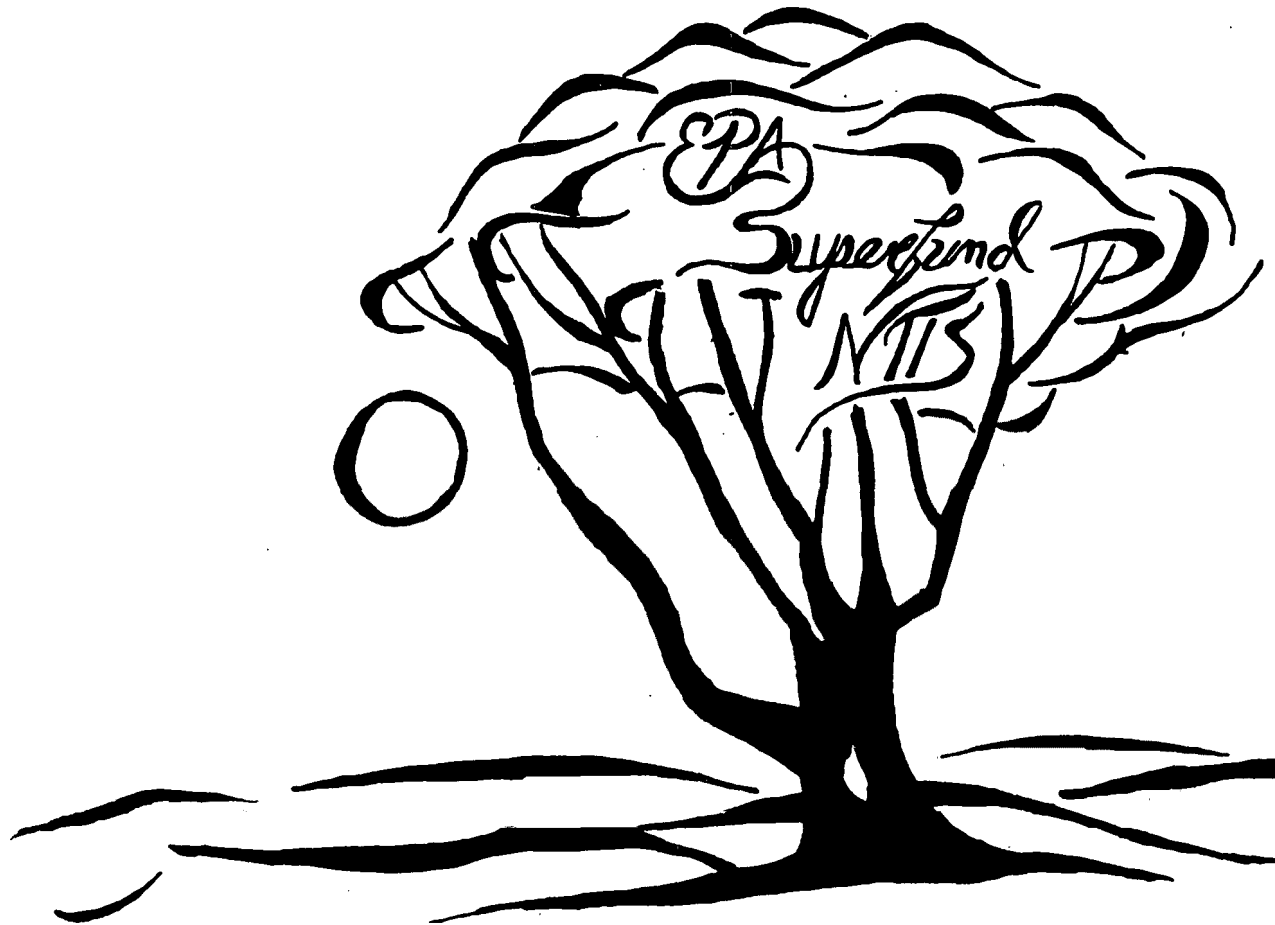


PB94-964083
EPA/ROD/R04-94/228
April 1995

EPA Superfund Record of Decision:

**Savannah River Site (US DOE)
(O.U. 33), Aiken, SC
9/23/1994**



UNITED STATES DEPARTMENT OF ENERGY

SAVANNAH RIVER SITE

**FINAL RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION**

FOR

Mixed Waste Management Facility (U)

Prepared by
WESTINGHOUSE SAVANNAH RIVER COMPANY
SAVANNAH RIVER SITE
AIKEN, SC 29802

PREPARED FOR THE US DEPARTMENT OF ENERGY UNDER

CONTRACT DE-AC09-89SR18035

DECLARATION FOR THE FINAL RECORD OF DECISION

Site Name and Location

Mixed Waste Management Facility (MWMF)

Savannah River Site

Aiken County, South Carolina

Appendix H of the Federal Facility Agreement (FFA) lists this unit as the Mixed Waste Hazardous Waste Management Facility (Building Number 643-28G).

Statement of Basis and Purpose

This document presents the selected final preventive action for the MWMF Unit at the Savannah River Site (SRS), which was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this unit.

Description of the Selected Remedy

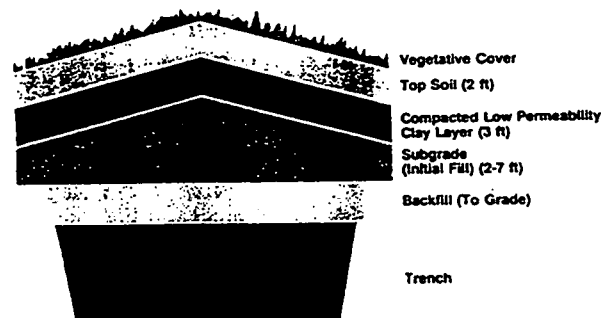
The selected final action remedy announced in this Record of Decision is no further action. As described below, a remedy under RCRA was completed for this unit in December 1990. This RCRA corrective action involved the precompaction and placement of all contaminated materials under a low permeability cap. This RCRA remedy prevents physical exposure to contaminants and mitigates further migration of contaminants to the

groundwater by minimizing a liquid medium pathway (rainwater percolation) for transport.

No further action is necessary for the unit. However, as a condition of the RCRA Hazardous Waste Permit, post closure groundwater monitoring is required to verify that no unacceptable exposures to potential hazards posed by conditions at the operable unit occur in the future. This unit was closed by the requirements of a closure plan approved in December 1987 by the state of South Carolina under RCRA authority. The RCRA closure of MWMF began in 1988 and was completed in December 1990. MWMF was certified closed in 1991. In April 1991, the closure certification was accepted by the state of South Carolina as being in compliance with RCRA requirements.

The major components of the RCRA preventive action included:

- 1) Precompaction.
- 2) Initial backfill after compaction to level 5 feet below final cover elevations.
- 3) Placement of a final cover over the trenches. The cover consists of a three foot minimum layer of compacted kaolin clay with a permeability of 1×10^{-7} cm/sec or less, two feet of final cover and vegetative cover, cap drainage and stormwater conveyance system (See below).



4) The MWMF is being routinely inspected for a minimum of 30 years to verify the integrity of the cover system, fences, signs, etc. Any necessary repairs to the cap will be made as part of the maintenance program.

5) Access to the MWMF is restricted to authorized personnel with appropriate training on applicable requirements. The survey plat and records associated with deed restricted use of the MWMF have been filed with Aiken County, SC.

Declaration Statement

Previous action taken at the MWMF was under a RCRA Closure Plan, per NRDC et al. v. Herrington, Civ. Action No. 1:85-2583-6 (D.S.C. May 26, 1988), approved by the state of South Carolina and was protective of human health and the environment. Therefore, no further remedial action is necessary under CERCLA. To ensure continued protection of human health and the environment, this remedial action will be reviewed every 5 years, consistent with the requirements of the NCP.

9/19/94

Date

Thomas F. Heenan

Thomas F. Heenan
Assistant Manager for Environmental
Restoration and Solid Waste
U.S. Department of Energy

9-23-94

Date

John H. Hankinson, Jr.

John H. Hankinson, Jr.
Regional Administrator,
U.S. Environmental Protection Agency
Region IV

SUMMARY OF FINAL ACTION REMEDIAL ALTERNATIVE SELECTION

FOR

Mixed Waste Management Facility (U)

**Prepared by
WESTINGHOUSE SAVANNAH RIVER COMPANY
SAVANNAH RIVER SITE
AIKEN, SC 29802**

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**DECISION SUMMARY
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I. Site and Operable Unit Names, Locations, and Descriptions

The Savannah River Site (SRS) occupies approximately 310 square miles adjacent to the Savannah River, principally in Aiken and Barnwell Counties of South Carolina (Figure 1). SRS is a secured facility with no permanent residents. The site is approximately 25 miles southeast of Augusta, Georgia, and 20 miles south of Aiken, South Carolina. The average population density in the counties surrounding SRS ranges from 21-524 people per square mile with the largest concentration in the Augusta, Georgia, metropolitan area. Based on 1990 census data, the population within a 50-mile radius of SRS is approximately 634,784.

SRS is owned by the United States Department of Energy (DOE). Westinghouse Savannah River Company (WSRC) is the managing and operating contractor for DOE. SRS produces tritium, plutonium, and other special nuclear materials for national defense. The site also provides nuclear materials for the space program, and conducts medical, industrial, and research efforts. The Mixed Waste Management Facility (MWMF) is a source specific operable unit within the Burial Ground Complex Fundamental Study Area. The MWMF consists of 118 slit trenches, 1 Engineered Low Level Trench (ELLT-1), and a naval core barrel mound and is located in the center of SRS, between F and H Areas (Figure 2).

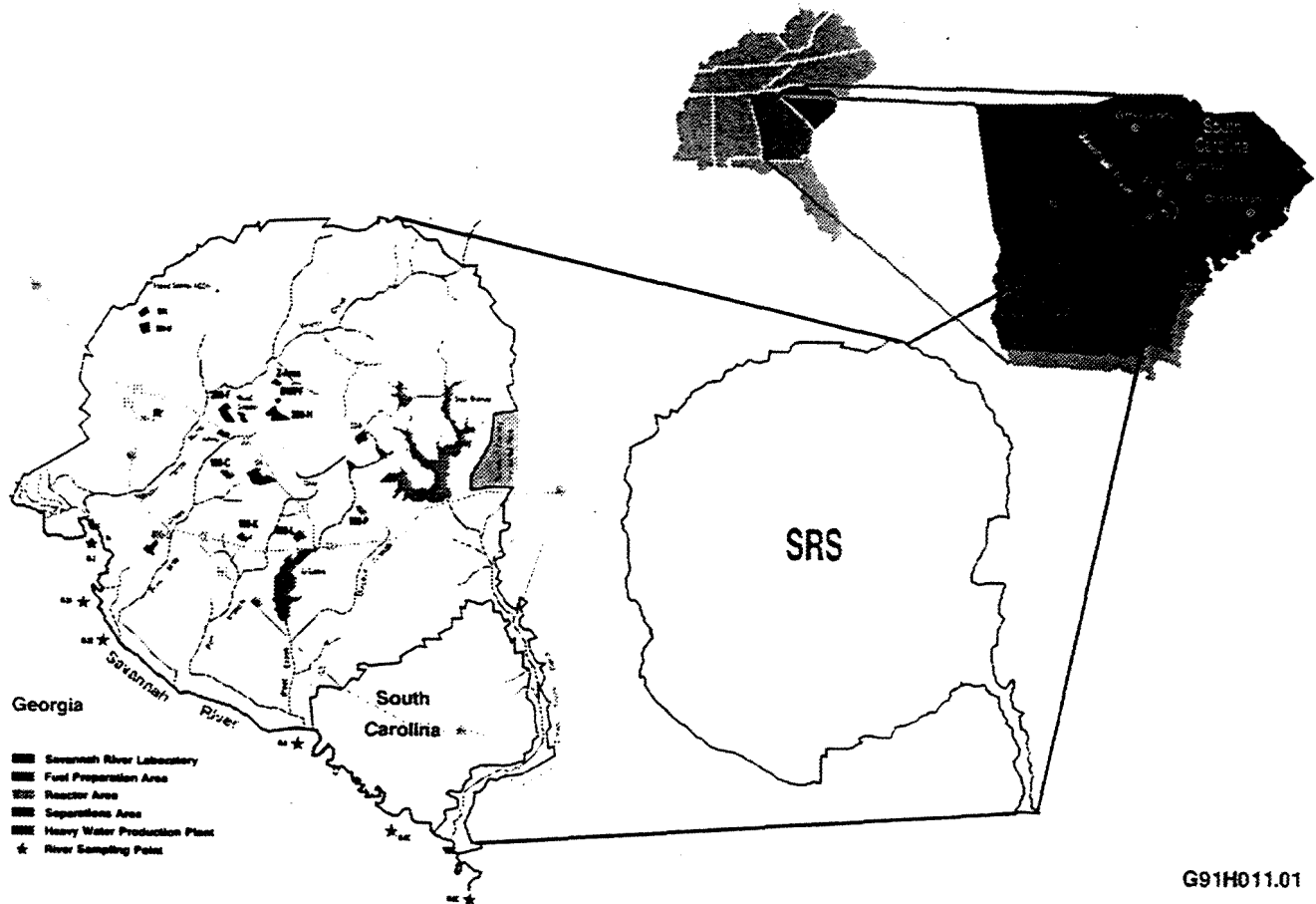


Figure 1 Location of the Savannah River Site (SRS)

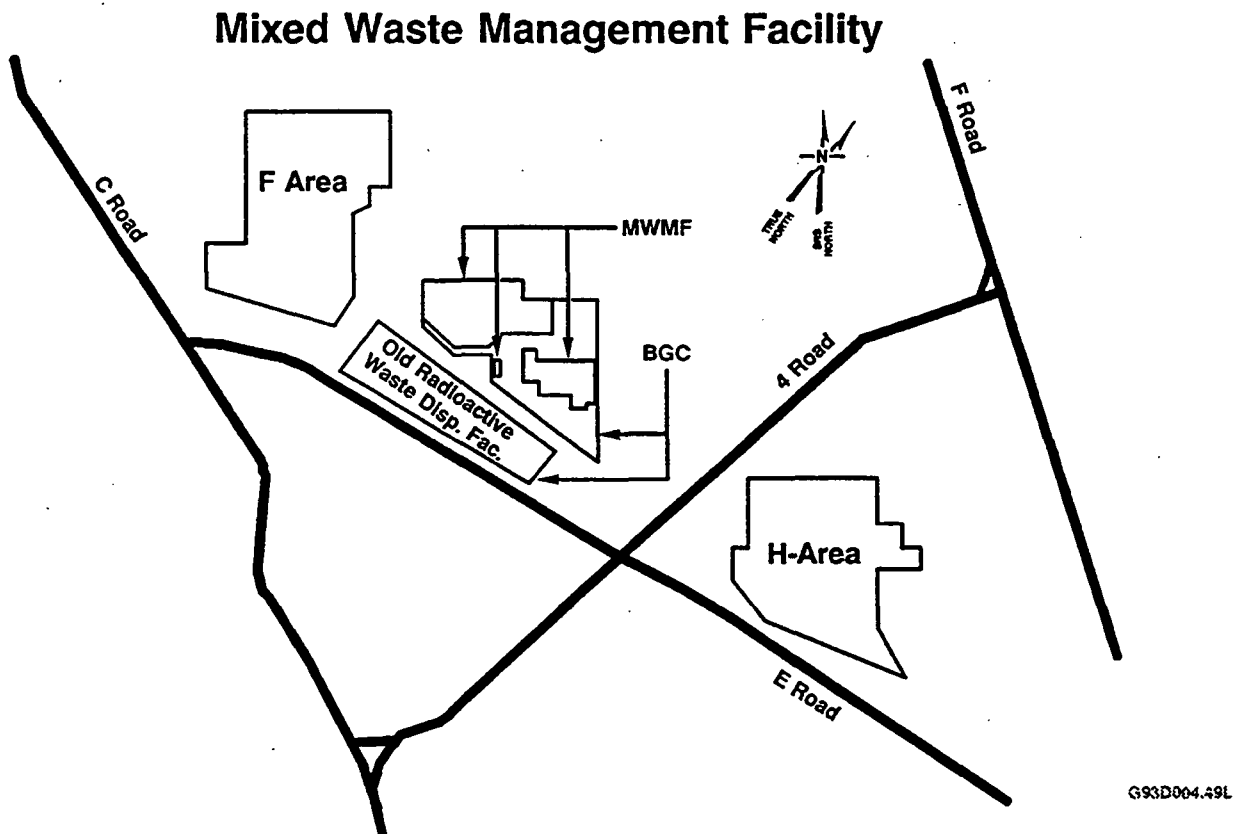


Figure 2 MWMF

II. Operable Unit History and Compliance History

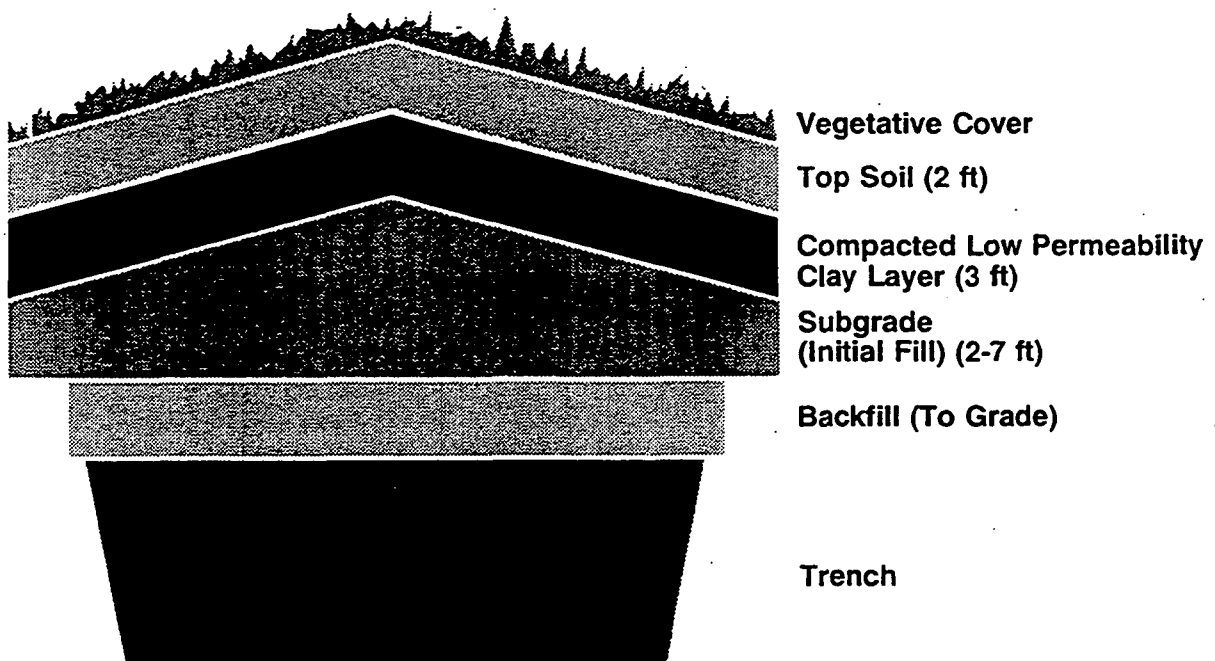
Operable Unit History

The MWMF operated from 1969 until March 11, 1986. During that time, this facility, which comprises approximately 58 acres, received low-level radioactive waste materials produced at the SRS. Some of these materials are classified as mixed waste containing both hazardous and radioactive components under the Resource Conservation and Recovery Act (RCRA). These trenches were closed by precompacting and placing a protective multi-layer cover system (Figure 3) over them to reduce rainwater contact with trench bottoms.

Compliance History

RCRA preventive actions at the MWMF were conducted pursuant to the requirements of the Resource Conservation and Recovery Act (RCRA) per NRDC et al. v. Herrington, Civ. Action No. 1:85-2583-6 (D.S.C. May 26, 1988) which is an order from the court in settlement of the lawsuit for closure of the facility under RCRA. In 1985 a RCRA Closure Plan was submitted to SCDHEC. The closure plan underwent several revisions prior to approval by SCDHEC in 1987. Closure of the MWMF was begun in 1988 and completed in December 1990. The MWMF was certified closed in 1991. In April 1991, the closure certification was accepted by SCDHEC as being in compliance with RCRA requirements. A RCRA Part B Permit Application for Post-Closure Care was submitted in November 1992.

Mixed Waste Management Facility Closure Cap Cross Section



GS1B019.01

Figure 3 MWMF Cap Cross Section

Closure activities specifically included precompaction; construction of a low permeability cap over the trenches; and restoration of the area.

RCRA preventive activities at the MWMF became subject to CERCLA when the entire SRS facility was placed on the National Priorities List (NPL) in December 1989. The MWMF is a source-specific operable unit within the Burial Ground Complex Fundamental Study Area.

III. Highlights of Community Participation

The public comment period ran from 01 August 94 - 30 August 94. All comments submitted on the Proposed Plan have been incorporated into this ROD, where appropriate and are addressed in the Responsiveness Summary (Appendix B).

IV. Scope and Role of Operable Unit within the Site Strategy

The selected RCRA remedy involved the placement of all contaminated materials under a low permeability cap. The remedy prevents physical exposure to contaminants and mitigates further migration of contaminants from the MWMF to groundwater by minimizing a liquid medium pathway (rainwater percolation) for transport.

V. Summary of Operable Unit Characteristics

Waste from SRS disposed in the form of job control waste such as rags, gloves and coveralls, soil, construction debris, failed equipment, spent air filters, spent lithium-aluminum targets, irradiated scrap metal, naval reactor hardware, lead shielding, waste oil, scintillation fluids, cadmium and silver coated beryl saddles, were sent to the MWMF. The constituents of concern at the MWMF are barium, chloroform, cadmium, 1,1-dichloroethane, vinyl chloride, trans-1,2 dichloroethylene, phenol, aluminum, iron, manganese, carbon-14, lead, tritium, nickel, tetrachloroethylene, trichloroethylene (TCE), zinc, uranium-234/235, uranium-238. The primary constituents of concern are tritium, lead, TCE, and uranium.

VI. Summary of Operable Unit Risks

Due to the previous MWMF RCRA preventive action, No Further Action under CERCLA is necessary for this source control operable unit. The RCRA preventive action is protective to human health and the environment and satisfies CERCLA requirements.

The trenches were first compacted and then were covered with a low permeability soil cap. Therefore, exposure through surface soil and sediment pathways is minimized because of this RCRA cap.

Preventive alternatives were developed for the MWMF based on effective technologies available at the time the RCRA Closure Plan was prepared. The

RCRA Closure Plan was initially submitted to SCDHEC in November 1985 and was approved, following several revisions, in December 1987.

Options regarding the MWMF evaluated at that time included:

Alternative 1

No Action

Alternative 2

No Waste Removal, Waste Consolidation, and Closure

Alternative 3

Waste Removal and Closure

Alternative 2 was selected within the RCRA closure process in 1985 as the most technically effective of the three alternatives for protection of human health and the environment. Closure of the MWMF was begun in 1988 and completed in 1990. The closure was certified in April 1991 and accepted by SCDHEC as being in compliance with RCRA and state requirements. The closure is considered a final action under CERCLA.

VII. Explanation of Significant Changes

There were no significant changes made to the remedy decision since the publishing of the proposed plan on 01 August 1994.

Appendix A

References for Development of ROD Format

EPA, 1991. "Guide to Developing Superfund No Action, Interim Action, and Contingency Remedy RODs," OSWER Publication 9355.3-02FS-3, U.S. Environmental Protection Agency, Washington, D.C., April 1991.

WSRC, 1992. "Draft RCRA Facility Investigation/Remedial Investigation Program Plan," WSRC-RP-89-994, Rev. 1, Chapter 15, Westinghouse Savannah River Company, Aiken, South Carolina, May 1992.

Appendix B

Responsiveness Summary

DOE has received comments regarding the MWMF and they have been addressed in this Responsiveness Summary. These comments are available for review in the Administrative Record.

A member of the public provided comments on the MWMF item in the *SRS Environmental Bulletin* volume 5 number 15 dated July 25, 1994. This comment referred to adding a figure representing the amounts of hazardous waste in the facility and the approximate volume of compacted waste. The issue raised in the *SRS Environmental Bulletin* concerning the hazardous waste volumes has been addressed and is clearly presented in the Proposed Plan. The issue concerning the volume of compacted waste is clarified here. Compaction at this waste site was done in order to form a stable foundation for the kaolin clay cap; therefore, no measurement was conducted to determine the exact waste consolidation.

An interested party provided comments on the MWMF Proposed Plan in a letter to C. V. Anderson dated September 8, 1994. The specific comments and their responses are as follows:

C: *SRS has not demonstrated the assertion that because of the RCRA closure at the MWMF "the unit poses no current or potential threat to human health or the environment" and, thus, "no further action is necessary under CERCLA." In ERF's July 9, 1993 letter to David Wilson at SCDHEC and Len Sjostrom at SRS we provided extensive comment and criticism on the RCRA*

post-closure risk assessment for the MWMF. We have never received a direct response from SRS. If there is a risk assessment to support a "no further remedial action" position under CERCLA then we request the opportunity to review it.

R: RCRA closure of a land disposal unit in which waste is left in place is protective of human health and the environment under RCRA and therefore, a risk assessment is not required. The actions taken at the MWMF under the RCRA/CERCLA program were completed within the requirements set forth by SCDHEC and the EPA.

C: *Additionally, the decision to leave waste buried at MWMF and the other Burial Ground Complex facilities is a de facto decision about long-term land use. Given the long-lived nature of many of the wastes, the implied restriction goes far beyond the 30 and 100 year institutional control projections which shaped the earlier risk assessments. If, in fact, unrestricted use of the site after 100 years is not going to be safe, then SRS and its regulators should acknowledge this and commit to some additional decision making.*

R: These actions are protective of human health and the environment and will be reviewed every 5 years as required by CERCLA and the RCRA post closure care permit renewal process.

C: *Until there is a meaningful land-use planning process at SRS involving stakeholders, the attainment of primary drinking water standards at the perimeter of the BGC should be a minimum requirement. It's not clear that SRS can meet these standards without additional source control at MWMF and the other BGC facilities. If additional source control is necessary to meet*

primary drinking water standards at the BGC perimeter, SRS and its regulators should work together to examine how to locate specific sources of contaminants within the BGC and what technology and/or research and development options are necessary to remedy the situations.

R: The MWMF groundwater is being addressed under RCRA which is a groundwater based program. Under RCRA, monitoring of the subsurface contamination is being conducted. Investigation of the groundwater contamination is currently ongoing and will be addressed under separate regulatory documentation. This MWMF Proposed Plan is for the source control operable unit only. All other source control units, including the groundwater operable unit, will be addressed under separate Proposed Plans and Records of Decision. DOE land use policy is being developed currently but until finalized, 5 and 30 year reviews will be maintained.