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MCRD PARRIS ISLAND
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INTERIM RESOURCE CONSERVATION AND RECOVERY ACT FACILITY ASSESSMENT
WITH TRANSMITTAL LETTER MCRD PARRIS ISLAND SC
4/4/1990
A T KEARNEY INC

AT Kearney, Inc.
277 South Rhoads, Tallahassee, Florida
32304
Telephone 904 644 1434-2350

Management
Consultants

ATKEARNEY

April 4, 1990

Ms. Rowena Sheffield
U.S. Environmental Protection Agency
Regional Project Officer
Region IV
4400 Peachland St., N.E.
Atlanta, Georgia 30365

Reference: EPA Contract No. 68-W9-0040; Work Assignment No. R04-05-08; United States Marine Corps Recruit Depot, Parris Island, South Carolina; EPA I.D. No. SC6170022762; Interim RCRA Facility Assessment Report; Final Deliverable

Dear Ms. Sheffield:

Enclosed please find the Interim RCRA Facility Assessment Report for the above-referenced facility. This report presents the results of the Preliminary Review (PR) and the Visual Site Inspection (VSI). The RFA resulted in the identification of 44 SWMUs and four AOCs. There is documented soil contamination resulting from past management practices conducted at this facility. An RFI is suggested for nine SWMUs and one AOC.

These units are:

- Incinerator Landfill (SWMU 1) *site 1*
- Borrow Pit Landfill (SWMU 2) *site 2*
- Causeway Landfill (SWMU 3) *site 3*
- Dredge Spoils Fire Training Pit (SWMU 4) *site 4*
- Former Automotive Hobby Shop (SWMU 6) *site 6*
- * - Inert Disposal Area B (SWMU 12) *site 13*
- Pesticide Rinsate Disposal Area (SWMU 16) *site 16*
- Page Field Tanks (AS-16) (SWMU 17) *site 17*
- Page Field Tanks (AS-18) (SWMU 18) *site 18*
- MCX Service Station (AOC D) *site 19*

Ms. Rowena Sheffield
April 4, 1990
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Phase II Sampling or verification of the integrity is suggested for thirteen SWMUs.

These units are:

- Former Paint Shop Disposal Area (SWMU 5) *site 5*
- Page Field Fire Training Pit (SWMU 7) *site 7*
- MCX Service Station Spill Area (SWMU 9) *site 11*
- Jericho Island Disposal Area (SWMU 10) *site 12*
- Inert Disposal Area A (SWMU 11) *site 13*
- Inert Disposal Area C (SWMU 13) *site 13*
- Storm Sewer System (SWMU 14) *site 14*
- Dirt Roads (SWMU 15) *site 15*
- Weapons Power Plant Oil/Water Separator (SWMU 21)
- Equipment Parade Deck SAA (SWMU 27)
- Power Station SAA (SWMU 28)
- DRMO Salvage Yard (SWMU 35)
- Underground Waste Oil Tank (SWMU 38)

Two SWMUs and two AOCs could not be viewed during the VSI. The Jericho Island Disposal Area (SWMU 10) is only accessible by air and boat and the road leading to the Inert Disposal Area B (SWMU 12) was impassable. Facility representatives could not identify the exact locations of the PCB Spill Area B (AOC B) and the Gasoline Spill Area (AOC C).

Please feel free to call me or Jeff Evans, the Kearney Team Work Assignment Manager (who can be reached at 703/548-4700), if you have any questions.

Sincerely,

Greg M. Terdich
for

Ann L. Anderson
Technical Director

Enclosure

cc: E. Ponton, EPA Region IV
A. Glazer
L. Poe
G. Bensusky (w/o enc)
A. Williams (w/o enc)
G. Kline, MRI

**INTERIM
RCRA FACILITY ASSESSMENT**

of

**UNITED STATES MARINE CORP (USMC), RECRUIT DEPOT
PARRIS ISLAND, SOUTH CAROLINA**

EPA I.D. NO. SC6170022762

PREPARED FOR:

**MS. ROWENA SHEFFIELD
REGIONAL PROJECT OFFICER
U.S. EPA, REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GA**

PREPARED BY:

**A.T. KEARNEY, INC.
222 S. RIVERSIDE PLAZA
CHICAGO, IL 60606**

IN RESPONSE TO:

**EPA CONTRACT NO. 68-W9-0040
WORK ASSIGNMENT NO. R04-05-08**

APRIL 1990

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I. EXECUTIVE SUMMARY

An Interim RCRA Facility Assessment (RFA) was performed during January 1990 - March 1990 at the of the U.S. Marine Corp Recruit Depot (MCRD) facility located on Parris Island, South Carolina, EPA I.D. No. SC6170022762. The RFA is based on a preliminary review (PR) of U.S. EPA Region IV and South Carolina Department of Health and Environmental Control (SCDHEC) files and a visual site inspection (VSI).

The focus of the RFA was on the identification of solid waste management units (SWMUs) and other potential sources of environmental contamination not necessarily involving wastes (other areas of concern-AOCs) and an evaluation of the potential for release of hazardous waste or hazardous constituents from the respective units and areas.

The Hazardous and Solid Waste Amendments (HSWA) of 1984 expand the scope of the U.S. Environmental Protection Agency's (EPA) authority under the Resource Conservation and Recovery Act (RCRA) to require corrective action for the release of hazardous waste or hazardous constituents from SWMUs at those facilities that seek a RCRA permit. EPA's corrective action authority applies to all SWMUs and AOCs that have the potential to release hazardous waste or hazardous constituents to the environment.

The first phase of the Corrective Action Program established by the EPA involves the performance of a RCRA Facility Assessment (RFA). The RFA includes a Preliminary Review (PR), during which information concerning the facility is reviewed and a preliminary list of SWMUs and AOCs is developed. The PR is followed by a Visual Site Inspection (VSI), which consists of a site visit where SWMUs and AOCs are assessed to determine the potential for release of hazardous wastes or hazardous constituents to the environment. Pending results of the VSI, a Sampling Visit may be performed to further evaluate hazardous waste or hazardous constituent releases to the environment. This document summarizes the results of the Preliminary Review and Visual Site Inspection conducted for the MCRD facility.

MCRD is located along the southeast coast of South Carolina, approximately 30 miles northeast of Savannah, Georgia. Parris Island is one of the several barrier islands utilized by the MCRD. The facility consists of 8,047 acres. There are 3,274 acres of dry land at the facility located on Parris, Horse, Dodge, Jericho, Goat, Gibbs, and Red Bug Islands. An additional 4,344 acres are salt marshes, and the remaining 429 acres are tidal ponds and streams. Commercial and recreational finfish and shellfish activities are conducted in the vicinity of the base, and the surrounding area provides habitats for some endangered species such as the Eastern Brown Pelican and the Eskimo curlew.

MCRD provides for the reception and training of enlisted Marine Recruits. As a result of the training and support activities, MCRD generates used oil, rags with solvents, paint waste, medical wastes, and empty pesticide containers. Perchloroethylene still bottoms generated at the Laundry Plant represent the largest quantity of hazardous waste (5,000 - 6,000 gallons/year) generated at the facility. Present waste management practices at MCRD consist of wastes contained in drums, staged at various satellite accumulation areas, and transferred to the central Hazardous Waste Storage Building (SWMU 36) prior to off-site disposal by Safety Kleen. The facility withdrew their Part A application for the Hazardous Waste Storage Building (SWMU 36) and submitted a closure plan which was approved by SCDHEC on October 31, 1989. The facility has not received a certification of closure.

A past waste and hazardous materials management survey was conducted for MCRD via the Naval Installation and Restoration Program (NIRP). The NIRP consists of six steps or phases. Phase I is a review of available information concerning past practices, followed by a site inspection (Phase II). Phases I and II correspond to the Initial Assessment Study (IAS). The IAS for MCRD was conducted in 1986, and 16 sites were identified. Sampling may be conducted during Phase III. Site characterization and site selection for remediations are conducted during Phase IV. Phases III and IV correspond to the Remedial Investigation (RI). An RI was performed for the Navy by McClelland Engineers during 1988. The RI identified three additional sites, and recommend seven sites for further study. Remedial activities are selected during Phase V and executed in Phase VI.

A total of 44 SWMUs and four AOCs were identified at MCRD as a result of the PR and VSI. The SWMUs and AOCs identified include the sites identified in the IAS and RI reports. The NIRP site numbers have been incorporated in the SWMU or AOC names.

The NIRP sites identified by the IAS and RI reports are as follows (with corresponding SWMU or AOC designations).

- Site 1 Incinerator Landfill (SWMU 1)
- Site 2 Borrow Pit Landfill (SWMU 2)
- Site 3 Causeway Landfill (SWMU 3)
- Site 4 Dredge Spoils Fire Training Pit (SWMU 4)
- Site 5 Former Paint Shop Disposal Area (SWMU 5)
- Site 6 Former Automotive Hobby Shop Spill Area (SWMU 6)
- Site 7 Page Field Fire Training Pit (SWMU 7)
- Site 8 PCB Spill Areas (AOCs A and B)
- Site 9 Paint Waste Storage Area (SWMU 8)
- Site 10 Gasoline Spill Area (AOC C)
- Site 11 MCX Service Station Spill Area (SWMU 9)
- Site 12 Jericho Island Disposal Area (SWMU 10)

Site 13 Inert Disposal Areas (SWMUs 11, 12, 13)
Site 14 Storm Sewer Outfalls (SWMU 14)
Site 15 Dirt Roads (SWMU 15)
Site 16 Pesticide Rinsate Disposal Area (SWMU 16)
Site 17 Page Field Tanks (AS-16) (SWMU 17)
Site 18 Page Field Tanks (AS-17) (SWMU 18)
Site 19 MCX Service Station (AOC D)

Sites 1, 2, 4, 6, 16, 17 and 19 have been selected for remediation by the NIRP. In addition, the RFA report recommends further action for Sites 3, 5, 7, 9, 10, 13, 15 and 17. Further action includes Phase II sampling, integrity testing and subsequent Phase II sampling if the integrity is impaired.

Due to documented contamination resulting from past management practices, RFIs are suggested for the following SWMUs and AOC.

Incinerator Landfill (Site 1) (SWMU 1)
Borrow Pit Landfill (Site 2) (SWMU 2)
Causeway Landfill (Site 3) (SWMU 3)
Dredge Spoils Fire Training Area (Site 4) (SWMU 4)
Former Automotive Hobby Shop Spill Area (Site 6) (SWMU 6)
Inert Disposal Area B (Site 13) (SWMU 12)
Pesticide Rinsate Disposal Area (Site 16) (SWMU 16)
Page Field Tanks (AS-16) (SWMU 17) (Site 17)
Page Field Tanks (AS-18) (Site 18) (SWMU 18)
MCX Service Station (Site 19) (AOC D)

Other SWMUs requiring Phase II sampling include the Equipment Parade Deck (SWMU 27), the Power Station Satellite Accumulation Area (SAA) (SWMU 28), and the DRMO Salvage Yard (SWMU 35).

Integrity testing is suggested for the Storm Sewer System (SWMU 14), the Underground Waste Oil Tank (SWMU 38), the Sanitary Sewer System (SWMU 42) and the Motor Pool Underground Waste Oil Tank (SWMU 43). Phase II sampling may be required if the integrity is impaired. In addition, it is recommended the tanks be excavated and removed. Refer to Table 1, Executive Summary Table 1, for a synopsis of the recommendation for all SWMUs and AOCs identified at MCRD.

Two SWMUs and two AOCs were not observed during the VSI. Jericho Island (Site 12-SWMU 10) is only accessible by air or boat. The Inert Disposal Area B (Site 13-SWMU 12) could not be observed due to impassable roads. The exact location of the PCB Spill Area B (Site 8) (AOC B) and the Gasoline Spill Area (Site 10) (AOC C) could not be identified by facility personnel.

MCRD maintains the Daylight Infiltration Course to simulate combat situations. The three-and-one-half-acre site is located at Page Field in the south section of the facility. As part of the course, one-quarter-pound Trinitrotoluene (TNT) demolition

blocks are detonated in sand bankers. Analysis of groundwater samples did not indicate TNT or RDX (cyclonite). However, analysis of soil samples indicated 0.2 to 81 ppm TNT and 306 to 890 ppm RDX. According to the survey, the levels detected in the media samples do not suggest the soils are reactive.

TABLE I-1
EXECUTIVE SUMMARY TABLE

SWMU/AOC	Type of Unit	Years in Operations	Waste Managed	Pollutant Migration Pathways (GW, SW, S.A, SG)	Evidence of Release	Exposure ¹ Potential	Need for Interim Measures	Recommendation		
								RFI	No Further Action	Further Action
1 Incinerator Landfill (Site 1)	Unlined Landfill	1921 to 1965	Domestic refuse, incinerator trash, diesel fuel, methylene chloride, mineral spirits, PCBs, pentachlorophenol perchloroethylene still bottoms	SW, S, GW, SG	Yes	L-M	--	X	--	--
2 Borrow Pit Landfill (Site 2)	Unlined Landfill	1966 to 1968	Domestic refuse, methylene chloride, perchloroethylene, still bottoms, PCBs	SW, S, GW, SG	Yes	L-M	--	X	--	--
3 Causeway Landfill (Site 3)	Unlined Landfill	1960 to 1966 and 1968 to 1972	Domestic refuse, perchlorethylene still bottoms, PCBs	SW, S, GW, SG	Yes	L-M	--	X	--	--
4 Dredge Spoils Area Fire Training Pit (Site 4)	Unlined Pit	1940s to Mid-1960s	Flammable liquids including kerosene, gasoline, varsol, mineral spirits	SW, S, GW	Yes	L	--	X	--	--
5 Former Paint Shop Disposal Area (IAS Site 5)	Waste Pile	1930s to 1960s	Diesel fuel, kerosene, linseed, oil, zinc, white lead	SW, S, GW	Yes	L	--	--	--	x ²
6 Former Auto-motive Hobby Shop Spill Area (Site 6)	Underground Tank	1969 to 1982	Waste oil	SW, S, GW	Yes	L	--	X	--	--
7 Page Field Training Pit (Site 7)	Fire Training Pit	Mid-1960s to 1976	Fuel or Fuel/Waste Oil Mixtures	SW, S, GW	Yes	L	--	--	--	x ²
8 Paint Waste Storage Area (Site 9)	Unlined Staging Area	1969 to 1984	Kerosene, Diesel Fuel, Mineral Spirits, Methylene Chloride	SW, S, GW	Yes	L	--	--	--	x ⁷

¹ designates a moderate, L designates low, and H designates a high exposure potential; see SWMU Description for substantiation

²RFA Phase II sampling suggested

³Integrity testing suggested

⁴Curbing the unit is suggested

⁵This unit presently is undergoing closure activities coordinated under the State and Federal agencies.

⁶Designates that it is unknown

⁷Provide documentation demonstrating effectiveness of remediation

TABLE I-1
(continued)

EXECUTIVE SUMMARY TABLE

SWMU/AOC	Type of Unit	Years in Operations	Waste Managed	Pollutant Migration Pathways (GW, SW, S, A, SG)	Evidence of Release	Exposure ¹ Potential	Need for Interim Measures	Recommendation		
								RFI	No Further Action	Further Action
9. MCX Service Station Spill Area (IAS Site 11)	Underground Tank	1969 to 1983	Waste oil	SW, S, GW	Yes	U	--	--	--	x ³
10. Jericho Island Disposal Area (Site 12)	Unlined Waste Piles	1955 to 1968	Domestic refuse, and possibly hazardous constituents	SW, S, GW	Yes	L	--	--	--	x ²
11. Inert Disposal Area A (Site 13)	Unlined Landfill	1979 to Present	Inert construction debris and yardwaste	S, GW	No	L	--	--	--	x ²
12. Inert Disposal Area B (Site 13)	Unlined Landfill	1976 to 1979	Inert construction debris	SW, S, GW	No	L	--	X	--	--
13. Inert Disposal Area C (Site 13)	Unlined Landfill	1976 to Present	Contaminated with soils from Dredge Spoils Fire Training Pit (Site 4) (SWMU 4)	SW, S, GW	Yes	L	--	--	--	x ²
14. Storm Sewer System (Site 14)	Underground Pipe System	1918 to Present	Carbon tetrachloride, neutralized battery acid, X-ray fixer	SW, S, GW	Yes	L	--	--	--	x ³
15. Dirt Roads (Site 15)	Roadways	1941 to 1966	Waste oil, kerosene, gasoline, hydraulic fluids	SW, S, GW	No	L	--	--	--	x ²
16. Pesticide Rinsate Disposal Area (Site 16)	Unlined Spill Area	1950 to 1978	Pesticides including chlordane and DDT	SW, G, GW	Yes	L	--	X	--	--

¹H designates a moderate, L designates low, and H designates a high exposure potential; see SWMU Description for substantiation

²RFA Phase II sampling suggested

³Integrity testing suggested

⁴Curbing the unit is suggested

⁵This unit presently is undergoing closure activities coordinated under the State and Federal agencies.

⁶Designates that it is unknown

⁷Provide documentation demonstrating effectiveness of remediation

TABLE I-1
(continued)

EXECUTIVE SUMMARY TABLE

SWMU/AOC	Type of Unit	Years in Operations	Waste Managed	Pollutant Migration Pathways (GW, SW, S, A, SG)	Evidence of Release	Exposure ¹ Potential	Need for Interim Measures	Recommendation		
								RFI	No Further Action	Further Action
17. Page Field Tanks (AS-16) (Site 17)	Underground Tanks	In place since 1942	AVGAS	SW, S GW, SG	Yes	L	--	X	--	--
18. Page Field Tanks (AS-17) (Site 18)	Underground Tank	In place since 1942	AVGAS	SW, S GW, SG	Yes	U	--	X	--	--
19. Diesel Shop Vehicle Washing Pad	Concrete Pad and Oil/Water Separator	1988 to Present	Grease, oil, gasoline/diesel	--	No	L	--	--	X	--
20. Power Station Oil/Water Separator	Inground Tank	1982 to Present	Waste oil	SW	No	L	--	--	X	--
21. Weapons Power Plant Oil/Water Separator	Inground Tank	1980 to Present	Waste oil	SW	No	L	--	--	--	X ¹⁰
22. Motor Transport Car Wash	Vehicle Wash Building and Oil/Water Separator	1980 to Present	Oil/grease, diesel/gasoline	--	No	L	--	--	X	--
23. Indoor Dental Lab SAA	Satellite Accumulation Area	1987 to Present	X-Ray Fixer, Beryllium	--	No	L	--	--	X	--

H designates a moderate, L designates low, and H designates a high exposure potential; see SWMU Description for substantiation

¹RFA Phase II sampling suggested

²Integrity testing suggested

³Curbing the unit is suggested

⁴This unit presently is undergoing closure activities coordinated under the State and Federal agencies.

⁵Designates that it is unknown

⁶Provide documentation demonstrating effectiveness of remediation

⁷Relocating scrap collection area to either a curbed concrete pad or is an appropriate container

⁸Continue assessment under State UST Program

⁹Periodic testing of the effluent is suggested.

TABLE I-1
(continued)

EXECUTIVE SUMMARY TABLE

SWMU/AOC	Type of Unit	Years in Operations	Waste Managed	Pollutant Migration Pathways (GW, SW, S.A, SG)	Evidence of Release	Exposure ¹ Potential	Need for Interim Measures	Recommendation		
								RFI	No Further Action	Further Action
24. Dental Lab SAA	Satellite Accumulation Area	1988 to Present	Medical waste	--	No	L	--	--	X	--
25. Paint Shop SAA	Satellite Accumulation Area	1984 to Present	Paint thinners and strippers	--	No	L	--	--	X	--
26. Pesticide SAA	Satellite Accumulation Area	Approx. 1980 to present	Empty pesticide containers	--	No	L	--	--	X	--
27. Equipment Parade Deck	Satellite Accumulation Area	U	Inactive fuel storage tanks, transformers	SW, S, GW	No	L	--	--	--	x ²
28. Power Station SAA	Satellite Accumulation Area	1988 to Present	Soil contaminated with No. 6 fuel oil and kerosene spillage	SW, S, GW	Yes	L	--	--	--	x ²
29. Indoor Motor Pool SAA	Satellite Accumulation Area	1988 to Present	Brake drums, asbestos, empty solvent cans	--	No	L	--	--	X	--
30. Empty Drum Storage Area	Staging Area	1989 to Present	Empty drums that previously contained oils and hazardous constituents	--	No	L	--	--	X	--
31. Weapons Power Plant SAA	Satellite Accumulation Area	1988 to Present	Waste oils	--	No	L	--	--	X	--

H designates a moderate, L designates low, and H designates a high exposure potential; see SWMU Description for substantiation

RFA Phase II sampling suggested

Integrity testing suggested

Curbing the unit is suggested

This unit presently is undergoing closure activities coordinated under the State and Federal agencies.

Designates that it is unknown

Provide documentation demonstrating effectiveness of remediation

TABLE I-1
(continued)

EXECUTIVE SUMMARY TABLE

SWMU/AOC	Type of Unit	Years in Operations	Waste Managed	Pollutant Migration Pathways (GW, SW, S.A.,SG)	Evidence of Release	Exposure ¹ Potential	Need for Interim Measures	Recommendation		
								RFI	No Further Action	Further Action
2. Laundry SAA	Satellite Accumulation Area	1957 to Present	Perchloroethylene still bottoms	--	No	L	--	--	X	--
3. Outdoor Motor Pool SAA	Satellite Accumulation Area	1988 to Present	Waste oil	--	No	L	--	--	X	--
4. Motor Pool Waste Oil Tank	Above-ground Tank	1982 to 1988	Waste oil	--	No	L	--	--	X	--
5. DRMO Salvage Yard	Staging Area	1964 to Present	Scrap metal, batteries, surplus items	S, SW, GW	Yes	L	--	--	--	X ²
6. Hazardous Waste Storage Building	RCRA Regulated Facility	1984 to Present	Perchloroethylene, still bottoms, liquid paint waste, waste oil, PCBs, rags contaminated with solvents	--	No	L	--	--	X	--
17. Overflow Storage Pad	Staging Area	1984 to Present	Liquid paint waste, waste oil, perchloroethylene still bottoms	--	No	L	--	--	X	--
18. Underground Waste Oil Tank	Below-ground Tank	1970s to Present	Waste oils	SW, S, GW	No	L	--	--	--	X ³
19. Electrolyte Basin	Sink	1974 to 1989	Neutralized battery acid	--	No	L	--	--	X	--

¹ designates a moderate, L designates low, and H designates a high exposure potential; see SWMU Description for substantiation

²FA Phase II sampling suggested

Integrity testing suggested

Curbing the unit is suggested

This unit presently is undergoing closure activities coordinated under the State and Federal agencies.

Designates that it is unknown

³provide documentation demonstrating effectiveness of remediation

TABLE I-1
(continued)

EXECUTIVE SUMMARY TABLE

SWMU/AOC	Type of Unit	Years in Operations	Waste Managed	Pollutant Migration Pathways (GW, SW, S, A, SG)	Evidence of Release	Exposure ¹ Potential	Need for Interim Measures	Recommendation		
								RFI	No Further Action	Further Action
0. Sanitary Wastewater Treatment Plant	Treatment Unit	1947 to Present	Domestic sewage, cooling tower and boiler blowdown, demineralized regenerant	SW	No	L	--	--	X	--
1. Former Incinerator	Treatment Unit	1921 to 1959	Domestic refuse, paint solids	--	No	L	--	--	X	--
2. Sanitary Sewer System	Underground Pipe System	1918 to Present	Domestic sewage, cooling tower blowdown, neutralized battery acid, effluent from oil/water separators	--	No	L	--	--	--	X ³
3. Motor Pool Underground Waste/Oil Tank	Below-ground Tank	Inactive Since 1982	Waste oil	SW, S, GW	No	U	--	--	--	X ³
14. Dumpsters	Self-contained rolloff boxes	1960s to Present	Domestic refuse	--	No	L	--	--	X	--
A. PCB Spill Area A (Site 8)	Spill	1984	PCB oil	SW, S, GW	Yes	L	--	--	--	X ²
B. PCB Spill Area B (Site 8)	Spill	1983	PCB oil	SW, S, GW	No	L	--	--	--	X ²
C. Gasoline Spill Area (Site 10)	Spill	1983	Gasoline	SW, S, GW	No	L	--	--	--	X ²
D. MCX Service Station (Site 19)	Below-ground tanks	Approximately 1970s to 1985	Gasoline	SW, S, GW, SG	Yes	L	--	X	--	--

¹ designates a moderate, L designates low, and H designates a high exposure potential; see SWMU Description for substantiation
 RFA Phase II sampling suggested
 Integrity testing suggested
 Curbing the unit is suggested
 This unit presently is undergoing closure activities coordinated under the State and Federal agencies.
 Designates that it is unknown
 Provide documentation demonstrating effectiveness of remediation

II. INTRODUCTION

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) authorized EPA to require corrective action for releases of hazardous wastes and/or hazardous constituents from solid waste management units (SWMUs) and other Areas of Concern (AOCs) at all operating, closed or closing RCRA facilities. The intention of this authority is to address previously-unregulated releases to air, surface water, soil and groundwater, and generation of subsurface gas. The first phase of the corrective action program, as established by EPA, is development of a RCRA facility assessment (RFA). The RFA includes a Preliminary Review (PR) of all available relevant documents, a Visual Site Inspection (VSI) and, if appropriate, a Sampling Visit (SV).

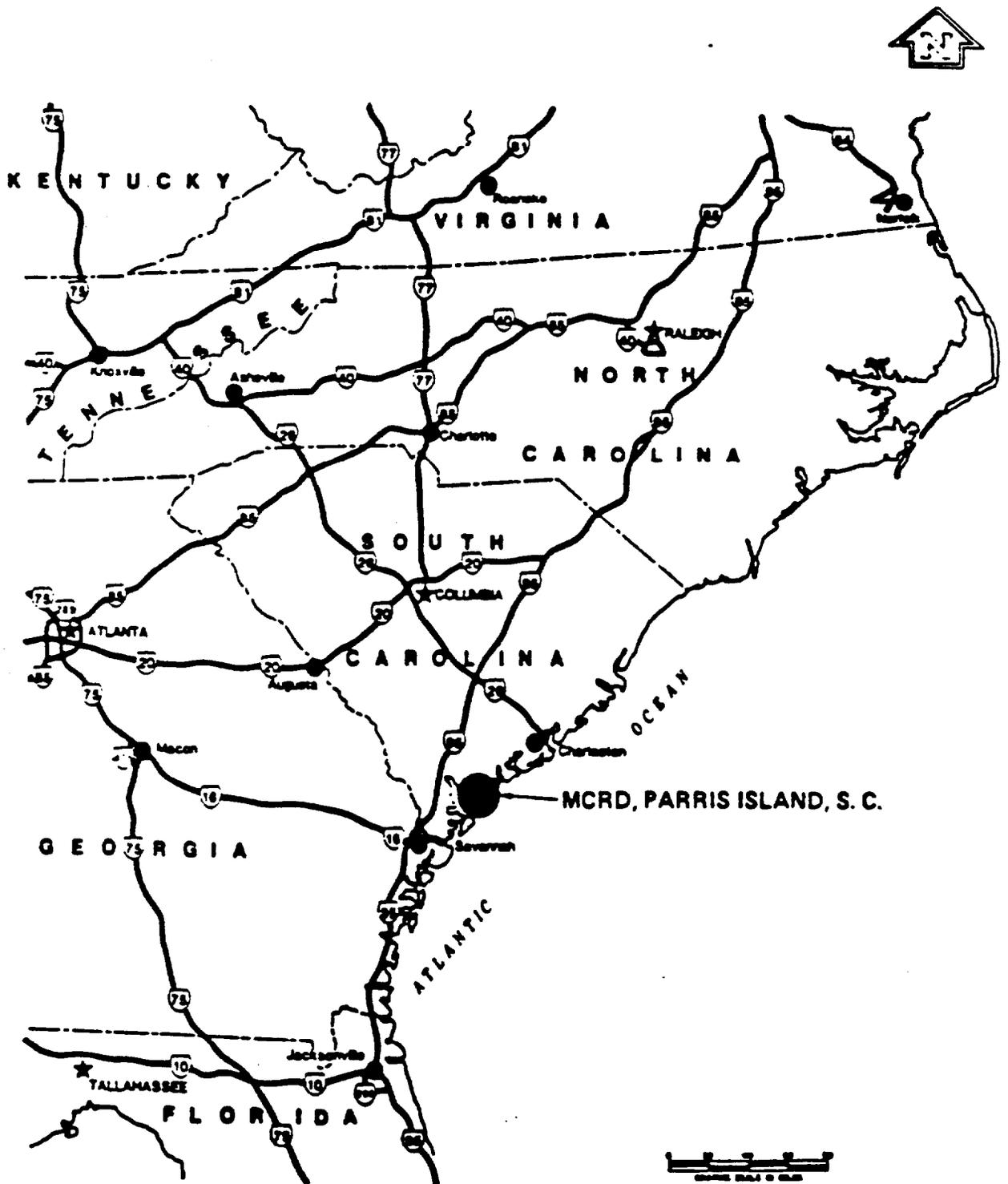
The U.S. Marine Corps Recruit Depot (MCRD) is located in Parris Island, Beaufort County, South Carolina approximately 30 miles northeast of Savannah, Georgia (See Figure 1). The facility is the Induction and Basic Training Center for male recruits, from the East Coast and for all female recruits.

This report summarizes the results of the file review conducted during January 1990 and the VSI conducted on February 1, 1990. A total of 44 SWMUs and four AOCs were identified during the VSI. These units manage such wastes as waste oil, dental waste, domestic wastewaters, paint wastes, solvents, medical wastes and fuels. This chapter provides the facility background, an environmental description, and a discussion of the waste management practices conducted at the MCRD. Chapter III describes the individual SWMUs identified at the facility. The tables in Chapter IV provide a list of SWMUs and AOCs, a list of units requiring no further action, a list of units that are RCRA-regulated, a list of SWMUs requiring Phase II-Sampling and a list of unit requiring an RFI. Suggested sampling strategies are described in Chapter V. A map showing the approximate locations of the SWMUs is presented in Appendix A. Appendix B is the VSI field log. A photograph log is presented in Appendix C.

File Search and VSI

This RFA report is based on a review of the file material available at EPA Regional and State offices, and on observations made during the VSI. The file review was conducted during January 1990 and included a review of RCRA, CERCLA, AIR and NPDES files available at EPA Region IV, Atlanta, Georgia, and the South Carolina Department of Health and Environmental Control (SCDHEC), Columbia, South Carolina. The VSI was conducted on February 1, 1990 at the U.S. MCRD Parris Island Facility SC6170022762 in Beaufort County, South Carolina.

Figure 1



Location of the MCRD facility in South Carolina (Reference 2)

The Kearney VSI team arrived at the MCRD Parris Island at approximately 8:20 a.m. on February 1, 1990. The Team was greeted by facility representatives Johnsie Nabors and Gary Dukes, and the meeting was conducted in Ms. Nabors office in the northeast section of the facility.

The VSI kickoff meeting began at approximately 8:30 a.m. The following people attended the meeting:

J. Nabors	MCRD Parris Island
G. Dukes	MCRD Parris Island
R. Berry	SCDHEC
J. Evans	A.T. Kearney Centaur Division
A. Lesueur	A.T. Kearney

The facility representatives presented the VSI team with a half-hour presentation of the facility and its activities. The presentation was followed by confirming the presence of SWMUs and addressing the informational needs specified in the VSI notification letter. The kickoff meeting adjourned at approximately 9:45 a.m. After the meeting, the VSI team viewed the SWMUs beginning in the northwest section of the Depot, beginning with the Incinerator Landfill (SWMU 1), the Borrow Pit Landfill (SWMU 2), the Inert Disposal Area (SWMU 13) and the DMRO Salvage Yard (SWMU 35). The temperature was approximately 50°Fahrenheit and skies were moderately sunny. The VSI team broke for lunch at approximately 12 noon. At approximately 1:00 p.m. the team continued the VSI of the facility viewing Page Field and the Satellite Accumulation Areas (SAA). The weather was partly cloudy and the temperature was approximately 70°F. Following the afternoon tour, the team returned to Johnsie Nabor's office for a brief meeting to determine if the team had viewed all the SWMUs and IAS sites. Four areas could not be viewed during the VSI. Facility representatives could not locate the PCB Spill Area B (AOC B) and the Gasoline Spill Area (AOC C). In addition, two SWMUs could not be viewed due to their remote location. Jericho Island Disposal Area (SWMU 10) is only accessible by aircraft or boat, and the road to the Inert Disposal Area B (SWMU 12) was impassible. After the meeting the team viewed a PCB Spill Area identified by the IAS report. The team left the facility at approximately 5:30 p.m. The temperature was approximately 60°F and it had started to rain.

Facility History

MCRD is located in Beaufort County, South Carolina approximately 30 miles northeast of Savannah, Georgia and its prime objective

is to train Marine recruits in the tactics used to defend the United States. Adjacent to Parris Island are several neighbor islands; they include Horse Island, Jericho Island, Doggie Island, Goat Island, Gibbs Island, and Red Bug Island. Parris Island is the largest island and is the location of the majority of activities conducted at the facility. In 1929 the Pollock Memorial Bridge was constructed to connect Parris Island to the mainland. Prior to that date, access to the facility was by boat (Reference 2 and 34).

The depot occupies a total of 8,034 acres of which 4,773 acres are included within marsh areas, creeks, and ponds. The installation is bounded on the east by the Beaufort River, south-southwest by the Broad River and Port Royal Sound, and north-northwest by Archers Creek. The Beaufort River at this location forms a portion of the Intracoastal Waterway. The topography is generally low and flat, with land elevation ranging from seven to twenty feet above mean sea level.

A Navy station was established by the United States at Parris Island in 1893. Previous facility history consisted of various colonial settlements and plantations. A dry dock was constructed in 1893 and was used for ship maintenance for approximately 30 years. In 1915 the site was transferred to the U. S. Marine Corps and, since that time, has remained a recruit training depot. The facility was expanded during World War I and remained unchanged until additional expansion took place as a result of WW II. However a small air station (Page Field) was established in 1932. Page Field was deactivated in 1946. The time during the Korean and Vietnam Wars were the most active periods of the facility's history due to increased troop training activities.

In October 1969 the Department of Interior submitted the Report on Waste Disposal Practices at the MCRD. The report identified the presence of several fuel tanks, septic systems, the Sanitary Wastewater Treatment Plant (SWMU 40), and the Outfalls (Site 14). There are 60 outfalls at MCRD (Reference 29).

In December 1979 the facility submitted Notification of Hazardous Waste Activity and estimated that 250,000 pounds per year of hazardous waste were stored. Hazardous waste activities identified in the notification included ordnance storage, pest control, paint and other shops, the dental clinic and fuel storage. The facility submitted a Part A permit application on November 11, 1980 (Reference 5).

In a compliance inspection conducted in 1984, the facility was found in violation of Interim Status. Deficiencies noted in that inspection included insufficient container management, waste analysis plan, and inspection records. A follow-up inspection was conducted in April 1985 to verify correction of previous deficiencies. The facility had not made the corrections and

SCDHEC issued a Notice of Violation (NOV) and a proposed administrative consent order. During a conference held May 1985 to discuss the violations cited in the NOV, the MCRD provided evidence of the corrected deficiencies. In July of 1985 a revised Part A application was submitted with the corrected waste activities for the MCRD. By then the facility no longer stored F001, F006 and leaded paint waste; instead, it only stored D001 paint waste with solvents. A modified consent order was sent to the facility requesting a revised Part A application, and they were assessed a penalty (Reference 9). The revised Part A permit application included an annual estimated generation of 14,000 pounds of D001, 50 pounds of P015, 1000 pounds of D002, 300 pounds of D009, and 30 pounds of D003 wastes. The application also included 90,000 pounds of mixed paints (8888) and waste oil (6666) (Reference 30).

On June 26, 1986, EPA conducted an Interim Status Inspection at the MCRD and observed a perchloroethylene still bottoms drum unsecured outside the laundry building. On September 15, 1986 a follow-up inspection was conducted and all deficiencies were corrected (Reference 24).

During September 1987 the USEPA conducted a lead inspection at the MCRD. After the inspection, the following deficiencies were noted: perchloroethylene drums were not properly labeled, and the part A permit application had not properly identified the waste streams on-site (Reference 24 and 27).

Revised Part A permit applications submitted in 1987 and 1988 included the Overflow Storage Pad (SWMU 37) and the Hazardous Waste Storage Building (SWMU 36) (Reference 30). The waste oil tanks were removed from the application after waste oil was delisted in 1989. The facility withdrew its Part A application in 1989 seeking less-than-90-day storage and submitted a Closure Plan for the Hazardous Waste Storage Building (SWMU 36). The Closure Plan was approved on October 31, 1989 (Reference 14 and 34).

The facility was issued NPDES permit No. SC0002577 for discharging effluent from the Sanitary Wastewater Treatment Plant (SWMU 40) via outfall 001 to the Beaufort River and Ballast Creek. Reports have been submitted by the facility as to any violations to the NPDES permit limitations in reference to the amount of total suspended solids, flowrate, and the Biological Oxygen Demand (Reference 19, 21 and 25).

The facility was issued a South Carolina Air permit No. 0360-0002 effective on May 31, 1988 and to expire May 1993. The permit may be renewed upon evidence of satisfactory operational experience during the prior operating period, and only for the appropriate air emission limitations set forth within the permit. Additional

conditions for the permit limit the units to burn natural gas, No. 6 oil and virgin fuel oil (Reference 31).

The SCDHEC issued permit DWP-909 for the operation of the Inert Disposal Area A (SWMU 11) located on Horse Island in the north section of the facility. Conditions of the permit include providing a buffer zone of two feet between the waste and the seasonal high water table; and limiting the wastes received by the unit to cellulosic construction debris, lawn trimming, and tree limbs.

Prior to the operation of the current Inert Disposal Area A (SWMU 11), MCRD operated the Inert Disposal Area B (SWMU 12) located near Elliot's Beach in the southwest section of the facility. This unit was closed under state supervision on January 31, 1979. The permit number for this unit was DWP-905 (Reference 35).

In July 1988 McClelland Engineers submitted a report on the Results of Well Installation and Sampling Activities at the Daylight Infiltration Course. Included in the report are the locations of the wells and the sampling points, well completion diagrams, boring logs, elevations and chemical analysis of the well water. The report concluded that the area did not contain high levels of RDX or TNT. (Reference 22) Results of soil analysis indicate 0.2 to 81 ppm TNT and 306 to 809 ppm RDX.

Under the NIRP an IAS and RI were conducted to identify environmental contamination from past waste management practices. As a result, a total of 19 sites of potential contamination were identified, and six of the sites were selected for further study. These sites include the Incinerator Landfill (Site 1) (SWMU 1), the Borrow Pit Landfill (Site 2) (SWMU 2), the Causeway Landfill (Site 3) (SWMU 3), the Dredge Spoils Area Fire Training Pit (Site 4) (SWMU 4), the Former Automotive Hobby Shop Spill Area (Site 6) (SWMU 6) and the Pesticide Rinsate Disposal Area (Site 16) (SWMU 16) (Reference 1, 2, 34). All the units identified by the NIRP as well as those identified as a result of the VSI and file review are presented in Chapter III.

Process Description and Waste Management

MCRD provides basic training for Marine recruits as well as maintaining a physical plant to support the recruit populations. The majority of MCRD activities are conducted on Parris Island which is the location of the majority of the housing and support shops. The weapon ranges are located on the west side of Parris Island. Other military training activities are conducted at Page Field and the Daylight Infiltration Course in the south section of the facility. The facility maintains two power plants. The Main Power Plant is located on the east side of Parris Island along the Beaufort River. The plant utilizes No. 6 fuel oil which is stored in three 210,000 gallon, above-ground tanks. The

Weapons Power Plant is located near the weapon ranges on the west side of Parris Island. This plant utilizes No. 6 fuel oil which is stored in a 40,000 gallon, above-ground tank. Other support services include a Dental Clinic, laundry and dry cleaning, vehicle maintenance areas, metal shops, paint shops, and a pesticide shop (Reference 2, and 34).

Wastes generated by these shops and support services include waste oil; liquid and solid paint wastes; perchloroethylene still bottoms; rags soaked with oils and solvents (naphtha); domestic refuse, domestic sewage, construction debris, weapon cleaning rags, mercury amalgam, beryllium waste, PCB oils, and scrap metal (Reference 1, 2, 5, 26, 32, and 34). Solvents utilized by the motor pool and other shops are limited to parts washing sinks maintained by Safety Kleen. Weapon cleaning rags are washed at the laundry (Reference 2 and 34).

Present waste management practices consist of managing waste oil; rags contaminated with solvents, thinners, oils and fuels; paint wastes; unrinsed pesticide containers; and soil contaminated with No. 6 fuel oil. These wastes are contained in drums staged at satellite accumulation areas (SAA) prior to transfer off-site via the Hazardous Waste Storage Building (SWMU 36). Overflow from the Hazardous Waste Storage Building (SWMU 36) is occasionally staged at the nearby Overflow Storage Pad (SWMU 37). Eight SAAs were identified during the VSI. Waste oil and rags are staged at the Indoor Motor Pool SAA (SWMU 29) and the Outdoor Motor Pool SAA (SWMU 33) located in the northeast section of the facility. Soil is often used as an absorbent to clean up No. 6 fuel oil spillage. Soil contaminated with No. 6 fuel oil is drummed and staged at the Weapons Power Plant SAA (SWMU 31) and the Power Station SAA (SWMU 28). Unrinsed pesticide containers are staged at the Pesticide SAA (SWMU 26) and paint wastes are staged at the Paint Shop SAA (SWMU 25). Both of these units are located in the vicinity of the Hazardous Waste Storage Building (SWMU 36) located in the northeast section of the facility. Waste x-ray fixer, beryllium, and mercury amalgam generated by the Dental Clinic are staged at the Indoor Dental Lab SAA (SWMU 23). Bibs and other paper wastes, needles, and gauze are staged at the Dental Lab SAA (SWMU 24) (Reference 2 and 34).

Empty Drums are staged at the Empty Drum Storage Area (SWMU 30) prior to off-site disposal by GSX. Empty fuel tanks are staged at the Equipment Parade Deck SAA (SWMU 27). Both of these units are located in the northeast section of the facility (Reference 34).

Prior to storing waste oil in drums, the facility maintained three waste oil tanks. The above-ground Motor Pool Waste Oil Tank (SWMU 34), the Motor Pool Underground Waste Oil Tank (SWMU

43), and the Underground Waste Oil Tank (SWMU 38). These units are inactive. In addition, waste oil was sprayed on the Dirt Roads (Site 15) (SWMU 15) from the 1940s until the mid-1960s.

The Sanitary Wastewater Treatment Plant SWTP (SWMU 40) was constructed in the late 1940s. Prior to that time, untreated sewage and runoff (containing hazardous constituents such as x-ray fixer and carbon tetrachloride) were discharged to the Broad River and Beaufort River via the Storm Sewer System (SWMU 14) and the Outfalls (Site 14). Presently the SWTP receives boiler blowdown water from the power plants; effluent from the oil/water separators at the Diesel Shop Vehicle Washing Pad (SWMU 19) and Motor Transport Car Wash (SWMU 22); and domestic sewage via the Sanitary Sewer System (SWMU 42). The SWTP discharges to the Beaufort River via NPDES Permit No. SC0002772. Effluent from the Power Station Oil/Water Separator (SWMU 20) and the Weapons Power Station Oil/Water Separator (SWMU 21) are discharged to the Beaufort River and Broad River respectively (Reference 15, 18, and 34).

MCRD maintains two active landfills. The Inert Disposal Area A (Site 13) (SWMU 11) receives cellulosic construction rubble and has been operating since 1979. The Inert Disposal Area A (Site 13) (SWMU 11) is located on Horse Island in the north section of the facility. The Inert Disposal Area C (Site 13) (SWMU 13) receives marine spoils from the facility waterways and is located in the vicinity of Ballast Creek and the Beaufort River in the Northeast section of the facility. Cellulosic rubble was disposed at the Inert Disposal Area B (Site 13) (SWMU 12) from 1976 to 1979. This former landfill is located near Elliot's Beach in the southwest section of the facility (Reference 2, and 34).

Scrap metal, appliances, tires, batteries, empty bullet shells, and other surplus/salvage items are staged at the Defense Reutilization and Marketing Office (DRMO) Salvage Yard (SWMU 35) located in the north section of the facility. This unit receives items from MCRD and from The Marine Corps Air Station (MCAS) located in Port Royal South Carolina approximately ten miles north of the facility. Items are staged at this unit until they are sold (Reference 2 and 34).

There are several SWMUs and AOCs located at MCRD resulting from past management practices. These areas and units consist of spill areas, inactive fuel tanks, landfills, and a Former Incinerator (SWMU 41). The Former Incinerator (SWMU 41) operated from the 1920s to the mid-1960s and received domestic refuse and solid paint waste. Ash from the incinerator was disposed at the adjacent Incinerator Landfill (Site 1) (SWMU 1). This landfill is surrounded on three sides by water connected to Archers Creek. Solvents were poured directly on the soil at this unit and open burned. After the incinerator was dismantled and the operations

at the landfill were terminated solvents were disposed at the Causeway Landfill (Site 3) (SWMU 3) in the north section of the facility. The Causeway Landfill (Site 3) (SWMU 3) is constructed of alternating layers of domestic refuse, soil and solvent waste. This unit operated from the mid-1960s to the early 1970s. Operations at this unit were temporarily suspended during the late 1960s. The facility used the Borrow Pit Landfill (Site 2) (SWMU 2) for similar wastes while operations at the Causeway Landfill (Site 3) (SWMU 3) were suspended. (Reference 1, 2, and 34).

In 1968 MCRD purchased Jericho Island (Site 12) (SWMU 10) to increase the limited distance arc for the weapon ranges in the west section of the facility. According to the IAS report, area residents used the island for a disposal area. It is estimated that the disposal activities occurred from approximately 1955 to 1968 (Reference 2 and 34).

Past waste management practices also include disposal of wastes directly on soil. The Pesticide Rinsate Disposal Area (Site 16) (SWMU 16) received pesticide rinsate containing DDT. Paint wastes were disposed directly on the soil at the Former Paint Shop Disposal Area (Site 5) (SWMU 5), along the Beaufort River, in the northeast section of the facility. The Paint Waste Storage Area (Site 9) (SWMU 8) was an unlined staging area that received systematic spillage of paint thinners and other liquid paint wastes (Reference 1, 2, and 34).

MCRD fire training activities were first conducted at an unlined area in the northeast section of the facility. This unit is referred to as the Dredge Spoils Area Fire Training Pit (Site 4) (SWMU 4). Fire training activities were moved to the Page Field Fire Training Pit (Site 7) (SWMU 7) and eventually off-site. Fire training is currently conducted at the MCAS in Port Royal.

Due to the high water table, the majority of fuel tanks located at MCRD are above-ground. However there are five areas of contamination resulting from storing Petroleum, Oil, or Lubricants (POL) in underground tanks. These areas are the Page Field Tanks AS-16 (Site 17) (SWMU 17); the Page Field Tanks AS-17 (Site 18) (SWMU 18); The Former Automobile Hobby Shop Spill Area (Site 6) (SWMU 6); the MCX Service Station Spill Area (Site 11) (SWMU 9); and the MCX Service Station (Site 19) (AOC D) (Reference 1, 2, 34).

One time spills of PCBs occurred at the PCB Spill Area A (Site 8) (AOC A); PCB Spill Area B (Site 8) (AOC B); and gasoline at the Gasoline Spill Area (Site 10) (AOC C). All these areas are located in the northeast section of the facility (Reference 2 and 34). Detailed descriptions of these AOCs and SWMUs are presented in Chapter III.

Environmental and Demographic Setting

1. Meteorology

The facility is located in southeast South Carolina approximately 30 miles northeast of Savannah, Georgia. The climate is subtropical with long hot summers and short mild winters. Annual rainfall is abundant, ranging from 40 to 58 inches of precipitation per year and averaging approximately 49 inches per year. Annual rainfall distribution indicates approximately seven inches falling in July and two inches falling in November. An average of 34 inches falls during April through October (Reference 2 and 33). Prevailing southwest winds average eight miles per hour. The highest wind speeds however, occur in March averaging ten miles per hour from the northeast. Tropical storms occur July through October often with wind speeds up to 50 miles per hour. Hurricanes are rare, occurring every two to three years. Although hurricane Hugo caused extensive damage to Charleston, South Carolina (located approximately 60 miles northeast of the facility), there was only minor on-site damage (Reference 33 and 34).

2. Floodplain and Surface Waters

The facility is situated in the Lower Coastal Plain physiographic province in an area dominated by numerous islands, inlets, streams and marshes. The area is an estuary, influenced by tides, and consists of nearly level lowlands that have slopes usually less than two percent. Parris Island is the largest island of several islands and marshes that form the USMC Recruit Depot (Reference 1, 2, 33, and 34). Facility elevations range from sea level to 22 feet above sea level (Reference 2). Approximately 85 percent of the facility is within the 100-year floodplain. However, approximately 90 percent of Parris Island, in the northeast section of the facility is situated above the 100 year floodplain. Approximately 60 percent of Horse Island, in the northwest section of the facility; and approximately ten percent of the east-central portion of Page Field, in the south-central section of the facility are situated above the 100-year flood plain (Reference 2). Refer to Figure 2 for the location of the 100 year floodplain and surface water flow directions. Units located within the 100 year floodplain include the Incinerator Landfill (Site 1) (SWMU 1); the Causeway Landfill (Site 3) (SWMU 3); Page Field Tanks AS-16 (Site 17) (SWMU 17); and Page Field Tanks AS-17 (Site 18) (SWMU 18).

The facility is a system of islands, marshes, and interconnecting man-made causeways that form a peninsula bounded on the east by the Beaufort River and bounded on the west by the Broad River. The confluence of these two tidal rivers form Port Royal Sound

Facility Map Showing Location of the 100-Year Flood Plain and Surface Water Flow Directions (Reference 2)



located southeast of the facility. The sound extends an additional four miles southeast before reaching the Atlantic Ocean (Reference 2).

According to the IAS study facility drainage is toward the nearest surface water body. There are three east-west creeks that drain the majority of the facility. These creeks include Archers Creek located in the north section of the facility; Ribbon Creek located in the northwest section of the facility; and Ballast Creek located in the central section of the facility. Archers Creek forms the northern facility boundary connecting the confluence of the Beaufort River and Battery Creek to the Broad River. Ribbon Creek (identified as Eddying Creek in the soil survey of Jasper and Beaufort Counties) drains the northwest section of the facility to the Broad River. Ballast Creek forms the southern boundary of Parris Island and also connects the Broad and Beaufort Rivers. Page Field is located south of Ballast Creek (Reference 2 and 33).

3. Soils and Geology

The facility is situated upon Pliocene, Pleistocene, and Holocene sand, silt and clays 30 to 40 feet thick. These materials are underlain by the Hawthorn Formation consisting of phosphatic sand and clay; arenaceous dolomitic limestone to phosphatic marl; and phosphatic, clays and fine sands with moderate to abundant amounts of shells (Reference 2 and 33). The Hawthorn Formation serves as a confining unit separating the overlying surficial aquifer from the underlying Tertiary Limestone Aquifer. The Hawthorn Formation consists of sandy, clayey materials and is approximately 20 feet thick. The Tertiary Limestone Aquifer consists of Santee limestone which is divided into three units. The upper unit is the principle aquifer. According to the IAS report, the unit consists of white to light gray, calcitized, abundantly fossiliferous, moderately indurated limestone approximately 25 to 100 feet thick. The middle unit is 200 to 400 feet thick made of soft, calcareous sand, and argillaceous limestone. The lower unit is moderately indurated, siliceous, glauconitic limestone 200 to 400 feet thick. These units were formed during the Middle and Upper Eocene Epoch. The Hawthorn Formation was formed during the Miocene Epoch (Reference 2).

The Soil Survey of Jasper and Beaufort Counties indicates that facility soils are located on the Pamlico Terrace and on the flood plains and tidal marsh. The soil units located on the Pamlico Terrace are less than 25 feet above sea level and are predominantly sandy soils surrounded by tidal marshes or loamy soils generally five to 15 miles inland. Flood plains and tidal marsh soils are in low areas flooded occasionally or daily by fresh, brackish, or salt water. The areas flooded daily by saltwater often are dissected by meandering streams (Reference 33).

On-site Pamlico Terrace soils include the Wando-Seabrook-Seewee soil unit and the Coosaw-Williman-Ridgeland soil unit. Wando-Seabrook-Seewee soils are sandy soils ranging from moderately to somewhat poorly drained soils. Wando soils are situated in the higher areas and are excessively well drained. These soils are located on portions of Horse Island, Parris Island, and Page Field. Seabrook soils are moderately well drained and located on intermediate areas. The Seewee soils have the poorest drainage of the series and are located in areas slightly lower than the Seabrook soils. The Seewee soils have an alluvial humus layer 18 to 30 inches below the surface. The Seabrook and Seewee soils have a seasonal high water table (Reference 33).

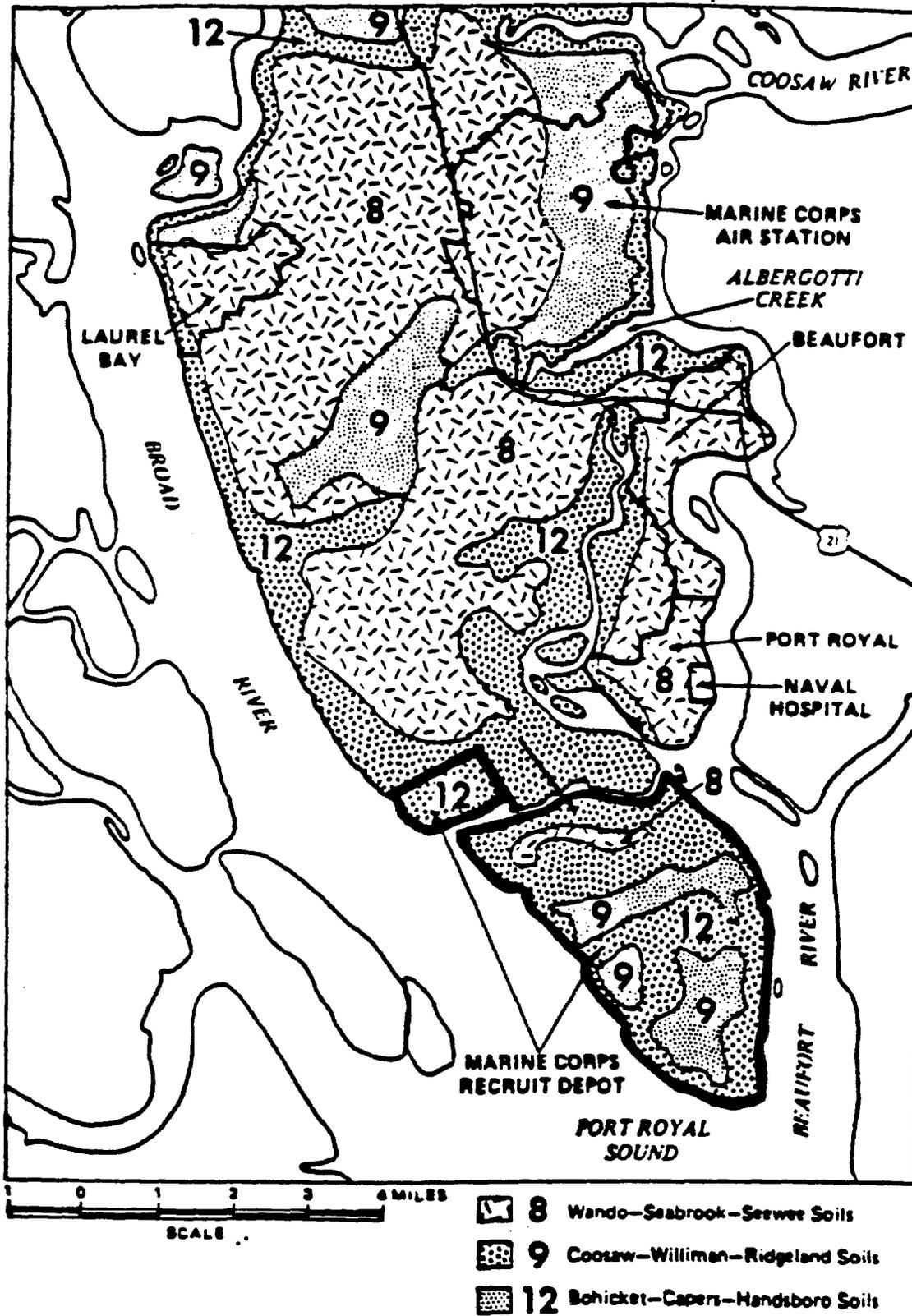
Soils in the Coosaw-Williman-Ridgeland unit are somewhat poorly or poorly drained consisting of a thick sandy layer underlain by a loamy subsoil. These nearly level soils are bounded by tidal streams or marshes. The somewhat poorly drained Coosaw soils are in the higher elevations and the poorly drained Williman soils are in the lower areas. These soils have loamy subsoils which are overlain by sandy surface layers 20 to 30 inches thick. The Ridgeland soils are sandy throughout, poorly drained, and occupy the intermediate areas. All soils in this unit have high seasonal water tables (Reference 33).

On-site flood plain and tidal marsh soils are in the Bohicket-Capers-Handsboro unit. These soils are either mineral or organic in content and subject to occasional or daily flooding by saltwater. These soils are also very poorly drained. Bohicket soils are frequently adjacent to tidal streams and are flooded twice daily to depths of six to 36 inches. Capers soils are situated a few inches higher than Bohicket soils and are not as highly dissected by streams. Both these soils have silty clay loam surface layers underlain by clays and clay loams. The organic Handsboro soils are flooded daily or occasionally by saltwater (Reference 33). Refer to figure 3 for the location of these soil units.

The predominant soil types located at MCRD are the Bohicket association, Wando fine sands, William loamy fine sand, Murad fine sand, Sewee fine sand, and Wahee fine sandy loam. The Bohicket association soils were formed in silty and clayey marine sediments. A typical soil profile consists of a surface layer of dark gray silty clay loam approximately ten inches thick underlain by 39 inches of dark silty clays and followed by alternating layers of silty clays, fine sandy loams, and clays. These soils are approximately 80 inches thick and extremely acid after air drying. Under saturated conditions the soils range from moderately alkaline to slightly acidic (Reference 2 and 33).

Wando fine sands are excessively drained consisting of a surface layer approximately nine inches thick of dark brown fine loamy sand. The surface layer is underlain by fine sands to a depth of

Figure 3



Facility Map Showing principle Soil Units (Reference 2)

approximately 85 inches. These soils are medium acidic and have a low water holding capacity (Reference 2 and 33).

William loamy fine sands are deep poorly drained soils with surface layers approximately five inches thick and subsurfaces approximately 21 inches thick. This subsurface layer is mottled as are subsequent layers consisting of fine sandy loams, sandy clays, and sandy clay loams. The surface layer and subsurface layers range from strongly acid to extremely acid (Reference 2 and 33).

Murad fine sands are deep moderately drained soils with surface layers of dark grayish brown fine sand approximately 13 inches thick. The subsurface layer consists of mottled sands to a depth of 41 inches followed by mottled sandy clays and loams to depths of 80 inches. These soils are moderately permeable, low water holding capacities, and seasonal high water tables. Murad fine sands are slightly acid to very strongly acid throughout.

Seewee fine sands are moderately permeable, somewhat poorly drained soils with surface layers approximately 14 inches thick. These soils are very strongly to strongly acid to a depth of approximately 25 inches. Below 25 inches, the soils are strongly acid to medium acid. Water tables in these soils are at depths of one to two feet below the surface for approximately five months (Reference 2 and 33).

Wahee fine sandy loams are poorly drained, mottled and reach depths up to 62 inches. The surface layer is approximately six inches thick. The water table is at or near the surface up to four months per year. The thickness of the solum ranges from 50 to 80 inches with reactions ranging from strongly acid or very strongly acid throughout.

4. Hydrogeology

Groundwater beneath the facility consists of the surficial aquifer and the underlying Tertiary limestone aquifer. These two units are separated by the impermeable Hawthorn formation which consists of dense sandy clays approximately 20 thick. Both of the aquifers beneath the facility are saline (Reference 2).

The surficial aquifer is confined within Pleistocene age sands consisting of quartzite and shell fragments; coarser sands of Holocene age; and river alluvium. Iron-cemented sand lenses occur within the Pleistocene age sands. The water table ranges from zero to ten feet below sea level with an average depth of three feet. This water table is strongly influenced by tidal action and the influence of the tidal rivers and streams.

According to the IAS report, water table fluctuations have been recorded as far away from marsh edges as 1800 feet. Hydraulic

conductivity of the surficial layer is 0.8 feet per day and the flow rate is less than two feet per day averaging 0.1 to one foot per day. Groundwater flows towards surface water bodies such as creeks, ponds, and rivers. Figure 4 provides the general flow patterns of the surficial aquifer (Reference 2).

The Tertiary limestone aquifer consists of an upper unit and a lower unit. The upper unit occupies a 60 mile radius around the facility and extends continuously southward to Florida. This aquifer is the principal water supply for south coastal South Carolina although parts of this aquifer contain salt water. The portion of this aquifer underlying the facility contains salt water. Refer to Figure 5 for a cross-section of the Tertiary aquifer. The average hydraulic conductivity of this upper unit is approximately 400 feet per day and the regional average is 175 feet per day. The regional transmissivity is 75,000 gallons per day per foot (Reference 2).

The lower unit consists of low yielding aquifers and confining beds made of impure limestone and marl. These aquifers contain saline formation water in the area surrounding the facility with concentrations of chlorine and dissolved solids increasing towards the lower depths. The transmissivity of these aquifers ranges from 3700 gallons per day (Reference 2).

There are 15 groundwater monitoring wells installed in the surficial aquifer at MCRD. Four wells (one well and three piezometer) have been installed at the Incinerator Landfill (Site 1) (SWMU 1) and three wells have been installed at the Borrow Pit Landfill (Site 2) (SWMU 2). These units are located in the north section of the facility. Well depths at the Incinerator Landfill (Site 1) (SWMU 1) are six to eight feet. Well depths at the Borrow Pit Landfill (Site 2) (SWMU 2) are 20 to 30 feet with water elevations at approximately 15 feet below the top of the casing (Reference 1). There are three groundwater wells installed at the Daylight Infiltration Course. Depth to water elevations from the top of the casing range from approximately five to six feet or four to six feet above sea level (Reference 22) Other wells in the vicinity of Page Field are approximately 20 feet deep with water levels approximately 14 to 16 feet below the top of the casing (Reference 1).

5. Receptors

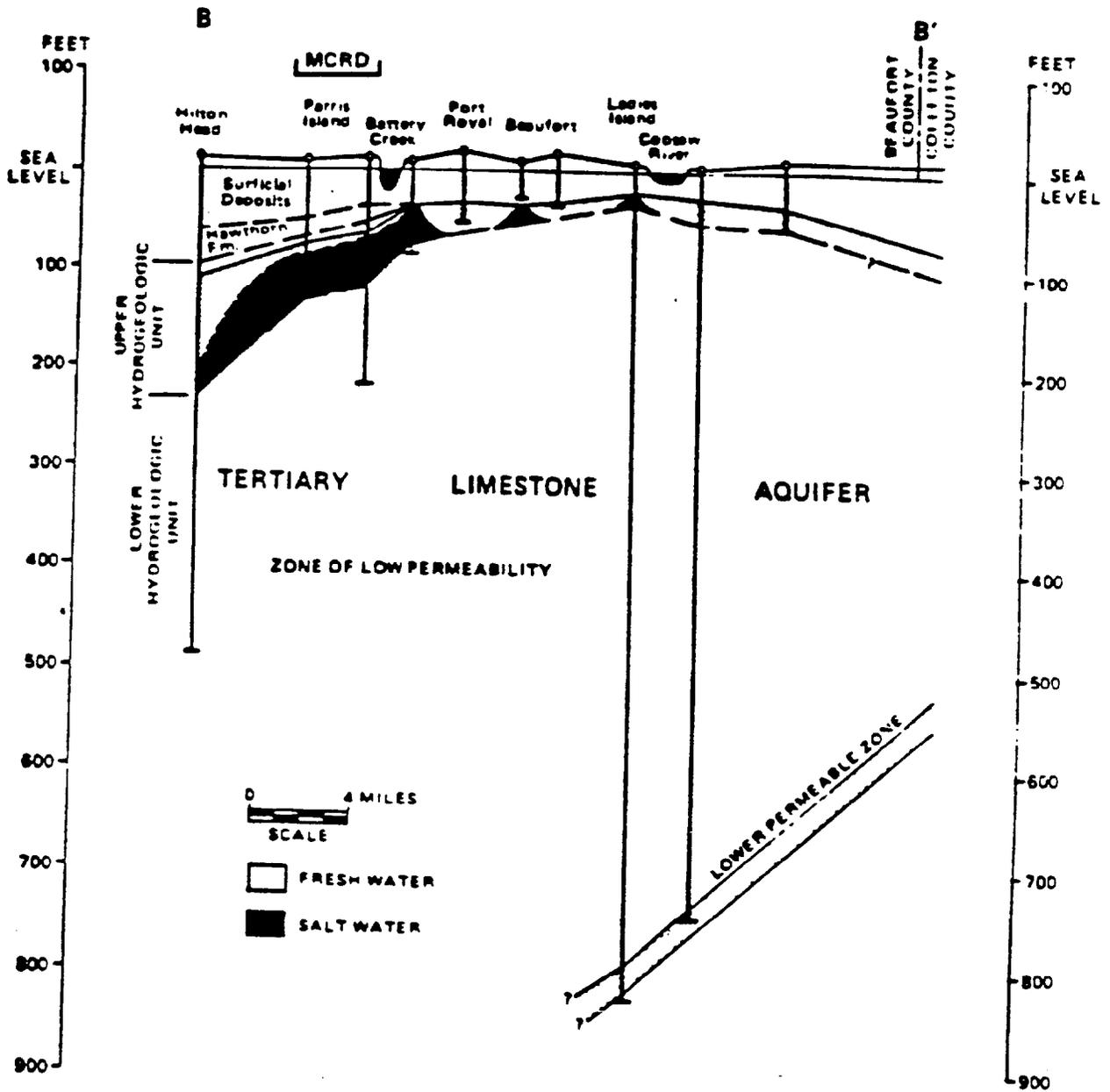
The facility is situated on coastal barrier islands which are in close proximity to commercial fishing areas. The surficial aquifer is approximately three feet below the soil surface and is strongly influenced by tidal rivers and streams. These surficial bodies can be contaminated by SWMUs releasing hazardous constituents to soil/groundwater or SWMUs in direct contact with surface water bodies, for example the Incinerator Landfill (SWMU 1). Otherwise, the release of hazardous constituents from SWMUs

Figure 4



Facility Map Showing Surficial Groundwater Flow Directions (Reference 2)

Figure 5



Hydrogeological Cross-Section of the Tertiary Limestone Aquifer (Reference 2)

is not likely to impact local populations. The principle water bearing aquifer is separated from the surficial aquifer by the impermeable Hawthorn formation. The facility is also remotely located on a separate peninsula from the nearby populations of Beaufort, Port Royal, and Hilton Head. However endangered species such as the southern bald eagle, the wood stork, the American alligator, the Eskimo curlew and the short-nosed sturgeon feed on shellfish and finfish. Biomagnification of hazardous constituents may potentially affect these species.

SWMU DATA SHEET

Page 1 of 2

SWMU NUMBER: 1 PHOTO NUMBER: 1.1, 1.2, 1.3

NAME: Incinerator Landfill (Site 1)

TYPE OF UNIT: Unlined land-based disposal unit

PERIOD OF OPERATION: 1921 to 1965

PHYSICAL DESCRIPTION AND CONDITION:

The unit is an unlined landfill located in the northeast section of Horse Island. The Incinerator Landfill (SWMU 1) received the majority of the solid waste generated on the facility from 1921 to 1959. Between 1959 and 1965, solid waste was disposed at this unit and the Causeway Landfill (SWMU 3). The primary sources of waste disposed at the unit include the paint shop, former Naval Hospital, pest control shop, automotive hobby shop, dry cleaning plant, dental clinic, mechanical trades shop, electrical shop, and furniture/upholstery shop. The landfill is bounded on three sides by a marsh and a picnic area to the southwest. The landfill is approximately four acres and extends 670 feet into the marsh. This unit was located next to the Former Incinerator (SWMU 41). Ash was piled between the incinerator and the marsh, or disposed in trenches. Eventually the landfill extended into the marsh, utilizing fill dirt to build up the edge of the marsh. Wastes were also open-burned at this unit after the Former Incinerator (SWMU 41) was closed in 1969. Vegetation observed during the VSI consisted of grass and pine trees.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received domestic trash and incinerator ash; construction debris; solid paint; paint thinners (diesel fuel, kerosene and mineral spirits); paint strippers (methylene chloride); empty pesticide containers; cleaning rags (contaminated with oil, mineral spirits and keroses); spent absorbent; solvent sludge (aliphatic and chlorinated solvent compounds); perchloroethylene still bottoms; solvent filters; mercury amalgam; beryllium waste; metal shavings; PCB-contaminated oil, paint-stripping residues (methylene chloride); and wood preservative residues (pentachlorophenol). The unit received approximately 24,000 tons of domestic waste and, most notably, 40,000 gallons of paint thinners and 2,600 gallons of still bottoms.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (H)

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HISTORY AND/OR EVIDENCE OF RELEASE(S):

There is documented sediment and groundwater contamination at this unit. Groundwater samples indicate 0.101 ppm dissolved lead. Chloroform was detected in sediment samples at concentrations of 351 ppb and 215 ppb. Chloroform and other priority pollutants were not detected in the groundwater samples. According to the Navy, total lead and chromium were identified in sediment samples at less than EP toxic concentrations. However, the document did not indicate the levels.

RECOMMENDATION: No Further Action ()
 RFA Phase II Sampling ()
 RFI Necessary (X)

REFERENCES: 1, 2, and 34

COMMENTS: Remedial investigations undertaken by the Navy through the NAICP Program include shallow surface sediment and surface water samples at three locations; the installation of one groundwater monitoring well and three groundwater piezometers; and the samples and analysis reported above.

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SWMU NUMBER: 2 PHOTO NUMBER: 2.1, 2.2, 2.3

NAME: Borrow Pit Landfill (Site 2)

TYPE OF UNIT: Unlined land-based disposal unit

PERIOD OF OPERATION: 1966 to 1968

PHYSICAL DESCRIPTION AND CONDITION:

The landfill is located in the central portion of Horse Island, in the north section of the facility, approximately 2,000 feet southwest of the Incinerator Landfill (SWMU 1). The southwest border of the unit is located approximately 100 feet from a marsh area. The landfill was the facility's primary landfill after the termination of operations at the Incinerator Landfill (SWMU 1) and the temporary suspension of operations at the Causeway Landfill (SWMU 3). Prior to the unit's utilization as a landfill, it was the facility's source of fill dirt. The unit received wastes from the paint shop, garages and shops, automotive hobby shop, dry cleaning plant, mechanical trade shops, electrical shop, and dental clinic. The unit area is approximately 1.9 acres.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The landfill received domestic trash; construction debris; solid paint wastes; paint strippers (methylene chloride); paint thinners (diesel fuel, kerosene, and mineral spirits); cleaning rags (contaminated with oil, mineral spirits, and kerosene); spent absorbent; solvent sludge (aliphatic petroleum and chlorinated solvent compounds); perchloroethylene still bottoms; metal shavings; PCB-contaminated oil; mercury amalgam; and beryllium wastes. The unit received 24,000 tons of domestic waste and, most notably, 8,400 gallons of paint thinners and 3,300 gallons of perchloroethylene still bottoms.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (H)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

There is documented sediment, surface water and groundwater contamination at this unit. Groundwater and surface water samples were analyzed for priority pollutant volatile organic compounds, acid and base/neutral extractable organics including pesticides and PCBs, dissolved metals, total organic carbon, pH,

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SWMU NUMBER: 2 (Cont'd)

and specific conductance. Sediment samples were analyzed for priority pollutant volatile organic compounds, acid and base/neutral extractable organics, pesticides, PCBs, total metals and EP toxic metals.

Analysis of surface water samples indicated 0.083 ppm cadmium and 0.14 ppm chromium. Analysis of groundwater samples indicate 12 ppb chloroform, 20 ppb 1,2-dichloroethane, 1.1 ppm chromium and 0.073 ppm lead. A concentration of 81 ppb of chloroform was detected in sediment samples.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling ()
RFI Necessary (X)

REFERENCES: 1, 2, 26, and 34

COMMENTS: This unit is located in the vicinity of a State of South Carolina shellfish harvest area. Remedial investigations by the Navy include the installation of three groundwater monitoring wells; one sediment and surface water sample location; and the samples and analysis reported above.

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SWMU NUMBER: 3 PHOTO NUMBER: 3.1, 3.2, 3.3, 3.4

NAME: Causeway Landfill (Site 3)

TYPE OF UNIT: Covered land-based disposal unit

PERIOD OF OPERATION: 1960 to 1966 and 1968 to 1972

PHYSICAL DESCRIPTION AND CONDITION:

The Causeway Landfill (SWMU 3) is located in the north section of the facility. The unit is a two-lane road, consisting of alternate layers of solid waste and fill dirt constructed across a tidal marsh of the Broad River. The causeway connects Horse Island to Parris Island, and is approximately 4,000 feet long and 10 feet high (above the water surface). The causeway's sides are reinforced with rip-rap. Two corrugated metal pipes are buried beneath the causeway to allow tidal water movement between the two surface water bodies separated by the unit. The plane of the area is approximately ten acres in size. The unit was the primary disposal site for the facility after the operations at the Incinerator Landfill (SWMU 1) terminated. The unit received waste from the paint shop, the pest control shop, garages and shops, automotive hobby shop, dry cleaning plant, dental clinic, and electrical shop. The causeway operations were temporarily suspended from 1966 to 1968.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The landfill received domestic trash; construction debris; solid paint wastes; empty pesticide containers; cleaning rags (contaminated with oil, mineral spirits, and kerosene); spent absorbent; solvent sludge (aliphatic petroleum and chlorinated solvent compounds); perchloroethylene still bottoms; mercury amalgam, beryllium waste, and PCB-contaminated oil. According to the IAS report, liquid wastes were not poured on the ground. The Causeway Landfill (SWMU 3) received 50,000 tons of domestic trash and, most notably, 5,600 gallons of perchloroethylene still bottoms.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (H)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

Although no evidence of release was observed during the VSI, waste containing hazardous constituents was disposed at this unlined unit in the immediate vicinity of surface water.

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RECOMMENDATION: No Further Action ()
 RFA Phase II Sampling ()
 RFI Necessary (X)

REFERENCES: 1, 2, 26 and 34

COMMENTS: Eight seep-surface water and eight soil/sediment samples were taken along the sides of the causeway. According to the Navy, no priority pollutant organic compounds were detected in the samples. Concentrations of hexavalent chromium, reported to be above the lower limit of detection (0.01 mg/l), were identified in five sediment samples.

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SWMU NUMBER: 4 PHOTO NUMBER: 4.1, 4.2, 4.3

NAME: Dredge Spoils Area Fire Training Pit (Site 4)

TYPE OF UNIT: Unlined pit

PERIOD OF OPERATION: 1940s to mid-1960s

PHYSICAL DESCRIPTION AND CONDITION:

The area is located approximately 600 feet northeast of Cuba Street and Ballast Creek junction in the east section of the facility. The unit is bordered by a creek to the north and wooded area to the southwest and southeast. The pit was 30 to 40 feet in diameter, dug into very permeable sandy soil. The pit was used to contain fuels during fire-fighting training exercises until the mid-1960s. Flammable liquids contained in drums or small portable tanks were transported to the pit by trucks via roads that were partially constructed of coal ash cinders. The roads and former pit were covered over with marine dredge spoils during 1976. The unit is presently a bermed area constructed of marine dredge spoils and the remains of the roads and pit. Ballast Creek is located within 200 feet of this unit.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received 300 to 400 gallons of flammable liquids per training session (one per month). Flammable liquids include contaminated fuels, waste oils, spent solvents, kerosene, gasoline, mineral spirits, varsol, AVGAS, and hydraulic fluids. The Navy estimates an additional 10,000 gallons of liquids were burned at this unit during its period of operation. The Navy also indicated that approximately 12,000 gallons (ten percent of total waste) were spilled during handling, overflowed the pit, or saturated into the sand.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

There is documented soil contamination at this unit. Analysis of one soil boring from the unit indicates 13.9 ppm total lead one foot below the surface and 7.69 ppm total chromium seven and one-half feet below the surface. The Navy indicated the surficial water table is five feet below the surface. Although no evidence of release was observed during the VSI, flammable liquids were poured directly into this unlined pit.

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RECOMMENDATION: No Further Action ()
RFA Phase II Sampling ()
RFI Necessary (X)

REFERENCES: 1, 2, 26 and 34

COMMENTS: It is suggested that the RFI be conducted as a phased approach beginning with a comprehensive soil sampling strategy and, if necessary, followed by groundwater monitoring.

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SWMU NUMBER: 5 PHOTO NUMBER: 5.1

NAME: Former Paint Shop Disposal Area (Site 5)

TYPE OF UNIT: Waste pile

PERIOD OF OPERATION: 1930s to 1960s

PHYSICAL DESCRIPTION AND CONDITION:

Dried waste paint was disposed of at the edge of the Beaufort River adjacent to Building 160A in the northeast section of the facility. The waste was generated at Building 177 and poured directly onto the bank. The pile was approximately 30 feet long and five feet wide along the embankment. According to the IAS report, dry waste paint would then be washed out into the river. During 1972 the unit was covered over with marsh soil and later construction rubble.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The waste consisted of paint scrapings from paint mixing tanks. The paint was removed from the tanks using a paint remover containing diesel fuel or kerosene. The paints contained linseed oil, zinc and white lead. Approximately 1,000 to 2,000 gallons of this waste mixture were poured down the embankment per year. According to the IAS, approximately 17 tons of paint waste were disposed along the bank during the unit's period of operation.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

Although no evidence of release was observed during the VSI, paint wastes containing hazardous constituents were poured directly on to bare soil along the riverbank.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 2 and 34

COMMENTS: The exact location of the unit was unknown at the time of VSI, since the remains have been wiped away by the tides and periodic storms. Facility personnel could not find the exact location of site. Photograph 20.8 shows the approximate location of this unit.

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SWMU NUMBER: 6 PHOTO NUMBER: 6.1

NAME: Former Automotive Hobby Shop Spill Area (Site 6)

TYPE OF UNIT: Underground waste oil tank and associated spillage area

PERIOD OF OPERATION: 1969 to 1982

PHYSICAL DESCRIPTION AND CONDITION:

The unit consists of a 500-gallon, steel underground storage tank and the surrounding soil area. The tank is located in the southeast section of the facility. The tank was part of the Hobby Shop, which was primarily used for military personnel car maintenance. The tank opening was surrounded by sand fill to absorb spillage. Waste oil from the Hobby Shop was transferred in 55-gallon drums, or smaller containers, and hand-pumped or poured into the tank via a funnel. According to the IAS report, unauthorized continued use of this unit occurred for approximately one year while the new Hobby Shop was being constructed. A marsh is located approximately 750 feet northwest of the unit. There was no evidence of recent use at the time of the VSI.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The tank managed waste oil, and the surrounding soil area received spillage. The spillage was primarily waste lube oil and crankcase oil. The Navy estimated that approximately 2,000 gallons of waste oils were spilled in this area.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

There is documented soil contamination at this unit. Analysis of soil samples indicated a high concentration of oil and grease (310 to 462 ppm), levels of chromium up to 5.5 ppm and levels of lead up to 12.7 ppm. No evidence of release, such as recent oil staining, was observed during the VSI.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling ()
RFI Necessary (X)

REFERENCES: 1, 2, 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 7 PHOTO NUMBER: 7.1, 7.2

NAME: Page Field Fire Training Pit (Site 7)

TYPE OF UNIT: Fire training pit

PERIOD OF OPERATION: Mid-1960s to 1976 (approximately 11 years)

PHYSICAL DESCRIPTION AND CONDITION:

The concrete pit is located at the south end of Henderson Street at Page Field in the central section of the facility. The unit was constructed on a concrete pad that was the apron of the former runway. The unit is approximately 25 feet in diameter with an asphalt cover and cinder-block berm. According to the IAS, the unit was abandoned in 1976 after facility personnel discovered that the unit leaked. However, the MCRD continued to use the pit for approximately two to four months during the time it was cracked and leaking. Fuel for the fire-training events was contained in a 500-gallon tank approximately 60 feet from the pit. The tank was connected to the pit via underground steel pipes. The tank was not present at the time of the VSI, however it is not known if the pipes have been removed. At the time of the VSI, the pit area was overgrown with weeds. Fire training is conducted off-site at the Marine Corps Air Station in nearby Beaufort, South Carolina.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Approximately 300 to 400 gallons of contaminated fuel or waste oil/fuel mixtures were burned at this pit one to two times per month.

RELEASE PATHWAYS: Air (L) Surface Water (L-M) Soil (L-M)
Groundwater (L-M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

According to the IAS Report, MCRD continued to use the pit for fire training for approximately two to four months after the unit was cracked and leaking. According to the IAS report, approximately 50 gallons of fuel/waste oil may have leaked from this unit. During the VSI, the unit was observed to be vegetated, and no signs of release, such as stressed vegetation, were noted.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 2, 26, and 34

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COMMENTS: It is suggested that the facility locate the underground pipes and determine if they contain waste fuels or waste oils.

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SWMU NUMBER: 8 PHOTO NUMBER: 8.1, 37.2

NAME: Paint Waste Storage Area (Site 9)

TYPE OF UNIT: Staging area

PERIOD OF OPERATION: 1969 to 1984

PHYSICAL DESCRIPTION AND CONDITION:

The unit was an unpaved area situated between Building N277 and Building 895 in the northeast section of the facility. The area was approximately 20 feet by 60 feet, and was used to store containers of paint wastes after disposal activities at the Borrow Pit Landfill (SWMU 2) terminated. Paint wastes generated from on-site painting activities were contained in 20- to 30-gallon containers and staged at this unit. From 1969 to 1978, paint wastes stored at this unit were transferred to the Underground Waste Oil Tank (SWMU 38) and mixed with waste oil prior to off-site incineration. After 1978, paint waste was staged at this unit in 55-gallon drums prior to off-site disposal. The area was paved over in 1984, and is presently the location of the Overflow Storage Pad (SWMU 37).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

According to the IAS report, approximately 91,000 pounds of liquid paint waste was staged at this unit during its period of operation. Paint waste consisted of thinners (kerosene, diesel fuel and mineral spirits) and strippers (methylene chloride). After transfer operations utilizing the Underground Waste Oil Tank (SWMU 38) ceased, approximately 40 55-gallon drums of waste were accumulated at this unit prior to each off-site disposal operation.

RELEASE PATHWAYS: Air (L) Surface Water (H)* Soil (H)*
Groundwater (H)* Subsurface Gas (L)*

HISTORY AND/OR EVIDENCE OF RELEASE(S):

An unknown amount of spillage occurred during the period of operation. The surface soil (to a depth of six inches) was removed from the unit and disposed off-site during 1984.

RECOMMENDATION: No Further Action (*)
RFA Phase II Sampling ()
RFI Necessary ()

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REFERENCES: 2 and 34

COMMENTS: *It is suggested that the facility provide documentation to demonstrate the effectiveness of the remediation. Phase II sampling may be required to determine if there is residual contamination at the unit.

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SWMU NUMBER: 9 PHOTO NUMBER: 9.1

NAME: MCX Service Station Spill Area (Site 11)

TYPE OF UNIT: Underground waste oil tank and associated spillage area

PERIOD OF OPERATION: 1969 to 1983

PHYSICAL DESCRIPTION AND CONDITION:

This unit was associated with a gasoline station that was demolished in 1985. The gasoline station was adjacent to Building 404 in the northeast section of the facility. The unit consisted of a soil area surrounding an inlet to an underground waste oil tank. According to the IAS report, 50 55-gallon drums of contaminated soil were excavated from the area and disposed of off-site. The tank is in place and is covered by a concrete pad.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Waste oil.

RELEASE PATHWAYS: Air (L) Surface Water (U) Soil (U)
Groundwater (U) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI; the area of the contamination was excavated during 1983.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 2, 26

COMMENTS: *It is suggested that the facility provide documentation to demonstrate the effectiveness of the remediation. The potential for additional releases is dependent on the integrity of the tank. According to facility representatives, the tank has been reported to the State UST program.

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SWMU NUMBER: 10 PHOTO NUMBER: No photograph due to the remote location of the unit

NAME: Jericho Island Disposal Area (Site 12)

TYPE OF UNIT: Unauthorized dumping site

PERIOD OF OPERATION: 1955 to 1968

PHYSICAL DESCRIPTION AND CONDITION:

This site covers an area approximately 100 feet by 250 feet along the central part of the southern edge of Jericho Island in the northwest section of the facility. The waste piles are as high as five feet, and as wide as 30 feet. The site extends from the Island's edge southward onto the marsh. The island was acquired to enable the facility to comply with the limited distance arc required for weapons ranges. Area residents used the island for open dumping.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

According to the IAS report, this unit received routine domestic trash including: small rusted cans, beer and soda bottles, hubcaps, tires, buckets, cinder blocks, children's toys, rusted five-gallon cans, sheet metal, paper, plastic and wood.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

This unit was in accessible during the VSI due to its remote location.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 2

COMMENTS: None.

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SWMU NUMBER: 11 PHOTO NUMBER: 11.1, 11.2, 11.3, 11.4

NAME: Inert Disposal Area A (Site 13)

TYPE OF UNIT: Unlined landfill

PERIOD OF OPERATION: 1979 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located on the south side of Horse Island in the north section of the facility. The landfill was permitted by the state in 1979 for disposal of cellulosic wastes. This landfill consists of a 1,000-foot by 2,000-foot area on 50 acres of land. The unit contained inert material such as wood, metal and plastic, during the VSI. The VSI team observed the exposed water table in one of the disposal trenches.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives cellulosic construction debris and yard waste (cellulosic lawn and tree trimmings).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (M)
Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release such as solvent odors, stains, or stressed vegetation was observed during the VSI, and no evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 2, 26 and 34

COMMENTS: *It is suggested that the state and facility representatives closely monitor the activities at the landfill with respect to the depth of the trenches and the water table levels.

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SWMU NUMBER: 12 PHOTO NUMBER: Not available, since the unit was inaccessible during the VSI.

NAME: Inert Disposal Area B (Site 13)

TYPE OF UNIT: Unlined landfill

PERIOD OF OPERATION: 1976 to 1979

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located near Elliot's Beach in the southeast section of the facility. This unit was permitted by the state, and operated from 1976 to 1979. The unit was closed under state supervision during 1979. The landfill consisted of a 300-foot by 300-foot area on two acres of land.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit reportedly received construction debris and yard waste.

RELEASE PATHWAYS: Air (L) Surface Water (U) Soil (U)
Groundwater (U) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was identified in the available file material. However, due to the unit's period of operations occurring before comprehensive RCRA regulations, and the presence of hazardous constituents on site at that time, an RFI appears to be warranted.

RECOMMENDATION: No Further Action ()
 RFA Phase II Sampling ()
 RFI Necessary (X)

REFERENCES: 2, 26 and 34

COMMENTS: None.

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SWMU NUMBER: 13 PHOTO NUMBER: 4.1, 4.2, 4.3

NAME: Inert Disposal Area C (Site 13)

TYPE OF UNIT: Unlined landfill

PERIOD OF OPERATION: 1976 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located at the Dredge Spoils Area Fire Training Pit (Site 4) (SWMU 4). Approximately 100,000 cubic yards of marine dredge spoils have been disposed over the Dredge Spoils Fire Training Pit since 1976. Contaminated soils from the former pit may also be mixed with the dredge spoils.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit presently receives dredge spoils that may be contaminated with hazardous constituents from the maintenance of the marina and waterways. In addition, this unit overlays the Dredge Spoils Fire Training Pit (Site 4) (SWMU 4), where there is documented soil contamination.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The unit is underlain by the Dredge Spoils Fire Training Pit (Site 4) (SWMU 4), where there is documented soil contamination.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 2, 26 and 34

COMMENTS: None.

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SWMU NUMBER: 14 PHOTO NUMBER: 14.1, 1.2

NAME: Storm Sewer System

TYPE OF UNIT: Underground pipe system

PERIOD OF OPERATION: 1918 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit consists of pipes with varying sizes and materials of construction, located below ground throughout the facility. Stormwater consists primarily of runoff contaminated with small amounts of wastes from the following sources: the garages and other shops; dispensary/dental clinic, photo lab, steam plant and cooling tower. The system discharges into the surrounding surface waters via 60 outfalls (Site 14).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received waste oil (100-200 gal/yr until 1973); anti-freeze (60-120 gal/yr until 1973); neutralized battery acid (60/120 gal/yr until 1973); x-ray fixer (420-840 gal/yr until 1948); photo fixer and developer (420-840 gal/yr each until 1947); carbon tetrachloride (120 gal/yr until 1951); boiler blowdown that contained chromates (5,000-20,000/day until 1975); demineralized regenerant (9,000-18,000 gal/yr until 1975), and cooling tower blowdown (20,000-40,000 gal/day). According to the IAS report, quantities of wastes generated from 1918 to 1940 are 25 percent of the values listed above.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (U)
Groundwater (U) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 2, 4, 15, 26 and 29

COMMENTS: *Releases to the soil and groundwater are dependent on the integrity of the unit. Due to the age of the unit, releases may be likely. A review of the available file material does not indicate whether the facility maintains a NPDES permit for outfalls not utilized by the sanitary wastewater treatment plant (SWMU 40). It is suggested that the facility and SCDHEC determine if a NPDES permit is required.

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SWMU NUMBER: 15 PHOTO NUMBER: 15.1, 15.2, 2.2

NAME: Dirt Roads (Site 15)

TYPE OF UNIT: Waste oil disposal area

PERIOD OF OPERATION: 1941 to 1966

PHYSICAL DESCRIPTION AND CONDITION:

The facility routinely sprayed dirt and gravel roads with oils to reduce dust. Many of the roads have been paved over with asphalt. The roads that most recently received oils are a one-and-one-half-mile section of a dirt road accessing Elliot's Beach, and the road (approximately 0.5 mile) accessing the Inert Disposal Area B (Site 13) (SWMU 12).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Waste oil, petroleum-based solvents (kerosene and gasoline), hydraulic fluids and water-based coolants were used as a dust suppressant on these roads. Approximately 600 gallons of waste oil were applied to these roads per year.

RELEASE PATHWAYS: Air (L) Surface Water (M-H) Soil (H)
Groundwater (M-H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material. The IAS estimates that the depth for oil immobilization is four inches below the road surface.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 2, 26 and 34

COMMENTS: None.

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SWMU NUMBER: 16 PHOTO NUMBER: 16.1

NAME: Pesticide Rinsate Disposal Area (Site 16)

TYPE OF UNIT: Pesticide equipment decontamination site

PERIOD OF OPERATION: 1950 to 1978

PHYSICAL DESCRIPTION AND CONDITION:

The bare soil area used for disposal of pesticide rinsate is located next to the Quonset Hut (building N-282) in the northeast section of the facility. The area of land involved consists of 150 square feet. A marsh is located approximately 700 feet northeast of the unit.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received pesticide sprays and rinsewater containing aldrin, propoxur, chlordane, dursban, malathion, naled and DDT. An estimated amount of 8,000 gallons of wastewater was disposed of in this area.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

There is documented soil contamination at this unit. Previous soil sample results indicate 8.4 ppm of total lead and 1,380 ppb 4,4'-DDT, 421 ppb 4,4'-DDE, and 486 ppb 4,4'-DDD.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling ()
RFI Necessary (X)

REFERENCES: 1, 2, 24, 26 and 34

COMMENTS: None.

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SWMU NUMBER: 17 PHOTO NUMBER: 17.1, 17.2, 17.3

NAME: Page Field Tanks (AS-16) (Site 17)

TYPE OF UNIT: Underground storage tanks

PERIOD OF OPERATION: In place since 1942

PHYSICAL DESCRIPTION AND CONDITION:

The horizontal tank units consist of four 25,000-gallon steel tanks (ten feet in diameter and 40 feet long) located at Page Field in the central section of the facility. The tanks were installed at grade then soil was mounded over them. When operational, the tanks were unloaded via a water-driven process. The tanks contained some water at the time of the VSI.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The tanks previously contained AVGAS, and were emptied in the late-1940s. They presently contain water contaminated with some fuel.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (M)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI. Soil gas monitoring via VZV Probe did not detect organic vapors at 12 selected locations around the tanks. Analysis of groundwater samples indicated that total lead was detected. Groundwater analysis also indicated chromium, cadmium, benzene, toluene or xylene were identified above detection limits. The available file material did not indicate specific levels identified.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling ()
RFI Necessary (X)

REFERENCES: 1, 14, 26 and 34

COMMENTS: It is suggested that further actions be conducted in conjunction with the state UST Program.

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SWMU NUMBER: 18 PHOTO NUMBER: 18.1, 18.2, 18.3

NAME: Page Field Tanks (AS-17) (Site 18)

TYPE OF UNIT: Underground storage tanks

PERIOD OF OPERATION: In place since 1942

PHYSICAL DESCRIPTION AND CONDITION:

This unit is located at Page Field in the center of the facility. The tanks have a capacity of 50,000 gallons, and are constructed of precast concrete. The tanks are eight-and-one-half feet high, with a diameter of 35 feet. The top of the tanks are five feet below the surface.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The tanks previously contained AVGAS. However, they were not cleaned out after the majority of the fuel was removed during the late-1940s.

RELEASE PATHWAYS: Air (L) Surface Water (H) Soil (H)
Groundwater (H) Subsurface Gas (H)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

There is documented groundwater contamination at this unit. In addition, OVA readings indicate 2.5, 30, and greater than 100 ppm. Analysis of groundwater samples indicate 250 ppb benzene, 735 ppb ethylbenzene, and 220 xylenes.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling ()
RFI Necessary (X)

REFERENCES: 1, 26, 28 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 19 PHOTO NUMBER: 19.1, 19.2

NAME: Diesel Shop Vehicle Washing Pad

TYPE OF UNIT: Concrete pad and oil/water separator

PERIOD OF OPERATION: 1988 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The Diesel Shop is located next to building 864 in the northeast section of the facility. The unit consists of two concrete pads approximately 20 feet by 15 feet. Catch basins, approximately two feet by two feet, receive wastewater from the pad. The washwater is discharged to the Sanitary Sewer System (SWMU 42) via the oil/water separator. The capacity of the separator is approximately 500 gallons, and it appeared in good condition. The unit is primarily used for washing lawn mowers.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The units receives vehicle washwater containing small volumes of oil, grease and gasoline or diesel.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 1, 26, and 34

COMMENTS: None.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 20 PHOTO NUMBER: 20.1, 20.9

NAME: Power Station Oil/Water Separator

TYPE OF UNIT: In-ground tank

PERIOD OF OPERATION: 1982 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The oil/water separator is located along the Beaufort River at the Power Plant in the northeast section of the facility. The unit receives runoff from the No. 6 fuel unloading area (approximately 30 feet long and ten feet wide) and the secondary containment for the No. 6 fuel oil tanks. Effluent from the separator is discharged to the Beaufort River. Oily water is pumped into a tank truck and transferred off-site. The oil/water separator is an in-ground fiberglass tank with a capacity of approximately 600 gallons. The unit appeared in good condition.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Waste oil is periodically skimmed off the surface of the separator, contained in a drum and transferred to the Hazardous Waste Storage Building (SWMU 36).

RELEASE PATHWAYS: Air (L) Surface Water (*) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (*)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 2, 26, and 34

COMMENTS: *Effluent from the separator is discharged into the Beaufort River. Releases to surface water are dependent on the effectiveness of the separator. Periodic sampling of the effluent is suggested.

SWMU DATA SHEET

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SWMU NUMBER: 21 PHOTO NUMBER: 21.1 thru 21.9

NAME: Weapons Power Plant Oil/Water Separator

TYPE OF UNIT: In-ground tank

PERIOD OF OPERATION: 1980s to Present

PHYSICAL DESCRIPTION AND CONDITION:

The oil/water separator is located in the west section of the facility. The unit receives runoff from a No. 6 fuel oil unloading area (approximately 30 feet long and ten feet wide) and the secondary containment for a No. 6 fuel oil tank. Effluent from the separator flows into a nearby marsh. The oil/water separator is an in-ground fiberglass tank with a capacity of approximately 600 gallons. The unit appeared in good condition.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Waste oil is periodically skimmed off the surface of the separator and transferred to the Hazardous Waste Storage Building (SWMU 36).

RELEASE PATHWAYS: Air (L) Surface Water (M) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 34

COMMENTS: *Effluent from the separator is discharged into the marsh. Releases to surface water are dependent on the effectiveness of the separator. Routine sampling of the effluent is suggested to determine if a release to surface water has occurred.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 22 PHOTO NUMBER: 29.1 thru 29.8

NAME: Motor Transport Car Wash

TYPE OF UNIT: Enclosed wash rack and oil/water separator

PERIOD OF OPERATION: 1980 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located at the Motor Pool, Building 155, in the northeast section of the facility. The wash pad is approximately 20 feet long and 15 feet wide. A small drain in the center of the concrete pad is connected to the oil/water separator situated approximately 50 yards northeast of the pad. The oil/water separator is made of concrete, and has a capacity of approximately 500 gallons. The oil is drummed and transferred to the Hazardous Waste Storage Building (SWMU 36), and the water is discharged to the Sanitary Sewer System (SWMU 42). Both the wash pad and the oil/water separator appeared in good condition.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives washwater contaminated with oil, grease, and fuel (Diesel and gasoline).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 2, 3, 26, and 34

COMMENTS: None.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 23 PHOTO NUMBER: 25.1

NAME: Indoor Dental Lab SAA

TYPE OF UNIT: Temporary storage area at point of generation

PERIOD OF OPERATION: September 1987 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is a small metal cabinet located inside the Dental Clinic. The cabinet is three feet tall, three-and-one-half feet wide and three feet deep. The unit also receives beryllium dust. Wastes are stored in 25-gallon plastic carboys. The wastes are transferred to the Hazardous Waste Storage Building (SWMU 36) prior to off-site disposal. The fixer is transferred off-site for silver recovery.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives small amounts of waste x-ray chemicals such as fixer and developer.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 24 PHOTO NUMBER: 24.1, 24.2

NAME: Dental Lab SAA

TYPE OF UNIT: Waste accumulation area located at the point of generation

PERIOD OF OPERATION: September 1988 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is a small metal storage shed used for storing medical waste generated at the Dental Clinic. The Dental Clinic is located directly adjacent to the shed. The medical waste is contained in cardboard boxes then transferred off-site to the hospital, located at the Marine Corps Air Station in Beaufort.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives non-liquid hospital/medical waste such as paper, gauze and bibbs.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 25 PHOTO NUMBER: 25.1

NAME: Paint Shop SAA

TYPE OF UNIT: Waste accumulation area located at the point of generation.

PERIOD OF OPERATION: 1984 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located in Building N-281 in the northeast section of the facility. The SAA is located on a concrete floor that appeared in good condition. The waste is contained in drums and transferred to the Hazardous Waste Storage Building (SWMU 36).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives small amounts of waste paint, stripper and thinner. In addition the unit also receives all paint solids, rags, rollers, and brushes. The VSI team observed one 55-gallon drum of paint solids and one 30-gallon drum of paint thinners at the unit.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 2, 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 26 PHOTO NUMBER: 26.1, 26.2

NAME: Pesticide SAA

TYPE OF UNIT: Waste accumulation area located at the point of generation

PERIOD OF OPERATION: Approximately 1980 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The Pesticide SAA is located on a concrete pad. Pesticide containers are stored in drums situated on the pad. The pad is a portion of a concrete loading dock located next to Building 401 and in the northeast section of the facility. The drums are transferred to the Hazardous Waste Storage Building (SWMU 36).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives waste naphtha containers and many smaller pesticide containers and bags. The VSI team noted several bags of carbaryl and small pressurized containers of dursban.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 27 PHOTO NUMBER: 27.1, 27.2, 27.3, 27.4

NAME: Equipment Parade Deck

TYPE OF UNIT: Storage area

PERIOD OF OPERATION: Unknown

PHYSICAL DESCRIPTION AND CONDITION:

The storage area is located on an asphalt pad located in the northeast section of the facility. The VSI team observed several salvage items staged at this area. The unit occupies approximately 1000 square feet of an asphalt pad that is approximately one acre in size. The asphalt was stained and cracked.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Various types of waste are managed on the unit. The Equipment Parade Deck has accumulated various out-of-service storage tanks, transformers, concrete cylinders, boilers, scrap metal and piping.

RELEASE PATHWAYS: Air (L) Surface Water (M) Soil (H)
Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The pad was in poor condition and severely stained. No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 28 PHOTO NUMBER: 28.1

NAME: Power Station SAA

TYPE OF UNIT: Waste accumulation area located at the point of generation

PERIOD OF OPERATION: Since at least 1988 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is a small concrete pad located outdoors next to the Power Station Oil/Water Separator (SWMU 20) in the northeast section of the facility. The pad is approximately ten feet by ten feet, and appeared to be cracked and severely stained. This unit is approximately 75 feet from a channel that extends to the Beaufort River. The unit receives small amounts of waste oil from the power plant operations. The unit also receives drums containing soil used to absorb No. 6 fuel oil spills that occur throughout the area. The drums are transferred to the Hazardous Waste Storage Building (SWMU 36). The unit is also used to store kerosene, which is contained in a small steel tank. The concrete beneath this tank was stained.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Soil contaminated with No. 6 fuel oil and waste oil.

RELEASE PATHWAYS: Air (L) Surface Water (M) Soil (H)
Groundwater (H) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The pad was stained and appeared in poor condition. No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 29 PHOTO NUMBER: 29.1

NAME: Indoor Motor Pool SAA

TYPE OF UNIT: Temporary accumulation area located at the point of generation

PERIOD OF OPERATION: 1988 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located inside the Motor Pool in the northeast section of the facility. Five 55-gallon drums are located along the interior east wall of the Motor Pool for shop-generated waste. The drums are transferred to the Hazardous Waste Storage Building (SWMU 36). The concrete floor appeared in good condition.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives brake drums (containing asbestos), empty pressurized spray cans, oil dry (contaminated with oil and/or fuel, oil filters and rags (contaminated with fuel, oil, or naphtha).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 6, 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 30 PHOTO NUMBER: 30.1, 30.2

NAME: Empty Drum Storage Area

TYPE OF UNIT: Staging area

PERIOD OF OPERATION: Late-1989 to Present

PHYSICAL DESCRIPTION AND CONDITION:

Empty drums are staged outdoors in the vicinity of Building 867 in the northeast section of the facility. The drums are elevated above the soil by wooden pallets. The empty drums are stored at this location unrinsed until they are transferred off-site by GSX for salvage.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The drums previously contained oil, cleaning materials and materials containing hazardous constituents. The VSI team observed approximately 50 drums staged at this unit.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (*)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 26

COMMENTS: *It is suggested that the facility locate the unit in a shed with a good floor, ventilation, and a roof.

SWMU DATA SHEET

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SWMU NUMBER: 31 PHOTO NUMBER: 31.1

NAME: Weapons Power Plant SAA

TYPE OF UNIT: Waste accumulation area located at the point of generation

PERIOD OF OPERATION: 1988 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The temporary storage area is located on the back side of the Weapons Power Plant. The drum storage area is situated on a small brick pad next to the building. The drums are transferred to the Hazardous Waste Storage Building (SWMU 36).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives waste No. 6 fuel oil and waste oil. The VSI team observed three drums at this unit.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 32 PHOTO NUMBER: 32.1, 32.2

NAME: Laundry SAA

TYPE OF UNIT: Waste accumulation area located at the point of generation

PERIOD OF OPERATION: 1957 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The laundry, or Dry Cleaning Shop, is located in Building 193 at the junction of Panama Street and Samoa Street. Fifty-five gallon drums are staged in the vicinity of the dry cleaning machines on concrete floors that appeared in good condition. However, stains were noted on the floor. The drums are transferred to the Hazardous Waste Storage Building (SWMU 36).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives 5,000 to 6,000 gallons of waste perchlorethylene still bottoms per year.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

Past violations include an unsecured drum located outside the building without the proper warning signs. No evidence of release was observed during the VSI.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 26 and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 33 PHOTO NUMBER: 33.1, 33.2

NAME: Outdoor Motor Pool SAA

TYPE OF UNIT: Temporary accumulation area located at the point of generation

PERIOD OF OPERATION: 1988 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located along the exterior west wall of the Motor Pool in the northeast section of the facility. The unit receives waste oil from the vehicle maintenance activities conducted at the Motor Pool. Waste oil is hand-carried to the unit and poured into the drums via a rain-proof funnel. The drums are transferred to the Hazardous Waste Storage Building (SWMU 36). Drums are stored on severely stained asphalt, that appeared in poor condition, or on a raised concrete pad. The staining was caused by the activities associated with the Motor Pool Waste Oil Tank (SWMU 34) and the Motor Pool Underground Waste Oil Tank (SWMU 43).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives waste oil.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 34 PHOTO NUMBER: 34.1

NAME: Motor Pool Waste Oil Tank

TYPE OF UNIT: Portable above-ground tank

PERIOD OF OPERATION: 1982 to 1988

PHYSICAL DESCRIPTION AND CONDITION:

The former tank is located at the Motor Pool in the northeast section of the facility. The tank was previously located where the Outdoor Motor Pool SAA (SWMU 33) is. The tank was moved to an area behind the motor pool building. According to facility representatives, efforts to remove the tank off-base are underway. The unit is a 400-gallon steel tank mounted on steel "I" beams. The VSI team noted an oily stain beneath the intake pipe, which appeared to have resulted from the moving activities.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives waste oil.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The VSI team noted an oily stain, apparently the result of the recent moving activities. No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 35 PHOTO NUMBER: 35.1 to 35.9

NAME: DRMO Salvage Yard

TYPE OF UNIT: Scrap area

PERIOD OF OPERATION: 1964 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located on Horse Island in the north section of the facility, and consists of approximately three acres. The yard is surrounded by a chain-link fence. Approximately 80 percent of the yard is paved with asphalt, except the southwest corner which manages scrap metal. The asphalt was cracked in the vicinity of the battery storage area (photograph 35.1). This unit receives salvage items from the facility and the Marine Corps Air Station.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Various items are handled by this unit including batteries, empty hazardous waste drums, brass, lead, fire extinguishers, tires, appliances, and scrap metal. The empty drum containers are only handled if they have been properly triple-rinsed prior to the unit's receipt. Prior to 1980, hazardous materials were stored in drums within this area for a period of no more than 42 days, for resale or recycling.

RELEASE PATHWAYS: Air (L) Surface Water (L-M) Soil (M)
Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The VSI team observed cracked asphalt beneath pallets of lead acid batteries. No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: 2, 26, and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 36 PHOTO NUMBER: 36.1 to 36.7

NAME: Hazardous Waste Storage Building

TYPE OF UNIT: Interim status container storage facility

PERIOD OF OPERATION: 1984 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located within Building 895 on Boki Street near Malacon Drive in the northeast section of the facility. The floor of the unit is concrete coated with a sealant. Secondary containment is provided by the concrete foundation of the shed. The shed exterior is corrugated metal. The storage area is approximately 30 feet by 40 feet. Drums containing hazardous waste are stored on pallets. The unit appeared in good condition. The unit receives all drummed waste from the Satellite Accumulation Areas (SWMUs 23-33) prior to off-site disposal. The facility has interim status for the unit until 1990, at which time the accumulation period would be less than 90 days. But they have withdrawn the Part A application and the SCDHEC states that the facility can no longer treat, store or dispose of hazardous waste without first obtaining the necessary permits.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Most of the hazardous waste handled in the building is contained in 50-gallon drums and includes asbestos waste, liquid paint waste, perchloroethylene still bottoms and filters, pesticide cans, rags from Motor Transport and Weapons Cleaning, and soil contaminated with motor oil or No. 6 fuel oil. Other hazardous waste stored in this building include: PCB transformers (stored in metal trays on pallets).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

Other than violations for mislabeling, no evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (*)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 9, 10, 11, 12, 24, 26, and 34

COMMENTS: *There are no further actions other than continued compliance with RCRA closure conditions.

SWMU DATA SHEET

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SWMU NUMBER: 37 PHOTO NUMBER: 37.1, 37.2, 37.3

NAME: Overflow Storage Pad

TYPE OF UNIT: Staging area

PERIOD OF OPERATION: 1984 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located at the west end of building 895 (Hazardous Waste Storage Building), and consists of a concrete pad approximately 25 feet long and ten feet wide surrounded by a fence. The unit is occasionally used to store paint wastes normally managed by the Paint Waste SAA (SWMU 25) and overflow from the Hazardous Waste Storage Building (SWMU 36). This pad was constructed over the former Paint Waste Storage Area (SWMU 8) (IAS Site 9). The concrete appeared in good condition.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit is very seldom used, but handles the same wastes as the Hazardous Waste Storage Building (SWMU 36). This unit was used primarily from 1984 to 1986. The units primary use is paint product storage.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

During the visit, lacquer thinner was observed to be dripping from a tank onto the pad. The drippage was confined to the concrete. No evidence of release was identified in the file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 24, 26, and 34

COMMENTS: None.

SWMU DATA SHEET

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SWMU NUMBER: 38 PHOTO NUMBER: 38.1, 38.2

NAME: Underground Waste Oil Tank

TYPE OF UNIT: Below-ground tank

PERIOD OF OPERATION: 1970s to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit is a 500-gallon steel tank located at the Diesel shop in the northeast section of the facility. According to the IAS study, this unit received paint wastes from the Paint Waste Storage Area (SWMU 8) (Site 9). According to facility representatives, waste oil management will be limited to drum containment. This tank is scheduled to be removed as part of the state UST Program.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received waste oil from vehicle maintenance activities and, reportedly, liquid paint waste (diesel, mineral spirits, kerosene and methylene chloride). Facility representatives could not confirm whether this unit received the paint wastes.

RELEASE PATHWAYS: Air (L) Surface Water (U) Soil (U)
Groundwater (U) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 2 and 34

COMMENTS: *It is suggested that the facility determine if the unit ever received the alleged paint wastes. The potential for release is dependent on the integrity of the unit.

SWMU DATA SHEET

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SWMU NUMBER: 39 PHOTO NUMBER: 39.1

NAME: Electrolyte Basin

TYPE OF UNIT: Sink

PERIOD OF OPERATION: 1974 to 1989

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located inside the Motor Pool battery storage room in the northeast section of the facility. The basin was used to collect expired or weak battery acid from batteries utilized by the Motor Pool. The basin is connected to the Sanitary Sewer System (SWMU 42), via three-inch high-density plastic pipes. The basin is constructed of slate, and is approximately 30 inches long, 30 inches wide and 24 inches deep. The unit is elevated above the concrete floor by a wooden stand. The unit appears to be inactive, as evidenced by rusty fixtures and rusty water observed coming from the faucet during the VSI.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received lead battery acid. Baking soda was added to the waste acid prior to flushing the liquids down the drain.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The unit is reportedly no longer in operation. No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action (*)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 2, 26 and 34

COMMENTS: *It is suggested that the facility remove the unit from the Motor Pool and close off the pipes.

SWMU DATA SHEET

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SWMU NUMBER: 40 PHOTO NUMBER: 40.1, 40.2, 40.3

NAME: Sanitary Wastewater Treatment Plant

TYPE OF UNIT: Land-based treatment unit

PERIOD OF OPERATION: 1947 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The treatment plant is located along the Beaufort River in the northeast section of the facility. The unit is a three-million-gallon capacity, standard-rate trickle filter system. The components of the plant include the primary clarifier, two trickling filters, a secondary clarifier, an anaerobic sludge digester, and a chlorination unit. Sludge drying beds were added in 1947 to 1950. In 1979, a trickling tower and recirculating pump station were added. In 1981, a new chlorine building was added. Prior to 1947, untreated waste waters were discharged into the Beaufort River via the Storm Sewer System (SWMU 42) and Outfalls. In addition to domestic sewage, the plant receives boiler blowdown from the power plants; laundry effluent; and effluent from the Power Station Oil/Water Separator (SWMU 20), the oil/water separators at the Motor Transport Car Wash (SWMU 22), and the Diesel Shop Vehicle Washing Pad (SWMU 19). Until 1985, dried sewage sludge was disposed on-site as a soil amendment, by the Roads and Grounds personnel, at various locations. Since 1985, the sludge has been transferred off-site for disposal at a land-fill. Treated wastewaters continue to be discharged into the Beaufort River under the conditions of NPDES Permit No. SC0002577.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives boiler blowdown, oil/water separator effluent, laundry effluent, and domestic sewage. In the past, the unit received neutralized battery acids, vehicle wash rack effluents and pesticide container rinsate.

RELEASE PATHWAYS: Air (L) Surface Water (M-H) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

There have been several excursions of the NPDES limitations for total chloroform and total solids between 1987 and 1988. These excursions were corrected as a result of a Diagnostic Evaluation conducted by SCDHEC in 1989. A Mercury seal broke at a trickle filter in 1989, spilling approximately one gallon of mercury. According to facility personnel, the clean up was conducted under SCDHEC supervision and subsequent approval. According to a SCDHEC memo, mercury was not detected in representative sludge samples.

SWMU DATA SHEET

Page 2 of 2

SWMU NUMBER: 40 (Cont'd)

NAME: Sanitary Wastewater Treatment Plant

RECOMMENDATION: No Further Action (*)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 2, 4, 15, 16, 17, 18, 19 and 34

COMMENTS: *No further action is suggested other than continued compliance with NPDES permit conditions.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 41 PHOTO NUMBER: Not available because this unit was dismantled.

NAME: Former Incinerator

TYPE OF UNIT: Coal-fired brick chamber incinerator sink

PERIOD OF OPERATION: 1921 to 1959

PHYSICAL DESCRIPTION AND CONDITION:

The incinerator was located adjacent to the Incinerator Landfill (SWMU 1) on Horse Island in the north section of the facility. The former unit consisted of a brick chamber approximately 43 feet long, 34 feet tall and 20 feet wide. Emissions were vented through a hole in the top of the chamber. A ramp was situated along one of the unit's sides to provide access to the top of the incinerator. Trucks carried wastes up the ramp and discharge them into the hole. The ash was disposed at the Incinerator Landfill (SWMU 1).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received ten to 20 tons of wastes per day, consisting primarily of domestic trash. The unit also received solid paint wastes such as paint scrapings, rags, cans and brushes, although these wastes were generally disposed at the Incinerator Landfill (SWMU 1).

RELEASE PATHWAYS: Air (L)* Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 2

COMMENTS: *The unit was designed to release to the air when operational. Currently there is a low release potential since the unit is no longer in service.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 42 PHOTO NUMBER: Not available due to below-ground location.

NAME: Sanitary Sewer System

TYPE OF UNIT: Underground pipe system

PERIOD OF OPERATION: 1918 to Present

PHYSICAL DESCRIPTION AND CONDITION:

The unit consists of pipes of varying sizes and materials of construction located below-ground throughout Parris Island. The system transfers wastewater to the Sanitary Wastewater Treatment Plant (SWMU 40) prior to discharge to the Beaufort River. The unit receives wastewater from oil/water separators in addition to domestic sources. This system may also include some pipes that were formerly a part of the Storm Sewer System (SWMU 14).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit receives domestic sewage, discharge from the oil/water separators, cooling tower blowdown (20,000-40,000 gal/day) and demineralized regenerant. Over the years of its operation, the system received pesticide container rinsate, small amounts of waste oil, anti-freeze and neutralized battery acid.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 2, 26, and 34

COMMENTS: *The potential for release to soil and groundwater is dependent on the integrity of the unit.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 43 PHOTO NUMBER: 33.1

NAME: Motor Pool Underground Waste Oil Tank

TYPE OF UNIT: Below-ground tank

PERIOD OF OPERATION: Inactive since approximately 1982

PHYSICAL DESCRIPTION AND CONDITION:

The unit is a below-ground tank located in the vicinity of the Outdoor Motor Pool SAA (SWMU 33) in the northeast section of the facility. The tank capacity is approximately 500 gallons, and it is made of steel. The unit received waste oil from the activities conducted at the Motor Pool. The VSI team observed severe staining around the inlet of the unit. According to facility representatives, waste oil management will be limited to drum containment. This tank is scheduled to be removed via the state UST Program.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The unit received waste oil and is currently empty.

RELEASE PATHWAYS: Air (L) Surface Water (M) Soil (H)
Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

Severe staining was observed around the inlet of the unit at the time of the VSI. No evidence of release was identified in the available file material.

RECOMMENDATION: No Further Action ()
RFA Phase II Sampling (*)
RFI Necessary ()

REFERENCES: 2, 26, and 34

COMMENTS: *The potential for release is dependent on the integrity of the tank.

SWMU DATA SHEET

Page 1 of 1

SWMU NUMBER: 44 PHOTO NUMBER: 3.3

NAME: Dumpsters

TYPE OF UNIT: Self-contained rolloff boxes

PERIOD OF OPERATION: 1960s to Present

PHYSICAL DESCRIPTION AND CONDITION:

The units are metal rolloff boxes approximately seven feet tall, five feet wide, and ten feet long. The units are located throughout the facility. The waste is transferred off-site to a sanitary landfill.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Domestic refuse.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

No evidence of release was observed during the VSI or identified in the available file material.

RECOMMENDATION: No Further Action (X)
RFA Phase II Sampling ()
RFI Necessary ()

REFERENCES: 34

COMMENTS: None.

AOC - A PCB Spill Area-A (Site 8)

PHOTO NUMBER: A.1,
A.2

In 1984, a PCB spill occurred on a grass-covered area adjacent to Building 111 in the northeast section of the facility. The spill reportedly occurred when contractors were removing three 35-gallon-capacity transformers from the building. The quantity of spillage was not provided in the available file material. Analysis of six soil samples taken from the spill area indicated 57 to 62,000 ppm PCBs. Remediation activities included the removal of 14 35- to 55-gallon drums of PCB-contaminated soil for off-site disposal. The remediation activities were performed by facility personnel in November 1985 (Reference 2, 26, and 34). It is suggested that the facility provide documentation to demonstrate the effectiveness of the remediation. Alternately, Phase II sampling may be required to determine if there is residual contamination.

AOC - B PCB Spill Area-B (Site 8)

PHOTO NUMBER: Not available, since the exact location could not be identified.

In 1983 a PCB spill occurred on an asphalt pad adjacent to Building 450 in the northeast section of the facility. The spill reportedly occurred during PCB transformer removal operations. After the transformer was transferred from the building to the pad, transformer removal personnel noted that the transformer was leaking. The transformer was relocated to another section of the pad, covered with plastic sheeting and bermed with an unspecified material. Analysis of soil samples, taken from an area adjacent to the pad, did not indicate the presence of PCBs. According to the file material, the contaminated plastic, asphalt and sand were drummed and transferred off-site for disposal (Reference 2, 6, and 24). It is suggested that the facility provide documentation to demonstrate the effectiveness of the remediation. Alternately, Phase II sampling may be required to determine if there is residual contamination.

AOC - C Gasoline Spill Area (Site 9)

PHOTO NUMBER: Not available, since the exact location could not be identified.

In December 1983, approximately 97 gallons of gasoline spilled in the vicinity of Building 170 in the northeast section of the facility. The spill reportedly occurred when an in-ground day tank overflowed during filling operations. The gasoline flowed from the tank area onto a grass-covered area, forming small pools. According to the file material, the contaminated soil was removed. Exact details of the removal activities were not provided in the available file material (Reference 2). It is suggested that the facility provide documentation to demonstrate the effectiveness of the remediation.

The MCX Service Station (AOC D) was formerly identified as Building 850 in the northeast section of the facility. The building was demolished in 1985. Four 5,000-gallon underground gasoline tanks remain at this location. These tanks are in the immediate vicinity of the MCX Service Station Spill Area (IAS Site 11) (SWMU 9). Three groundwater monitoring wells installed for remediations associated with the MCX Service Station Spill Area (IAS Site 11) (SWMU 9) were sampled and analyzed for benzene, toluene, xylenes, ethylbenzene, dissolved metals (cadmium, chromium, and lead), total organic carbon, pH, and specific conductivity. In addition, gas monitoring in the unsaturated zone was conducted at 20 locations in the vicinity of the tanks. Results of the groundwater analysis indicated 1.53 to 4.06 ppm total organic carbon and 0.006 to 0.028 ppm lead. The other parameters were not identified at levels above detection limits. Two OVA readings exceeded 1,000 ppm and readings at the other locations indicated 0 to 4.5 ppm. According to facility representatives, these tanks are scheduled for removal under the state UST program. It is suggested that an RFI be conducted in coordination with the tank removal program.

IV. SUMMARY

Chapter IV consists of five tables categorizing the SWMUs and the AOCs identified at the U.S. Marine Corps Recruit Depot. Table IV-1 lists all the SWMUs and AOCs identified during the VSI. Table IV-2 is a list of SWMUs requiring no further action. The SWMUs in this table have a low potential for release, handle non-hazardous materials or are no longer active. Table IV-3 lists the RCRA-regulated units. Table IV-4 is a list of SWMUs requiring integrity testing and/or Phase II sampling. Table IV-5 is a list of SWMUs and AOCs requiring an RFI. The sampling strategy is presented in Chapter V.

TABLE IV-1

List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs).

<u>SWMU NUMBER</u>	<u>SWMU NAME</u>
1	Incinerator Landfill (Site 1)
2	Borrow Pit Landfill (Site 2)
3	Causeway Landfill (Site 3)
4	Dredge Spoils Area Fire Training Pit (Site 4)
5	Former Paint Shop Disposal Area (Site 5)
6	Former Automotive Hobby Shop Spill Area (Site 6)
7	Page Field Fire Training Pit (Site 7)
8	Paint Waste Storage Area (Site 9)
9	MXC Service Station Spill Area (Site 11)
10	Jericho Island Disposal Area (Site 12)
11	Inert Disposal A (Site 13)
12	Inert Disposal B (Site 13)
13	Inert Disposal C (Site 13)
14	Storm Sewer System
15	Dirt Roads (Site 15)
16	Pesticide Rinsate Disposal Area (Site 16)
17	Page Field Tanks (AS-16) (Site 17)
18	Page Field Tanks (AS-17) (Site 18)
19	Diesel Shop Vehicle Washing Pad
20	Power Station Oil/Water Separator
21	Weapons Plant Oil/Water Separator
22	Motor Transport Car Wash
23	Indoor Dental Lab SAA
24	Dental Lab SAA
25	Paint Shop SAA
26	Pesticide SAA
27	Equipment Parade Deck SAA
28	Power Station SAA
29	Indoor Motor Pool SAA
30	Empty Drum Storage Area
31	Weapons Power Plant SAA

TABLE IV-1 (continued)

<u>SWMU NUMBER</u>	<u>SWMU NAME</u>
32	Laundry SAA
33	Outdoor Motor Pool SAA
34	Motor Pool Waste Oil Tank
35	DRMO Salvage Yard
36	Hazardous Waste Storage Building
37	Overflow Storage Pad
38	Underground Waste Oil Tank
39	Electrolyte Basin
40	Sanitary Wastewater Treatment Plant
41	Former Incinerator
42	Sanitary Sewer System
43	Motor Pool Underground Waste Oil Tank
44	Dumpsters
A	PCB Spill Area A (Site 8)
B	PCB Spill Area B (Site 8)
C	Gasoline Spill Area (Site 10)
D	MCX Service Station (Site 19)

TABLE IV-2

List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring no further action.

<u>SWMU NUMBER</u>	<u>SWMU NAME</u>
8	Paint Waste Storage Area (Site 9)
19	Diesel Shop Vehicle Washing Pad
20	Power Station Oil/Water Separator
22	Motor Transport Car Wash
23	Indoor Dental Lab SAA
24	Dental Lab SAA
25	Paint Shop SAA
26	Pesticide SAA
29	Indoor Motor Pool SAA
30	Empty Drum Storage Area
31	Weapons Power Plant SAA
32	Laundry SAA
33	Outdoor Motor Pool SAA
34	Motor Pool Waste Oil Tank
36	Hazardous Waste Storage Building
37	Overflow Storage Pad
39	Electrolyte Basin
40	Sanitary Wastewater Treatment Plant
41	Former Incinerator
44	Dumpsters
AOC A*	PCB Spill Area-A (Site 8)
AOC B*	PCB Spill Area-B (Site 8)
AOC C*	Gasoline Spill Area (Site 9)

*Documentation of remediation has been suggested. Phase II sampling may be warranted if the data are not available to verify adequate remediation.

TABLE IV-3

List of Solid Waste Management Units (SWMUs) that are RCRA-regulated.

<u>SWMU NUMBER</u>	<u>SWMU NAME</u>
36	Hazardous Waste Storage Building

TABLE IV-4

List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring Integrity Testing and/or Phase II Sampling.

<u>SWMU NUMBER</u>	<u>SWMU NAME</u>
5	Former Paint Shop Disposal Area (Site 5)
7	Page Field Fire Training Pit (Site 7)
9	MXC Service Station Spill Area (Site 11)
10	Jericho Island Disposal Area (Site 12)
11	Inert Disposal Area A (Site 13)
13	Inert Disposal C (Site 13)
14	Storm Sewer System
15	Dirt Roads (Site 15)
21	Weapons Power Plant Oil/Water Separator
27	Equipment Parade Deck SAA
28	Power Station SAA
35	DRMO Salvage Yard
38	Underground Waste Oil Tank
42	Sanitary Sewer System
43	Motor Pool Underground Waste Oil Tank

TABLE IV-5

List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) requiring an RFI.

<u>SWMU NUMBER</u>	<u>SWMU NAME</u>
1	Incinerator Landfill
2	Borrow Pit Landfill
3	Causeway Landfill
4	Dredge Spoils Area Fire Training Pit
6	Former Automotive Hobby Shop Spill Area
12	Inert Disposal Area B
16	Pesticide Rinsate Disposal Area
17	Page Field Tanks
18	Page Field Tanks
AOC D	MCX Service Station

CHAPTER V

SUGGESTED SAMPLING STRATEGIES

<u>Unit No.</u>	<u>Unit Name</u>	<u>Operational Dates</u>	<u>Suggested Sampling</u>	<u>Evidence of Release (Yes/No)</u>
5	Former Paint Shop Disposal Area (Site 5)	1930s to 1960s	Conduct soil sampling along the river bank. Sample depths should exceed the depths of the recently added fill. Analyze the samples for Appendix IX metals.	Yes
7	Page Field Training to 1976 Pit	mid-1960s	Locate the fuel pipes and determine their integrity. If the integrity is impaired, conduct soil sampling beneath the pipes (in sufficient numbers) and analyze the samples for Appendix IX metals, volatiles and semi-volatiles. Remove the pipes. Conduct soil sampling beneath the cracked concrete pavement (in sufficient numbers and depths). Analyze the samples for Appendix IX metals.	Yes
9	MCX Service Station Spill Area (Site 11)	1969 to 1983	Determine the integrity of the tank. If the integrity is impaired, sample the soil beneath the tank (in sufficient numbers) to determine if hazardous constituents have been released. Sample in the vicinity of the tank inlet to verify remediation efforts were sufficient. Analyze the samples for Appendix IX metals and semi-volatiles. Remove the tank.	Yes

Unit No.	Unit Name	Operational Dates	Suggested Sampling	Evidence of Release (Yes/No)
10	Jericho Island Disposal Area (Site 12)	1955 to 1968	Conduct soil/sediment sampling in the vicinity of and beneath the waste piles. Analyze the samples for Appendix IX metals, volatiles, and semi-volatiles.	Yes
11	Inert Disposal Area A (Site 13)	1970 to Present	Conduct sampling in vicinity of exposed water table to verify if hazardous constituents have been released. Analyze the samples for Appendix IX metals, volatiles and semi-volatiles.	No
13	Inert Disposal Area C (Site 13)	1976 to Present	The unit is underlain by the Dredge Spoils Fire Training Pit (Site 4) (SWMU 4). Conduct soil samplint in the spoils area (in suffucient numbers and depths). Analyze the samples for Appendix IX metals. Coordinate sampling activities with the RFI for the Dredge Spoils Fire Training Pit (Site 4) (SWMU 4).	Yes
14	Storm Sewer System	1918 to Present	Determine the integrity of the unit in the areas that received shop wastes. If the integrity is impaired, conduct soil sampling beneath the impaired sections to determine if hazardous constituents have been released. Analyze the samples for Appendix IX metals, volatiles and semi-volatiles.	No
15	Dirt Roads (Site 15)	1941 to 1966	Sample the soil beneath the roadways (in sufficient depths and numbers) to determine if hazardous constituents have been released. Analyze the samples for for Appendix IX metals, volatiles and semi-volatiles.	No

<u>Unit No.</u>	<u>Unit Name</u>	<u>Operational Dates</u>	<u>Suggested Sampling</u>	<u>Evidence of Release (Yes/No)</u>
21	Weapons Power Plant Oil/Water Separator	1980s to Present	Sample the effluent prior to discharge to nearby marsh. Analyze for Appendix IX metals and semi-volatiles. Based on these results, further sampling may be warranted at nearby marsh.	No
27	Equipment Parade Deck	Unknown	Sample the soil beneath the cracks in the asphalt, particularly in stained areas, to determine if hazardous constituents have been released. Analyze the samples for Appendix IX metals, volatiles, semi-volatiles and PCBs.	Yes
28	Power Station SAA	1988 to Present	Conduct soil sampling beneath the cracks of the concrete pad and along the edge of the pad to determine if hazardous constituents have been released. Analyze the samples for Appendix IX metals, volatiles and semi-volatiles.	Yes
35	DRMO Salvage Yard	1964 to Present	Sample the soil beneath the cracks featured in photograph 35-1. Analyze the samples for Appendix IX metals and semi-volatiles.	Yes
38	Underground Waste Oil	1970s to Present	Determine the integrity of the unit. If the unit is impaired, sample the soil beneath the unit (in sufficient numbers) to determine if hazardous constituents have been released. Analyze the samples for Appendix IX metals and semi-volatiles. Remove tanks.	Unknown

<u>Unit No.</u>	<u>Unit Name</u>	<u>Operational Dates</u>	<u>Suggested Sampling</u>	<u>Evidence of Release (Yes/No)</u>
43	Motor Pool Underground Waste Oil Tank	Inactive since 1982	Determine the integrity of the unit. If the unit is impaired, sample the soil beneath the unit (in sufficient numbers) to determine if hazardous constituents have been released. Analyze the samples for Appendix IX metals and semi-volatiles. Remove tanks.	No

VI. REFERENCES

1. Remedial Investigation Report for Marine Corps Recruit Depot, MCRD, Parris Island, South Carolina, by McClelland Engineers, conducted September, 1988.
2. Initial Assessment Study of MCRD, Parris Island, South Carolina, by Dames & Moore, conducted September, 1986.
3. Permit to Operate Oil/Water Separator by South Carolina Department of Health and Environmental Control (SCDHEC) for a MCRD, Parris Island, South Carolina, May 16, 1988.
4. Report on an On-Site Evaluation of the U.S. Marine Corps. Parris Island Training Center Wastewater Treatment Plant Environmental Laboratory by SCDHEC, December 6, 1984.
5. Notification of Hazardous Waste Activity for MCRD, Parris Island, South Carolina, December 12, 1979.
6. Letter from John C. Lank, P.E., to General Joe Hoar, US MCRD, July 19, 1988, Re: Hazardous Waste Inspection Conducted by the EPA and the SCDHEC.
7. Letter from Zollie C. Green, Capt., SCANG, to Mr. Steven Stickland, SCDHEC, December 11, 1987, Re: Request for Recycling On-Site Variance.
8. Letter from George M. Jonas, Jr., Defense Logistics, to Zollie C. Green, Capt., SCANG, May 28, 1987, Re: Classification of Silver Recovery Cartridges.
9. Memorandum from Penny J. Jones, SCDHEC, to File SCDHEC, September 30, 1985, Re: Findings Pursuant Administrative Order 85-55-SW for Marine Corps Recruit Depot, Parris Island Beaufort County.
10. Letter from Penny J. Jones, SCDHEC, to the Commanding General MCRD, Parris Island, May 8, 1985, Re: Inspection findings from September 25, 1984.
11. Inter-office memo from Gary Dukes, SCDHEC, to Philip Prater, SCDHEC, April 3, 1985, Re: ISS/Follow-up Inspection of Parris Island MCRD.
12. Letter from Amy A. Bakowski, SCDHEC, to Commanding General MCRD, Parris Island, September 20, 1989, Re: Action on Withdrawal Request of Notification/Application for Hazardous Waste Treatment, Storage, and Disposal Facility.

13. Inter-office memo from Gary Dukes, SCDHEC, to John Cresswell, SCDHEC, September 28, 1984, Re: Potential Hazardous Waste Site Preliminary Assessment MCRD, Parris Island, S.C.
14. Closure Plan, Post-Closure Plan and Financial Responsibility to the MCRD, Parris Island, South Carolina, revised July 1989.
15. Compliance Sampling Inspection of the MCRD, Parris Island, South Carolina, by the SCDHEC on February 23, 1989.
16. Memorandum from Sandra L. Hursey, EQM Enforcement Section, to File, for MCRD, Parris Island, S.C., June 20, 1989, Re: Inspection.
17. Memorandum from Brian Rivers SCDHEC, to Brian Rivers Facilities Compliance Section, February 16, 1989, Re: Diagnostic Evaluation of MCRD, Parris Island, S.C.
18. Letter from Jerry E. Watson, SCDHEC, to Commanding General MCRD, Parris Island, April 27, 1988, Re: U.S. Marines/Parris Island NPDES Permit #SC0002577 Beaufort County and Compliance Sampling Inspection.
19. Letter from C.R. Casey, MCRD, Parris Island, to Mr. Stephen C. Thomas, SCDHEC, February 12, 1988, Re: NPDES Permit violations.
20. Letter from David E. Wilson, SCDHEC, to Colonel J.B. Hicks, Jr., MCRD, Parris Island, January 13, 1989, Re: Closure Plan for MCRD, Parris Island.
21. Modified NPDES Permit #SC0002577 Parris Island, South Carolina, October 20, 1986.
22. Submittal of Results of Well Installation and Sampling Activities at MCRD, Parris Island, South Carolina, by McClelland consultants, April 24, 1989.
23. Letter from David D. Jenkins Champion Structure Co., to Lynn Cooper, SCDHEC, March 31, 1982, Re: Drill Instructor Training Facility at the MCRD, Parris Island, S.C.
24. Inspection Report of the MCRD, Parris Island, S.C., September 16, 1987 by the USEPA Region IV.
25. Letter from William G. Dukes, Jr., SCDHEC, to Lt. Commander Holmes, MCRD, Parris Island, S.C., July 8, 1981, Re: Close-out of Digester Sludge/Scum Disposal Site Located Near Royal Pines S/D Beaufort County.
26. SCDHEC Sanitary Landfill Permits DWP-905 and DWP-909.
27. Letter from Russell E. Berry, SCDHEC, to Colonel C.R. Casey, US MCRD, Parris Island, S.C., November 16, 1987, Re: Interim Status Inspection, USMC Recruit Depot, Parris Island.

28. Letter from James R. Hess and David Baize, SCDHEC, to Colonel Hicks, MCRD, Parris Island, S.C., October 16, 1989, Re: Underground Storage Tanks, Extension Request dated September 6, 1989.
29. Report on Waste Disposal Practices at U.S. Marine Corps East Coast Recruit Depot, Parris Island, Beaufort County, South Carolina, by the United States Department of the Interior, Federal Water Pollution Control Administration, October 1969.
30. Federal forms 1 and 3 (Part A Application) for the U.S. Marine Corps Recruit Depot, Parris Island, Beaufort County, South Carolina, submitted by MCRD, Parris Island.
31. South Carolina Air Permit submitted by the U.S. Marine Corps Recruit Depot, Parris Island, Beaufort County, South Carolina, February 1, 1990.
32. Letter from Colonel J.E. Hicks, Jr., MCRD, to Jerry E. Watson, SCDHEC, July 24, 1989, Re: Status of the compliance with the NPDES Permit.
33. Soil Survey of Beaufort and Jasper Counties, South Carolina, United States Department of Agriculture, Soil Conservation Service, 1975.
34. Notes from the Visual Site Inspection conducted February 1, 1990.

APPENDIX A
SWMU LOCATION MAP

(SAs) and Areas of Cont. (SAs).

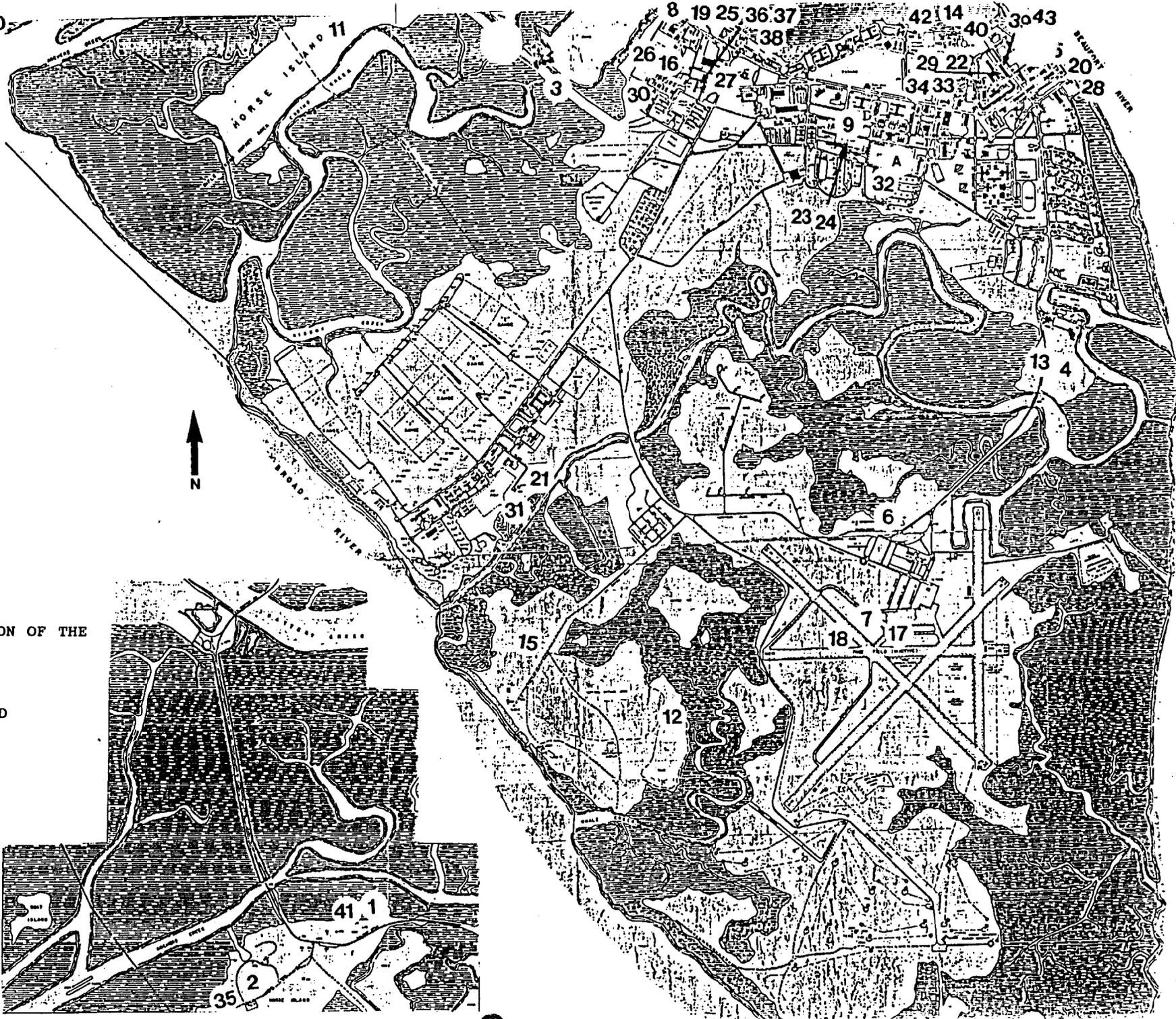
SYMBOL NAME

- or Landfill (Site 1)
- Landfill (Site 2)
- Landfill (Site 3)
- ills Area Fire Training Pit (Site 4)
- nt Shop Disposal Area (Site 5)
- omotive Hobby Shop Spill Area (Site 6)
- Fire Training Pit (Site 7)
- Storage Area (Site 9)
- Station Spill Area (Site 11)
- Land Disposal Area (Site 12)
- Basin A (Site 13)
- Basin B (Site 13)
- Basin C (Site 13)
- er System
- (Site 15)
- Wastate Disposal Area (Site 16)
- Tanks (AS-16) (Site 17)
- Tanks (AS-17) (Site 18)
- Vehicle Washing Pad
- Oil/Water Separator
- Oil/Water Separator
- Sport Car Wash
- tal Lab SAA
- SAA
- SAA
- SAA
- Parade Deck SAA
- ion SAA
- or Pool SAA
- Storage Area
- ver Plant SAA
- A
- cor Pool SAA
- Waste Oil Tank
- ge Yard
- Waste Storage Building
- Storage Pad
- d Waste Oil Tank
- e Basin
- estewater Treatment Plant
- erator
- ver System
- Underground Waste Oil Tank
- Area A (Site 8)
- Area B (Site 8)
- Fill Area (Site 10)
- Station (Site 19)

G APPROXIMATE LOCATION OF THE

SCALE NOT PROVIDED

Reference 34



APPENDIX B
VSI LOG BOOK

①

PARRIS ISLAND

VSI

Feb 2, 1990

arrived @ 2:00 am

SUNNY, 50°F, WINDS CALM

Greeted by Gary Dulce
and Joseph Nakari

(2)

(3)

WASTE MINIMIZATION ODES
TO DRMO

MILITARY HAS BEEN MANDATED
TO REDUCE WASTE
GOING TO NEW PAINTS
SOLVENTS

IND HOUSE MAINTENANCE
IS NOW CONTRACTED (2 YRS)

BUY WHAT YOU NEED

3 TRANSFORMER ON BASE

INSURANCE WAREHOUSE NOW PCB

RECRUITS ^{weapons/bags} CLEAN GO OUT
10 GSX USE SAFETY KNOB

④

Roll 1

①

m/w facing W
ash disposal area

IRP Site #1
Incinerator
landfill

Incinerator

⑤

②

Close-up m/w Incinerator
ash disposal area

③

View facing W showing
Incinerator ash landfill
and one of the GW
stormwater outfalls

IRP Site 2 Borrow Pit

← view

surrounded by bank/road

④

view showing landfill and
top of bank

⑤

view of Bank facing N

⑥

view of GW m/w facing W

(6)

Inert Landfill Summ 13

(7)

7-8

Close-up of pit at
landfill showing types
of waste currently disposed.
• suspect gas at bottom of pit
• mixed tires and containers

9-11
9-12

Panorama End to South
showing typical waste
@ 7 acres.

(8)

DRUM SCRAP YARD

(9)

Plan to move drums
to new site for
expected new site for
Hazardous waste
facility

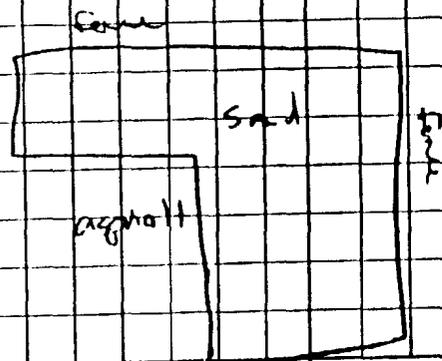
(13) Battery Storage

Recycle lead, brass, cardboard

(14) Drums of lead

(15) Drums of brass

(16) Scrap Pile for scrap
steel



(17) close up of scrap

10

SCRAP Area DEMO

11

18) empty drums
asphalt was in fair condition.

19) battery storage
plan to phase batteries out

(12)

Landfill Causeway

(13)

@ 1 mile to 3/4 mile

.8 mile

10 ft about high tide

(20-23)

20 close up of side

21 } two views of
22 } causeway

23 other side

14

SUBMIT

SUMMIT 65

Masonry Shop SPA Bldg 865

15

Summit 65

Empty DSA 867

Some for targets

oil

24, 25

4-5 months old

transferred off site to

G-X

EQUIPMENT PARADE DECK SPA

will 7-11

26-32

8-11

16

Bldg 401 (66) ^{sum.}

17

33 (34) Pesticide SAA

35) ? (sum 14)
Pesticide Rinse area
pump in Jo wells and
framing NE

36) Paint Waste SAA
sum 63
Bldg N 281
at least since 62

(sum 33)
37) Oil Separator

@ SFT deep * 9 ft

38) new sep tank

(18)

40 + 41 Summary

(19)

wash oils tank

ROLL 2

(1) Waste oil tank

(2) ^{sum} st ~~Corner~~ Overflow Pond
at bldg 277

Appeared in good
condition

(3) st st ~~drinking~~ water tower

(4) st st Bldg 845 asbestos waste
oil may have some
solvents, currently pit
for haz waste.

floor appeared in good cond.

(20)

(21)

(4) waste oil
(5) asbestos } off site

Soil and oil H₂O oil
waste from power plant

(7)

34

895
(8) old oil separator
replaced by new one

(9-10) haz storage Bldg
interim status till 1978
try to get ≤ 100 ug/g
mid 80s

(11) PCB transformers

(22)

(23)

Ⓢ

Sod runs

ly-p PA in waste

TEE still buttons +

filters

Postmark cans

RAYS from motor T

RAYS for uppers
cleaning

break for CLP

Sort motor oil

Dibron

(24)

(25)

FREUN SAA

by long as has
known they've
done this
charging Refrig
AC

7th Feb (12)
10:40

cutting oil & metal
shavings → drums →
point hwy

SLIP → DEMO

Broke for lunch 12:00

Returned from lunch 1:00 pm

26

27

14, 15, 16

Panorama of Dredge
Spill area facing
south

Fire Training exhibit

17, 18, 19

100-A

Fuel Storage Area
near Dredge Spill site

20-22

AS 16

Rep tank and
surrounding area

(22) shows bank
that tanks are
situated on

AS 18

tanks



marsh

(28)

Pay field (29)

(23 24)

summit
" "

AS 18 Fuel storage
along pad and
possible manways
to tanks.

(25)

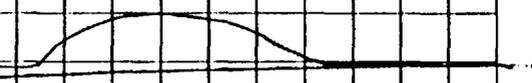
10

GW MW A1 AS 18

Also constructed on bank

AS 16

Road



summit

Underground Tank at Hobby shop
in vicinity of AS 16

(26)

14

(30)

Page Field

Site 7

(31)

27-28

panorama facing
south

(29)

(30)

Roadway that received
oils facing east

Roadway that received
oils facing west
showing proximity
to surface water

31-36

shots of
weirags SAN
dss
+ Fuel area

(37)

USTs

32

33

764



Brick

drums in good cond.

1.5 yrs

Weapons Burn Plant SAA

WASTE #6 fuel oil SAA

Ad DW separator



plant

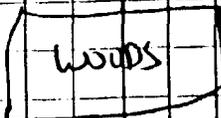


take



2500 gal tank

ows



WOODS

(34)

ROLL 3

(35)

- ① ³⁰ Betan - USTIS at Blvd de France
- ② ³⁰ locator of msx tank
- ③ ³⁰ where msx was
 SUMU 11
 11/1/21
- these tanks have been deferred to USTI
- ④ ³⁰ silver recovery SAP SUMU 99
- ⑤ ³⁰ Raylin 40 lbs / yr
 from decont. eq. plant
 that is vacuumed
 small plastic pail
 + bag w/ clings
 + Gary Daker's shop
- ⑥ ³⁰ Hosp waste SAP
 3 boxes / day to
 Hospital 1/week

SUMU 52

at least Sept 88 since

36

37

MOTOR TRANSPORT

sum
34

old us 5

7 overview of waste oil SAA
and old WASTE oil tank

8 close up of asphalt at
sum 34

9 close up of indoor waste area

sum 42

10 Acid (Battery) neutralization basin
no longer used

plastic pipe discharged
to sanitary sewer

add baking soda

Shop mostly uses naphtha
in degreasers

11 carwash

within Transport
Area

38

10, 25

39

11/12 Honey Dipper + sand act
farm north

13+14 WASH RACK gw separator
2/24 facing west

Wastewater Treatment Unit SWMU?

Removed Rock Flute Rock
cleaned drains
hauled off as haz waste

Brick + Industrial

15, 16, 17
10, 21, 22
cleaned up to the
satisfaction of SCEPA

1 million gpd
permitted for 3 mil

EPS hauls
sludge

rough filter

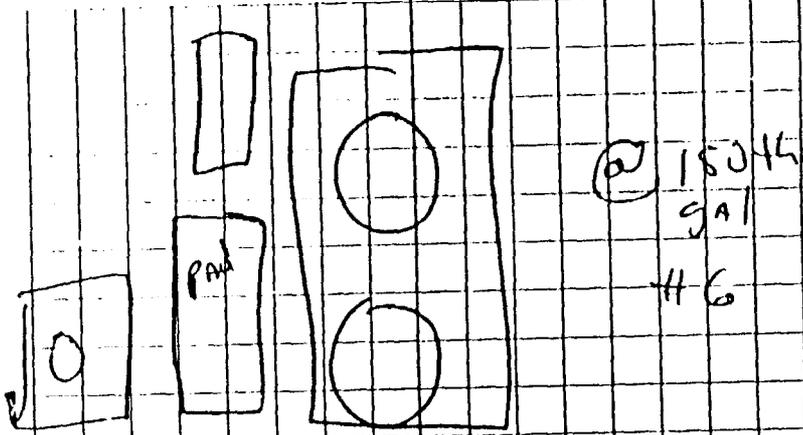
On line gr. filter
→ primary - aerobic digester
ozone filter & tank
coagulant
clarifier

drying beds

(9)

RIVER

(41)



area sink H503

Check NPDES

SWYHU 45

18-26 → Fuel Plant for Power Plant
12-11

use oil winter time

27-28 containment + steam

29 sulfuric acid

summit

30+31 5-6 lbs 1lb/gal perchloric acid
perchloric acid: CAA

RESEARCH

(42)

(43)

sum. 5/16
PCB

SPILL AREA

equipad at 450 at scrap pad *

one pcb crew is at
scrap pad cleaned

grassy area adjacent to
bldg 111

! Took photographs 20-30
PCC ONE

Revisit Bldg 296
adjacent to 170

those tanks were a mistake
when the facility submitted
its initial Part A

APPENDIX C
PHOTOGRAPH LOG

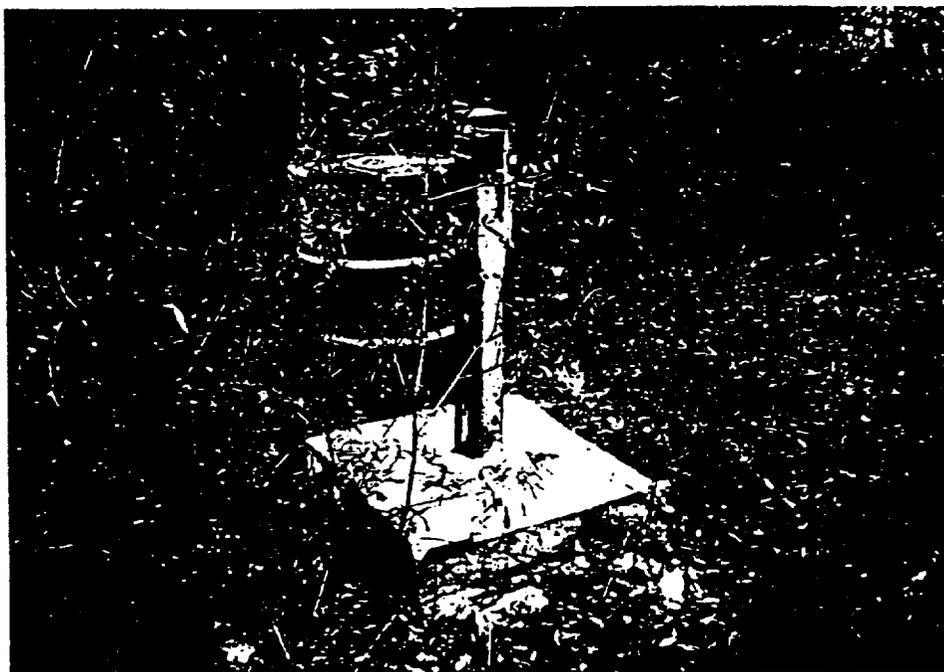


1.1

Overview of the Incinerator Landfill (Site 1) (SWMU 1) on Horse Island in the north section of the facility facing northwest. The creek in the foreground is Archers Creek.



1.2 North-facing view of the Incinerator Landfill (Site 1) (SWMU 1) showing one of the 60 outfalls (Site 14) connected to the storm Sewer (SWMU 14). The landfill is bounded on three sides by a marsh.



1.3 Close-up of a groundwater monitoring well at the Incinerator Landfill (Site 1) (SWMU 1). The 55-gallon drum contains the well-boring cuttings.



2.1 South-facing view of the Borrow Pit Landfill (Site 2) (SWMU 2) in the north-central section of Horse Island in the north section of the facility. The landfill is in the depression featured in the center of the photograph.



2.2 Northeast view facing the road providing access to the Borrow Pit Landfill (Site 2) (SWMU 2). The landfill is located to the right of the road.



2.3 Close-up of a groundwater monitoring well for the Borrow Pit Landfill (Site 2) (SWMU 2) facing northwest. A marsh is situated beyond the trees featured in the center of the photograph.



3.1 North-facing view of the Causeway Landfill (Site 3) (SWMU 3) showing a portion of the rip-rap sides. The landfill connects Horse Island to Parris Island. The water featured in the left-hand side of the photograph is connected to Ribbon Creek.



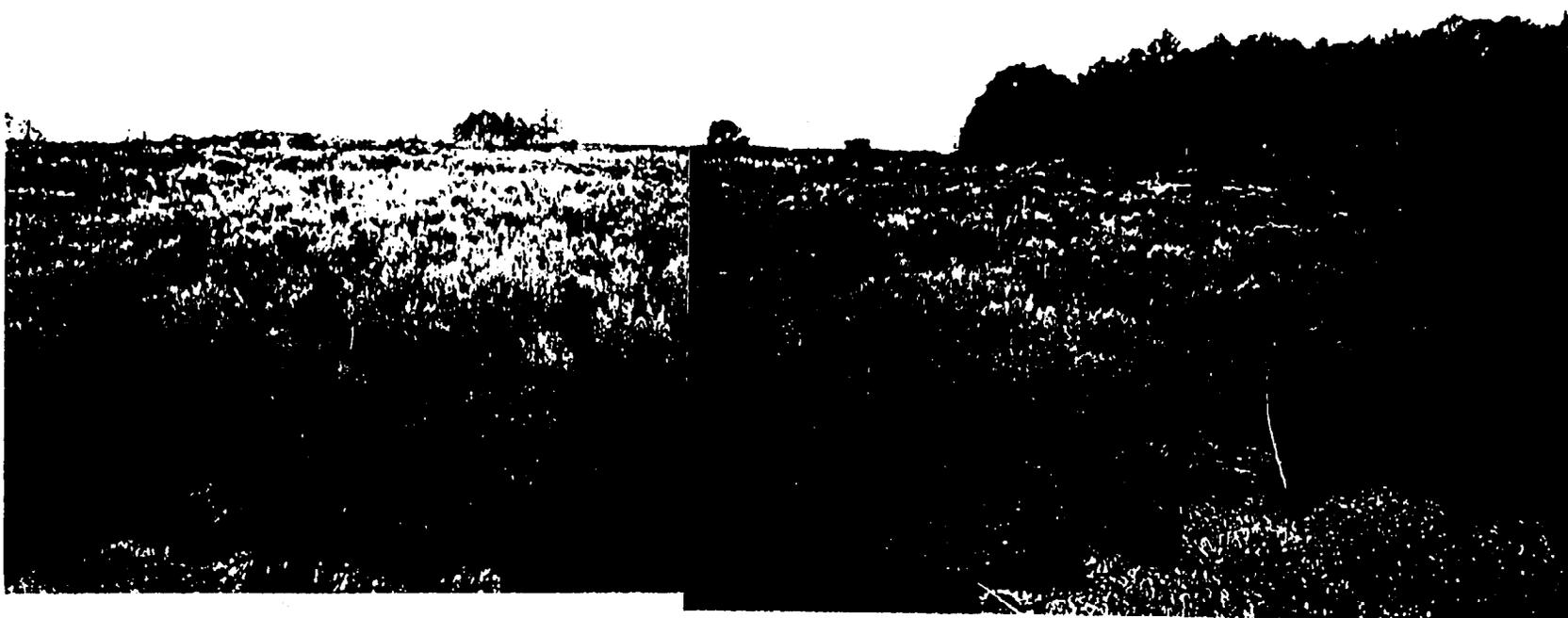
3.2 Overview of the Causeway Landfill (Site 3) (SWMU 3) facing southeast.



3.3 Overview of the Causeway Landfill (Site 3) (SWMU 3) facing northwest. Note the Dumpster (SWMU 44) in the right-center of the photograph.



3.4 Southeast-facing view of the Causeway Landfill (Site 3) (SWMU 3) showing the tidal pond on the left side of the photograph. The pond is connected to Ribbon Creek.

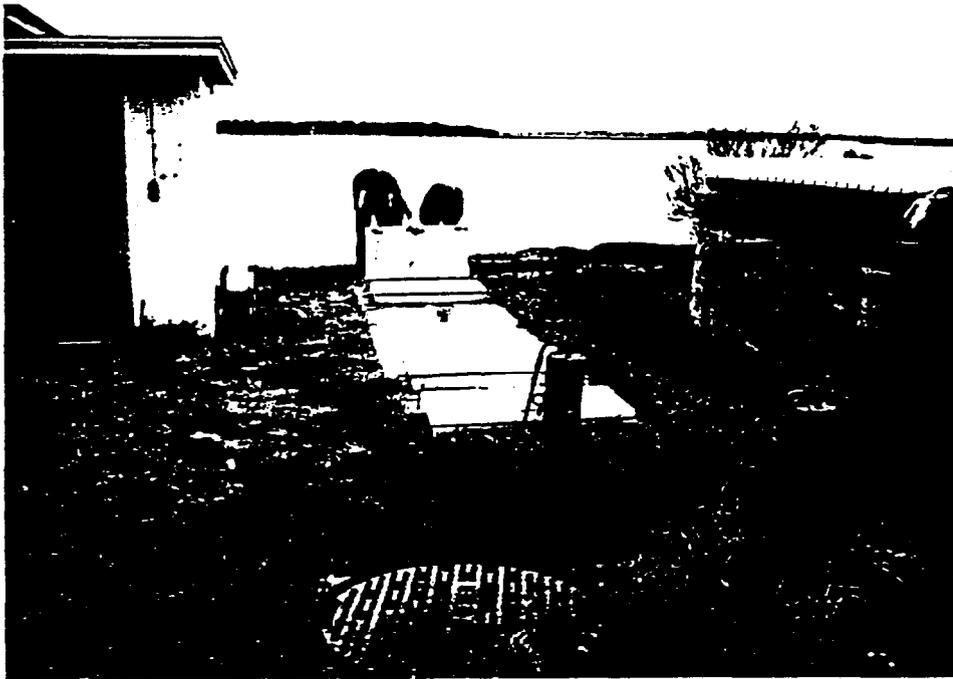


4.1, 4.2. Panorama of the of the southeast section of the facility showing the approximate location of the Dredge Spoils Area Fire Training Pit (Site 4) (SWMU 4). The view is facing south. The fire training pit is beneath the overlying soils which are marine spoils. The marine spoils deposits make up the Inert Disposal Area C (Site 13) (SWMU 13). Note the standing water in the foreground.



4.3

Continuation of photographs 4.1 and 4.2.



5.1 View of the Power Station Oil/Water Separator (SWMU 20) along the Beaufort River in the northeast section of the facility. The view also shows the approximate location of the river bank used as the Former Paint Shop Disposal Area (Site 5) (SWMU 5). The view is facing east.



6.1 View of the Former Hobby Shop Spill Area (Site 6) (SWMU 6) located in the vicinity of Page Field in the southeast section of the facility. The view is facing south. Note the pipe inlet in the center of the photograph and the groundwater monitoring in the left hand corner of the photograph. The darkened area around the inlet was caused by the previous evening's rainfall.



7.1, 7.2

Panorama of a portion of Page Field showing the location of the Page Field Fire Training Pit (Site 7) (SWMU 7). This unit is located in the southeast section of the facility. The view is facing southeast. The drum featured in the upper left-hand corner of the panorama contains groundwater monitoring well cuttings.



8.1 East-facing view of the northeast section of the facility in the vicinity of Building 277N showing the location of the Paint Waste Storage Area (Site 9) (SWMU 8)



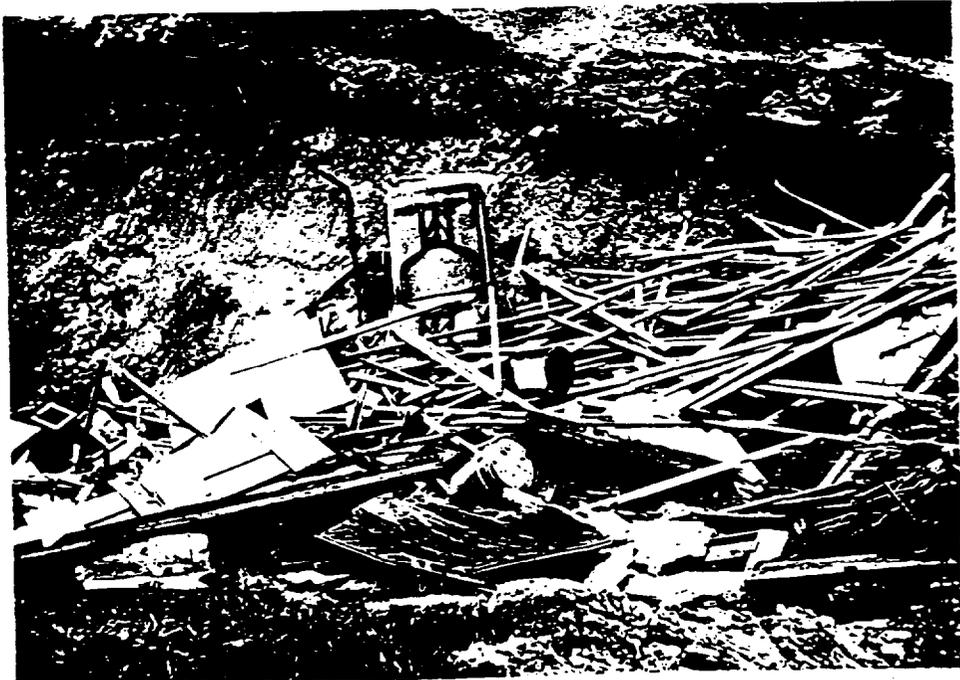
9.1 View of the former location of Building 850 showing the approximate location of the MCX Service Station Spill Area (Site 11) (SWMU 9). The unit is in the northeast section of the facility. The view is facing north.



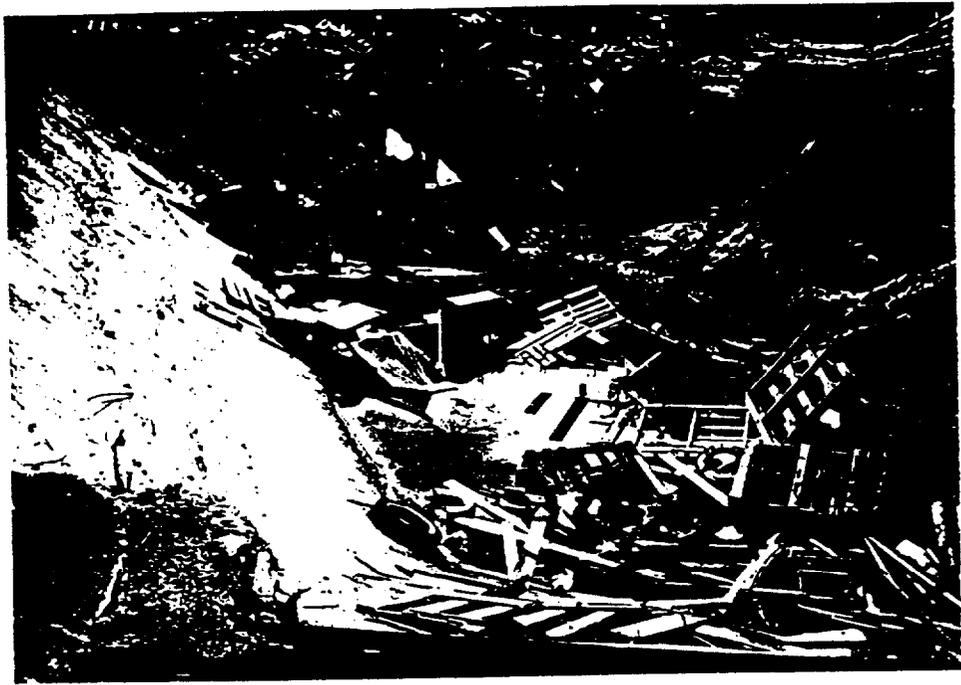
11.1 11.2 Panorama of the Inert Disposal Area A (Site 13) (SWMU 11) located in the central section of Horse Island in the north section of the facility. The view is facing northwest.



11.3 Continuation of the Inert Disposal Area A (Site 13) (SWMU 11) panorama shown in photographs 11.1 and 11.2. This photograph continues from the left of that panorama.



11.4 Close-up of a trench showing the type of wastes disposed at the Inert Disposal Area A (Site 13) (SWMU 11). Note some of the waste is metal.



11.5 Close-up of a trench at the Inert Disposal Area A (Site 13) showing the exposed water table.



15.1 Northeast view of the road to Elliot's Beach in the west section of the facility. This road is one of the Dirt Roads (Site 15) (SWMU 15) that received oil sprays for dust control.



15.2 Southwest view of the Broad River taken from the road to Elliot's Beach. This road is one of the Dirt Roads (Site 15) (SWMU 15) that received oil sprays for dust control.



16.1 View of the Pesticide Rinsate Disposal Area (Site 16) (SWMU 16) in the northeast section of the facility. The view is facing northeast.



17.1 View of the road leading to the Page Field Tanks (AS-16) (Site 17) (SWMU 17) in the south section of the facility. The view is facing northeast.



17.2 Close-up of the earthen mound covering the Page Field Tanks (AS-16) (Site 17) (SWMU 17). The view is facing north.



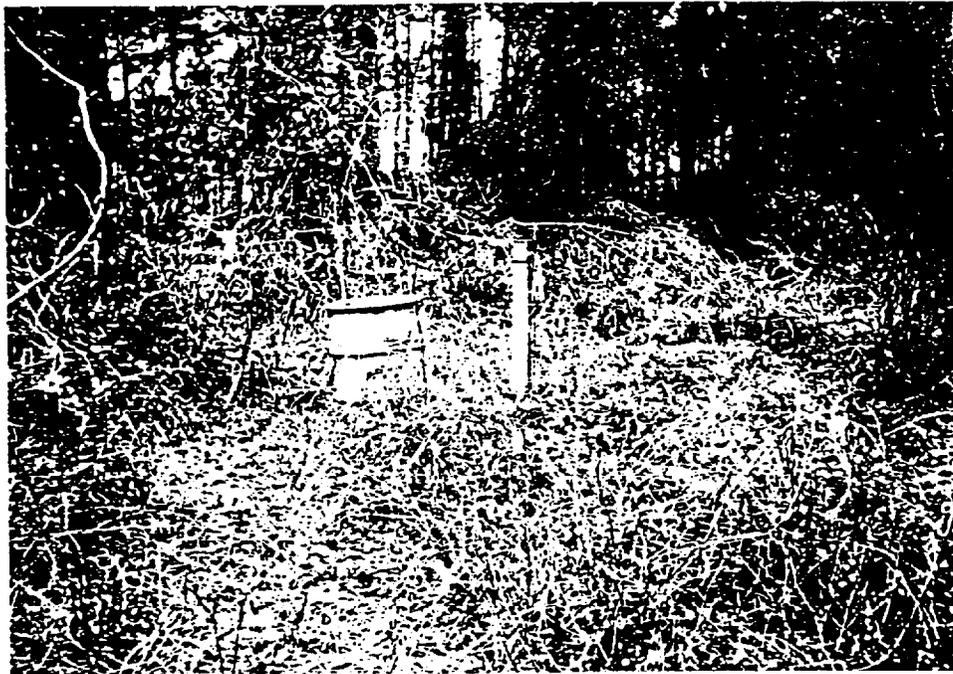
17.3 Close-up of the manway leading to the Page Field Tanks (AS- 16) (Site 17) (SWMU 17). The view is facing northwest.



18.1 View of the road leading to the Page Field Tanks (AS-17) (Site 18) (SWMU 18) located in the central section of the facility. The view is facing southwest.



18.2 View of the mound covering the Page Field Tanks (AS 17) (Site 18) (SWMU 18). Note the drum in the left center of the photograph which contains the well cuttings for the groundwater monitoring well in front of the drum.



18.3 Close-up of a groundwater monitoring well and drum shown in photograph 18.2 in the vicinity of the Page Field Tanks (AS-17) (Site 18) (SWMU 18).



19.1 Overview of the Diesel Shop Vehicle Washing Pad (SWMU 19) located in the northeast section of the facility. The view is facing northwest. Note the drums in the background. The drums in the background are for refuse collected when cleaning garbage trucks.



19.2 View of the oil/water separator utilized by the Diesel Shop Vehicle Washing Pad (SWMU 19). The oil/water separator is beneath the white cover surrounded by the black and yellow posts.



20.1 View of the fuel unloading pad at the Power Station located along the Beaufort River in the northeast section of the facility. Runoff from this pad is received by the Power Station Oil/Water Separator (SWMU 20). Note the No.6 fuel oil stain along the secondary containment walls



20.2 Close-up of the drain for the unloading pad featured in photograph 20.1. The drain discharges into the Power Station Oil/Water Separator (SWMU 20).



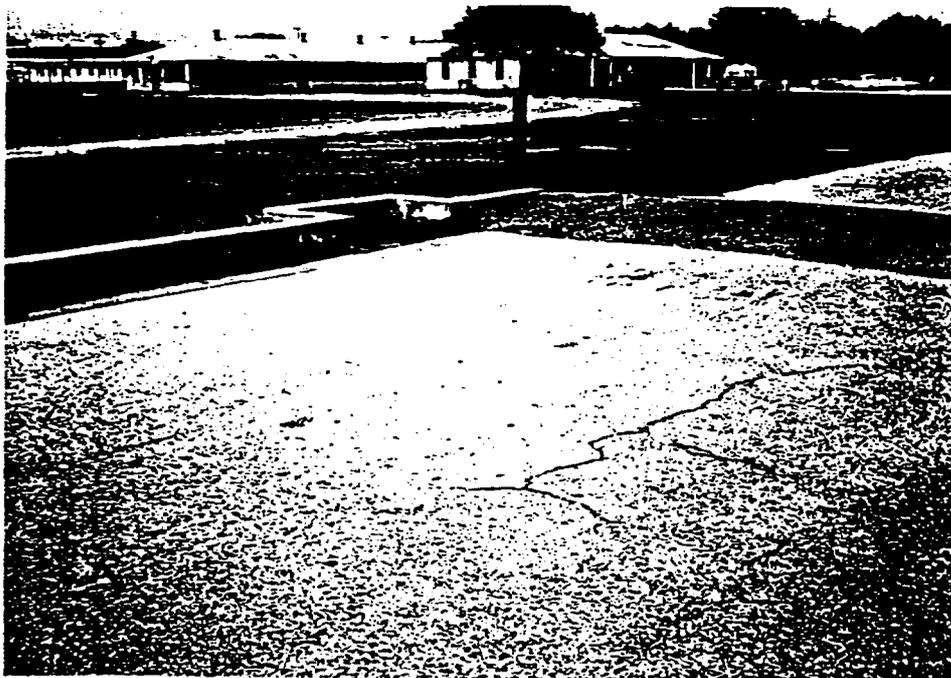
20.3 View of the Power Station fuel containment system showing the fuel unloading pad on the left, the Beaufort River in the center, the Power Station Oil/Water Separator (SWMU 20) (indicated by an arrow), and the secondary containment for the No. 6 fuel tanks. The large silver tanks contain No. 6 fuel oil. The green drum in the lower right hand corner of the photograph is staged at the Power Station SAA (SWMU 28). The view is facing east.



20.4 Close-up of the inside of the Power Station Oil/Water Separator (SWMU 20).



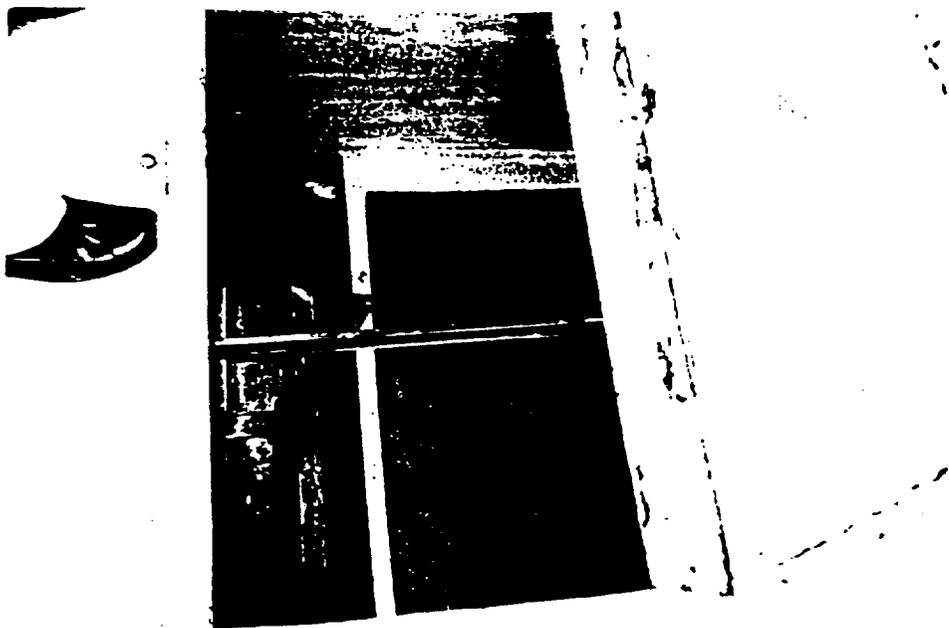
21.1 Overview of the Weapons Power Plant containment area showing the fuel unloading pumps and the No. 6 fuel oil tank. Runoff from this area is received by the Weapons Power Plant Oil/Water Separator (SWMU 21). This unit is in the west section of the facility. The view is facing south.



21.2 View of the fuel unloading pad and drain for the Weapons Power Plant facing east. The orange pipe is the valve for the Weapons Power Plant Oil/Water Separator (SWMU 21).



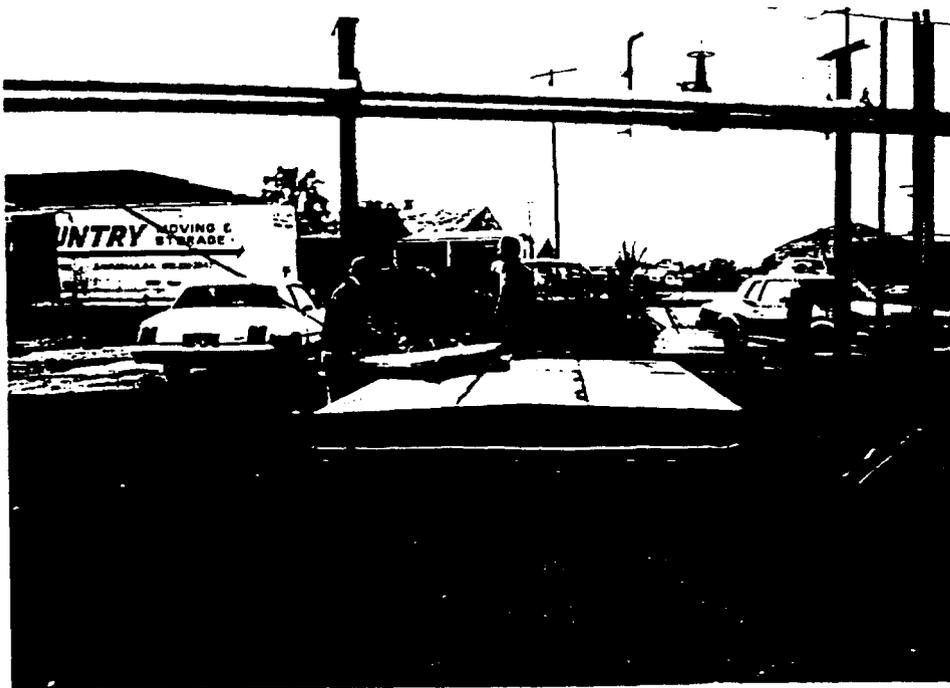
21.3 Overview of the Weapons Power Plant Oil/Water Separator (SWMU 21) showing the control valves. The valve on the right is from the secondary containment for the No. 6 fuel oil tank. The view is facing west. The marsh and Broad River are beyond the trees in the background.



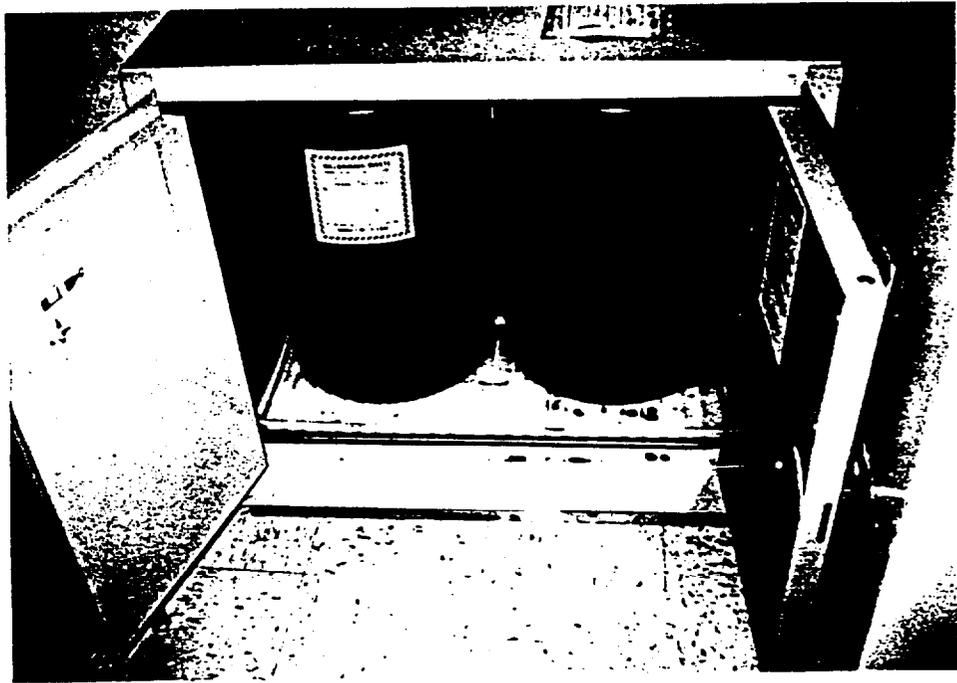
21.4 Close-up of the Weapons Power Plant Oil/Water Separator (SWMU 21). Effluent from the separator is discharged into the marsh.



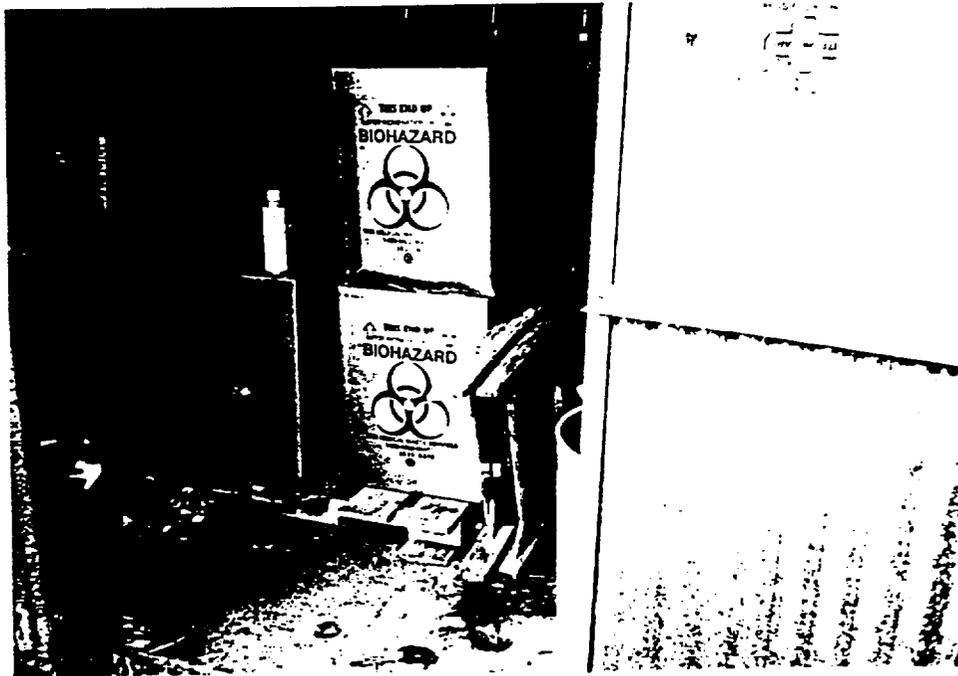
22.1 Overview of the Motor Pool Car wash (SWMU 22) located in the northeast section of the facility. The view is facing east.



22.2 View of the oil/water separator utilized by the Motor Pool Car Wash (SWMU 22) facing west.



23.1 Interior view of the Indoor Dental Lab SAA (SWMU 23) showing the cabinet used to store the spent developer and fixer. This unit is located in the northeast section of the facility.



24.1 View of the Dental Lab SAA (SWMU 24) located outside the Dental Clinic located in the northeast section of the facility.



25.1 Interior view of Building 177N showing the the types of container and general condition of the Paint Shop SAA (SWMU 25). This unit is located in the northeast section of the facility.



26.1 View of the Pesticide SAA (SWMU 26) located in the northeast section of the facility. The black drums are for empty pesticide containers.



26.2 Close-up of a drum containing empty pesticide containers at the Pesticide SAA (SWMU 26).



27.1 View of the Equipment Parade Deck SAA (SWMU 27) located in the northeast section of the facility facing east. Note the stains and the poor condition of the asphalt. The tanks reportedly contained fuel oil.



27.2 Close-up of the asphalt at the Equipment Parade Deck SAA (SWMU 27) showing staining.



27.3 View of the Equipment Parade Deck SAA (SWMU 27) showing the reportedly PCB free transformers, dumpsters and large batteries. Note the crack in the asphalt.



28.1 View of the Power Station SAA (SWMU 28) located in the northeast section of the facility. The view is facing southeast. The black drum contains waste oil and the green drums contain soil contaminated with No. 6 fuel oil. The white powder is lime. The horizontal tank is kerosene storage. Note the stained area beneath the tank. The unit is adjacent to the No. 6 fuel oil storage area.



29.1 View of the Indoor Motor Pool SAA (SWMU 29) located in the northeast section of the facility.



30.1 Southeast view of the Empty Drum Storage Area SAA (SWMU 30) located in the northeast section of the facility.



30.2 Close-up of the Empty Drum Storage Area SAA (SWMU 30) facing northwest.



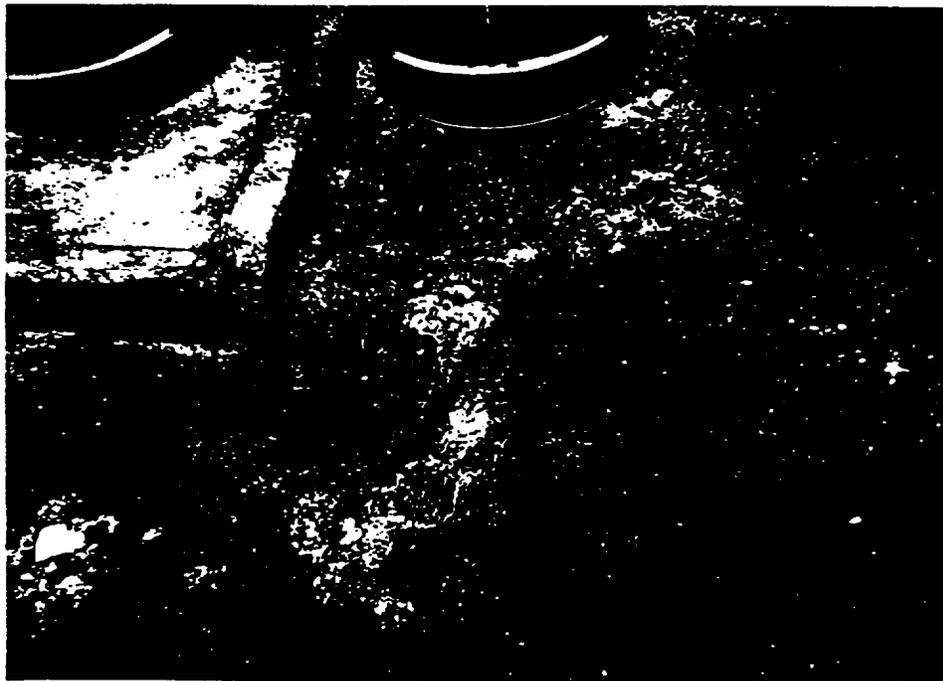
31.1 View of the Weapons Power Plant SAA (SWMU 31) located in the west section of the facility.



32.1 View inside the Laundry Building located in the northeast section of the facility showing the Laundry SAA (SWMU 32). Note the stained floor.



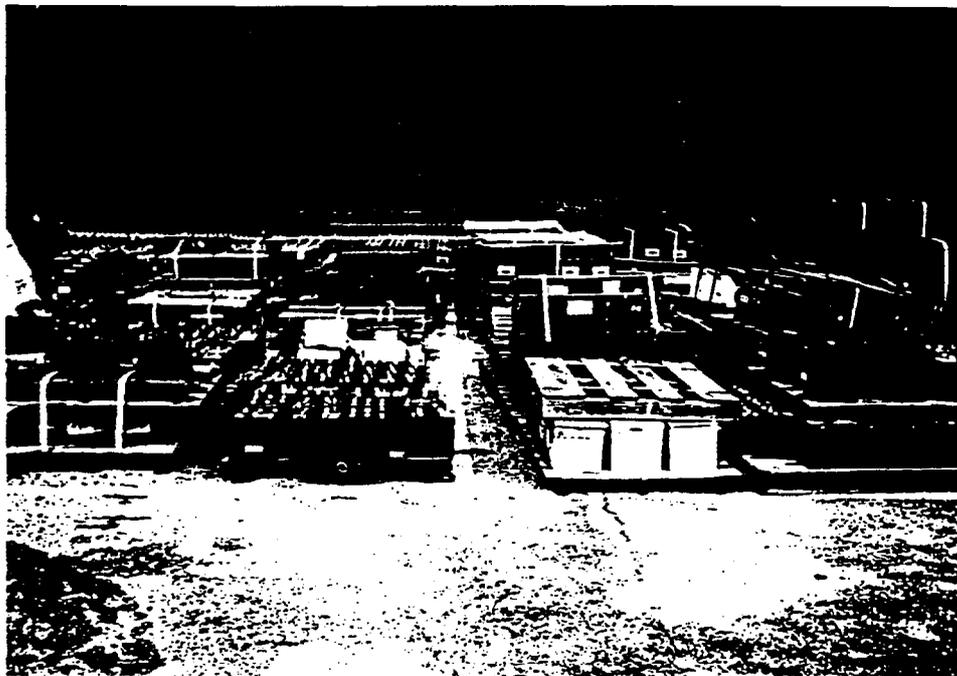
33.1 View of the Motor Pool SAA (SWMU 33) located in the northeast section of the facility facing east. The inlet in the right-hand side of the photograph leads to the Motor Pool Underground Waste Oil Tank (SWMU 43).



33.2 Close-up of the Motor Pool SAA (SWMU 33) showing the poor condition of the pavement and the stains.



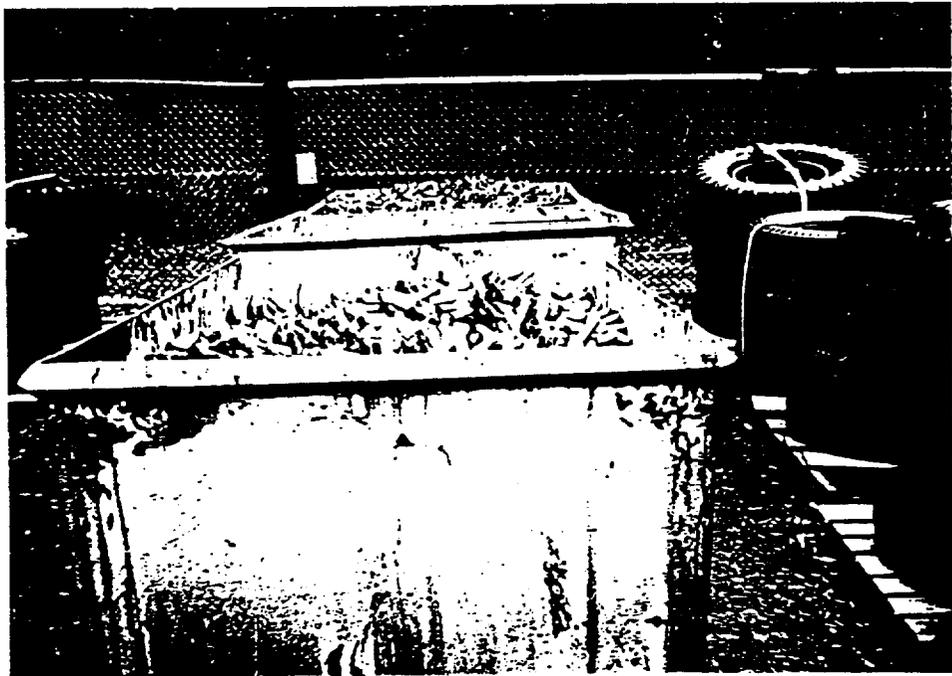
34.1 View of the Motor Pool Waste Oil Tank (SWMU 34) facing northeast. This unit was recently taken out of service. According to facility representatives, the spill around the telephone pole is the result of the moving activities. This tank was previously located at the Motor Pool SAA (SWMU 33) which is approximately 150 feet south of the area featured in this photograph.



35.1 View of the battery storage area at the DRMO Salvage Yard (SWMU 35) located in the north section of the facility. The view is facing north. Note the crack in the asphalt and the battery storage conditions.



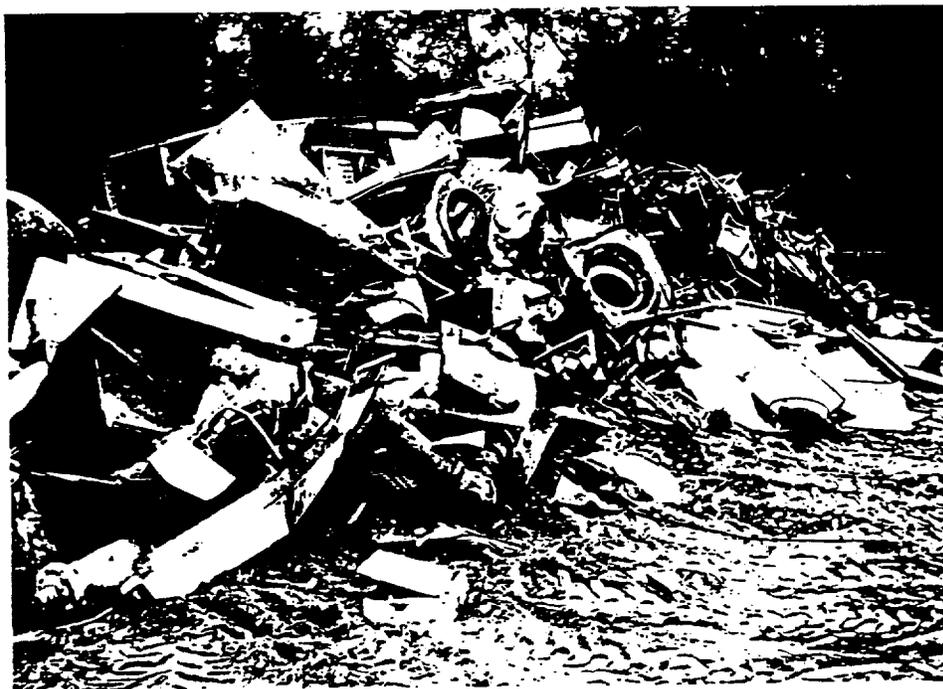
35.2 Close-up of drums containing scrap lead at the DRMO Salvage Yard (SWMU 35).



35.3 View of metal hoppers containing scrap brass at the DRMO Salvage Yard (SWMU 35).



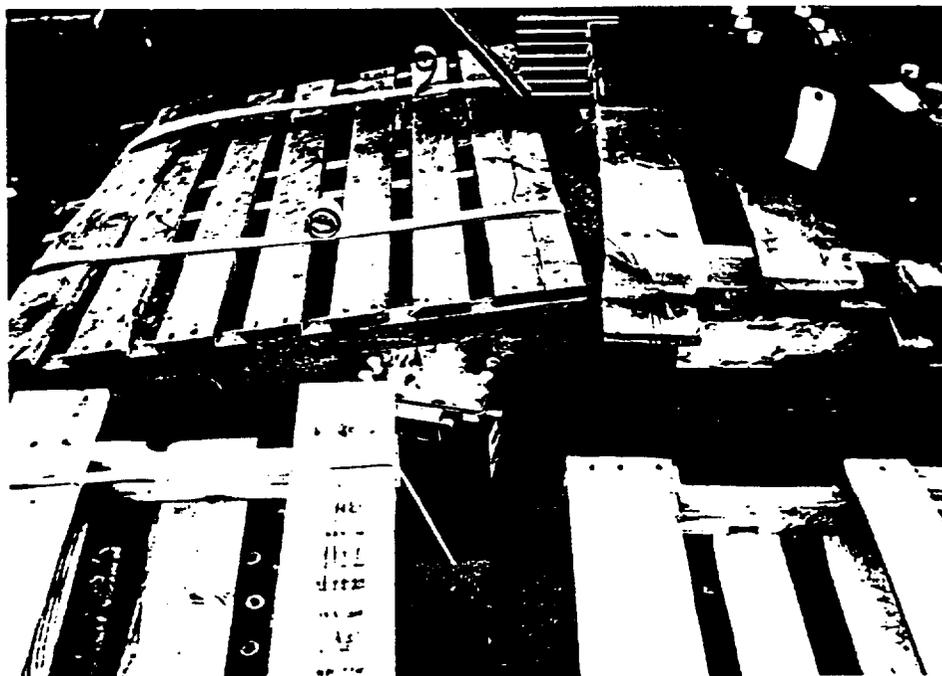
35.4 Southeast-facing view of the scrap metal pile at the DRMO Salvage Yard (SWMU 35). This section of the yard is the only section that is not paved.



35.5 Close-up of the scrap metal pile at the DRMO Salvage Yard (SWMU 35) facing south.



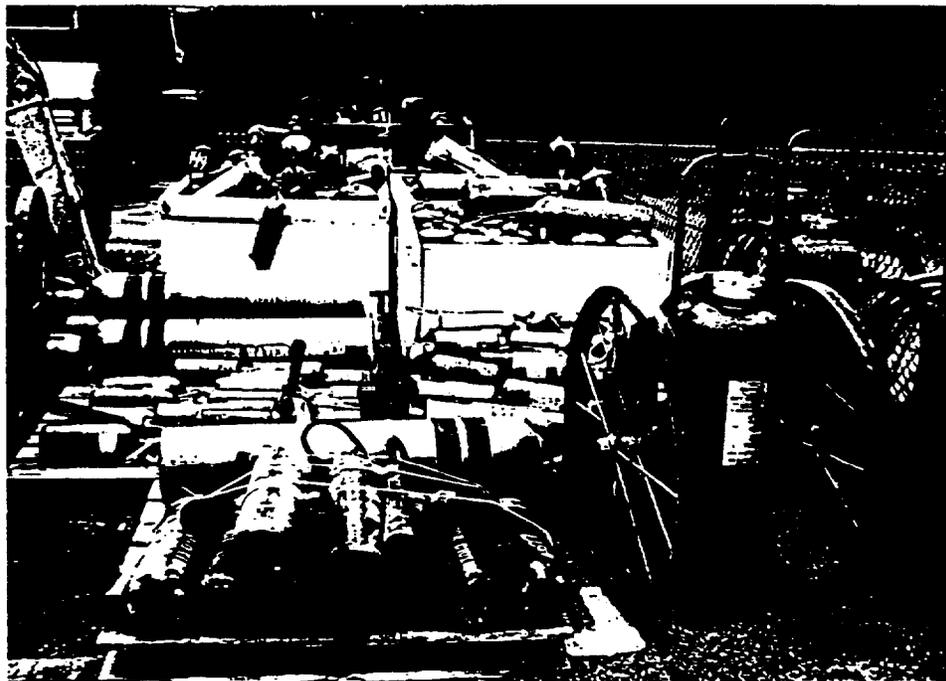
35.6 North-facing view of the DRMO Salvage Yard (SWMU 35) showing empty drums for salvage. These drums did not contain hazardous constituents. However, this unit has received empty drums that contained hazardous constituents.



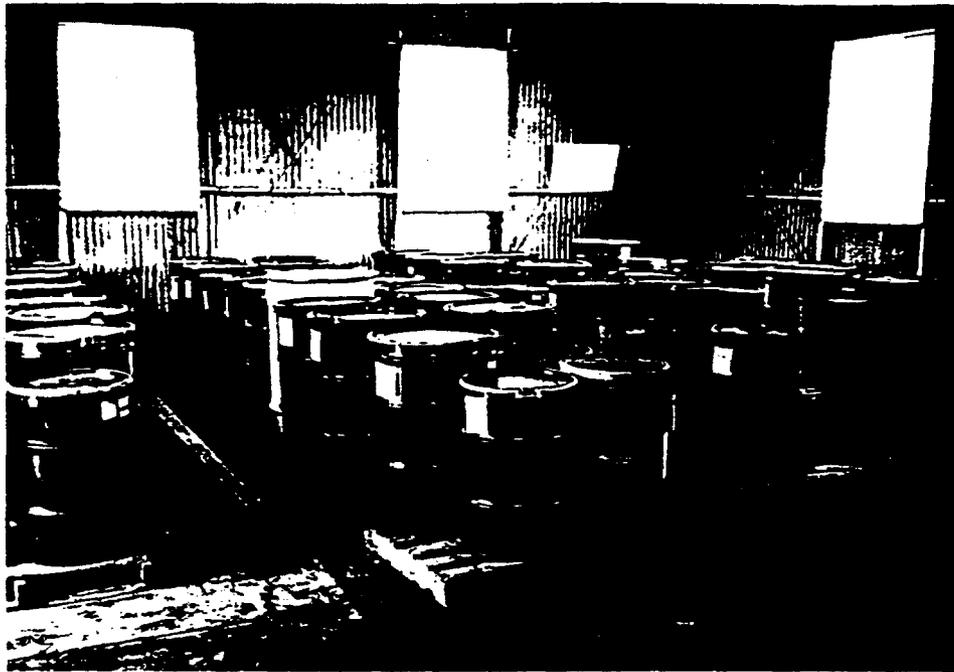
35.7 Close-up of the battery storage area at the DRMO Salvage Yard (SWMU 35) shown in photograph 35.1. Note the condition of the battery featured in the center of the photograph.



35.8 Overview of the DRMO Salvage Yard (SWMU 35) facing east.



35.9 View of the surplus fire extinguisher area at the DRMO Salvage Yard (SWMU 35) facing north.



36.1 Interior view of the Hazardous Waste Storage Shed (SWMU 36) located in the northeast section of the facility. The facility intends to limit the status of this unit to less-than-90 day storage.



36.2 View of the Hazardous Waste Storage Shed (SWMU 36). Although the floor had some staining, it appeared in good condition.



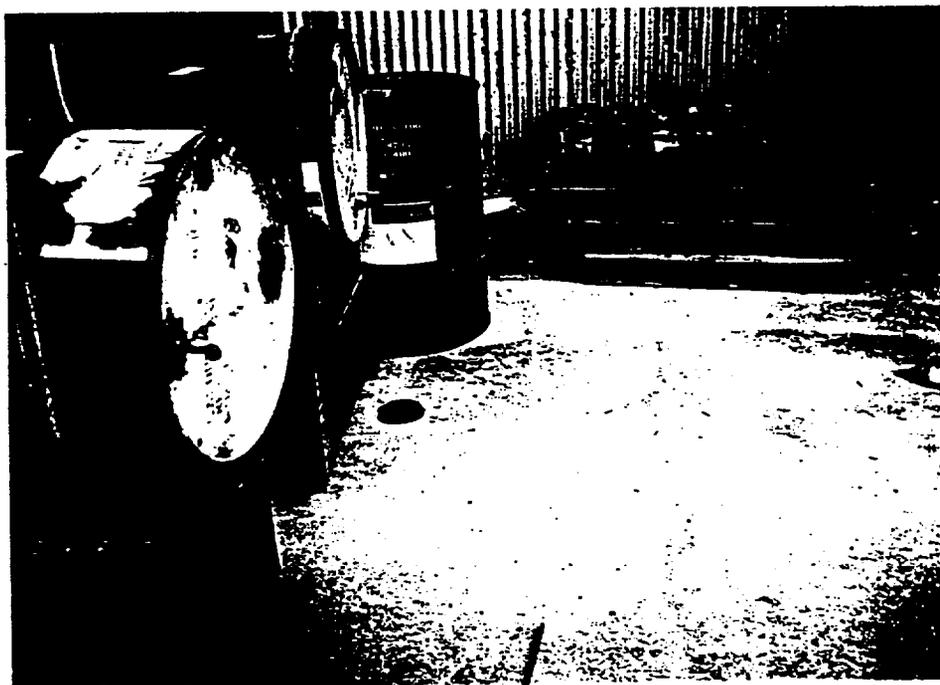
36.3 View of secondary containment provided by the Hazardous Waste Storage Shed (SWMU 36) foundation.



36.4 View of the PCB transformer storage techniques at the Hazardous Waste Storage Shed (SWMU 36).



36.5 View of the asbestos storage techniques at the Hazardous Waste Storage Shed (SWMU 36).



37.1 Close-up of the lacquer storage area at the Overflow Storage Pad (SWMU 37) located in the northeast section of the facility. According to facility representatives, a small drip pan is normally situated beneath the product drums. Note leakage. The concrete did not appear stained in this area and the drippage appeared to be limited to the pad. This pad was constructed over the Paint Waste Storage Area (Site 9) (SWMU 8).



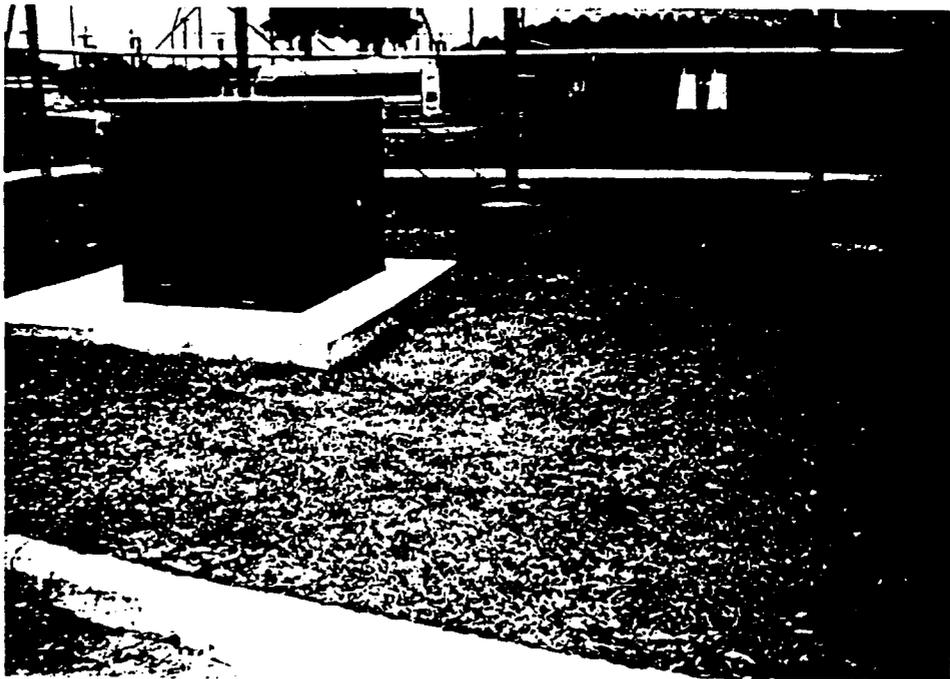
38.1 View of the inlet to the Underground Waste Oil Tank (SWMU 38) located in the northeast section of the facility. The unit is presently inactive and is scheduled for removal under the state UST program. The flammable tank in the background is an inactive fuel oil tank.



39.1 View of the Electrolyte Basin (SWMU 39) inside the Motor Pool Building located in the northeast section of the facility.



40.1 View of the trickle filter at the Sanitary Waste Water Treatment Plant (SWMU 40) facing southeast. The arrow indicates the approximate location of the mercury spill caused by a faulty seal.



A.1 View of the west side of Building 111 showing the approximate location of the PCB Spill Area A (Site 8) (AOC A). This area is located in the northeast section of the facility.



A.2 View of the west side of Building 111 showing the approximate location of the PCB Spill Area A (Site 8) (AOC A).



D.1 View of the concrete cover over the four remaining underground gasoline tanks at the MCX Service Station (Site 19) (AOC D). Note the recently installed groundwater monitoring wells in the background. The drums contain the well cuttings. This area is located in the northeast section of the facility.



D.2 View of the former location of the gasoline pumps at the recently demolished MCX Service Station (Site 19) (AOC D). The view is facing east.