chloride mg/L	Copper mg/L	Iron mg/L	Manganese mg/L	pH S.U.[1]	Sulfate mg/L	Total Dissolved Solids (mg/L)	Zinc mg/L
Well No. 1	raw	5.0	0.179	ND	ND	8.1	8.3	179	0.070
Well No. 4	raw	5.0	ND	ND	ND	8.1	8.9	173	ND
Main Dist	treated	7.4	ND	ND	ND	7.9	8.1	173	0.540
TAC-X	treated	6.9	ND	ND	ND	7.9	7.2	199	0.038
Camp Oliver	raw	6.9	0.030	ND	ND	7.9	4.8	189	ND
Camp Oliver	treated	11	0.152	0.39	ND	7.9	4.4	209	1.42
Wright Field	treated	21	ND	0.11	ND	8.2	4.4	224	0.190
Evans Field	treated	7.4	ND	ND	ND	8.1	5.6	202	0.113
Taylor Creek	treated	11	ND	ND	ND	8.2	4.4	186	0.470
Detection Limit		0.50	0.025	0.10	0.030	-	0.5	1	0.015
NPDWR MCL		250	1	0.3	0.05	6.5-8.5	250	500	5

Standard Units (S.U.)

for William C Neals

THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

RESULTS OF FORT STEWART WATER SAMPLES FOR MISCELLANEOUS INORGANICS AND PESTICIDES

Sample Location	Sample Type	Conductivity µmhos/cm [1]	Hardness (as $CaCO_3$) mg/L [2]	Total Alkalinity (as $CaCO_3$) mg/L [3]	Calcium mg/L	Sodium mg/L	Magnesium mg/L
Well No. 1	raw	213	82	107	18.8	16.5	8.6
Well No. 4	raw	212	90	107	21.0	18.4	9.3
Main Dist	treated	216	105	103	26.7	16.4	8.9
TAC-X	treated	227	94	103	28.0	26.3	6.0
Camp Oliver	raw	229	64	108	18.7	14.2	7.3
Camp Oliver	treated	231	87	107	22.7	14.0	6.9
Wright Field	treated	306	118	151	28.0	20.6	11.7
Evans Field	treated	221	107	108	28.7	16.9	8.7
Taylor Creek	treated	259	106	116	28.6	20.7	8.3
Detection Limit		-	-	-	1.0	1.0	0.5

[1] micromhos per centimeter (µmhos/cm)
[2] Hardness reported as calcium carbonate (as $CaCO_3$)
[3] Total alkalinity reported as calcium carbonate (as $CaCO_3$)

for William C Meals

THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

U.S Army Drinking Water Surveillance Program Data--Fort Stewart

313834 FT. STEWART, GA.

SOURCE TW01

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.5	< .010	< .0002	< .0	.000	< .001	15.0
MEAN	.020	.33	.002	.025	.8	.021	.0002	.1	.000	.018	15.7
MAX	< .020	< .36	< .005	< .025	1.1	.036	.0002	.1	.000	< .028	17.0
NR OBS	4	2	3	3	4	3	3	4	0	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .5	1.6	.0011	.00	.00	.00	< .025	< .1	8.6	< .03	< .001
MEAN	.6	2.6	.0670	.00	.00	.00	.078	.2	9.2	.03	.025
MAX	< .8	4.3	< .1000	.00	.00	.00	.183	.3	9.6	< .03	.058
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	104.5	7.7	83.9	220.	18.0	1.70	30.0	114.0	3.2	4.1
MEAN	2.5	108.4	7.9	85.6	225.	18.7	2.33	30.0	154.7	4.8	6.4
MAX	5.0	116.0	8.1	86.9	232.	19.5	3.00	30.0	188.0	7.7	10.0
NR OBS	4	4	4	4	4	3	3	1	4	4	4

SOURCE TW02

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.8	< .005	< .0002	< .0	.000	< .001	14.7
MEAN	.020	.31	.003	.025	1.0	.012	.0002	.3	.000	.020	15.4
MAX	< .020	< .36	< .005	< .025	1.2	.029	.0003	1.0	.000	< .028	16.0
NR OBS	4	4	4	4	4	4	4	4	0	4	4

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	2.0	.0006	.00	.00	.00	< .025	< .1	8.0	< .03	< .015
MEAN	.6	3.1	.0504	.00	.00	.00	.040	.1	9.0	.03	.233
MAX	< .8	4.6	< .1000	.00	.00	.00	.084	.2	9.8	.03	.836
NR OBS	4	4	4	0	0	0	4	4	4	4	4

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	92.5	7.3	82.0	220.	17.4	2.19	30.0	128.0	2.4	5.0
MEAN	2.5	100.1	7.6	85.7	234.	18.9	2.47	30.0	145.0	6.1	6.2
MAX	5.0	108.0	7.7	94.0	260.	20.5	2.80	30.0	160.0	8.5	7.6
NR OBS	4	4	4	4	4	4	4	1	4	4	4

313834 FT. STEWART, GA.

SOURCE TW03

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.5	< .005	< .0002	< .0	< .010	< .001	13.5
MEAN	.020	.38	.004	.025	.7	.011	.0002	.1	.010	.021	15.8
MAX	< .020	< .50	< .005	< .025	1.5	.030	.0002	< .1	< .010	< .028	18.0
NR OBS	6	6	6	6	6	6	6	6	1	6	6

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .5	1.9	.0003	.00	.00	.00	< .025	< .1	4.4	< .03	< .001
MEAN	.7	2.8	.0403	.00	.00	.00	.042	.7	8.8	.03	.019
MAX	< 1.2	4.3	< .1000	.00	.00	.00	.114	3.3	9.9	< .03	.038
NR OBS	5	5	5	0	0	0	6	6	6	6	6

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	104.0	7.5	83.2	209.	17.5	2.40	34.3	124.0	3.0	4.5
MEAN	3.3	111.0	7.8	91.3	225.	20.5	2.54	40.0	146.0	5.4	7.0
MAX	5.0	118.0	8.0	118.0	250.	24.1	2.65	42.8	166.0	6.5	7.9
NR OBS	6	6	6	6	6	6	6	3	6	6	6

SOURCE TW05

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.4	< .005	< .0002	< .0	< .010	< .001	11.2
MEAN	.020	.36	.003	.025	.4	.006	.0002	.1	.010	.021	12.4
MAX	< .020	.60	< .005	< .025	.4	< .010	.0002	< .1	< .010	< .028	14.0
NR OBS	5	5	5	5	5	5	5	5	1	5	5

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	1.5	< .0003	.00	.00	.00	< .025	< .1	8.3	< .03	.045
MEAN	.7	2.0	.0411	.00	.00	.00	.025	.1	9.1	.03	.256
MAX	< 1.2	3.0	< .1000	.00	.00	.00	< .025	< .1	9.7	< .03	.702
NR OBS	5	5	5	0	0	0	5	5	5	5	5

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	107.5	7.7	94.6	227.	22.1	1.50	41.3	122.0	4.7 <	1.0
MEAN	3.0	113.0	7.9	97.8	231.	22.9	1.82	43.1	145.2	6.3	3.1
MAX	5.0	122.0	8.2	102.0	240.	24.0	2.01	44.9	164.0	8.2	5.3
NR OBS	5	5	5	5	5	5	5	2	5	5	5

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SOURCE TW06

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.7	< .005	< .0002	< .0	< .010	< .001	22.9
MEAN	.020	.31	.003	.025	.8	.006	.0002	.1	.010	.020	173.9
MAX	< .020	< .36	< .005	< .025	.8	< .010	.0003	< .1	< .010	< .028	624.1
NR OBS	5	4	4	4	5	4	4	5	1	4	4

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	5.6	< .0003	.00	.00	.00	< .025	< .1	11.4	< .03	.009
MEAN	.8	6.5	.0404	.00	.00	.00	.025	.1	12.6	.03	.033
MAX	1.4	8.4	< .1000	.00	.00	.00	< .025	< .1	14.0	< .03	.048
NR OBS	5	5	5	0	0	0	4	4	4	4	4

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	147.0	7.4	104.0	308.	21.9	2.52	36.4	186.0	4.6 <	1.0
MEAN	3.0	153.3	7.7	107.3	313.	23.2	5.53	39.2	203.0	9.1	1.8
MAX	5.0	161.0	8.2	110.0	320.	24.5	6.90	41.9	216.0	13.4	2.5
NR OBS	5	5	5	5	5	4	4	2	5	5	5

SOURCE TW07

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.3	< .005	< .0002	< .0	< .010	< .001	9.3
MEAN	.020	.35	.003	.025	.4	.010	.0003	.1	.010	.021	59.7
MAX	< .020	< .50	< .005	< .025	.4	.024	.0005	< .1	< .010	< .028	245.2
NR OBS	5	5	5	5	5	5	5	5	1	5	5

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .5	1.5	< .0003	.00	.00	.00	< .025	< .1	5.9	< .03	< .001
MEAN	.9	2.2	.0406	.00	.00	.00	.036	.2	7.3	.03	.018
MAX	1.3	3.3	< .1000	.00	.00	.00	.078	.4	9.2	< .03	.037
NR OBS	5	5	5	0	0	0	5	5	5	5	5

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	100.0	7.7	89.1	214.	18.6	2.00	44.9	137.0	5.5	3.0
MEAN	3.0	105.9	7.8	92.5	229.	25.0	2.16	47.7	163.4	6.2	5.5
MAX	5.0	112.0	8.1	98.0	252.	28.5	2.59	50.5	186.0	7.6	7.3
NR OBS	5	5	5	5	5	5	5	2	5	5	5

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SOURCE TW08

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.4	< .005	< .0002	< .0	< .010	< .001	8.9
MEAN	.020	.38	.003	.025	.7	.007	.0002	.1	.010	.021	111.2
MAX	< .020	< .50	< .005	< .025	.9	< .010	.0003	.3	< .010	< .028	468.1
NR OBS	5	5	5	5	5	5	5	5	1	5	5

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	2.5	< .0003	.00	.00	.00	< .025	< .1	7.5	< .03	< .001
MEAN	.8	3.3	.0404	.00	.00	.00	.040	.2	8.4	.03	.027
MAX	1.8	4.8	< .1000	.00	.00	.00	.101	.4	9.6	< .03	.063
NR OBS	5	5	5	0	0	0	5	5	5	4	5

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	112.6	7.5	72.0	238.	14.3	2.05	15.8	156.0	4.7 <	1.0
MEAN	3.0	122.1	7.8	82.3	247.	19.7	2.35	18.8	167.6	8.5	2.1
MAX	5.0	130.0	8.2	97.6	261.	22.8	2.79	21.9	188.0	11.7	3.7
NR OBS	5	5	5	5	5	5	5	2	5	5	5

SOURCE TW09

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.3	< .005	< .0002	< .0	< .010	< .001	13.3
MEAN	.020	.31	.003	.025	.4	.009	.0002	.1	.010	.021	78.6
MAX	< .020	< .36	< .005	< .025	.4	.016	< .0002	.4	< .010	< .028	334.4
NR OBS	5	5	5	5	5	5	5	5	1	5	5

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .5	2.2	< .0003	.00	.00	.00	< .025	< .1	7.4	< .03	< .001
MEAN	.8	2.8	.0503	.00	.00	.00	.037	.1	7.9	.03	.023
MAX	< 1.2	3.7	< .1000	.00	.00	.00	.086	< .1	9.2	< .03	.056
NR OBS	4	4	4	0	0	0	5	5	5	5	5

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	108.0	7.6	84.0	205.	20.4	2.31	38.1	138.0	2.8	2.5
MEAN	3.0	109.8	7.9	88.5	222.	21.7	2.55	40.0	159.8	4.8	3.6
MAX	5.0	116.0	8.2	99.7	231.	22.6	2.73	41.9	178.0	7.4	5.6
NR OBS	5	5	5	5	5	5	5	2	5	5	5

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SOURCE TW10

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	< .1	< .005	< .0002	< .0	< .010	< .001	12.9
MEAN	.020	.30	.004	.025	.6	.007	.0002	.6	.010	.019	14.9
MAX	< .020	< .30	< .005	< .025	1.0	.011	< .0002	2.1	< .010	< .025	16.0
NR OBS	4	4	4	4	4	4	4	4	1	4	4

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	1.6	< .0003	.00	.00	.00	< .025	< .1	8.6	< .03	.028
MEAN	.7	2.7	.0258	.00	.00	.00	.025	.1	10.3	.03	.090
MAX	< 1.2	4.6	< .1000	.00	.00	.00	< .025	.2	12.9	< .03	.207
NR OBS	4	4	4	0	0	0	4	4	4	4	4

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	108.0	7.8	83.2	203.	17.7	2.20	37.0	135.0	3.7 <	1.0
MEAN	2.5	120.2	8.0	94.0	241.	20.4	2.76	38.3	171.5	4.9	5.9
MAX	5.0	156.2	8.2	118.0	302.	26.8	3.83	39.6	221.0	6.6	9.5
NR OBS	4	4	4	4	4	4	4	2	4	4	4

SOURCE TW11

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .50	< .005	< .025	2.4	< .005	< .0002	.1	.000	< .025	10.2
MEAN	.020	.50	.005	.025	2.4	.005	.0002	.1	.000	.025	10.2
MAX	< .020	< .50	< .005	< .025	2.4	< .005	< .0002	.1	.000	< .025	10.2
NR OBS	1	1	1	1	1	1	1	1	0	1	1

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .6	1.2	.0004	.00	.00	.00	.027	< .1	9.0	< .03	< .015
MEAN	.6	1.2	.0004	.00	.00	.00	.027	.1	9.0	.03	.015
MAX	< .6	1.2	.0004	.00	.00	.00	.027	< .1	9.0	< .03	< .015
NR OBS	1	1	1	0	0	0	1	1	1	1	1

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	5.0	97.9	7.5	102.0	238.	26.9	2.05	45.6	155.0	8.8	3.5
MEAN	5.0	97.9	7.5	102.0	238.	26.9	2.05	45.6	155.0	8.8	3.5
MAX	5.0	97.9	7.5	102.0	238.	26.9	2.05	45.6	155.0	8.8	3.5
NR OBS	1	1	1	1	1	1	1	1	1	1	1

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SOURCE TW11

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	< .1	< .005	< .0002	< .0	< .010	< .001	9.0
MEAN	.020	.30	.003	.025	.5	.005	.0002	.1	.010	.013	9.6
MAX	< .020	< .30	< .005	< .025	1.0	< .005	< .0002	< .1	< .010	< .025	10.3
NR OBS	2	2	2	2	2	2	2	2	1	2	2

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .5	1.4	.0004	.00	.00	.00	< .025	< .1	8.5	< .03	< .015
MEAN	.6	1.5	.0007	.00	.00	.00	.230	.1	8.6	.03	.037
MAX	< .8	1.6	.0011	.00	.00	.00	.436	< .1	8.8	< .03	.060
NR OBS	2	2	2	0	0	0	2	2	2	2	2

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	102.0	7.4	88.9	227.	24.0	1.70	53.0	160.0	5.5	6.3
MEAN	2.5	104.3	7.8	94.0	230.	24.5	1.81	53.0	166.0	5.7	6.7
MAX	5.0	106.5	8.2	99.1	233.	24.9	1.92	53.0	172.0	5.9	7.2
NR OBS	2	2	2	2	2	2	2	1	2	2	2

SOURCE TW12

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.4	< .005	< .0002	< .0	< .010	< .001	8.4
MEAN	.020	.30	.004	.025	.6	.005	.0003	.1	.010	.017	9.1
MAX	< .020	< .30	.006	< .025	.8	< .005	.0004	< .1	< .010	< .025	10.0
NR OBS	3	3	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	1.6	< .0003	.00	.00	.00	< .025	< .1	7.9	< .03	< .015
MEAN	.5	1.9	.0008	.00	.00	.00	.025	.1	8.3	.03	.020
MAX	< .6	2.4	.0014	.00	.00	.00	< .025	< .1	8.9	< .03	.030
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	100.5	7.7	96.5	224.	22.5	.51	44.1	153.0	5.5	4.1
MEAN	3.3	102.9	7.9	99.2	227.	23.9	1.30	48.5	163.3	6.6	5.5
MAX	5.0	105.2	8.3	101.0	231.	25.9	1.79	53.0	182.0	8.2	6.5
NR OBS	3	3	3	3	3	3	3	2	3	3	3

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SOURCE TW13

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.4	< .005	< .0002	< .0	< .010	< .001	17.7
MEAN	.020	.30	.004	.025	.5	.005	.0002	.1	.010	.017	18.3
MAX	< .020	< .30	< .005	< .025	.6	.006	< .0002	.2	< .010	< .025	18.6
NR OBS	3	3	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	1.2	.0004	.00	.00	.00	< .025	< .1	9.6	< .03	< .015
MEAN	.6	4.1	.0007	.00	.00	.00	.025	.2	10.3	.03	.069
MAX	< .8	6.2	.0012	.00	.00	.00	< .025	.5	11.3	< .03	.115
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	119.6	7.8	84.8	252.	16.7	1.92	35.5	178.0	4.5	1.1
MEAN	3.3	124.4	8.0	90.8	262.	19.5	3.82	39.8	189.0	7.5	3.5
MAX	5.0	130.6	8.3	96.0	269.	21.0	6.30	44.1	208.0	12.8	7.0
NR OBS	3	3	3	3	3	3	3	2	3	3	3

SOURCE TW14

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.2	< .005	< .0002	< .0	< .005	< .001	9.6
MEAN	.020	.30	.004	.025	.3	.005	.0002	.1	.005	.017	10.9
MAX	< .020	< .30	.007	< .025	.4	< .005	< .0002	.1	< .005	< .025	13.1
NR OBS	3	2	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	1.1	< .0003	.00	.00	.00	< .025	< .1	7.9	< .03	.033
MEAN	.7	1.3	.0007	.00	.00	.00	.025	.1	8.2	.03	.091
MAX	< .9	1.6	.0012	.00	.00	.00	< .025	.2	8.5	< .03	.172
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	105.0	7.7	97.3	227.	23.0	1.60	47.7	172.0	5.0	2.7
MEAN	3.3	107.6	8.0	98.8	231.	24.6	1.78	50.3	177.3	6.4	4.8
MAX	5.0	111.4	8.3	101.0	236.	26.1	1.95	53.0	183.0	8.7	6.7
NR OBS	3	3	3	3	3	3	3	2	3	3	3

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SOURCE TW15

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .005	< .025	.3	< .005	< .0002	< .0	< .010	< .001	9.2
MEAN	.020	.30	.007	.025	.4	.005	.0002	.1	.010	.017	9.8
MAX	< .020	< .30	.011	< .025	.4	< .005	< .0002	< .1	< .010	< .025	10.2
NR OBS	3	3	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	.9	.0003	.00	.00	.00	< .025	< .1	8.6	< .03	< .015
MEAN	.6	1.8	.0006	.00	.00	.00	.025	.3	8.9	.03	.080
MAX	< .8	2.4	.0010	.00	.00	.00	< .025	.5	9.3	< .03	.211
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	97.2	7.9	91.5	213.	21.8	1.69	44.1	155.0	4.2	2.9
MEAN	3.3	103.4	8.0	95.5	224.	24.1	3.49	47.1	178.7	6.5	4.9
MAX	5.0	110.4	8.2	98.0	231.	26.9	6.98	50.2	202.0	7.7	6.8
NR OBS	3	3	3	3	3	3	3	2	3	3	3

SOURCE TW16

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.2	< .005	< .0002	< .0	< .010	< .001	16.2
MEAN	.020	.30	.004	.025	.2	.008	.0002	.1	.010	.017	20.6
MAX	< .020	< .30	< .005	< .025	.3	.014	< .0002	.1	< .010	< .025	23.8
NR OBS	3	3	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	3.8	< .0003	.00	.00	.00	< .025	.2	7.8	< .03	.167
MEAN	.6	4.4	.0007	.00	.00	.00	.025	1.1	8.5	.03	.409
MAX	< .8	5.1	.0010	.00	.00	.00	< .025	1.8	8.9	< .03	.569
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	121.9	7.0	98.0	264.	26.6	2.21	42.4	192.0	9.5	2.5
MEAN	4.0	128.5	7.4	100.7	283.	28.1	3.99	45.2	220.0	11.8	4.3
MAX	7.0	137.0	7.9	105.0	297.	29.2	5.10	48.1	272.0	13.3	7.8
NR OBS	3	3	3	3	3	3	3	2	3	3	3

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SOURCE TW17

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.3	< .005	< .0002	< .0	< .010	< .001	11.5
MEAN	.020	.30	.004	.025	.4	.007	.0006	.1	.010	.017	12.8
MAX	< .020	< .30	< .005	< .025	.6	.008	.0013	.2	< .010	< .025	14.5
NR OBS	3	3	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	2.0	< .0003	.00	.00	.00	< .025	< .1	9.3	< .03	.249
MEAN	.6	3.8	.0006	.00	.00	.00	.028	.3	9.8	.03	.371
MAX	< .8	5.2	.0009	.00	.00	.00	.034	.5	10.3	< .03	.454
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	99.1	7.9	91.5	217.	17.5	2.68	36.4	138.0	3.6	4.1
MEAN	3.3	104.6	8.0	95.5	235.	21.1	3.98	42.3	197.7	9.5	5.8
MAX	5.0	108.3	8.2	100.0	264.	23.9	6.37	48.2	272.0	15.3	7.6
NR OBS	3	3	3	3	3	3	3	2	3	3	3

SOURCE TW18

	AS	BA	CD	CR	F	PB	HG	NO3	SE	AG	NA
MIN	< .020	< .30	< .001	< .025	.3	< .005	< .0002	< .0	< .010	< .001	8.0
MEAN	.020	.30	.004	.025	.3	.005	.0002	.1	.010	.017	8.5
MAX	< .020	< .30	< .005	< .025	.4	< .005	< .0002	< .1	< .010	< .025	9.3
NR OBS	3	3	3	3	3	3	3	3	1	3	3

	ALPHA	BETA	TRITIUM	90SR	226RA	B	CU	FE	MG	MN	ZN
MIN	< .4	1.7	< .0003	.00	.00	.00	< .025	< .1	7.8	< .03	< .015
MEAN	.6	3.4	.0006	.00	.00	.00	.025	.3	8.6	.03	.022
MAX	< .8	6.1	.0009	.00	.00	.00	< .025	.5	9.1	< .03	.030
NR OBS	3	3	3	0	0	0	3	3	3	3	3

	COLOR	ALK	PH	HARD	SP C	CA	K	SI	TDS	CL	SO4
MIN	.0	105.0	7.8	102.0	231.	24.8	1.50	44.1	143.0	4.2	3.1
MEAN	3.3	106.9	8.0	103.3	233.	25.6	1.66	47.1	164.0	6.9	5.4
MAX	5.0	108.5	8.2	105.0	235.	27.0	1.86	50.2	188.0	9.5	7.2
NR OBS	3	3	3	3	3	3	3	2	3	3	3

Table F-1. Preliminary Ground Water Quality Data at FST

Parameter	Boring 1		Boring 2	Boring 3	Boring 4		Boring 6	Boring 8
	July 17	July 21	July 16	July 16	July 17	July 21	July 20	July 20
pH (pH units)	5.3	4.8	5.4	5.1	5.3	5.4	5.3	6.1
COD (mg/l)					44.9			
Nitrate Nitrogen (as N) (mg/l)			0.13					
Total Phosphate (as P) (mg/l)*		0.5	<0.01	0.04	0.04	<0.01	0.015	0.05
Fecal Coliforms (organisms/100 ml)				10	0		30	

* Each sample was passed through a 0.45-micron (u) filter prior to preservation and analysis.

Source: USAEHA, 1975b.

Table F-2. Preliminary Ground Water Quality Data at HAA

Parameter	Boring CS-1 July 18, 1975	Boring CS-3 July 18, 1975	Boring CS-5 July 21, 1975
pH (pH units)	6.6	6.3	5.2
COD (mg/l)	18.8	--	--
Nitrate Nitrogen (as N) (mg/l)	0.22	--	--
Total Phosphate (as P) (mg/l)*	0.04	0.04	0.06
Fecal Coliforms (organisms/100 ml)	0	0	0
Total Coliforms (organisms/100 ml)	30	--	--

* Each sample was passed through a 0.45-u filter prior to preservation and analysis.

Source: USAEHA, 1975c.

Table F-3. Historical Data for Well 1 at FST

Parameter	1941	1959
Silica (mg/l)	36.0	35.0
Iron (mg/l)	0.02	0.04
Calcium (mg/l)	19.0	20.0
Magnesium (mg/l)	9.4	8.5
Sodium (mg/l)	16.0	16.0
Potassium (mg/l)	2.6	2.8
Bicarbonate (mg/l)	133	136
Sulfate (mg/l)	8.4	7.4
Chloride (mg/l)	3.6	3.5
Fluoride (mg/l)	0.4	0.6
Nitrate (mg/l)	0	0.2
Dissolved Solids (mg/l)	152	161
Hardness (mg/l)	86	85
Specific Conductance (umhos)*	--	233
pH (pH units)	--	7.8

* umhos = micromhos.

Source: EPA, Environmental Systems Laboratory, 1982.

ESE, Inc.
PROJECT NUMBER
FIELD GROUP STEW-S
ALL

DATE 05/02/90 STATUS :
PROJECT NAME FORT STEWART
PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH

PARAMETERS / UNITS	STORET METHOD	WSB-1 STEW-S 7	WSB-2 STEW-S 8	WSB-3 STEW-S 9	WSB-4 STEW-S 10	REPLICATE STEW-S 11	RINSEBLK STEW-S 12	TRPBLK STEW-S 13
SAMPLE ID/#								
DATE		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90
TIME		08:50	10:06	10:55	12:15	10:55	12:30	12:00
CHLOROMETHANE UG/KG-DRY	34421 DMS	<29	<29	<28	<29	<29	NRQ	NRQ
BROMOMETHANE UG/KG-DRY	34416 DMS	<1.4	<1.4	<1.4	<1.4	<1.4	NRQ	NRQ
VINYL CHLORIDE UG/KG-DRY	34495 DMS	<1.9	<1.8	<1.8	<1.9	<1.9	NRQ	NRQ
CHLOROETHANE UG/KG-DRY	34314 DMS	<2.1	<2.1	<2.1	<2.1	<2.1	NRQ	NRQ
METHYLENE CHLORIDE UG/KG-DRY	34426 DMS	3.9	<1.9	3.4	3.3	2.5	NRQ	NRQ
1,1-DICHLOROETHANE UG/KG-DRY	34499 DMS	<1.0	<1.0	<1.00	<1.0	<1.0	NRQ	NRQ
1,1-DICHLOROETHENE UG/G-DRY	98789 DMS	<1.4	<1.4	<1.4	<1.4	<1.4	NRQ	NRQ
CHLOROFORM UG/KG-DRY	34318 DMS	<1.4	<1.4	<1.4	<1.4	<1.4	NRQ	NRQ
1,2-DICHLOROETHANE UG/KG-DRY	34534 DMS	<1.0	<1.0	<1.0	<1.0	<1.0	NRQ	NRQ
1,1,1-TRICHL'ETHANE UG/KG-DRY	34509 DMS	<1.6	<1.6	<1.5	<1.6	<1.6	NRQ	NRQ
CARBON TETRACHLORIDE UG/KG-DRY	34299 DMS	<1.2	<1.1	<1.1	<1.2	<1.2	NRQ	NRQ
BROMODICHLOROMETHANE UG/KG-DRY	34330 DMS	<1.2	<1.2	<1.1	<1.2	<1.2	NRQ	NRQ
1,2-DICHLOROPROPANE UG/KG-DRY	34544 DMS	<1.2	<1.1	<1.1	<1.2	<1.2	NRQ	NRQ
TRANS-1,3-DICHLOROPROPENE UG/KG-DRY	34697 DMS	<1.0	<1.0	<1.0	<1.0	<1.0	NRQ	NRQ
TRICHLOROETHENE UG/KG-DRY	34487 DMS	<1.0	<1.0	<1.0	<1.0	<1.0	NRQ	NRQ
BENZENE UG/KG-DRY	34237 DMS	<1.3	<1.3	<1.3	<1.3	<1.4	NRQ	NRQ
DIBROMOCHLOROMETHANE UG/KG-DRY	34309 DMS	<1.6	<1.5	<1.5	<1.6	<1.6	NRQ	NRQ
1,1,2-TRICHL'ETHANE UG/KG-DRY	34514 DMS	<1.9	<1.9	<1.9	<1.9	<1.9	NRQ	NRQ
CIS-1,3-DICHLOROPROPENE UG/KG-DRY	34702 DMS	<1.8	<1.8	<1.8	<1.8	<1.8	NRQ	NRQ
BROMOFORM UG/KG-DRY	34290 DMS	<2.9	<2.9	<2.9	<2.9	<3.0	NRQ	NRQ
1,1,2,2-TETRACHLOROETHANE UG/KG-DRY	34519 DMS	<1.8	<1.8	<1.8	<1.8	<1.8	NRQ	NRQ
TETRACHLOROETHENE UG/KG-DRY	34478 DMS	<0.61	<0.60	<0.60	<0.61	<0.61	NRQ	NRQ
TOLUENE UG/KG-DRY	34483 DMS	22	33	14	22	26	NRQ	NRQ
CHLOROBENZENE UG/KG-DRY	34304 DMS	<0.78	<0.77	<0.76	<0.78	<0.78	NRQ	NRQ

ESE, Inc. DATE 05/02/90 STATUS :
PROJECT NUMBER PROJECT NAME FORT STEWART
FIELD GROUP STEW-S ALL PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH

PARAMETERS	STORET	WSB-1	WSB-2	WSB-3	WSB-4	REPLICATE	RINSEBLK	TRPBLK
		SAMPLE ID/#						
UNITS	METHOD	STEW-S 7	STEW-S 8	STEW-S 9	STEW-S 10	STEW-S 11	STEW-S 12	STEW-S 13
DATE		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90
TIME		08:50	10:06	10:55	12:15	10:55	12:30	12:00
ETHYLBENZENE	34374	<1.2	<1.2	<1.2	<1.2	<1.2	NRQ	NRQ
UG/KG-DRY	DMS							
2-HEXANONE	75166	<3.7	<3.7	<3.7	<3.7	<3.8	NRQ	NRQ
UG/KG-DRY	DMS							
ACETONE	75059	<20	<20	<20	<20	<20	NRQ	NRQ
UG/KG-DRY	DMS							
CARBON DISULFIDE	78544	<3.7	<3.7	<3.6	<3.7	<3.7	NRQ	NRQ
UG/KG-DRY	DMS							
STYRENE	75192	<1.9	<1.9	<1.9	<1.9	<1.9	NRQ	NRQ
UG/KG-DRY	DMS							
VINYL ACETATE	98583	<3.1	<3.0	<3.0	<3.1	<3.1	NRQ	NRQ
UG/KG-DRY	DMS							
XYLENE, SED	45510	<1.2	<1.2	<1.2	<1.2	<1.2	NRQ	NRQ
UG/KG-DRY	DMS							
1,2-DICHLOROETHENE, TOTAL UG/KG-DRY	98677 DMS	<1.55	<1.53	<1.52	<1.55	<1.56	NRQ	NRQ
2-BUTANONE	78356	<11.3	<11.1	<11.1	<11.3	<11.4	NRQ	NRQ
UG/KG-DRY	DMS							
4-METHYL-2-PENTANONE	99081	<3.20	<3.16	<3.14	<3.20	<3.22	NRQ	NRQ
UG/KG-DRY	DMS							
ACENAPHTHENE	34208	<150	<150	<150	<150	<150	NRQ	NRQ
UG/KG-DRY	GMS							
ACENAPHTHYLENE	34203	<110	<110	<110	<110	<110	NRQ	NRQ
UG/KG-DRY	GMS							
ANTHRACENE	34223	<85	<85	<84	<86	<86	NRQ	NRQ
UG/KG-DRY	GMS							
BENZO(A)ANTHRACENE	34529	<70	<70	<69	<70	<71	NRQ	NRQ
UG/KG-DRY	GMS							
BENZO(A)PYRENE	34250	<210	<210	<200	<210	<210	NRQ	NRQ
UG/KG-DRY	GMS							
BENZO(B)FLUORANTHENE	34233	<150	<150	<150	<150	<150	NRQ	NRQ
UG/KG-DRY	GMS							
BENZO(GHI)PERYLENE	34524	<83	<83	<82	<84	<85	NRQ	NRQ
UG/KG-DRY	GMS							
BENZO(K)FLUORANTHENE	34245	<190	<190	<190	<190	<190	NRQ	NRQ
UG/KG-DRY	GMS							
CHRYSENE	34323	<110	<110	<110	<110	<110	NRQ	NRQ
UG/KG-DRY	GMS							
DIBEN(A,H)ANTHRACENE	34559	<71	<72	<71	<72	<72	NRQ	NRQ
UG/KG-DRY	GMS							
FLUORANTHENE	34379	<130	<130	<130	<130	<130	NRQ	NRQ
UG/KG-DRY	GMS							
FLUORENE	34384	<120	<120	<120	<120	<120	NRQ	NRQ
UG/KG-DRY	GMS							
INDENO(1,2,3-CD)PYRENE UG/KG-DRY	34406 GMS	<110	<110	<110	<110	<110	NRQ	NRQ
NAPHTHALENE	34445	<230	<240	<230	<240	<240	NRQ	NRQ
UG/KG-DRY	GMS							

ESE, Inc. DATE 05/02/90 STATUS :
PROJECT NUMBER PROJECT NAME FORT STEWART
FIELD GROUP STEW-S ALL PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH

PARAMETERS	STORET	WSB-1	WSB-2	WSB-3	WSB-4	REPLICATE	RINSEBLK	TRPBLK
UNITS	METHOD	STEW-S	STEW-S	STEW-S	STEW-S	STEW-S	STEW-S	STEW-S
		SAMPLE ID/#						
		7	8	9	10	11	12	13
DATE		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90
TIME		08:50	10:06	10:55	12:15	10:55	12:30	12:00
PHENANTHRENE	34464	<76	<76	<75	<77	<77	NRQ	NRQ
UG/KG-DRY	GMS							
PYRENE	34472	<81	<81	<80	<82	<82	NRQ	NRQ
UG/KG-DRY	GMS							
BARIUM,SED	1008	8.28	8.83	7.95	4.36	6.28	NRQ	NRQ
MG/KG-DRY	ADICP							
CADMIUM,SED	1028	<0.416	<0.417	<0.412	<0.420	<0.423	NRQ	NRQ
MG/KG-DRY	ADICP							
LEAD,SED	1052	10.9	7.77	10.8	<6.00	7.84	NRQ	NRQ
MG/KG-DRY	ADICP							
CHROMIUM,SED	1029	9.58	8.57	18.9	10.5	8.83	NRQ	NRQ
MG/KG-DRY	ADICP							
SILVER,SED	1078	<0.678	<0.679	<0.671	<0.684	<0.688	NRQ	NRQ
MG/KG-DRY	ADICP							
ARSENIC,SED	1003	<0.547	<0.548	3.35	1.37	4.59	NRQ	NRQ
MG/KG-DRY	AGF							
SELENIUM,SED	1148	<0.476	<0.477	0.531	<0.480	<0.483	NRQ	NRQ
MG/KG-DRY	GFAA							
MERCURY,SED	71921	<0.119	<0.119	<0.118	<0.120	<0.121	NRQ	NRQ
MG/KG-DRY	CVAA							
BARIUM,TOTAL	1007	NRQ	NRQ	NRQ	NRQ	NRQ	3.0	NRQ
UG/L	DICAP							
CADMIUM,TOTAL	1027	NRQ	NRQ	NRQ	NRQ	NRQ	<3.5	NRQ
UG/L	DICAP							
LEAD,TOTAL	1051	NRQ	NRQ	NRQ	NRQ	NRQ	<25.0	NRQ
UG/L	DICAP							
CHROMIUM,TOTAL	1034	NRQ	NRQ	NRQ	NRQ	NRQ	<7.0	NRQ
UG/L	DICAP							
SILVER,TOTAL	1077	NRQ	NRQ	NRQ	NRQ	NRQ	<5.7	NRQ
UG/L	DICAP							
ARSENIC,TOTAL	1002	NRQ	NRQ	NRQ	NRQ	NRQ	<2.3	NRQ
UG/L	DFAA							
SELENIUM,TOTAL	1147	NRQ	NRQ	NRQ	NRQ	NRQ	<2.0	NRQ
UG/L	DFAA							
MERCURY,TOTAL	71900	NRQ	NRQ	NRQ	NRQ	NRQ	<0.2	NRQ
UG/L	DCVAA							
4-METHYL-2-PENTANONE	78133	NRQ	NRQ	NRQ	NRQ	NRQ	<3	<3
UG/L	DMS							
1,1,1-TRICHL'ETHANE	34506	NRQ	NRQ	NRQ	NRQ	NRQ	<1.6	<1.6
UG/L	DMS							
1,1,2,2-TETRACHLORO	34516	NRQ	NRQ	NRQ	NRQ	NRQ	<1.5	<1.5
ETHANE UG/L	DMS							
1,1,2-TRICHL'ETHANE	34511	NRQ	NRQ	NRQ	NRQ	NRQ	<0.87	<0.87
UG/L	DMS							
1,1-DICHLOROETHANE	34496	NRQ	NRQ	NRQ	NRQ	NRQ	<0.85	<0.85
UG/L	DMS							
1,1-DICHLOROETHYLENE	34501	NRQ	NRQ	NRQ	NRQ	NRQ	<1.2	<1.2
UG/L	DMS							

ESE, Inc.
PROJECT NUMBER
FIELD GROUP STEW-S
ALL

DATE 05/02/90 STATUS :
PROJECT NAME FORT STEWART
PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH
SAMPLE ID/#

PARAMETERS	STORET	WSB-1 STEW-S	WSB-2 STEW-S	WSB-3 STEW-S	WSB-4 STEW-S	REPLICATE STEW-S	RINSEBLK STEW-S	TRPBLK STEW-S
UNITS	METHOD	7	8	9	10	11	12	13
DATE		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90
TIME		08:50	10:06	10:55	12:15	10:55	12:30	12:00
1,2-DICHLOROETHANE	34531	NRQ	NRQ	NRQ	NRQ	NRQ	<0.87	<0.87
UG/L	DMS							
1,2-DICHLOROPROPANE	34541	NRQ	NRQ	NRQ	NRQ	NRQ	<0.97	<0.97
UG/L	DMS							
2-BUTANONE	99080	NRQ	NRQ	NRQ	NRQ	NRQ	<9.44	<9.44
UG/L	DMS							
ACETONE	81552	NRQ	NRQ	NRQ	NRQ	NRQ	<17	<17
UG/L	DMS							
BENZENE	34030	NRQ	NRQ	NRQ	NRQ	NRQ	<1.1	<1.1
UG/L	DMS							
BROMODICHLOROMETHANE	32101	NRQ	NRQ	NRQ	NRQ	NRQ	<0.98	<0.98
UG/L	DMS							
BROMOFORM	32104	NRQ	NRQ	NRQ	NRQ	NRQ	<2.5	<2.5
UG/L	DMS							
BROMOMETHANE	34413	NRQ	NRQ	NRQ	NRQ	NRQ	<1.2	<1.2
UG/L	DMS							
CARBON DISULFIDE	77041	NRQ	NRQ	NRQ	NRQ	NRQ	<3.1	<3.1
UG/L	DMS							
CARBON TETRACHLORIDE	32102	NRQ	NRQ	NRQ	NRQ	NRQ	<0.97	<0.97
UG/L	DMS							
CHLOROBENZENE	34301	NRQ	NRQ	NRQ	NRQ	NRQ	<0.65	<0.65
UG/L	DMS							
CHLOROETHANE	34311	NRQ	NRQ	NRQ	NRQ	NRQ	<1.8	<1.8
UG/L	DMS							
CHLOROFORM	32106	NRQ	NRQ	NRQ	NRQ	NRQ	<1.2	<1.2
UG/L	DMS							
CHLOROMETHANE	34418	NRQ	NRQ	NRQ	NRQ	NRQ	<24	<24
UG/L	DMS							
CIS-1,3-DICHLOROPROPENE	34704	NRQ	NRQ	NRQ	NRQ	NRQ	<1.5	<1.5
UG/L	DMS							
DIBROMOCHLOROMETHANE	32105	NRQ	NRQ	NRQ	NRQ	NRQ	<1.3	<1.3
UG/L	DMS							
ETHYLBENZENE	34371	NRQ	NRQ	NRQ	NRQ	NRQ	<1.0	<1.0
UG/L	DMS							
METHYLENE CHLORIDE	34423	NRQ	NRQ	NRQ	NRQ	NRQ	3.7	3.3
UG/L	DMS							
STYRENE	77128	NRQ	NRQ	NRQ	NRQ	NRQ	<1.6	<1.6
UG/L	DMS							
1,2-DICHLOROETHENE, TOTAL	97721	NRQ	NRQ	NRQ	NRQ	NRQ	<1.30	<1.30
UG/L	DMS							
TRANS-1,3-DICHLOROPROPENE	34699	NRQ	NRQ	NRQ	NRQ	NRQ	<0.86	<0.86
UG/L	DMS							
TETRACHLOROETHENE	34475	NRQ	NRQ	NRQ	NRQ	NRQ	<0.51	<0.51
UG/L	DMS							
TOLUENE	34010	NRQ	NRQ	NRQ	NRQ	NRQ	2.2	1.2
UG/L	DMS							
TRICHLOROETHENE	39180	NRQ	NRQ	NRQ	NRQ	NRQ	<0.87	<0.87
UG/L	DMS							

ESE, Inc.
PROJECT NUMBER
FIELD GROUP STEW-S ALL

DATE 05/02/90 STATUS :
PROJECT NAME FORT STEWART
PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH

PARAMETERS	UNITS	STORET METHOD	WSB-1 STEW-S 7	WSB-2 STEW-S 8	WSB-3 STEW-S 9	WSB-4 STEW-S 10	REPLICATE STEW-S 11	RINSEBLK STEW-S 12	SAMPLE ID/# TRPBLK STEW-S 13
DATE			02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90
TIME			08:50	10:06	10:55	12:15	10:55	12:30	12:00
VINYL ACETATE	UG/L	77057 DMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.6	<2.6
VINYL CHLORIDE	UG/L	39175 DMS	NRQ	NRQ	NRQ	NRQ	NRQ	<1.6	<1.6
XYLENES, TOTAL	UG/L	81551 DMS	NRQ	NRQ	NRQ	NRQ	NRQ	<1.0	<1.0
2-HEXANONE	UG/L	77103 DMS	NRQ	NRQ	NRQ	NRQ	NRQ	<3.1	<3.1
ACENAPHTHENE	UG/L	34205 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<3.8	NRQ
ACENAPHTHYLENE	UG/L	34200 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.7	NRQ
ANTHRACENE	UG/L	34220 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.1	NRQ
BENZO(A)ANTHRACENE	UG/L	34526 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<1.8	NRQ
BENZO(A)PYRENE	UG/L	34247 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<5.2	NRQ
BENZO(B)FLUORANTHENE	UG/L	34230 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<3.8	NRQ
BENZO(GHI)PERYLENE	UG/L	34521 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.1	NRQ
BENZO(K)FLUORANTHENE	UG/L	34242 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<4.7	NRQ
CHRYSENE	UG/L	34320 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.8	NRQ
DIBEN'(A,H)ANTH'CENE	UG/L	34556 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<1.8	NRQ
FLUORANTHENE	UG/L	34376 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<3.2	NRQ
FLUORENE	UG/L	34381 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<3.1	NRQ
INDENO(1,2,3-CD)PYRENE	UG/L	34403 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.7	NRQ
NAPHTHALENE	UG/L	34696 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<5.9	NRQ
PHENANTHRENE	UG/L	34461 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<1.9	NRQ
PYRENE	UG/L	34469 GMS	NRQ	NRQ	NRQ	NRQ	NRQ	<2.0	NRQ

ESE, Inc.
PROJECT NUMBER
FIELD GROUP STEW-W ALL

DATE 05/02/90 STATUS :
PROJECT NAME FORT STEWART
PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH
SAMPLE ID/#

PARAMETERS	UNITS	STORET	METHOD	WMW-1 STEW-W 7	REPLICATE STEW-W 10	WMW-2 STEW-W 8	RINSEBLK STEW-W 11	WMW-3 STEW-W 9	TRPBLK STEW-W 13
DATE				03/08/90	03/08/90	03/08/90	03/08/90	03/08/90	03/08/90
TIME				13:40	13:40	14:50	14:10	15:30	16:00
BARIUM, TOTAL	UG/L	1007	DICAP	1180	1630	148	2.0	28.5	NRQ
CADMIUM, TOTAL	UG/L	1027	DICAP	<3.5	<3.5	<3.5	<3.5	<3.5	NRQ
LEAD, TOTAL	UG/L	1051	DICAP	284	391	82.8	<25.0	<25.0	NRQ
CHROMIUM, TOTAL	UG/L	1034	DICAP	241	329	54.4	<7.0	13.7	NRQ
SILVER, TOTAL	UG/L	1077	DICAP	<5.7	<5.7	<5.7	<5.7	<5.7	NRQ
ARSENIC, TOTAL	UG/L	1002	DFAA	8.5	4.8	<2.3	7.2	<2.3	NRQ
SELENIUM, TOTAL	UG/L	1147	DFAA	2.2	4.6	2.5	3.1	3.4	NRQ
MERCURY, TOTAL	UG/L	71900	DCVAA	<0.2	<0.2	<0.2	<0.2	<0.2	NRQ
4-METHYL-2-PENTANONE	UG/L	78133	DMS	<3	<3	<3	<3	<3	<3
1,1,1-TRICHL'ETHANE	UG/L	34506	DMS	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
1,1,2,2-TETRACHLORO ETHANE	UG/L	34516	DMS	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
1,1,2-TRICHL'ETHANE	UG/L	34511	DMS	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
1,1-DICHLOROETHANE	UG/L	34496	DMS	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85
1,1-DICHLOROETHYLENE	UG/L	34501	DMS	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-DICHLOROETHANE	UG/L	34531	DMS	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87
1,2-DICHLOROPROPANE	UG/L	34541	DMS	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97
2-BUTANONE	UG/L	99080	DMS	<9.44	<9.44	<9.44	<9.44	<9.44	<9.44
ACETONE	UG/L	81552	DMS	<17	<17	<17	75	<17	<17
BENZENE	UG/L	34030	DMS	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
BROMODICHLOROMETHANE	UG/L	32101	DMS	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
BROMOFORM	UG/L	32104	DMS	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
BROMOMETHANE	UG/L	34413	DMS	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
CARBON DISULFIDE	UG/L	77041	DMS	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
CARBON TETRACHLORIDE	UG/L	32102	DMS	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97

Appendices C & D
Lab results
Wright/Hunter

ESE, Inc.
PROJECT NUMBER
FIELD GROUP STEW-W ALL

DATE 05/02/90 STATUS :
PROJECT NAME FORT STEWART
PROJECT MANAGER DOYCE BLAIR
LAB COORDINATOR KEVIN MCHUGH
SAMPLE ID/#

PARAMETERS UNITS	STORET METHOD	WMW-1 STEW-W 7	REPLICATE STEW-W 10	WMW-2 STEW-W 8	RINSEBLK STEW-W 11	WMW-3 STEW-W 9	TRPBLK STEW-W 13
DATE		03/08/90	03/08/90	03/08/90	03/08/90	03/08/90	03/08/90
TIME		13:40	13:40	14:50	14:10	15:30	16:00
CHLOROBENZENE UG/L	34301 DMS	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
CHLOROETHANE UG/L	34311 DMS	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
CHLOROFORM UG/L	32106 DMS	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
CHLOROMETHANE UG/L	34418 DMS	<24	<24	<24	<24	<24	<24
CIS-1,3-DICHLOROPROPENE UG/L	34704 DMS	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
DIBROMOCHLOROMETHANE UG/L	32105 DMS	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
ETHYLBENZENE UG/L	34371 DMS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
METHYLENE CHLORIDE UG/L	34423 DMS	<1.6	<1.6	<1.6	<1.6	<1.6	11
STYRENE UG/L	77128 DMS	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
1,2-DICHLOROETHENE, TOTAL UG/L	97721 DMS	<1.30	<1.30	<1.30	<1.30	<1.30	<1.30
TRANS-1,3-DICHLOROPROPENE UG/L	34699 DMS	<0.86	<0.86	<0.86	<0.86	<0.86	<0.86
TETRACHLOROETHENE UG/L	34475 DMS	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
TOLUENE UG/L	34010 DMS	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
TRICHLOROETHENE UG/L	39180 DMS	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87
VINYL ACETATE UG/L	77057 DMS	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
VINYL CHLORIDE UG/L	39175 DMS	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
XYLENES TOTAL UG/L	81551 DMS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-HEXANONE UG/L	77103 DMS	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
ACENAPHTHENE UG/L	34205 GMS	<3.8	<3.8	<3.8	<3.8	<3.8	NRQ
ACENAPHTHYLENE UG/L	34200 GMS	<2.7	<2.7	<2.7	<2.7	<2.7	NRQ
ANTHRACENE UG/L	34220 GMS	<2.1	<2.1	<2.1	<2.1	<2.1	NRQ
BENZO(A)ANTHRACENE UG/L	34526 GMS	<1.8	<1.8	<1.8	<1.8	<1.8	NRQ
BENZO(A)PYRENE UG/L	34247 GMS	<5.2	<5.2	<5.2	<5.2	<5.2	NRQ
BENZO(B)FLUORANTHENE UG/L	34230 GMS	<3.8	<3.8	<3.8	<3.8	<3.8	NRQ

PARAMETERS	STORET	WMW-1 REPLICATE	WMW-2 RINSEBLK	WMW-3 TRPBLK
UNITS	METHOD	STEW-W 7 / STEW-W 10	STEW-W 8 / STEW-W 11	STEW-W 9 / STEW-W 13
DATE		03/08/90 / 03/08/90	03/08/90 / 03/08/90	03/08/90 / 03/08/90
TIME		13:40 / 13:40	14:50 / 14:10	15:30 / 16:00
BENZO(GHI)PERYLENE UG/L	34521 GMS	<2.1 / <2.1	<2.1 / <2.1	<2.1 / NRQ
BENZO(K)FLUORANTHENE UG/L	34242 GMS	<4.7 / <4.7	<4.7 / <4.7	<4.7 / NRQ
CHRYSENE UG/L	34320 GMS	<2.8 / <2.8	<2.8 / <2.8	<2.8 / NRQ
DIBEN'(A,H)ANTH'CENE UG/L	34556 GMS	<1.8 / <1.8	<1.8 / <1.8	<1.8 / NRQ
FLUORANTHENE UG/L	34376 GMS	<3.2 / <3.2	<3.2 / <3.2	<3.2 / NRQ
FLUORENE UG/L	34381 GMS	<3.1 / <3.1	<3.1 / <3.1	<3.1 / NRQ
INDENO(1,2,3-CD)PYRENE UG/L	34403 GMS	<2.7 / <2.7	<2.7 / <2.7	<2.7 / NRQ
NAPHTHALENE UG/L	34696 GMS	<5.9 / <5.9	<5.9 / <5.9	<5.9 / NRQ
PHENANTHRENE UG/L	34461 GMS	<1.9 / <1.9	<1.9 / <1.9	<1.9 / NRQ
PYRENE UG/L	34469 GMS	<2.0 / <2.0	<2.0 / <2.0	<2.0 / NRQ

TABLE C-1. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EOD-1

		Parameters						
		Mercury	Barium	Lead	Cadmium	Chromium	Selenium	Arsenic
	Units	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
Sample ID	Detection Limit	0.04	0.01	1.98	1.98	3.92	0.2	1.96
#1 Center of Crater		0.392	11	60.2	19.6	3.92	BDL	BDL
#2 Duplicate of #1		0.389	11.2	59.9	9.98	BDL	BDL	BDL
#3 Transect Member		0.398	10.7	34.8	1.99	BDL	0.219	BDL
#4 Transect Member		0.394	9.66	41.8	3.94	BDL	BDL	BDL
#5 Transect Member		0.396	9.71	28.5	BDL	BDL	BDL	3.96
#6 Transect Member		0.396	15.7	184	3.95	BDL	BDL	7.93
#7 Transect Member		0.359	16.7	148	10.8	BDL	BDL	1.8
#8 Transect Member		0.38	17.9	144	15.2	BDL	BDL	1.9
#9 Transect Member		0.396	8.32	53.3	3.96	BDL	BDL	1.98
#10 Transect Member		0.397	11.7	35.3	21.8	BDL	0.199	7.94

BDL - below detectable limits

TABLE C-2. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EOD-2

		Parameters						
		Mercury	Barium	Lead	Cadmium	Chromium	Selenium	Arsenic
	Units	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
Sample ID	Detection Limit	0.04	0.01	1.98	1.98	3.92	0.2	1.96
#11 Center of Crater		3.97	11.5	10	3.97	4.78	0.259	11.9
#12 Duplicate of #11		0.368	10.7	101	BDL	4.6	BDL	12.9
#13 Transect Member		0.38	5.33	88.8	BDL	BDL	BDL	7.61
#14 Transect Member		0.395	5.93	114	19.8	4.55	BDL	9.89
#15 Transect Member		0.391	7.03	30.1	25.4	BDL	BDL	3.91
#16 Transect Member		0.371	7.42	55.5	BDL	BDL	BDL	9.28
#17 Transect Member		0.429	9.23	116	2.15	BDL	BDL	10.7
#18 Transect Member		0.373	6.9	35.8	BDL	BDL	BDL	5.59
#19 Transect Member		0.399	6.39	47.3	BDL	BDL	BDL	5.96
#20 Transect Member		0.397	6.78	41.3	1.99	BDL	BDL	3.91

BDL - below detectable limits

TABLE C-3. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EOD-3

	Parameters						
	Mercury	Barium	Lead	Cadmium	Chromium	Selenium	Arsenic
Units	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
Sample ID Detection Limit	0.04	0.01	1.98	1.98	3.92	0.2	1.96
#21 Center of Crater	0.394	11	566	BDL	BDL	BDL	3.94
#22 Duplicate of #21	0.396	9.72	460	BDL	BDL	BDL	1.98
#23 Transect Member	0.399	15.4	97.8	24	10.4	BDL	9.91
#24 Transect Member	0.395	50.6	3281	1.98	BDL	BDL	5.93
#25 Transect Member	0.4	20.6	164	26	9	BDL	6
#26 Transect Member	0.398	23.7	98.1	BDL	BDL	BDL	5.97

BDL - below detectable limits

TABLE C-4. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EOD-4

	Parameters							
	Mercury	Barium	Lead	Cadmium	Chromium	Selenium	Arsenic	TEP Cadmium
Units	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	mg/L
Sample ID Detection Limit	0.04	0.01	1.98	1.98	3.96	0.2	1.96	0.1
#28 Center of Crater	0.398	4.18	64.7	53.8	BDL	BDL	3.98	BDL
#29 Duplicate of #28	0.414	4.35	166	60	4.35	0.787	4.14	BDL
#30 Transect Member	0.389	8.17	175	518	3.69	BDL	21.4	0.43
#31 Transect Member	0.395	5.14	45.8	1.98	BDL	BDL	1.98	BDL
#32 Transect Member	0.402	7.24	35.8	2.01	BDL	BDL	6.04	BDL
#33 Transect Member	0.395	4.54	432	73.1	4.34	BDL	3.95	BDL
#34 Transect Member	0.398	2.78	99.6	1.99	BDL	BDL	BDL	BDL
#35 Transect Member	0.4	3.2	191	12	BDL	BDL	7.99	BDL
#36 Transect Member	0.4	3.2	28	BDL	BDL	BDL	2	BDL

BDL - below detectable limits

APPENDIX D
SOIL BORING LOG

APPENDIX 4.1 Results of Soil Boring Program
FST-001, FST-002, FST-003

Soil Boring	Depth (ft)	Samples		Date Completed
		Split Spoon	Shelby	
TAC-X Site				
TX-B1	50	11	--	1/16/80
TX-B2	50	11	--	1/17/80
TX-B3	50	11	--	1/17/80
TX-B4	50	11	--	1/17/80
TX-B5	100	21	--	1/18/80
Camp Oliver Site				
CO-B1	100	21	--	1/23/80
CO-B2	50	11	--	1/21/80
CO-B3	50	11	--	1/21/80
CO-B4	50	11	--	1/22/80
CO-B5	50	11	--	1/22/80
South Central Site				
SC-B1	100	20	1	2/8/80
SC-B2	50	11	--	1/24/80
SC-B3	50	11	--	1/24/80
SC-B4	50	11	--	1/25/80
SC-B5	50	10	1	2/6/80
SC-B6	50	11	--	1/30/80
SC-B7	50	11	--	1/30/80
SC-B8	50	11	--	1/30/80
SC-B9	50	11	--	1/25/80
SC-B10	50	11	--	2/1/80
SC-B11	50	10	1	2/5/80
SC-B12	50	10	1	2/5/80
SC-B13	50	11	--	2/6/80
SC-B14	50	11	--	2/4/80
SC-B15	100	21	--	2/11/80
SC-B16	50	10	1	2/1/80

Source: ESE, 1981.

Source: Geraghty & Miller, Inc., February 1991

APPENDIX 4.2 Results of Well Drilling Program
FST-001, FST-002, FST-003

Date	Depth	Yield	Date Completed
TAX-C Site			
TX-M1	46.5	7	1/24/80
TX-M2	26.0	10	2/4/80
TX-M3	45.5	4	2/8/80
TX-M4	49.5	3	1/30/80
TX-OW1	47.0	10	4/12/80
Camp Oliver Site			
CO-M1	36.0	0.5	2/13/80
CO-M2	45.5	*	2/17/80
CO-M3	25.5	3	2/21/80
CO-M4	46.0	*	2/25/80
South Central Site			
SC-M1	25.0	3	2/29/80
SC-M2	21.5	2	3/4/80
SC-M3	25.5	2	3/10/80
SC-M4	21.5	2	3/15/80
SC-M5	33.5	7	3/19/80
SC-M6	27.5	3	3/24/80
SC-OW1	50.0	*	4/15/80
SC-OW2	50.0	*	4/17/80
SC-OW3	31.0	*	4/19/80
SC-OW4	31.0	*	4/22/80
SC-OW5	30.0	*	4/25/80
SC-OW6	40.0	*	4/27/80
SC-OW7	35.0	*	4/29/80

* Not Measured

Source: ESE, 1981.

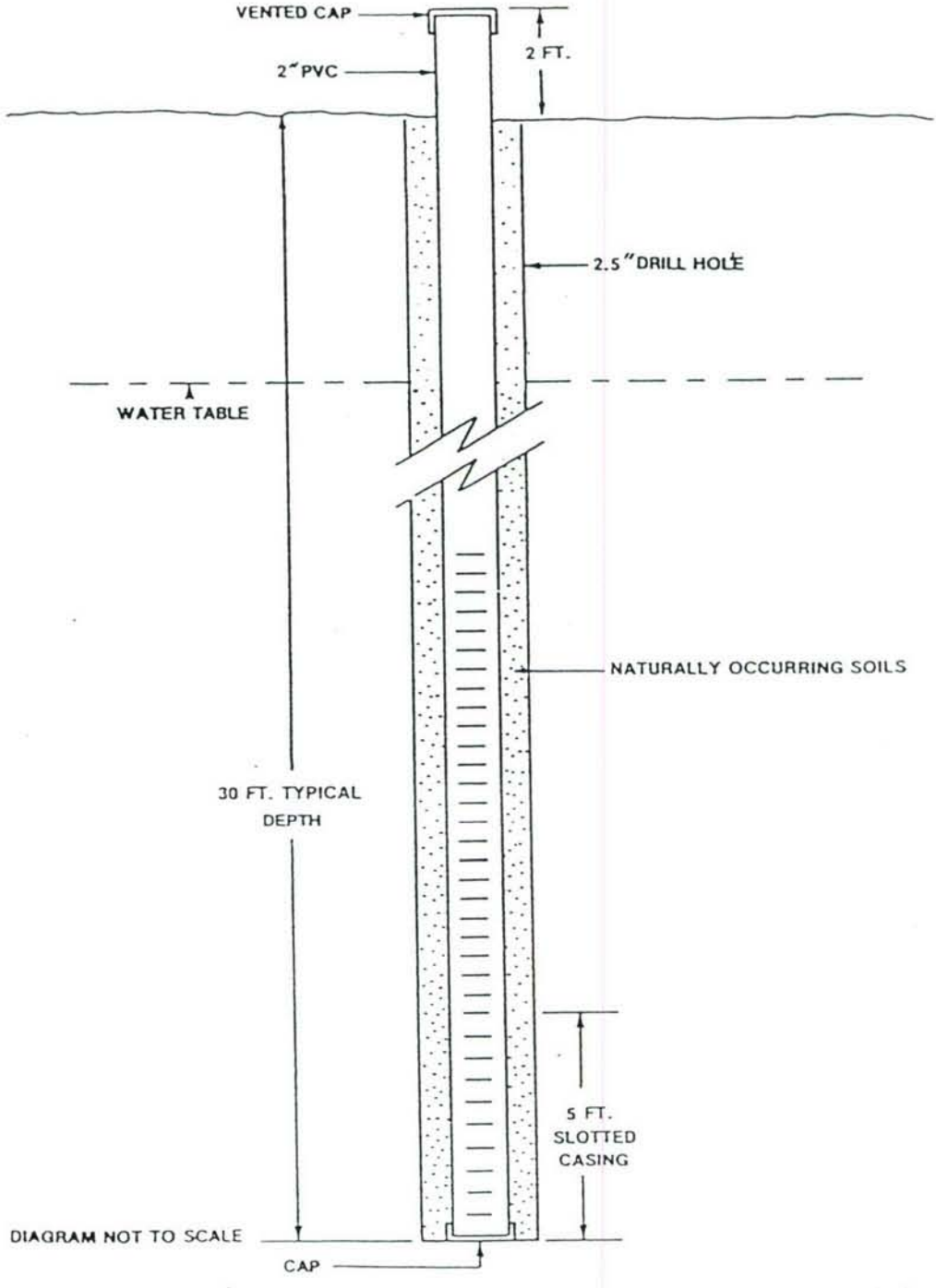
APPENDIX 4.12

Falling Head Permeability Tests
FST-001, FST-002, FST-003

Boring	Sample Number(s)	Depth (ft)	Coefficient of Permeability (cm/sec)
TAC-X Site			
TX-B3	5,6,7 mix	20.0-31.5	8.9×10^{-7}
TX-B4	7,8,9,10 mix	30.0-46.5	5.0×10^{-8}
Camp Oliver Site			
CO-B3	3,4,5 mix	10.0-21.5	1.9×10^{-8}
CO-B4	4,5,6 mix	15.0-26.5	3.9×10^{-7}
South Central Site			
SC-B1	2,3,4 mix	5.0-16.5	1.3×10^{-7}
SC-B1	8 (Shelby Tube)	35.0-36.5	2.23×10^{-4}
SC-B3	6,7,8,9 mix	25.0-41.5	3.7×10^{-8}
SC-B5	1,2,3 mix	0.0-11.5	1.6×10^{-6}
SC-B5	4 (Shelby Tube)	15.0-16.5	1.5×10^{-6}
SC-B2	2,3,4 mix	5.0-16.5	2.3×10^{-6}
SC-B6	6,7,8 mix	25.0-36.5	1.4×10^{-5}
SC-B8	3,4,5 mix	10.0-21.5	3.7×10^{-4}
SC-B9	6,7,8 mix	25.0-36.5	3.5×10^{-8}
SC-B10	1,2,3 mix	0.0-11.5	3.2×10^{-5}
SC-B11	4 (Shelby Tube)	15.0-16.5	1.8×10^{-3}
SC-B12	5 (Shelby Tube)	20.0-21.5	2.8×10^{-5}
SC-B15	2,3,4 mix	5.0-16.5	3.7×10^{-9}
SC-B15	7,8,9 mix	30.0-41.5	5.9×10^{-6}
SC-B16	5 (Shelby Tube)	20.0-21.5	4.9×10^{-7}

Source: ESE, 1981.

APPENDIX 4.3



FORT STEWART

Source: U. S. Army Environmental Hygiene Agency 1988

TYPICAL OBSERVATION WELL INSTALLATION

Hole No. TX-B1

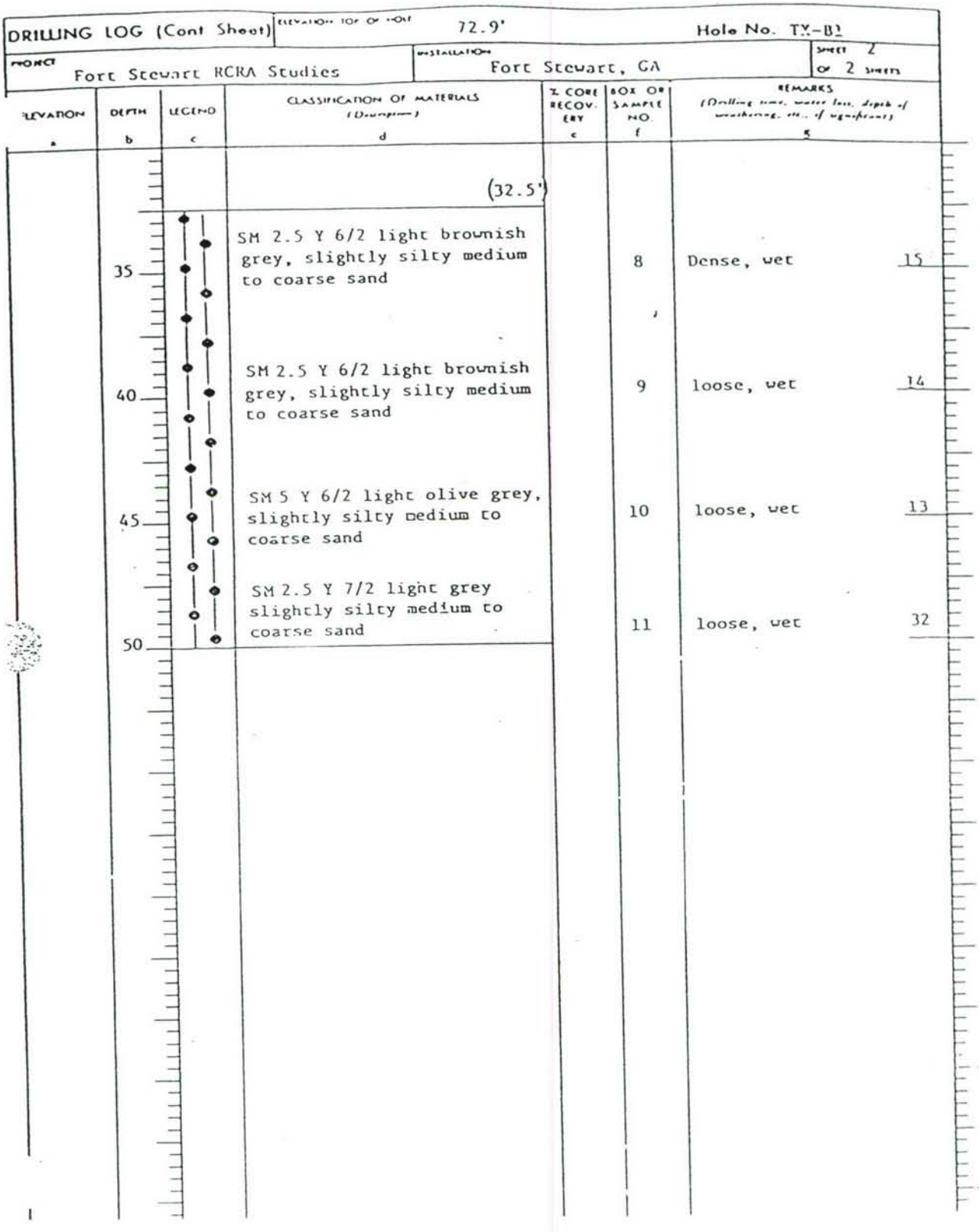
DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS

1. PROJECT: Fort Stewart RCRA Studies
LOCATION (Coordinates or Station): N 761020.89 E 659616.81
2. DRILLING AGENCY: Pittsburgh Testing Laboratories
3. HOLE NO. (As shown on drawing title) and (No. numbered): TX-B1
4. NAME OF DRILLER: Robert Prophet
5. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN:
8. DEPTH DRILLED INTO ROCK: 0'
9. TOTAL DEPTH OF HOLE: 50'

10. SIZE AND TYPE OF BIT: Split spoon 1¾" ID, Bit size 3 7/8"
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED
14. TOTAL NUMBER CORE BOXES:
15. ELEVATION GROUND WATER: 3.08' ATOB
16. DATE HOLE: STARTED 1/16/80; COMPLETED 1/16/80
17. ELEVATION TOP OF HOLE: 72.9'
18. TOTAL CORE RECOVERY FOR BORING:
19. SIGNATURE OF INSPECTOR: Robert Gregory

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, loss of water, depth of weathering, etc., if significant) (g)	
			SP 2.5Y 7/2 light grey, slightly silty fine sand, poorly sorted 2.0'		1	very loose, dry blows/ft pushed	
	5		SP-SM 2.5Y 5/6 light olive brown slightly clayey silty fine sand, poorly sorted 7.0'		2	very firm, moist	30
	10		SM 5 YR 5/2, reddish grey slightly clayey, silty very fine sand		3	very stiff, moist	22
			coarse sand				
			grey clay 14.5'				
	15		SP 10 YR 6/2 light brownish grey, slightly silty fine sand, poorly sorted 18.0'		4	firm, wet	17
	20		SP-SM 5 YR 6/8, reddish yellow, silty medium to coarse sand 21.0'		5	very loose, wet	2
	25		SP 5Y 5/2 olive grey, slightly silty fine - medium sand (27.5')		6	dense, wet	18
	30		SC 5Y 6/2, light olive grey slightly clayey, silty fine sand		7	stiff, moist	11

Source: Environmental Science and Engineering 1982

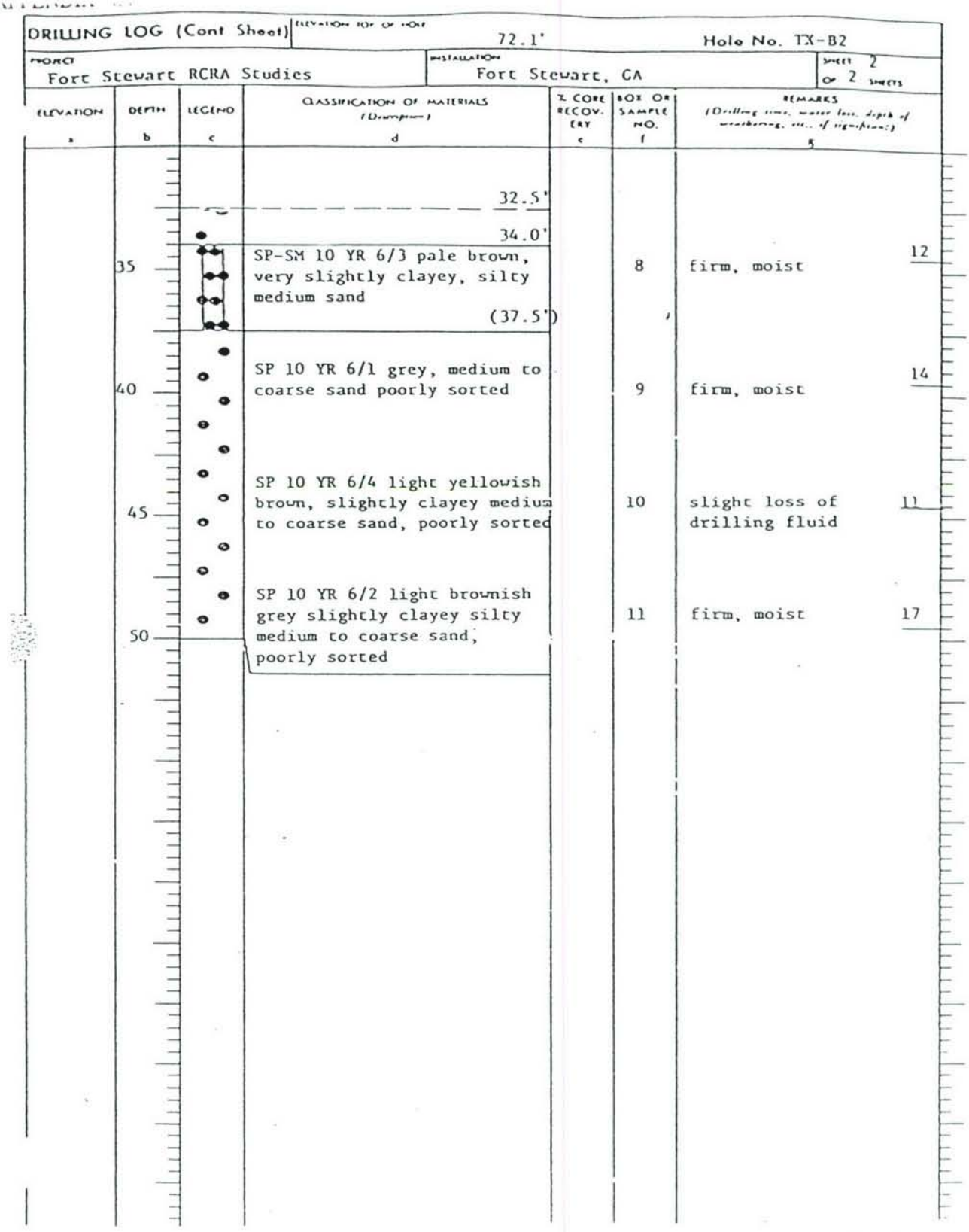


Source: Environmental Science and Engineering 1982

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1⅝" I.D. Bit 3 7/8"	
LOCATION (Coordinates or Station): N. 760796.31 E. 659829.35		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title) AND/OR NO. (As assigned): TX-B2		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 3.08' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1/17/80; COMPLETED 1/17/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 72.1'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Grayson	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering or other geologic data) (g)
			SP 2.5 Y 6/2 light brownish grey fine to medium sand 2.25'		1	loose, moist Blows/ft pushed
	5		SP-SM 10 YR 5/1, 10 YR 6/6 10 R 5/8 mixed red grey, brownish yellow slightly clayey silty sand, fine to medium		2	very stiff, moist 17
	10		SP-SM 10 YR 5/6 yellowish brown, very slightly clayey silty fine to medium sand 12.5'		3	very firm, moist 26
	15		SP 10 YR 6/3 pale brown medium to coarse sand, poorly sorted		4	very firm, moist 29
	20		SP 10 YR 6/8 brownish yellow slightly silty medium to coarse sand, poorly sorted 21.0'		5	firm, moist 15
	25		SP-SM 7.5 YR 6/6, reddish yellow clayey, silty medium to coarse sand 28.0'		6	soft, moist 2
	30		SP 7.5 YR 7/6 reddish yellow slightly silty medium to coarse sand, poorly sorted, 32.5'		7	loose, moist 4

Source: Environmental Science and Engineering 1982



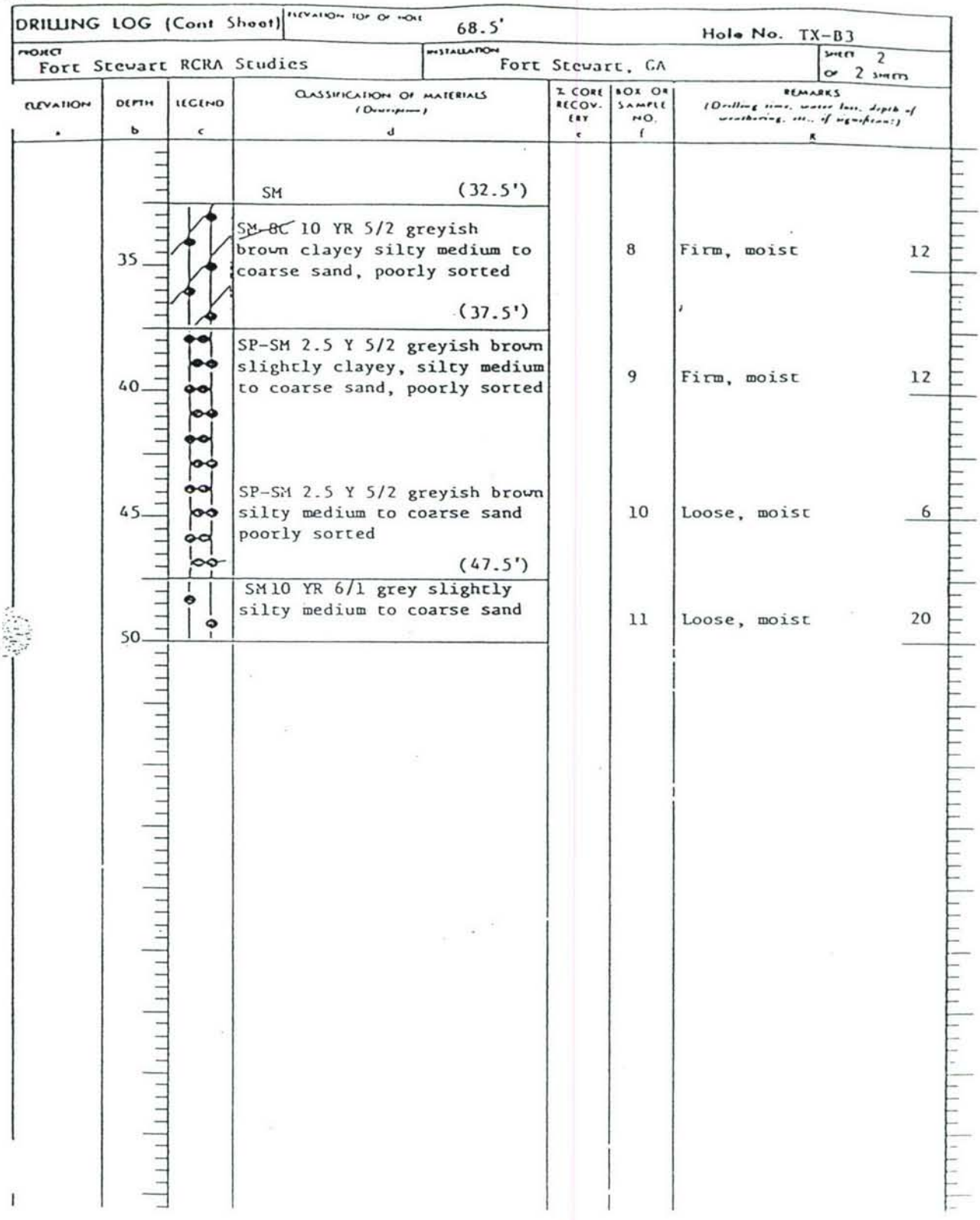
Source: Environmental Science and Engineering 1982

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Fort Stewart, GA	SHEET 1 OF 2 SHEETS

1. PROJECT Fort Stewart RCRA Studies
LOCATION (Coordinates or Station) N. 760412.14 E. 659667.31
DRILLING AGENCY Pittsburgh Testing Laboratories
4. HOLE NO. (As shown on drawing title and file number) TX-B3
5. NAME OF DRILLER Robert Prophet
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ______ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK 0'
9. TOTAL DEPTH OF HOLE 30'
10. SIZE AND TYPE OF BIT S.S. 1½" ID. Bit 3 7/8"
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
12. MANUFACTURER'S DESIGNATION OF DRILL Acker AD2
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER 2.92' ATOB
16. DATE HOLE: STARTED 1/17/80; COMPLETED 1/17/80
17. ELEVATION TOP OF HOLE 68.5'
18. TOTAL CORE RECOVERY FOR BORING %
19. SIGNATURE OF INSPECTOR Robert Gregory

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ft.
			SP 2.5Y 6/4 light yellowish brown, slightly silty fine sand poorly sorted		1	loose, dry	pushed
	5		SP 7.5 YR 5/8 strong brown medium to coarse sand, poorly sorted		2	Dense, moist	13
	10		SP 10 YR 7/6 yellow silty fine to medium sand poorly sorted 10.75'		3	Dense, moist	31
	15		SP-SM 7.5 YR 7/8 reddish yellow, very slightly clayey silty medium to coarse sand with slight amount of gravel 14.5'		4	Firm, wet	22
	20		SM 5 YR 7/6 reddish yellow silty fine to medium sand		5	very soft, wet	1
	25		SM 7.5 YR 7/6 reddish yellow very slightly silty fine to medium sand, poorly sorted, with chuncks of grey clay in wash.		6	Firm, moist	16
	30		SM 10 YR 7/8 yellow slightly silty fine to medium sand poorly sorted (32.5')		7	Very loose, moist	4

Source: Environmental Science and Engineering 1982



DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 68.5' | Hole No. TX-B3

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			SM (32.5')				
	35		SM ~~SC~~ 10 YR 5/2 greyish brown clayey silty medium to coarse sand, poorly sorted (37.5')		8	Firm, moist	12
	40		SP-SM 2.5 Y 5/2 greyish brown slightly clayey, silty medium to coarse sand, poorly sorted		9	Firm, moist	12
	45		SP-SM 2.5 Y 5/2 greyish brown silty medium to coarse sand poorly sorted (47.5')		10	Loose, moist	6
	50		SM 10 YR 6/1 grey slightly silty medium to coarse sand		11	Loose, moist	20

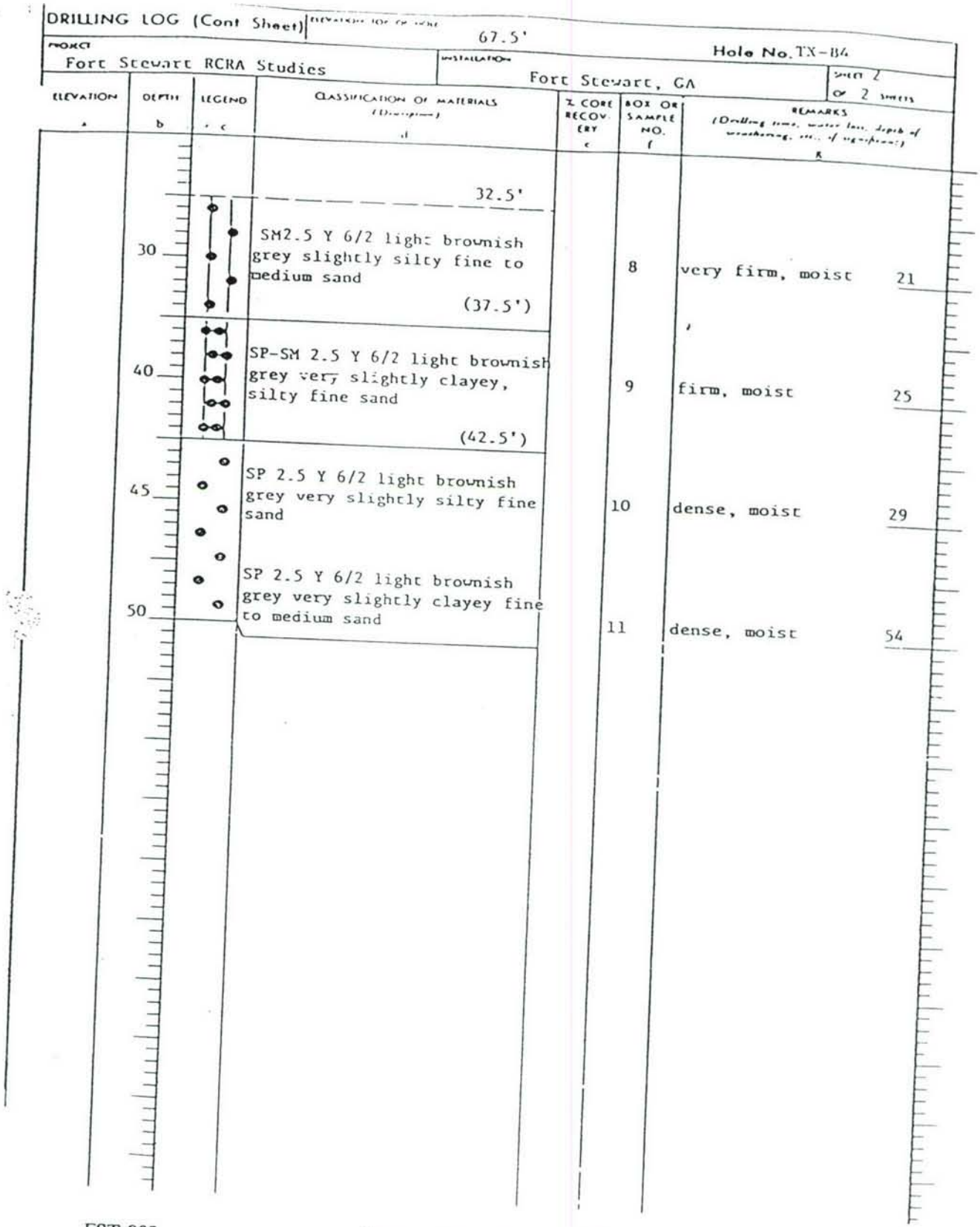
Source: Environmental Science and Engineering 1982

DRILLING LOG | DIVISION: South Atlantic | INSTALLATION: Fort Stewart, GA | SHEET 1 OF 2 SHEETS

1. PROJECT: Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station): N. 760717.38 E. 659264.50
3. DRILLING AGENCY: Pittsburgh Testing Laboratories
4. HOLE NO. (As shown on drawing title and title number): TX-B4
5. NAME OF DRILLER: Robert Prophet
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN:
8. DEPTH DRILLED INTO ROCK: 0'
9. TOTAL DEPTH OF HOLE: 50'
10. SIZE AND TYPE OF BIT: S.S. 1⅝" ID, Bit 3 7/8"
11. DATUM FOR ELEVATION SHOWN (MSL or USGS): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED
14. TOTAL NUMBER CORE BOXES:
15. ELEVATION GROUND WATER: 2.17' ATOB
16. DATE HOLE: STARTED 1/17/80; COMPLETED 1/17/80
17. ELEVATION TOP OF HOLE: 67.5'
18. TOTAL CORE RECOVERY FOR BORING:
19. SIGNATURE OF INSPECTOR: Robert Prophet

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering or other significant observations)	
			SP 10 YR 5/11 grey slightly silty fine sand, poorly sorted		1	Loose, moist	Blows/Ft. pushed
	5		SP 10 YR 5/2 greyish brown very slightly silty fine to medium sand poorly sorted (7.5')		2	Firm, moist	12
	10		SP-SM 10 YR 5/2 greyish brown very slightly clayey silty fine to medium sand (12.5')		3	Firm, moist	15
	15		SP 10 YR 6/3 pale brown slightly silty fine to medium sand, poorly sorted		4	very firm, moist	28
	20		SP 10 YR 4/4 dark yellowish brown very slightly silty medium sand, with very slight amount of organics 22.5'		5	loose, moist	6
	25		SM ~~SC-SM~~ 10 YR 4/3 brown very slightly silty, clayey fine sand 28.75'		6	very stiff, moist	20
	30		SM 10 YR 4/2 dark greyish brown, slightly silty fine to medium sand 32.5'		7	very firm, moist	24

Source: Environmental Science and Engineering 1982



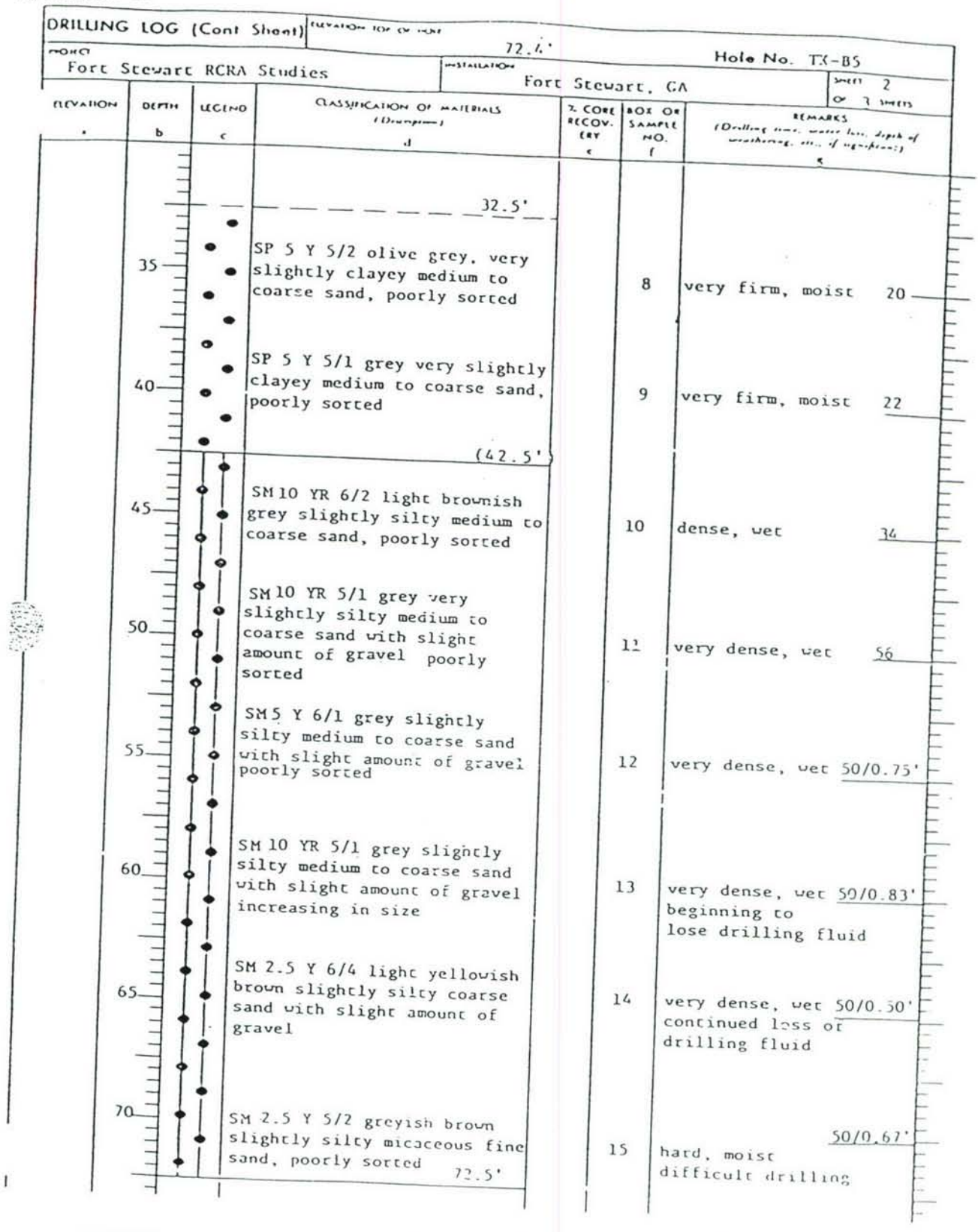
FST-003
PAGE A-14

Source: Environmental Science and Engineering 1982

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 3 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1⅜" ID, Bit 3 7/8"	
LOCATION (Coordinates or Station): N. 761028.11 E. 659291.50		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title and file number): TX-B5		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: RETURNED 21 / UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 3.50' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1/18/80 / COMPLETED 1/18/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 72.4'	
9. TOTAL DEPTH OF HOLE: 100'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)	
			SP 2.5 Y 6/2 light brownish grey slightly silty fine sand with organics poorly sorted		1	loose, moist	Blows/ft pushed
			1.5'				
	5		SM-SP 2.5 Y 6/4 light yellowish brown very slightly clayey silty fine sand, poorly sorted		2	loose, moist	6
	10		SM-SP 5 YR 5/1 grey, very slightly clayey silty medium to coarse sand, poorly sorted		3	very firm, moist	29
			coarse sand and gravel (12.5')				
	15		SP 10 YR 6/2 light brownish grey slightly silty medium sand, poorly sorted		4	dense, wet	33
	20		SP 5 Y 4/1 dark grey silty fine sand with slight amount of organics		5	soft, wet	2
			23.0'				
	25		SC 5 Y 5/1 grey, slightly silty clayey silty fine sand		6	very stiff, moist	19
			26.25'				
	30		SM 5 Y 5/1 grey slightly silty medium to coarse sand, poorly sorted		7	very firm, moist	25
			32.5'				

Source: Environmental Science and Engineering 1982



Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 72.4' | Hole No. TX-B5

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 3 OF 3 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. (BY) e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			72.5'			
	75		SP 2.5 Y 5/2 greyish brown very slightly silty micaceous		16	very hard, moist 50 difficult drilling
	80		SP 2.5 Y 6/2 light greyish brown very slightly silty, micaceous medium to coarse sand		17	very hard, moist 50/0.92' difficult drilling
	85		SP 5 Y 6/1 grey slightly silty micaceous fine sand		18	hard, wet 50/0.92' difficult drilling
	90		SP 5 Y 5/2 olive grey slightly silty micaceous fine sand		19	hard, wet 50/0.92' difficult drilling
	95		SP 5 Y 4/1 dark grey slightly silty micaceous fine sand		20	hard, wet 50/0.79' difficult drilling
	100		SP 5 Y 5/3 olive, slightly silty micaceous fine sand		21	hard, wet difficult drilling 50/0.83

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

Hole No. CO-B1

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 3 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: Split-Spoon 1⅜" ID, bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 754448.76 E. 608748.37		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title and file number): CO-B1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 21 / UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 11.75' @ 24 hrs	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1/23/80 / COMPLETED 1/23/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 143.9'	
9. TOTAL DEPTH OF HOLE: 100'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. Significant)	
	0		SP 7.5 YR 5/6 strong brown slightly silty, slightly clayey, poorly sorted fine sand 2.75'		1		Blows/ft. Pushed
	5		SM 2.5 YR 4/6 red clayey silty medium to coarse sand (7.5)		2	stiff, moist	11
	10		SM-SP 5 YR 6/8 reddish yellow, slightly clayey, silty, fine to medium sand (12.5')		3	very stiff, wet	20
	15		SC 5Y 8/2, 5 YR 7/6 mixed white, reddish yellow slightly silty, clayey fine sand, sand component increases at 17'		4	very stiff, moist	17
	20		SC 10 YR 6/6 brownish yellow silty, clayey fine sand		5	stiff, wet	9
	25		SC 5 YR 6/4 light reddish brown slightly silty, clayey sand 27.0'		6	stiff, moist	11
	30		SP-SM 2.5Y 7/2 light grey clayey silty poorly sorted fine sand		7	medium density, moist	6

Source: Environmental Science and Engineering 1982

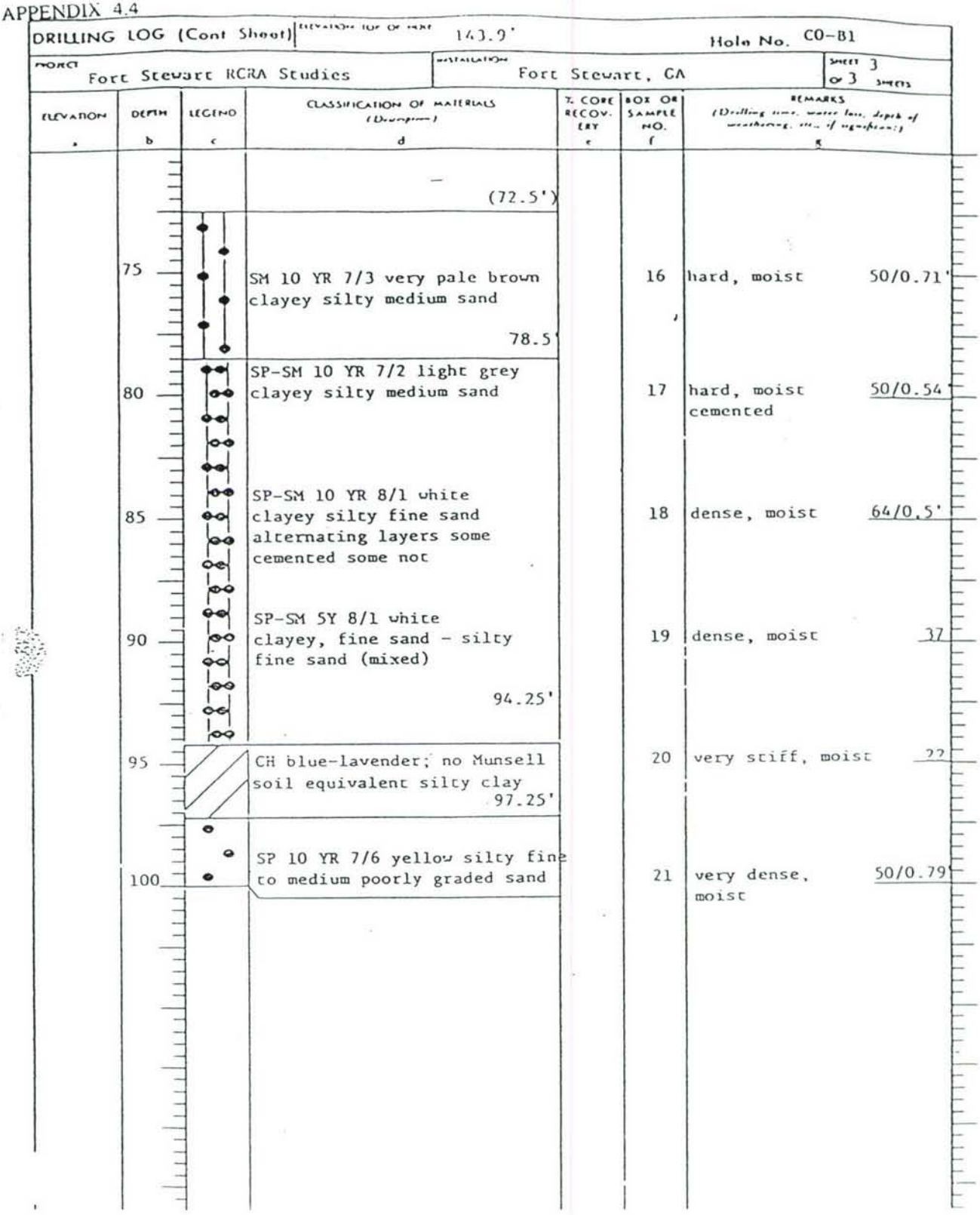
DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 143.9' | Hole No. CO-B1

PROJECT Fort Stewart RCRA Studies | INSTALLATION Fort Stewart, GA | SHEET 2 OF 3 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			32.5'			
	35		SP-SM 10 YR 8/4 very pale brown slightly clayey, silty poorly sorted fine sand		8	stiff, medium moist 10
	40		SP-SM 7.5 6/4 pale red clayey, silty fine sand 42.0		9	stiff, moist 9
	45		SC-SM 5Y 7/4, 10 YR 7/6 mixed pale yellow, yellow clayey, silty fine sand (mixed)		10	very stiff, moist 17
	50		SC-SM 5Y 6/4 pale olive clayey, silty, course sand 54.5'		11	very stiff, moist 29
	55		SP-SM 2.5Y 7/4 pale yellow silty clayey medium sand, sand poorly sorted		12	very dense, moist - cemented 50/0.42'
	60		SP-SM 2.5 7/4 pale yellow very slightly clayey silty fine to medium poorly sorted sand		13	very dense, moist 50/0.83'
	65		SP-SM 10 YR 7/4 very pale brown very slightly clayey silty medium to coarse poorly sorted sand		14	very dense, moist 50/0.58'
	70		SP-SM 2.5Y 8/2 white clayey, silty, fine to medium sand (72.5')		15	hard, moist 50/0.75'

Source: Environmental Science and Engineering 1982

APPENDIX 4.4



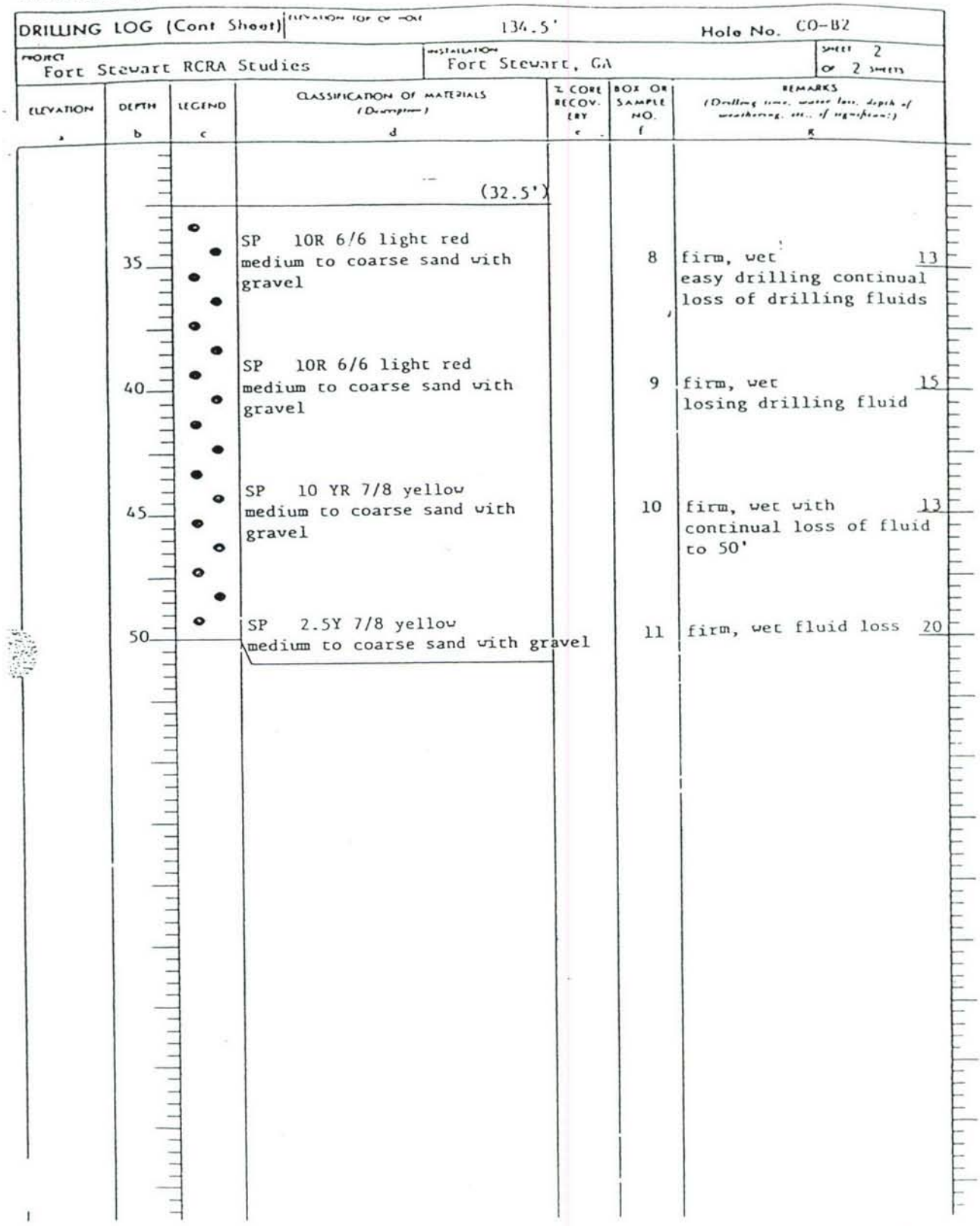
Source: Environmental Science and Engineering 1982

Hole No. CO-B2

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: Split Spoon 1 3/8" I.D., bit size 3 7/8"	
2. Location (Coordinates or Station): N. 754747.28 E. 608893.43		11. Datum for elevation shown (MSL or Assumed): MSL.	
3. Drilling Agency: Pittsburgh Testing Laboratories		12. Manufacturer's Designation of Drill: Acker AD2	
4. Hole No. (As shown on drawing title) and No. numbered: CO-B2		13. Total No. of Overburden Samples Taken: Disturbed 11; Undisturbed	
5. Name of Driller: Robert Prophet		14. Total Number Core Boxes	
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ Deg. From Vert.		15. Elevation Ground Water: 4.17' @ 24 hrs.	
7. Thickness of Overburden		16. Date Hole: Started 1/21/80; Completed 1/21/80	
8. Depth Drilled into Rock: 0'		17. Elevation Top of Hole: 134.5'	
9. Total Depth of Hole: 30'		18. Total Core Recovery/for Boring: %	
		19. Signature of Inspector: Robert Prophet	

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time/hour, water gain, depth of weathering, etc. If significant) (g)	
			SP-SM 10 YR 5/4 yellowish brown very slightly clayey, silty fine sand with very slight amounts of coarse sand		1	soft, dry	Blows/ft Pushed
	5		SP-SM 10 YR 7/8 yellow clayey, silty fine to medium sand with gravel		2	soft, moist	3
	10		SP-SM 2.5 YR 6/8 light red very slightly clayey silty fine to medium sand with very slight amounts of gravel		3	hard, moist	37
	15		SP-SM 5 YR 6/8 reddish yellow, silty medium sand with gravel (18.0')		4	very stiff, moist	24
	20		SM 7.5 YR 7/8 reddish yellow silty coarse sand poorly sorted, with slight amount of gravel		5	firm, wet some fluid loss at 20 - 21'	11
	25		SM 10R 6/6 light red slightly clayey silty fine sand		6	loose, moist	10
	30		SM 10R 6/8 light red slightly silty medium to coarse sand with gravel (32.5')		7	firm, wet beginning to loose drilling fluid at 28'	14

Source: Environmental Science and Engineering 1982



DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 134.5' | Hole No. CO-B2

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOV-ERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			(32.5')			
	35		SP 10R 6/6 light red medium to coarse sand with gravel		8	firm, wet 13 easy drilling continual loss of drilling fluids
	40		SP 10R 6/6 light red medium to coarse sand with gravel		9	firm, wet 15 losing drilling fluid
	45		SP 10 YR 7/8 yellow medium to coarse sand with gravel		10	firm, wet with 13 continual loss of fluid to 50'
	50		SP 2.5Y 7/8 yellow medium to coarse sand with gravel		11	firm, wet fluid loss 20

Source: Environmental Science and Engineering 1982

Hole No. CO-B3

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: Split Spoon 1⅜"	11D. Bit size: 3 7/8"
LOCATION (Coordinates or Station): N. 755236.12 E. 609181.53		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
4. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title) and file number: CO-B3		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 2.83' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1-21-80; COMPLETED 1-21-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 123.4'	
9. TOTAL DEPTH OF HOLE: 30'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Heaney	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) g	Blows/ft. Pushed
			SP-SM 10 YR 6/6 brownish yellow silty fine to medium sand		1	very loose, dry	
	5		SP-SM 10 YR 6/6, 10 R 4/8 mixed brownish yellow, red. very slightly clayey, silty, fine to medium sand 8.0'		2	soft, moist	3
	10		SM 10 R 6/8 light red clayey, silty, very fine sand		3	stiff, moist	14
	15		SM 7.5 YR 7/4 pink clayey, silty very fine sand (17.5')		4	stiff, moist	14
	20		SP 7.5 YR 7/8 reddish yellow very slightly silty medium to coarse sand, poorly sorted 23.0'		5	firm, moist	12
	25		SM-SP 10 YR 8/6 yellow clayey, silty fine sand 29.0'		6	stiff, moist	6
	30		SP 10 YR 8/1 white, slightly silty fine sand, poorly sorted (32.5')		7	dense, moist	10

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 123.4' | Hole No. CO-B3

PROJECT Fort Stewart RCRA Studies | INSTALLATION Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ft
	35		SM-SP 5 Y 8/2 pale yellow slightly clayey, silty medium to coarse sand		8	stiff, moist	10
	40		SM-SP 5 Y 7/2 light grey slightly clayey, silty, medium to coarse sand		9	stiff, moist	31
			44.0'				
	45		SM 5 Y 7/2 light grey silty very fine to fine sand		10	stiff, moist	8
	50		SM 10 YR 8/2 white, silty very fine to fine sand		11	stiff, moist	45

Source: Environmental Science and Engineering 1982

Hole No. CO-B4

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 sheets
Project: Fort Stewart RCRA Studies		10. Size and type of bit: Split spoon 1⅜" I.D., bit size 3 7/8"	
Location (Coordinates or Station): N. 755140.67 E. 609482.36		11. Datum for elevation shown (MSL or USC&GS): MSL	
Drilling agency: Pittsburgh Testing Laboratories		12. Manufacturer's designation of drill: Acker AD2	
Hole No. (As shown on drawing title) and file number: CO-B4		13. Total no. of overburden samples taken: Disturbed 11; Undisturbed	
Name of driller: Robert Prophet		14. Total number core boxes	
Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 4.08' @ 24 hrs.	
Thickness of overburden		16. Date hole: Started 1-22-80; Completed 1-22-80	
Depth drilled into rock: 0'		17. Elevation top of hole: 123.4'	
Total depth of hole: 50'		18. Total core recovery from boring	
		19. Signature of inspector: Robert Prophet	

Elevation	Depth	Legend	Classification of materials (Description)	% Core recovery	Box or sample no.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)	
			SP-SM 10 YR 6/8 brownish yellow, slightly clayey, silty fine sand		1	firm, moist	Blows/ft Pushed
	5		SP-SM 7.5 YR 6/8 reddish yellow, slightly clayey, silty fine to medium sand with pebbles and gravel		2	stiff, moist	15
	10		SP-SM 7.5 YR 7/8 reddish yellow, clayey silty fine sand with gravel		3	very stiff, moist	26
			14.0'				
	15		SM 10 R 5/4 weak red, slightly clayey, silty fine sand		4	stiff, moist	12
	20		SM lavender-red no Munsell soil equivalent. Very slightly clayey, silty fine sand		5	stiff, moist	7
	25		SM 10 R 6/4 pale red, very slightly clayey, silty fine sand		6	loose, moist	10
			27.0'				
	30		SP-SM 5 Y 8/2 white, slightly clayey, silty fine sand, slightly micaceous		7	stiff, moist gradual loss of drilling fluid	8
			32.5'				

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 123.4' | Hole No. CO-B4

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			32.5'			
	35		SP-SM 5 Y 8/2 white, very slightly clayey micaceous silty fine sand (37.5')		8	hard, moist difficult drilling 35
	40		SM 5 Y 7/2 light grey, micaceous silty fine sand 42.0'		9	hard, moist difficult drilling 43
	45		SP-SM 5 Y 8/1 white, silty fine - medium sand		10	stiff, wet difficult drilling 6
	50		SP-SM 7.5 YR 6/4 light brown slightly clayey, silty fine to medium sand		11	hard, moist difficult drilling 50/0.75'

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

Hole No. CO-B5

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: Split spoon 1½" ID, Bit size 3 7/8"	
2. Location (Coordinates or Station): N. 755140.67 E. 609482.36		11. Datum for elevation shown (MSL or USC&GS): MSL	
3. Drilling agency: Pittsburgh Testing Laboratories		12. Manufacturer's designation of drill: Acker AD2	
4. Hole No. (As shown on drawing title and file number): CO-B5		13. Total no. of overburden samples taken: Disturbed 11; Undisturbed	
5. Name of driller: Robert Prophet		14. Total number core boxes	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 3.33' @ 24 hours	
7. Thickness of overburden		16. Date hole: Started 1-22-80; Completed 1-22-80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 137.8'	
9. Total depth of hole: 50'		18. Total core recovery for boring	
		19. Signature of inspector: Robert Gregory	

Elevation (a)	Depth (b)	Legend (c)	Classification of materials (Description) (d)	% Core recovery (e)	Box or sample no. (f)	Remarks (Drilling time/foot, water loss, depth of weathering, etc., if significant) (g)	
			SP-SM 7.5 YR 5/6 strong brown slightly clayey, silty fine to medium sand		1	stiff, moist	Blows/ft pushed
			2.0'				
	5		SM 2.5 YR 5/6 red, very slightly clayey, silty very fine sand		2	very stiff, moist	21
			(7.5')				
	10		SP-SM 5 YR 6/8 reddish yellow clayey, silty medium to coarse sand		3	hard, moist difficult drilling	31
			(12.5')				
	15		SC 5 YR 6/6 reddish yellow slightly clayey fine to medium sand, poorly sorted		4	hard, moist	17
	20		SC 7.5 YR 7/8 reddish yellow clayey fine to medium sand, poorly sorted		5	stiff, wet	14
			(22.5')				
	25		SM 7.5 YR 7/8 reddish yellow slightly silty, medium to coarse sand with slight amount of gravel		6	firm, wet	17
	30		SM 2.5 YR 6/8 light red slightly silty medium to coarse sand		7	loose, moist	10
			32.5'				

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 137.8' | Hole No. CO-B5

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			32.5'				
	35		SM 2.5 YR 6/8 light red, slightly silty medium to coarse sand with slight amount of gravel		8	loose, moist	11
	40		SM 10 Y 8/8 yellow, silty medium to coarse sand with slight amount of gravel		9	firm, moist beginning to loose drilling fluid	13
	45		SM 2.5 Y 8/8 yellow, silty medium to coarse sand with gravel		10	firm, moist	16
	50		SM 5 YR 8/2 pinkish white silty medium to coarse sand with gravel		11	firm, moist with continual loss of drilling fluid to 50 feet	20

Source: Environmental Science and Engineering 1982

Hole No. SC-B1

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 3 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1⅝" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 687157.80 E. 660530.34		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title and title number): SC-B1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 19; UNDISTURBED 1	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 10.75' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2/7/80; COMPLETED 2/8/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 59.9'	
9. TOTAL DEPTH OF HOLE: 100'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant) (g)	
			SC 2.5 YR 5/6, 5 YR 7/2, 5 YR 6/1, mixed red, pinkish grey, grey clayey fine sand (2.5')		1	loose, moist	Blows/ft pushed
	5		SM10 YR 8/1 white, slightly silty fine sand, very slight amount of clay		2	loose, moist	7
	10		SM10 YR 8/2 white, slightly silty fine sand, very slight amount of clay		3	very loose, moist	2
	15		SM7.5 YR 8/2 white, silty fine sand, slight amount of clay (17.5')		4	very loose, moist	1
	20		SC 10 YR 7/8 yellow silty, clayey fine to medium sand, poorly sorted 22.75'		5	very loose, moist	2
	25		SP 7.5 YR 6/6 reddish yellow, very slightly silty micaceous medium to coarse sand, slight amount of gravel		6	very loose, moist	3
	30		SP 2.5 Y 7/4 7.5 YR 7/8 mixed pale yellow, reddish yellow, very slightly silty micaceous fine sand (32.5')		7	loose, moist	50

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 59.9' | Hole No. SC-B1

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 3 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			(32.5')			
	35		SM 10 YR 7/2 light grey, silty fine sand 37.75'		8	shelby tube Pushed
	40		SP-SM 10 YR 6/1 grey, very slightly clayey, silty fine sand, partially cemented 41.5'		9	very hard, moist difficult drilling 52
	45		SM2.5 Y 5/1 grey, slightly silty micaceous fine to coarse sand poorly sorted (47.5')		10	very hard, moist difficult drilling 57
	50		SP-SM 5 Y 6/2 light olive grey very slightly clayey, silty micaceous fine sand 52.0'		11	hard, moist difficult drilling 39
	55		SM 5 Y 5/1 grey silty micaceous fine to medium sand (57.5')		12	hard, moist difficult drilling 53
	60		SP-SM 5 Y 6/1 grey, silty fine to medium sand		13	hard, moist difficult drilling 50/0.54'
	65		SP - SM 5 Y 6/1 grey, silty fine to medium sand, with slight amount of clay		14	very stiff, moist difficult drilling 29
	70		SP-SM 5 Y 6/1 grey, silty fine to medium sand, with slight amount of clay 72.5'		15	hard, moist difficult drilling 33

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 59.9' | Hole No. SC-B1

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 3 OF 3 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			72.5'			
	75		No sample, lost sampler in hole (77.5')		16	hard, difficult drilling 50/0.83"
	80		SM 5 Y 6/2 Light olive grey, slightly silty, micaceous fine sand		17	hard, difficult drilling, loose zone below 80' 52
	85		SM 5 Y 6/1 grey, slightly silty fine sand, poorly sorted (87.5')		18	very hard, difficult drilling 50
	90		SP-SM 5 Y 6/1 grey, silty fine sand, poorly sorted (92.5').		19	hard, difficult drilling 50/0.75"
	95		SM 5 Y 6/1 grey, slightly silty fine sand, poorly sorted		20	hard, difficult drilling 56
			SM 5 Y 5/1 grey, slightly silty fine sand, poorly sorted		21	hard, difficult drilling 77
	100					

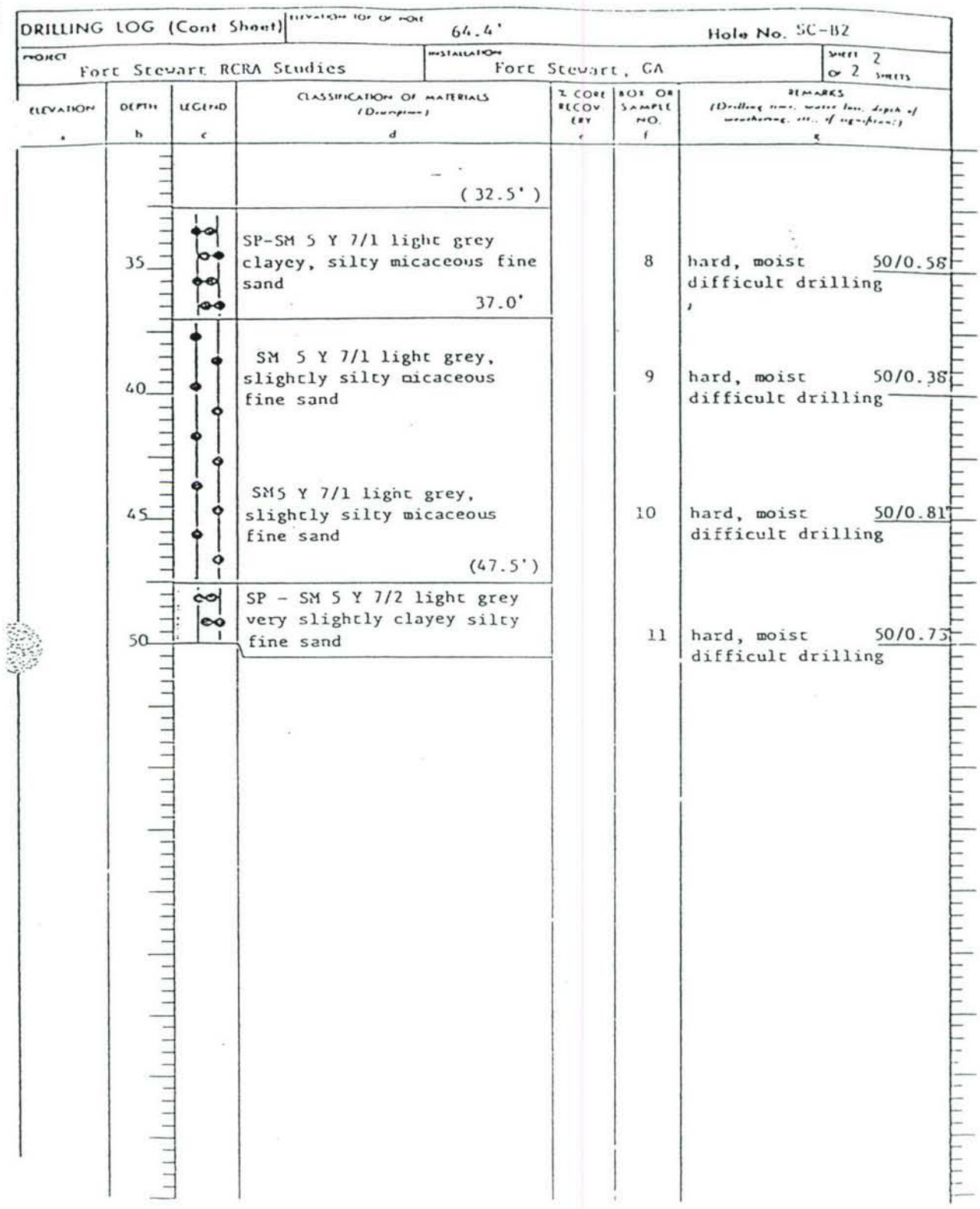
Source: Environmental Science and Engineering 1982

Hole No. SC-B2

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1 5/8" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 687548.84 E. 660942.85		11. DATUM FOR ELEVATION SHOWN (TBM – MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title) AND SHEET NUMBER: SC-B2		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 0.75' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1/24/80; COMPLETED 1/24/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 64.4'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FROM BORING	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling rate, zones of water loss, depth of weathering or other significant observations) (g)
						blows/ft
			SP 10 YR 2/1 black fine to medium sand with organics 1.5'		1	loose, moist pushed
	5		SM 7.5 YR 7/2 pinkish grey silty fine sand, poorly sorted 5.0'		2	very firm, moist 26
	10		SM 10 YR 7/3 very pale brown, slightly silty fine to medium sand, poorly sorted		3	loose, moist 8
	15		SM 2.5 Y 7/4 pale yellow slightly silty fine to medium sand, poorly sorted, picking up clay at bottom (17.5')		4	firm, moist 9
	20		SP 10 YR 8/2 white, fine to medium sand, poorly sorted (22.5')		5	firm, moist 15
	25		SM – SC 10 YR 6/8 brownish yellow, clayey, silty fine to medium sand 25.0'		6	very loose, moist Pushed
	30		SM 5 Y 6/1 grey, silty micaceous fine sand with slight amount of clay (32.5')		7	firm, moist 22

Source: Environmental Science and Engineering 1982



Source: Environmental Science and Engineering 1982

Hole No. SC-B3

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 Sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: S.S. 1⅜" I.D., Bit 3 7/8"	
2. Location (Coordinates or Station): N. 687929.13 E. 661144.17		11. Datum for elevation shown (MSL or USGS): MSL	
Drilling Agency: Pittsburgh Testing Laboratory		12. Manufacturer's designation of drill: Acker AD2	
4. Hole No. (As shown on drawing title) and title number: SC-B3		13. Total no. of overburden samples taken: Disturbed 11; Undisturbed	
5. Name of driller: Robert Prophet		14. Total number core boxes	
6. Direction of hole: ☒ Vertical ☐ Inclined _____ deg. from vert.		15. Elevation ground water: 8.58' ATOB	
7. Thickness of overburden		16. Date hole: Started 1-24-80; Completed 1-24-80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 62.6'	
9. Total depth of hole: 50'		18. Total core recovery for boring	
		19. Signature of inspector: Robert Mayberry	

Elevation (a)	Depth (b)	Legend (c)	Classification of materials (Description) (d)	Core recovery	Box or sample no. (f)	Remarks (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			SP-SM 5 YR 6/6, 5 YR 7/1, mixed light grey reddish yellow silty fine to medium sand (2.5')		1	loose, moist — Blows/ft: pushed
	5		SM 2.5 Y 7/6 yellow, slightly silty fine sand		2	loose, moist — 29
	10		SM 2.5 Y 8/2 white, slightly silty fine sand		3	loose, moist — 18
	15		SM 10 YR 7/3 very pale brown silty fine sand		4	firm, moist — 21
	20		SM 10 YR 6/3 pale brown, silty fine to medium sand, poorly sorted (22.5')		5	firm, moist — 3
	25		SP-SM 5 Y 8/2 white, very slightly clayey, silty fine sand (27.5')		6	firm, moist — 54/0.5'
	30		SM 5 Y 6/2 light olive grey, slightly silty fine sand 32.5'		7	hard, compacted, moist, difficult drilling — 38

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | Elevation top of hole 62.6' | Hole No. SC-33

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 2 sheets

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recov. (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			32.5'			
	35		SC 5 Y 6/1 grey, slightly silty, clayey fine sand (37.5')		8	hard, moist 29 difficult drilling
	40		SP-SM 5 Y 5/1 grey, very slightly clayey micaceous silty fine sand (42.5')		9	hard, moist 50/0.83 compacted, difficult drilling
	45		SC 5 Y 7/2 light grey, very slightly silty clayey micaceous fine to medium sand		10	dense, compacted 50/0.83 moist, difficult drilling
	50		SM SC 5 Y 6/1 grey, very slightly silty clayey micaceous fine to medium sand		11	dense, compacted, moist difficult drilling 39

Source: Environmental Science and Engineering 1982

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1¼" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 688417.13 E. 661633.71		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title) and title number): SC-B4		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 11	UNDISTURBED:
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 3.0' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1-25-80	COMPLETED 1-25-80
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 55.2'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING	%
		19. SIGNATURE OF INSPECTOR: Robert Mayo	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			SP 10 YR 7/2 light grey, slightly silty fine to medium sand, poorly sorted		1	loose, moist — Blows/ft pushed
	5		SP 10 YR 8/2 white, slightly silty fine to medium sand, poorly sorted 7.0'		2	firm, moist — 14
	10		SM-SC 2.5 Y 7/2 light grey, reddish brown streaks clayey, silty fine sand 14.5'		3	stiff, moist — 12
	15		SM 2.5 Y 7/2 light grey, very slightly clayey micaceous silty fine sand		4	soft, moist — 8
	20		SM 5 Y 4/2 dark grey, very slightly clayey micaceous silty fine sand 22.5'		5	firm, moist — 3
	25		SC 5 Y 4/1 dark grey, clayey micaceous fine sand, with very slight amount of silt		6	very soft, moist — 1
	30		SC 5 Y 5/2 olive grey, clayey micaceous fine sand (32.5')		7	hard, cemented, moist — 50/0.83

Source: Environmental Science and Engineering 1982

Hole No. SC-B5

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 Sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: S.S. 1⅜" I.D., Bit 3 7/8"	
2. Location: N. 688276.58 E. 622041.66		11. Datum for elevation shown: MSL	
3. Drilling agency: Pittsburgh Testing Laboratories		12. Manufacturer's designation of drill: Acker AD2	
4. Hole No.: SC-B5		13. Total no. of overburden samples taken: Disturbed 10; Undisturbed 1	
5. Name of driller: Robert Prophet		14. Total number core boxes:	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 1.83' ATOB	
7. Thickness of overburden:		16. Date hole: Started 2-6-80; Completed 2-6-80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 51.7'	
9. Total depth of hole: 50'		18. Total core recovery for boring:	
		19. Signature of inspector: Robert Prophet	

Elevation	Depth	Legend	Classification of materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc. If significant)	
			SP 10 YR 5/2 greyish brown slightly silty fine sand, poorly sorted		1	loose, moist	Blows/ft —pushed
	5		SP 10 YR 7/1 light grey, slightly silty fine sand, poorly sorted 7.75'		2	dense, moist foul odor present	31
	10		SC 2.5 Y 6/4; 2.5 Y 7/2 mixed light grey, light yellowish brown, very slightly silty clayey fine 12.5'		3	stiff, moist	15
	15		SM 10 YR 8/1; 5 Y 6/2, mixed white and light olive grey, silty fine sand (17.5')		4	shelby tube	Pushed
	20		SM-SC 5 Y 6/1 grey clayey silty fine sand 24.0'		5	soft, moist	4
	25		ML 5 Y 4/1 grey very slightly clayey very fine sandy silt 27.5'		6	very soft, moist	1
	30		SM 5 Y 5/2 olive grey slightly silty fine sand 32.5'		7	very stiff, moist	24

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 51.7' | Hole No. SC-B5

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)	
			32.5'				
	35		SM 5 Y 6/1 grey slightly silty fine sand		8	very stiff, moist	30
	40		SM 5 Y 5/2 olive grey slightly silty clayey fine sand 42.0'		9	hard, moist	42
	45		SP-SM 5 Y 5/2 olive grey silty micaceous medium to coarse sand 47.0'		10	hard, moist difficult drilling	51
	50		SC-SM 5 Y 7/2 light grey clayey, silty fine to medium sand		11	hard, moist, difficult drilling	50/0.33

Source: Environmental Science and Engineering 1982

Hole No.

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart	Sheet 1 of 2 sheets

1. Project: Fort Stewart RCRA Studies
2. Location (Coordinates or Station): N. 687382.17
3. Drilling Agency: Pittsburgh Testing Laboratories
4. Hole No. (As shown on drawing title and title number): SC-B6
5. Name of Driller: Robert Prophet
6. Direction of Hole: ☒ Vertical ☐ Inclined _____ Deg. From Vert.
7. Thickness of Overburden:
8. Depth Drilled into Rock: 0'
9. Total Depth of Hole: 50'
10. Size and Type of Bit: HSS 1⅝" I.D., Dia 3 7/8"
11. Datum for Elevation Shown (MSL or Assumed): MSL
12. Manufacturer's Designation of Drill: Acker AD2
13. Total No. of Overburden Samples Taken: Disturbed 10; Undisturbed
14. Total Number Core Boxes:
15. Elevation Ground Water: 7.92' ATOB
16. Date Hole: Started 1-28-80; Completed 1-30-80
17. Elevation Top of Hole: 71.8'
18. Total Core Recovery for Boring: %
19. Signature of Inspector: Robert Hragovy

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc. if significant) (g)
			SP-SM 10 YR 7/2, 10 YR 7/6 mixed yellow, light grey very slightly clayey silty fine sand		1	loose, moist — blows/ft: pushed
	5		SP-SM 2.5 Y 5/4, 10 YR 5/1, mixed grey; light olive brown, very slightly clayey silty fine sand, poorly sorted (7.5)		2	loose, moist — pushed
	10		No sample taken, solid waste cell 12.0'		(3)	
	15		SP 2.5 Y 7/4 pale yellow, slightly silty fine sand		4	very firm, moist, foul odor — 24
	20		SP 2.5 Y 7/4 pale yellow, slightly silty medium to coarse sand		5	firm, moist, foul odor — pushed
	25		SP 2.5 Y 7/2 light grey, slightly silty fine sand, poorly sorted 27.5'		6	very loose, moist, no odor — 2
	30		SM 2.5 Y 8/2 white, very slightly clayey micaceous silty very fine sand 32.5'		7	hard, moist, difficult drilling — 7

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 71.8' | Hole No. SC-B6

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			32.5'			
	35		SM 2.5 Y 8/4 pale yellow very slightly clayey micaceous silty very fine sand 37.0'		8	hard, moist, 75/0.33' difficult drilling
	40		SC 5 Y 5/2 olive grey, very slightly silty clayey micaceous fine sand		9	hard, moist 49 difficult drilling
	45		SC 5 Y 5/1 grey, very slightly silty clayey micaceous fine sand		10	hard, moist 36 difficult drilling
	50		SC 5 Y 5/1 grey, very slightly silty clayey micaceous fine sand		11	hard, partially cemented, moist 37 difficult drilling

Source: Environmental Science and Engineering 1982

Hole No. SC-B7

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1⅜" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): Location uncertain-land filled and leveled		11. DATUM FOR ELEVATION SHOWN (GS or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title and file number): SC-B7		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 9; UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 8.83' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1-30-80; COMPLETED 1-30-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: unknown	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Robert Sprague	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOV-ERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
						Blows/ft
					(1)	
	5		No samples solid waste cell		(2)	
			8.5'			
	10		SP 2.5 Y 7/2, 2.5 Y 7/4 mixed light grey, white, yellow slightly silty fine sand, poorly sorted		3	loose, moist 8
	15		SP 2.5 Y 8/4 pale yellow, slightly silty fine sand		4	very loose, moist 3
	20		SP 2.5 Y 8/2 white, slightly silty fine sand with very slight amount of clay		5	loose, moist 7
	25		SP 5 Y 8/1 white, very slightly silty fine sand		6	loose, moist 5
			28.0'			
	30		SP-SM 2.5 Y 7/1 pale yellow silty fine sand		7	loose, moist, 50/0.21' lower half of sample partially cemented
			(32.5')			

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | Elevation top of hole: Unknown | Hole No. SC-B7

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 2 sheets

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			32.5'			
	35		SC 5 Y 8/2 light grey, very slightly silty micaceous fine sand		8	hard, moist, difficult drilling 40
	40		SC 5 Y 5/1 grey, very slightly silty clayey micaceous fine sand		9	very stiff, moist difficult drilling 26
	45		SC 5 Y 7/2 grey, very slightly silty clayey micaceous fine sand		10	partially cemented moist, difficult drilling 50/0.83'
			48.0'			
	50		SC-SM 5 Y 7/1 light grey clayey silty fine to medium sand		11	partially cemented, moist, difficult drilling 50/0.21'

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

Hole No. SC-B8

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1¾" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 686743.34 E. 661289.31		11. DATUM FOR ELEVATION SHOWN (TBM – MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title) and file number: SC-B8		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 11.83' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1-30-80; COMPLETED 1-30-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 70.1'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING: %	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			SM 10 YR 4/2, 2.5 Y 7/4 mixed dark greyish brown, pale yellow silty fine to medium sand		1	very loose, moist — blows/ft: pushed
	5		SM 5 Y 5/2 olive grey, silty fine to medium sand, poorly sorted		2	very fine, moist — 28
	10		SM 10 YR 7/6 yellow, silty fine to medium sand poorly sorted		3	firm, moist — 15
	15		SM 5 Y 8/4 pale yellow, silty fine to medium sand poorly sorted		4	loose, moist — 8
	20		SM 5 Y 8/4 pale yellow, silty fine to medium sand poorly sorted		5	loose, moist — 5
	25		SM 2.5 Y 8/4 pale yellow slightly silty, clayey, micaceous fine sand, very poorly sorted (27.5')		6	very firm, difficult drilling — 4
	30		SP 5 Y 5/1 grey very slightly silty micaceous fine to medium sand 32.5'		7	hard, partially cemented, difficult drilling — 3

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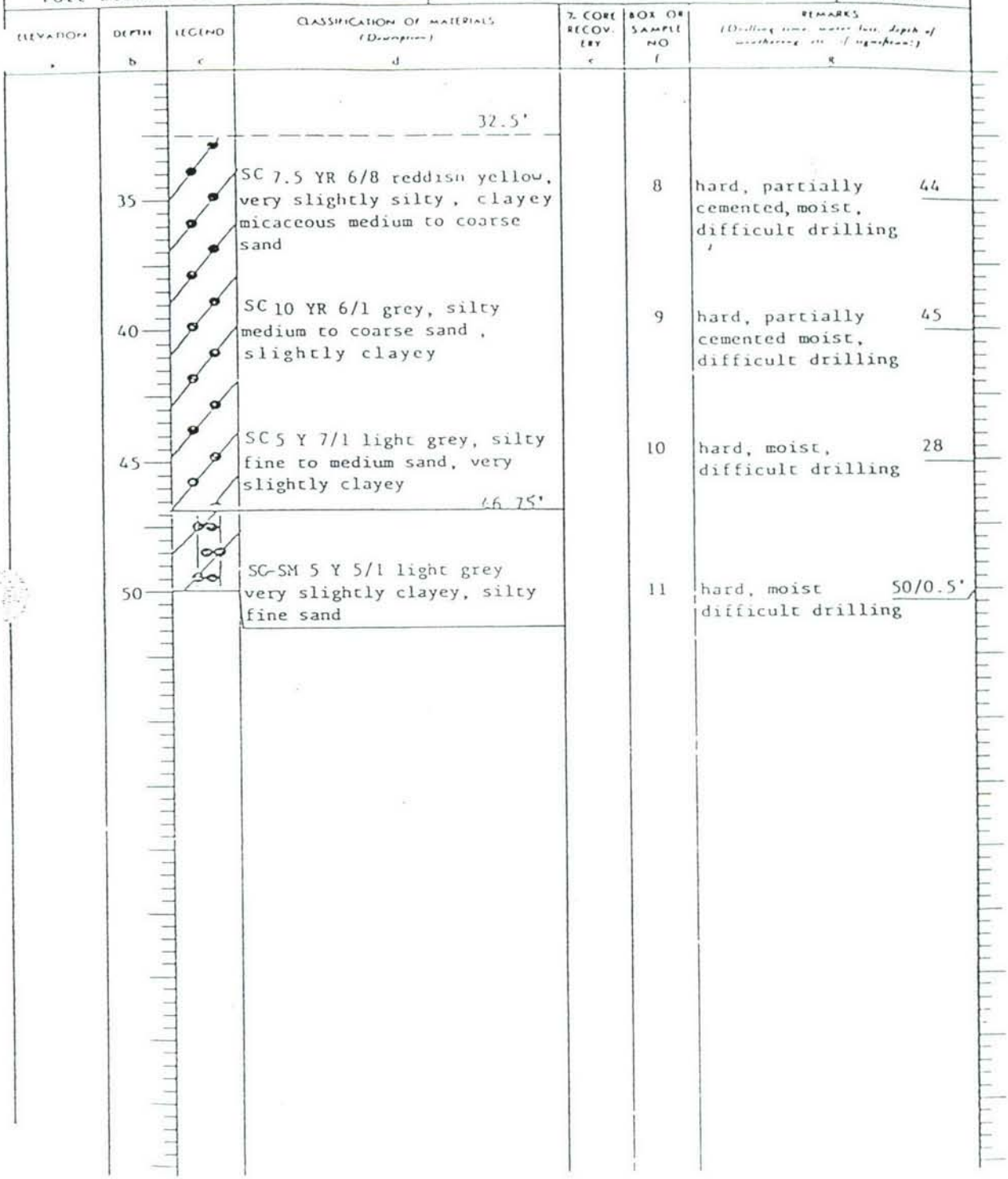
Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 70.1' | Hole No. SC-BB

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 3 SHEETS



ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			32.5'				
	35		SC 7.5 YR 6/8 reddish yellow, very slightly silty, clayey micaceous medium to coarse sand		8	hard, partially cemented, moist, difficult drilling	44
	40		SC 10 YR 6/1 grey, silty medium to coarse sand, slightly clayey		9	hard, partially cemented moist, difficult drilling	45
	45		SC 5 Y 7/1 light grey, silty fine to medium sand, very slightly clayey		10	hard, moist, difficult drilling	28
			46.75'				
	50		SC-SM 5 Y 5/1 light grey very slightly clayey, silty fine sand		11	hard, moist difficult drilling	50/0.5'

Source: Environmental Science and Engineering 1982

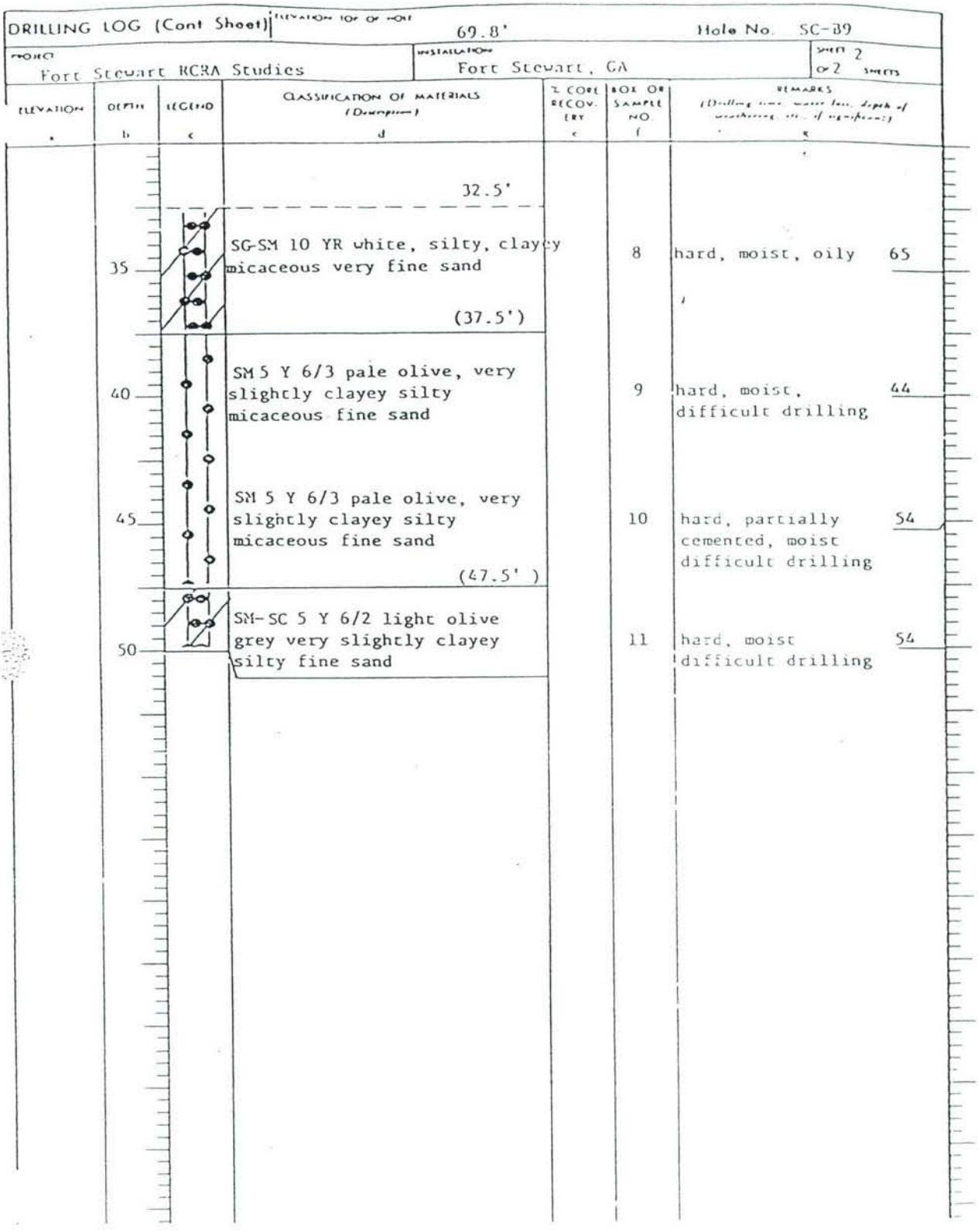
APPENDIX 4.4

Hole No. SC-B9

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: H.S. 4½" I.D., Bit 3 7/8"	
2. Location (Coordinates or Station): N. 686343.38 E. 662077.47		11. Datum for elevation shown (MSL or USC&GS): MSL	
3. Drilling agency: Pittsburgh Testing Laboratories		12. Manufacturer's designation of drill: Acker AD2	
4. Hole No. (As shown on drawing title and file number): SC-B9		13. Total no. of overburden samples taken: Disturbed 11; Undisturbed	
5. Name of driller: Robert Prophet		14. Total number core boxes	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 8.75' ATOB	
7. Thickness of overburden		16. Date hole: Started 1-25-80; Completed 1-25-80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 69.8'	
9. Total depth of hole: 50'		18. Total core recovery, for boring	
		19. Signature of inspector: Robert Prophet	

Elevation (a)	Depth (b)	Legend (c)	Classification of materials (Description) (d)	% Core recov-ery (e)	Box or sample no. (f)	Remarks (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			SP 10 YR 6/6 brownish yellow slightly silty fine sand, poorly sorted		1	very loose, dry blows/ft oily pushed
	5		SP 2.5 Y 6/4 light yellowish brown, slightly silty fine sand, poorly sorted		2	loose, moist 9 oil present in mud pit
	10		SP 10 YR 2/2 very dark brown very slightly silty fine sand, poorly sorted		3	firm, moist 11 foul odor - oily
	15		SP 10 YR 2/1 black silty very fine sand, poorly sorted 18.0'		4	firm moist 21 no odor or oil present
	20		SM 10 YR 6/2 light brownish grey clayey silty fine sand		5	stiff, moist 14
	25		SM 10 YR 5/2 greyish brown silty fine sand 27.0'		6	stiff, moist 9
	30		SM-SP 10 YR 5/2 greyish brown, silty fine sand, poorly sorted 32.5'		7	very loose, moist 1

Source: Environmental Science and Engineering 1982



DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 69.8' | Hole No. SC-89

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			32.5'				
	35		SG-SM 10 YR white, silty, clayey micaceous very fine sand		8	hard, moist, oily	65
			(37.5')				
	40		SM 5 Y 6/3 pale olive, very slightly clayey silty micaceous fine sand		9	hard, moist, difficult drilling	44
	45		SM 5 Y 6/3 pale olive, very slightly clayey silty micaceous fine sand		10	hard, partially cemented, moist difficult drilling	54
			(47.5')				
	50		SM-SC 5 Y 6/2 light olive grey very slightly clayey silty fine sand		11	hard, moist difficult drilling	54

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

Hole No. SC-B10

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET: OF SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1⅝" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 686538.62 E. 662670.60		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title and title number): SC-B10		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 7.83' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2-1-80; COMPLETED 2-1-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 68.6'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			SP 2.5 Y 7/2 light grey, very slightly clayey silty fine sand, poorly sorted 3.0'		1	loose, moist — Blows/ft: pushed
	5		SM 10 YR 4/3 brown to dark brown, silty very fine sand		2	stiff, moist — 9
	10		SM 10 YR 7/3 pale brown, silty fine to medium sand, poorly sorted		3	very firm, moist — 25
	15		SM 10 YR 8/4 very pale brown, silty fine to medium sand 17.5'		4	firm, moist — 23
	20		SC 10 YR 6/1 grey clayey fine to medium sand 21.5'		5	stiff, moist — 5
	25		SP-SM 10 YR 6/2 light brownish very slightly clayey micaceous fine to coarse sand, poorly graded		6	very firm, moist, difficult drilling — 5
	30		SP-SM 5 Y 5/2 olive grey very slightly clayey, silty fine to coarse sand, poorly sorted 32.5'		7	very firm, moist, difficult drilling — 17

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

Hole No. SC-B11

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1¾" T.D. Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 687186.82 E. 662733.11		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title) SC-B11		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED 1	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 7.50' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2-5-80; COMPLETED 2-5-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 70.26'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, and other significant observations) (g)	Blows/ft
					(1)		
	5		No samples taken solid waste cell 7.0'		(2)		
	10		SM 10 YR 6/8 brownish yellow very slightly clayey fine to medium silty sand, poorly sorted		3	firm, moist	11
	15		SM 5 Y 7/4, 5 Y 8/2 mixed pale yellow and white, silty fine sand (17.5')		4	shelby tube	pushed
	20		SP-SM 10 YR 7/1 light grey very slightly clayey silty fine sand (22.5')		5	firm, moist	7
	25		SM 10 YR 7/2 light grey very slightly clayey silty fine to medium sand (27.5')		6	loose, moist	3
	30		SP-SM 10 YR 6/1 light grey silty micaceous fine to medium sand (32.5')		7	firm, moist	9

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 70.26' | Hole No. SC-311

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOV. ERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			(32.5')			
	35		SM 2.5 YR 7/4 pale yellow slightly silty micaceous fine sand		8	hard, dry, cemented, difficult drilling 28/0.17'
	40		SM 5 Y 6/3 pale olive slightly silty micaceous fine sand		9	hard, dry, partially cemented difficult drilling 50/0.75'
	45		SM 5 Y 5/2 olive grey, very slightly clayey silty micaceous fine sand		10	hard, dry, partially cemented, difficult drilling 42
	50		SM 5 Y 5/1 grey, very slightly clayey silty fine sand		11	hard, dry, partially cemented, difficult drilling 50/0.92'

Source: Environmental Science and Engineering 1982

Hole No. SC-B12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: S.S. 1½" I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N. 687631.59 E. 662875.47		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
4. HOLE NO. (As shown on drawing title and title number): SC-B12		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8 / UNDISTURBED 1	
5. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 6.0' ATOB	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2-5-80 / COMPLETED 2-5-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 67.02'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Robert Prophet	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)	Blows/ft
			No samples taken solid waste cell		(1)		
	5		7.5'		(2)		
	10		SM 10 YR 7/1 grey silty fine to medium sand, poorly sorted with very slight amount of clay (12.5')		3	firm, moist	20
	15		SP 10 YR 7/2 light grey slightly silty fine to medium sand (17.5')		4	stiff, moist	12
	20		SP-SM 2.5 Y 7/2, 10 R 8/1 mixed light grey and white silty fine sand		5	shelby tube	pushed
	25		SP-SM 10 YR 7/1 light grey silty fine to medium sand poorly sorted (27.5')		6	loose, moist	9
	30		SP 10 YR 6/2 light brownish grey, slightly silty fine to coarse sand, very poorly sorted, with very slight amount of clay 32.5'		7	loose, moist	13

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 67.02' | Hole No. SC-B12

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			32.5'			
	35		SP 2.5 Y 6/2 light brownish grey, slightly silty fine sand		8	stiff, moist 11
	40		SP 10 YR 6/2 light brownish grey slightly silty fine sand		9	very stiff, moist 20
	45		SP 2.5 Y 5/2 greyish brown slightly clayey, slightly silty fine to medium sand		10	hard, moist 50/0.92' difficult drilling
	50		SP 2.5 Y 4/1 dark grey, silty fine to coarse sand, very poorly sorted		11	very stiff, moist 27 difficult drilling

Source: Environmental Science and Engineering 1982

Hole No. SC-B13

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 3.5. I.D., Bit 3 7/8"	
2. LOCATION (Coordinates or Station): N 588197.28 E. 662979.40		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
4. DRILLING AGENCY: Pittsburgh Testing Laboratories		12. MANUFACTURER'S DESIGNATION OF DRILL: Acker AD2	
5. HOLE NO. (As shown on drawing title) and file number: SC-B13		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 9 / UNDISTURBED	
3. NAME OF DRILLER: Robert Prophet		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 6.83' ATOB	
7. THICKNESS OF OVERBURDEN:		16. DATE HOLE: STARTED 2-6-80 / COMPLETED 2-6-80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 55.3'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Robert Gregory	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)	
			SP 10 YR 6/1 grey, very slightly silty fine sand		1	loose, moist blous/ft pushed	
	5		5.0'		(2)		
			No samples taken solid waste cell				
	10		12.5'		(3)		
	15		SM 5 Y 8/4 pale yellow silty fine sand, poorly graded		4	very loose, moist foul odor present	2
	20		SM 2.5 YR 8/2 silty fine sand, poorly sorted (22.5')		5	loose, moist slight odor present	2
	25		SP 10 YR 7/3 very pale brown fine to medium sand poorly graded (27.5')		6	very loose, moist no odor	4
	30		SM 10 YR 6/1 grey silty medium to coarse sand, poorly graded 32.5'		7	loose, moist easy drilling	13

Source: Environmental Science and Engineering 1982

APPENDIX 4.4

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 55.3' | Hole No. SC-B13

PROJECT: Fort Stewart | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOV. ERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)	
			32.5'				
	35		SM 5 Y 7/2 grey silty micaceous fine sand		8	stiff, moist difficult drilling	13
	40		SM 5 Y 6/2 light olive grey very slightly clayey silty micaceous fine sand		9	hard, partially cemented, moist difficult drilling	53
	45		SM 5 Y 5/1 grey very slightly clayey silty micaceous fine sand		10	very stiff, moist difficult drilling	23
	50		SM 5 Y 5/2 dark grey slightly clayey, silty fine sand		11	very stiff, moist difficult drilling	38

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) — ELEVATION TOP OF HOLE: 61.20' — Hole No. SC-B14

PROJECT: Fort Stewart RCRA Studies — INSTALLATION: Fort Stewart, GA — SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
			32.5'				
	35		SM 10 YR 6/1 grey, very slightly clayey, silty fine to coarse sand with very slight amount of gravel, very poorly sorted		8	very loose, moist easy drilling	1
	40		SM 5 YR 7/2 light grey, silty fine to coarse sand with very slight amount of gravel, very poorly sorted		9	hard, moist difficult drilling	32
	45		SM 10 YR 5/1 grey silty fine to medium sand with gravel, poorly sorted		10	hard, moist difficult drilling	41
	50		SM 10 YR 7/2 light grey silty micaceous medium to coarse sand with slight amount of gravel		11	hard, moist difficult drilling	50/7"

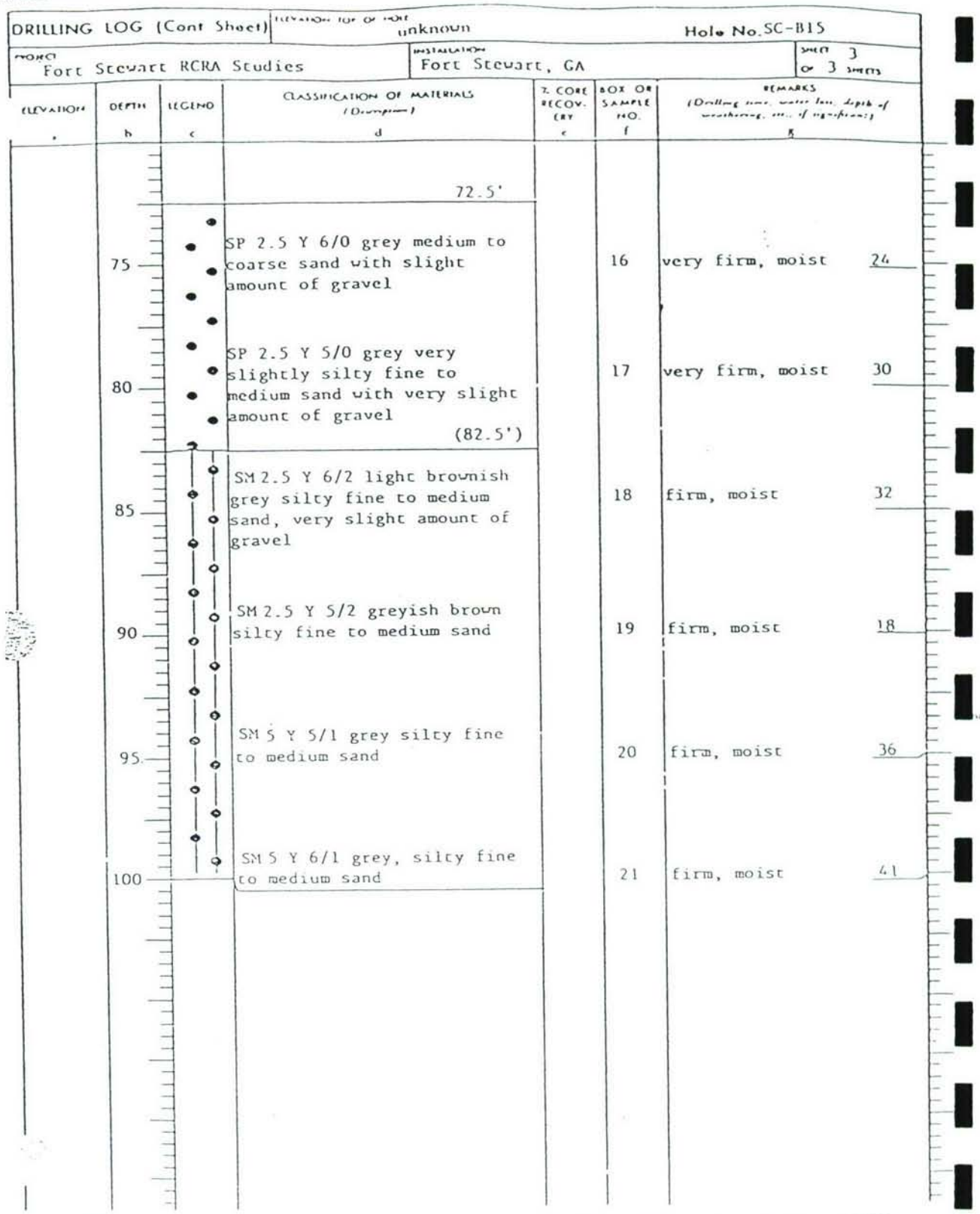
Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | Elevation top of hole: Unknown | Hole No. SC-315

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 3 sheets

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recov. ERY (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)	
			(32.5')				
	35		SP 2.5 Y 7/6, 5 Y 6/1 mixed grey, yellow, silty fine sand, poorly sorted		8	loose, moist	6
			37.5'				
	40		SM 5 Y 5/1 grey, silty micaceous fine sand		9	soft, moist	4
	45		SM 5 Y 5/1 grey silty micaceous fine sand		10	very stiff, moist difficult drilling	19
	50		SM 5 Y 7/2 light grey slightly clayey, silty micaceous fine to medium sand		11	hard, partially cemented, moist difficult drilling	61
	55		SM 5 Y 5/2 olive grey slightly clayey, silty micaceous fine to medium sand with very slight amount of gravel		12	hard, partially cemented, moist difficult drilling	60
	60		SM 5 Y 7/1 light grey silty fine to medium sand, poorly sorted		13	firm, moist difficult drilling	34
	65		SM 5 Y 6/1 grey silty fine to medium sand with slight amount of coarse sand		14	very firm, moist	56
	70		SM 10 YR 6/1 grey silty medium to coarse sand with slight amount of gravel		15	very firm, moist	48
			72.5'				

Source: Environmental Science and Engineering 1982



Source: Environmental Science and Engineering 1982

Hole No. SC-B16

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 Sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: S.S. 1⅜" I.D., Bit 3 7/8"	
Location (Coordinates or Station): N. 686806.71 E. 663435.00		11. Datum for elevation shown (MSL or USGS): MSL	
3. Drilling Agency: Pittsburgh Testing Laboratories		12. Manufacturer's designation of drill: Acker AD2	
4. Hole No. (As shown on drawing title) and file number: SC-B16		13. Total no. of overburden samples taken: Disturbed 10; Undisturbed 1	
5. Name of Driller: Robert Prophet		14. Total number core boxes:	
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 10.17' ATOB	
7. Thickness of Overburden:		16. Date Hole: Started 2-1-80; Completed 2-1-80	
8. Depth Drilled into Rock: 0'		17. Elevation top of hole: 66.34'	
9. Total Depth of Hole: 50'		18. Total Core Recovery for Boring:	
		19. Signature of Inspector: Robert Prophet	

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant) (g)
			SP 10 YR 4/2 dark greyish brown silty fine sand, poorly sorted 2.0'		1	loose, moist — blows/ft: pushed
	5		SP-SM 7.5 YR 4/2 dark brown silty fine sand 7.0'		2	loose, moist — 6
	10		SP 7.5 YR 3/2 dark brown silty fine sand 12.0'		3	very stiff, moist — 26
	15		SC-SM 5 Y 6/2 light olive grey clayey, silty fine sand		4	firm, moist — 5
	20		SC-SM 2.5 Y 7/2, 5 Y 6/1 mixed light grey and grey silty, clayey fine sand (22.5')		5	shelby tube — pushed
	25		SM 5 Y 6/1 grey clayey, silty very fine sand 26.5'		6	stiff, moist — 7
	30		SP-SM 5 YR 5/1 grey very slightly clayey, silty micaceous fine to medium sand (32.5')		7	stiff, moist — 5; difficult drilling

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 66.34' | Hole No. SC-B16

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

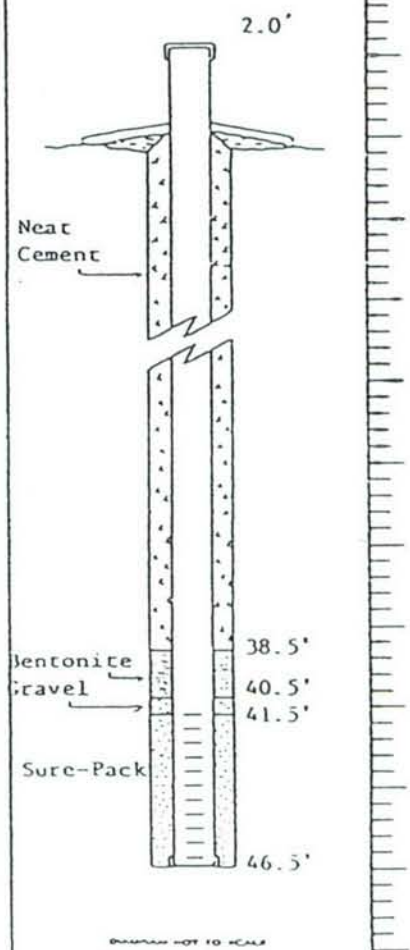
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			SM (32.5')			
	35		~~SC-SM~~ 5 Y 5/3 olive clayey silty micaceous fine sand 37.5'		8	hard, moist 53 difficult drilling
	40		SP-SM 5 Y 5/1 grey very slightly clayey, silty micaceous fine sand (42.5')		9	hard, partially cemented, moist 50/0.33' difficult drilling
	45		SP 5 Y 5/3 olive very slightly silty micaceous fine sand (47.5')		10	hard, moist 34 difficult drilling
	50		SC 5 Y 6/2 light olive grey very slightly silty, clayey micaceous fine sand, slight amount of coarse sand		11	hard, moist 50/0.42' difficult drilling

Source: Environmental Science and Engineering 1982

APPENDIX A-3

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N761203.76 E659516.77		11. DATUM FOR ELEVATION SHOWN (MSL or USGS): MSL	
3. DRILLING AGENCY: Paul N. Clawson		12. MANUFACTURER'S DESIGNATION OF DRILL: STICO	
4. HOLE NO. (As shown on drawing title): TX-M1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: Disturbed 0	Undisturbed 0
5. NAME OF DRILLER: Paul N. Clawson		14. TOTAL NUMBER CORE BOXES: -	
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 5.83' @ 24 hours	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 1/22/80	COMPLETED 1/24/80
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 76.47'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Robert Shearer	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
	5		Buff to grey-medium, slightly clayey sand, slight amount of plant fragments upper 2 ft.			
			5.0'			
	10		Grey to brown-silty clayey fine to medium sand, up to 15% clay			
			14.0'			
	15		Grey to brown-silty clayey fine to medium sand less clay (± 5%) than above			
	20		21.0'			
	25		Olive green sandy clay and clayey sand. Sand fine to very fine grain			
	30		30.0'			



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PAGE A-59

Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 76.47' | Hole No. TX-M1

PROJECT Fort Stewart RCRA Studies | INSTALLATION Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			35.0'			
	35		Grey - medium to coarse sand with up to 10% clay			
	40		41.0'			
			Grey to medium to coarse sand with up to 5% clay to 44 ft., up to 2% clay below 44 ft.			
	45					
	50					

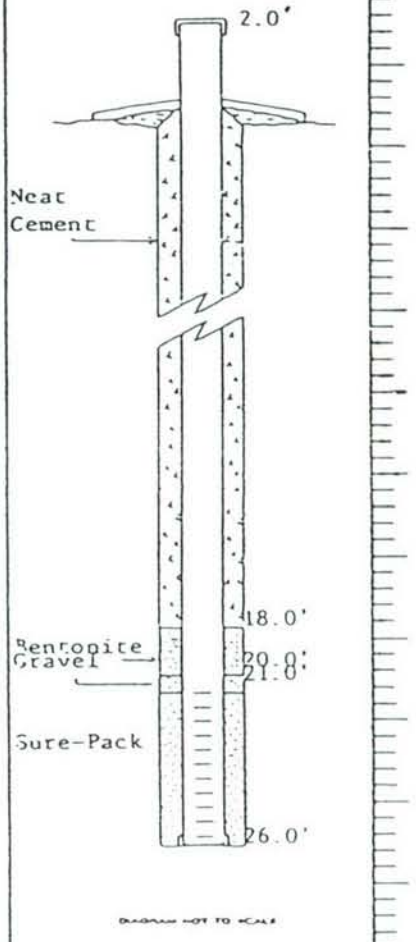
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS

1. PROJECT	Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station)	N760657.51 E659795.88
DRILLING AGENCY	Paul N. Clauson
4. HOLE NO. (As shown on drawing title and file number)	TX-M2
5. NAME OF DRILLER	Paul N. Clauson
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	0'
9. TOTAL DEPTH OF HOLE	50'
10. SIZE AND TYPE OF BIT	9"
11. DATUM FOR ELEVATION SHOWN (TIDE or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	SIMCO
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED: 0 UNDISTURBED: 0
14. TOTAL NUMBER CORE BOXES	
15. ELEVATION GROUND WATER	4.6' @ 24 hrs
16. DATE HOLE	STARTED: 1/31/80 COMPLETED: 2/4/80
17. ELEVATION TOP OF HOLE	74.13'
18. TOTAL CORE RECOVERY FOR BORING	
19. SIGNATURE OF INSPECTOR	Robert Grayson

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
	5		Buff to grey - fine to medium clayey sand — 5.0'			
	10		Buff to grey - medium to coarse clayey sand — 11.0'			
	15		Orange - coarse sand occasional clayey beds up to 1 ft. thick			
	20		— 21.0'			
	25		Orange - clayey fine to medium sand			
	30		— 30.0'			



Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 74.13' | Hole No. TX-M2

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	35		White, grey - green - from 29.5 ft. to 50 ft. interbedded fine and fine to medium sand with sandy clay. Bed thickness 1 ft. to 3 ft.; most boundaries gradational			
	40					
	45					
	50					

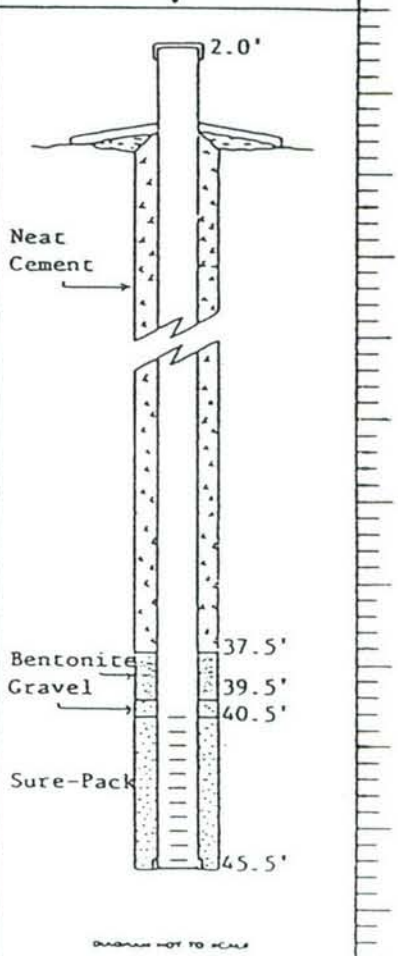
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. TX-M3

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N760527.39 E659471.04		11. DATUM FOR ELEVATION SHOWN (TIM or MSL): MSL	
3. DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and file number): TX-M3		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0	
5. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 2.6' @ 24 hours	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2/5/80; COMPLETED 2/8/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 71.12'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Shannon	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering or fracturing if significant) (g)
			Brown - medium sand, color grades to light grey with orange stringers below 1.5 ft.			
	4.0'					
	5		White - clayey medium to coarse sand, bed of fine sand near 5 ft.			
	7.0'					
			Grey fine to medium sand			
	10					
	10.0'					
			Orange to slightly white coarse to medium sand, very slight amount of clay (5%), variable vertically			
	15					
	20					
	24.0'					
	25		White - sandy clay; sand fine, grades downward to silty clay at 29 ft.			
	30					
	30.0'					



Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 71.12' | Hole No. TX-M3

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			33.0'			
	35		Grey-green - sandy clay sand fine grain			
			38.0'			
	40		Light grey - fine to medium slightly clayey sand occasional thin beds of fine sand			
	45		46.0'			
			Grey - green - fine to medium clayey sand			
	50					

Source: Environmental Science and Engineering 1982

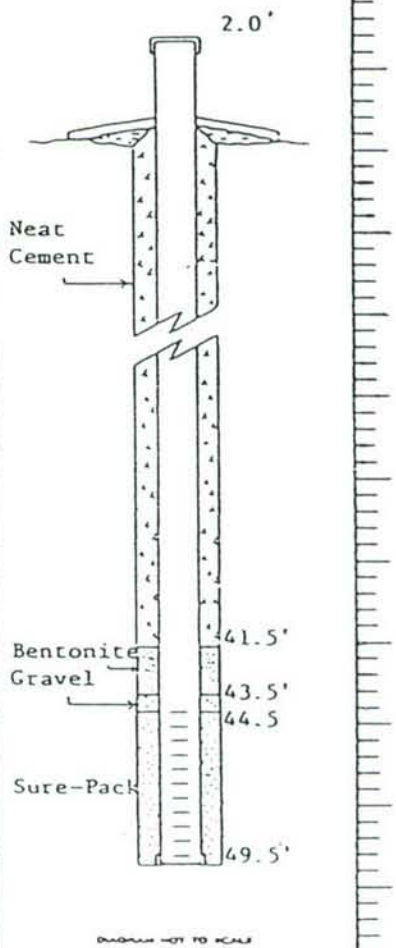
APPENDIX 4.5

Hole No. TX-M4

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS

1. PROJECT: Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station): N760717.38 E659264.50
3. DRILLING AGENCY: Paul N. Clauson
4. HOLE NO. (As shown on drawing title and title number): TX-M4
5. NAME OF DRILLER: Paul N. Clauson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN:
8. DEPTH DRILLED INTO ROCK: 0'
9. TOTAL DEPTH OF HOLE: 50'
10. SIZE AND TYPE OF BIT: 9"
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES:
15. ELEVATION GROUND WATER: 2.2' @ 24 hrs.
16. DATE HOLE: STARTED 1/25/80; COMPLETED 1/30/80
17. ELEVATION TOP OF HOLE: 70.46'
18. TOTAL CORE RECOVERY FOR BORING:
19. SIGNATURE OF INSPECTOR: Robert Maxwell

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If available) (g)
			See soil boring log TX-B4			



Source: Environmental Science and Engineering 1982

DRILLING LOG

DIVISION: South Atlantic

INSTALLATION: Fort Stewart, GA

SHEET 1 OF 2 SHEETS

1. PROJECT: Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station): N751199.12 E659515.98
3. DRILLING AGENCY: Paul N. Clawson
4. HOLE NO. (As shown on drawing title and file number): TX-0W1
5. NAME OF DRILLER: Paul N. Clawson
6. DIRECTION OF HOLE: ☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK: 0'
9. TOTAL DEPTH OF HOLE: 50'
10. SIZE AND TYPE OF BIT: 2.5"
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED 4/10/80; COMPLETED 4/12/80
17. ELEVATION TOP OF HOLE: 76.42'
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: [signature]

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc.; if applicable) (g)
	5		Dark Brown - Silty fine sand			easy drilling, loss of water till 10'
	10		10.0'			
			Tan/Orange - clayey fine to medium sandy clay ≈30%, slight amounts of coarse material			
	15		16.5'			
			Orange - fine sandy silt			easy drilling
	20		21.0'			
			Grey - fine sandy clay- clayey sand - hard muscovite present			difficult drilling, hard, compacted
	25					
	30		30.0'			

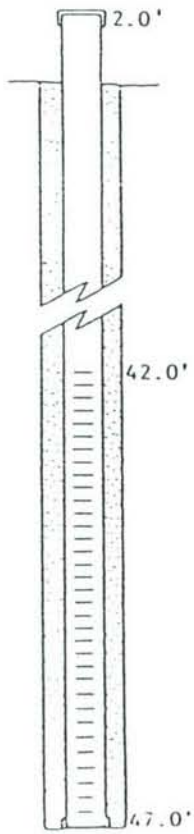
Source: Environmental Science and Engineering 1982

APPENDIX A-3

DRILLING LOG (Cont Sheet) | Elevation Top of Hole 76.42' | Hole No. TX-0W1

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 2 Sheets

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
	35		36.5'			
	40		Light brown - clayey, fine sand - sand becoming coarser and clay diminishing in amounts to 47'			easy drilling, started losing drilling fluid
	45		46.5'			
			Light grey - medium to coarse sand with slight amounts of clay			loss of drilling fluid
	50					



Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. CO-M1

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: 9"	
2. Location (Coordinates or Station): N754176.22 E608888.74		11. Datum for elevation shown (TBM or MSL): MSL	
Drilling Agency: Paul N. Clawson		12. Manufacturer's designation of drill: SIMCO	
4. Hole No. (As shown on boring title and title number): CO-M1		13. Total No. of Overburden Samples Taken: Disturbed 0; Undisturbed 0	
5. Name of Driller: Paul N. Clawson		14. Total number core boxes	
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 12.5 @ 24-hrs.	
7. Thickness of Overburden		16. Date Hole: Started 2/11/80; Completed 2/13/80	
8. Depth Drilled into Rock: 0'		17. Elevation top of hole: 151.27'	
9. Total Depth of Hole: 50'		18. Total Core Recovery for Boring	
		19. Signature of Inspector: Robert Grasso	

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc. if significant) (g)
	5		Rusty Brown - Clayey fine to medium sand			dry, tough, compacted, hard drilling
						2.0'
			9.0'			
	10		Light Grey - coarse slightly clayey sand			Neat Cement
			13.0'			
	15		Purple - tough plastic clay. Below 15 ft. to 22 ft. with medium to coarse sand (10 to 30%)			
	20					
			24.0'			28.0'
	25		White - sandy clay, sand very fine 26.0'			Bentonite 30.0' Gravel 31.0'
			White to rusty brown - sandy clay, sand very fine, makes up less than 30% of samples			Sure-Pack
	30		30.0'			36.0

Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG (Cont Sheet) | Elevation TOP OF HOLE 151.27' | Hole No. CO-M1

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA. | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			33.0'			
	35		Light grey - clayey fine to medium sand 35.0'			
	40		Brown to pink - silty sandy clay. silt and extremely fine sand make up 40 to 60% of samples			
	45					
	50					

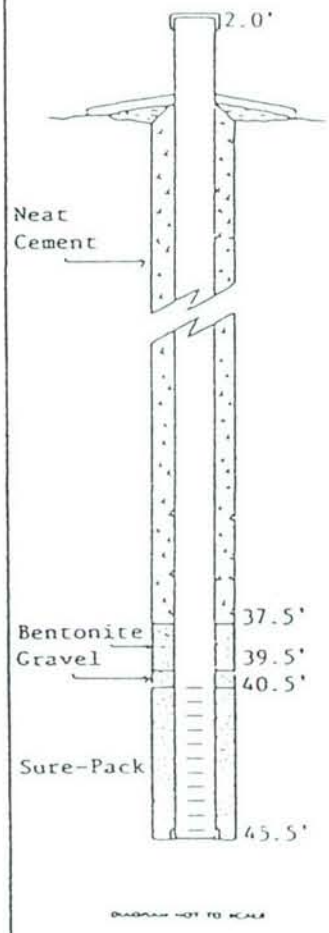
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. CO-M2

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 1 Sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: 9"	
2. Location (Coordinates or Station): N754755.01 E608897.65		11. Datum for elevation shown (TBM or MSL): MSL	
3. Drilling agency: Paul N. Clauson		12. Manufacturer's designation of drill: SINCO	
4. Hole No. (As shown on boring title and file number): CO-M2		13. Total no. of overburden samples taken: Disturbed 0 / Undisturbed 0	
5. Name of driller: Paul N. Clauson		14. Total number core boxes	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water	
7. Thickness of overburden		16. Date hole: Started 2/14/80 / Completed 2/17/80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 136.97'	
9. Total depth of hole: 50'		18. Total core recovery for boring	
		19. Signature of inspector: Robert Greaves	

Elevation (a)	Depth (b)	Legend (c)	Classification of materials (Description) (d)	% Core recovery (e)	Box or sample no. (f)	Remarks (Drilling time/fluid loss, depth of weathering, etc., if significant) (g)
			See soil boring log CO-B2			

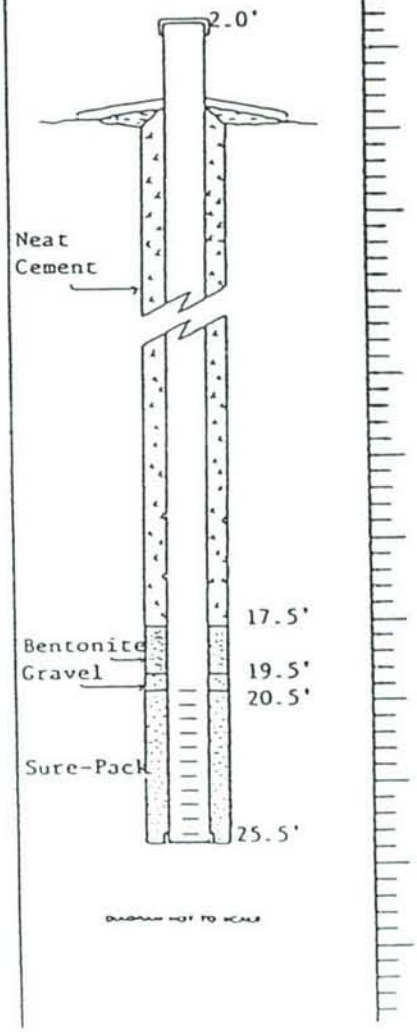


Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N755318.55 E609187.01		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and title number): CO-M3		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 3.25' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2/18/80	COMPLETED 2/21/80
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 124.55'	
9. TOTAL DEPTH OF HOLE: 30'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Thomas	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) g
	5		Brown - clayey fine to medium sand, 10 to 20% clay, color changed to grey-brown at 5 ft. 6.0'			
	10		Light grey - clayey fine sand, clay 20 to 30% 14.0'			
	15		Rust brown - clayey silty fine to medium sand 19.5'			
	20		Light grey silty, sandy clay top 2 ft. plastic 23.0'			
	25		Light grey-fine to coarse sand, clay less than 5% 26.0'			
	30		Light grey - clayey silty fine to coarse sand, 20 to 30% clay			



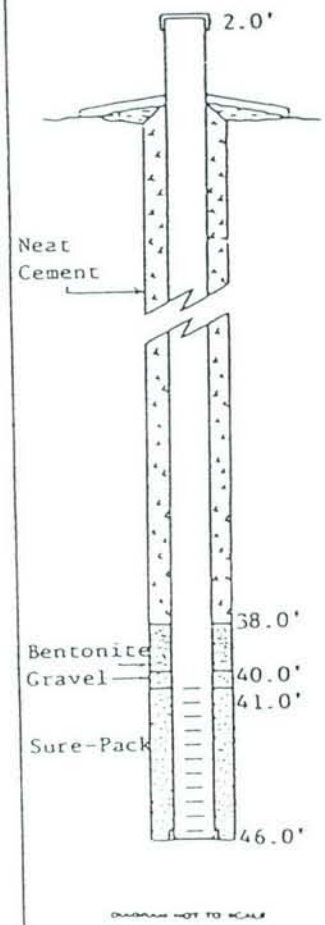
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No.

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N755137.29 E609476.96		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
DRILLING AGENCY: Paul N. Clawson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and file number): CO-M4		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0 / UNDISTURBED 0	
5. NAME OF DRILLER: Paul N. Clawson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 4.1' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2/22/80 / COMPLETED 2/25/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 125.89'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Maddox	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time/water loss, depth of weathering, etc., if significant) (g)
			See soil boring log CO-B4			



Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. SC M1

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N686890.30 E660515.96		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and file number): SC-M1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 6.9' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2/26/80	COMPLETED 2/29/80
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 62.31'	
9. TOTAL DEPTH OF HOLE: 26.5'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert J. Gregory	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
	0		Red Brown - very clayey sand, color changes to grey below 3', sand mostly medium, some fine			
	5					
			9.0'			
	10		Light grey - silty, sandy clay, orange-red streaks, thin but frequent			
	15					
	20		21.0'			
			Light grey - clayey medium sand, clay 5-10%			
	25		25.0'			
			Dark grey - very silty, sandy clay, extremely hard material			
	30					

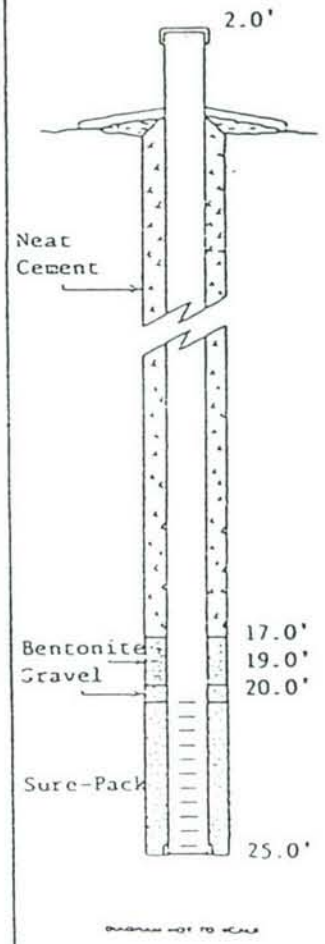


Diagram not to scale

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Source: Environmental Science and Engineering 1982

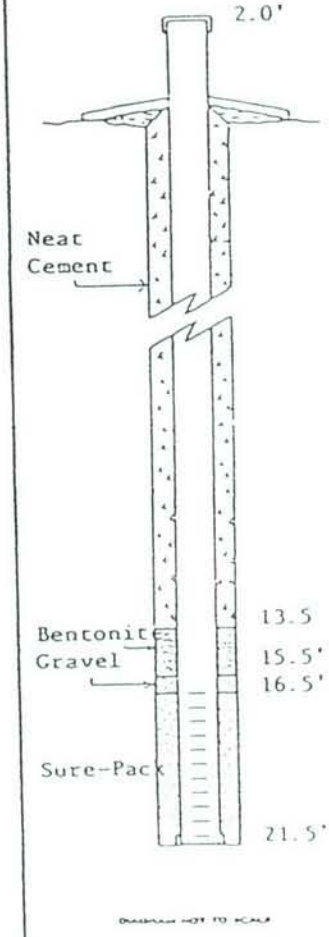
APPENDIX 4.5

Hole No. SC-M2

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS

1. PROJECT: Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station): N687929.13 E661144.17
3. DRILLING AGENCY: Paul N. Clauson
4. HOLE NO. (As shown on drawing title and title number): SC-M2
5. NAME OF DRILLER: Paul N Clauson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK: 0'
9. TOTAL DEPTH OF HOLE: 26.5'
10. SIZE AND TYPE OF BIT: 9"
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: 6.1' @ 24 hrs.
16. DATE HOLE: STARTED 3/1/80; COMPLETED 3/4/80
17. ELEVATION TOP OF HOLE: 64.65'
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Robert Hudson

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant) (g)
			See soil boring log SC-B3			



Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. SC-M3

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N688276.58 E622041.66		11. DATUM FOR ELEVATION SHOWN (TIDM or MSL): MSL	
3. DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title) and title number: SC-M3		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: Flowing well	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 3/6/80	COMPLETED 3/10/80
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 53.77'	
9. TOTAL DEPTH OF HOLE: 27.0'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert S. Meaux	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathered zone, etc., if significant) (g)
			See soil boring log SC-B5			

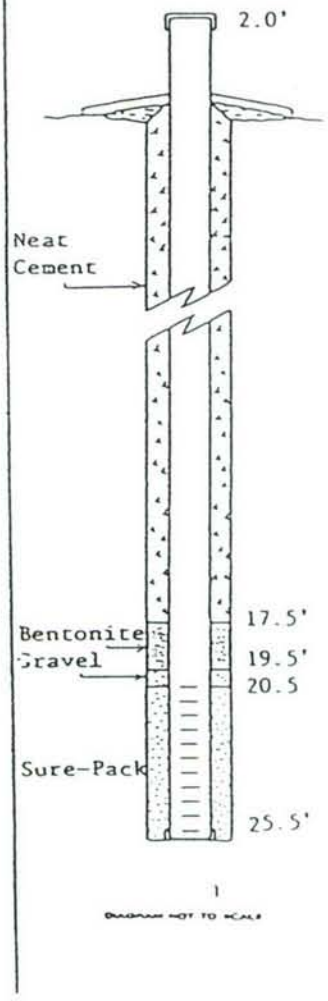


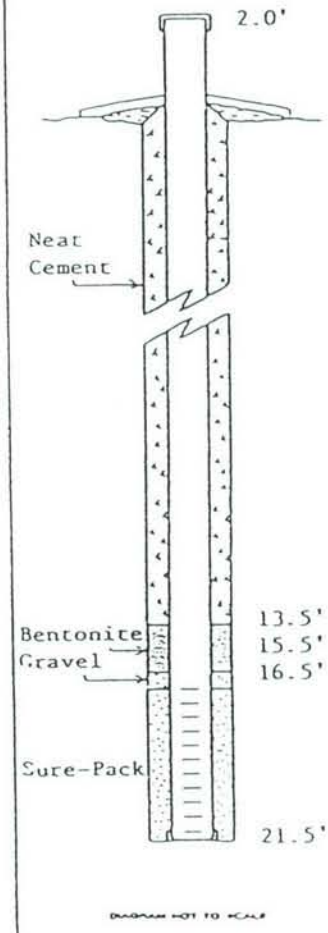
DIAGRAM NOT TO SCALE

Source: Environmental Science and Engineering 1982

Hole No. SC-M4

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 1 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): '688197.28 E662979.40		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Paul N. Clayson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and title number): SC-M4		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0 / UNDISTURBED 0	
5. NAME OF DRILLER: Paul N. Clayson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: +0.5' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 3/11/80 / COMPLETED 3/15/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 57.85'	
9. TOTAL DEPTH OF HOLE: 23'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Mason	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			Buff - fine sand 1.5'			
	5		Brown - changing to grey below 5 ft., clayey fine to medium sand, clay increases with depth, from 20% near top to 60% 9.0'			
	10		Grey-plastic sticky slightly sandy clay 16.0'			
	15		Light grey - clayey fine to medium sand 21.0'			
	20		Dark grey silty, sandy clay			
	25					
	30					

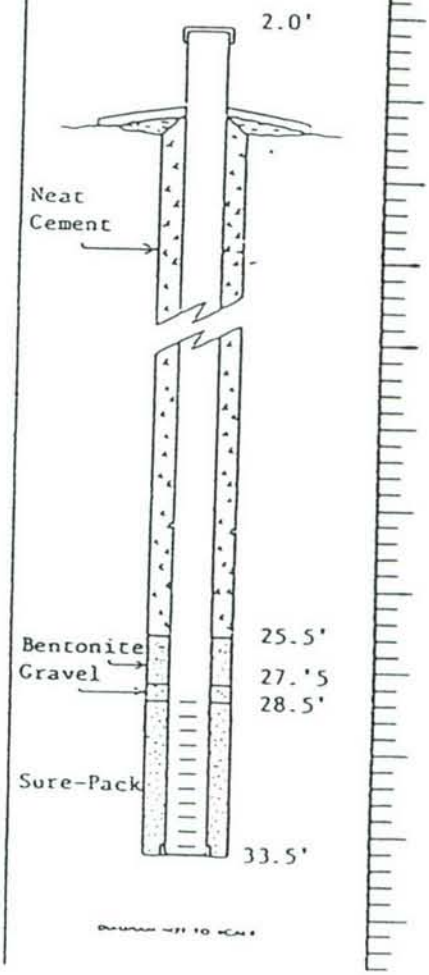


Source: Environmental Science and Engineering 1982

Hole No. SC-35

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 9"	
2. LOCATION (Coordinates or Station): N687038.91 E664075.21		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and file number): SC-MS		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0	
3. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 4.5' @ 24 hrs.	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 3/16/80; COMPLETED 3/19/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 78.53'	
9. TOTAL DEPTH OF HOLE: 35.0'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: [signature]	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
	0		Brown - clayey, medium to coarse sand, gradual color change to light grey starts about 3 ft.			
	4.0'					
	5		Grey, white - medium to coarse sand, clay content varies to bottom of hole			
	10					
	15					
	20					
	25		Grey, white medium to coarse sand, varying amount of clay material			
	30					
	30.0'					



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Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 78.53' | Hole No. SC-MS

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO f	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant) g
	35					

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PAGE A-78

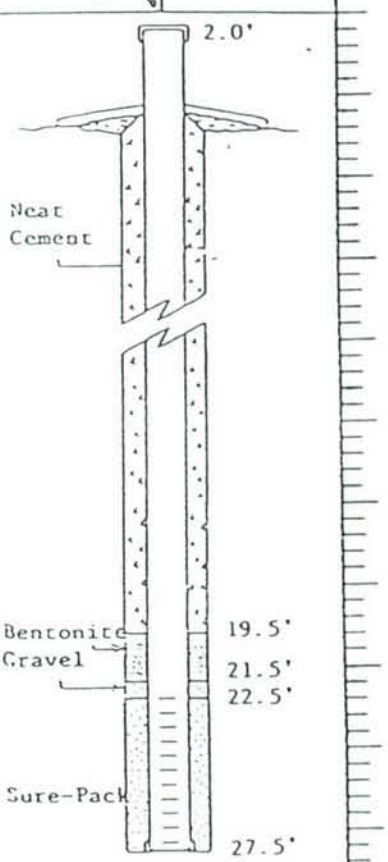
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. SC-M6

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 1 sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: 9"	
2. Location (Coordinates or Station): N686000.42 E662567.15		11. Datum for elevation shown (MSL or USGS): MSL	
Drilling agency: Paul N. Clawson		12. Manufacturer's designation of drill: SIMCO	
4. Hole no. (As shown on drawing title) and title number: SC-M6		13. Total no. of overburden samples taken: Disturbed 0; Undisturbed 0	
5. Name of driller: Paul N. Clawson		14. Total number core boxes	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 6.1' @ 24 hrs.	
7. Thickness of overburden		16. Date hole: Started 3/20/80; Completed 3/24/80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 71.55'	
9. Total depth of hole: 30'		18. Total core recovery for boring	
		19. Signature of inspector: Robert H. Gregory	

Elevation (a)	Depth (b)	Legend (c)	Classification of materials (Description) (d)	% Core recovery (e)	Box or sample no. (f)	Remarks (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			Rust brown - clayey sand 4.0'			
	5		Buff-light grey - sandy clay clayey sand, sand mostly fine and makes up 30-70% of samples			
	10					
	15		16.0'			
			White-light grey - silty, sandy clay, few thin orange beds			
	20		23.5'			
	25		Fine to medium slightly clayey sand, clay 5% ± 28.0'			
	30		Dark grey - silty sandy clay, small muscovite flakes			very hard, dry



Source: Environmental Science and Engineering 1982

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 2.5"	
2. LOCATION (Coordinates or Station): N686551.35 E665176.50		11. DATUM FOR ELEVATION SHOWN (TBM = MSL): MSL	
3. DRILLING AGENCY: Paul N. Clawson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title) and file number: SC-GW1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0	
5. NAME OF DRILLER: Paul N Clawson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 4/13/80; COMPLETED 4/15/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 75.54'	
9. TOTAL DEPTH OF HOLE: 50'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Clawson	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathered zone, if significant) (g)
	0		Yellow orange - clayey medium to coarse sand			easy drilling
	4.0'					
	5		Tan/yellow - medium to coarse sandy clay			difficult drilling
	10					
	14.0'					
	15		Light grey - clayey medium to coarse sand			easy drilling
	20		Light grey/orange - clayey medium to coarse sand			
	25		Tan - clayey medium to coarse sand			
	30					
	31.0'					

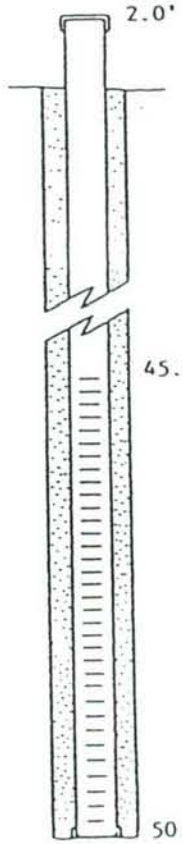
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG (Cont Sheet) | Elevation top of riser 75.54' | Hole No. SC-0W1

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 2 Sheets

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	35		Dark grey-fine sandy silt, muscovite present			
			39.0'			
	40		Olive - fine sandy, silty clay			compacted, very hard difficult drilling
	45					
	50					



Source: Environmental Science and Engineering 1982

Hole No. SC-0W2

DRILLING LOG

DIVISION: South Atlantic

INSTALLATION: Fort Stewart, GA.

SHEET 1 OF 2 SHEETS

1. PROJECT: Fort Stewart RCRA Studies

2. LOCATION (Coordinates or Station): N686407.29 E666290.05

3. DRILLING AGENCY: Paul N Clawson

4. HOLE NO. (As shown on drawing title) and title number: SC-0W2

5. NAME OF DRILLER: Paul N. Clawson

6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.

7. THICKNESS OF OVERBURDEN

8. DEPTH DRILLED INTO ROCK: 0'

9. TOTAL DEPTH OF HOLE: 30'

10. SIZE AND TYPE OF BIT: 2.5"

11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL

12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0

14. TOTAL NUMBER CORE BOXES

15. ELEVATION GROUND WATER

16. DATE HOLE: STARTED 4/16/80; COMPLETED 4/17/80

17. ELEVATION TOP OF HOLE: 76.83'

18. TOTAL CORE RECOVERY FOR BORING

19. SIGNATURE OF INSPECTOR: Robert Shearouse

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant)
			light brown - silty fine sand 2.0'			easy drilling
	5		Orange - clayey, fine to medium sand 9.0'			easy drilling
	10		Tan - clayey, silty fine to medium sand 11.5'			easy drilling
	15		light brown - clayey fine to medium sand with very slight amounts of coarse materials 16.0'			
	20		brown - clayey fine to medium sand with coarse sand			easy drilling
	25		light brown/tan - clayey fine to medium sand with coarse sand; percentage of clay increasing 26.5'			
	30		tan - fine to medium sandy clay 32.0'			difficult drilling

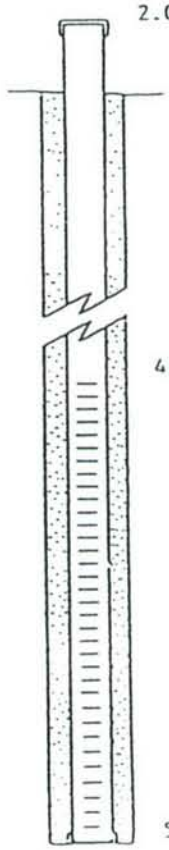
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG (Cont Sheet) | Elevation top of hole: 76.83' | Hole No. SC-0W2

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 2 sheets

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
	35		light/dark grey - fine to medium sandy, silty clay 36.5'			
	40		Olive - very slightly clayey fine to medium sandy silt with muscovite present			compacted, very hard, difficult drilling
	45					
	50					



Source: Environmental Science and Engineering 1982

Hole No. SC-0W3

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 2.5"	
2. LOCATION (Coordinates or Station): N685632.00 E666495.87		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and title number): SC-0W3		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0 / UNDISTURBED 0	
5. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 4/18/80 / COMPLETED 4/19/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 77.54'	
9. TOTAL DEPTH OF HOLE: 65'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Paul Clauson	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
	5		grey buff, brown-clayey medium sand; clay 5-15% 7.0'			
	10		buff - fine to medium clayey sand, clay 20-30%, color white below 10 ft. 19.0'			
	20		white - fine clayey sand; clay 20-30%, very slight amounts of coarse grains, few gravel sized angular quartz grains below 22.5 ft to 25 ft. 26.5'			slight mud loss 20' - 25'
	30		Grey, red, brown, buff- very clayey medium sand, few coarse angular grains 30.0'			

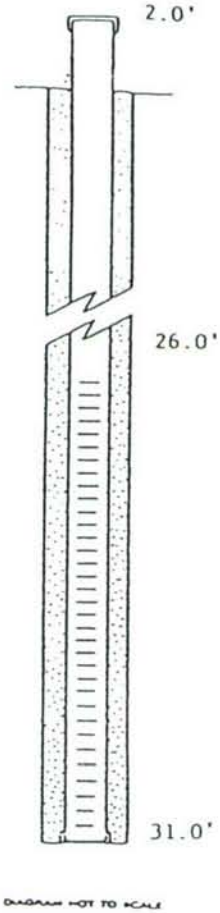
Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 77.54' | Hole No. SC-0W3

PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA. | SHEET 2 OF 2 SHEETS

ATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	35					
	40					
	45		45.5'			
	50		Grey, red, brown, buff - large percentage very coarse and gravel size well rounded quartz grains			
	55		55.5'			
			Dark grey - soft sandy clay. this grades into hard sandy clayey silt			
	60		59.5'			
			Olive - sandy, clayey silt			very hard , difficult drilling
	65					



Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. SC-0W4

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 2.5"	
2. LOCATION (Coordinates or Station): N684987.98 E666108.05		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Paul N. Clauson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and title number): SC-0W4		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0	
5. NAME OF DRILLER: Paul N. Clauson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 4/21/80; COMPLETED 4/22/80	
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 72.68'	
9. TOTAL DEPTH OF HOLE: 35'		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR: Robert Gregory	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			Dark brown - fine medium sand 2.0'			easy drilling
	5		light brown, grey - sandy clay, clayey sand, sand medium to coarse 6.5'			easy drilling
			greyish brown - alternating between clay and sandy clay, sand fine to medium 9.5'			difficult drilling
	10		tan - clayey sand, sandy clay, sand is very fine, percentage of clay about 50% 14.5'			difficult drilling
	15		tan - clayey, silty very fine sand, percentage of clay way down from last sample 19.5'			
	20					
	25		tan - same color but much greater percentage of coarse angular material			loss of drilling fluid
	30		31.0'			

Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 72.68'

Hole No. SCOW4

PROJECT: Fort Stewart RCRA Studies

INSTALLATION: Fort Stewart, GA

SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			dark grey - fine to medium sandy silt 33.0'			very soft, easy drilling
	35		Olive - sandy silt, muscovite present			very hard, compacted, difficult drilling

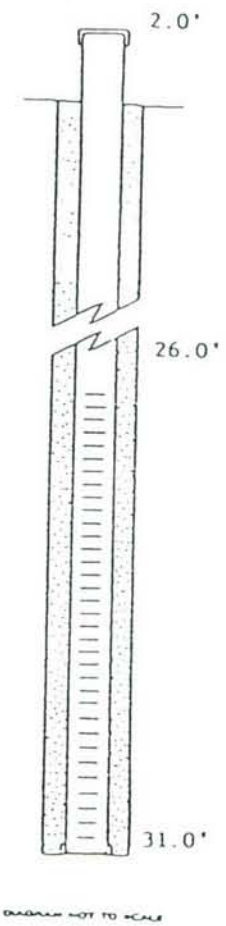


DIAGRAM NOT TO SCALE

Source: Environmental Science and Engineering 1982

APPENDIX 4.5

Hole No. SC-OW5

DRILLING LOG	Division: South Atlantic	Installation: Fort Stewart, GA	Sheet 1 of 2 sheets
1. Project: Fort Stewart RCRA Studies		10. Size and type of bit: 2.5"	
2. Location (Coordinates or Station): N684699.69 E664922.20		11. Datum for elevation shown (TBM or MSL): MSL	
3. Drilling agency: Paul N. Clauson		12. Manufacturer's designation of drill: STMCO	
4. Hole No. (As shown on drawing title and title number): SC-OW5		13. Total no. of overburden samples taken: Disturbed 0; Undisturbed 0	
5. Name of driller: Paul N. Clauson		14. Total number core boxes	
6. Direction of hole: [X] Vertical [ ] Inclined ____ deg. from vert.		15. Elevation ground water	
7. Thickness of overburden		16. Date hole: Started 4/23/80; Completed 4/25/80	
8. Depth drilled into rock: 0'		17. Elevation top of hole: 72.36'	
9. Total depth of hole: 35'		18. Total core recovery for boring	
		19. Signature of inspector: Robert Mahan	

Elevation (a)	Depth (b)	Legend (c)	Classification of materials (Description) (d)	% Core recovery (e)	Box or sample no. (f)	Remarks (Drilling time, water loss, depth of weathering, fracturing, etc., if significant) (g)
			Dark brown - fine to medium sand 2.0'			easy drilling
			Dark brown-peaty fine to medium sand 4.0'			easy drilling
	5		Pale yellow-clayey fine to medium sand with coarse sand 6.5'			easy drilling
			Orange-yellow - sandy (fine to medium) clay 8.5'			difficult drilling
	10					
	15		light grey - fine sandy silty clay; precentage of clay increasing up to 18 ft. 18.0'			easy drilling
	20		light grey - medium to coarse sandy clay, alternating amounts of standard clay with coarse angular material			
	25		light grey - fine to medium sandy clay; percentage of coarse material increasing with depth up to 30' 30.0'			
	30		dark grey - medium to coarse sandy silt, muscovite present			

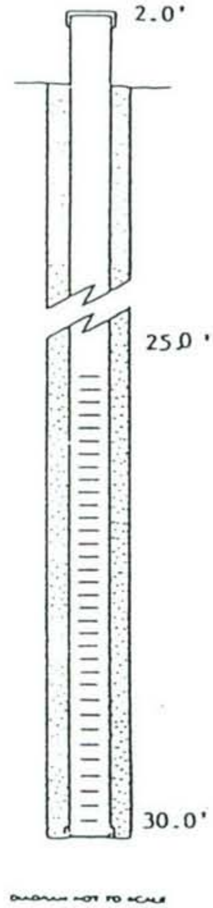
Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE	Hole No.	SHEET
72.36'	SC-OWS	2 OF 2 SHEETS

PROJECT	INSTALLATION
Fort Stewart RCRA Studies	Fort Stewart, GA

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			33.0'			
	35		Olive - fine sandy silt			very hard, difficult drilling

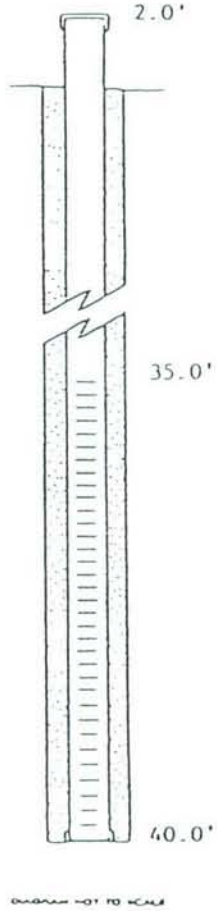


Source: Environmental Science and Engineering 1982

DRILLING LOG (Cont Sheet) | Elevation top of casing 68.62' | Hole No. SC-046

Project: Fort Stewart RCRA Studies | Installation: Fort Stewart, GA | Sheet 2 of 2 sheets

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant) (g)
	35		35.5'			
			Dark grey - slightly silty clayey medium to coarse sand			
			37.5'			
	40		Dark grey-clayey fine sandy silt			very hard, difficult drilling



Source: Environmental Science and Engineering 1982

APPENDIX 4.5

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Fort Stewart, GA	SHEET 1 OF 2 SHEETS
1. PROJECT: Fort Stewart RCRA Studies		10. SIZE AND TYPE OF BIT: 2.5"	
2. LOCATION (Coordinates or Station): N685459.00 E663601.93		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Paul N. Clawson		12. MANUFACTURER'S DESIGNATION OF DRILL: SIMCO	
4. HOLE NO. (As shown on drawing title and title number): SC-0W7		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER: Paul N. Clawson		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 4/28/80	COMPLETED 4/29/80
8. DEPTH DRILLED INTO ROCK: 0'		17. ELEVATION TOP OF HOLE: 68.12'	
9. TOTAL DEPTH OF HOLE: 35'		18. TOTAL CORE RECOVERY FOR BORING	%
		19. SIGNATURE OF INSPECTOR: [signature]	

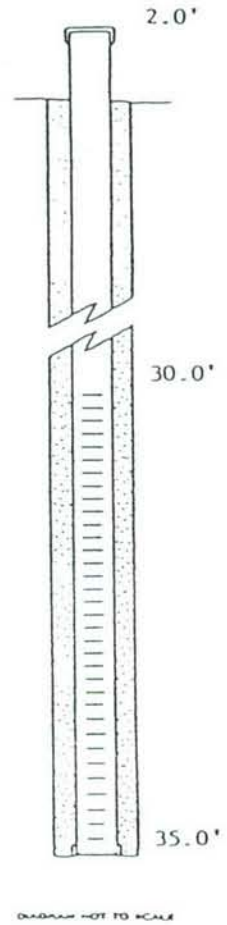
ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) (g)
			Tan - very slightly clayey fine to medium sand 3.0'			
	5		dark brown very slightly clayey medium to coarse sand 7.0'			slight loss of drilling fluid
			Tan-clayey medium to coarse sand, about 40% clay 9.0'			difficult drilling
	10		Orange-clayey medium to coarse sand 11.5'			difficult drilling
	15		Light grey-fine to medium sandy clay with very slight amount of coarse angular material			
	20		Light grey - clayey medium to coarse sand with very slight amount of angular gravel			
	25		light grey-clayey medium to coarse sand with very slight amount of coarse material, amount of clay increasing 25.0'			
	30		light grey-fine to medium sandy clay, amount of clay increasing 30.0'			
			Dark grey-fine to medium clayey silt, muscovite present 32.5'			very soft, easy drilling

Source: Environmental Science and Engineering 1982

RILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 68.12' | Hole No. SC-GW7

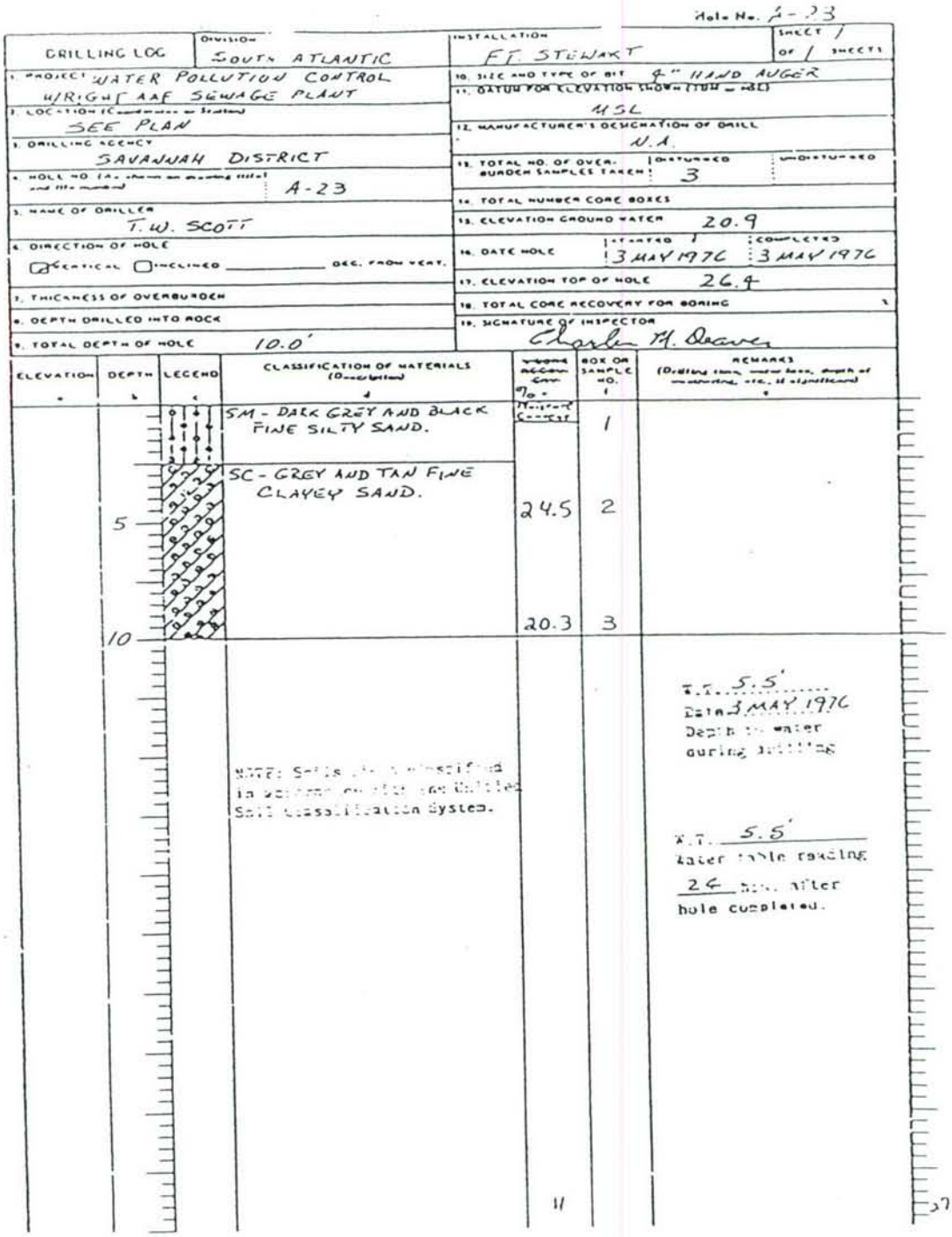
PROJECT: Fort Stewart RCRA Studies | INSTALLATION: Fort Stewart, GA | SHEET 2 OF 2 SHEETS

ATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOV-ERY (e)	BOX OR SAMPLE NO (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			32.5'			
	35		olive-slightly clayey fine sandy silt			hard , compacted, difficult drilling



Source: Environmental Science and Engineering 1982

APPENDIX 4.25



Hole No. A-23

DRILLING LOG | DIVISION: SOUTH ATLANTIC | INSTALLATION: FT. STEWART | SHEET 1 OF 1 SHEETS

1. PROJECT: WATER POLLUTION CONTROL W/RIGHT AAF SEWAGE PLANT
2. LOCATION (Coordinates or Station): SEE PLAN
3. DRILLING AGENCY: SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title) and title number: A-23
5. NAME OF DRILLER: T.W. SCOTT
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 10.0'
10. SIZE AND TYPE OF BIT: 4" HAND AUGER
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: N.A.
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 3; UNDISTURBED
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: 20.9
16. DATE HOLE: STARTED 3 MAY 1976; COMPLETED 3 MAY 1976
17. ELEVATION TOP OF HOLE: 26.4
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Charles M. Deaver

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	WATER CONTENT %	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			SM - DARK GREY AND BLACK FINE SILTY SAND.		1	
	5		SC - GREY AND TAN FINE CLAYEY SAND.	24.5	2	
				20.3	3	
	10					

Note: Soils are classified in accordance with the Unified Soil Classification System.

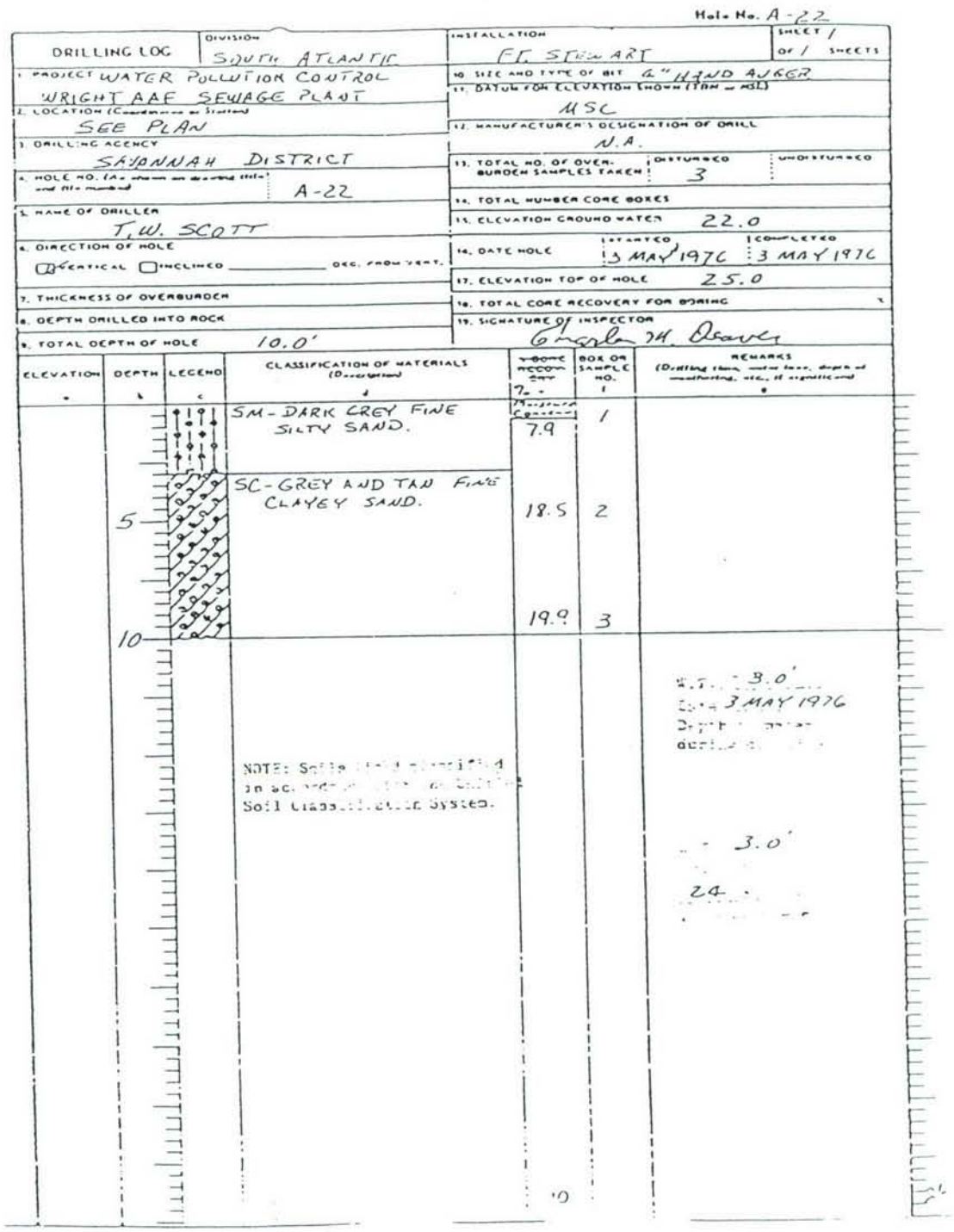
W.T. 5.5'
Date 3 MAY 1976
Depth to water during drilling

W.T. 5.5'
Water table reading 24 hrs. after hole completed.

11

Source: Fort Stewart 1990

APPENDIX 4.25



Hole No. A-22

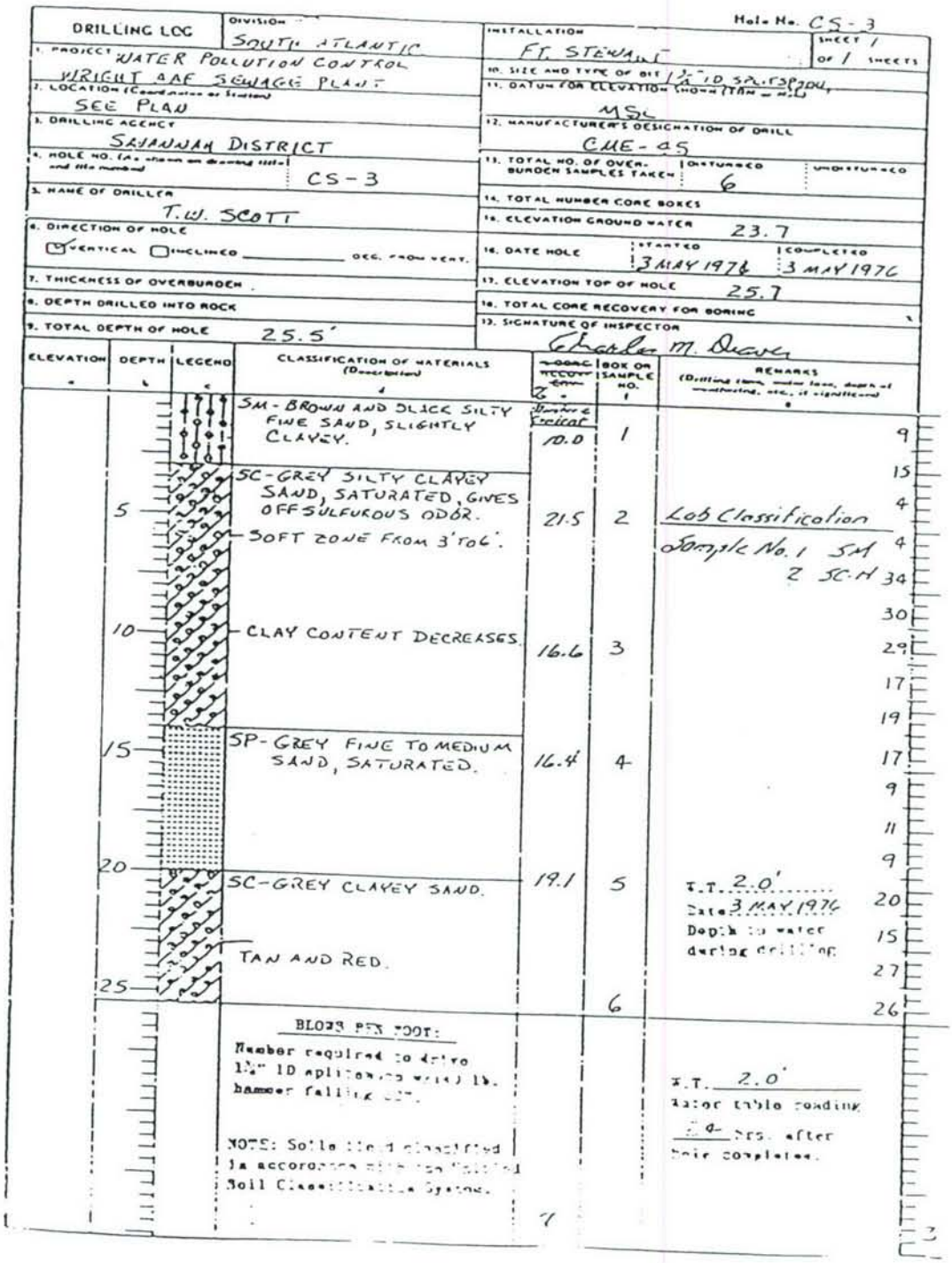
DRILLING LOG | DIVISION: SOUTH ATLANTIC | INSTALLATION: FT. STEWART | SHEET 1 OF 1 SHEETS

1. PROJECT: WATER POLLUTION CONTROL WRIGHT AAF SEWAGE PLANT
2. LOCATION (Coordinates or Station): SEE PLAN
3. DRILLING AGENCY: SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number): A-22
5. NAME OF DRILLER: T.W. SCOTT
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 10.0'
10. SIZE AND TYPE OF BIT: 4" HAND AUGER
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: N.A.
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 3 | UNDISTURBED
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: 22.0
16. DATE HOLE: STARTED 3 MAY 1976 | COMPLETED 3 MAY 1976
17. ELEVATION TOP OF HOLE: 25.0
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Graham H. Deaver

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	FROM / TO	BOX OR SAMPLE NO.	REMARKS
			SM - DARK GREY FINE SILTY SAND.	7.9	1	
	5		SC - GREY AND TAN FINE CLAYEY SAND.	18.5	2	
				19.9	3	
	10					W.T. - 3.0' Date - 3 MAY 1976
			NOTE: Soils [illegible] in accordance [illegible] Soil Classification System.			- 3.0' 24

Source: Fort Stewart 1990

FST-020



DRILLING LOG

DIVISION: SOUTH ATLANTIC
INSTALLATION: FT. STEWART
Hole No. CS-3
SHEET 1 OF 1 SHEETS

1. PROJECT: WATER POLLUTION CONTROL WRIGHT AAF SEWAGE PLANT
2. LOCATION (Coordinates or Station): SEE PLAN
3. DRILLING AGENCY: SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number): CS-3
5. NAME OF DRILLER: T.W. SCOTT
6. DIRECTION OF HOLE: ☑ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 25.5'
10. SIZE AND TYPE OF BIT: 3 1/4" ID SPLIT SPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: CME-45
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 6; UNDISTURBED
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: 23.7
16. DATE HOLE: STARTED 3 MAY 1976; COMPLETED 3 MAY 1976
17. ELEVATION TOP OF HOLE: 25.7
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Charles M. Dicus

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY (Inches)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS PER FOOT
			SM - BROWN AND BLACK SILTY FINE SAND, SLIGHTLY CLAYEY.	10.0	1		9 15
	5		SC - GREY SILTY CLAYEY SAND, SATURATED, GIVES OFF SULFUROUS ODOR. SOFT ZONE FROM 3' TO 6'.	21.5	2	Lab Classification Sample No. 1 SM 2 SC-M	4 4 34
	10		CLAY CONTENT DECREASES.	16.6	3		30 29
	15		SP - GREY FINE TO MEDIUM SAND, SATURATED.	16.4	4		17 19 17
	20		SC - GREY CLAYEY SAND. TAN AND RED.	19.1	5	W.T. 2.0' Date 3 MAY 1976 Depth to water during drilling	9 11 9 20 15
	25				6	W.T. 2.0' Water table reading 24 hrs. after hole completed.	27 26

BLOWS PER FOOT: Number required to drive 1 3/8" ID split spoon with 140 lb. hammer falling 30".

NOTE: Soils identified in accordance with the Unified Soil Classification System.

Source: Fort Stewart 1990

APPENDIX 4.25

Hole No. A-21

DRILLING LOG	DIVISION: SOUTH ATLANTIC	INSTALLATION: FT. STEWART	SHEET 1 OF 1 SHEETS
1. PROJECT: WATER POLLUTION CONTROL WRIGHT AAF SEWAGE PLANT		10. SIZE AND TYPE OF BIT: 4" HAND AUGER	
2. LOCATION (Coordinates or Station): SEE PLAN		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL: N.A.	
4. HOLE NO. (As shown on drawing title and file number): A-21		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 5 / UNDISTURBED	
5. NAME OF DRILLER: T.W. SCOTT		14. TOTAL NUMBER CORE BOXES: X	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: 23.0	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 13 MAY 1976 / COMPLETED 13 MAY 1976	
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE: 29.0	
9. TOTAL DEPTH OF HOLE: 10.0'		18. TOTAL CORE RECOVERY FOR BORING:	
		19. SIGNATURE OF INSPECTOR: Charles M. Deaver	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY (Rock Only)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			SM- BROWN AND BLACK FINE SILTY SAND.	9.5	1	NOTE: DRILLED ON EXISTING DIKE OF OXIDATION POND.
	5		SC- TAN AND GREY CLAYEY FINE SAND.	20.0	2	Lab Classification Sample No. 1 SM-SC 2 SC-H
			SM- DARK GREY FINE SILTY SAND.	8.1	3	
	10					T.T. 6.0' Date 3 MAY 1976 Depth to water during drilling
			NOTE: Soils field classified in accordance with the Unified Soil Classification System.			T.T. 6.0' water table reading 24 hrs. after hole completed.
				9		

Source: Fort Stewart 1990

Hole No. OW-6

DRILLING LOG	DIVISION: SAD	INSTALLATION: Ft. Stewart, Ga.	SHEET 1 OF 1 SHEETS

1. PROJECT: Wright AAF Sewage Treatment Plant	10. SIZE AND TYPE OF BIT: 1 3/8" Splitspoon
2. LOCATION (Coordinates or Station): See Plan	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
3. DRILLING AGENCY: Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 314
4. HOLE NO. (As shown on drawing title and file number): OW-6	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: Disturbed 4; Undisturbed 0
5. NAME OF DRILLER: A. Rountree	14. TOTAL NUMBER CORE BOXES: –
6. DIRECTION OF HOLE: [X] Vertical [ ] Inclined ____ Deg. from Vert.	15. ELEVATION GROUND WATER:
	16. DATE HOLE: Started 30 Apr 79; Completed 30 Apr 79
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE: 25.1
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING: %
9. TOTAL DEPTH OF HOLE: 18.0'	19. SIGNATURE OF INSPECTOR: Carl Smith

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY / Moisture Content e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows
25.1			SC - Gray & brown clayey fine to medium sand with roots, moist. 1.5		Jar 1	Sample Lab No. / Class / LL / PL / PI	7
23.6			CL - Mottled red-brown sandy clay with gravel, moist. 6.0	16.1 / 17.1	2	1 SC* 47 24 23 2 SC-H 74 25 49 3 SM-H 72 37 35	5 14
20.1	5		SC - Tan, gray and white clayey sand, medium to coarse with gravel, moist. White below 8.0'. Wet with occasional white fine sand seams and streaks of clay below 11.5'. Tan-yellow below 12.5'. 13.5	15.9	3	4 SM Non Plastic W.T. 10.5' Date 30 Apr 79 Depth to water during drilling	35 60 47 52 87 91
11.6	10 15		SP - White poorly graded sand, fine to medium, sl. clayey, wet. Medium to coarse below 16.5'.		4	* with a trace of rock fragments	21 38 20
7.1	20		Bottom at 18.0'				

NOTE: Soils field classified in accordance with the Unified Soil Classification Systems.

BLOWS PER FOOT:
Number required to drive 1 3/8" ID splitspoon w/140 lb hammer falling 30".

Note: Fishtailed to 10.0' with "Rooster" after splitspoon and set 20.0' of 6" PVC casing - Bottom at 17.1' with 1.9' stick-up after flushing with clear water.

Hole No. OW-7

DRILLING LOG	DIVISION: SAD	INSTALLATION: FT. STEWART, GA.	SHEET 1 OF 1 SHEETS

1. PROJECT: WRIGHT AAF SEWAGE TREATMENT PLANT	10. SIZE AND TYPE OF BIT: 1 3/8" SPLIT SPOON
2. LOCATION (Coordinates or Station): SEE PLAN	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
3. DRILLING AGENCY: SAVANNAH DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 314
4. HOLE NO. (As shown on drawing title and file number): OW-7	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4; UNDISTURBED 0
5. NAME OF DRILLER: P. ROUNTREE	14. TOTAL NUMBER CORE BOXES: —
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER
	16. DATE HOLE: STARTED 19 APR 77; COMPLETED 19 APR 77
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE: + 26.2
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING: %
9. TOTAL DEPTH OF HOLE: 18.0'	19. SIGNATURE OF INSPECTOR: Carl Smith

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
25.2			SP-SM - DARK GRAY FINE TO MEDIUM SAND WITH ROOTS AND OCCASIONAL THIN BROWN SC SEAMS, SL. MOIST. MOIST 2.0-3.5' (3.5)	Moisture Content 5.4	1	Sample Lab: No. Class LL PL PI; 1 SP-SM* Non Plastic; 2 SC-H 89 32 57; 3 SC-H 84 20 64; 4 SP-SM Non Plastic
21.7			CL - MOTTLED RED, GRAY AND TAN SANDY CLAY, STIFF, SL. MOIST. (5.0)	20.4	2	
20.2	5		SC - TAN AND GRAY CLAYEY SAND, MEDIUM TO COARSE WITH OCCASIONAL GRAVEL, SL. MOIST. -GRAY, WHITE AND TAN BELOW 6.0'. WET WITH INCREASE IN GRAVEL BELOW 9.0'. DECREASE IN CLAY BELOW 10.5' (11.5)	13.8	3	W.T. 9.0'; Date 19 APR 77; Depth to water during drilling
13.7	10		SW - TAN AND YELLOW WELL GRADED SAND, SL. CLAYEY, SATURATED WITH FINE GRAVEL AND OCCASIONAL THIN SEAMS OF FINE GRAVEL. TAN AND ORANGE BELOW 17.0'.		4	* with a trace of roots and rock fragments
7.2	15		BOTTOM AT 18.0'			
	20		NOTE: Soils field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/140 lb. hammer falling 30".

Blows (right-hand column): 10, 6, 11, 30, 40, 5, 63, 50, 55, 22, 22, 20

NOTE: FIELD DRILLED TO 18.0' WITH ROTARY AND SPLIT SPOON AND SET 20.0' OF 2" PVC CASING - BOTTOM AT 11.5 AFTER FLUSHING WITH CLEAR WATER.

7

Hole No. OW-4

DRILLING LOG

Field	Entry
DIVISION	SAO
INSTALLATION	FT. STEWART, GA.
SHEET	1 OF 1 SHEETS
1. PROJECT	WRIGHT AAF SEWAGE TREATMENT PLANT
2. LOCATION (Coordinates or Station)	SEE PLAN
3. DRILLING AGENCY	SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number)	OW-4
5. NAME OF DRILLER	P. ROUNDTREE
6. DIRECTION OF HOLE	[X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE	18.0'
10. SIZE AND TYPE OF BIT	1 3/8" SPLITSPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	FAILING 314
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED: 5 / UNDISTURBED: 0
14. TOTAL NUMBER CORE BOXES	—
15. ELEVATION GROUND WATER	
16. DATE HOLE	STARTED: 18 APR. 79 / COMPLETED: 19 APR. 79
17. ELEVATION TOP OF HOLE	+ 25.7'
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	David Smith

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY / BOX OR SAMPLE NO. (e)	SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)	Blows
25.7			SM - GRAY, BROWN SILTY FINE TO MEDIUM SAND WITH SC SEAMS AND ROOTS, MOIST.	Moisture Content 8.2	JAR 1	Sample Lab No. / Class / LL / PL / PI	15 / 8
23.7	2.0		CL - GRAY, BROWN AND TAN VERY SANDY CLAY, MOIST.	18.1	2	1 SM* Not Performed	9
	5					2 SC-H 59 20 39	
19.7	6.0		SC - GRAY CLAYEY SAND, MEDIUM TO COARSE WITH OCCASIONAL GRAY CL POCKETS, MOIST.	14.0	3	3 SC-H 73 23 50	25
						5 SC**	54
			GRAY-WHITE BELOW 9.0'.				62
	10		TAN-WHITE WITH SOME GRAVEL BELOW 10.5'	18.1	4	W.T. 11.0' / Date 18 APR. 79 / Depth to water during drilling	55 / 41 / 43
	15		TAN-ORANGE, FINE TO MEDIUM, NOT BECOMING CLAY BELOW 15.5.			* with roots	40
8.7	17.0		SP - TAN AND WHITE FINE TO MEDIUM POORLY GRADED SAND, SATURATED.	13.6	5	** Lab Visual Class only	55 / 47
7.7			BOTTOM AT 18.0'				
	20						

NOTE: Soils field classified in accordance with the Unified Soil Classification Systems.

BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/140 lb. hammer falling 30".

NOTE: [illegible] "Power" after [illegible] was set 20.0' of 6" PVC casing - bottom at 17.5 with 1.7' stick-up after flushing with clean water

APPENDIX 4.25

Hole No. OW-5

DRILLING LOG	DIVISION: SAO	INSTALLATION: FT. STEWART, GA.	SHEET 1 OF 1 SHEETS

1. PROJECT: WRIGHT AAF SEWAGE TREATMENT PLANT	10. SIZE AND TYPE OF BIT: 1 3/8" SPLIT SPOON
2. LOCATION (Coordinates or Station): SEE PLAN	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
3. DRILLING AGENCY: SAVANNAH DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 314
4. HOLE NO. (As shown on drawing title and file number): OW-5	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4, UNDISTURBED 0
5. NAME OF DRILLER: P. ROWNTREE	14. TOTAL NUMBER CORE BOXES: —1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER
7. THICKNESS OF OVERBURDEN	16. DATE HOLE: STARTED 18 APR. 79, COMPLETED 18 APR. 79
8. DEPTH DRILLED INTO ROCK	17. ELEVATION TOP OF HOLE: + 24.1'
9. TOTAL DEPTH OF HOLE: 18.0'	18. TOTAL CORE RECOVERY FOR BORING
	19. SIGNATURE OF INSPECTOR: Carl Smith

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
24.1			SM - GRAY-BROWN SILTY FINE TO MEDIUM SAND WITH ROOTS, SL. MOIST.	Weight Count	JAR 1	
23.1				11.1		
			SC - MOTTLED TAN, ORANGE AND GRAY, MEDIUM TO COARSE CLAYEY SAND WITH OCCASIONAL GRAVEL.	17.5	2	Sample Lab Class LL PL PI 2 SC* 3 SC* 4 SM Non Plastic
	5		GRAY BELOW 4.5'.			W.T. 10.5' Date 18 APR. 79 Depth to water during drilling
			TAN-GRAY WITH OCCASIONAL ORGANIC TRACES BELOW 6.0'.			
			GRAVEL LAYERS 9.0-13.0'.			
	10		LIGHT GRAY-TAN AND WET BELOW 10.5'.	16.6	3	
10.6			13.5			
	15		SP - TAN-ORANGE FINE TO MEDIUM POORLY GRADED SAND, SL. CLAYEY, SATURATED. — MEDIUM TO COARSE BELOW 15.0'.		4	* Lab visual classification only.
6.1			BOTTOM AT 18.0'			
	20		NOTE: Soils field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number of blows to drive 1 3/8" ID split spoon w/140 lb. hammer falling 30".
						NOTE: FISHTAILED TO 18.0' WITH "REVERT" AFTER SPLITSPOON AND SET 20.0' OF 2" PVC CASING - BOTTOM AT 18.0' WITH 1.5' STICK-UP AFTER FLUSHING WITH CLEAR WATER.

Blows column (right margin): 6, 4, 10, 27, 37, 24, 41, 41, 56, 35, 49, 14

Source: Fort Stewart 1990

Hole No. OW-2

DRILLING LOG	DIVISION: SAD	INSTALLATION: Ft. Stewart, Ga.	SHEET 1 OF 1 SHEETS
1. PROJECT: Hunter AAF Barracks Treatment Plant		10. SIZE AND TYPE OF BIT: 1 3/8" Splitspoon	
2. LOCATION (Coordinates or Station): See Plan		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 314	
4. HOLE NO. (As shown on drawing title and file number): OW-2		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 4; UNDISTURBED 0	
5. NAME OF DRILLER: A. Rountree		14. TOTAL NUMBER CORE BOXES: —	
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER	
		16. DATE HOLE: STARTED 16 APR. 79; COMPLETED 17 APR. 79	
7. THICKNESS OF OVERBURDEN		17. ELEVATION TOP OF HOLE 27.1'	
8. DEPTH DRILLED INTO ROCK		18. TOTAL CORE RECOVERY FOR BORING %	
9. TOTAL DEPTH OF HOLE 18.0'		19. SIGNATURE OF INSPECTOR: Carol Smith	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e (Moisture Content)	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows
27.1			SM - Gray brown silty fine sand with roots, sl. moist.	10.6	JAR 1		6, 7, 6
			Tan-brown, SC, clayey sand 4.5'				
22.6	5		SC - Mottled gray, tan and red clayey sand, medium to coarse with occasional fine gravel, moist.	14.7	2	W.T. 12.0' Date 16 APR 79 Depth to water during drilling	32, 41, 39
			Tan below 7.5'.				
	10					Sample Lab No. / Class / LL / PL / PI 1* SM Non Plastic 2 SC-H 73 26 47 4 SM Not performed	57, 41
			Tan-orange, wet below 12.0'.		3		47
			Gray-tan, decrease clay below 13.5'.				47
	15						52
				12.7	4		36
9.1			Bottom at 18.0'			NOTE: Soils field classified in accordance with the Unified Soil Classification Systems.	
	20		BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/140 lb hammer falling 30".			Note: Fluid failed to 18.0' when "Revert" after splitspoon. Note: This hole was cased with 20.0' of PVC pipe with 2.0' stick-up - bottom at 17.0' after flushing with clear water. * With a trace of roots / rock fragments	

Hole No. OW-3

DRILLING LOG	DIVISION: SAD	INSTALLATION: FT. STEWART, GA.	SHEET 1 OF 1 SHEETS

1. PROJECT: WRIGHT AAF SEWAGE TREATMENT PLANT
2. LOCATION (Coordinates or Station): SEE MAP
3. DRILLING AGENCY: SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number): OW-3
5. NAME OF DRILLER: P. ROUNTREE
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ______ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 18.0'
10. SIZE AND TYPE OF BIT: 1 3/8" SPLIT-SPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 814
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 5; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: —
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED 17 APR. 79; COMPLETED 18 APR. 79
17. ELEVATION TOP OF HOLE: +25.4'
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Carl Smith

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
25.4			SM - GRAY AND TAN SILTY SAND WITH ROOTS, SL. MOIST. (2.0)	Moisture Content	JAR 1		4
23.4			SC - MOTTLED GRAY, TAN, ORANGE CLAYEY SAND, MEDIUM TO COARSE, MOIST.	10.0		Sample Lab No. Class LL PL PI	4
				19.0	2	2 SC-H 57 25 32	
						3 SC-H 92 29 63	10
	5		CLAY BELOW 4.5'.			4 SP-SM Non Plastic	
				14.1	3	5 SM Not Performed	35
			OCCASIONAL GRAVEL BELOW 7.5'.				40
			DECREASE CLAY BELOW 9.0'.			W.T. 11.5'	57
	10		GRAY AND TAN, FINE TO MEDIUM BELOW 10.5'. (11.0)			Date 17 APR. 79	39
13.4			SW - GRAY AND TAN WELL GRADED SAND WITH SOME GRAVEL, SATURATED.		4	Depth to water during drilling	23
							32
10.4	15		SC - TAN-ORANGE CLAYEY SAND, FINE TO MEDIUM, WET. (15.0)				57
				16.2	5		15
7.4							7
			BOTTOM AT 18.0'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/140 lb. hammer falling 30".	
	20		NOTE: Soils field classified in accordance with the Unified Soil Classification System.			NOTE: FLUSHED TO 18.0' AND "DROVE" 2" SPLITSPOON AND SET 18.0' PVC CASING (2") - BOTTOM AT 17.1' WITH 1.8' STICK-UP AFTER FLUSHING WITH CLEAR WATER.	

3

US ARMY ENVIRONMENTAL HYGIENE AGENCY

APPENDIX 4.17

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 37-26-0127 DATE 31 March 1987

LOCATION Ft Stewart, GA DRILLERS Hoddinott, Smithson,

FST-014 Maners

DRILL RIG Acker ADII BORE HOLE BH 9

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
	061	Brown (10yr4/3) medium to fine sand	
		Yellowish brown (10yr5/8) medium to fine sand	
		Very pale brown (10yr8/3) medium sand	
5	062	Light gray (10yr7/2) medium sand	Water encountered @ 5'
		EOH	
			063 is Quality Control sample on the SP washing
10			

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 18, 1 Jun 80, which will be used.

Source: U. S. Army Environmental Hygiene Agency 1987

APPENDIX 4.25

Hole No. OW-1

DRILLING LOG	DIVISION: SAD	INSTALLATION: FT STEWART, GA	SHEET 1 OF 1 SHEETS

1. PROJECT: WRIGHT AAF SEWAGE TREATMENT PLANT	10. SIZE AND TYPE OF BIT: 1 3/8" SPLITSPOON
2. LOCATION (Coordinates or Station): SEE MAP	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
3. DRILLING AGENCY: SAVANNAH DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 3M
4. HOLE NO. (As shown on drawing title and file number): OW-1	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4; UNDISTURBED 0
5. NAME OF DRILLER: P. ROUNTREE	14. TOTAL NUMBER CORE BOXES: —
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER
	16. DATE HOLE: STARTED 13 APR 79; COMPLETED 13 APR 79
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE: + 27.6'
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING: %
9. TOTAL DEPTH OF HOLE: 16.5'	19. SIGNATURE OF INSPECTOR: Carl Smith

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY / Moisture Content (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)	BLOWS
27.6			SM - Gray-brown silty fine to medium sand with roots and occasional coarse sand, sl. moist.		JAR 1	Sample Lab No. Class LL PL PI 1* SC 30 21 9 2** SC-H 74 25 49 3 SC not performed	7 5 3
				12.0			
22.6	5		5.0' SC - Gray, tan and orange clayey sand, medium to coarse with fine gravel, moist. Gray and tan below 6.0'.	15.5	2		21 40
				—		W.T. 11.0' Date 13 APR 79 Depth to water during drilling	55
	10		Tan-yellow with decrease in clay below 9.0'. Tan, yellow, and white below 10.5'.				55
				18.1	3		40 47
	15						38
					4		58
11.1			Bottom at 16.5'				
	20		BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/140 lb. hammer falling 30".			NOTE: Soils field classified in accordance with the Unified Soil Classification System. NOTE: First 5.0 to 5.0' with "Rowat" after splitspoon. NOTE: This hole was cased with 18.0' of 6" PVC pipe. After setting casing hole was washed to 17.0' to allow for piping of sand - 1.0' stick-up of PVC. Bottom at 17.0' after flushing with clear water. * With a trace of rock fragments ** With a trace of roots and rock fragments	

Mel 2

Source: Fort Stewart 1990

US ARMY ENVIRONMENTAL HYGIENE AGENCY

APPENDIX 4.17

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 37-26-0127 DATE 31 March 1987

LOCATION Ft Stewart, GA DRILLERS Hoddinott, Smithson,

FST-014 Maners

DRILL RIG Acker ADII BORE HOLE BH 7

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
	057	Black fine sand Yellow (10yr6/7) fine sand	
		White (10yr8/2) fine sand Gray (10yr7/1) fine sand	
	058		Water encountered 4'
5		BOH	Black subsurface layer in bottom of SP
10			

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

Source: U. S. Army Environmental Hygiene Agency 1987

US ARMY ENVIRONMENTAL HYGIENE AGENCY

APPENDIX 4.17

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 37-26-0127 DATE 31 March 1987

LOCATION Ft Stewart, GA DRILLERS Hoddinott, Smithson,

FST-014 Maners

DRILL RIG Acker ADII BORE HOLE' BH 8

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
	059	Black sand	
		Yellow (10yr7/6) medium sand	
		Light gray (10yr7/2) medium sand	
	060		Water encountered @ 5'
5		BOH	
10	1		

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used

Source: U. S. Army Environmental Hygiene Agency 1987

US ARMY ENVIRONMENTAL HYGIENE AGENCY

APPENDIX 4.17

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 37-26-0127 DATE 31 March 1987

LOCATION Ft Stewart, GA DRILLERS Hoddinott, Smithson,

FST-014 Maners

DRILL RIG Acker ADII BORE HOLE BH 5

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
	050/051	Ash + burn residue + sand.	052 is a sample of the burn residue
		Brown (10yr5/3) medium sand	
		Strong brown(7.5yr5/8)loamy sand	
		Light yellowish brown(10yr6/4)medium sand	
		White (10yr8/2) medium sand	
5			
		Black medium sand	
	053/054		
		BOH	
10			

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used.

Source: U. S. Army Environmental Hygiene Agency 1987

US ARMY ENVIRONMENTAL HYGIENE AGENCY

APPENDIX 4.17

DRILLING LOG

(The proponent of this form is HSHB-ES)

PROJECT 37-26-0127 DATE 31 March 1987

LOCATION Ft Stewart, GA FST-014 DRILLERS Hoddinott, Smithson, Maners

DRILL RIG Acker ADII BORE HOLE BH 6

DEPTH	SAMPLE TYPE / BLOWS PER 6 IN	DESCRIPTION	REMARKS
	055	Dark grayish brown(10yr4/2)medium sand Yellow (10yr 7/6) fine sand	1"thick layer of black residue 6" Below surface
		White (10yr8/2) very fine sand	
		Brownish yellow (10yr6/8) fine sand	
		White (10yr8/2)medium sand	
5	056		Water encountered @5' black sand was found at the extreme lower end of the SP.
		BOH	
10			

AEHA Form 130, 1 Nov 82

Replaces HSHB Form 78, 1 Jun 80, which will be used

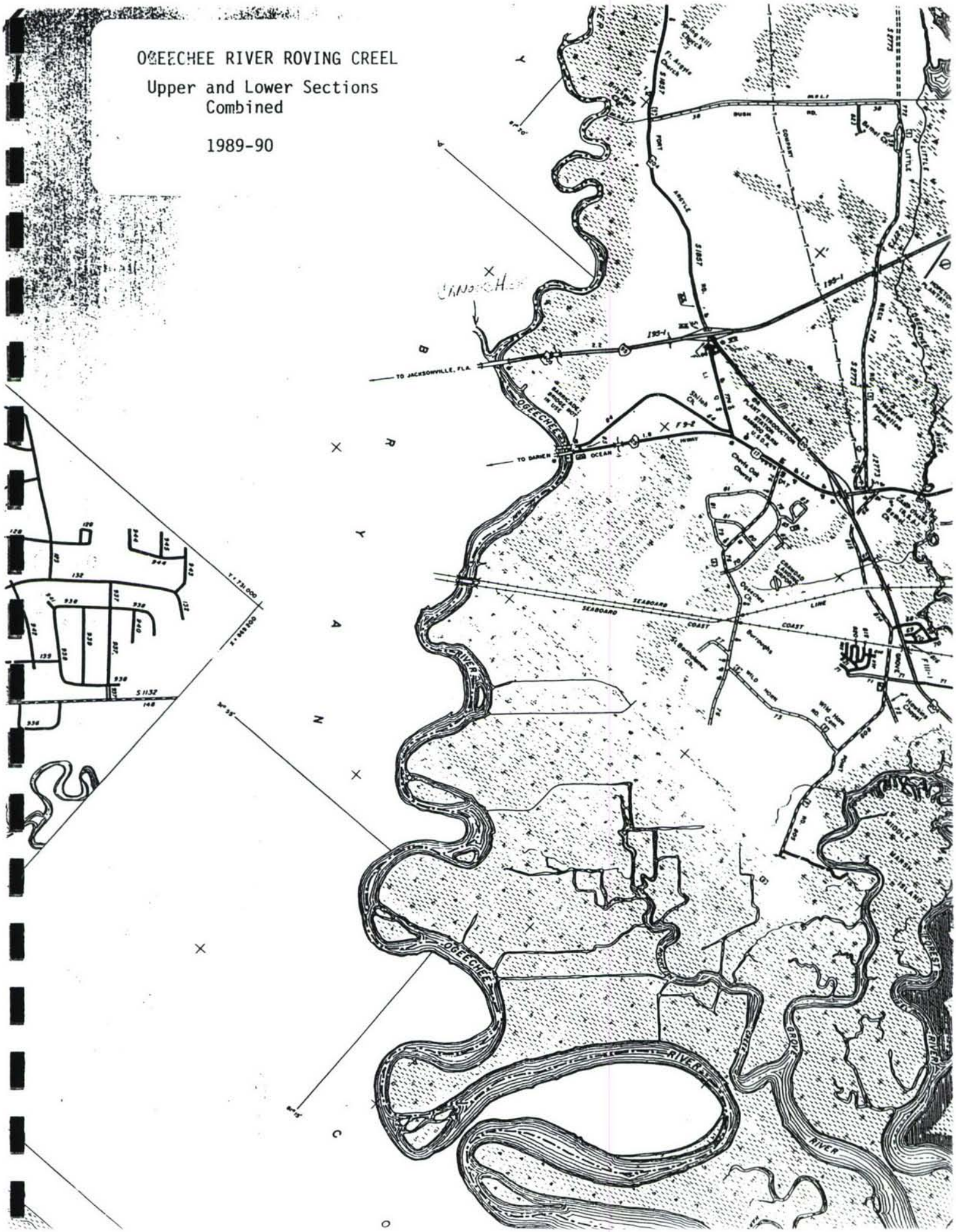
Source: U. S. Army Environmental Hygiene Agency 1987

APPENDIX E
OGEECHEE RIVER CREEL REPORT

OGEECHEE RIVER ROVING CREEL

Upper and Lower Sections
Combined

1989-90



STUDY XIII: **Savannah and Ogeechee River Creel Surveys**

Study Objectives: To estimate current levels of angler harvest and compare to previous creel information and evaluate the effects of legislative/regulatory changes regarding the harvest of striped bass.

A. ACTIVITY

Roving creel designs, species lists and route maps were prepared for Savannah and Ogeechee river estuarine surveys. A creel clerk was located, interviewed and hired for each river. Clerks were supervised during the five-month creel data collection period scheduled from October to March. Data were reviewed and summarized periodically throughout the collection period to identify and correct problems that might be occurring. Expansion of the data was conducted shortly after the completion of the creel data collection period. Tables and a summary report were prepared for this document.

B. TARGET DATES FOR ACHIEVEMENT AND ACCOMPLISHMENTS

The Savannah and Ogeechee river estuarine creel surveys were conducted on schedule between the months of October 1989 and March 1990. Data were summarized and prepared for expansion throughout the duration of the creel survey. Creel data expansion was accomplished shortly after completion of the data collection in March 1990. Tables and a brief summary of the results were to be included in this report. A full year access creel survey of the Ogeechee River freshwater fishery is scheduled to begin January 1, 1991.

C. SIGNIFICANT DEVIATIONS

None.

D. REMARKS

Both the Savannah River and Ogeechee River estuarine fisheries were surveyed from October 8, 1989 through March 10, 1990. Each river was surveyed by one roving creel clerk 5 days per week. Each river had two roving sections that were scheduled equally on a random basis. Survey area on the Savannah River extended from river kilometer 11 upstream to kilometer 44 and on the Ogeechee River from kilometer 20 to kilometer 61. The major emphasis of these surveys was to monitor striped bass fished-for effort and harvest. Other species of interest were included in each survey (Tables 2 and 3).

This was the first in a series of seasonal roving creel surveys to be repeated every third year in an attempt to monitor changes in the estuarine fisheries of each river. Angler harvest on the Savannah River during the 5-month period totaled an estimated 6,572 fish compared with an estimated 9,372 fish harvested from the Ogeechee River. The top three species harvested from the Savannah River were silver perch, spotted seatrout, and channel catfish (Table 2). These three species represented nearly 75% of the total number of fish harvested from the Savannah River

Table 2. Savannah River roving creel survey harvest estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than .05 percent, .005 No/h, .005 kg/h, .005 No/ha, or .005 kg/ha.

Species	Number			Weight (kg)			Average Weight (kg)	Harvest rate[b]	
	Total	SE[a]	Percent	Total	SE[a]	Percent		No/h	kg/h
Striped bass	24	25	0.4	5	6	0.2	0.23	T	T
Spotted seatrout	1,649	1,326	25.1	743	597	28.4	0.45	0.16	0.07
Flounder	7	6	0.1	1	1	T	0.12	T	T
Silver perch	1,667	871	25.4	108	55	4.1	0.06	0.16	0.01
Red drum	905	554	13.8	670	452	25.6	0.74	0.09	0.06
Croaker/Spot	27	20	0.4	3	2	0.1	0.12	T	T
White catfish	161	56	2.5	136	46	5.2	0.84	0.02	0.01
Channel catfish	1,576	562	24.0	770	405	29.5	0.49	0.15	0.07
Redbreast sunfish	27	20	0.4	3	2	0.1	0.12	T	T
Others	528	219	8.0	176	76	6.7	0.33	0.05	0.02
Totals	**6,572**	**3,161**	**100.0**	**2,615**	**1,285**	**100.0**	**0.40**	**0.63**	**0.25**

[a] Approximate standard errors
[b] Rates based on estimated total fishing effort of 10,375 hours

Table 3. Ogeechee River roving creel survey harvest estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than .005 No/h or .005 kg/h.

Species	Number			Weight (kg)			Average Weight (kg)	Harvest rate[b]	
	Total	SE[a]	Percent	Total	SE[a]	Percent		No/h	kg/h
Striped bass	255	133	2.7	265	122	13.3	1.04	0.02	0.02
Largemouth bass	155	96	1.7	98	56	4.9	0.63	0.01	0.01
Redbreast sunfish	1,718	503	18.3	210	64	10.5	0.12	0.12	0.01
Spotted sunfish	90	45	1.0	9	4	0.5	0.10	0.01	T
Bullheads	41	39	0.4	5	5	0.3	0.13	T	T
Channel catfish	2,498	970	26.7	289	76	14.5	0.12	0.17	0.02
White catfish	3,588	684	38.3	741	176	37.1	0.21	0.25	0.05
Red drum	47	39	0.5	39	31	1.9	0.82	T	T
Spotted seatrout	75	44	0.8	37	20	1.9	0.50	0.01	T
Others	905	330	9.7	303	81	15.2	0.34	0.06	0.02
Totals	**9,372**	**1,343**	**100.0**	**1,996**	**259**	**100.0**	**0.21**	**0.66**	**0.14**

[a] Approximate standard errors
[b] Rates based on estimated total fishing effort of 14,289 hours

estuary in this creel. The top three species harvested from the Ogeechee River were white catfish, channel catfish, and redbreast sunfish (Table 3). These three species represented over 83% of the total Ogeechee River estuarine harvest during this 5-month period. Fish harvested from the Savannah River were generally larger (0.40 kg) than those harvested from the Ogeechee River (0.21 kg).

Striped bass harvest was greater from the Ogeechee River as expected. Although the striped bass fishery was closed on the Georgia side of the Savannah River, some harvest was recorded. It is likely that most of this harvest was from South Carolina waters, but some illegally creeled fish were also included. The majority of the fish observed in the Savannah River creel were age I+ fish as indicated by the average weight (0.23 kg). Most, if not all, of these fish were from a special stocking of approximately 5,000 advanced-sized striped bass fingerlings released into the Savannah Back River in February of 1989. Although some striped bass harvest did occur on the Savannah River, 94% of the total catch of this species was released (Table 4). Protection of the Savannah River striped bass population apparently has been accomplished despite the failure of South Carolina officials to enact a fishing moratorium on striped bass harvest as Georgia did in 1989.

Striped bass size and creel limits for the other coastal rivers in Georgia were also revised in 1989. Anglers are now limited to only two striped bass of a minimum size of 22 inches per day. These new limits were in effect on the Ogeechee River during this creel survey. The percentage of striped bass caught and released in the Ogeechee River creel (69%) seems to indicate that these new limits are being observed by at least some anglers (Table 5). However, the average weight of a striped bass harvested from the Ogeechee River was only 1.04 kilograms (Table 3) while the average weight of a fish 22 inches in length is well over 2.0 kilograms. Greater public awareness of the new regulations and enforcement of the same is needed on the Ogeechee River and other coastal rivers of Georgia having fishable populations of striped bass.

The Ogeechee River experienced a higher level of sport fishing pressure with an estimated 14,375 hours expended over the five month creel survey period compared with 10,375 hours on the Savannah River. Forty-four percent of the effort expended on the Ogeechee River was directed toward a particular species. Of this "fished-for" effort, 47 percent was expended fishing for striped bass (Table 6). This was significantly higher than the 8.7 percent of fished-for effort directed toward striped bass on the Savannah River (Table 7). Anglers on the Savannah River, instead directed most of their fished-for effort (74%) toward spotted seatrout and red drum. The most successful anglers were those fishing for spotted seatrout in the Savannah River. Seventy-one percent of the total harvest of this species was caught by anglers fishing for them (Table 7).

E. RECOMMENDATIONS

1. Continue the Georgia moratorium on the harvest of striped bass from the Savannah River despite South Carolina's lack of action.

Table 4. Savannah River roving creel survey estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than 0.005 No/h and kg/h.

Species	Fish harvested		Fish released		Total catch		Total catch rates[b]	
	No	kg	No	kg[a]	No	kg	No/h	kg/h
Striped bass	24	5.3	355	81.7	379	87.0	0.04	0.01
Spotted seatrout	1,649	742.6	195	87.6	1,844	830.2	0.18	0.08
Flounder	7	0.9	0	0	7	0.9	T	T
Silver perch	1,667	107.8	68	4.1	1,735	111.9	0.17	0.01
Red drum	905	669.8	41	30.6	946	700.3	0.09	0.07
Croaker/spot	27	3.1	32	3.9	59	7.0	0.01	T
White catfish	161	135.7	0	0	161	135.7	0.02	0.01
Channel catfish	1,576	770.2	45	21.8	1,621	792.0	0.16	0.08
Redbreast sunfish	27	3.2	0	0	27	3.2	T	T
Others	528	176.1	77	25.5	605	201.6	0.06	0.02
Totals	**6,571**	**2,614.7**	**813**	**255.2**	**7,384**	**2,869.8**	**0.71**	**0.28**

[a] Estimated weight based on the average weight of harvested fish.
[b] Catch rates based on estimated fishing effort of 10,375 hours.

Table 5. Ogeechee River roving creel survey estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than .005 No/h and kg/h.

Species	Fish harvested		Fish released		Total catch		Total catch rate[b]	
	No	kg	No	kg[a]	No	kg	No/h	kg/h
Striped bass	255	265.1	565	587.2	820	852.3	0.06	0.06
Largemouth bass	155	98.1	407	256.4	562	354.5	0.04	0.02
Redbreast sunfish	1,718	209.5	913	109.5	2,631	319.1	0.18	0.02
Spotted sunfish	90	9.1	49	4.9	139	13.9	0.01	T
Bullheads	41	5.5	9	1.1	50	6.6	T	T
Channel catfish	2,498	289.1	1,215	145.8	3,713	434.9	0.26	0.03
White catfish	3,588	740.7	1,363	286.3	4,951	1,027.0	0.35	0.07
Red drum	47	38.6	10	8.5	58	47.1	T	T
Spotted seatrout	75	37.3	58	28.8	132	66.1	0.01	T
Others	905	303.5	540	183.7	1,445	487.1	0.10	0.03
Totals	**9,372**	**1,996.4**	**5,128**	**1,612.2**	**14,500**	**3,608.6**	**1.01**	**0.25**

[a] Estimated weight based on the average weight of harvested fish.
[b] Catch rates based on estimated total fishing effort of 14,289 hours.

Table 6. Ogeechee River roving creel fished-for estimates for the period from October 8, 1989 through March 10, 1990. NA = Not Any.

Species	Fished-For Effort Hours	Fished-For Effort % Total	Fished-For Success No	Fished-For Success Kg	Percent of fished-for total harv.	Percent of species' total harv.	Average weight (kg)
Striped bass	2,960	47.0	95	115.5	8.2	37.3	1.22
Largemouth bass	200	3.2	0	0.0	0.0	0.0	NA
Redbreast sunfish	637	10.1	212	19.0	18.4	12.3	0.09
Spotted sunfish	0	0.0	0	0.0	0.0	0.0	NA
Bullheads	0	0.0	0	0.0	0.0	0.0	NA
Channel catfish	766	12.2	335	75.4	29.1	13.4	0.23
White catfish	575	9.1	76	9.8	6.6	2.1	0.13
Red drum	117	1.9	0	0.0	0.0	0.0	NA
Spotted seatrout	271	4.3	12	6.7	1.0	16.0	0.56
Others	766	12.2	423	123.2	36.7	46.7	0.29
Totals	6,293	100.0	1,153	349.6	100.0	12.3	0.30

Table 7. Savannah River roving creel fished-for estimates for the period from October 8, 1989 through March 10, 1990. NA = Not Any.

Species	Fished-For				Percent of fished-for total harv.	Percent of species' total harv.	Average weight (kg)
	Effort		Success				
	Hours	% Total	No	Kg			
Striped bass	316	8.7	0	0.0	0.0	0.0	NA
Spotted seatrout	2,286	62.8	1,178	505.5	98.8	71.4	0.43
Red drum	421	11.6	3	12.7	0.3	0.3	4.23
Croaker/Spot	0	0.0	0	0.0	0.0	0.0	NA
White catfish	0	0.0	0	0.0	0.0	0.0	NA
Channel catfish	99	2.7	3	1.0	0.3	0.2	0.33
Flounder	0	0.0	0	0.0	0.0	0.0	NA
Silver perch	0	0.0	0	0.0	0.0	0.0	NA
Redbreast sunfish	0	0.0	0	0.0	0.0	0.0	NA
Others	516	14.2	7	7.2	0.6	1.3	1.03
Totals	3,638	100.0	1,191	526.4	100.0	18.1	0.44

2. Encourage increased publicity on the new size and creel limits for striped bass in coastal Georgia rivers and alert law enforcement personnel to the illegal harvest of undersized fish observed in the 1989-90 Ogeechee River creel.

3. Continue to conduct creels as scheduled in the study proposal and analyze data as it is obtained.

F. COST $25,700 Federal: $19,275 State: $6,425

Prepared by: Dennis N. Schmitt Date: 9/20/90
Dennis N. Schmitt, Study Leader

DEVELOPMENT SECTION

A. ACTIVITY

1. MORONE FRY PRODUCTION (Segment 17)

a. Species: Striped bass and striped bass x white bass hybrid (original and reciprocal) fry.

b. Number Produced (single crop production): 5,673,000 striped bass fry; 2,600,500 original hybrid bass fry; and 12,559,500 reciprocal hybrid bass fry.

c. Location: Richmond Hill Fish Hatchery. Of 20,833,000 produced, Morone fry were shipped to and/or stocked at the following state and federal hatcheries/ agencies for rearing to fingerlings or for research purposes.

Hatcheries/Other Agencies (fingerling rearing)	No. Stocked/Shipped		
	Striped Bass	Original Hybrid Bass	Reciprocal Hybrid Bass
Richmond Hill Hatchery (Ga.)	1,140,000	2,600,000	2,225,000
Bowens Mill Hatchery (Ga.)			1,914,000
Cordele Hatchery (Ga.)			3,510,000
Steve Cocke Hatchery (Ga.)			2,010,000
Walton Hatchery (Ga.)			300,000
McDuffie Hatchery (Ga.)	2,311,000		
Bo Ginn NFH	2,220,000		
State of Pennsylvania (Fish Comm)			200,000
SUB TOTAL	5,671,000	2,600,000	10,159,000

APPENDIX F
DAILY MEAN DISCHARGE VALUES FOR AREA SURFACE WATER

To: John McGowin

From: Tim Stamey, USGS, WRD, Georgia

Daily mean discharges for the followings sites:

02203000 Canoochee Creek nr. Claxton
02202500 Ogeechee River nr. Eden
02202600 Black Creek nr. Blitchton
02226000 Altamaha River at Doctortown

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02202600 BLACK CREEK NEAR BLITCHTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321004 LONGITUDE 0812918 DRAINAGE AREA 232.00 DATUM 30.00 STATE 13 COUNTY 029

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	8.5	48	27	45	63	61	25	1.7	107	113	81
2	201	8.5	42	29	42	64	46	33	1.6	138	183	84
3	174	8.2	33	29	42	94	36	50	1.5	145	306	65
4	218	9.0	26	28	43	130	31	65	1.4	163	275	61
5	226	17	23	27	41	174	34	48	1.3	199	266	97
6	251	32	21	33	37	202	27	46	1.5	358	209	177
7	257	34	19	42	35	196	19	55	1.7	717	132	181
8	217	32	17	42	33	177	15	50	1.7	666	87	162
9	176	41	16	39	29	158	13	39	1.8	385	96	127
10	134	44	15	34	25	142	30	57	1.7	247	194	104
11	107	40	18	29	23	120	114	139	1.5	205	263	90
12	90	34	29	27	22	102	165	197	1.5	155	321	91
13	74	28	29	28	20	91	275	218	1.3	185	263	77
14	58	24	27	29	19	81	321	189	1.2	144	208	69
15	46	21	29	28	19	73	300	150	1.3	95	204	192
16	39	20	37	30	17	68	275	106	1.4	123	287	316
17	33	18	52	32	15	65	228	71	1.5	176	354	288
18	29	15	49	37	13	56	200	45	1.6	178	738	242
19	25	14	48	49	12	49	155	30	1.8	242	820	179
20	21	16	54	51	13	44	118	19	2.5	219	653	124
21	21	16	52	48	16	42	95	13	2.3	160	366	114
22	23	14	47	45	39	41	81	8.7	84	158	210	617
23	19	14	45	44	51	61	71	6.8	270	205	139	1570
24	16	19	45	42	59	95	61	5.8	251	309	106	2480
25	14	22	42	38	74	116	57	4.6	159	607	107	2170
26	12	28	39	33	78	143	49	3.8	120	814	101	1540
27	11	48	35	32	74	135	37	3.0	101	707	92	1170
28	10	61	32	31	68	111	25	2.5	97	632	165	907
29	11	61	31	29	---	100	17	2.1	89	434	129	689
30	11	54	29	29	---	86	13	2.1	80	243	97	528
31	10	---	28	41	---	75	---	1.9	---	147	73	---
TOTAL	2777	801.2	1057	1082	1004	3154	2969	1686.3	1284.8	9263	7557	14592
MEAN	89.6	26.7	34.1	34.9	35.9	102	99.0	54.4	42.8	299	244	486
MAX	263	61	54	51	78	202	321	218	270	814	820	2480
MIN	10	8.2	15	27	12	41	13	1.9	1.2	95	73	61
CFSM	.39	.12	.15	.15	.15	.44	.43	.23	.18	1.29	1.05	2.10
IN.	.45	.13	.17	.17	.16	.51	.48	.27	.21	1.49	1.21	2.34

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02202600 BLACK CREEK NEAR BLITCHTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321004 LONGITUDE 0812918 DRAINAGE AREA 232.00 DATUM 30.00 STATE 13 COUNTY 029

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	393	96	127	305	506	331	146	5.6	1.5	.45	.37	.97
2	376	87	115	313	479	265	158	4.5	1.6	.36	1.1	1.2
3	370	82	104	367	465	243	150	3.9	1.9	.40	1.6	.99
4	390	87	92	404	430	226	126	3.4	1.6	.45	1.0	.94
5	344	82	82	374	424	200	96	3.0	1.5	.40	.85	.85
6	271	75	76	331	513	188	79	2.7	1.5	.33	.80	.84
7	223	73	71	462	572	173	64	2.4	1.2	.28	.80	.76
8	177	71	136	1440	453	152	54	2.1	1.2	.27	.97	.71
9	129	74	478	4910	381	136	48	2.1	1.0	.23	1.5	.70
10	98	73	1070	4060	354	125	48	2.1	.95	.24	1.1	.65
11	91	68	1560	2420	486	118	43	1.9	1.1	.26	1.1	.63
12	92	64	1500	1590	634	113	36	1.9	.92	.29	.96	.61
13	93	58	1230	1180	766	106	28	1.9	.80	.32	.80	.57
14	96	52	1010	929	695	101	21	1.9	.63	.34	1.5	.58
15	92	52	867	732	567	93	21	1.8	1.1	.27	1.8	.56
16	84	76	741	577	455	86	19	1.6	1.2	.29	2.0	.55
17	79	86	625	477	427	83	14	1.8	.74	.35	9.3	.50
18	230	105	530	408	453	105	11	1.7	.70	.49	3.3	.49
19	738	133	545	348	632	131	8.9	1.5	.68	.49	2.2	.48
20	1000	122	681	302	790	170	7.5	1.3	.55	.56	1.7	.48
21	1600	97	980	289	980	171	6.8	1.2	.50	.50	1.4	.46
22	1390	83	1190	280	1000	144	6.0	1.4	.49	.46	1.3	.43
23	1000	93	1130	285	941	117	5.2	1.5	.59	.50	1.4	.42
24	702	108	989	304	818	95	4.6	1.3	.55	.50	1.4	.38
25	450	113	844	316	714	82	4.1	1.3	.49	.46	1.4	.39
26	282	130	621	464	643	70	3.2	1.3	.53	.37	1.5	.40
27	215	135	515	732	534	61	2.7	1.2	.53	.24	1.2	.39
28	174	131	453	947	425	52	2.5	1.7	.58	.28	1.1	.40
29	142	127	405	829	---	50	4.3	2.4	.57	.30	1.0	.50
30	119	134	356	681	---	55	6.3	1.7	.55	.31	1.0	.53
31	105	---	308	588	---	116	---	1.5	---	.25	.97	---
TOTAL	11545	2767	19431	27644	16537	4158	1224.1	65.6	27.75	11.24	48.42	18.36
MEAN	372	92.2	627	892	591	134	40.8	2.12	.92	.36	1.56	.61
MAX	1600	135	1560	4910	1000	331	158	5.6	1.9	.56	9.3	1.2
MIN	79	52	71	280	354	50	2.5	1.2	.49	.23	.37	.38
CFSM	1.61	.40	2.70	3.84	2.55	.58	.18	.01	.00	.00	.01	.00
IN.	1.85	.44	3.12	4.43	2.65	.67	.20	.01	.00	.00	.01	.00

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02202600 BLACK CREEK NEAR BLITCHTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321004 LONGITUDE 0812918 DRAINAGE AREA 232.00 DATUM 30.00 STATE 13 COUNTY 029
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	5.5	14	73	3070	117	296	1590	1660	17	---	---
2	.48	4.7	16	110	2650	206	442	1580	5020	21	---	---
3	.46	4.2	26	158	1890	712	480	1430	3690	19	---	---
4	.50	4.2	29	191	1370	2110	378	1040	2550	16	---	---
5	.50	3.9	24	187	1060	4020	263	744	1680	17	---	---
6	.48	3.7	26	160	847	3100	338	643	1130	24	---	---
7	.49	3.3	28	135	678	1960	459	521	757	23	---	---
8	.48	3.2	41	120	594	1380	502	474	473	24	---	---
9	.48	6.3	49	110	561	1050	522	407	306	20	---	---
10	6.6	64	40	101	560	806	477	310	230	19	---	---
11	37	104	33	128	492	619	465	261	177	22	---	---
12	84	128	31	223	408	465	450	245	136	61	---	---
13	60	116	29	464	336	358	403	274	106	39	---	---
14	59	91	27	634	280	292	333	291	90	22	---	---
15	49	72	25	465	244	263	279	478	170	17	---	---
16	23	57	22	334	211	253	246	1130	221	61	---	---
17	12	43	21	270	184	241	250	1400	152	244	---	---
18	7.6	33	20	243	167	239	245	1250	123	---	---	---
19	5.9	25	41	242	155	237	229	999	127	---	---	---
20	4.7	20	107	620	147	237	226	805	213	---	---	---
21	3.9	16	204	1150	143	227	290	711	283	---	---	---
22	14	14	292	1350	138	208	506	1180	179	---	---	---
23	27	13	285	1060	135	186	527	1670	114	---	---	---
24	33	12	216	907	132	165	492	1730	79	---	---	---
25	37	11	164	947	131	146	424	1460	58	---	---	---
26	28	10	127	1160	139	130	339	1110	46	---	---	---
27	18	9.5	104	1250	139	109	266	813	37	---	---	---
28	13	13	91	1220	127	96	449	552	30	---	---	---
29	9.7	17	79	1220	---	91	1050	444	23	---	---	---
30	7.6	16	74	1650	---	132	1490	541	19	---	---	---
31	6.4	---	72	2640	---	183	---	797	---	---	---	---
TOTAL	550.74	923.5	2357	19522	16988	20338	13116	26880	19879	---	---	---
MEAN	17.8	30.8	76.0	630	607	656	437	867	663	---	---	---
MAX	84	128	292	2640	3070	4020	1490	1730	5020	---	---	---
MIN	.46	3.2	14	73	127	91	226	245	19	---	---	---
CFSM	.08	.13	.33	2.71	2.62	2.83	1.88	3.74	2.86	---	---	---
IN.	.09	.15	.38	3.13	2.72	3.26	2.10	4.31	3.19	---	---	---

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02203000 CANOOCHEE RIVER NEAR CLAXTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321105 LONGITUDE 0815320 DRAINAGE AREA 555.00 DATUM 80.50 STATE 13 COUNTY 109

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	585	57	172	126	132	288	458	186	20	323	338	129
2	437	77	152	159	129	305	354	198	16	213	310	148
3	404	70	144	179	130	493	276	220	13	169	320	213
4	622	85	138	196	131	693	225	277	12	271	280	429
5	700	217	129	213	126	843	194	276	11	451	242	482
6	637	355	123	215	120	985	181	258	14	665	202	524
7	529	425	123	200	115	1100	170	277	14	816	147	611
8	436	448	118	193	113	1110	147	282	17	759	121	591
9	362	426	110	190	112	1060	133	255	23	524	134	530
10	363	365	106	177	110	987	192	317	35	422	128	468
11	314	291	109	163	107	824	515	567	61	352	95	370
12	242	236	132	153	105	673	800	687	82	379	70	276
13	183	203	156	147	103	552	1090	718	82	407	52	203
14	142	195	163	144	99	466	1520	618	94	364	40	172
15	119	188	163	140	95	411	2160	476	71	305	36	136
16	103	179	167	167	96	364	2280	326	44	242	36	109
17	92	167	185	186	92	318	1910	220	32	253	29	111
18	82	125	190	185	87	286	1520	181	62	336	46	127
19	74	92	192	175	84	290	1300	154	162	324	119	251
20	66	89	195	162	81	257	1070	122	481	274	272	224
21	60	87	186	150	88	226	920	96	678	316	432	158
22	60	82	174	140	151	239	828	89	825	359	512	605
23	57	86	161	132	201	260	765	83	1160	418	461	958
24	50	165	155	126	250	402	704	61	1470	558	368	1410
25	48	290	164	121	326	548	651	46	1460	647	258	2060
26	43	373	145	115	343	661	575	36	1200	736	180	1890
27	39	372	135	111	335	708	464	30	925	854	145	2190
28	42	324	128	107	317	686	332	39	748	883	115	2100
29	53	248	124	103	---	646	235	39	624	745	86	1630
30	54	201	119	104	---	596	192	29	490	586	71	1240
31	50	---	117	123	---	550	---	24	---	446	84	---
TOTAL	7048	6518	4575	4802	4178	17827	22161	7187	10926	14397	5729	20345
MEAN	227	217	148	155	149	575	739	232	364	464	185	678
MAX	700	448	195	215	343	1110	2280	718	1470	883	512	2190
MIN	39	57	106	103	81	226	133	24	11	169	29	109
CFSM	.41	.39	.27	.28	.27	1.04	1.33	.42	.66	.84	.33	1.22
IN.	.47	.44	.31	.32	.28	1.19	1.49	.48	.73	.96	.38	1.36

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02203000 CANOOCHEE RIVER NEAR CLAXTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321105 LONGITUDE 0815320 DRAINAGE AREA 555.00 DATUM 80.50 STATE 13 COUNTY 109

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911	190	514	837	1000	948	460	49	32	1.8	1.2	1.3
2	751	181	451	898	950	852	567	35	40	1.8	1.4	1.8
3	723	169	363	964	889	769	641	27	31	1.6	2.4	1.6
4	689	156	318	1050	841	672	675	27	22	1.5	2.0	1.4
5	650	152	295	1060	831	613	699	30	17	1.7	2.1	1.2
6	604	145	266	1080	754	607	640	30	13	1.7	2.0	1.1
7	532	132	240	1630	706	594	569	27	9.6	1.7	1.8	.82
8	476	138	402	5400	678	548	486	24	7.5	1.7	3.0	1.0
9	451	146	985	7470	629	507	371	22	11	1.5	6.6	1.1
10	440	146	1370	5670	620	481	300	20	6.9	1.9	14	1.1
11	425	137	1650	4020	810	482	251	20	7.3	2.0	8.5	1.0
12	373	136	1780	3250	931	448	229	19	7.8	2.9	4.6	.94
13	309	136	1670	2760	1010	421	214	19	6.2	2.0	3.1	.90
14	260	135	1610	2270	965	401	192	18	5.8	2.4	2.3	.75
15	229	161	1620	1860	848	387	169	16	5.1	2.2	2.0	.76
16	212	280	1640	1570	765	377	147	14	4.8	2.1	2.1	.79
17	227	288	1570	1370	828	396	131	13	4.1	2.2	3.7	.86
18	395	263	1470	1180	897	546	117	11	3.8	2.8	3.3	.77
19	1020	321	1440	1100	1090	623	105	10	3.4	3.6	2.3	.78
20	1300	363	1580	1010	1300	686	94	9.1	2.8	2.8	1.9	.87
21	1340	370	1770	980	1450	669	85	9.0	2.5	2.0	1.5	1.1
22	1180	352	1810	1030	1540	579	76	9.4	2.5	1.9	1.2	1.3
23	923	357	1660	1050	1550	547	69	8.8	2.5	1.9	1.1	1.5
24	711	419	1480	1080	1510	502	60	8.1	2.4	1.9	1.0	1.7
25	558	468	1330	1090	1490	444	50	7.5	2.3	1.9	.98	1.6
26	469	571	1220	1110	1410	360	41	7.2	2.2	2.5	.99	1.5
27	389	601	1130	1110	1250	281	33	6.6	2.2	2.5	1.3	1.5
28	316	555	1020	1160	1070	231	30	7.5	2.0	1.9	1.3	1.7
29	269	548	879	1160	---	203	47	16	1.9	1.5	1.2	1.9
30	234	525	797	1090	---	212	57	41	1.9	1.6	1.2	2.1
31	207	---	766	1050	---	303	---	32	---	1.7	1.1	---
TOTAL	17573	8541	35096	58359	28612	15689	7605	593.2	263.5	63.2	83.17	36.74
MEAN	567	285	1132	1883	1022	506	253	19.1	8.78	2.04	2.68	1.22
MAX	1340	601	1810	7470	1550	948	699	49	40	3.6	14	2.1
MIN	207	132	240	837	620	203	30	6.6	1.9	1.5	.98	.75
CFSM	1.02	.51	2.04	3.39	1.84	.91	.46	.03	.02	.00	.00	.00
IN.	1.18	.57	2.35	3.91	1.92	1.05	.51	.04	.02	.00	.01	.00

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02203000 CANOOCHEE RIVER NEAR CLAXTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321105 LONGITUDE 0815320 DRAINAGE AREA 555.00 DATUM 80.50 STATE 13 COUNTY 109
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	473	124	308	4750	552	1220	1620	2130	116	1940	---
2	2.0	362	122	396	4800	714	1300	1730	2830	83	2750	---
3	2.1	282	128	436	5200	1480	1040	1630	2660	165	3840	---
4	2.2	214	135	463	4510	3790	884	1780	1920	265	4630	---
5	2.4	172	129	470	3210	5740	986	1610	1430	173	4130	---
6	2.2	147	132	460	2410	5640	1040	1450	961	113	3600	---
7	2.0	132	153	446	1960	5940	934	1310	656	198	2710	---
8	2.4	121	165	429	1680	4700	835	1220	475	308	1970	---
9	3.7	121	203	427	1550	3250	735	1100	352	405	1460	---
10	23	274	203	438	1550	2350	623	937	263	328	1110	---
11	61	449	198	534	1490	1800	679	816	194	230	833	---
12	118	589	206	732	1380	1460	771	798	151	226	656	---
13	164	674	212	871	1240	1260	757	746	124	217	564	---
14	193	670	235	1000	1150	1130	692	874	106	226	502	---
15	371	665	226	1080	1070	1000	576	895	137	182	670	---
16	383	582	199	1080	975	988	509	809	243	334	978	---
17	322	539	183	1040	874	1190	447	737	364	600	1510	---
18	559	523	177	1040	785	1400	410	733	448	917	1580	---
19	711	449	205	1130	726	1420	413	793	436	1270	1400	---
20	613	371	317	1400	706	1330	520	730	596	1460	1150	---
21	414	312	524	1690	699	1200	639	615	844	1360	952	---
22	277	261	660	2120	670	1090	673	699	935	1030	768	---
23	225	218	750	2070	644	939	773	827	617	735	774	---
24	239	206	703	1990	630	829	838	903	407	550	1800	---
25	330	192	626	2170	629	799	814	879	312	934	2380	---
26	423	177	579	2540	619	728	849	722	255	1080	3770	---
27	526	165	508	2710	584	618	845	639	226	922	6110	---
28	650	150	426	2490	565	556	870	865	175	1110	---	---
29	673	136	374	2390	---	539	941	1430	220	1310	---	---
30	645	129	356	3020	---	863	1050	1930	178	1590	---	---
31	585	---	326	4100	---	1060	---	1820	---	1750	---	---
OTAL	8526.0	9755	9484	41470	47056	56355	23663	33647	20645	20185	---	---
EAN	275	325	306	1338	1681	1818	789	1085	688	651	---	---
AX	711	674	750	4100	5200	5940	1300	1930	2830	1750	---	---
IN	2.0	121	122	308	565	539	410	615	106	83	---	---
FSM	.50	.59	.55	2.41	3.03	3.28	1.42	1.96	1.24	1.17	---	---
N.	.57	.65	.64	2.78	3.15	3.78	1.59	2.26	1.38	1.35	---	---

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02202500 OGEECHEE RIVER NEAR EDEN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321129 LONGITUDE 0812458 DRAINAGE AREA 2650.00 DATUM 19.64 STATE 13 COUNTY 103

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2540	457	691	637	854	1100	2300	2860	644	1750	2730	1010
2	2310	449	679	647	825	1200	2520	2740	584	1700	2610	986
3	2160	442	666	686	801	1370	2330	2580	527	1660	2450	1020
4	2010	444	651	722	785	1560	2340	2330	473	1630	2360	1080
5	1770	461	637	755	775	1810	2400	2120	426	1550	2320	1110
6	1630	492	624	788	769	2130	2480	2000	406	1550	2290	1130
7	1560	557	615	819	769	2480	2620	1900	386	1550	2230	1200
8	1490	610	608	849	769	2840	2770	1800	355	1580	2130	1340
9	1390	650	610	881	765	3200	2820	1740	343	1510	2020	1490
10	1270	681	619	914	758	3520	2770	1850	340	1350	1830	1620
11	1180	703	637	959	754	3700	2710	1990	350	1190	1560	1710
12	1120	729	653	1010	749	3690	2630	2070	371	1070	1360	1680
13	1060	761	664	1070	744	3530	2760	2080	417	957	1250	1550
14	1000	788	666	1130	739	3350	3060	2000	490	875	1270	1370
15	964	806	655	1190	734	3220	3530	1930	583	900	1350	1190
16	948	807	648	1250	728	3140	4020	1950	691	927	1470	1030
17	963	787	648	1300	726	3080	4330	2030	824	844	1530	907
18	999	759	662	1330	725	2980	4440	2070	999	778	1580	817
19	1050	734	678	1310	722	2880	4450	2040	1190	826	1540	777
20	1080	708	685	1250	718	2740	4500	1970	1360	935	1490	764
21	1070	675	689	1190	710	2580	4540	1900	1410	961	1420	784
22	948	640	688	1160	716	2440	4640	1860	1250	944	1330	1630
23	754	622	687	1130	746	2320	4970	1850	1020	1030	1260	2190
24	628	643	688	1120	797	2240	5480	1830	935	1220	1280	2760
25	571	686	689	1100	846	2150	5590	1770	1030	1550	1470	3370
26	538	709	686	1070	899	2090	5150	1690	1300	1990	1360	3820
27	509	713	679	1040	958	2040	4500	1550	1620	2370	1230	4160
28	488	716	672	996	1020	2030	3850	1330	1850	2630	1210	4330
29	481	712	660	953	---	2070	3300	1050	1910	2820	1130	4250
30	478	702	652	916	---	2160	3000	851	1850	2940	1030	4010
31	467	---	646	890	---	2250	---	724	---	2900	991	---
TOTAL	35426	19643	20432	31062	21901	77890	106600	58455	25934	46487	51081	55085
MEAN	1143	655	659	1002	782	2513	3553	1886	864	1500	1648	1836
MAX	2540	807	691	1330	1020	3700	5590	2860	1910	2940	2730	4330
MIN	467	442	608	637	710	1100	2300	724	340	778	991	764
CFSM	.43	.25	.25	.38	.30	.95	1.34	.71	.33	.57	.62	.69
IN	.50	.28	.29	.44	.31	1.09	1.50	.82	.36	.65	.72	.77

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02202500 OGEECHEE RIVER NEAR EDEN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321129 LONGITUDE 0812458 DRAINAGE AREA 2650.00 DATUM 19.64 STATE 13 COUNTY 103

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3630	1330	1720	3970	3680	4710	3150	850	534	190	274	236
2	3470	1240	1700	3690	3660	4610	3400	848	492	190	236	227
3	3220	1160	1640	3480	3660	4630	3370	849	482	152	227	210
4	3030	1080	1570	3340	3690	4740	3160	842	491	146	218	172
5	2840	1010	1520	3240	3750	4830	2940	827	493	140	197	152
6	2670	957	1470	3180	3710	4740	2790	809	469	134	184	152
7	2520	922	1450	3420	3620	4470	2720	805	444	128	172	152
8	2390	893	1540	4550	3460	4070	2670	816	416	122	184	146
9	2270	874	1870	6480	3280	3660	2620	832	396	116	210	146
10	2250	864	2190	8980	3180	3320	2540	861	397	114	254	140
11	2470	861	2570	9240	3220	3030	2430	877	435	114	294	134
12	2940	864	2890	8540	3170	2780	2270	862	424	116	301	128
13	3650	865	3140	7840	3170	2600	2130	806	393	111	288	128
14	4640	865	3270	7410	3150	2470	2020	747	373	106	274	128
15	5480	875	3420	7400	3080	2420	1930	711	372	116	281	122
16	5530	919	3620	7490	2990	2460	1830	702	381	134	301	122
17	5020	943	3870	7310	2950	2590	1750	712	397	160	314	116
18	4760	1000	4200	6850	2910	2730	1690	732	412	172	320	116
19	4620	1080	4620	6320	2980	2800	1630	751	406	197	267	111
20	4060	1140	5080	5840	3120	2830	1550	762	370	218	274	111
21	3750	1180	5440	5530	3320	2790	1470	761	330	227	245	116
22	3400	1210	5820	5340	3600	2700	1390	751	298	236	227	116
23	2970	1260	6200	5150	3950	2620	1310	729	275	236	218	e120
24	2580	1290	6370	4920	4310	2570	1240	686	257	245	210	e120
25	2280	1320	6270	4670	4700	2520	1190	632	239	254	197	e120
26	2050	1390	6000	4540	4940	2460	1120	580	222	274	184	e120
27	1890	1480	5630	4320	4980	2390	1050	529	208	281	172	e120
28	1750	1560	5250	4080	4870	2320	981	505	203	307	160	e120
29	1620	1640	4900	3920	---	2300	940	555	190	288	160	e120
30	1520	1700	4590	3790	---	2410	880	633	197	274	184	e120
31	1430	---	4270	3720	---	2760	---	618	---	254	227	---
OTAL	96700	33772	114090	168550	101100	98330	60161	22980	10996	5752	7254	4141
EAN	3119	1126	3680	5437	3611	3172	2005	741	367	186	234	138
AX	5530	1700	6370	9240	4980	4830	3400	877	534	307	320	256
IN	1430	861	1450	3180	2910	2300	880	505	190	106	160	111
SM	1.18	.42	1.39	2.05	1.36	1.20	.76	.28	.14	.07	.09	.05
N.	1.36	.47	1.60	2.37	1.42	1.38	.84	.32	.15	.08	.10	.06

e Estimated

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02202500 OGEECHEE RIVER NEAR EDEN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321129 LONGITUDE 0812458 DRAINAGE AREA 2650.00 DATUM 19.64 STATE 13 COUNTY 103
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	4850	1520	1740	11300	2740	3300	4920	4000	1430	4620	15000
2	116	4390	1460	1840	12700	2920	3270	4780	4820	1360	5850	12900
3	111	3990	1400	1950	14900	3430	3230	4790	5320	1280	7580	---
4	106	3580	1350	2030	18200	4150	3290	5240	5360	1230	9130	---
5	101	3250	1310	2110	20800	5560	3820	5610	4900	1190	8940	---
6	96	3000	1280	2150	21100	7870	5520	5880	4230	1130	9160	---
7	106	2840	1270	2150	19200	10400	7710	5840	3590	1080	10700	---
8	106	2740	1280	2110	16300	16400	8410	5540	3130	1080	11600	---
9	116	2680	1310	2050	13900	22100	7700	5110	2750	1060	10900	---
10	146	2810	1360	2000	12600	22500	7040	4820	2410	1040	9200	---
11	254	2700	1400	2090	11800	19900	6520	5000	2120	1050	7390	---
12	353	2550	1420	2260	10900	16900	6110	5570	1850	1030	5840	---
13	626	2380	1420	2400	9870	15000	5800	5890	1600	1040	4780	---
14	873	2270	1420	2550	9060	13500	5440	5690	1490	1070	4120	---
15	1210	2280	1440	2690	8330	11800	4980	5260	1510	1090	3740	---
16	1620	2390	1460	2820	7550	10200	4590	4760	1520	1170	3510	---
17	2560	2510	1490	2880	6770	8820	4250	4440	1460	1540	3400	---
18	6180	2570	1520	2870	6070	7740	3980	4400	1350	1740	3300	---
19	23200	2610	1580	2920	5420	6910	3980	4690	1250	2050	3290	---
20	26300	2630	1690	3420	4830	6280	4660	4890	1210	2200	3710	---
21	23000	2610	1800	3850	4370	5690	5330	5330	1240	2120	4590	---
22	17600	2530	1820	4330	3960	5170	6090	5480	1320	1910	5330	---
23	12800	2400	1870	4750	3620	4750	6380	4750	1480	1790	5670	---
24	9330	2260	1900	5210	3370	4410	6200	4110	1680	1850	5780	---
25	7050	2160	1910	5910	3170	4070	6130	3640	1920	2350	5910	---
26	5790	2060	1870	6400	3000	3780	5990	3370	2010	2750	7610	---
27	5160	1960	1830	6930	2870	3560	5600	3290	1880	3100	11300	---
28	5300	1840	1790	7570	2790	3410	5380	3310	1670	3560	14900	---
29	6040	1710	1760	7960	---	3270	4770	3320	1540	3870	13800	---
30	6060	1590	1730	9020	---	3270	4650	3290	1470	3960	13700	---
31	5480	---	1710	10100	---	3250	---	3490	---	4000	15600	---
OTAL	167912	80140	48370	119020	268750	259750	160120	146500	72080	57120	234950	---
EAN	5417	2671	1560	3839	9598	8379	5337	4726	2403	1843	7579	---
AX	26300	4850	1910	10100	21100	22500	8410	5890	5360	4000	15600	---
IN	96	1590	1270	1740	2790	2740	3230	3290	1210	1030	3290	---
FSM	2.04	1.01	.59	1.45	3.62	3.16	2.01	1.78	.91	.70	2.86	---
.	2.36	1.12	.68	1.67	3.77	3.65	2.25	2.06	1.01	.80	3.30	---

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02226000 ALTAMAHA RIVER AT DOCTORTOWN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 313916 LONGITUDE 0814941 DRAINAGE AREA 13600.00 DATUM 24.48 STATE 13 COUNTY 305

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4990	2600	3460	3480	4400	10700	15600	14700	4290	17700	19300	6200
2	4520	2570	3410	3690	4480	11000	15700	12300	4010	17700	18800	7000
3	4320	2560	3380	3700	4380	10600	14800	9990	3760	16800	17900	7950
4	4470	2620	3470	3680	4250	10200	13500	8580	3550	15500	16800	8440
5	4870	2750	3730	3870	4160	10800	12500	8130	3380	14400	15800	7730
6	5110	3000	4020	4490	4140	11900	11600	8810	3270	14000	15300	6800
7	5100	3360	4220	5270	4170	13100	10400	9880	3220	14100	14800	6490
8	5060	3660	4320	5960	4280	14300	9120	10600	3180	14200	14000	6390
9	5220	3790	4380	6290	4280	15400	8610	10900	3210	14300	13000	6240
10	5560	3750	4350	6340	4180	16400	8910	11000	3260	14300	11100	6020
11	5870	3700	4180	6350	4080	17200	9870	10600	3500	13600	9160	5800
12	5960	3770	3970	6250	4080	17900	11000	9810	4150	13000	7680	5420
13	5810	3970	3820	6130	4070	18100	12400	9670	5270	12800	6730	4880
14	5450	4070	3810	6250	3970	17800	14200	10300	6280	12600	6050	4490
15	4930	3960	3830	6230	3850	16800	16300	11000	6900	11900	5560	4340
16	4390	3780	3830	5870	3720	15300	18600	11600	7310	11300	5320	4180
17	3940	3690	3780	5500	3610	13500	21300	12000	7440	10700	5220	3990
18	3620	3650	3730	5330	3520	12200	24600	12100	6900	10400	5030	3890
19	3410	3620	3710	5270	3450	11300	27400	11100	6030	10300	4880	3810
20	3240	3580	3690	5230	3400	9990	29200	9470	5590	10300	4910	3630
21	3090	3500	3640	5510	3400	8800	30500	8540	6120	10700	5020	3540
22	2970	3400	3610	5700	3540	8220	31400	8060	7080	11400	5230	3670
23	2890	3420	3670	5590	3720	7740	31800	7640	8310	12300	5210	3840
24	2840	3560	3750	5360	4200	7540	31700	7160	9590	13200	5020	3970
25	2770	3700	3700	5010	5570	8020	30900	6450	10900	14200	4870	4140
26	2670	3780	3550	4640	7190	9070	29500	5750	12200	15200	4910	4840
27	2600	3810	3450	4370	8520	10600	26800	5380	13200	16400	5080	e6000
28	2590	3770	3400	4150	9730	11900	23200	5120	14400	17600	4970	e6600
29	2590	3640	3370	3970	---	12900	19900	4710	15600	18700	4730	6740
30	2610	3520	3330	3910	---	14000	17200	4500	17100	19400	4930	6950
31	2620	---	3330	4130	---	15000	---	4450	---	19600	5550	---
TOTAL	126080	104550	115890	157520	126340	388280	578510	280300	209000	438600	272860	163980
MEAN	4067	3485	3738	5081	4512	12530	19280	9042	6967	14150	8802	5466
MAX	5960	4070	4380	6350	9730	18100	31800	14700	17100	19600	19300	8440
MIN	2590	2560	3330	3480	3400	7540	8610	4450	3180	10300	4730	3540
CFSM	.30	.26	.27	.37	.33	.92	1.42	.66	.51	1.04	.65	.40
IN.	.34	.29	.32	.43	.35	1.06	1.58	.77	.57	1.20	.75	.45

e Estimated

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02226000 ALTAMAHA RIVER AT DOCTORTOWN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 313916 LONGITUDE 0814941 DRAINAGE AREA 13600.00 DATUM 24.48 STATE 13 COUNTY 305

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

AY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7500	5440	7490	17800	27500	45000	66800	7370	4580	2600	4510	2690
2	8330	5090	7470	17000	27800	48700	59700	7370	4630	2530	3980	2940
3	8950	4770	7310	16800	27800	50500	51400	7400	5140	2490	3690	2910
4	9470	4550	6930	17100	27700	50700	43700	7530	5440	2430	3410	2690
5	9990	4460	6680	17900	27500	49300	37500	7730	5560	2360	3100	2510
6	10600	4450	6470	19000	27500	46500	32700	7910	5710	2280	2890	2450
7	11300	4490	6150	20800	27900	42700	28700	7700	5580	2200	2780	2650
8	12200	4690	6070	23300	28700	38300	25000	7210	5130	2130	2740	2900
9	13300	4840	6770	27300	29700	34000	21800	6930	4900	2100	2760	3020
10	15300	4940	8070	37900	30600	30000	19200	6680	4940	2080	2740	2990
11	18700	5580	9390	48200	30800	26700	17300	6340	5050	2050	2950	2900
12	26800	6250	11300	51500	29400	23900	15900	6230	4780	2060	3230	2910
13	38200	6630	13000	52100	27900	21800	14300	6370	4560	2070	3320	2930
14	43300	6880	14300	51000	26500	20300	13200	6810	4390	2060	3360	2860
15	43600	6970	15500	48800	25000	19300	12900	7210	4190	2060	3290	2700
16	42400	6730	16900	46200	23600	18600	12800	7290	3940	2080	3180	2540
17	40100	6480	18200	43800	22900	18300	12800	6830	3690	2050	3210	2510
18	38500	6590	19900	41500	22600	18100	12800	6350	3500	2080	3290	2650
19	34900	6690	21700	39300	23100	17800	12500	6260	3350	2080	3330	2680
20	29800	6860	23000	37000	24400	17700	11600	6310	3240	2150	3240	2600
21	26100	7180	23600	34200	25900	17700	10700	6200	3180	2310	3070	2610
22	21900	7310	24300	31000	27700	18000	10400	6040	3090	2330	2960	2790
23	16600	7030	25600	28200	29500	18600	10300	5730	3050	2400	2840	3060
24	12000	6910	26500	26400	31100	19300	10000	5250	3090	2550	2680	3280
25	9300	7710	26600	25200	32800	20400	9170	4810	3050	2650	2580	3400
26	7730	8640	26100	24700	34700	23500	8250	4700	2940	2860	2460	3300
27	6670	9140	25000	24200	37000	32600	7500	4830	2860	3500	2390	3030
28	6190	9360	23600	24300	40500	46700	7410	5090	2800	4250	2340	2790
29	5970	9220	22100	25100	---	58800	7470	5330	2720	4780	2360	2590
30	5740	8340	20500	26100	---	67000	7410	5250	2640	5050	2490	2460
31	5640	---	18900	27000	---	70000	---	4850	---	4940	2520	---
TAL	587080	194220	495400	970700	798100	1030800	611210	197910	121720	81560	93690	84340
AN	18940	6474	15980	31310	28500	33250	20370	6384	4057	2631	3022	2811
X	43600	9360	26600	52100	40500	70000	66800	7910	5710	5050	4510	3400
N	5640	4450	6070	16800	22600	17700	7410	4700	2640	2050	2340	2450
SM	1.39	.48	1.18	2.30	2.10	2.44	1.50	.47	.30	.19	.22	.21
	1.61	.53	1.36	2.66	2.18	2.82	1.67	.54	.33	.22	.26	.23

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT 09/25/91

STATION NUMBER 02226000 ALTAMAHA RIVER AT DOCTORTOWN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 313916 LONGITUDE 0814941 DRAINAGE AREA 13600.00 DATUM 24.48 STATE 13 COUNTY 305
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

AY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2370	9790	3860	6180	47100	14400	15300	19800	16000	9730	16200	---
2	2280	8650	3860	6160	49700	15700	16000	20400	15400	9750	17100	---
3	2220	7660	4100	6390	50700	18300	16900	20800	14700	9870	18500	---
4	2160	6680	4420	6790	54300	22700	17800	21100	14600	10300	22600	---
5	2120	5920	4290	7030	59800	32400	18900	21300	14800	10700	28700	---
6	2090	5730	4060	7120	62700	46500	20500	21300	14300	10700	---	---
7	2100	5760	4000	7190	63200	58300	23200	21100	13900	10600	---	---
8	2130	5370	4370	7340	62200	71100	26700	21200	13700	10500	---	---
9	2110	4940	4950	7550	60700	78800	29200	21600	13700	10600	---	---
10	2370	5540	5370	7520	59400	80200	30500	22100	13500	10900	---	---
11	2810	6720	5700	7620	58000	78500	31300	22500	12700	11200	---	---
12	3010	8030	5720	8020	55900	76000	31900	22700	11700	11300	---	---
13	3560	9130	5410	9560	53000	73200	32100	22500	10200	11300	---	---
14	4310	10100	5200	11300	50100	69200	31700	22500	8690	11300	---	---
15	6120	10500	5180	12900	46300	64200	30800	22500	7520	11200	---	---
16	8010	10300	5300	14700	41300	58500	29400	22400	7070	13000	---	---
17	10200	9500	5340	16100	35900	53000	27900	22600	7110	14900	---	---
18	13300	8450	5170	17200	31100	47500	26500	23000	7340	15500	---	---
19	16500	7520	5030	18400	27400	42100	25400	23700	7660	16400	---	---
20	17300	6890	5010	20300	24400	37300	24700	24700	7740	17900	---	---
21	14500	6460	5400	21900	21800	33400	23900	26300	7950	19500	---	---
22	10600	5830	6300	24000	19500	30300	22600	27600	8100	20600	---	---
23	8010	5210	6920	26500	17600	27900	21100	27300	8390	20600	---	---
24	6740	4770	7130	29300	16100	25600	19600	26000	8880	20200	---	---
25	6150	4490	7060	32200	15000	23500	18600	24100	9060	20100	---	---
26	6010	4370	6990	34300	14300	21500	18300	22400	9320	19700	---	---
27	6670	4360	6990	36000	13900	19600	18400	20900	9730	18800	---	---
28	7950	4320	7090	38100	14000	17900	18700	19200	9900	17900	---	---
29	9120	4190	7030	38900	---	16400	18800	18000	9930	16700	---	---
30	10000	4000	6740	40800	---	15800	19000	17300	9820	16100	---	---
31	10400	---	6410	43500	---	15100	---	16600	---	16300	---	---
ITAL	203220	201180	170400	570670	1125400	1284900	705700	685500	323410	444150	---	---
AN	6555	6706	5497	18410	40190	41450	23520	22110	10780	14330	---	---
X	17300	10500	7130	43500	63200	80200	32100	27600	16000	20600	---	---
N	2090	4000	3860	6160	13900	14400	15300	16600	7070	9730	---	---
SM	.48	.49	.40	1.35	2.96	3.05	1.73	1.63	.79	1.05	---	---
.	.56	.55	.47	1.56	3.08	3.51	1.93	1.88	.88	1.21	---	---

APPENDIX G
FORT STEWART WELL DATA

APPENDIX 2.1 CHARACTERISTICS OF WELLS AT FORT STEWART, GEORGIA

Well No.	Location	Casing Diameter (Inches)	Depth of Casing/Well (Feet)	Pump Types	Main Pump Rating (GPM)	Motor (HP)	Water Storage Facilities Type	Water Storage Capacity (Gallons)	Appurtenances and Notes
1	Bldg. P00933, 1st St. and Wilson Ave, Main Post	14	451/816	10" vertical Turbine, Jacuzzi Booster	1750	125	---	---	A,B,C,D,E,F,G
2	Bldg. P00436, Hero Road, Main Post	12	470/800	10" vertical Turbine, Jacuzzi Booster	1400	125	---	---	A,B,C,D,E,F,H
3	Bldg. 1345, 15th St. and Wilson Ave, Main Post	12	436/750	10" vertical Turbine, Peabody Booster	1400	125	---	---	A,B,C,D,E,F,H
4	Bldg. T09961, 12th St. and Bultman Ave, Main Post	12	464/802	10" vertical Turbine, Jacuzzi Booster	1400	125	---	---	A,B,C,D,E,F,H
5	Bldg. T07731, E. Louie Circle, Wright AAF	10	372/472	8" Peabody Vertical, Turbine, Aurora Booster	500	50	Pressure	8,000	A,B,E,F,H
6	Bldg. T07732, N. Louie Circle Wright AAF	10	393/500	8" Vertical Turbine, Jacuzzi Booster	500	50	---	---	A,B,D,E
7	T16009, Taylors Creek	10	360/460	8" Vertical Turbine, Jacuzzi Booster	500	50	Pressure	8,000	B,C,E,H
8	Bldg. T15003, Camp Oliver	8	451/706	6" Vertical Turbine, Aurora Booster	400	30	Pressure	12,000	A,B,C,D,E,H
9	Bldg. S19222 TAC-H	6	403/560	4" Vertical Turbine	175	10	Pressure	5,000	B,C,D,E,H,I
10	T 19107 Evans Army Heliport	6	404/600	4" Vertical Turbine, Jacuzzi Booster	135	10	Elevated	150,000	B,C,D,E,H,I
--	P17006 Ammunition Supply Point	4	---/500	3" Vertical Turbine, Jacuzzi Booster	25	5	Pressure	600	A,C,E
--	Bldg. P08330, Shootrange Holbrook Pond	3 and 4	---/605	Submersible at 80' depth	80	3	Pressure	315	J,K
--	Bldg. P08331 Campground Holbrook Pond	3 and 4	---/605	Submersible at 80' depth	80	3	Pressure	315	J,K

B. Totalizer and recording flow meter
H. Water level gauges
C. Automatic control system
D. Platform for chlorine tanks
E. Wallace and Tiernan V-notch clorinator, model V-75
F. Wallace and Tiernan fluoridation pump, model D747
G. Standby gas engine
H. Standby diesel engine
I. Pump timer
J. Wallace and Tiernan 84 series solution metering pump, hypochlorinator
K. No flow meter, no pump timer

Source: U. S. Army Environmental Hygiene Agency 1988

Source: Geraghty & Miller, Inc., February 1991

APPENDIX 2.2 CHARACTERISTICS OF POTABLE WELLS AT THE MAIN CANTONMENT AREA

Well	Diameter Inches	Depth Feet	Casing Depth Feet	Flow (GPM)*	Standby Power Flow (GPM)
1	14	816	451	1,750	950
2	12	508	393	1,400	1,400
3	12	750	436	1,400	1,400
4	12	805	439	1,400	1,400
11	16	779	560	1,000	1,000

*GPM = Gallons per minute

No well characteristics such as diameter, well depth and casing setting are presented for the outlying wells in reference 2, except for the well's rated pump rates (Table D-4).

TABLE D-4. PUMP RATED FLOW IN THE OUTLYING POTABLE WELLS

Well	Area	Total Rated Flow Capacity	Standby Power
5	Wright Army Airfield	500 GPM	Yes
6	Wright Army Airfield	500 GPM	No
7	Taylors Creek	500 GPM	Yes
8	Camp Oliver	400 GPM	Yes
9	TAC-X	175 GPM	Yes
10	Evans Basefield	190 GPM	Yes
-	Ammunition Supply Point	75 GPM	No
-	Holbrook Pond (Skeet Range)	80 GPM	No
-	Holbrook Pond (Campground)	80 GPM	No

Source: U. S. Army Environmental Hygiene Agency 1988

APPENDIX H
FORT STEWART MONITORING WELL LOCATIONS

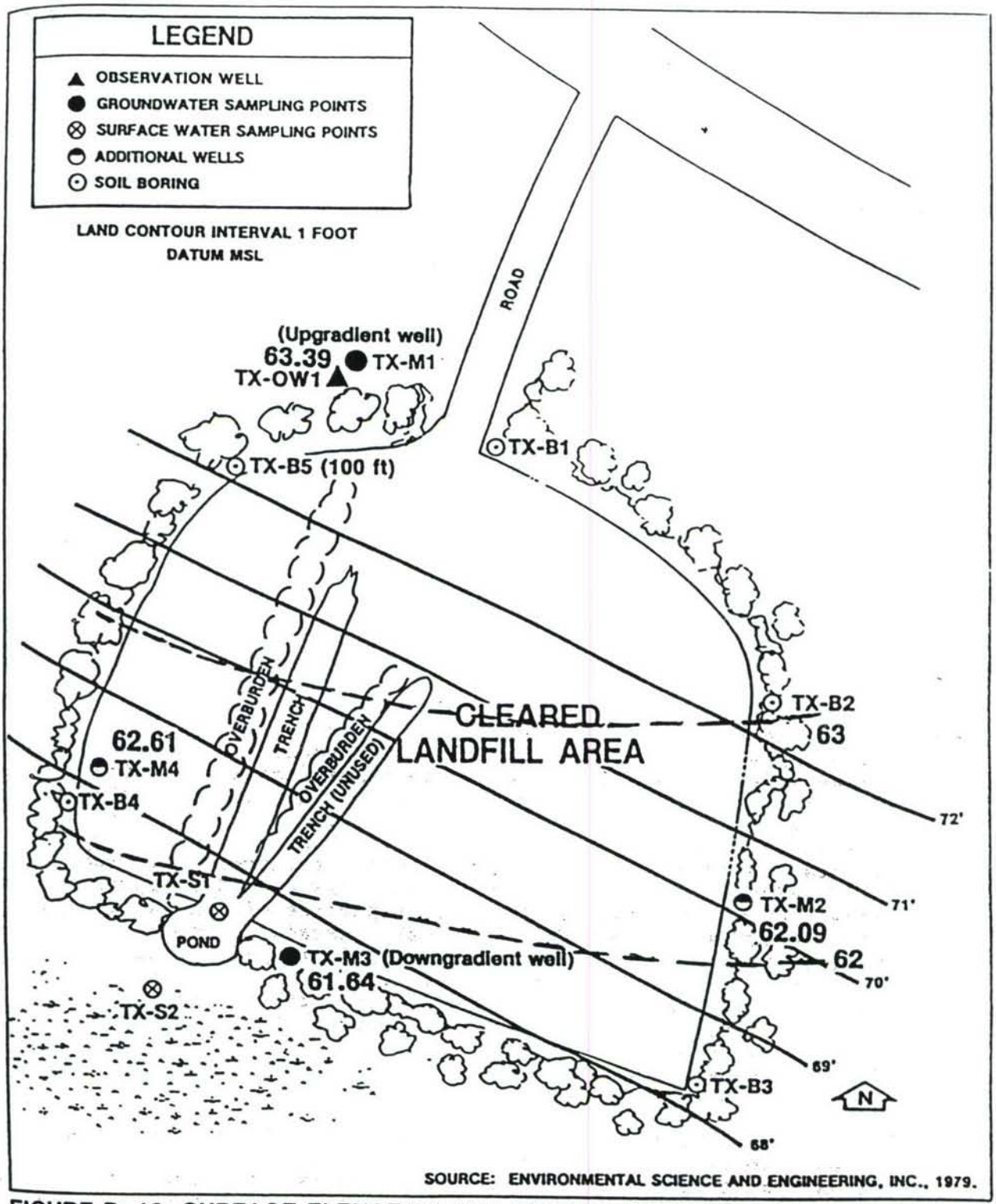


FIGURE D-10. SURFACE ELEVATION AND WATER TABLE CONTOUR MAP OF THE TAC-X LANDFILL SHOWING LOCATION OF TWO GROUND-WATER MONITORING WELLS AND TWO WELLS DRILLED FOR ADDITIONAL WATER LEVEL DATA

Source: Army Environmental Hygiene Agency, August 1988

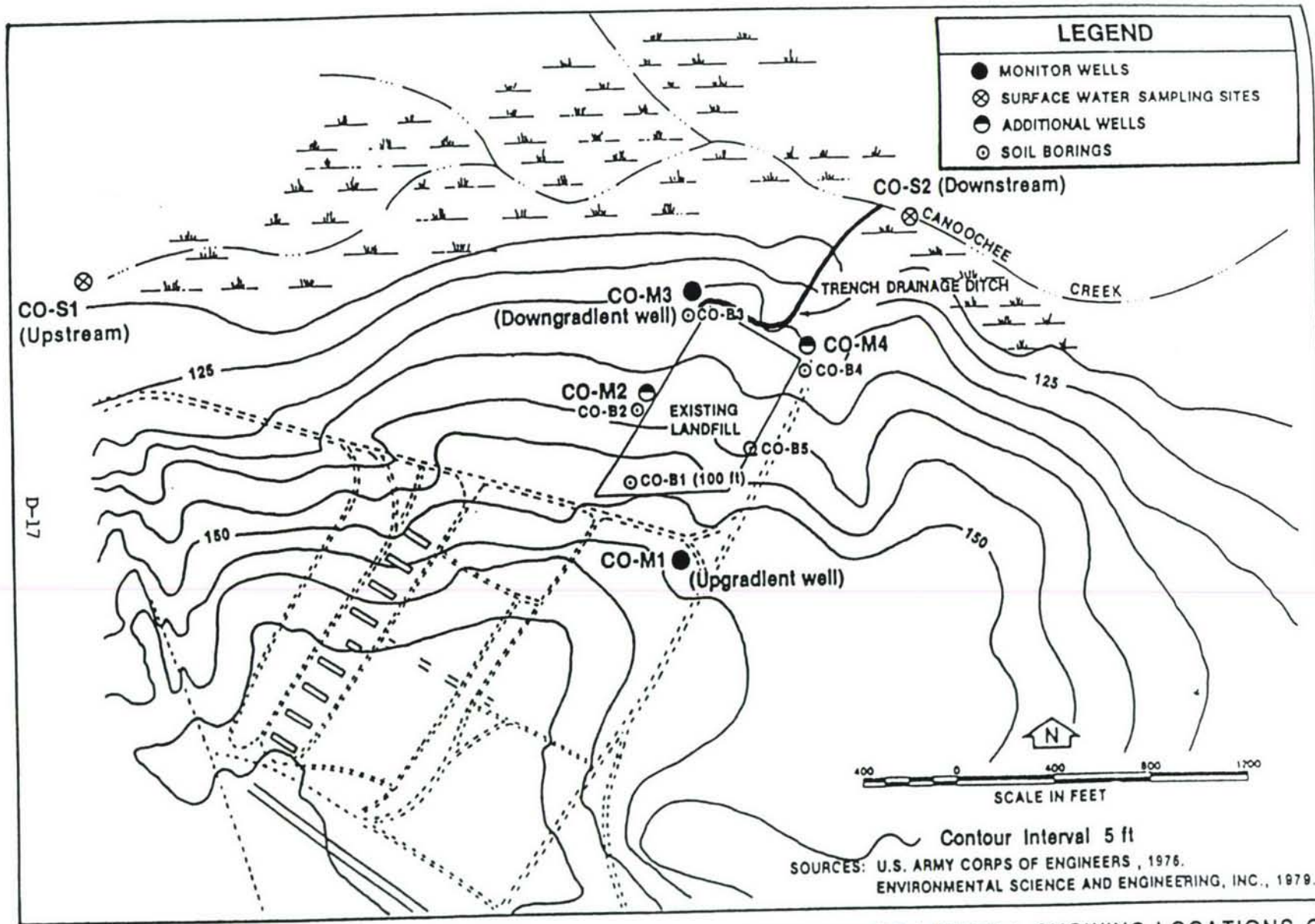


FIGURE D-8. SURFACE ELEVATION CONTOUR MAP OF THE CAMP OLIVER LANDFILL SHOWING LOCATIONS OF TWO GROUND-WATER MONITORING WELLS AND TWO WELLS DRILLED FOR ADDITIONAL WATER LEVEL DATA

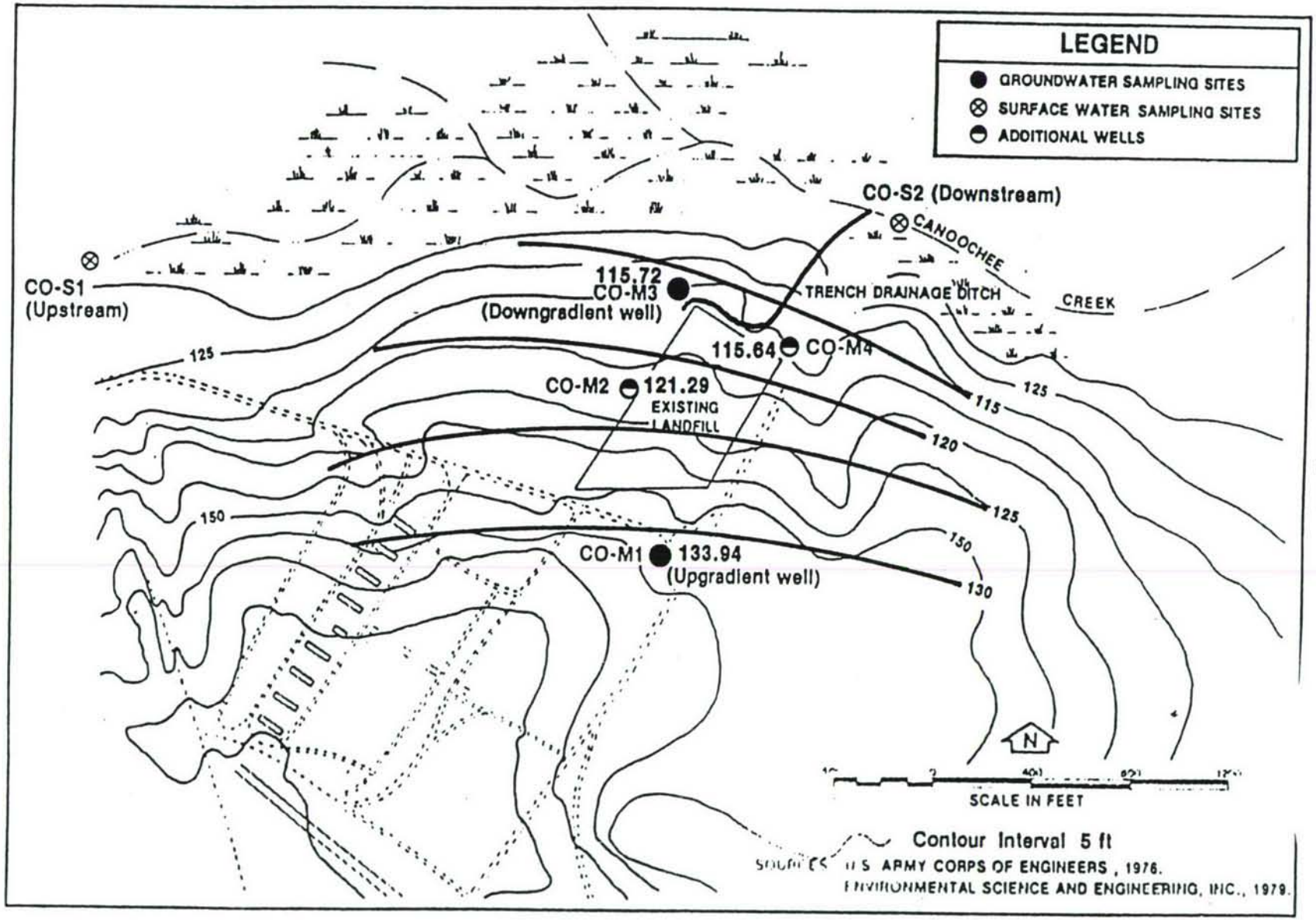


FIGURE D-9. WATER TABLE CONTOUR MAP OF THE CAMP OLIVER LANDFILL AT FORT STEWART, GA.

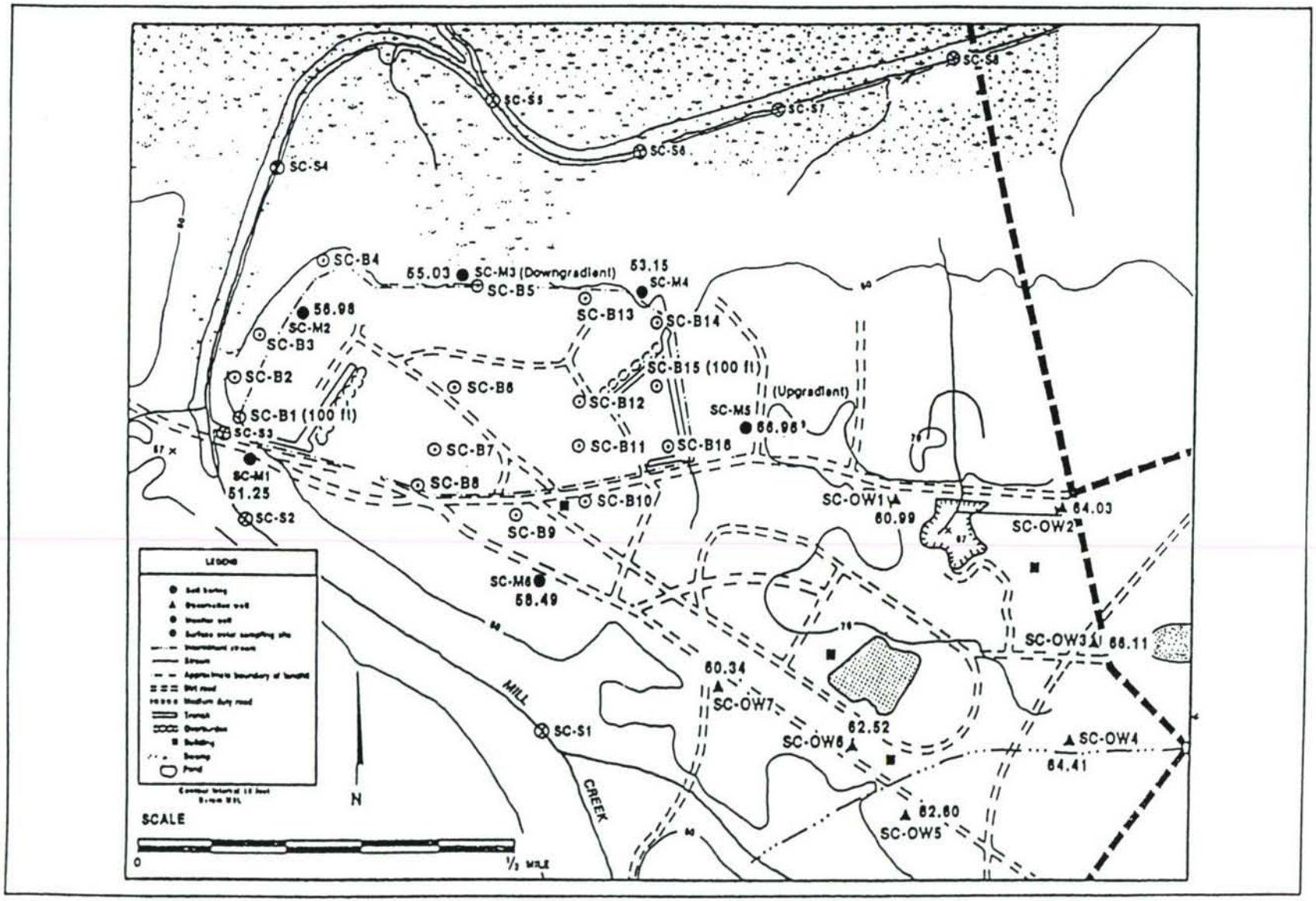


FIGURE D-6. MAP OF SOUTH - CENTRAL LANDFILL SHOWING LOCATIONS OF SIX GROUND-WATER MONITORING WELLS AND SEVEN OBSERVATION WELLS

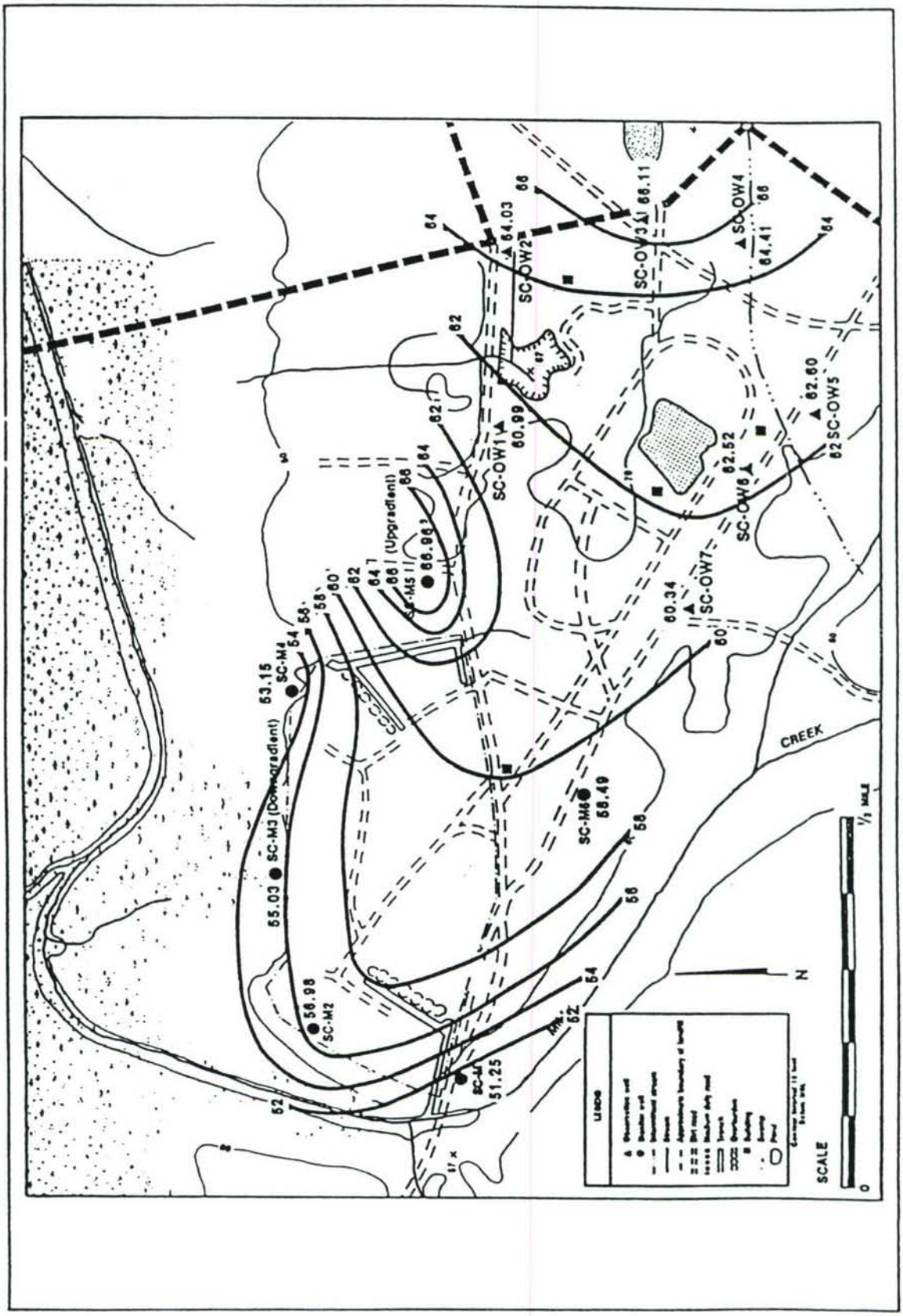


FIGURE D-7. WATER TABLE CONTOUR MAP OF THE SOUTH-CENTRAL LANDFILL AT FORT STEWART, GA.