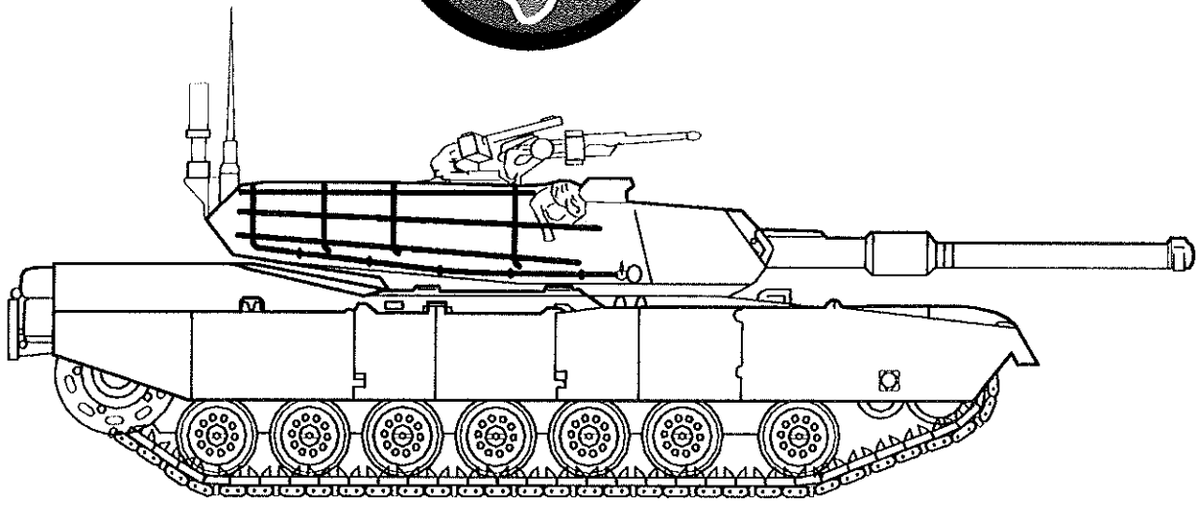
Corrected Final
Phase I RCRA Facility Investigation Report
For 24 Solid Waste Management Units
At Fort Stewart, Georgia

Volume I of III



May 1996

Job No. 87528.000

Prepared For

US Army Corps of Engineers
Savannah District

Prepared By

RUST ENVIRONMENT & INFRASTRUCTURE

DOCUMENT 4

CORRECTED FINAL

PHASE I
RCRA FACILITY INVESTIGATION REPORT
FOR 24 SOLID WASTE MANAGEMENT UNITS
AT FORT STEWART, GEORGIA
VOLUME I OF III

Prepared For

UNITED STATES ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract DACA21-93-D-0029
Delivery Order 0005
Rust Project No. 87528.000
May 1996

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
Charleston, South Carolina 29406
803/572-5600

1.0 INTRODUCTION

This Corrected Final Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for 24 Solid Waste Management Units (SWMUs) provides the results of implementation of the Phase I RFI Work Plan performed at Fort Stewart, Georgia. This Corrected Final Phase I RFI Report has been prepared by RUST Environment and Infrastructure, Inc. (RUST E&I) for the United States Army Corps of Engineers (USACE), Savannah District, Contract No. DACA21-93-D-0029, Delivery No. 0005.

The information provided in this report is based upon data provided by the USACE and Geraghty and Miller, Inc. Environmental Services (G&M). The field activities were completed in accordance with the Corrected Final Phase I RFI Work Plan (April, 1993) prepared by G&M. The Corrected Final Phase I RFI Report has been prepared in accordance with the USACE Scope of Work dated August 17, 1993 and is presented in the same format as the Corrected Final Phase I RFI Work Plan.

Twenty-four (24) SWMUs are discussed in this report. Two (2) SWMUs not included in this report are SWMU8 EOD Area (FST-008) and SWMU13 Fire Training Pit (FST-013) which are being addressed under other contracts.

The G&M field activities included the installation of 30 new ground-water monitoring wells at various SWMUs throughout the installation. During well drilling, G&M collected soil samples for analysis. The USACE completed all other sampling (ground-water, soil, sediment, surface soil, surface water, wastewater and sludge).

The soil samples for the G&M field investigations were analyzed by Savannah Laboratories in Savannah, Georgia and the Quality Assurance (QA) soil samples were analyzed by the USACE South Atlantic Division (SAD) Laboratory in Marietta, Georgia. The soil samples for the USACE field investigations were analyzed by James H. Carr and Associates, Inc.

(Carr Laboratory) in Columbia, South Carolina and International Technology Corporation Analytical Services (IT Laboratory) in Knoxville, Tennessee. The USACE QA samples were also submitted to the SAD Laboratory. All raw data from the laboratories has been included in Volume III, Appendix U of this Corrected Final Phase I RFI Report.

A Quality Control Summary Report (QCSR) and Analytical Package was prepared by G&M for the work completed by G&M in one (1) 3-ring notebook (1994). A QCSR was also prepared by USACE for the work completed by USACE in three (3) 3-ring notebooks (Volumes I, II and III)(1994).

With the exception of the following changes, the sampling program adhered to the approved Corrected Final Phase I RFI Work Plan (1993).

- Two (2) up-gradient surface water samples were collected at SWMU1, instead of the proposed one (1) up-stream and one (1) down-stream samples. The proposed down-gradient surface water sample was mistakenly taken in an up-gradient location.
- Due to drought, one (1) surface soil sample was collected at the Tac-X Landfill SWMU3 in lieu of surface water and leachate samples.
- Based on the field records, soil samples were not collected below six feet below land surface or to the water table in the location chosen for soil boring MW4 at Burn Pit SWMU4B because of sustained OVA readings above the health and safety action levels. This soil boring was abandoned and the monitoring well SWMU4B, MW4(b) was later installed by the USACE.
- Four (4) extra surface soil samples were taken at EOD Area SWMU12.
- One (1) extra surface water sample and one (1) extra QA surface water sample were collected at the Industrial Wastewater Treatment Plant SWMU18.
- No sludge sample was available at the Radiator Shop SWMU24A.
- Five (5) extra ground-water samples and five (5) extra soil samples were collected at the Waste Oil Tanks SWMU25.

- Two (2) extra soil samples and two (2) surface soil samples were collected at the 724th Tanker Purging Station SWMU26.
- Field duplicated soil samples were mistakenly collected and submitted by G&M for laboratory analysis by pH and specific conductance at SWMU2, SWMU4A through 4F, and SWMU14.
- The analytical methods used to analyze the ground-water samples were inadvertently switched by the laboratory from SW-846 Method 8080 to Method 608. During all future sampling and analyses, it will be ensured that only SW-846 methods will be utilized.
- The detection limits for vinyl chloride and toxaphene were inadvertently higher than their MCLs, SMCLs, and/or action levels. During all future sample analyses, it will be ensured that the detection limits for all parameters are less than, or equal to, their MCLs, SMCLs, and/or action levels.

5.3 TAC-X Landfill SWMU3(FST-003)

5.3.1 Site Description

TAC-X Landfill SWMU3(FST-003) comprises approximately 5-acres accessed by a short (about 1/10 mile) unpaved road on the southwestern side of Fort Stewart Highway 42 (Figure 5-21). The site is located about 1 1/4 miles south of the northern Fort Stewart boundary, approximately 3 1/2 miles south-southwest of Pembroke, Georgia and less than one mile southeast of Dean Field and TAC-X (Noncommissioned Officers Academy) helicopter training area, located on the north side of Fort Stewart Highway 42 (G&M, 1993).

The site is nearly flat (less than 7 feet relief), sloping gently toward the south. Trees (mainly pine), brush, and grass cover most of the site. The northeastern 1/3 to 1/2 of the site is cleared of trees. The southernmost portion of the site is marshy, with surface water present.

Two trench-like depressions are present on-site. The reported dimensions of the disposal trench are: 20 feet wide by 400 feet long by 5 to 6 feet deep (G&M, 1993). Household type debris (e.g. plastic spoons and bags) were observed within the overburden pile on the western side of the larger trench during a November 10, 1993 site reconnaissance. Aged refuse is reported to be present in soil at the bottom of the larger trench (G&M, 1993). Four monitoring wells are present near the north, south, east and west site boundaries, respectively (Figure 5-22). Photographs from the recent site inspection are shown in Figure 5-23.

5.3.2 Work Completed

TAC-X Landfill reconnaissance was performed and the site description documented (see Section 5.3.1,Site Description). Well protection for the existing wells, including protective casings, lockable well covers, and protective posts at the concrete well pads was installed in compliance with the Phase I RFI Work Plan (G&M, 1993). Existing well construction information was located.

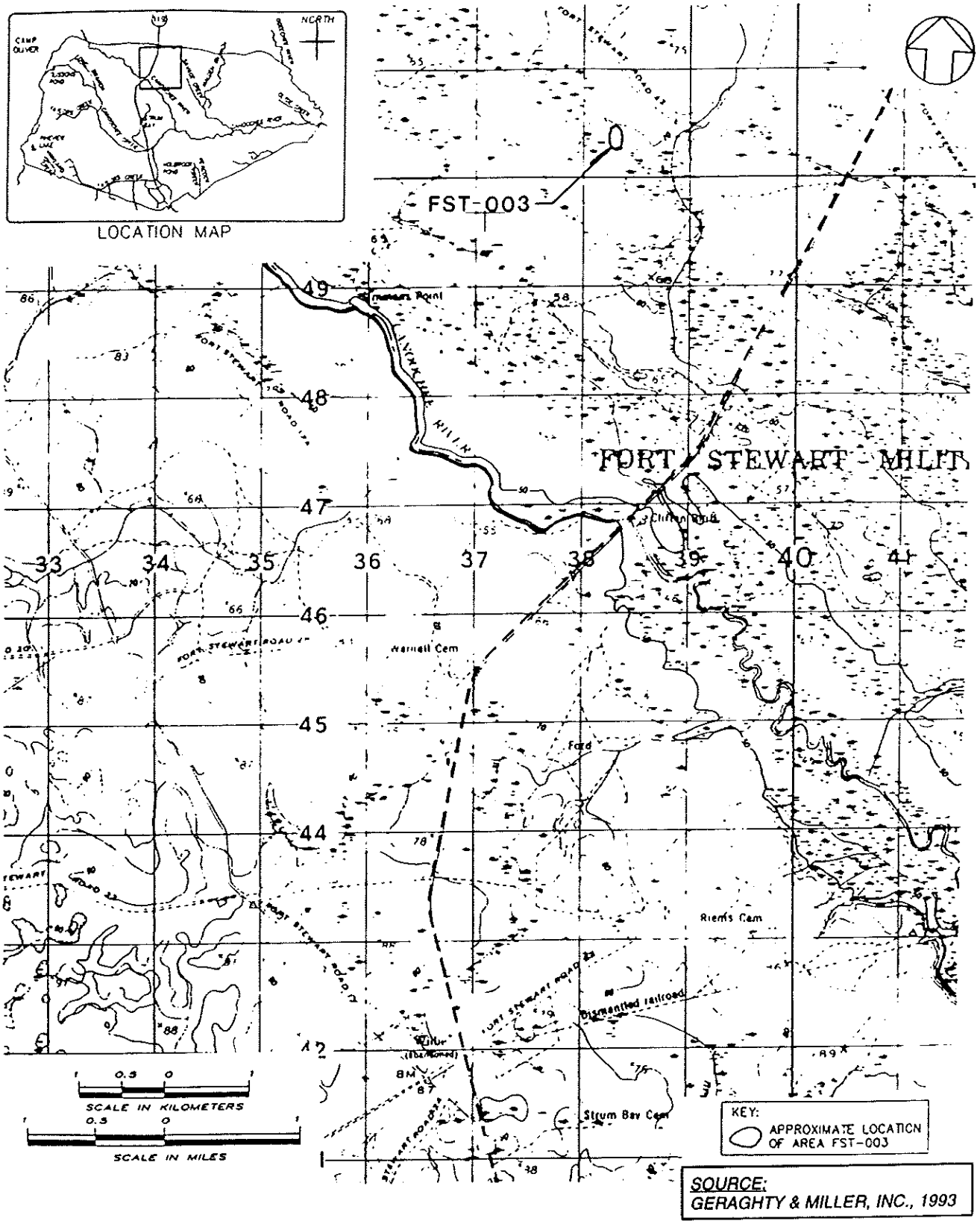
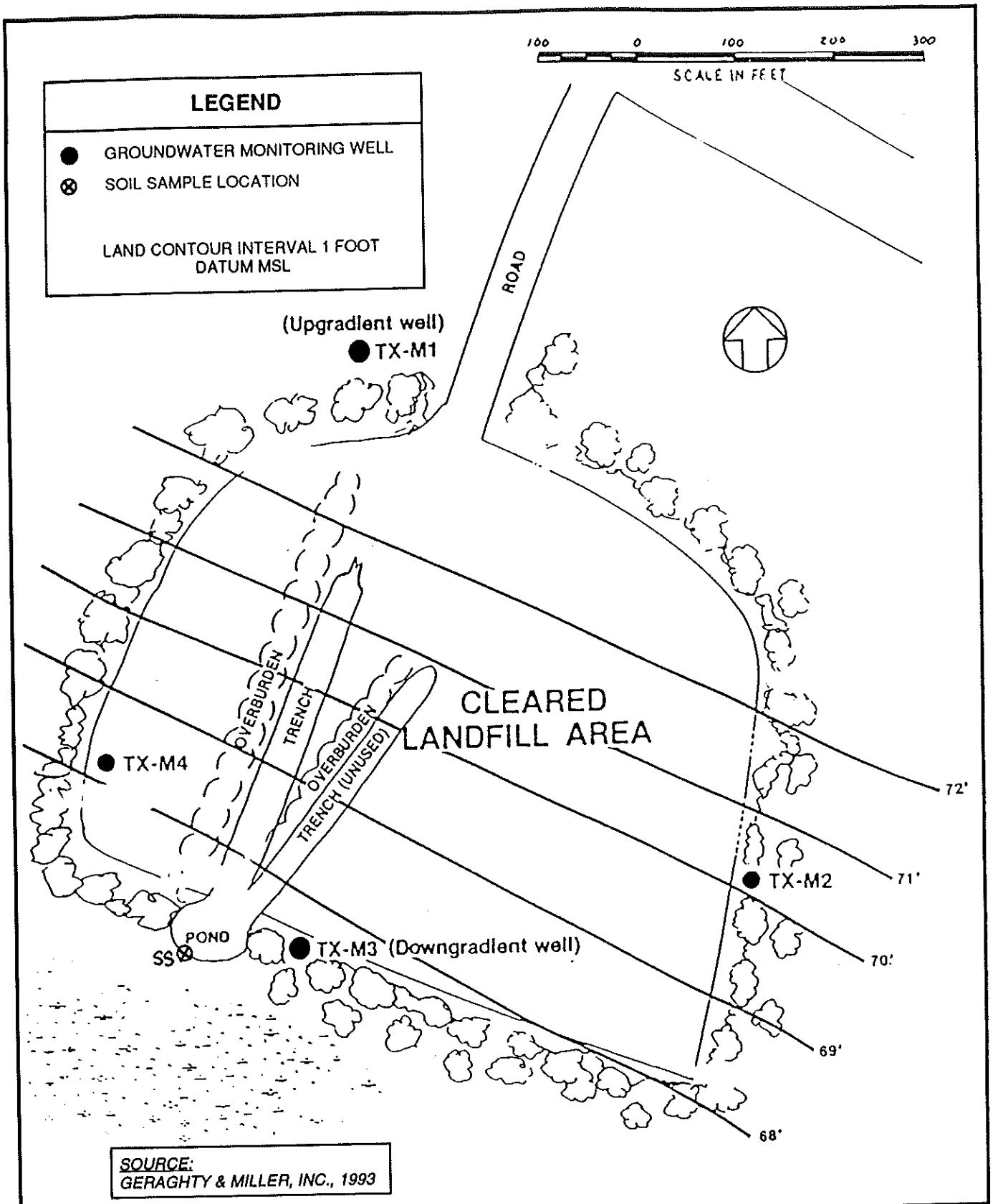


FIGURE 5-21

LOCATION MAP
SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA
PROJECT NO. 87528.000

RUST ENVIRONMENT & INFRASTRUCTURE



RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-22

MONITORING WELL, SOIL BORING AND SURFACE SOIL LOCATIONS SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA

PROJECT NO. 87528.000

PHOTO WESTWARD, MW 2

PHOTO EASTWARD, MW 4

RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-23

PHOTOGRAPHS
SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA
PROJECT NO. 87528.000

A generalized surface water flow map was also constructed. A ground-water elevation map was completed using site-specific ground-water level data. Geologic cross-sections were constructed using data obtained from lithologic logs generated during monitoring well construction.

One (1) surface soil sample was collected instead of the two surface water samples. Several visits were made to the site in an attempt to locate surface water but the pond was completely dry (due to drought). No leachate sample was found at the site either. Ground-water samples were collected from all four (4) on-site monitoring wells. Soil sample laboratory analyses for pH, specific conductance, VOCs, RCRA total metals, and pesticides/PCBs were reported. Ground-water laboratory analytical parameters specified in the Phase I RFI Work Plan (G&M, 1993) consisted of: pH, specific conductance, VOCs, RCRA total metals, and pesticides/PCBs. Laboratory analytical data for pH and specific conductance were not reported, however, field measurements for pH and specific conductance were reported.

An analytical results summary is provided in Section 5.3.5. Soil permeability testing was not performed as part of the Phase I investigation. The ground-water flow rate will be determined in Phase II.

5.3.3 Site Characterization

The TAC-X Landfill (SWMU3) monitoring well, soil boring and surface soil location map is provided in Figure 5-22. The surface water flow direction, based on topography is illustrated in Figure 5-24 and generally flows to the south-southwest. The shallow ground-water flow across the site is to the south. A generalized ground-water elevation map is provided as Figure 5-25. The ground-water elevation data are provided in Appendix H1. The calculated horizontal hydraulic gradient across the site was 0.004 ft/ft (Appendix H2). North-south and east-west oriented geologic cross-sections are shown in Figures 5-26, 5-27 and 5-28. The monitoring well logs and soil boring logs are provided in Appendix H3. Soils reported underlying the site are predominantly sands, clayey sands, and sandy clay.

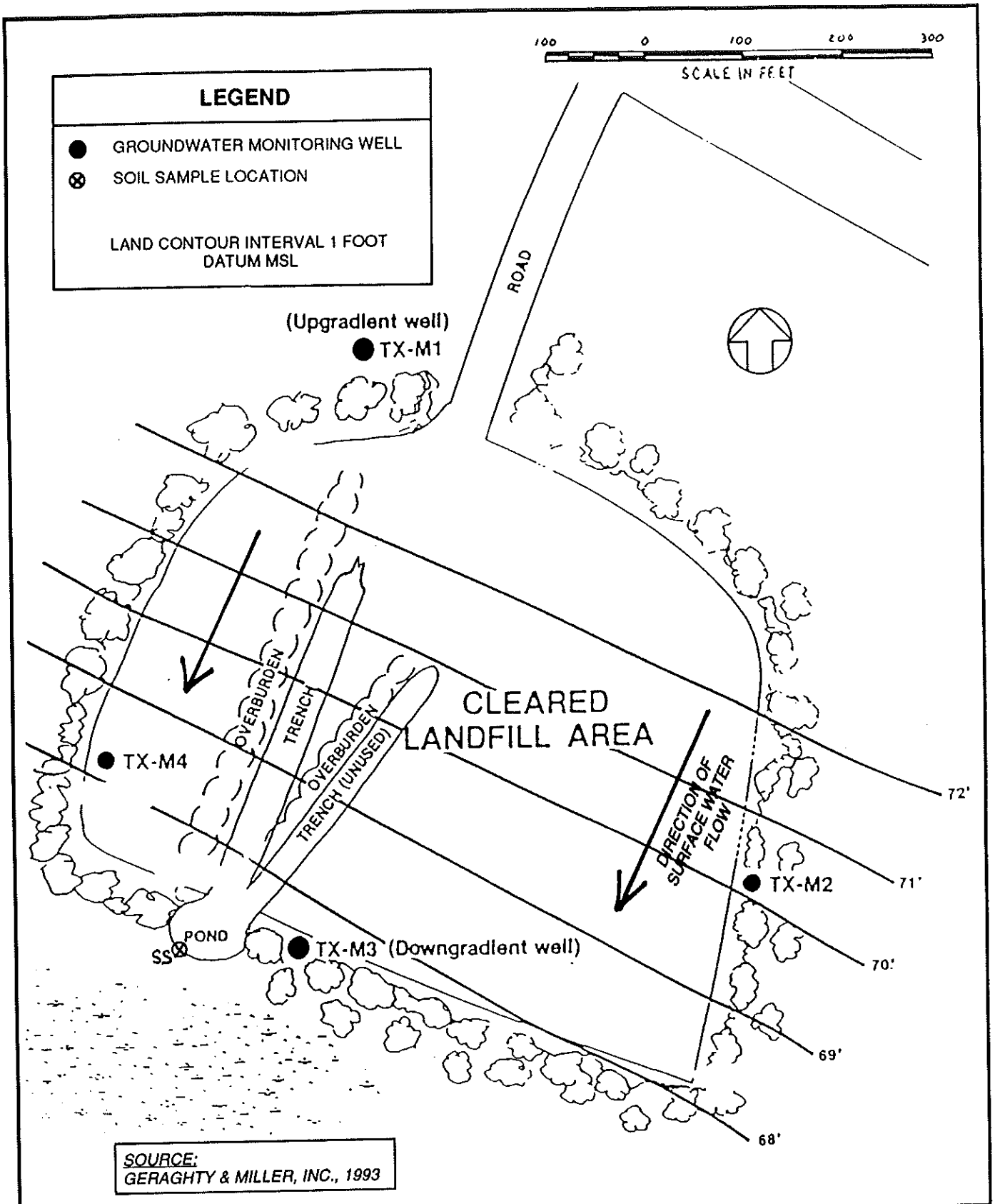
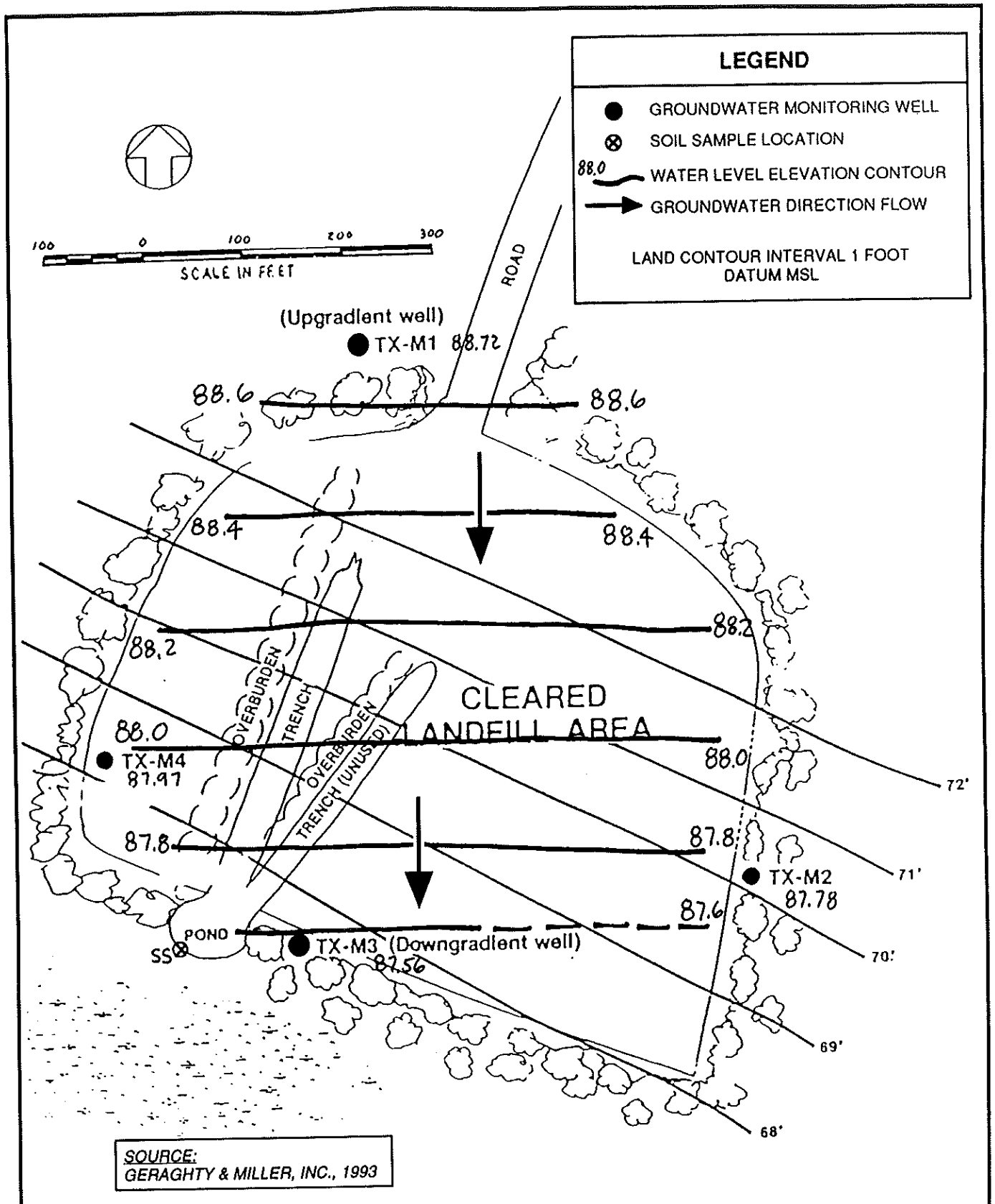


FIGURE 5-24

SURFACE WATER FLOW MAP
SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA
PROJECT NO. 87528.000

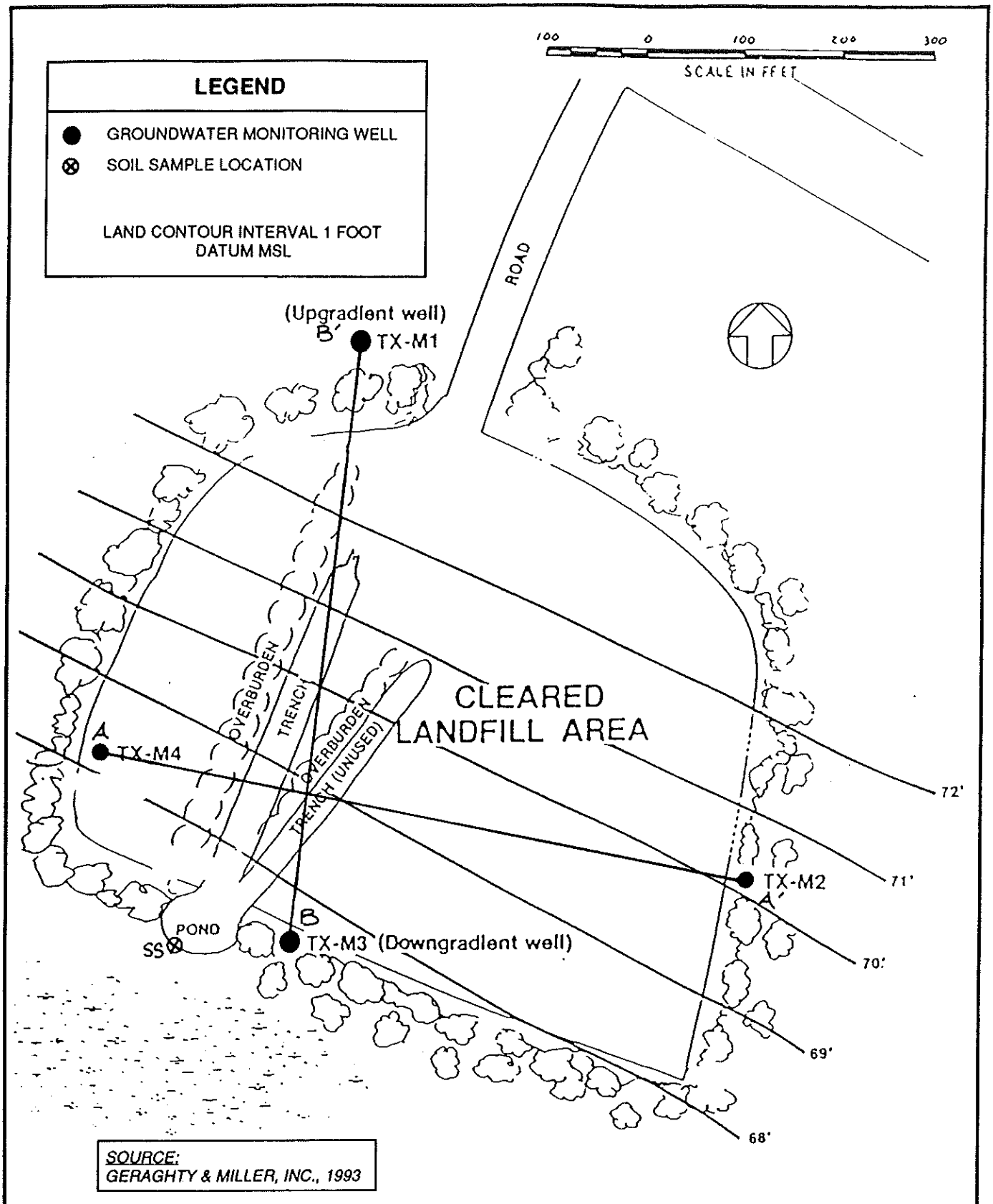
RUST ENVIRONMENT & INFRASTRUCTURE



RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-25
WATER LEVEL ELEVATION MAP
NOVEMBER 17, 1993
SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA
PROJECT NO. 87528.000



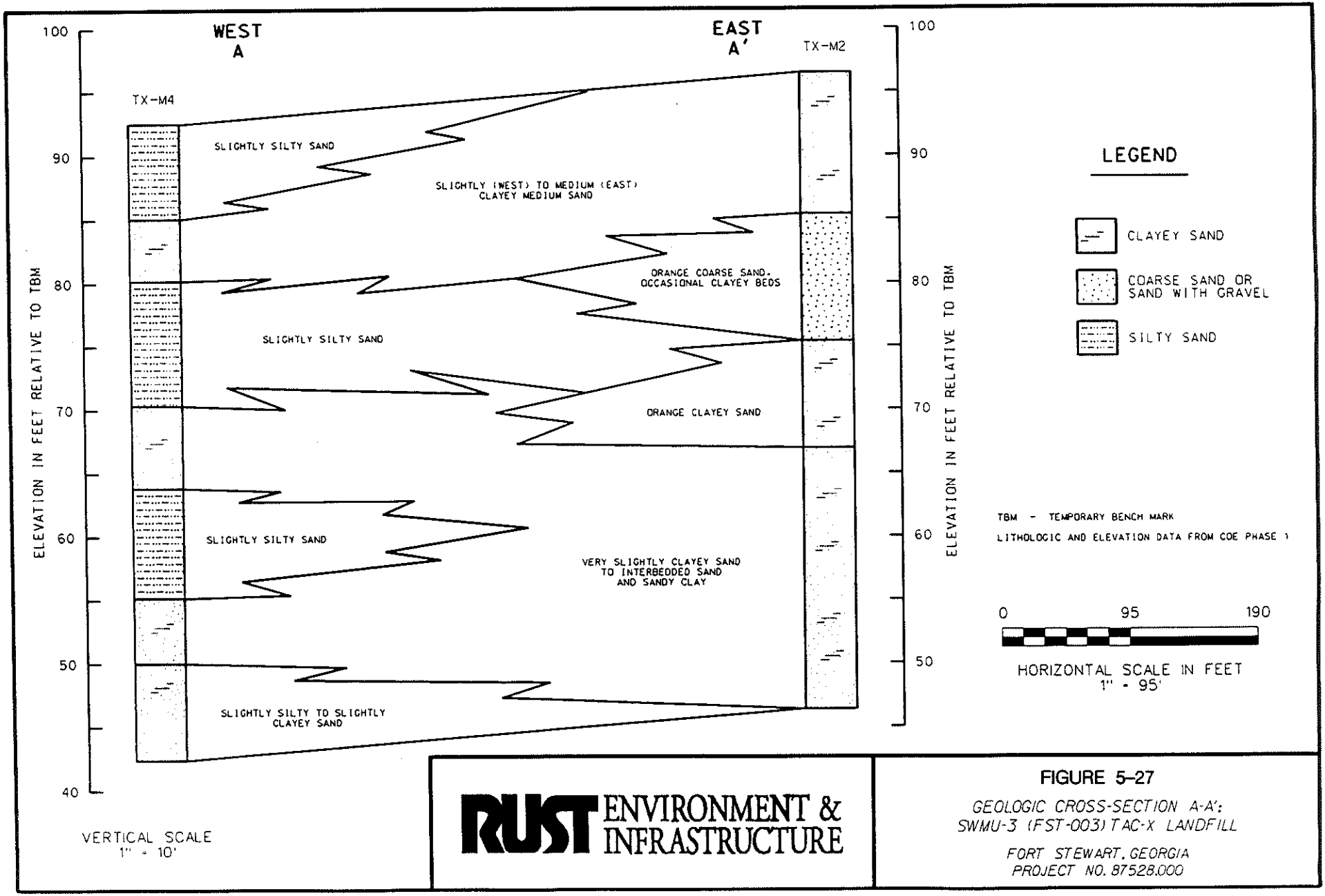
RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-26

TRACE OF GEOLOGIC CROSS-SECTIONS
SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA
PROJECT NO. 87528.000

DWG FILE: 5-27.DWG PLOTTED: 4/1/94



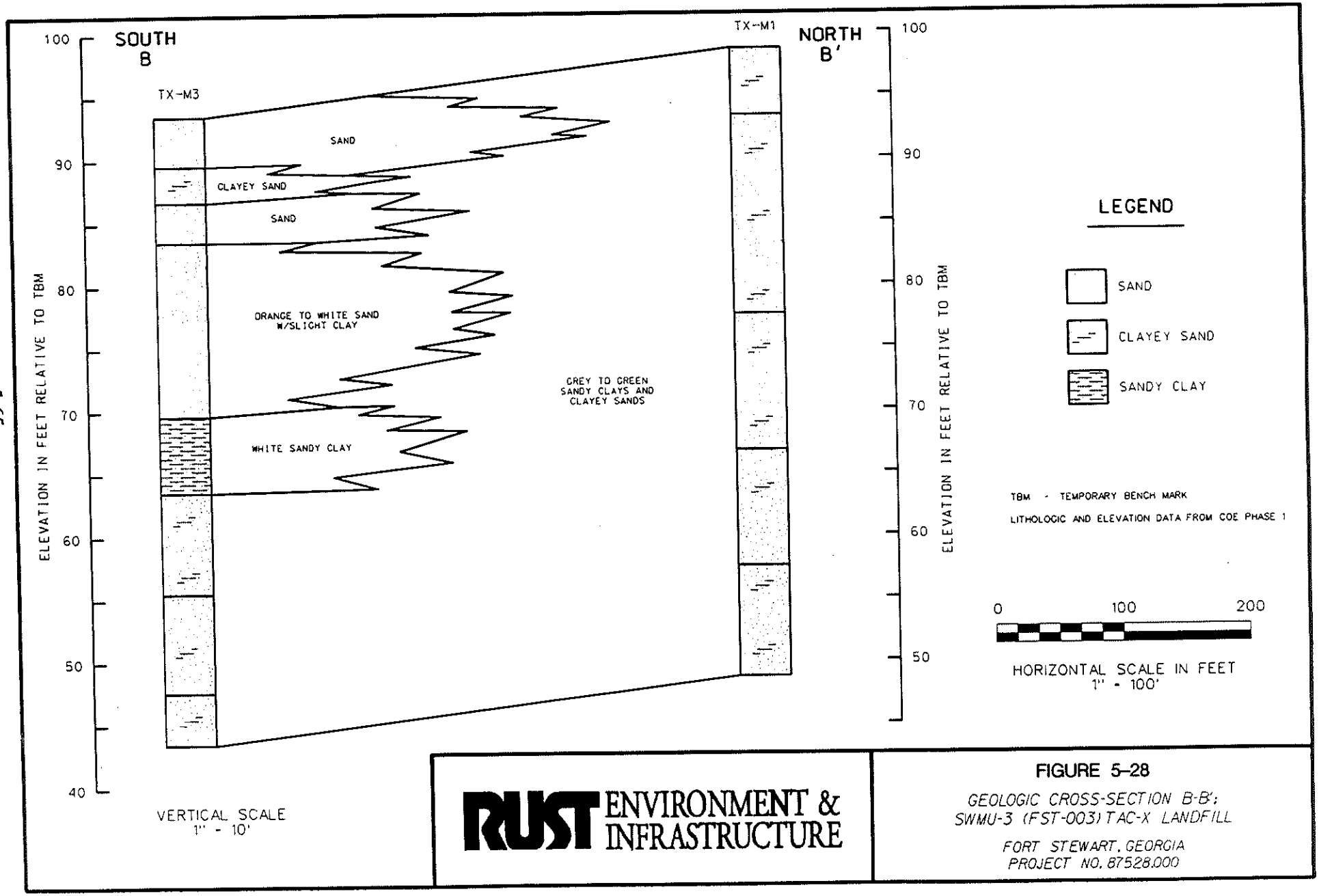
RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-27

GEOLOGIC CROSS-SECTION A-A':
SWMU-3 (FST-003) TAC-X LANDFILL

FORT STEWART, GEORGIA
PROJECT NO. 87528.000

DWG FILE: 5-28.DWG PLOTTED: 4/1/94



RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-28

GEOLOGIC CROSS-SECTION B-B';
SWMU-3 (FST-003) TAC-X LANDFILL

FORT STEWART, GEORGIA
PROJECT NO. 87528.000

Contaminant distributions are discussed in Section 5.3.5.

5.3.4 Waste Characterization

Material characterization for the TAC-X Landfill SWMU3(FST-003) includes residential waste, food cans, brush, plastic, and cardboard boxes placed from the 1960s to 1979. From 1979 to 1982, materials included grass clippings, tree branches, root stumps and asphalt and concrete chunks (G&M, 1993). During the site reconnaissance, "household" type materials (plastic spoons and bags) were observed.

5.3.5 Analytical Results

The following section presents a brief summary of the results of the laboratory analyses of the soil and ground-water samples collected at TAC-X Landfill. A surface soil sample was collected from one location near the south end of the pond. Ground-water samples were collected from four (4) monitoring wells. The soil sample was collected on October 28, 1993 by the USACE and analyzed for VOCs, RCRA total metals, pesticide/PCBs, specific conductance and pH. The ground-water samples were collected by the USACE on October 8, 1993 and analyzed for VOCs, RCRA total metals and pesticides/PCBs. The pesticide/PCB ground-water samples were resampled on November 17, 1993. No laboratory derived analytical data were provided for specific conductance and pH in the ground-water samples, however, field pH and specific conductance were provided.

5.3.5.1 Action Levels and Clean-Up Standards

Tables 5-4A and 5-4 summarize the analytical results for the soil and ground-water samples collected from the TAC-X Landfill. These tables highlight (in bold) the parameters detected above the USEPA MCL or above site-specific background concentrations (for unregulated parameters) in each ground-water sample. The complete analytical results are included in the USACE QCSR (February, 1994) and Appendix U of this report.

TABLE 5-4A
SUMMARY OF SOIL
ANALYTICAL RESULTS
SWMU3(FST-003) - TAC-X LANDFILL
OCTOBER 1993

ID	Volatile Organic Compounds (mg/kg)	Metals (mg/kg)	Pesticide/PCBs (mg/kg)	pH/Specific Conductance
SS1/SS1 DUP	BDL/BDL	Ar 24.0/22.0 Ba 8.0/4.2 Pb 73.97/74.0	BDL/BDL	5.01/4.0/ND/ ND

NOTES:

Dup = Duplicate
ND = No Data
BDL = Below Detection Limit
Ar = Arsenic
Ba = Barium
Pb = Lead

TABLE 5-4
SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
SWMU3(FST-003) - TAC-X LANDFILL
OCTOBER AND NOVEMBER 1993

ID	Volatile Organic Compounds [1] (mg/l)	Metals [1] (mg/l)	Pesticide/PCBs [2] (mg/l)	Field pH/Specific Conductance (mohm)
M1 (Background)	BDL/Toluene = 0.0067(Dup)	BDL/BDL(Dup)	BDL	5.67 /0.05
M2	BDL	BDL	BDL/BDL(Dup)	6.73/0.02
M3	2 Butanone = 0.013	Ba 0.06 Pb 0.006	BDL	5.83 /0.04
M4	BDL	BDL	BDL	5.91 /0.06
MCL	2 Butanone = NL Toluene = 1.0	Ba 2.0 Pb 0.015*	NA	(S) 6.5-8.5

NOTES:
(1) October 8, 1993
(2) November 17, 1993
MCL = Maximum Contaminant Limit
Dup = Duplicate
NA = Not Applicable
BDL = Below Detection Limit
NL = Not Listed
Ba = Barium
Pb = Lead
* = USEPA action level
(S) = Secondary MCL

5.3.5.2 Soil

Volatile Organic Compounds

VOC concentrations were not reported above the detection limit in the soil sample.

Metals

Metal concentrations of arsenic, barium and lead were reported in the surface soil sample. Figure 5-28A shows the metal concentration distribution in soil at the TAC-X Landfill.

Pesticides/PCBs

No pesticide/PCB concentrations were reported above the laboratory detection limit in the soil sample.

Specific Conductance and pH

The laboratory specific conductance in the soil was 4.0 and the pH was 5.01.

5.3.5.3 Ground-Water

Volatile Organic Compounds

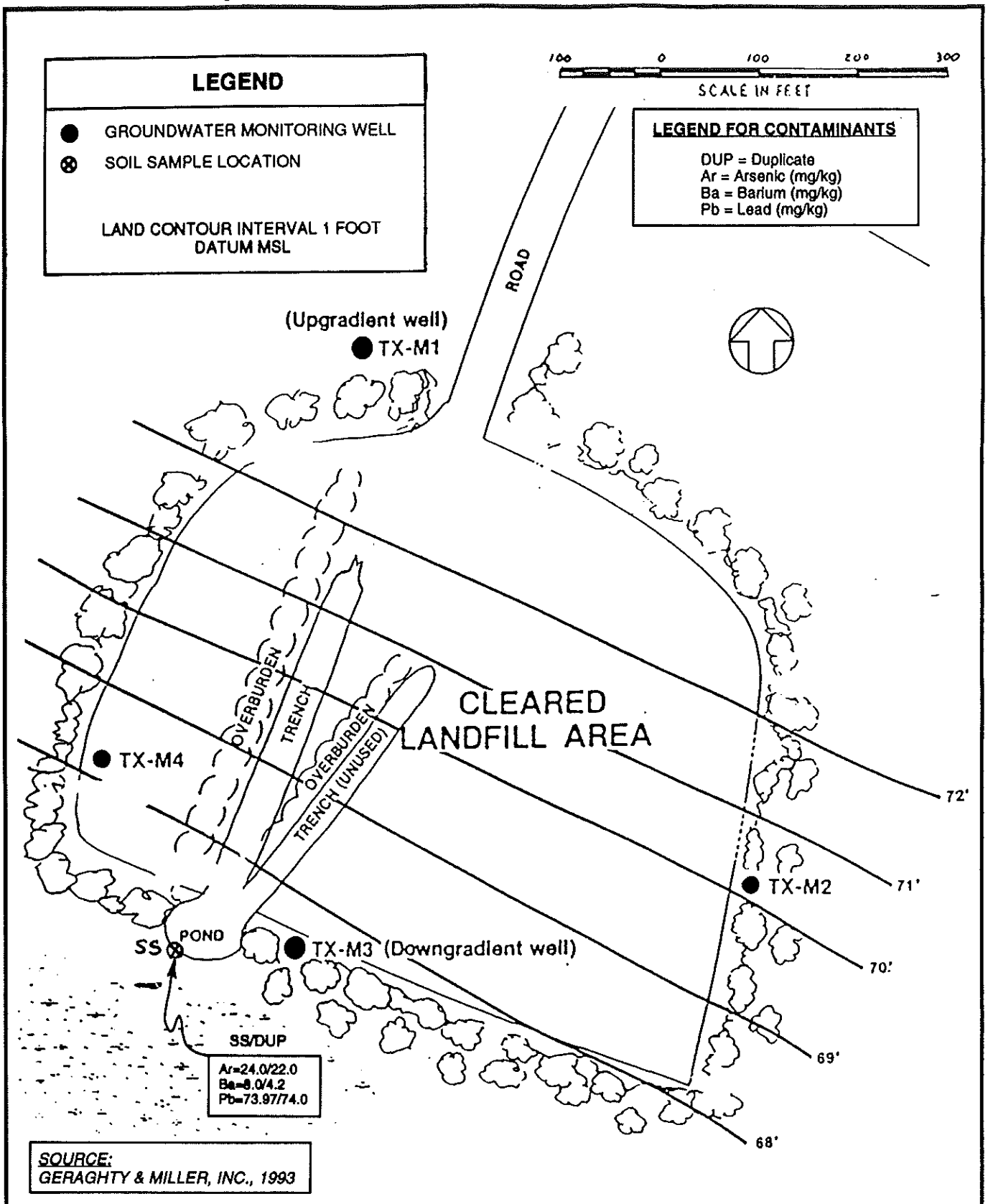
A toluene concentration above detection limit was reported in monitoring well M1 and a 2-Butanone concentration above site-specific background was reported in monitoring well M3; however, toluene was below the MCL. Figure 5-28B shows the VOC contaminant distribution in ground-water at the site.

Metals

Barium and lead concentrations were reported in monitoring well M3, but they were below their respective MCL and action level. Figure 5-28C shows the metal contaminant distribution in ground-water at the site.

Pesticides/PCBs

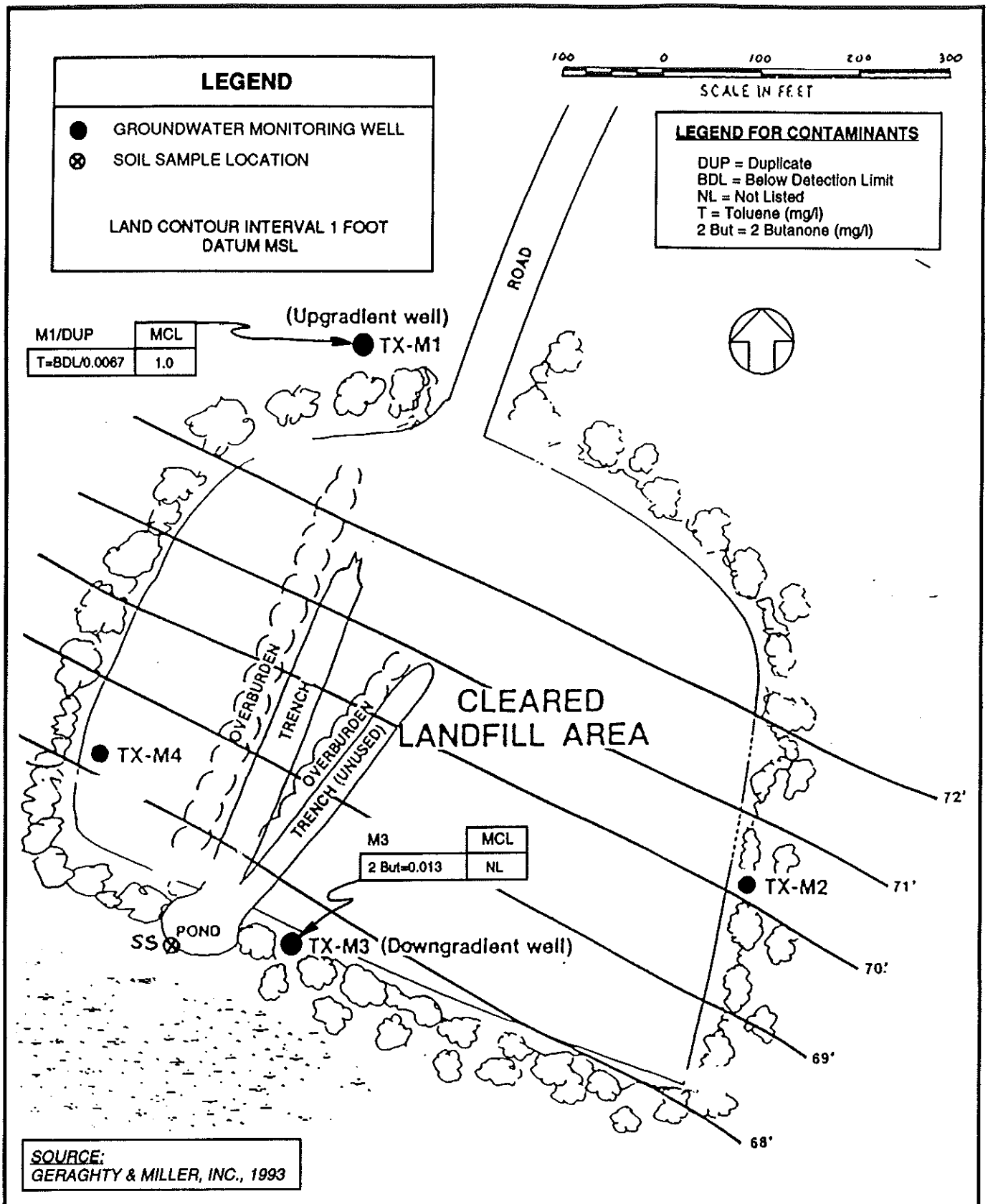
No pesticide/PCB concentrations were reported above the laboratory detection limit in the



RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-28A
METAL CONTAMINANT DISTRIBUTION IN SOILS
SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA
PROJECT NO. 87528.000



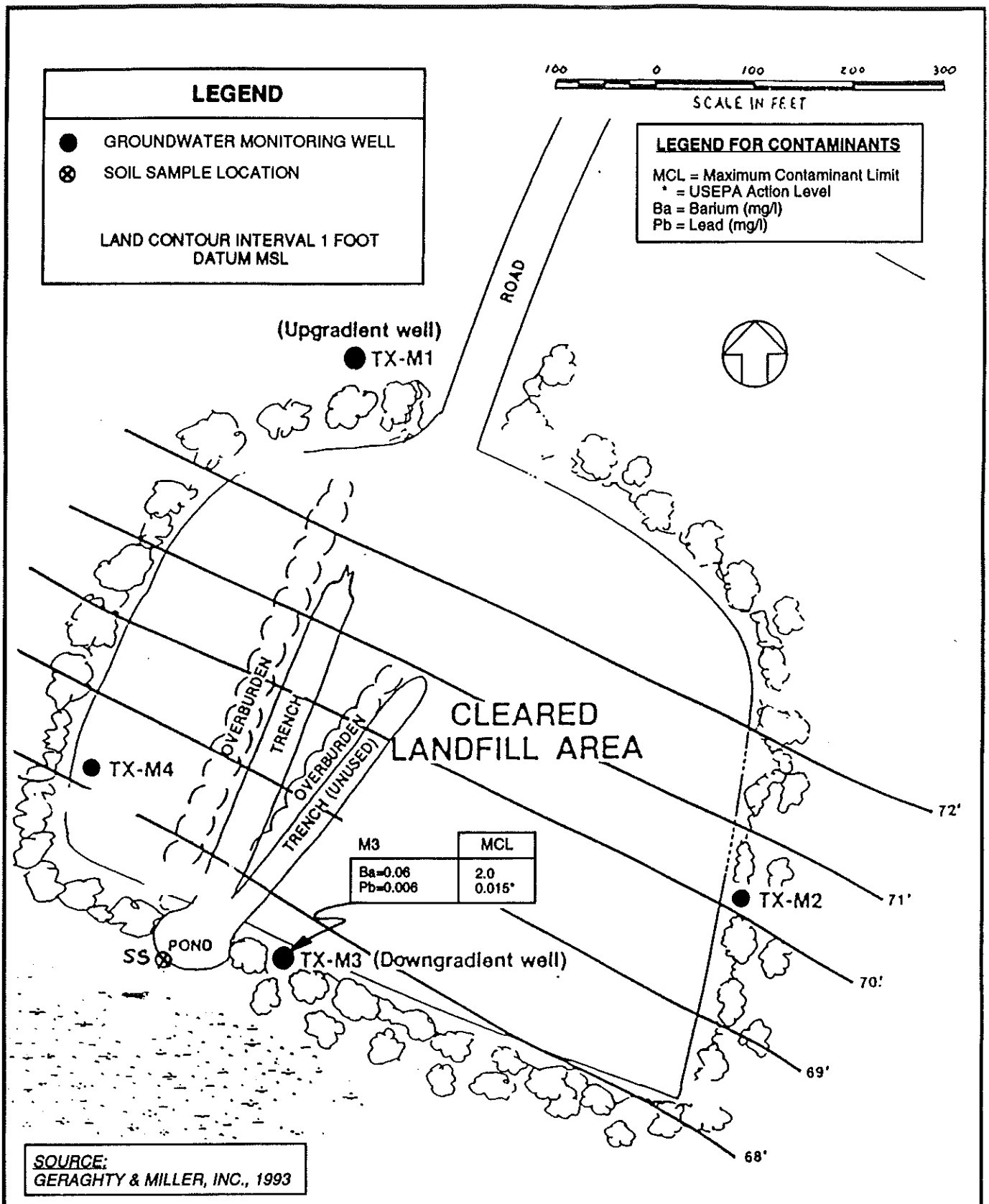
RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-28B

VOC CONTAMINANT DISTRIBUTION IN GROUND-WATER SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA

PROJECT NO. 87528.000



RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 5-28C

METAL CONTAMINANT DISTRIBUTION IN GROUND-WATER SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA

PROJECT NO. 87528.000

ground-water sample.

Specific Conductance and pH

No laboratory analytical data were provided for specific conductance and pH in the ground-water samples. Field pH measurements were reported from 5.67 to 5.91 units. Field specific conductance measurements were reported from 0.02 to 0.06 mohm.

5.3.5.4 Data Evaluation

According to the USACE QCSR (February, 1994), Carr Laboratory inadvertently found that samples, duplicate and blanks, including lab blanks from FST-003, collected on October 8, 1993 were contaminated by the laboratory with Aldrin, a pesticide. The site was resampled for the pesticide parameters on November 17, 1993. As previously stated, collection of the two required surface water samples was not possible (due to drought). Several visits were made to the site in an attempt to locate surface water. The "pond" area was completely dry. No leachate was found at the site either. A soil sample was collected in the area immediately downslope of the trenches at the site (per telephone conversation with GAEPD, June 1993).

The USACE QCSR (February, 1994) states that both the data quality objectives and completeness criteria were met and that the data met at SWMU3 the project objectives.

5.3.6 Evidence of Release from the Site

The analytical results indicate that 2-butanone was higher than site-specific background concentrations which may indicate that a release has occurred at the TAC-X Landfill SWMU3.

5.3.7 Health and Environmental Assessment

The objective of the Health and Environmental Assessment (HEA) is to provide information necessary to evaluate the need for appropriate interim corrective measures or for a Corrective Measures Study (CMS). The following sections describe transport pathways

and potential exposure routes for the receiving media of concern, human health and environmental toxicity criteria, and the preliminary risk evaluation for constituents and media of potential concern. Following the identification of exposure routes, constituent concentrations detected in each medium were compared to exposure-limit criteria developed for selected exposure pathways. Human and ecological exposure criteria were developed using procedures described in Chapter 8 of the *Interim Final RCRA Facility Investigation (RFI) Guidance - Development of an RFI Work Plan and General Considerations for RCRA Facility Investigations* (USEPA, 1989a).

5.3.7.1 Human Health Assessment

Transport Mechanisms and Exposure Pathways

Following release from a source, contaminants may migrate in environmental media by any of several transport mechanisms, including:

- Resuspension and airborne dispersal of contaminated soil particulates,
- Volatilization of organics from soil, surface water, or ground-water,
- Uptake of contaminants by biota,
- Stormwater runoff to surface water and sediments,
- Infiltration/percolation of soil contaminants to ground-water, and
- Discharge of ground-water to surface water and sediments.

For the purposes of this assessment, all potentially contaminated media were considered, however, only those media considered to present the most significant exposure potential were quantitatively evaluated. At SWMU3, soil and ground-water samples were collected from areas of probable contamination. The resulting data were used in evaluating the following potential mechanisms of contaminant migration: stormwater runoff to surface water, and infiltration and/or percolation of soil contaminants to ground-water.

A complete exposure pathway includes a contaminant source, a transport mechanism, an exposure point where contact by a receptor with the contaminated medium may occur, and

a route of intake of the contaminated medium at the exposure point. Potential human exposure pathways at SWMU3 include: ingestion of and dermal contact with soil, ground-water, surface water, and sediment; inhalation of vapor and contaminated soil particulates; and ingestion of contaminated biota. All pathways considered to be complete were addressed and those that represented the greatest potential for risk were quantitatively evaluated. Potential exposure pathways that were quantitatively evaluated for human receptors were ingestion of ground-water and soil.

Toxicity Criteria

The primary element of the human health assessment is the set of criteria (risk-based constituent concentrations) used to evaluate constituent concentrations associated with SWMU3. Human health criteria were based on EPA-established chronic exposure limits.

The maximum contaminant levels (MCLs) for drinking water promulgated under the Safe Drinking Water Act were used as the toxicity criteria for human drinking water consumption for constituents released to ground-water. If MCLs did not exist for a particular constituent of concern, the criterion used was the health-based criterion for carcinogens, the health-based criterion for noncarcinogens, or the lower of these two values if both existed for the constituent of potential concern.

The health-based criteria for carcinogens, calculated from Risk-Specific Doses (RSDs), were developed in accordance with EPA RCRA Facility Investigation (RFI) Guidance (USEPA, 1989a). The RSD is an upper bound estimate of the average daily dose of a carcinogen corresponding to an excess cancer risk for lifetime exposure of 10^{-6} for Class A and B carcinogens, or 10^{-5} for Class C carcinogens. The criteria, presented in Appendix T, were calculated from RSDs as follows:

$$C_i = (R/SF) \times (W/I) \qquad \text{(Equation 1)}$$

where:

C_i = criterion concentration for the constituent of concern,

R = risk level (10^{-6} for Class A and B, 10^{-5} for Class C carcinogens) ,

SF = carcinogenic slope factor $(mg/kg\text{-}day)^{-1}$,

(R/SF) = the RSD,

W = assumed weight of the exposed individual (receptor), and

I = intake amount for a given time period.

The most current slope factors (SFs) were obtained from EPA's Integrated Risk Information System (IRIS) database (USEPA, 1994). When SFs were not available in IRIS, they were selected from the Health Effects Assessment Summary Tables (HEAST) (USEPA, 1993). If SFs could not be obtained from HEAST, provisional values supplied by the Superfund Health Risk Technical Support Center of the EPA Environmental Criteria and Assessment Office (SHRTSC-ECAO) were used.

The values (from USEPA 1989a) for the assumed weight (W) and intake rate (I) used in the calculation were:

Soil Ingestion

0.1 g/day for 70 kg person (70 year exposure period for carcinogens)

Ground-water Ingestion

2.0 liters/day for 70 kg adult (70 year exposure period)

The human health-based criteria for noncarcinogens, calculated from the Reference Dose (RfD), are estimates of the daily exposure that an individual (including sensitive individuals)

can experience without appreciable risk of adverse health effects during a lifetime exposure. The criteria, shown in Appendix T, were calculated using the following equation:

$$C_i = (RfD) \times (W/I) \qquad \text{(Equation 2)}$$

where:

C_i = criterion concentration for the constituent of concern,

RfD = reference dose in mg/kg-day,

W = assumed weight of the exposed individual (receptor), and

I = intake amount for a given time period.

The most current RfDs were obtained, in order of priority, from EPA's IRIS, HEAST, or SHRTSC-ECAO. The values used for the assumed intake rate (I) and weight (W) were the same as those used in calculating the carcinogen criteria, with the exception of soil ingestion. For soil ingestion, the assumed intake rate of 0.2 g/day was based on a 5-year exposure period for a 16-kg child.

For a given constituent of potential concern associated with systemic health effects, the noncarcinogen criteria for water and soil (ingestion) were used unless MCLs or lower carcinogen criteria existed.

Preliminary Risk Evaluation

Following the calculation of exposure-limit criteria ("action levels"), comparisons were made between the action levels and the constituent concentrations present at the SWMU. Maximum detected concentrations were used for the comparison. Concentrations that exceeded human health exposure action levels are shown in Table 5-4B. Three metals were

TABLE 5-4B
COMPARISON OF INDIVIDUAL CONSTITUENT CONCENTRATIONS WITH HUMAN HEALTH CRITERIA
SWMU3(FST-003) - TAC-X LANDFILL

Exposure Medium	Units	Constituent Released	Release Concentration*	Criterion Type Used	Criterion Value	Release Concentrations Exceed Criterion?
GROUND WATER	mg/l	2-Butanone	1.30E-02	NC	2.10E+01	No
		Toluene	6.70E-03	MCL	1.00E+00	No
		Barium	6.00E-02	MCL	2.00E+00	No
		Lead	6.00E-03	MCL	1.50E-02	No
SOIL	mg/kg	Arsenic	2.40E+01	C	4.00E-01	Yes
		Barium	8.00E+00	NC	5.60E+03	No
		Lead	7.40E+01	EPA	5.00E+02	No

* Release concentration represents the maximum detected concentration for each constituent.

C - Carcinogen
EPA - Environmental Protection Agency's Interim Soil Cleanup Level, OSWER Directive #9355.4-02
MCL - Maximum Contaminant Level
NC - Noncarcinogen

TABLE 5-4C
CALCULATION OF HAZARD INDEX FOR EXPOSURE TO CHEMICAL MIXTURE
SWMU3(FST-003) - TAC-X LANDFILL

Exposure Medium	Constituent Released	Ratio of Release oncentration to Criterion Value	Hazard Index Medium Total	Hazard Index Value Exceeds 1.0
GROUND WATER	2-Butanone	6.19E-04		
	Toluene	6.70E-03		
	Barium	3.00E-02		
	Lead	4.00E-01		
			4.70E-01	No

detected in soil at the unit: arsenic, barium, and lead. The release concentrations exceeded the criterion value for arsenic, indicating that this constituent may be present at concentrations sufficient to pose a risk to human health as a result of soil ingestion. Additional exposure to soil contaminants potentially could occur through inhalation of airborne particulates.

Four constituents were detected in ground-water: two volatile organic compounds, 2-butanone and toluene, and two metals, barium and lead. The detected concentration of each of these was significantly less than its respective criterion value, indicating that ground-water at the unit is not of concern for human health based on the individual constituent concentrations detected. Because no single constituent exceeded its criterion value in ground-water, a hazard index was calculated for the mixture of constituents (Table 5-4C). The hazard index was calculated as the sum of the ratios of the release concentration to the criterion value for each constituent. The calculated value of the hazard index was less than 1.0, indicating that constituent concentrations present in ground-water at SWMU3 do not represent a significant risk to human receptors even when considering the potential cumulative toxicity effects of the mixture of constituents.

5.3.7.2 Environmental Assessment

Transport Mechanisms and Exposure Pathways

Potential transport mechanisms and complete exposure pathways for ecological receptors are the same as those described in Section 5.3.7.1 for human receptors, except for direct exposure to ground-water. All potentially complete exposure pathways were considered. Those that represented the greatest potential for risk were quantitatively evaluated unless the human health assessment had already indicated that further SWMU assessment for that pathway would be required.

Preliminary Risk Evaluation

Contaminants in soil at SWMU3 were found to be of concern based on comparison to human toxicity criteria; therefore, this medium was considered likely to be of concern for

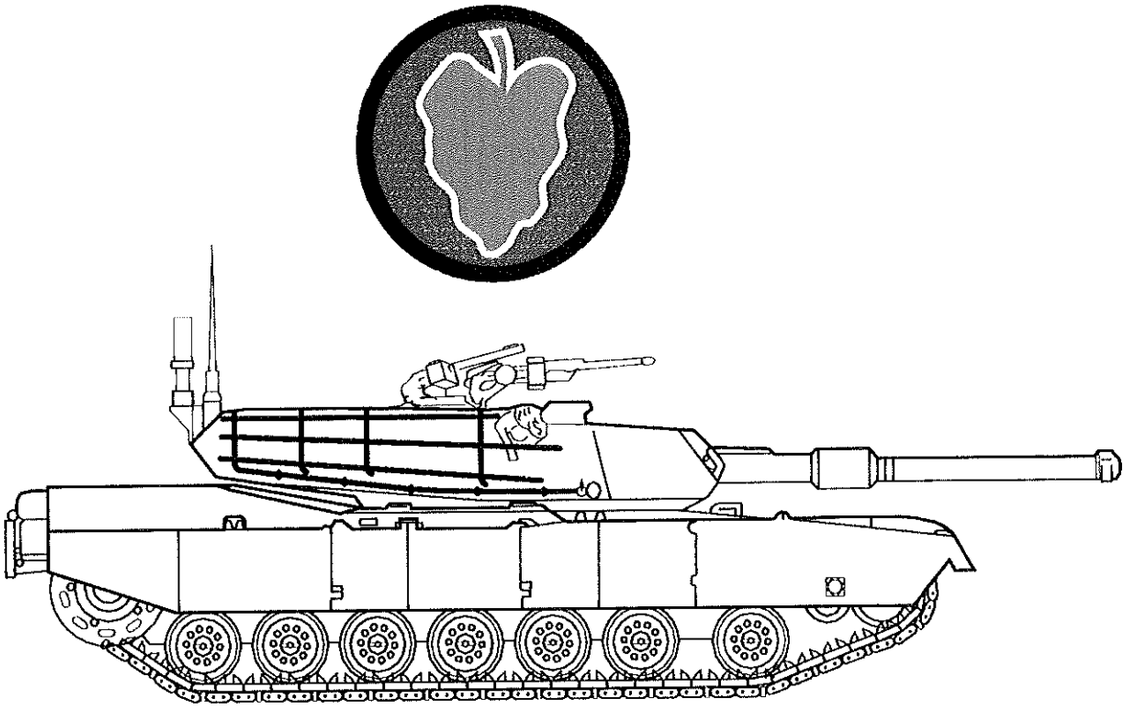
ecological receptors as well, and ecological toxicity was not evaluated separately. The available human toxicity criteria are generally better substantiated, more consistent, and more reliable than the toxicity data available for ecological receptors, resulting in less uncertainty associated with the validity of conclusions based on human toxicity. Also, ecological receptors may be more susceptible than humans to the toxic effects of contaminants due to greater sensitivity or extent of exposure. Therefore, where human health was found to be of concern, such as in soil at SWMU3, potential ecological effects should be quantitively evaluated as part of additional risk evaluation at the unit. In addition to soil ingestion, other potential exposure routes through which ecological receptors may be exposed to soil constituents include contaminated biota and exposure to surface water in the nearby wetland that may be contaminated from stormwater runoff or ground-water. Direct exposure to ground-water is not a complete exposure pathway for ecological receptors; therefore, it was not evaluated.

5.3.8 Potential for Phase II Investigation

As stated in Section 5.3.6,the analytical results indicate that a release may have occurred at SWMU3. Based on the Phase I results, a Phase II investigation is recommended. The Phase II investigation would include re-sampling the soils for RCRA metals. The Phase II investigation would also include sampling the surface water and leachate that was not sampled in Phase I (due to drought) for VOCs, RCRA metals, pesticide/PCBs, pH and specific conductance. It is also recommended that an HEA of the site be completed.

Corrected Final
Phase I RCRA Facility Investigation Report
For 24 Solid Waste Management Units
At Fort Stewart, Georgia

Volume II of III



May 1996

Job No. 87528.000

Prepared For

US Army Corps of Engineers
Savannah District

Prepared By

RUST ENVIRONMENT & INFRASTRUCTURE

CORRECTED FINAL

PHASE I
RCRA FACILITY INVESTIGATION REPORT
FOR 24 SOLID WASTE MANAGEMENT UNITS
AT FORT STEWART, GEORGIA
VOLUME II OF III

Prepared For

UNITED STATES ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract DACA21-93-D-0029
Delivery Order 0005
Rust Project No. 87528.000
May 1996

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
Charleston, South Carolina 29406
803/572-5600

Appendix H

SWMU3(FST-003) Tac-X Landfill

Appendix H1

Water Level Elevation Data

WATER ELEVATIONS
SWMU3(FST-003)
TAC-X LANDFILL
NOVEMBER 17, 18, 1993

WELL ID	TOC ELEVATION	DEPTH TO WATER	WATER LEVEL ELEVATION
TX-M1	100.68	11.96	88.72
TX-M2	98.43	10.65	87.78
TX-M3	95.46	7.90	87.56
TX-M4	94.69	6.72	87.97

NOTES:

TOC = Top of Casing

Fort Stewart RFI

Dec. 1993 Survey

	El. Top of Riser
FST-001	
MW-1	60.71
MW-2	66.69
MW-3	52.52
MW-4	56.09
MW-5	69.41
MW-6	69.55
FST-002*	
MW-1	100.89
MW-2	87.95
MW-3	75.48
MW-4	76.92
FST-003**	
MW-1	100.68
MW-2	98.43
MW-3	95.46
MW-4	94.69

* Assummed elevation of 100' for TBM (nail in telephone pole)

** Assummed elevation of 100' for TBM (nail in tree)

readings

WATER LEVEL ~~ELEVATIONS~~

SITE NAME	DEPTH TO WATER (ft.)	TOP OF RISER (ft) (height)		DATE	WL Elev
South Central Landfill					
FST-001-SCM1	8.32	3.50		10/05/93	
FST-001-SCM2	9.45	0.75		10/05/93	
FST-001-SCM3	0.00	0.75		10/05/93	
FST-001-SCM4	3.17	0.75		10/05/93	
FST-001-SCM5	10.10	0.75		10/05/93	
FST-001-SCM6	11.52	3.50		10/05/93	
Camp Olivier Landfill					
FST-002-MW1	21.94	2.70		11/16/93	
FST-002-MW2	16.01	2.00		11/16/93	
FST-002-MW3	6.88	2.45		11/16/93	
FST-002-MW4	6.12	2.50		11/16/93	
Tac-X Landfill					
FST-003-MW1	11.96	2.40		11/17/93	88.72
FST-003-MW2	10.65	2.00		11/17/93	87.78
FST-003-MW3	7.90	2.60	87.56	11/18/93	~~87.56~~ 7.58
FST-003-MW4	6.72	2.40		11/17/93	87.97
Burn Pits					
FST-004A-MW1	10.39	2.80		08/21/93	
FST-004A-MW2	10.49	2.65		08/21/93	
FST-004A-MW3	9.80	2.50		08/21/93	
FST-004A-MW4	12.20	2.82		08/21/93	
FST-004B-MW1	13.33	2.46		08/22/93	
FST-004B-MW2	10.35	2.10		08/22/93	
FST-004B-MW3	11.44	2.75		08/22/93	
FST-004B-MW4	14.95	2.75		08/22/93	
FST-004C-MW1	5.78	3.05		11/09/93	
FST-004C-MW2	4.58	3.03		11/09/93	
FST-004C-MW3	4.72	2.61		11/10/93	
FST-004C-MW4	7.29	2.88		11/10/93	
FST-004D-MW1	9.55	3.27		07/30/93	
FST-004D-MW2	10.12	3.50		07/30/93	
FST-004D-MW3	9.84	3.00		07/30/93	
FST-004D-MW4	7.96	3.15		07/30/93	
FST-004E-MW1	13.72	2.80		08/19/93	
FST-004E-MW2	13.82	2.92		08/19/93	
FST-004E-MW3	13.39	2.95		08/19/93	
FST-004E-MW4	13.30	3.00		08/19/93	
FST-004F-MW1	16.14	2.90		08/20/93	
FST-004F-MW2	13.63	3.10		08/20/93	
FST-004F-MW3	18.03	2.90		08/20/93	
FST-004F-MW4	17.50	2.60		08/20/93	
Old Fire Training Pit					
FST-014-MW1	11.70	2.45		07/28/93	
FST-014-MW2	11.40	2.50		07/28/93	
FST-014-MW3	11.02	3.00		07/28/93	
FST-014-MW4	12.97	2.50		07/28/93	

WATER LEVEL ELEVATIONS
Temporary Monitoring Well Readings

SITE NAME	DEPTH TO WATER (ft.)	TOP OF RISER (ft) height	DATE
86 Waste Oil Tanks			
FST-025-4A	11.11	2.37	10/14/93
FST-025-4AA	14.64	3.78	11/09/93
FST-025-56	13.12	5.45	10/14/93
FST-025-64	12.63	4.83	09/02/93
FST-025-64A	-	3.65	09/03/93
FST-025-67	5.07	0.65	10/25/93
FST-025-70	17.95	0.75	10/25/93
FST-025-94	5.07	0.65	10/25/93
FST-025-94B	9.11	2.38	09/02/93
FST-025-94C	-	1.47	09/02/93
FST-025-100A	14.25	2.00	09/02/93
FST-025-100B	8.90	1.34	09/02/93
FST-025-214	8.21	0.80	10/17/93
FST-025-215	12.25	3.75	10/17/93
FST-025-220	10.85	3.20	10/13/93
FST-025-232	10.60	3.15	10/13/93

Appendix H2

Horizontal Hydraulic Gradient Calculations

HORIZONTAL HYDRAULIC GRADIENT CALCULATIONS
SWMU3 - TAC-X LANDFILL
FORT STEWART, GEORGIA
NOVEMBER 17, 1993

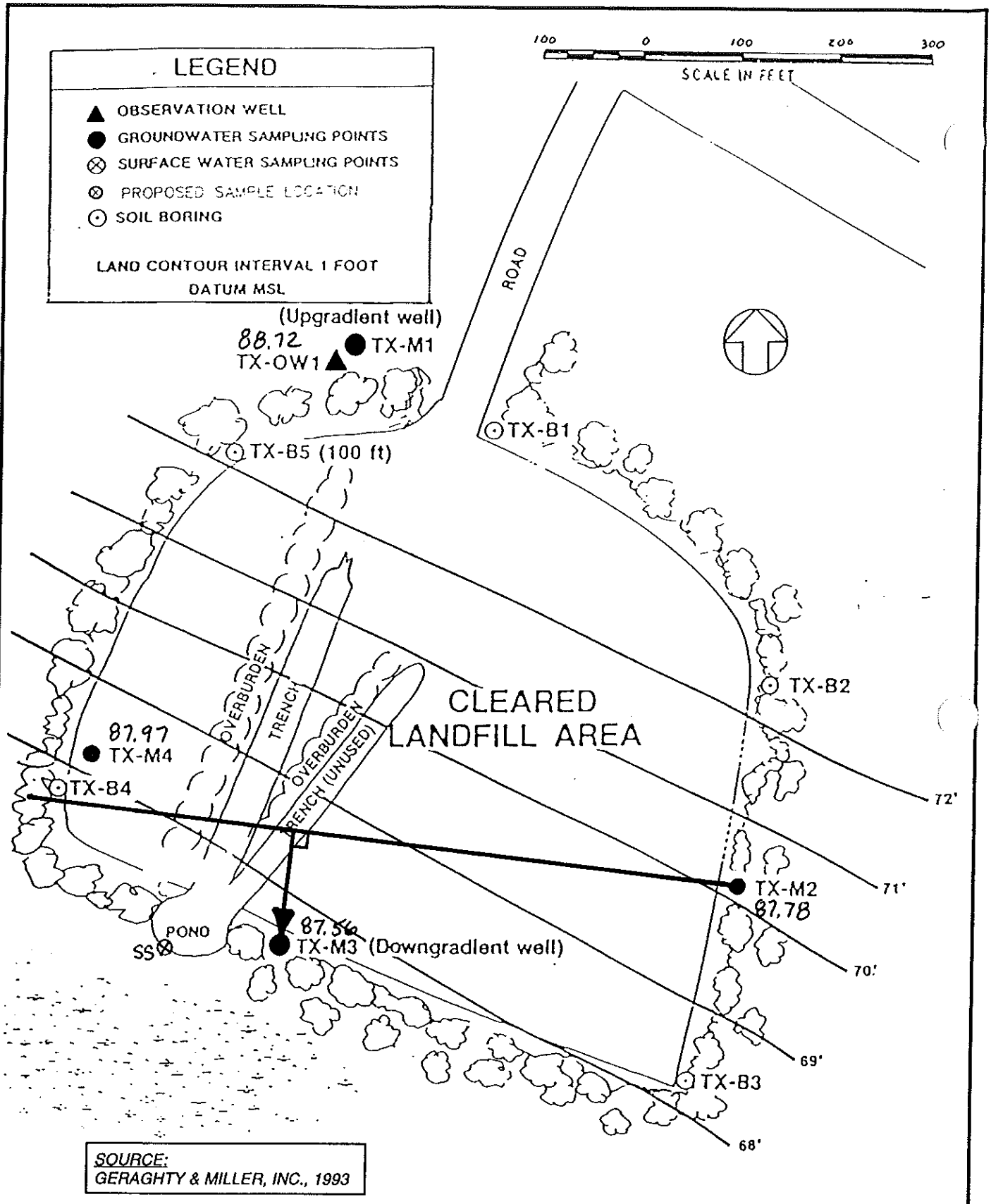
ID		WATER LEVEL ELEVATION
M1		88.72 HIGH
M2		87.78 MIDDLE
M3		87.56 LOW

$$\frac{88.72 - 87.78}{X} = \frac{88.72 - 87.56}{312.4}$$

$$X = 253$$

$$\frac{87.78 - 87.56}{55} = 0.004 \text{ ft/ft gradient}$$

Ground-water flow direction is south.



RUST ENVIRONMENT & INFRASTRUCTURE

HORIZONTAL HYDRAULIC GRADIENT

SWMU-3 (FST-003)

TAC-X LANDFILL, FORT STEWART, GEORGIA

PROJECT NO. 87528.000

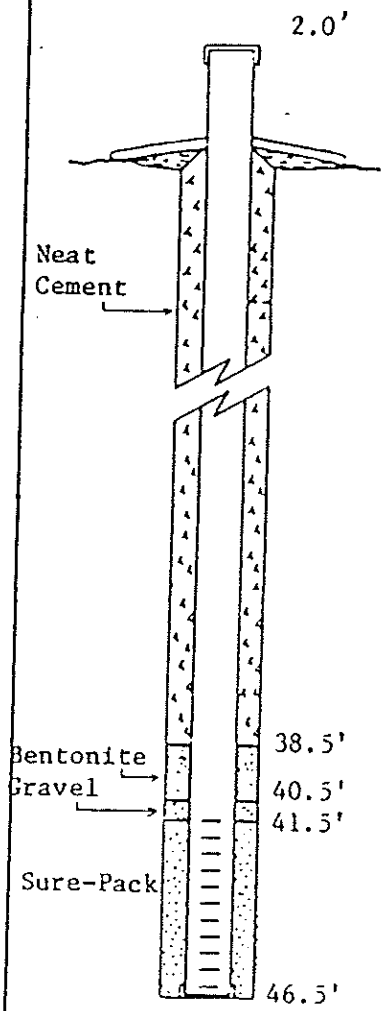
Appendix H3

Monitoring Well and Soil Boring Logs

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

1. PROJECT: Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station): N761203.76 E659516.77
3. DRILLING AGENCY: Paul N. Clawson
4. HOLE NO. (As shown on drawing title and file number): TX-M1
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: 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: 5.83' @ 24 hours
16. DATE HOLE: STARTED 1/22/80; COMPLETED 1/24/80
17. ELEVATION TOP OF HOLE: 76.47'
18. TOTAL CORE RECOVERY FOR BORING: %
19. SIGNATURE OF INSPECTOR: Robert Brunner

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		Buff to grey-medium, slightly clayey sand, slight amount of plant fragments upper 2 ft.			
	5					
			5.0'			
			Grey to brown-silty clayey fine to medium sand, up to 15% clay			
	10					
			14.0'			
	15		Grey to brown-silty clayey fine to medium sand less clay (± 5%) than above			
	20					
			21.0'			
			Olive green sandy clay and clayey sand. Sand fine to very fine grain			
	25					
	30		30.0'			



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 RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			32.0'			
	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					

Hole No. TX-M2

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
3. DRILLING AGENCY: Paul N. Clawson
4. HOLE NO. (As shown on drawing title and file number): TX-M2
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: 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: 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 Gibson

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 — 21.0'			
	20					
	25		Orange - clayey fine to medium sand			
	30		— 30.0'			

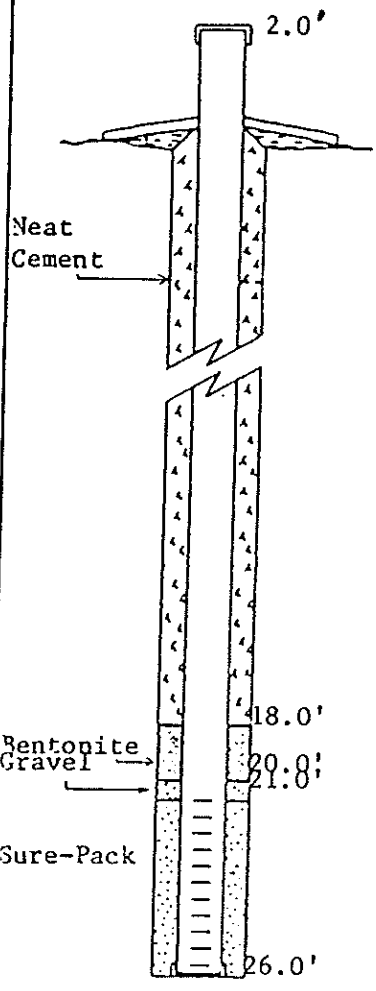


DIAGRAM NOT TO SCALE

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

VATION 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		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					

Hole No. TX-M3

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)	N760527.39 E659471.04
DRILLING AGENCY	Paul N. Clawson
4. HOLE NO. (As shown on drawing title and file number)	TX-M3
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	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	2.6' @ 24 hours
16. DATE HOLE	STARTED 2/5/80 / COMPLETED 2/8/80
17. ELEVATION TOP OF HOLE	71.12'
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	Robert Hoover

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 - 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'			

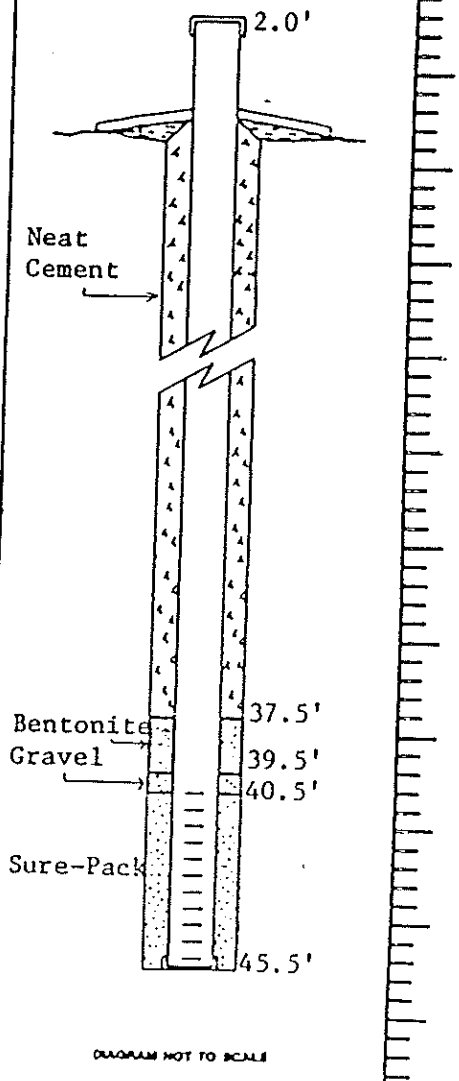


DIAGRAM NOT TO SCALE

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

VATION (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					

Hole No. TX-M4

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

1. PROJECT: Fort Stewart RCRA Studies
2. LOCATION (Coordinates or Station): N760717.38 E659264.50
3. DRILLING AGENCY: Paul N. Clawson
4. HOLE NO. (As shown on drawing title and file number): TX-M4
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: 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 Duncan

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 TX-B4			

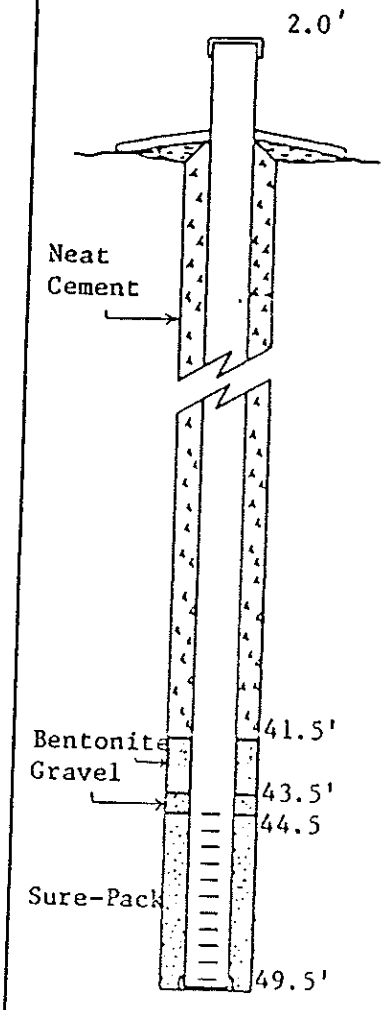
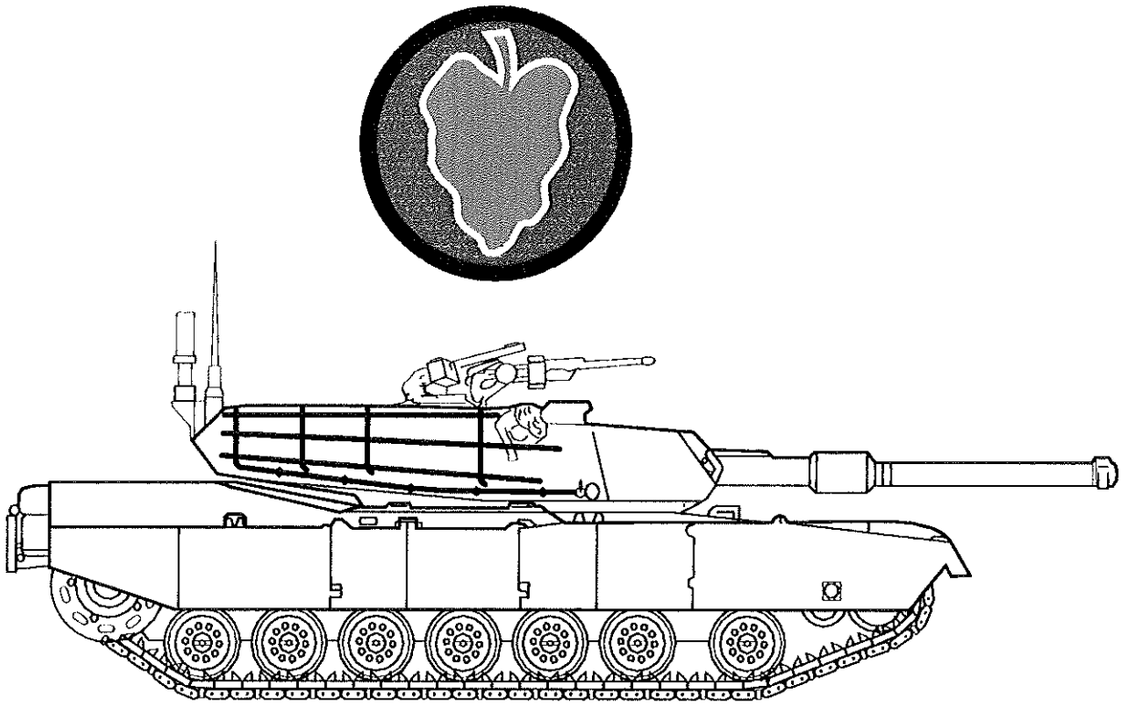


DIAGRAM NOT TO SCALE

Corrected Final
Phase I RCRA Facility Investigation Report
For 24 Solid Waste Management Units
At Fort Stewart, Georgia

Volume III of III



May 1996

Job No. 87528.000

Prepared For

US Army Corps of Engineers
Savannah District

Prepared By

RUST ENVIRONMENT & INFRASTRUCTURE

CORRECTED FINAL

PHASE I
RCRA FACILITY INVESTIGATION REPORT
FOR 24 SOLID WASTE MANAGEMENT UNITS
AT FORT STEWART, GEORGIA
VOLUME III OF III

Prepared For

UNITED STATES ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract DACA21-93-D-0029
Delivery Order 0005
Rust Project No. 87528.000
May 1996

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
Charleston, South Carolina 29406
803/572-5600

James H. Carr & Associates, Inc.

Office & Laboratories
P.O. Box 90209
Columbia, SC 29290
(803) 776-7789
(800) 435-3995

12/06/93

Ms. Toni Nicholson
Corps of Engineers
PO Box 889
Savannah, GA 31402

Dear Ms. Nicholson:

The following are the results of the parameters you requested we check on your FST-003 samples listed below.

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/08/93 In House # 10-6923-93 Source: MW1-10-93 Location: FT.STEWART							
Metals Sample Preparation - water	MCB	10/19/93	19:00	0.000		0.00	
Pesticide - water extraction	MR	10/15/93	13:00	0.000		0.00	
PCB - water extraction	MR	10/15/93	13:00	0.000		0.00	
Arsenic - liquid	CW	10/22/93	07:03	< 5.000	ug/l	5.00 ug/l	206.2
Selenium - Liquid	CW	10/22/93	17:34	< 5.000	ug/l	5.00 ug/l	270.2
Barium - Liquid	CMP	10/25/93	16:11	< 0.050	mg/l	0.05 mg/l	200.7
Cadmium - Liquid	CMP	10/25/93	16:11	< 0.010	mg/l	0.01 mg/l	200.7
Chromium - Liquid	CMP	10/25/93	16:11	< 0.050	mg/l	0.05 mg/l	200.7
Lead - Liquid	CW	10/22/93	23:49	< 5.000	ug/l	5.00 ug/l	239.2
Silver - Liquid	KAH	11/01/93	17:16	< 0.050	mg/l	0.05 mg/l	200.7
Mercury - Liquid	KAH	10/19/93	16:00	< 0.200	ug/l	0.20 ug/l	245.1
Carbon Disulfide - liquid	KG	10/19/93	16:12	< 10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/19/93	16:12	< 50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/19/93	16:12	< 5.000	ug/L	5.00 ug/L	8240
Chloroethane - liquid	KG	10/19/93	16:12	< 10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/19/93	16:12	< 10.000	ug/l	10.00 ug/l	624
Methyl bromide - liquid	KG	10/19/93	16:12	< 10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/19/93	16:12	< 10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
1,1,1-Trichloroethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/19/93	16:12	< 10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/19/93	16:12	< 20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/19/93	16:12	< 5.000	ug/l	5.00 ug/l	624.

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/08/93 In House # 10-6923-93		Source: MW1-10-93		Location: FT.STEWART			
		- CONTINUED -					
Acrylonitrile - liquid	KG	10/19/93 16:12	<	10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/19/93 16:12	<	12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/19/93 16:12	<	10.000	ug/l	10.00 ug/l	624.
4-Methyl - 2 pentanone - liquid	KG	10/19/93 16:12	<	10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/19/93 16:12	<	10.000	ug/l	10.00 ug/l	8240

Comments:
The volatile run was initiated at 09:47.

Sample Date: 10/08/93 In House # 10-6924-93		Source: SEECOMMENT		Location: FT.STEWART			
Metals Sample Preparation - water	MCB	10/19/93 19:00		0.000		0.00	
Pesticide - water extraction	MR	10/15/93 13:00		0.000		0.00	
PCB - water extraction	MR	10/15/93 13:00		0.000		0.00	
Arsenic - liquid	CW	10/25/93 07:28	<	5.000	ug/l	5.00 ug/l	206.2
Selenium - Liquid	CW	10/25/93 17:56	<	5.000	ug/l	5.00 ug/l	270.2
Barium - Liquid	CMP	10/25/93 16:15	<	0.050	mg/l	0.05 mg/l	200.7
Cadmium - Liquid	CMP	10/25/93 16:15	<	0.010	mg/l	0.01 mg/l	200.7
Chromium - Liquid	CMP	10/25/93 16:15	<	0.050	mg/l	0.05 mg/l	200.7
Lead - Liquid	CW	10/25/93 00:10	<	5.000	ug/l	5.00 ug/l	239.2
Silver - Liquid	KAH	11/01/93 17:24	<	0.050	mg/l	0.05 mg/l	200.7
Mercury - Liquid	KAH	10/19/93 16:00	<	0.200	ug/l	0.20 ug/l	245.1
Carbon Disulfide - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/19/93 16:13	<	50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/19/93 16:13	<	5.000	ug/L	5.00 ug/L	8240
Chloroethane - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624
Methyl bromide - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
1,1,1-Trichloroethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/19/93 16:13		6.700	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/19/93 16:13	<	20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/19/93 16:13	<	5.000	ug/l	5.00 ug/l	624.
Acrylonitrile - liquid	KG	10/19/93 16:13	<	10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/19/93 16:13	<	12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624.
4-Methyl - 2 pentanone - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/19/93 16:13	<	10.000	ug/l	10.00 ug/l	8240

Comments:
Location: MW1-DUP-10-93

The volatile run was initiated at 12:26.

Sample Date: 10/08/93 In House # 10-6925-93 Source: SEECOMMENT Location: FT.STEWART

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/08/93 In House # 10-6925-93		Source: SEECOMMENT		Location: FT.STEWART			
		- CONTINUED -					
Metals Sample Preparation - water	MCB	10/19/93	19:00	0.000		0.00	
Pesticide - water extraction	MR	10/15/93	13:00	0.000		0.00	
PCB - water extraction	MR	10/15/93	13:00	0.000		0.00	
Arsenic - liquid	CW	10/22/93	07:50	< 5.000	ug/l	5.00 ug/l	206.2
Selenium - Liquid	CW	10/22/93	18:18	< 5.000	ug/l	5.00 ug/l	270.2
Barium - Liquid	CMP	10/25/93	16:19	< 0.050	mg/l	0.05 mg/l	200.7
Cadmium - Liquid	CMP	10/25/93	16:19	< 0.010	mg/l	0.01 mg/l	200.7
Chromium - Liquid	CMP	10/25/93	16:19	< 0.050	mg/l	0.05 mg/l	200.7
Lead - Liquid	CW	10/22/93	00:31	< 5.000	ug/l	5.00 ug/l	239.2
Silver - Liquid	KAH	11/01/93	17:27	< 0.050	mg/l	0.05 mg/l	200.7
Mercury - Liquid	KAH	10/19/93	16:00	< 0.200	ug/l	0.20 ug/l	245.1
Carbon Disulfide - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/19/93	16:15	< 50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/19/93	16:15	< 5.000	ug/L	5.00 ug/L	8240
Chloroethane - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624
Methyl bromide - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
1,1,1-Trichloroethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/19/93	16:15	< 20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/19/93	16:15	< 5.000	ug/l	5.00 ug/l	624.
Acrylonitrile - liquid	KG	10/19/93	16:15	< 10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/19/93	16:15	< 12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624.
4-Methyl - 2 pentanone - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/19/93	16:15	< 10.000	ug/l	10.00 ug/l	8240

Comments:
Location: MW-Blank-10-93

The volatile run was initiated at 12:53.

Sample Date: 10/08/93 In House # 10-6926-93		Source: MW2-10-93		Location: FT.STEWART			
Metals Sample Preparation - water	MCB	10/19/93	19:00	0.000		0.00	
Pesticide - water extraction	MR	10/11/93	15:00	0.000		0.00	
PCB - water extraction	MR	10/11/93	15:00	0.000		0.00	
Arsenic - liquid	CW	10/22/93	07:56	< 5.000	ug/l	5.00 ug/l	206.2
Selenium - Liquid	CW	10/22/93	18:25	< 5.000	ug/l	5.00 ug/l	270.2
Barium - Liquid	CMP	10/25/93	16:23	< 0.050	mg/l	0.05 mg/l	200.7
Cadmium - Liquid	CMP	10/25/93	16:23	< 0.010	mg/l	0.01 mg/l	200.7
Chromium - Liquid	CMP	10/25/93	16:23	< 0.050	mg/l	0.05 mg/l	200.7
Lead - Liquid	CW	10/22/93	00:37	< 5.000	ug/l	5.00 ug/l	239.2
Silver - Liquid	KAH	11/01/93	17:31	< 0.050	mg/l	0.05 mg/l	200.7

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/08/93 In House # 10-6926-93		Source: MW2-10-93		Location: FT.STEWART			
		- CONTINUED -					
Mercury - Liquid	KAH	10/19/93	16:00 <	0.200	ug/l	0.20 ug/l	245.1
Carbon Disulfide - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/19/93	16:16 <	50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/19/93	16:16 <	5.000	ug/L	5.00 ug/L	8240
Chloroethane - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Methyl bromide - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,1,1-Trichloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/19/93	16:16 <	20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624.
Acrylonitrile - liquid	KG	10/19/93	16:16 <	10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/19/93	16:16 <	12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624.
4-Methyl - 2 pentanone - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	8240

Comments:
The volatile run was initiated at 13:19.

Sample Date: 10/08/93 In House # 10-6927-93		Source: MW4-10-93		Location: FT.STEWART			
Metals Sample Preparation - water	MCB	10/19/93	19:00	0.000		0.00	
Pesticide - water extraction	MR	10/15/93	13:00	0.000		0.00	
PCB - water extraction	MR	10/15/93	13:00	0.000		0.00	
Arsenic - Liquid	CW	10/22/93	08:18 <	5.000	ug/l	5.00 ug/l	206.2
Selenium - Liquid	CW	10/22/93	18:47 <	5.000	ug/l	5.00 ug/l	270.2
Barium - Liquid	CMP	10/25/93	16:26 <	0.050	mg/l	0.05 mg/l	200.7
Cadmium - Liquid	CMP	10/25/93	16:26 <	0.010	mg/l	0.01 mg/l	200.7
Chromium - Liquid	CMP	10/25/93	16:26 <	0.050	mg/l	0.05 mg/l	200.7
Lead - Liquid	CW	10/22/93	00:58 <	5.000	ug/l	5.00 ug/l	239.2
Silver - Liquid	KAH	11/01/93	17:35 <	0.050	mg/l	0.05 mg/l	200.7
Mercury - Liquid	KAH	10/19/93	16:00 <	0.200	ug/l	0.20 ug/l	245.1
Carbon Disulfide - liquid	KG	10/19/93	16:17 <	10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/19/93	16:16 <	50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/19/93	16:16 <	5.000	ug/L	5.00 ug/L	8240
Chloroethane - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Methyl bromide - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/19/93	16:16 <	10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/19/93	16:16 <	5.000	ug/l	5.00 ug/l	624

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/08/93 In House # 10-6927-93		Source: MW4-10-93 - CONTINUED -		Location: FT.STEWART			
1,1,1-Trichloroethane - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/19/93	16:16	< 10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/19/93	16:16	< 20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/19/93	16:16	< 5.000	ug/l	5.00 ug/l	624.
Acrylonitrile - liquid	KG	10/19/93	16:16	< 10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/19/93	16:16	< 12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/19/93	16:16	< 10.000	ug/l	10.00 ug/l	624.
4-Methyl - 2 pentanone - liquid	KG	10/19/93	16:16	< 10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/19/93	16:16	< 10.000	ug/l	10.00 ug/l	8240

Comments:
The volatile run was initiated at 13:46.

Sample Date: 10/08/93 In House # 10-6928-93		Source: TRIP BLANK		Location: FT.STEWART			
Carbon Disulfide - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/19/93	16:17	< 50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/19/93	16:17	< 5.000	ug/L	5.00 ug/L	8240
Chloroethane - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624
Methyl bromide - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
1,1,1-Trichloroethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/19/93	16:17	< 20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/19/93	16:17	< 5.000	ug/l	5.00 ug/l	624.
Acrylonitrile - liquid	KG	10/19/93	16:17	< 10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/19/93	16:17	< 12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/19/93	16:17	< 10.000	ug/l	10.00 ug/l	624.

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/08/93 In House # 10-6928-93		Source: TRIP BLANK		Location: FT.STEWART			
		- CONTINUED -					
4-Methyl - 2 pentanone - liquid	KG	10/19/93 16:17	<	10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/19/93 16:17	<	10.000	ug/l	10.00 ug/l	8240
Comments:							
The volatile run was initiated at 14:16.							
Sample Date: 11/17/93 In House # 11-8384-93		Source: SEECOMMENT		Location: FT STEWART			
Pesticide - water extraction	MR	11/22/93 08:00		0.000		0.00	
PCB - water extraction	MR	11/22/93 08:00		0.000		0.00	
Endrin - Liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Methoxychlor - Liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Aldrin - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Alpha BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Beta BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Delta BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Gamma BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
4,4-DDT - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
4,4-DDE - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
4,4-DDD - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Dieldrin - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
A-Endosulfan - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
B-Endosulfan - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Endosulfan Sulfate - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Endrin Aldehyde - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Heptachlor - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
Heptachlor Epoxide - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
PCB-1242 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1254 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1221 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1232 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1248 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1260 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1016 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
Chlordane - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608.0
Toxaphene - liquid	RMK	11/30/93 15:56	<	2.000	ug/l	2.00 ug/l	608.0
Comments:							
Location: MW-BLK-11-93							
This is a recollected sample for Pest/PCB's originally collected on 11/8/93.							
Sample Date: 11/17/93 In House # 11-8385-93		Source: MW2-11-93		Location: FT STEWART			
Pesticide - water extraction	MR	11/22/93 08:00		0.000		0.00	
PCB - water extraction	MR	11/22/93 08:00		0.000		0.00	
Endrin - Liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Methoxychlor - Liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Aldrin - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Alpha BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Beta BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Delta BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
Gamma BHC - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608.
4,4-DDT - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
4,4-DDE - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
4,4-DDD - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Dieldrin - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
A-Endosulfan - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
B-Endosulfan - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Endosulfan Sulfate - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Endrin Aldehyde - liquid	RMK	11/30/93 15:56	<	0.100	ug/l	0.10 ug/l	608
Heptachlor - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
Heptachlor Epoxide - liquid	RMK	11/30/93 15:56	<	0.020	ug/l	0.02 ug/l	608
PCB-1242 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1254 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1221 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 11/17/93 In House # 11-8385-93		Source: MW2-11-93 - CONTINUED -		Location: FT STEWART			
PCB-1232 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1248 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1260 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
PCB-1016 - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608
Chlordane - liquid	RMK	11/30/93 15:56	<	0.500	ug/l	0.50 ug/l	608.0
Toxaphene - liquid	RMK	11/30/93 15:56	<	2.000	ug/l	2.00 ug/l	608.0
Comments:							
This is a recollected sample for Pest/PCB's originally collected on 11/8/93.							
Sample Date: 11/17/93 In House # 11-8386-93		Source: SEECOMMENT		Location: FT STEWART			
Pesticide - water extraction	MR	11/22/93 08:00		0.000		0.00	
PCB - water extraction	MR	11/22/93 08:00		0.000		0.00	
Endrin - Liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Methoxychlor - Liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Aldrin - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Alpha BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Beta BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Delta BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Gamma BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
4,4-DDT - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
4,4-DDE - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
4,4-DDD - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Dieldrin - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
A-Endosulfan - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
B-Endosulfan - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Endosulfan Sulfate - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Endrin Aldehyde - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Heptachlor - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
Heptachlor Epoxide - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
PCB-1242 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
PCB-1254 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
PCB-1221 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
PCB-1232 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
PCB-1248 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
PCB-1260 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
PCB-1016 - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608
Chlordane - liquid	RMK	11/30/93 15:57	<	0.500	ug/l	0.50 ug/l	608.0
Toxaphene - liquid	RMK	11/30/93 15:57	<	2.000	ug/l	2.00 ug/l	608.0
Comments:							
Location: MW2-DUP-11-93							
This is a recollected sample for Pest/PCB's originally collected on 11/8/93.							
Sample Date: 11/17/93 In House # 11-8387-93		Source: MW1-11-93		Location: FT STEWART			
Pesticide - water extraction	MR	11/22/93 08:00		0.000		0.00	
PCB - water extraction	MR	11/22/93 08:00		0.000		0.00	
Endrin - Liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Methoxychlor - Liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Aldrin - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Alpha BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Beta BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Delta BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
Gamma BHC - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608.
4,4-DDT - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
4,4-DDE - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
4,4-DDD - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Dieldrin - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
A-Endosulfan - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608
B-Endosulfan - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Endosulfan Sulfate - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Endrin Aldehyde - liquid	RMK	11/30/93 15:57	<	0.100	ug/l	0.10 ug/l	608
Heptachlor - liquid	RMK	11/30/93 15:57	<	0.020	ug/l	0.02 ug/l	608

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 11/17/93 In House # 11-8387-93		Source: MW1-11-93 - CONTINUED -		Location: FT STEWART			
Heptachlor Epoxide - liquid	RMK	11/30/93 15:57	<	0.020 ug/l		0.02 ug/l	608
PCB-1242 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
PCB-1254 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
PCB-1221 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
PCB-1232 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
PCB-1248 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
PCB-1260 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
PCB-1016 - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608
Chlordane - liquid	RMK	11/30/93 15:57	<	0.500 ug/l		0.50 ug/l	608.0
Toxaphene - liquid	RMK	11/30/93 15:57	<	2.000 ug/l		2.00 ug/l	608.0

Comments:
This is a recollected sample for Pest/PCB's originally collected on 11/8/93.

Sample Date: 11/17/93 In House # 11-8388-93		Source: MW4-11-93		Location: FT STEWART			
Pesticide - water extraction	MR	11/22/93 08:00		0.000		0.00	
PCB - water extraction	MR	11/22/93 08:00		0.000		0.00	
Endrin - Liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Methoxychlor - Liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Aldrin - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Alpha BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Beta BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Delta BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Gamma BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
4,4-DDT - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
4,4-DDE - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
4,4-DDD - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Dieldrin - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
A-Endosulfan - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
B-Endosulfan - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Endosulfan Sulfate - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Endrin Aldehyde - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Heptachlor - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
Heptachlor Epoxide - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
PCB-1242 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
PCB-1254 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
PCB-1221 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
PCB-1232 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
PCB-1248 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
PCB-1260 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
PCB-1016 - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608
Chlordane - liquid	RMK	11/30/93 15:58	<	0.500 ug/l		0.50 ug/l	608.0
Toxaphene - liquid	RMK	11/30/93 15:58	<	2.000 ug/l		2.00 ug/l	608.0

Comments:
This is a recollected sample for Pest/PCB's originally collected on 11/8/93.

Sample Date: 11/18/93 In House # 11-8389-93		Source: MW3-11-93		Location: FT STEWART			
Pesticide - water extraction	MR	11/22/93 08:00		0.000		0.00	
PCB - water extraction	MR	11/22/93 08:00		0.000		0.00	
Endrin - Liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Methoxychlor - Liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Aldrin - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Alpha BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Beta BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Delta BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
Gamma BHC - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608.
4,4-DDT - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
4,4-DDE - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
4,4-DDD - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608
Dieldrin - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
A-Endosulfan - liquid	RMK	11/30/93 15:58	<	0.020 ug/l		0.02 ug/l	608
B-Endosulfan - liquid	RMK	11/30/93 15:58	<	0.100 ug/l		0.10 ug/l	608

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 11/18/93 In House # 11-8389-93		Source: MW3-11-93		Location: FT STEWART			
		- CONTINUED -					
Endosulfan Sulfate - liquid	RMK	11/30/93	15:58	< 0.100	ug/l	0.10 ug/l	608
Endrin Aldehyde - liquid	RMK	11/30/93	15:58	< 0.100	ug/l	0.10 ug/l	608
Heptachlor - liquid	RMK	11/30/93	15:58	< 0.020	ug/l	0.02 ug/l	608
Heptachlor Epoxide - liquid	RMK	11/30/93	15:58	< 0.020	ug/l	0.02 ug/l	608
PCB-1242 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
PCB-1254 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
PCB-1221 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
PCB-1232 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
PCB-1248 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
PCB-1260 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
PCB-1016 - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608
Chlordane - liquid	RMK	11/30/93	15:58	< 0.500	ug/l	0.50 ug/l	608.0
Toxaphene - liquid	RMK	11/30/93	15:58	< 2.000	ug/l	2.00 ug/l	608.0

Comments:
This is a recollected sample for Pest/PCB's originally collected on 11/8/93.

Laboratory ID # 40111

Very truly yours,

James H. Carr, Jr.
Chemist

FT. STEWART Number Key
JOB NUMBER FST-003

Carr Lab No.	FT STEWART ID
10-6923-93	MW1-10-93
10-6924-93	MW1 DUP-10-93
10-6925-93	MW BLANK-10-93
10-6926-93	MW2-10-93
10-6927-93	MW4-10-93
10-6928-93	TRIP BLANK
11-8384-93	MW BLANK-11-93
11-8385-93	MW2-11-93
11-8386-93	MW2 DUP-11=93
11-8387-93	MW1-11-93
11-8388-93	MW4-11-93
11-8389-93	MW3-11-93

LEGEND

QC Sample Number: The identifying number on a sample or known which makes unique identification of each sample possible.

Val. 1, Val. 2: Concentrations of duplicate samples, presented for precision information. * indicates a spiked duplicate sample if this information is not presented elsewhere.

RPD: Relative Percent Difference:

$$RPD = \frac{abs(D_1 - D_2)}{(D_1 + D_2)/2} * 100$$

Spike Conc.: The concentration of spike material added to the sample to produce the spiked sample.

True Value: The target concentration for the spiked sample:

TV = Sample Conc. - Spike Conc.

Observed Value: The concentration observed in the spiked sample upon analysis.

Percent Recovery: A measure of the concentration of the spiked sample relative to the spiked concentration:

$$\% \text{ Recovery} = \frac{\text{Conc. spiked sample} - \text{Conc. unspiked sample}}{\text{spike concentration}}$$

QUALITY CONTROL FOR LEAD ANALYSIS

SAMPLES NUMBERED: 10-6923-93 through 11-6927-93 analyzed 10/22/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
10/22/93	WP28-2					30.0	34.7	116
10/22/93	DIG.STD.					50.0	51.3	103
10/22/93	6924*	13.3	13.2	0.8	5.0	18.2	18.2	100
10/22/93	6923	<5.0	<5.0	0	5.0	5.0	6.4	128
10/22/93	6924	<5.0	<5.0	0	50.0	50.0	51.0	102
10/22/93	CHK.STD.	26.6	26.7	0.3		25.0	26.6	106

* Indicates a spiked duplicate sample.

QUALITY CONTROL FOR ARSENIC ANALYSIS

SAMPLES NUMBERED: 11-6923-93 through 11-6927-93 analyzed 10/22/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
10/22/93	WP28-2					86.0	98.3	114
10/22/93	DIG.STD.					50.0	48.5	97
10/22/93	6923	<5.0	<5.0	0	5.0	5.0	5.9	118
10/22/93	6938	3.4	4.2	21.0	5.0	8.4	8.9	110
10/22/93	CHK.STD.	49.7	52.7	5.9		50.0	49.7	99

QUALITY CONTROL FOR SELENIUM ANALYSIS

SAMPLES NUMBERED: 11-6923-93 through 11-6927-93 analyzed 10/22/93.

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
10/22/93	WP28-2					11.0	12.2	111
10/22/93	DIG.STD.					50.0	50.8	102
10/22/93	6923	<5.0	<5.0	0	5.0	5.0	6.0	120
10/22/93	6938	<5.0	<5.0	0	5.0	5.0	5.5	110
10/22/93	CHK.STD.	51.4	45.6	12.0		50.0	45.6	91

QUALITY CONTROL FOR ICP ANALYSIS

SAMPLES NUMBERED: 10-6923-93 through 10-6927-93 analyzed 10/25/93;
SAMPLES NUMBERED: 10-6923-93 through 10-6927-93 analyzed for Ag 11/01/93;

Date	Elem.	QC Sample Number	Val. 1 (mg/l)	Val. 2 (mg/l)	RPD	Spike Conc.	True Value	Obs. Value	Percent Recovery
10/25/93	Ba	ICP-07					1.00	1.07	107
10/25/93	Cr	ICP-19					1.00	1.01	101
10/25/93	Cd	ICP-19					1.00	1.03	103
10/25/93	Ba	6938	0.060	0.060	0	0.10	0.160	0.160	100
10/25/93	Cr	6938	<.05	<.05	0	0.10	0.100	0.106	106
10/25/93	Cd	6938	<.01	<.01	0	0.10	0.10	0.097	97
10/25/93	Ba	CHK.STD.	0.097	0.097	0		0.100	0.093	93
10/25/93	Cr	CHK.STD.	0.099	0.103	4.0		0.100	0.072	72
10/25/93	Cd	CHK.STD.	1.00	0.097	3.0		0.100	0.071	71
11/01/93	Ag	ICP-07					1.00	0.91	91
11/01/93	Ag	6938	<.05	<.05	0	0.05	0.050	0.050	100
11/01/93	Ag	CHK.STD.	0.092	0.089	3.3		0.100	0.092	92

QC-117

QUALITY CONTROL FOR MERCURY ANALYSIS

SAMPLES NUMBERED: 10-6923-93 through 10-6927-93 analyzed 10/19/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
10/19/93	EPA KNOWN					2.00	1.82	91
10/19/93	6655	<.2	<.2	0	1.0	1.00	1.12	102
10/19/93	6923	<.2	<.2	0	1.0	1.15	1.20	105
10/19/93	CHK.STD.	1.08	1.08	0		1.00	1.08	108

QUALITY CONTROL FOR VOLATILES

SAMPLES NUMBERED: 10-6923-93 through 10-6928-93 analyzed 10/19/93;

SPIKE QC SAMPLE NUMBER: 10692393 SPIKED DUPLICATE

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
1,1 Dichloroethene	41.6	45.9	9.8	50	50	48.9	98
Trichloroethene	40.1	49.3	20.6	50	50	49.3	99
Benzene	46.1	54.5	16.7	50	50	54.5	109
Toluene	41.3	51.6	22.2	50	50	51.6	103
Chlorobenzene	40.4	48.9	19.0	50	50	48.9	98

C-119

BLANK DATA FOR VOLATILES

All analytes on all dates <5 ug/L.

SURROGATE RECOVERIES FOR VOLATILES, PERCENT RECOVERY

Target concentration for volatile surrogates = 50 ug/L.

Sample Date	Sample Number	1,2 dichloro-ethane d-4	Toluene d-8	Bromofloro benzene
10/19/93	BLANK	96	88	80
10/19/93	10-6923-93	108	87	80
10/19/93	10-6923SPK	95	81	71
10/19/93	10-6923SPKDUP	97	91	78
10/19/93	10-6924-93	101	81	73
10/19/93	10-6925-93	109	92	82
10/19/93	10-6926-93	101	84	75
10/19/93	10-6927-93	98	84	74
10/19/93	10-6928-93	128	99	86

QUALITY CONTROL FOR PESTICIDES

SAMPLES NUMBERED: 11-8384-93 through 11-8389-93 analyzed 11/30/93;

SPIKE RECOVERY DATA FOR 11/30/93

SPIKE QC SAMPLE NUMBER: SPK112293

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
Gamma-BHC	0.090	0.087	3.4	0.08	0.08	0.087	101
Heptachlor	0.110	0.110	0	0.08	0.08	0.110	138
Aldrin	0.102	0.102	0	0.08	0.08	0.102	128
Dieldrin	0.080	0.078	2.5	0.08	0.08	0.080	100
Endrin	0.051	0.049	4.0	0.08	0.08	0.051	64
4,4-DDT	0.044	0.059	29.1	0.08	0.16	0.059	74

U-120

BLANK DATA FOR PESTICIDES

All analytes less than 0.02 ug/L on all dates.

SURROGATE RECOVERIES FOR PESTICIDES

Sample Date	Sample Number	Theoretical Conc. (ug/l)	Observed Conc.(ug/l)	Percent Recovery
11/30/93	BLANK	1.0	0.60	60
11/30/93	11-8384-93	1.0	0.54	54
11/30/93	11-8385-93	1.0	0.60	60
11/30/93	11-8386-93	1.0	0.48	48
11/30/93	11-8387-93	1.0	0.49	49
11/30/93	11-8388-93	1.0	0.57	57
11/30/93	11-8389-93	1.0	0.48	48
11/30/93	112293BS	1.0	0.57	57
11/30/93	112293BSD	1.0	0.56	56

Page ___ of ___

CARR LABORATORIES

CHAIN OF CUSTODY RECORD

Client CES AS — Project No. FST.003

Contact Toni Nicholson — Phone No. 912-652-5512

Address PO Box 889, Sav Ga 31402 — Fax No. 912-652-5311

Collected By Judson Smith — Client P.O.# ____

MT (Matrix Type)	AP (Analytical Program)
L=Liquid	W=Wastewater
S=Soil	G=Groundwater
O=Oil	D=Drinking Water
X=Other	S=Solid/Haz. Waste
	N=Nonregulated

Carr's Lab No.	Sample Source	Sample Location	Date/Time	Well	Grab	Composite	MT	AP	Number of Containers	Preserved Y or N	Analyses Requested
FST-003-MW1-10-93	FST-003	Ft Stewart	10/6/93/11:00	X			L		4	Y	VOC 8240, RCRA METALS, PEST/PCB 8080 10 6923-93
FST-003-MW1-Dup10-93	FST-003	Ft Stewart	10/6/93/11:00	X			L		4	Y	" " " 6924
FST-003-MW-BLANK-10-93	FST-003	Ft Stewart	10/8/93/11:00				L		4	Y	" " " 6925
FST-003-MW2-10-93	FST-003	Ft Stewart	10/7/93/14:55	X			L		4	Y	" " " 6926
~~NOT TAKEN~~	~~FST-003~~	~~Ft Stewart~~	~~10/8/93~~	X			L		4	Y	" " "
FST-003-MW4-10-93	FST-003	Ft Stewart	10/8/93/1385	X			L		4	Y	" " " 6927
TRIP BLANK	FST-003	Ft Stewart	10/5/93				L		2	Y	VOC 8240 6928

pH. ACCEPTABLE

Relinquished By	Received By	Date	Time
1.	Kenny Easton	10/8/93	1436
2. Kenny Easton	D.H. Duson	10-8-93	1815
3.			
Received In Lab By	D.H. Duson	10-8-93	1815

JAMES H. CARR & ASSOCIATES, INC.
Office and Laboratories
P.O. Box 90209
Columbia, South Carolina 29290
(803) 776-7789 Fax: 783-2192

temp of vial = 1.8°C, ice visible

12-13

CARR LABORATORIES

CHAIN OF CUSTODY RECORD

Client: CESAS
Contact: Toni Nicholson
Address: PO Box 889, Sav., Ga. 31402
Collected By: Judson Smith

Project No.: FST-003
Phone No.: 912-652-5312
Fax No.: 912-652-5311
Client P.O.#: ______

MT (Matrix Type)
- (L)=Liquid (circled)
- S=Soil
- O=Oil
- X=Other

AP (Analytical Program)
- W=Wastewater
- (G)=Groundwater (circled)
- D=Drinking Water
- S=Solid/Haz. Waste
- N=Nonregulated

Carr's Lab No.	Sample Source	Sample Location	Date/Time	Well	Grab	Composite	MT	AP	Number of Containers	Preserved Y or N	Analyses Requested	
FST-003-MW-BLK-11-93	FST-003	FT STEWART	11/17/93 / 08:35	X			L		1	N	PEST/PCB	11-8384-93
FST-003-MW2-11-93	"	"	11/17/93 / 09:40	X			L		1	N	"	8385
FST-003-MW2-DUP-11-93	"	"	11/17/93 / 09:40	X			L		1	N	"	8386
FST-003-MW1-11-93	"	"	11/17/93 / 11:35	X			L		1	N	"	8387
FST-003-MW4-11-93	"	"	11/17/93 / 17:10	X			L		1	N	"	8388
FST-003-MW3-11-93	"	"	11/18/93 / 11:48	X			L		1	N	"	8389

temp of vial = 1.0°C. - ice visible

	Relinquished By	Received By	Date	Time
1.	[signature]	Henry Barton	11/18/93	1553
2.	Henry Barton	[signature]	11/18/93	1935
3.				
Received In Lab By		[signature]	11.18.93	1935

JAMES H. CARR & ASSOCIATES, INC.
Office and Laboratories
P.O. Box 90209
Columbia, South Carolina 29290
(803) 776-7789 Fax: 783-2192

James H. Carr & Associates, Inc.

Office & Laboratories
P.O. Box 90209
Columbia, SC 29290
(803) 776-7789
(800) 435-3995

11/12/93

Ms. Toni Nicholson
Corps of Engineers
PO Box 889
Savannah, GA 31402

Dear Ms. Nicholson:

The following are the results of the parameters you requested we check on your FST-003 samples listed below.

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/16/93 In House # 10-7213-93		Source: MW3-10-93		Location: FT.STEWART			
Metals Sample Preparation - water	MCB	10/26/93	16:00	0.000		0.00	
Pesticide - water extraction	MR	10/21/93	21:00	0.000		0.00	
PCB - water extraction	MR	10/21/93	21:00	0.000		0.00	
Arsenic - liquid	JDW	11/02/93	09:16	< 5.000	ug/l	5.00 ug/l	206.2
Selenium - Liquid	JDW	11/01/93	21:27	< 5.000	ug/l	5.00 ug/l	270.2
Barium - Liquid	KAH	10/26/93	14:89	0.060	mg/l	0.05 mg/l	200.7
Cadmium - Liquid	KAH	10/26/93	16:19	< 0.010	mg/l	0.01 mg/l	200.7
Chromium - Liquid	KAH	10/26/93	16:19	< 0.050	mg/l	0.05 mg/l	200.7
Lead - Liquid	JDW	11/02/93	03:20	6.000	ug/l	5.00 ug/l	239.2
Silver - Liquid	KAH	10/26/93	14:89	< 0.050	mg/l	0.05 mg/l	200.7
Mercury - Liquid	CMP	10/28/93	11:00	< 0.200	ug/l	0.20 ug/l	245.1
Carbon Disulfide - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624.
2-Hexanone - Liquid	KG	10/26/93	13:02	< 50.000	ug/L	50.00 ug/L	8240
Styrene - Liquid	KG	10/26/93	13:02	< 5.000	ug/L	5.00 ug/L	8240
Endrin - Liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
Methoxychlor - Liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
Aldrin - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608.
Alpha BHC - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608.
Beta BHC - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608.
Delta BHC - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608.
Gamma BHC - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608.
4,4-DDT - liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
4,4-DDE - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608
4,4-DDD - liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
Dieldrin - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608
A-Endosulfan - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608
B-Endosulfan - liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
Endosulfan Sulfate - liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
Endrin Aldehyde - liquid	RK	11/08/93	15:59	< 0.100	ug/l	0.10 ug/l	608
Heptachlor - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608
Heptachlor Epoxide - liquid	RK	11/08/93	15:59	< 0.020	ug/l	0.02 ug/l	608
PCB-1242 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
PCB-1254 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
PCB-1221 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
PCB-1232 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
PCB-1248 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
PCB-1260 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
PCB-1016 - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608
Chlordane - liquid	RK	11/08/93	15:59	< 0.500	ug/l	0.50 ug/l	608.0
Toxaphene - liquid	RK	11/08/93	15:59	< 2.000	ug/l	2.00 ug/l	608.0
Chloroethane - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624
Methyl chloride - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/16/93 In House # 10-7213-93		Source: MW3-10-93		Location: FT.STEWART			
		- CONTINUED -					
Methyl bromide - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624
Vinyl chloride - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624
Methylene Chloride - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
1,1-Dichloroethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Trans 1,2-Dichloroethene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloroethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
1,1,1-Trichloroethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Bromodichloromethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
1,2-Dichloropropane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Trans-1,3-Dichloropropene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Trichloroethene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Chlorodibromomethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
1,1,2-Trichloroethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Cis-1,3-Dichloropropene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Benzene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Bromoform - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
1,1,2,2,-Tetrachloroethane - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Tetrachloroethene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Toluene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Chlorobenzene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Ethylbenzene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Chloroform - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Carbon Tetrachloride - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624
Xylene - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624
Acetone - liquid	KG	10/26/93	13:02	< 20.000	ug/l	20.00 ug/l	624.
1,1-Dichloroethene - liquid	KG	10/26/93	13:02	< 5.000	ug/l	5.00 ug/l	624.
Acrylonitrile - liquid	KG	10/26/93	13:02	< 10.000	mg/l	10.00 mg/l	624.
Trichlorofluoromethane - liquid	KG	10/26/93	13:02	< 12.000	ug/l	12.00 ug/l	624.
2- Butanone - liquid	KG	10/26/93	13:02	13.000	ug/l	10.00 ug/l	624.
4-Methyl - 2 pentanone - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	624.
Vinyl Acetate - liquid	KG	10/26/93	13:02	< 10.000	ug/l	10.00 ug/l	8240

Comments:
The volatile run was initiated at 18:51. The pesticide run began at 20:43.

Laboratory ID # 40111

Very truly yours,

Jimmie H. Kerley - Microbiologist

James H. Carr, Jr.
Chemist

FT. STEWART Number Key

JOB NUMBER FST-003

Carr Lab No.	FT STEWART ID
10-7213-93	MW3-10-93

QUALITY CONTROL FOR LEAD ANALYSIS

SAMPLES NUMBERED: 10-7213-93 analyzed 11/02/93

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/02/93	WP28-2					30.0	32.0	107
11/02/93	DIG.STD.					100.0	94.0	94
11/02/93	7324*	5.8	6.0	3.4	5.0	6.3	6.0	94
11/02/93	7213*	11.3	10.9	3.6	5.0	11.4	11.3	98

* Indicates a spiked duplicate sample.

QUALITY CONTROL FOR ARSENIC ANALYSIS

SAMPLES NUMBERED: 10-7213-93 analyzed 11/02/93

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/02/93	WP28-2					86.0	89.3	104
11/02/93	DIG.STD.					100.0	103.5	104
11/02/93	7213*	8.3	9.4	12.4	5.0	8.1	8.3	104

QUALITY CONTROL FOR SELENIUM ANALYSIS

SAMPLES NUMBERED: 10-7213-93 analyzed 11/02/93

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/02/93	WP28-2					11.0	11.4	103
11/02/93	DIG.STD.					100.0	91.0	91
11/02/93	7213*	6.8	6.1	10.8	5.0	6.7	6.8	102

QUALITY CONTROL FOR ICP ANALYSIS

SAMPLES NUMBERED: 10-7213-93 analyzed 10/26/93;

Date	Elem.	QC Sample Number	Val. 1 (mg/l)	Val. 2 (mg/l)	RPD	Spike Conc.	True Value	Obs. Value	Percent Recovery
10/26/93	Ba	ICP-07					1.00	0.99	99
10/26/93	Cr	ICP-19					1.00	1.03	103
10/26/93	Cd	ICP-19					1.00	1.05	105
10/26/93	Ag	ICP-07					1.00	0.87	87
10/26/93	Cr	7213	<.05	<.05	0	0.10	0.10	0.100	100
10/26/93	Cd	7213	<.01	<.01	0	0.10	0.10	0.086	86
10/26/93	Ag	7213	<.05	<.05	0	0.10	0.10	0.110	110
10/26/93	Ba	7261	<.05			1.00	1.00	1.03	103

(1-26)

QUALITY CONTROL FOR MERCURY ANALYSIS

SAMPLES NUMBERED: 10-7213-93 analyzed 10/27/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
10/27/93	KNOWN					2.00	1.56	78
10/27/93	7374	<.2	<.2	0	1.0	1.00	0.92	92
10/27/93	7334	<.2	<.2	0	1.0	1.00	0.92	92

QUALITY CONTROL FOR PESTICIDES

SAMPLES NUMBERED: 10-7213-93 analyzed 11/08/93;

SPIKE RECOVERY DATA FOR 11/08/93

SPIKE QC SAMPLE NUMBER: 102193 DUPLICATE SAMPLE NUMBER 102193PCB

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
Alpha-BHC	<.02	<.02	0	0.08	0.08	0.184	230*
Gamma-BHC	<.02	<.02	0	0.08	0.08	0.164	205*
Beta-BHC	<.02	<.02	0	0.08	0.08	0.132	165
Heptachlor	<.02	<.02	0	0.08	0.08	0.155	194*
Delta-BHC	<.02	<.02	0	0.08	0.08	0.116	145
Aldrin	0.024	0.031	25.4	0.08	0.08	0.152	190*
Heptachlor Epox.	<.02	<.02	0	0.08	0.08	0.115	144
Endosulfan I	<.02	<.02	0	0.08	0.08	0.103	129
p,p - DDE	0.026	<.02	0	0.08	0.08	0.093	116
Dieldrin	0.228	0.074		0.08	0.08	0.089	111
Endrin	0.496	<.02		0.08	0.08	0.054	68
p,p - DDD	0.025	<.02		0.08	0.08	0.098	123
Endosulfan II	0.145	0.100	36.7	0.08	0.08	0.083	104
p,p-DDT	0.299	0.572		0.08	0.08	0.096	120
Endrin Aldehyde	0.164	0.080	68.8	0.08	0.08	0.094	118
Endrin Ketone	<0.02	<.02	0	0.08	0.08	0.082	103

* Spike recoveries appear high due to integration problems.

BLANK DATA FOR PESTICIDES

All analytes less than 0.05 ug/L on all dates.

SURROGATE RECOVERIES FOR PESTICIDES

Sample Date	Sample Number	Theoretical Conc. (ug/l)	Observed Conc.(ug/l)	Percent Recovery
11/08/93	BLANK	1.0	0.69	69
11/08/93	10-7213-93	1.0	0.78	78
11/08/93	100793SPK	1.0	0.84	84

QUALITY CONTROL FOR VOLATILES

SAMPLES NUMBERED: 10-7213-93 analyzed 10/26/93;

SPIKE RECOVERY DATA FOR 10/26/93

SPIKE QC SAMPLE NUMBER: 10720493 SPIKED DUPLICATE

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
1,1 Dichloroethene	27.1	30.9	13.1	50	50	30.9	62
Trichloroethene	30.5	34.3	11.7	50	50	34.3	69
Benzene	31.9	35.3	10.1	50	50	35.3	71
Toluene	31.6	32.6	3.1	50	50	32.6	65
Chlorobenzene	30.4	32.0	5.1	50	50	32.0	64

BLANK DATA FOR VOLATILES

All analytes on all dates <5 ug/L.

SURROGATE RECOVERIES FOR VOLATILES, PERCENT RECOVERY

Sample Date	Sample Number	1,2 dichloro-ethane d-4	Toluene d-8	Bromofloro benzene
10/26/93	BLANK	93	96	106
10/26/93	10-7213-93	93	83	88
10/26/93	10-7204-93	97	99	103
10/26/93	10-7204SPK	92	94	99
10/26/93	10-7204SPKDUP	93	88	93

CARR LABORATORIES

CHAIN OF CUSTODY RECORD

Client CESAS
Contact TONI NICHOLSON
Address PO Box 889, SAVANNAH, GA 31402
Collected By JUDSON SMITH

Project No. FST-003
Phone No. 912-652-5312
Fax No. 912-652-5311
Client P.O.# ____

MT (Matrix Type)	AP (Analytical Program)
L=Liquid	W=Wastewater
S=Soil	G=Groundwater
O=Oil	D=Drinking Water
X=Other	S=Solid/Haz. Waste
	N=Nonregulated

Carr's Lab No.	Sample Source	Location	Date/Time	Well	Grab	Composite	MT	AP	Number of Containers	Preserved Y or N	Analyses Requested
											ID-7213-93
FST-003 MW3-10-93	FT STEWART	FST-003	10/16/93 / 11:00	X			L		4	Y	VOC 8240, RCRA TOTAL METALS, PEST/PCB 8080
											pH. ACCEPTABLE
											temperature vial = 2.5°C
											ice visible

Relinquished By	Received By	Date	Time
1. [signature]	Henry Barton	10/18/93	14:30
2. Henry Barton	D. Hutto	10/18/93	1900
3.			
Received In Lab By	D. Hutto	10/18/93	19:00

JAMES H. CARR & ASSOCIATES, INC.
Office and Laboratories
P.O. Box 90209
Columbia, South Carolina 29290
(803) 776-7789 Fax: 783-2192

131-21

James H. Carr & Associates, Inc.

Office & Laboratories
P.O. Box 90209
Columbia, SC 29290
(803) 776-7789
(800) 435-3995

11/22/93

Ms. Toni Nicholson
Corps of Engineers
PO Box 889
Savannah, GA 31402

Dear Ms. Nicholson:

The following are the results of the parameters you requested we check on your FST-003 samples listed below.

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/28/93 In House # 11-7828-93 Source: SS-10-93 Location: FT.STEWART							
Metals Sample Prep - nonaqueous	VB	11/08/93 09:00		0.000		0.00	
Pesticide - solid extraction	MR	11/05/93 08:00		0.000		0.00	
PCB - solid extraction	MR	11/05/93 08:00		0.000		0.00	
Lab pH	TW	11/04/93 11:00		5.010	pH Units	0.00 pH Units	150.1
Lab Conductivity	TW	11/04/93 10:45		4.000	umhos/cm	1.00 umhos/cm	120.1
Arsenic - solid	KAH	11/09/93 05:58		24.000	mg/kg	2.50 mg/kg	206.2
Selenium - solid	KAH	11/09/93 19:31	<	2.500	mg/kg	2.50 mg/kg	270.2
Barium - solid	KAH	11/18/93 17:59		8.000	mg/kg	2.50 mg/kg	200.7
Cadmium - solid	KAH	11/18/93 17:59	<	1.000	mg/kg	1.00 mg/kg	200.7
Chromium - solid	KAH	11/18/93 17:59	<	2.500	mg/kg	2.50 mg/kg	200.7
Lead - solid	KAH	11/09/93 23:36		73.970	mg/kg	2.50 mg/kg	239.2
Silver - solid	CW	11/19/93 11:52	<	2.500	mg/kg	2.50 mg/kg	200.7
Mercury - solid	CW	11/05/93 12:00	<	0.020	mg/kg	0.02 mg/kg	245.5
Endrin - Solid	RMK	11/16/93 13:43	<	0.060	mg/kg	0.06 mg/kg	808.0
Methoxychlor - Solid	RMK	11/16/93 13:43	<	1.760	mg/kg	1.76 mg/kg	808.0
Aldrin - solid	RMK	11/16/93 13:43	<	0.040	mg/kg	0.04 mg/kg	8080
Alpha BHC - solid	RMK	11/16/93 13:43	<	0.030	mg/kg	0.03 mg/kg	8080
Beta BHC - solid	RMK	11/16/93 13:43	<	0.060	mg/kg	0.06 mg/kg	8080
Delta BHC - solid	RMK	11/16/93 13:43	<	0.090	mg/kg	0.09 mg/kg	8080
Gamma BHC - solid	RMK	11/16/93 13:43	<	0.040	mg/kg	0.04 mg/kg	8080
Chlordane - solid	RMK	11/16/93 13:43	<	0.140	mg/kg	0.14 mg/kg	8080
4,4-DDT - solid	RMK	11/16/93 13:43	<	0.120	mg/kg	0.12 mg/kg	8080
4,4-DDE - solid	RMK	11/16/93 13:43	<	0.040	mg/kg	0.04 mg/kg	8080
4,4-DDD - solid	RMK	11/16/93 13:43	<	0.110	mg/kg	0.11 mg/kg	8080
Dieldrin - solid	RMK	11/16/93 13:43	<	0.020	mg/kg	0.02 mg/kg	8080
Alpha-Endosulfan - solid	RMK	11/16/93 13:43	<	0.140	mg/kg	0.14 mg/kg	8080
Beta-Endosulfan - solid	RMK	11/16/93 13:43	<	0.040	mg/kg	0.04 mg/kg	8080
Endosulfan Sulfate - solid	RMK	11/16/93 13:43	<	0.660	mg/kg	0.66 mg/kg	8080
Endrin-solid	RMK	11/16/93 13:43	<	0.060	mg/kg	0.06 mg/kg	8080
Endrin Aldehyde - solid	RMK	11/16/93 13:43	<	0.230	mg/kg	0.23 mg/kg	8080
Heptachlor - solid	RMK	11/16/93 13:43	<	0.030	mg/kg	0.03 mg/kg	8080
Heptachlor Epoxide - solid	RMK	11/16/93 13:43	<	0.830	mg/kg	0.83 mg/kg	8080
PCB-1242 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
PCB-1254 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
PCB-1221 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
PCB-1232 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
PCB-1248 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
PCB-1260 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
PCB-1016 - solid	RMK	11/16/93 13:43	<	1.000	mg/kg	1.00 mg/kg	8080
Toxaphene-solid	RMK	11/16/93 13:43	<	2.400	mg/kg	2.40 mg/kg	8080
% Solids	MB	11/02/93 09:00		93.600	%	0.01 %	160.3
Chloromethane - solid	KG	11/03/93 14:26	<	10.000	ug/kg	10.00 ug/kg	8240

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/28/93 In House # 11-7828-93		Source: SS-10-93 - CONTINUED -		Location: FT.STEWART			
Bromomethane - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
Vinyl Chloride - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
Methylene Chloride - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Trichlorofluoromethane - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
1,1-Dichloroethene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
1,1-Dichloroethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Trans 1,2-Dichloroethene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
1,2-Dichloroethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
1,1,1-Trichloroethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Bromodichloromethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
1,2-Dichloropropane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Trans 1,3-Dichloropropene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Trichloroethene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Dibromochloromethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
1,1,2-trichloroethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Cis-1,3-Dichloropropene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Benzene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
2-Chloroethylvinyl ether - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
Bromoform - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
1,1,2,2,-Tetrachloroethane - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Tetrachloroethene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Toluene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Chlorobenzene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Ethylbenzene - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Chloroform - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Acetone - solid	KG	11/03/93	14:26 <	0.200	mg/kg	0.20 mg/kg	8240
Carbon tetrachloride - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
Xylene - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
2-Butanone - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
Vinyl Acetate - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
4-methyl-2 pentanone - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
Styrene - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240
Carbon Disulfide - solid	KG	11/03/93	14:26 <	5.000	ug/kg	5.00 ug/kg	8240
2-Hexanone - solid	KG	11/03/93	14:26 <	10.000	ug/kg	10.00 ug/kg	8240

Comments:
Analytical results are reported on a wet-weight basis. Volatile run began 12:22.

The volatile run was initiated at 12:22.

Sample Date: 10/28/93 In House # 11-7829-93		Source: SEECOMMENT		Location: FT.STEWART			
Metals Sample Prep - nonaqueous	VB	11/08/93	09:00	0.000		0.00	
Pesticide - solid extraction	MR	11/05/93	08:00	0.000		0.00	
PCB - solid extraction	MR	11/05/93	08:00	0.000		0.00	
Arsenic - solid	KAH	11/09/93	05:39	22.000	mg/kg	2.50 mg/kg	206.2
Selenium - solid	KAH	11/09/93	18:59 <	2.500	mg/kg	2.50 mg/kg	270.2
Barium - solid	KAH	11/18/93	18:08	4.200	mg/kg	2.50 mg/kg	200.7
Cadmium - solid	KAH	11/18/93	18:08 <	1.000	mg/kg	1.00 mg/kg	200.7
Chromium - solid	KAH	11/18/93	18:08 <	2.500	mg/kg	2.50 mg/kg	200.7
Lead - solid	KAH	11/09/93	22:50	74.000	mg/kg	2.50 mg/kg	239.2
Silver - solid	CW	11/19/93	11:57 <	2.500	mg/kg	2.50 mg/kg	200.7
Mercury - solid	CW	11/05/93	12:00 <	0.020	mg/kg	0.02 mg/kg	245.5
Endrin - Solid	RMK	11/16/93	13:44 <	0.060	mg/kg	0.06 mg/kg	808.0
Methoxychlor - Solid	RMK	11/16/93	13:44 <	1.760	mg/kg	1.76 mg/kg	808.0
Aldrin - solid	RMK	11/16/93	13:44 <	0.040	mg/kg	0.04 mg/kg	8080
Alpha BHC - solid	RMK	11/16/93	13:44 <	0.030	mg/kg	0.03 mg/kg	8080
Beta BHC - solid	RMK	11/16/93	13:44 <	0.060	mg/kg	0.06 mg/kg	8080
Delta BHC - solid	RMK	11/16/93	13:44 <	0.090	mg/kg	0.09 mg/kg	8080
Gamma BHC - solid	RMK	11/16/93	13:44 <	0.040	mg/kg	0.04 mg/kg	8080
Chlordane - solid	RMK	11/16/93	13:44 <	0.140	mg/kg	0.14 mg/kg	8080
4,4-DDT - solid	RMK	11/16/93	13:44 <	0.120	mg/kg	0.12 mg/kg	8080
4,4-DDE - solid	RMK	11/16/93	13:44 <	0.040	mg/kg	0.04 mg/kg	8080
4,4-DDD - solid	RMK	11/16/93	13:44 <	0.110	mg/kg	0.11 mg/kg	8080
Dieldrin - solid	RMK	11/16/93	13:44 <	0.020	mg/kg	0.02 mg/kg	8080

Parameter	Analyst	Analysis Date -- Time		Results	Units	Lowest Detectable Level	Method Number
Sample Date: 10/28/93 In House # 11-7829-93		Source: SEECOMMENT		Location: FT.STEWART			
		- CONTINUED -					
Alpha-Endosulfan - solid	RMK	11/16/93	13:44 <	0.140	mg/kg	0.14 mg/kg	8080
Beta-Endosulfan - solid	RMK	11/16/93	13:44 <	0.040	mg/kg	0.04 mg/kg	8080
Endosulfan Sulfate - solid	RMK	11/16/93	13:44 <	0.660	mg/kg	0.66 mg/kg	8080
Endrin-solid	RMK	11/16/93	13:44 <	0.060	mg/kg	0.06 mg/kg	8080
Endrin Aldehyde - solid	RMK	11/16/93	13:44 <	0.230	mg/kg	0.23 mg/kg	8080
Heptachlor - solid	RMK	11/16/93	13:44 <	0.030	mg/kg	0.03 mg/kg	8080
Heptachlor Epoxide - solid	RMK	11/16/93	13:44 <	0.830	mg/kg	0.83 mg/kg	8080
PCB-1242 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
PCB-1254 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
PCB-1221 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
PCB-1232 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
PCB-1248 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
PCB-1260 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
PCB-1016 - solid	RMK	11/16/93	13:44 <	1.000	mg/kg	1.00 mg/kg	8080
Toxaphene-solid	RMK	11/16/93	13:44 <	2.400	mg/kg	2.40 mg/kg	8080
% Solids	MB	11/02/93	09:00	91.000	%	0.01 %	160.3
Chloromethane - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Bromomethane - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Vinyl Chloride - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Methylene Chloride - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Trichlorofluoromethane - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
1,1-Dichloroethene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
1,1-Dichloroethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Trans 1,2-Dichloroethene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
1,2-Dichloroethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
1,1,1-Trichloroethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Bromodichloromethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
1,2-Dichloropropane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Trans 1,3-Dichloropropene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Trichloroethene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Dibromochloromethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
1,1,2-trichloroethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Cis-1,3-Dichloropropene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Benzene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
2-Chloroethylvinyl ether - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Bromoform - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
1,1,2,2,-Tetrachloroethane - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Tetrachloroethene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Toluene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Chlorobenzene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Ethylbenzene - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Chloroform - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Acetone - solid	KG	11/03/93	14:27 <	0.200	mg/kg	0.20 mg/kg	8240
Carbon tetrachloride - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
Xylene - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
2-Butanone - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Vinyl Acetate - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
4-methyl-2 pentanone - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Styrene - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240
Carbon Disulfide - solid	KG	11/03/93	14:27 <	5.000	ug/kg	5.00 ug/kg	8240
2-Hexanone - solid	KG	11/03/93	14:27 <	10.000	ug/kg	10.00 ug/kg	8240

Comments:
Location: SS-DUP-10-93
Analytical results are reported on a wet-weight basis. Volatile run began at 12:48.

The volatile run was initiated at 12:48.

Laboratory ID # 40111

Very truly yours,

James H. Carr, Jr.
Chemist

FT. STEWART Number Key
JOB NUMBER FST-003

Carr Lab No.	FT STEWART ID
11-7828-93	SS-10-93
11-7829-93	SS-DUP-10-93

LEGEND

QC Sample Number: The identifying number on a sample or known which makes unique identification of each sample possible.

Val. 1, Val. 2: Concentrations of duplicate samples, presented for precision information. * indicates a spiked duplicate sample if this information is not presented elsewhere.

RPD: Relative Percent Difference:

$$RPD = \frac{abs(D_1 - D_2)}{(D_1 + D_2)/2} * 100$$

Spike Conc.: The concentration of spike material added to the sample to produce the spiked sample.

True Value: The target concentration for the spiked sample:

TV = Sample Conc. - Spike Conc.

Observed Value: The concentration observed in the spiked sample upon analysis.

Percent Recovery: A measure of the concentration of the spiked sample relative to the spiked concentration:

$$\% \text{ Recovery} = \frac{\text{Conc. spiked sample} - \text{Conc. unspiked sample}}{\text{spike concentration}}$$

QUALITY CONTROL FOR LEAD ANALYSIS

SAMPLES NUMBERED: 11-7828-93 through 11-7829-93 analyzed 11/09/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/09/93	WP28-2					30.0	34.8	116
11/09/93	DIG.STD.					50.0	55.8	112
11/09/93	7829	66.7	80.3	18.5	50.0	130	125	96
11/09/93	CHK.STD	28.3	28.6	1.1		25.0	28.3	113

* Indicates a spiked duplicate sample.

U-138

QUALITY CONTROL FOR ARSENIC ANALYSIS

SAMPLES NUMBERED: 11-7828-93 through 11-7829-93 analyzed 11/09/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/09/93	WP28-2					86.0	101	118
11/09/93	DIG.STD.					50.0	55.2	110
11/09/93	7710	11.8	10.1	15.5	10.0	21.8	21.5	99
11/09/93	CHK.STD	57.8	54.9	5.1		50.0	54.9	110

QUALITY CONTROL FOR SELENIUM ANALYSIS

SAMPLES NUMBERED: 11-7828-93 through 11-7829-93 analyzed 11/09/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/09/93	WP28-2					11.0	12.8	116
11/09/93	DIG.STD.					50.0	40.7	81
11/09/93	7829	<5.0	<5.0	0	50.0	50.0	43.6	87
11/09/93	CHK.STD	55.6	52.4	5.9		50.0	52.4	105

QUALITY CONTROL FOR ICP ANALYSIS

SAMPLES NUMBERED: 11-7828-93 and 11-7829-93 analyzed 11/18/93;
Silver reanalyzed 11/19/93.

Date	Elem	QC Sample Number	Val. 1 (mg/l)	Val. 2 (mg/l)	% RPD	Spike Conc.	True Value	Obs. Val	Percent Recovery
10/18/93	Ba	ICP-07					1.00	1.01	101
10/18/93	Cr	ICP-19					1.00	0.84	84
10/18/93	Cd	ICP-19					1.00	1.02	102
10/18/93	Cr	7998	<.05	<.05	0	0.10	0.10	0.854	85
10/18/93	Cd	7998	<.01	<.01	0	0.10	0.10	0.076	76
10/18/93	Ba	7998	0.100	0.095	5.1	0.10	0.200	0.203	101
10/19/93	Ag	ICP-07					1.00	0.83	83
10/19/93	Ag	8004	<.05	<.05	0	0.10	0.10	0.091	91
10/19/93	Ag	8031	0.058	0.059	1.7	0.10	0.158	0.146	88
10/18/93	Ba	CHK.STD	2.04	1.83	10.8		3.00	2.04	68
10/18/93	Cr	CHK.STD	2.49	2.54	2.0		3.00	2.54	85
10/18/93	Cd	CHK.STD	2.89	3.08	6.4		3.00	3.08	103

QUALITY CONTROL FOR MERCURY ANALYSIS

SAMPLES NUMBERED: 11-7828-93 through 11-7829-93 analyzed 11/05/93;

Date	QC Sample Number	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
11/05/93	EPA					2.00	1.55	78
11/05/93	7544	<.2	<.2	0	1.0	1.00	0.96	96
11/05/93	7484	<.2	<.2	0	1.0	1.00	0.86	86
11/05/93	CHK.STD	0.81	0.86	6.0		1.00	0.86	86

CC-140

QUALITY CONTROL FOR PESTICIDES

SAMPLES NUMBERED: 11-7828-93 and 11-7829-93 analyzed 11/16/93;

SPIKE RECOVERY DATA FOR 11/16/93

SPIKE QC SAMPLE NUMBER: 11782993 SPIKED DUPLICATE

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
Alpha-BHC	<.02			0.08	0.08	0.105	131
Gamma-BHC	<.02			0.08	0.08	0.079	99
Beta-BHC	<.02			0.08	0.08	0.081	101
Heptachlor	<.02			0.08	0.08	0.112	140
Delta-BHC	<.02			0.08	0.08	0.039	49
Aldrin	<.02			0.08	0.08	0.094	118
Heptachlor Epox.	<.02			0.08	0.08	0.085	106
Endosulfan I	<.02			0.08	0.08	0.076	95
p,p - DDE	<.02			0.08	0.08	0.076	95
Dieldrin	<.02			0.08	0.08	0.092	115
Endrin	<.02			0.08	0.08	0.078	98
p,p - DDD	<.02			0.08	0.08	0.103	129
Endosulfan II	<.02			0.08	0.08	0.058	73
p,p-DDT	<.02			0.08	0.08	0.086	108

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
Arochlor 1260	3.48	4.32	21.5	4.0	4.0	4.32	108

BLANK DATA FOR PESTICIDES

All analytes less than 0.05 ug/L on all dates.

SURROGATE RECOVERIES FOR PESTICIDES

Sample Date	Sample Number	Theoretical Conc. (ug/l)	Observed Conc.(ug/l)	Percent Recovery
11/16/93	BLANK	1.0	0.81	81
11/16/93	10-7828-93	1.0	0.16	16*
11/16/93	10-7829-93	1.0	0.18	18*
11/16/93	1007829SPK	1.0	0.34	34*
11/16/93	1007829SPKDUP	1.0	0.41	41*

*Low surrogate recoveries are probably due to matrix effects. Samples were analyzed twice for confirmation.

QUALITY CONTROL FOR VOLATILES

SAMPLES NUMBERED: 10-7828-93 through 10-7829-93 analyzed 11/03/93;

DATE: 11/03/93
SPIKE QC SAMPLE NUMBER: 11774393 SPIKED DUPLICATE

Analyte	Val. 1 (ug/l)	Val. 2 (ug/l)	% RPD	Spike Conc.	True Value	Observed Value	Percent Recovery
1,1 Dichloroethene	41.2	39.0	5.5	50	50.0	41.2	82
Trichloroethene	36.8	41.3	11.5	50	50.0	41.3	83
Benzene	35.8	42.4	16.9	50	50.0	42.4	85
Toluene	44.0	51.3	15.3	50	50.0	51.3	103
Chlorobenzene	40.0	47.3	16.7	50	50.0	47.3	95

BLANK DATA FOR VOLATILES

All analytes on all dates <5 ug/L.

SURROGATE RECOVERIES FOR VOLATILES, PERCENT RECOVERY

Sample Date	Sample Number	1,2 dichloro-ethane d-4	Toluene d-8	Bromofloro benzene
11/03/93	BLANK	76	111	93
11/03/93	10-7828-93	63	108	63
11/03/93	10-7829-93	87	118	122
11/03/93	10-7743SPK	77	103	104
11/03/93	10-7743SPKDUP	66	89	63

C1-143

CARR LABORATORIES

CHAIN OF CUSTODY RECORD

Client CESAS — Project No. FST-003

Contact Tom Nicholson — Phone No. 912-652-5312

Address PO Box 889, Sta, Ga 31402 — Fax No. 912 652-5311

Collected By Judson Smith — Client P.O.# _____

MT (Matrix Type)	AP (Analytical Program)
L=Liquid	W=Wastewater
S=Soil	G=Groundwater
O=Oil	D=Drinking Water
X=Other	S=Solid/Haz. Waste
	N=Nonregulated

Carr's Lab No.	Sample Source	Location	Date/Time	Well	Grab	Composite	MT	AP	Number of Containers	Preserved Y or N	Analyses Requested
											11-7828 93
FST-003-SS-10 93	Ft Stewart	FST-003	10/28/93/13 35		X		S		3	N	pH, SPC, 8240 VOC, RCRA METALS, PEST/PCB
FST-003-SS-DUP-10 93	Ft Stewart	FST-003	10/28/93/13 35		X		S		3	N	8240 VOC, RCRA METALS, PEST/PCB 7829

Relinquished By	Received By	Date	Time
1.		10/28 11/1/93	0800
2.		11/1/93	1445
3.			
Received In Lab By		11-1-93	1445

JAMES H. CARR & ASSOCIATES, INC.
Office and Laboratories
P.O. Box 90209
Columbia, South Carolina 29290
(803) 776-7789 Fax: 783-2192

Temp of vial = 2.7°C ice melted

541-145

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the Phase I investigation (analytical results did not indicate a release had occurred, analytical results indicated concentrations were below the GAEPD guidelines and/or the site was never used), no further action is recommended at the following sites:

- SWMU4G(FST-004G) Burn Pit
- SWMU24A(FST-024A) New Radiator Shop
- SWMU27(FST-027) DOL Maintenance Motor Pool
- SWMU28(FST-028) 724th Battery Shop
- SWMU30(FST-030) Recirculating Wash Impoundment "Bird Bath"
- SWMU33(FST-033) DEH Pesticide Warehouse

Continued monitoring is recommended at SWMU20(FST-020) Wright Army Airfield Sewage Disposal Beds (Land Spray Application and Lagoon) in accordance with the NPDES permit.

Based on the Phase I results of the soil and ground-water analytical data and the exposure pathways analyses, a Phase II investigation is recommended at the following sites:

- SWMU1(FST-001) South Central Landfill
- SWMU2(FST-002) Camp Oliver Landfill
- SWMU3(FST-003) TAC-X Landfill
- SWMU4(FST-004) Burn Pits A through F
- SWMU9(FST-009) Inactive EOD Area
- SWMU10(FST-010) Inactive EOD Area
- SWMU11(FST-011) Inactive EOD Area
- SWMU12(FST-012) Active EOD Area
- SWMU14(FST-014) Old Fire Training Area
- SWMU17(FST-017) DRMO Hazardous Waste Storage Area
- SWMU18(FST-018) Industrial Wastewater Treatment Plant
- SWMU19(FST-019) Old Sludge Drying Beds

- SWMU24A(FST-024A) Old Radiator Shop
- SWMU24B(FST-024B) Paint Booth
- SWMU25(FST-025) Waste Oil Tanks (All 15 sampled tanks and the tanks that failed the tank tightness test)
- SWMU26(FST-026) 724th Tanker Purging Station
- SWMU27(FST-027) Motor Pools (All motor pools with oil/water separators)
- SWMU29(FST-029) Evans Army Heliport POL Storage Facility
- SWMU31(FST-031) DEH Asphalt Tanks
- SWMU32(FST-032) Supply Diesel Tank
- SWMU34(FST-034) DEH Equipment Wash Rack

RUST E&I recommends that a Phase II RFI Work Plan be prepared for the previously noted SWMUs at Fort Stewart. The Phase II RFI Work Plan will document procedures to be utilized for RCRA investigations at each of the SWMUs. Prior to initiation of Phase II field activities, the Phase II RFI Work Plan must meet GAEPD approval. The Phase II field investigations will include monitoring well installation, soil sampling and soil permeability testing, ground-water sampling, horizontal and vertical extent of contamination, ground-water flow rate calculations, map preparation, data quality objectives for risk assessment needs and any requirements that the GAEPD recommends.

Upon completion of Phase II field activities, a Phase II RFI Report will be submitted to the GAEPD that summarizes the results of all work completed. The results of the Phase II investigations will be evaluated along with the results of the Phase I investigations to confirm if Corrective Measure Studies (CMS) are warranted.