AIM

Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

Centimeter

Inches

MANUFACTURED TO AIM STANDARDS
BY APPLIED IMAGE, INC.

1 of 1

PROPOSED PLAN FOR THE TANK 105-C HAZARDOUS WASTE MANAGEMENT FACILITY (U)

by

Miles, Jr., W.C.

Westinghouse Savannah River Company
Savannah River Site
Aiken, South Carolina 29808

DOE Contract No. DE-AC09-89SR18035

This paper was prepared in connection with work done under the above contract number with the U. S. Department of Energy. By acceptance of this paper, the publisher and/or recipient acknowledges the U. S. Government's right to retain a nonexclusive, royalty-free license in and to any copyright covering this paper, along with the right to reproduce and to authorize others to reproduce all or part of the copyrighted paper.

MASTER
DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

pr

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P. O. Box 62, Oak Ridge, TN 37831; prices available from (615) 576-8401.

Available to the public from the National Technical Information Service, U. S. Department of Commerce, 5285 Port Royal Rd., Springfield, VA 22161

UNITED STATES DEPARTMENT OF ENERGY

SAVANNAH RIVER SITE

**PROPOSED PLAN
for the
TANK 105-C
HAZARDOUS WASTE MANAGEMENT FACILITY (U)**

Prepared by
Environmental Restoration Waste Sites
WESTINGHOUSE SAVANNAH RIVER COMPANY
SAVANNAH RIVER SITE
AIKEN, SC 29802

**PROPOSED PLAN FOR TANK 105-C HAZARDOUS WASTE MANAGEMENT FACILITY
SAVANNAH RIVER SITE
AIKEN, SOUTH CAROLINA**

TABLE OF CONTENTS

List of Figures	ii
List of Acronyms	iii
Executive Summary	1
Section I. Introduction and Fundamental Study Area Background	1
Section II. Community Involvement	3
Section III. Media Specific Operable Unit - Tank 105-C HWMF	4
Section III.A.1 Executive Summary	4
Section III.A2 Source-Specific Operable Unit Description, Scope and Role	5
Section III.A3 Source-Specific Operable Unit Risks	8
Section III.A4 Path Forward	9
References	10
Glossary	11

LIST OF FIGURES

Figure 1: Site Area Map	.	.	.	.	.	.	.	2
Figure 2: Tank 105-C HWMF	.	.	.	.	.	.	.	6
Figure 3: Tank 105-C HWMF General Area Map	.	.	.	.	.	.	.	7

LIST OF ACRONYMS

CERCLA - Comprehensive Environmental Response, Compensation and Liability Act

DOE - United States Department of Energy

EPA - United States Environmental Protection Agency

FFA - Federal Facility Agreement

ft - feet

FSA - Fundamental Study Area

HWMF - Hazardous Waste Management Facility

OU - Operable Unit

RCRA - Resource Conservation and Recovery Act

ROD - Record of Decision

SCDHEC - South Carolina Department of Health and Environmental Control

SRS - Savannah River Site

WSRC - Westinghouse Savannah River Company

EXECUTIVE SUMMARY

This Proposed Plan was developed to describe the remedial action selected at the Tank 105-C Hazardous Waste Management Facility (HWMF) source-specific unit within the C-Area Fundamental Study Area (FSA) at the Savannah River Site (SRS) and to fulfill Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements. This 8,400 gallon capacity tank was certified and accepted closed according to a closure plan approved by the state of South Carolina under the Resource Conservation and Recovery Act (RCRA) authority in January 1991. As a result of the closure, previously performed under RCRA, the unit poses no current or potential threat to human health or the environment. Accordingly, no further remedial action is necessary under CERCLA.

Community involvement is strongly encouraged. All submitted comments will be reviewed and considered. A Responsiveness Summary to address significant issues raised during the public comment period will be made available with the Record of Decision (ROD). Specific details on community participation in the selection process are provided in Section II.

The preferred alternative in this Proposed Plan is a final action. The basis for this designation is described in Section III.

SECTION I - INTRODUCTION and FUNDAMENTAL STUDY AREA BACKGROUND

The purpose of this Proposed Plan is to identify DOE's preference for no further action at the Tank 105-C HWMF within the C-Area FSA, a sub-site of the SRS, South Carolina (Figure 1) and to provide the rationale for that preference. This Proposed Plan is a summary of the Administrative Record File leading to the proposed no action decision. This Proposed Plan fulfills the requirements of CERCLA, Section 117(a), by providing the public an opportunity to participate in the selection of a remedial action. Specifically, Section 117(a) requires publication of a notice of proposed remedial action and allows reasonable opportunity for public comment on the Proposed Plan. Previous cleanup actions were performed pursuant to the Resource Conservation and Recovery Act (RCRA). Public involvement opportunities were offered at that time in accordance with RCRA requirements. This Proposed Plan is being submitted to integrate environmental requirements and to ensure that the remedies comply with all the requirements of CERCLA.

The South Carolina Department of Health and Environmental Control (SCDHEC) conducts oversight of remedial activities under RCRA and CERCLA. The Environmental Protection Agency (EPA) conducts oversight of remedial activities under CERCLA and Section 3004(u) of RCRA. The EPA and SCDHEC serve as regulatory agencies for the RCRA/CERCLA activities as defined in the SRS Federal Facility Agreement (FFA). The U. S. Department of Energy (DOE)

Figure 1: Site Area Map

functions as the lead agency for SRS remedial activities. DOE, in consultation with EPA and SCDHEC, will select future remedial actions in the C-Area FSA following public comment periods. In addition to the Tank 105-C HWMF, the C-Area FSA includes many other operable units such as the C-Area Coal Pile Runoff Basin, C Area Burning/Rubble Pit, Central Shops Burning/Rubble Pits, and C-Area Reactor Seepage Basins.

Prior to the RCRA closure, constituents of concern at the Tank 105-C HWMF (an underground storage tank with a capacity of 8400 gallons) included tritium and other radionuclides (gross alpha and gross beta/gamma) in a characteristic hazardous waste with a pH of 13.2. Risks associated with these constituents were addressed by the RCRA closure of the tank. Thus, the constituents no longer pose a threat to human health and the environment. The limits of radiologically contaminated soils adjacent to ancillary piping beyond an adjacent wall/foundation could not be determined. Remaining investigations and removals are scheduled to take place as part of the decontamination and decommissioning of the 105-C building. Other RCRA/CERCLA units within the C-Area FSA are scheduled to undergo characterization and investigation to determine impacts to the environment.

SECTION II - COMMUNITY INVOLVEMENT

DOE, EPA, and the State of South Carolina encourage the public to review this document and those contained in the Tank 105-C HWMF Administrative Record File to gain a comprehensive understanding of

the history of the C Area and the process for developing, implementing, and monitoring appropriate response actions for the C-Area FSA. The public is notified of the 30 day public comment period through mailing of the *SRS Environmental Bulletin*, a newsletter sent to approximately 600 citizens in South Carolina and Georgia, and through notices in the Aiken Standard, The State, and the Augusta Chronicle newspapers. DOE, EPA, and the State of South Carolina solicit public review and comment on all aspects of this Proposed Plan during the public comment period. Written comments on this Proposed Plan should be submitted to

DOE
C. V. Anderson
Environmental Restoration
Division
Department of Energy
P. O. Box A
Aiken, SC 29802
(803) 725-3966.

Additionally, DOE will provide the opportunity for a public meeting to be held during the public comment period if significant interest in holding one is expressed. If a meeting is held, the proposed action would be discussed at the meeting, questions about it answered, and written and oral comments accepted and considered prior to a final decision.

At the close of the public comment period, DOE will prepare a written summary of significant comments and a response to each issue. This responsiveness summary will be available with the Record of Decision.

To obtain more information about this Proposed Plan; DOE, EPA, the State of South Carolina, or WSRC may be contacted. Contacts are listed below:

DOE

C. V. Anderson
Environmental Restoration
Division
Department of Energy
P. O. Box A
Aiken, SC 29802
(803) 725-3966

EPA

Attn.: SRS Remedial Project
Manager
U. S. EPA, Region IV
345 Courtland Street
Atlanta, GA 30365
(404) 347-3016

SCDHEC

South Carolina Department of
Health and Environmental
Control
Bureau of Solid and Hazardous
Waste Management
Attn: Manager, SRS Federal
Facilities Agreement Section
2600 Bull Street
Columbia, SC 29201
(803) 734-5200

WSRC

Mark Musolf
Public Involvement
Westinghouse Savannah River
Company
Centennial Corporate Center,
Building 4
1995 S. Centennial Ave.
Aiken, SC 29803
(803) 644-1814

This document summarizes information which can be found in greater detail in the Administrative Record File. The SRS Administrative Record File is available to the public

at the following information
repository locations:

U. S. Dept. of Energy Public
Reading Room
University of South Carolina
Aiken
171 University Parkway
Aiken, SC 29801
(803) 641-3320

Government Documents Dept.
Thomas Cooper Library
University of South Carolina
Columbia, SC 29208
(803) 777-4866

This Proposed Plan and other
information about SRS
investigation activities and
response actions are available
through the repositories listed
below:

Reese Library, Augusta College
2500 Walton Way
Augusta, GA 30910
(404) 737-1744

Asa H. Gordon Library
Savannah State College
Tompkins Road
Savannah, GA 31404
(912) 356-2183

**SECTION III - MEDIA- OR
SOURCE-SPECIFIC
OPERABLE UNITS: SPECIFIC
INFORMATION**

**SECTION III.A - TANK 105-C
HWMF OPERABLE UNIT**

**SECTION III.A1 - EXECUTIVE
SUMMARY**

The Tank 105-C HWMF includes one
underground storage tank (and
ancillary piping) which is
approximately 40 feet long, 6 feet in

diameter, and has a capacity of about 8400 gallons (Figure 2). This HWMF was used from 1961 to 1983 for the storage of liquid waste generated from an off-line heat exchanger repair program. RCRA closure of the tank included neutralization of waste to a pH of less than 12.5, removal of as much waste as reasonably possible, shipment of treated waste to an onsite storage/disposal facility and solidification of remaining tank waste and the tank void with concrete.

Due to the previous closure, Tank 105-C does not pose a current or potential threat to human health and the environment. Accordingly, No Further Action under CERCLA is necessary at the Tank 105-C HWMF.

Public involvement regarding the remedial action at this unit is discussed in Section II of this proposed plan.

SECTION III.A2 - SOURCE-SPECIFIC OPERABLE UNIT DESCRIPTION, SCOPE AND ROLE

Unit Name and Location

The Tank 105-C HWMF is a source specific unit within the C-Area FSA. The Tank 105-C HWMF is located in C-Area, east of C Reactor 105-C (Figure 3) and approximately 6 miles from the nearest plant boundary.

The Tank 105-C HWMF includes an underground storage tank which is approximately 40 feet long, 6 feet in diameter, has an 8,400 gallon capacity, and has 1.625 inch thick carbon steel walls. The tank lies approximately 6 feet (ft) below grade, rests on two concrete saddles that are 2 ft x 2 ft x 10 ft, and is

sloped such that the east end is 9 inches lower than the west end.

Tank 105-C was in service from 1961 until 1983.

History of the Unit

The Tank 105-C HWMF was installed in 1961 as part of an off-line heat exchanger repair program and was used as a temporary holding tank for liquid waste generated by rinsing the heat exchangers with a weak oxalic acid solution. (Sumps from the heat exchanger cleaning area drained into Tank 105-C. Oil in the tank is probably attributable to oil leaks into these sumps.) The reacted or spent oxalic acid solution that resulted from the rinsing process was pumped into an above ground neutralization tank in the stack area of the reactor building. Potassium hydroxide (KOH) was then added to raise the solution pH to 8.0 or above. After neutralization, the waste was transferred to the underground storage Tank 105-C HWMF for temporary storage. It was common for the neutralization process to require additional pH adjustment inside Tank 105-C, accomplished by circulating the waste in the tank with a pump and adding more KOH to fine tune the pH. A permanent pump was set up to pump the waste into a waste trailer for transportation to a storage/disposal facility. The pump and circulation lines were disassembled in 1983.

Chemicals of Concern

Prior to the RCRA closure, chemicals of concern at the Tank 105-C HWMF included tritium and other radionuclides (gross alpha and gross beta/gamma) in a characteristic hazardous waste with a pH of 13.2. Risks associated with

Figure 2:
Tank 105-C HWMF

Figure 3:
Tank 105-C HWMMP General Area Map

these chemicals were addressed by the RCRA closure of the tank. Thus, the constituents no longer pose a threat to human health and the environment. (Tank 105-C HWMF post closure chemicals of concern are residual minimal quantities of radionuclides solidified with concrete with a pH of less than 12.5.) Since the waste was neutralized, the solidified waste remaining in the tank is radioactive waste which has been immobilized.

Scope and Role

In addition to the Tank 105-C HWMF, the C-Area FSA includes many other operable units such as the C-Area Coal Pile Runoff Basin, C Area Burning/Rubble Pit, Central Shops Burning/Rubble Pits, and C-Area Reactor Seepage Basins. These RCRA/CERCLA units within the C-Area FSA are scheduled to undergo characterization and investigation to determine impacts to the environment. DOE, in consultation with EPA and SCDHEC, will select future remedial actions in the C-Area FSA following public comment periods.

The scope and role of the Proposed Plan for the Tank 105-C HWMF source control operable unit is to propose a CERCLA No Further Action Necessary Decision for source control at the Tank 105-C HWMF and to integrate CERCLA with previously approved state of South Carolina RCRA actions.

SECTION III.A3 - SOURCE-SPECIFIC OPERABLE UNIT RISKS

Summary of RCRA Closure

The remedial alternatives evaluated

under RCRA guidelines for closure of the Tank 105-C HWMF were as follows:

Alternative 1
No Action

Alternative 2
No waste removal and tank closure.

Alternative 3
Waste removal and tank closure.

The preferred (and implemented) remedial alternative was waste removal and tank closure (Alternative 3).

This alternative involved:

- 1) Waste (including organic, aqueous, and sludge phases) neutralization with the addition of a mixture of oxalic acid and water;
- 2) Removal of 37 gallons of oily substance using an oil skimmer,
- 3) Removal of 3,753 gallons of aqueous and sludge waste, including water added during neutralization and tank rinse activities; and shipment to an on-site storage/disposal facility;
- 4) Tank assessment, which included a tank tightness test using the Horner EZY Check II Method;
- 5) Removal of 8,000 gallons of secondary wastewater (generated during the tank tightness test) and shipment to an on-site storage/disposal facility;
- 6) Soil assessment, which consisted of 2 background samples and 18 samples from soil borings around the ancillary piping (excluding inaccessible ancillary piping

beyond an adjacent wall/foundation) and Tank 105-C, included visual observation, pH testing and radiological screening of soils;

7) Removal of 400 cubic feet of radiologically contaminated soil adjacent to the ancillary piping (pH levels of less than 8.0 were measured and no discolored soil was discovered that would indicate a release had taken place);

8) Removal of ancillary piping (90 cubic feet) followed by capping of ancillary piping stubs into the reactor area, pH testing of pipe sections, and removal/placement in 90 cubic foot containers for disposal or capped in place;

9) In place filling of tank (and residual waste), including, two risers with concrete;

10) Capping risers above the tank with metal caps and epoxy; and

11) Surface restoration (backfilling of piping, tank excavations, and paving backfilled areas with asphalt).

In addition to the neutralization of all waste and removal and disposal of all reasonably obtainable waste, stabilization of any residual wastes remaining in the tank with concrete resulted in the immobilization of this residual waste. This waste unit is also located in a secure area which allows access to only appropriately trained SRS workers and prevents access by the general public. Remaining investigations and removals of areas surrounding the Tank 105-C HWMF are scheduled to take place as part of the decontamination and

decommissioning of the 105-C building.

Due to the previous Tank 105-C HWMF RCRA corrective action, which solidified and stabilized any remaining minimal quantities of radionuclides in the tank with concrete decreasing contaminant mobility and eliminating unacceptable exposures to remaining hazardous substances, No Further Action under CERCLA is necessary for this source control operable unit. The RCRA corrective action provides the necessary protectiveness to human health and the environment to satisfy all CERCLA requirements.

A site-wide risk assessment will be performed at the conclusion of the Savannah River cleanup to ensure that the site as a whole is protective of human health and the environment. Based upon the results of this risk assessment, additional clean up at SRS may be required.

SECTION III.A4 - PATH FORWARD

If the preferred alternative of No Further Action Necessary is selected upon completion of public comment, EPA will review the No Further Action Necessary Decision no less often than every five years to assure continued protection by the RCRA corrective action of human health and the environment. This is required under CERCLA since the RCRA closure, which satisfied all regulatory requirements for closure of a RCRA hazardous waste management unit, left minimal amounts of hazardous substances (residual radionuclides were solidified with concrete) in place within the HWMF.

REFERENCES

**FFA, Federal Facility
Agreement for the Savannah
River Site, Administrative
Docket No.: 89-05-FF, (Effective
Date: August 16, 1993).**

**SCDHEC, Underground Storage
Tank 105-C Closure
Certification, South Carolina
Department of Health and
Environmental Control, Columbia,
SC (December 2, 1991).**

**SCDHEC, Underground Storage
Tank 105-C RCRA Closure Plan
Revision 2 Approval, South
Carolina Department of Health and
Environmental Control, Columbia,
SC (June 27, 1991).**

**WSRC, RCRA Closure Plan for
Underground Storage Tank
105-C, WSRC-RP-90-1121 (Rev 2),
Westinghouse Savannah River
Company, Aiken, SC (June 12, 1991).**

**WSRC, Underground Storage
Tank 105-C Closure
Certifications (U), ESH-ERG-
910878, Westinghouse Savannah
River Company, Aiken, SC
(November 6, 1991).**

GLOSSARY

Administrative Record File: An official compilation of documents, data, reports, and other information that is considered important to the status of and decisions made relative to a Superfund site. The record is placed in the information repository to allow public access to the material.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Comprehensive Environmental Response, Compensation, and Liability Act of 1980. What is commonly referred to as CERCLA was amended by the Superfund Amendments Reauthorization Act of 1986.

Contamination: The deposition of unwanted chemical and/or radioactive material at a site.

Fundamental Study Area: The fundamental SRS operable units have been defined in terms of the distinct hydrogeologic or geologic domains (e.g., F Area) at SRS. The SRS hydrogeology is primarily depicted by shallow to intermediate depth horizontal groundwater flow discharging to tributaries of the Savannah River or directly into the Savannah River.

Information Repository. A file containing current information, technical reports and reference documents regarding a Superfund site. The information repository is usually located in a public building that is convenient for local residents, such as a public school, city hall, or a library.

Interim Action: An event or series of events, including remedial actions, performed prior to or concurrent with the conduction of an RI/FS as information is made sufficient to support a remedy selection.

Operable Unit. An action taken as only one part of an overall site cleanup. A number of operable units can be used in the course of a cleanup.

Overall Protection of Human Health and the Environment. The assessment against this criterion describes how the alternative, as a whole, achieves and maintains protection of human health and the environment.

Resource Conservation and Recovery Act (RCRA). Resource Conservation and Recovery Act of 1976. What is commonly referred to as RCRA, is an amendment to the first federal solid waste legislation, called the Solid Waste Disposal Act of 1965. RCRA was amended in 1980 and most recently on November 8, 1984 by the Hazardous and Solid Waste Act.

Record of Decision (ROD): A legal document that describes the final remedial actions selected for a site, why the remedial actions were chosen, and how the public responded to the proposed remedial actions.

Responsiveness Summary: A summary of oral and/or written comments received by EPA during the proposed plan comment period.

Source-Specific Operable Unit: An action Taken on one source of potential contamination at an operable unit.

DATE

FILMED

9/16/94

END