Proposed Site Treatment Plan (PSTP) (Vols. I & II & Reference Document)

by

E. Helmich

Westinghouse Savannah River Company

Savannah River Site

Aiken, South Carolina 29808

D. K. Noller

K. S. Wierzbicki

L. L. Bailey

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.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

DISCLAIMER

**Portions of this document may be illegible
in electronic image products. Images are
produced from the best available original
document.**

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

Savannah River Site Proposed Site Treatment Plan Executive Summary

September 27, 1995

SAVANNAH RIVER SITE MIXED WASTE PROPOSED SITE TREATMENT PLAN EXECUTIVE SUMMARY

INTRODUCTION

The Federal Facility Compliance Act requires the Department of Energy to undertake a national effort to develop Site Treatment Plans for each of its sites generating or storing mixed waste. Mixed waste contains both a hazardous waste subject to the Resource Conservation and Recovery Act and radioactive material subject to the Atomic Energy Act of 1954.

The Site Treatment Plan for the Savannah River Site proposes how SRS will treat mixed waste that is now stored on the site and mixed waste that will be generated in the future. Also, the Site Treatment Plan identifies Savannah River Site mixed wastes that other Department of Energy facilities could treat and mixed waste from other facilities that the Savannah River Site could treat. The Site Treatment Plan has been approved by the State of South Carolina. The Department of Energy will enter into a consent order with the State of South Carolina by October 6, 1995. The consent order will contain enforceable commitments to treat mixed waste.

PAST AND PRESENT MIXED WASTE REGULATIONS

The history of the Federal Facility Compliance Act began with the Resource Conservation and Recovery Act, enacted by Congress in 1976, and amended in 1980 and 1984. The Hazardous and Solid Waste Amendments of 1984 discouraged placing untreated hazardous waste in or on the land, banned long-term storage without treatment for most hazardous waste generated after the effective date of the restrictions, and established treatment standards. The Department of Energy was storing mixed waste, when the 1984 amendments became effective. Consequently, the Savannah River Site negotiated the Land Disposal Restrictions – Federal Facility Compliance *Agreement* with the Environmental Protection Agency Region IV. The Agreement allowed continuation of storage while the Savannah River Site developed new treatment capabilities. Because the State of South Carolina did not participate in the Land Disposal Restrictions – Federal Facility Compliance *Agreement*, the Federal Facilities Compliance Act required the Department of Energy and the Savannah River Site to develop a Site Treatment Plan.

Requirements of the Federal Facility Compliance Act

The Resource Conservation and Recovery Act, as amended by the Federal Facility Compliance Act of 1992, requires the Department of Energy to:

- Prepare Site Treatment Plans describing existing treatment capacities and technologies for treating mixed waste; and,
- Provide schedules for developing more treatment capacity and new waste treatment technologies.

Each Site Treatment Plan will be reviewed either by the state where the facility is located, or by the Environmental Protection Agency. The State of South Carolina will review the Site Treatment Plan for the Savannah River Site. The State of South Carolina will also consult with all other states that might be impacted (for example, by treating a mixed waste shipped from the Savannah River Site) by the Site Treatment Plan. The State of South Carolina has the option to:

- Approve the Site Treatment Plan presented by the Department of Energy;
- Approve the Site Treatment Plan with modification; or,
- Disapprove the Site Treatment Plan.

When the State of South Carolina issues a compliance order based on the approved Site Treatment Plan for the Savannah River Site, the Department of Energy will not be subject to fines and penalties for violations of the Land Disposal Restrictions prohibition of storing mixed waste, as long as it remains in compliance with the approved Site Treatment Plan and the compliance order.

DEVELOPMENT OF THE SAVANNAH RIVER SITE TREATMENT PLAN

The Site Treatment Plan for the Savannah River Site was developed in three stages:

1. Conceptual Site Treatment Plan, issued in October 1993;
2. Draft Site Treatment Plan, issued in August 1994; and,
3. Proposed Site Treatment Plan, issued in March 1995.

The Conceptual Site Treatment Plan and the Draft Site Treatment were reviewed by the State of South Carolina, the Environmental Protection Agency, and members of the public. Their comments have been considered in the development of the Proposed Site Treatment Plan.

Conceptual Site Treatment Plan

The Savannah River Site Conceptual Site Treatment Plan described three strategies to treat mixed wastes:

1. Onsite treatment;
2. Offsite treatment at other Department of Energy facilities; and,
3. Vendor treatment either onsite or at the vendor's site.

Draft Site Treatment Plan

The Draft Site Treatment Plan narrowed the treatment strategies identified in the Conceptual Site Treatment Plan to one preferred waste treatment option for each mixed waste stream. Also, the Draft Site Treatment Plan identified those streams for which a treatment option would have to be developed. Treatment at the Savannah River Site of waste streams proposed by other Department of Energy and Department of Defense facilities was addressed, as well.

Proposed Site Treatment Plan

The Proposed Site Treatment Plan identifies schedules for implementation of preferred treatment options for the mixed waste streams. If a preferred option cannot be identified, the Proposed Site Treatment Plan presents a schedule for identifying an option. If technology does not exist to treat the mixed waste, a research program to develop a treatment is proposed. If a waste stream is not sufficiently characterized to select a preferred treatment option, the Proposed Site Treatment Plan offers a schedule for characterizing the waste and developing a treatment plan.

HIGHLIGHTS OF THE PROPOSED SITE TREATMENT PLAN

Selecting the Preferred Waste Treatment Option

The Savannah River Site's method to select a preferred waste treatment option used a three-step approach:

1. Initial screening;
2. In-depth options analysis; and,
3. Engineering assessment.

Initial Screening

Process experts identified waste treatments for the Savannah River Site mixed waste streams during initial screening. Many different treatment methods were considered. The process experts usually screened out treatment methods that were still in the experimental stage. Nevertheless, new and innovative treatment methods are just now coming into existence. These new treatment technologies will be followed closely as they mature. (See Emerging Technologies.)

In-Depth Options Analysis

Promising treatment options identified in initial screening were next subjected to a rigorous In-Depth Options Analysis. Process experts defined requirements and used a numerical rating system to make the assessments thorough, consistent, and comparable. Scores were assigned based on how well the waste treatment option satisfied requirements for:

- Environment,
- Health and safety,
- Engineering, and
- Public acceptance.

Project cost was also considered. The numerical score from the in-depth analysis for each waste treatment option was one of the important factors used in the final engineering assessment.

Engineering Assessment

Experienced engineers and scientists chose the preferred option. They applied their expertise and knowledge to the in-depth analysis scores. They made sure the choice of the preferred waste treatment option was considered from many perspectives. Particular attention was paid to waste treatment options with in-depth options analysis scores that ranked close together. These engineers and scientists provided vital input to the selection of preferred options. They added the knowledge and experience that cannot be found in a mathematical model.

Options Analysis Team Waste Treatment Method Selection

The Department of Energy formed an Options Analysis Team composed of DOE experts from across the complex, who are well versed in all the many and complicated facets of mixed waste management. The Options Analysis Team reviewed the Site Treatment Plans for all the sites in the Department of Energy complex. They identified certain treatments that several sites could use together to avoid expensive duplication of facilities. The Options Analysis Team developed a configuration of treatment facilities for the Department of Energy complex that is cost effective, maximizes use of existing facilities, and minimizes the volume of waste transported across state lines.

Mixed Waste Volume and Preferred Treatment Option

Table 1 summarizes the volume of the mixed waste at the Savannah River Site. This volume includes mixed waste now in storage and mixed waste projected to be generated during the next five years.

Table 1 – Savannah River Site Total Mixed Waste Streams

	Low-Level Mixed Waste	Transuranic Mixed Waste	Low-Level Mixed Waste (Managed as transuranic)	High-Level Mixed Waste	Total Onsite Mixed Waste	Proposed Mixed Waste from Naval Reactors Program
Volume (m ³)	12,973.2	5,181.3	3,060.8	142,474	160,630.6	19,711
Volume Percent of Total	8	3	2	87	100	<1 (of onsite waste)

The high-level waste streams listed in Table 1 will be treated at the Defense Waste Processing Facility. The Defense Waste Processing Facility turns the waste into leach-resistant glass. Transuranic mixed waste listed in Table 1 will be characterized, treated, and repackaged to meet the Waste Acceptance Criteria for disposal at the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

Table 2 summarizes the preferred waste treatment options for the Savannah River Site's low-level mixed waste streams and mixed waste from the Department of Defense Naval Reactors program. (See Offsite Waste for information about the Naval Reactors program waste.)

Table 2 – Proposed Site Treatment Plan Preferred Treatment Options for Low-Level Mixed Waste Streams

Facility	Recommended Treatment	Volume (m ³)	Volume Percent
Consolidated Incineration Facility (Existing)	Incinerate and stabilize treatment residuals with cement.	4,516.2	35
M Area Vendor (Proposed)	Fuse into a leach-resistant glass-like material.	2,479.5	19
Savannah River Technology Center (Existing)	Bind the constituents of concern in a leach-resistant resin by ion exchange.	880.8	7
Containment Building - SRS(Proposed)	Macroencapsulate in stainless steel boxes, or with polymer.	1,444.8	11
D Area - SRS (Existing)	Bind the constituents of concern in a leach-resistant resin by ion exchange.	9.6	<1
Effluent Treatment Facility - SRS (Existing)	Bind the constituents of concern in a leach-resistant resin by ion exchange.	0.3	<1
In-Tank Precipitation Facility (Existing)	Wash with acid to remove constituents of concern, which are themselves fused into glass in the Defense Waste Processing Facility.	32.6	<1
Offsite Vendor (Existing)	Remove of the constituents of concern and recycling the decontaminated material.	112.2	1
On-site DOE Mobile Treatment Facility (Proposed)	Thermal oxidation	19.4	<1
Offsite DOE Facilities(Proposed)	Amalgamation, deactivation, and stabilization.	2.8	<1
10-100 nCi/g wastes	To be further characterized	3060.8	24
Treatment to be determined		17.4	2
TOTAL		12,576.4	100%

* Does not include mixed low-level waste meeting treatment standard.

Uncertainties and Areas for Additional Review

Mixed wastes containing transuranic elements need to be characterized. Characterization will tell what waste is to be sent to the Waste Isolation Pilot Plant for final disposal. The equipment and facilities for characterization have to be developed.

Job Control Waste with Enriched Uranium and Solvent Applicators (identified as waste stream SR-W056) has no treatment process currently identified. The waste contains a large amount of uranium. A research program is proposed to find out what treatment options may exist for this waste.

Waste streams containing mercury, identified in Table 2 for treatment in an "offsite DOE facility," are presumed to be treated in the amalgamation facility at Idaho National Engineering Laboratory. Only the conceptual design of this facility has been completed. It is tentatively scheduled to begin construction in the first quarter of 1997.

Tritiated Oil with Mercury (identified as waste stream SR-W036) was selected for treatment by a Department of Energy mobile packed bed reactor. The Savannah River Site will work with the designers to make sure the particular needs for treatment of this waste are met.

Uranium/Chromium Solution (identified as waste stream SR-W031) and Soils from Spill Remediation (identified as waste stream SR-W048) will require identification of a preferred treatment option. Lack of funding prevented treatment by an on-site vendor, as originally planned.

Offsite Waste

Waste generators at other DOE and DOD sites proposed mixed wastes to be treated at Savannah River Site facilities. Technical experts compared the wastes' characteristics to the waste acceptance criteria of specific Savannah River Site treatment facilities. The Savannah River Site has tentatively agreed to treat only 19.7 cubic meters of waste from offsite. This material comes from the Naval Reactors Program. The Consolidated Incineration Facility has the technical ability to treat the Naval Reactors liquid and solid waste streams.

Future Waste Generation

Production operations will contribute little to the future generation of mixed waste at the Savannah River Site. Most future waste generation will come from environmental restoration projects, waste management, and decontamination and decommissioning activities.

Emerging Technologies

The Proposed Site Treatment Plan presents a comprehensive package of preferred treatment options and implementation schedules. Nevertheless, the Department of Energy and the Savannah River Site continue to look for new and emerging technologies. If technologies to treat the mixed waste more safely, more efficiently, or more cost-effectively are discovered, modification of the Site Treatment Plan and compliance order may be requested.

Treatment Schedules

The Proposed Site Treatment Plan contains schedules for DOE's plan for treating the Site's mixed waste. The schedules include construction of new facilities, refurbishment of existing facilities, and contracting with vendors. Changes to these schedules require SCDHEC approval. Each year during the annual budget planning process, DOE-SR will seek funding through the submission of a target budget request and the identification of any additional funding required to accomplish the activities identified for the next two fiscal years. DOE-SR will evaluate schedule activities, not only in the upcoming three fiscal years, but also beyond to identify required funding and possible shortfalls. If DOE finds shortfalls, they will notify SCDHEC and immediately attempt resolution of the shortfall by obtaining additional funds, modifying priorities, or implementing operating efficiencies.

Storage

The Savannah River Site operates several mixed waste storage facilities. Needs for future storage of mixed low-level waste and mixed transuranic waste are being defined by studies in progress.

GLOSSARY

AMALGAMATION	A chemical process in which mercury, a liquid metal, reacts with another material to form a solid. The mercury cannot escape the solid into the environment.
ATOM	The smallest particle into which any material can be cut and still maintain its particular chemical characteristics.
ATOMIC NUMBER	The number of protons an element has in its nucleus. Atomic numbers now go from 1 to 110.
CHARACTERIZATION	Determination of physical, chemical, and radiological components of a waste.
COMPLIANCE ORDER	Legal, binding agreement issued by the State of South Carolina requiring a person, group, or organization to accomplish a specified course of action successfully.
COST EFFECTIVE	The best buy for the taxpayer.
CURIE	Disintegration of 37 billion unstable atomic nuclei in one second, which produces rays or particles.
DECONTAMINATION AND DECOMMISSIONING	The process in which an old facility at the Savannah River Site is safely torn down and the hazardous and radioactive material disposed.
DEFENSE WASTE PROCESSING FACILITY	A waste treatment facility now under construction that will be able to turn high level waste into leach-resistant glass.
DOE COMPLEX	All the locations where DOE has operating and administrative facilities.
EFFLUENT TREATMENT FACILITY	A Savannah River Site waste water treatment facility.
EMERGING TECHNOLOGIES	New methods for waste treatment that are still in the experimental or laboratory stage of development.
ENRICHED URANIUM	Uranium that has more of the isotope U-235 than occurs in nature.
ENVIRONMENTAL PROTECTION AGENCY	Federal Agency tasked with developing regulations to support environmental legislation and enforcing environmental laws and regulations.
HAZARDOUS WASTE	Waste that the Resource Conservation and Recovery Act defines as hazardous.

HIGH-LEVEL MIXED WASTE

Waste produced from reprocessing nuclear reactor fuel elements.

INCINERATION

Breaking the waste into carbon dioxide, water, and small amounts of acid through burning with oxygen.

ION

A atom or combination of atoms that has an electrical charge.

ION EXCHANGE

Replacing one ion (usually an undesirable one) with another ion (usually a desirable one).

ISOTOPE

Any of two or more elements with the same number of protons in the nucleus, but different number of neutrons.

JOB CONTROL WASTE

Discarded materials such as laboratory coats, paper, plastic, and towels used in operations and preventative maintenance activities.

MATHEMATICAL MODEL

A computer program that adds up and summarizes the results of an analysis.

MILESTONES

Enforceable deadlines that can be established for near-term activities, because there is greater fiscal and technical certainty about these activities.

MIXED WASTE

Waste that contains RCRA hazardous and radioactive components.

NANOCURIE (nCi)

One-billionth of a Curie.

NEUTRON

A particle in the nucleus of an atom with no electrical charge.

NUCLEUS

The heavy core of an atom, composed of protons and neutron.

OPTIONS ANALYSIS TEAM

DOE experts from across the complex, who are well versed in all the many and complicated facets of mixed waste management.

PRECIPITATION

A chemical reaction that causes a solid to form in a mixture of liquids.

PROCESS EXPERTS

Scientist and engineers who through training and experience are very familiar with chemical and mechanical methods for treating waste and are knowledgeable about the capabilities of existing facilities and the Savannah River Site.

PROTON

A particle in the nucleus of an atom with a positive electrical charge.

RADIOACTIVE	The property of some unstable elements to emit rays or particles from their nuclei.
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)	A Federal law that controls management of hazardous waste.
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (SCDHEC)	State Agency tasked with developing regulations to support environmental legislation and enforcing environmental laws and regulations in the State of South Carolina.
TRANSURANIC ELEMENTS	Man-made radioactive elements that have an atomic number higher than uranium (92). There are now about eighteen transuranic elements. Plutonium (atomic number 94) is a transuranic element.
TRANSURANIC MIXED WASTE	Waste that contains hazardous materials and transuranic elements.
TREATMENT RESIDUALS	Solid, or liquid materials left over from a waste after it has been treated.
TREATMENT TECHNOLOGY	The chemical or mechanical method of making waste meet environmental regulations.
TRITIATED OIL	Waste lubricating oil that has been contaminated with tritium.
TRITIUM	An isotope of hydrogen with two neutrons in the nucleus. Tritium is radioactive.
VENDOR	A private company in business to sell goods and services to individuals, companies, and the government

Proposed Site Treatment Plan - Revision 3

9/22/95

Instruction Page

Insert	Signature Page	dated 09/27/95
Insert	Title Page	dated 09/27/95
Insert	Pages ii through iii	dated 09/27/95
Remove	Pages ii through iii	dated 03/30/95
Insert	Pages iv through vii	dated 09/27/95
Remove	Pages iv through vii	dated 07/13/95

Volume I - Compliance Plan Volume

Insert	Volume 1, Pages 2-1 through 2-4	dated 09/27/95
Remove	Volume 1, Pages 2-1 through 2-4	dated 07/13/95
Insert	Volume 1, Page 3-1	dated 09/27/95
Remove	Volume 1, Page 3-1	dated 03/30/95
Insert	Volume 1, Page 3-6	dated 09/27/95
Remove	Volume 1, Page 3-6	dated 07/13/95
Insert	Volume 1, Pages 3-6A through 3-6B	dated 09/27/95
Insert	Volume 1, Pages 3-11 through 3-14	dated 09/27/95
Remove	Volume 1, Pages 3-11 through 3-14	dated 07/13/95
Insert	Volume 1, Pages 4-1 through 4-2	dated 09/27/95
Remove	Volume 1, Pages 4-1 through 4-2	dated 07/13/95
Insert	Volume 1, Page 5-1	dated 09/27/95
Remove	Volume 1, Page 5-1	dated 07/13/95
Insert	Volume 1, Tab - Appendices	
Remove	Volume 1, Tab - Addendum	
Insert	Volume 1, Page A-1 through A-2	dated 09/27/95
Remove	Volume 1, Page A-1 through A-2	dated 03/30/95
Insert	Volume 1, Page B-1 through B-2	dated 09/27/95

Proposed Site Treatment Plan - Revision 3

9/22/95

Volume II - Background Volume

Insert	Volume 2, Page 1-12	dated 09/27/95
Remove	Volume 2, Page 1-12	dated 03/30/95
Insert	Volume 2, Page 3-52	dated 09/27/95
Remove	Volume 2, Page 3-52	dated 07/13/95
Insert	Volume 2, Page 3-56	dated 09/27/95
Remove	Volume 2, Page 3-56	dated 07/13/95
Insert	Volume 2, Page 6-1	dated 09/27/95
Remove	Volume 2, Page 6-1	dated 07/13/95
Insert	Volume 2, Page 6-3	dated 09/27/95
Remove	Volume 2, Page 6-3	dated 07/13/95
Insert	Volume 2, Page 10-1	dated 09/27/95
Remove	Volume 2, Page 10-1	dated 07/13/95
Insert	Volume 2, Pages 10-2 through 10-3	dated 09/27/95
Remove	Volume 2, Pages 10-2 through 10-3	dated 03/30/95
Insert	Volume 2, Page 12-2	dated 09/27/95
Remove	Volume 2, Page 12-2	dated 07/13/95

SAVANNAH RIVER SITE

MIXED WASTE

**PROPOSED SITE
TREATMENT PLAN
(PSTP) (U)**

WSRC-TR-94-0608

Revision 3

Approved

Ambrose Schwallie
President
Westinghouse Savannah River Company

Date

Approved

Mario Fiori, Ph.D.
Manager, Department of Energy
Savannah River Site

Date

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

SAVANNAH RIVER SITE

MIXED WASTE

PROPOSED SITE TREATMENT PLAN (PSTP) (U)

Revision 3

UNCLASSIFIED

DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

ADC &
Reviewing
Official

Rex S. Daugherty
Date: 9/21/95

Volumes I and II

September 27, 1995

TABLE OF CONTENTS

Volume I – Compliance Plan Volume

Chapter 1	Purpose and Scope of the Compliance Plan Volume.....	1-1
Chapter 2	Key Order Provisions	2-1
Section 2.1	Definitions.....	2-1
Section 2.2	Project Activity Schedules.....	2-1
Section 2.3	Covered Matters	2-2
Section 2.4	Funding	2-3
Section 2.5	Changes to STP.....	2-3
Chapter 3	Mixed Low Level Waste Treatment	3-1
Section 3.1	Mixed Low Level Waste Treated Onsite.....	3-5
Section 3.2	Waste Stream Requiring Technology Development.....	3-13
Section 3.3	Mixed Low Level Waste Streams for Which Technology Development or Further Characterization is Required.....	3-14
Chapter 4	Mixed TRU Waste Streams.....	4-1
Section 4.1	National Strategy for Managing Mixed Transuranic Waste.....	4-1
Section 4.2	Mixed Transuranic Waste Stream Proposed for IDOA	4-2
Chapter 5	High-Level Waste.....	5-1
Section 5.1	High-Level Waste (HLW) Treated Onsite in Existing Facilities.....	5-1
Appendix A		A-1
Appendix B		B-1

Volume II – Background Volume

Chapter 1	Introduction.....	1-1
Section 1.1	Purpose and Scope	1-1
Section 1.2	Site History and Mission.....	1-4
Section 1.3	Framework for Developing the Department of Energy's Site Treatment Plan.....	1-11
Section 1.4	PSTP Organization.....	1-11
Section 1.5	Evolving Technologies	1-13
Section 1.6	Documents and Activities Related to Proposed Site Treatment Plan Development.....	1-21
Chapter 2	Methodology.....	2-1

Section 2.1	Assumption and Definitions.....	2-1
Section 2.2	Treatment Options Selection Process.....	18
Section 2.3	Coordination with Regulatory Agencies and Other Stakeholders.....	2-31
Section 2.4	Mixed Waste Characterization	2-33
Section 2.5	Waste Minimization/Pollution Prevention (WMin/PP).....	2-37
Section 2.6	Users Guide for Chapters 3-5 of Volume-II of the Proposed Site Treatment Plan.....	2-39
Chapter 3	Mixed Low Level Waste Streams.....	3-1
Section 3.1	Mixed Low Level Waste Treated Onsite.....	3-6
Section 3.2	Waste Streams Requiring Technology Development	3-138
Section 3.3	Mixed Low Level Waste Streams for Which Technology Development or Further Characterization is Required.....	3-146
Chapter 4	Mixed Transuranic Waste	4-1
Section 4.1	Mixed Transuranic Waste Streams Management Plans for Waste Proposed for Shipment to the Waste Isolation Pilot Plant (WIPP).....	4-1
Section 4.2	Mixed Transuranic Waste Stream Proposed for Offsite Shipment.....	4-15
Chapter 5	High-Level Waste.....	5-1
Section 5.1	High-Level Waste Treated Onsite in Existing Facilities.....	5-1
Chapter 6	Future Generation of Mixed Waste Streams	6-1
Section 6.1	Environmental Restoration Waste	6-1
Section 6.2	Decommissioning and Decontamination (D&D) Waste.....	6-6
Section 6.3	Additional Waste Streams.....	6-13
Chapter 7	Storage.....	7-1
Section 7.1	Existing SRS Mixed Waste Storage Capacity.....	7-2
Section 7.2	Future Storage Capability Needs for SRS Wastes.....	7-10
Section 7.3	Storage Capacity Needs.....	7-14
Section 7.4	Future Storage Capacity Needs for Offsite Waste.....	7-16
Chapter 8	Process for Evaluation of Disposal Issues in Support of the Site Treatment Plan (STP) Discussions.....	8-1
Section 8.1	Background.....	8-1
Section 8.2	Disposal Planning Process.....	8-3
Section 8.3	Integration with the STP Process.....	8-6
Chapter 9	Treatment Facilities and Treatment Technologies.....	9-1
Section 9.1	Existing Facility Descriptions.....	9-1
Section 9.2	Process Descriptions.....	9-5

Section 9.3	Planned/Proposed Facilities.....	9-7
Chapter 10	Offsite Waste Streams for which SRS Treatment is the PO.....	10-1
Chapter 11	Summary Information	11-1
Section 11.1	Preferred Option Summary (by Waste Stream)	11-1
Section 11.2	Preferred Option Summary (by Facility).....	11-5
Chapter 12	Acronyms And. Glossary	12-1
Chapter 13	References.....	13-1

Index of Revisions

<u>Page</u>	<u>Revision No.</u>	<u>Date of Revision</u>
Signature Page	3	09/27/95
Title Page	3	09/27/95
ii through vii	3	09/27/95
Volume I -- Compliance Plan		
1-1 through 1-2	0	03/30/95
2-1 through 2-4	3	09/27/95
3-1	3	09/27/95
3-2	2	07/13/95
3-3	0	03/30/95
3-4	2	07/13/95
3-5	0	03/30/95
3-6	3	09/27/95
3-6A through 3-6B	3	
3-7 through 3-10	2	07/13/95
3-11 through 3-14	3	09/27/95
4-1 through 4-2	3	09/27/95
4-3 through 4-4	0	03/30/95
5-1	3	09/27/95
5-2	0	03/30/95
A-1 through A-2	3	09/27/95
B-1 through B-2	3	09/27/95
Volume II -- Background Plan		
1-1 through 1-2	2	07/13/95
1-3	0	03/30/95
1-4	2	07/13/95
1-5 through 1-10	0	03/30/95
1-11	2	07/13/95
1-12	3	09/27/95
1-13 through 1-17	0	03/30/95
1-18	2	07/13/95
1-19 through 1-22	0	03/30/95
1-23 through 1-26	2	07/13/95
2-1 through 2-2	0	03/30/95
2-3 through 2-17	2	07/13/95

2-17A through 2-17B	2	07/13/95
2-18 through 2-35	0	03/30/95
2-36	2	07/13/95
2-37 through 2-39	0	03/30/95
2-40 through 2-46	2	07/13/95
3-1 through 3-3	0	03/30/95
3-4 through 3-5	2	07/13/95
3-5A through 3-5D	2	07/13/95
3-6 through 3-8	0	03/30/95
3-9 through 3-12	2	07/13/95
3-13 through 3-14	0	03/30/95
3-15	2	07/13/95
3-16	0	03/30/95
3-17 through 3-19	2	07/13/95
3-20 through 3-41	0	03/30/95
3-42	2	07/13/95
3-43 through 4-45	0	03/30/95
3-46	2	07/13/95
3-47	0	03/30/95
3-48 through 3-50	2	07/13/95
3-51	0	03/30/95
3-52	3	09/27/95
3-53	0	03/30/95
3-54	2	07/13/95
3-55	0	03/30/95
3-56	3	09/27/95
3-57	0	03/30/95
3-58	2	07/13/95
3-59 through 3-60	0	03/30/95
3-61	2	07/13/95
3-62 through 3-70	0	03/30/95
3-71	2	07/13/95
3-71A through 3-71B	2	07/13/95
3-72 through 3-73	2	07/13/95
3-74 through 3-84	0	03/30/95
3-85 through 3-86	2	07/13/95
3-87	0	03/30/95
3-88 through 3-89	2	07/13/95
3-90 through 3-108	0	03/30/95
3-109 through 3-113	2	07/13/95
3-114 through 3-137	0	03/30/95
3-138 through 3-140	2	07/13/95

3-141 through 3-152	0	03/30/95
4-1	0	03/30/95
4-2	2	07/13/95
4-3 through 4-8	0	03/30/95
4-9 through 4-10	2	07/13/95
4-11 through 4-18	0	03/30/95
5-1	2	07/13/95
5-2 through 5-6	0	03/30/95
6-1	3	09/27/95
6-2	2	07/13/95
6-3	3	09/27/95
6-4	2	07/13/95
6-4A through 6-4B	2	07/13/95
6-5 through 6-14	0	03/30/95
7-1 through 7-6	0	03/30/95
7-7	2	07/13/95
7-8 through 7-12	0	03/30/95
7-13 through 7-14	2	07/13/95
7-15	0	03/30/95
7-16	2	07/13/95
8-1 through 8-6	0	03/30/95
9-1 through 9-8	0	03/30/95
10-1 through 10-3	3	09/27/95
10-4	0	03/30/95
11-1 through 11-3	0	03/30/95
11-4	2	07/13/95
11-5 through 11-8	0	03/30/95
12-1	0	03/30/95
12-2	3	09/27/95
12-3 through 12-10	0	03/30/95
13-1 through 13-3	0	03/30/95
13-4	2	07/13/95

CHAPTER 2 KEY ORDER PROVISIONS

Implementation of the STP will be by Order approved by SCDHEC. The purpose of this chapter is to reiterate key provisions of the Order.

Section 2.1 Definitions

- a. **Project Activity Schedule(s)** shall mean the plan in the STP for performing key activities in support of mixed waste treatment(s). Project activity schedules will be provided in Chapter 3.0 through 5.0 of this Volume in accordance with the Section 3021(b)(1)(B)(ii) of the Federal Facility Compliance Act (FFCAct).
- b. **Milestone(s)** shall mean those specific date(s) or time frame(s) within the STP project activity schedule(s) that constitute the steps DOE-SR is committing to take to provide for treatment of its mixed waste.
- c. Deleted.
- d. **Days** are defined as calendar days; activities defined as occurring within a given quarter shall be completed by the last day of the quarter.
- e. **Revision(s)** shall mean a change to the STP that changes the treatment path. This includes but is not limited to the addition of a treatment facility, treatment capacity, or technology development not previously included in this Compliance Plan Volume.
- f. **Modification(s)** shall mean a change to the STP that does not constitute a revision.
- g. **Mixed wastes** shall mean wastes that contain both hazardous wastes and source, special nuclear or byproduct materials, subject to the Atomic Energy Act of 1954 (42 U.S.C. et seq.).
- h. Deleted.

Section 2.2 Project Activity Schedules

The schedules identified in Chapters 3, 4, and 5 represent DOE's plan for treating the site's mixed waste. Changes to these schedules require SCDHEC approval. Appendix A represents those schedule activities which occur in the upcoming federal fiscal year and which DOE agrees are enforceable commitments unless otherwise proposed by DOE and approved by SCDHEC. Appendix B represents those schedule activities planned to occur in the subsequent two federal fiscal years. During the STP annual update process Chapters 3, 4, and 5 schedule activities will be moved into Appendix B and Appendix B activities will be moved to Appendix A as scheduled unless otherwise proposed by DOE and approved by SCDHEC.

During the annual budget planning process, DOE-SR will seek funding through the submission of a target budget request and the identification of any additional funding required to accomplish activities identified in Appendix B as occurring in the upcoming federal fiscal year plus one. Additionally, DOE-SR will evaluate the funding status of the activities identified in Appendix B as occurring in the upcoming federal fiscal year plus two and those activities identified in Appendix A.

If a funding shortfall is identified for Appendix A activities, DOE-SR shall notify SCDHEC and attempt to resolve the shortfall through obtaining additional funds, reprioritization, and/or implementing improved operating efficiencies. If the funding shortfall for Appendix A is not resolved, DOE-SR will request a schedule modification or revision, as appropriate.

If a funding shortfall is identified for Appendix B activities, DOE-SR shall notify SCDHEC and attempt to resolve the shortfall through seeking additional funds, reprioritization, and/or implementing improved operating efficiencies. If the funding shortfall for Appendix B is not resolved, DOE-SR may request a schedule modification or revision, as appropriate.

During the budgeting process, DOE-SR will also evaluate schedule activities beyond the upcoming federal fiscal year plus the next two federal fiscal years to identify required funding. If shortfalls are identified, DOE-SR shall notify SCDHEC and attempt to resolve the shortfall through reprioritization, and/or implementing improved operating efficiencies. If the funding shortfall is not resolved, DOE-SR may request a schedule modification or revision, as appropriate.

Section 2.3 Covered Matters

2.3.1 Deleted

2.3.2 Applicability

Except as specifically set forth elsewhere in this plan, this plan shall apply to the RCRA Land Disposal Restrictions (LDR) requirements pertaining to past, ongoing, and future generation, storage, and treatment of mixed waste at SRS, the hazardous component of which is subject to the LDR. LDR requirements can be found in the South Carolina Hazardous Waste Management Regulations (SCHWMR) R.61-79.268 and the Code of Federal Regulations, Chapter 40, Part 268.

2.3.3 Mixed Waste Treatment

This plan addresses or will address the development of treatment capacities and technologies for treating SRS mixed wastes, or otherwise manage mixed wastes in accordance with RCRA LDR regardless of the time the mixed wastes were generated. For the purpose of this plan, covered mixed wastes shall mean those mixed wastes not excluded by the Covered Matters herein.

2.3.4 Exclusions – General

Inasmuch as the intent of the FFCAct is to develop an STP to address compliance with RCRA Section 3004(j), this Compliance Plan Volume shall not address those mixed wastes which are being stored or generated at SRS which (1) meet LDR requirements, regardless of when generated; or (2) mixed wastes which are being stored, or will be stored, when generated, solely for the purpose of accumulating sufficient quantities of mixed wastes as are necessary to facilitate proper recovery, treatment or disposal in accordance with South Carolina Hazardous Waste Management Regulation R.61.-79.268.50. Information pertaining to the status of these mixed wastes, described above, is provided in the Background Volume of this STP. By previous agreement with SCDHEC, small (less than 55 gallons) quantities of mixed waste(s) stored in RCRA Satellite Accumulation Areas [R.61-79.262.34(c)] are not subject to R.61-79.268 and are not included in this plan, unless requested otherwise by SCDHEC.

2.3.5 Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Resource Conservation and Recovery Act (RCRA)

Corrective actions and response actions shall be addressed by the CERCLA Section 120 Federal Facility Agreement (FFA) which was negotiated by EPA, DOE-SR, and SCDHEC effective August 16, 1993, and any RCRA hazardous waste permits issued or to be issued by the State of South Carolina and EPA, orders issued pursuant to Section 3008(h) of RCRA, and/or by an agreement, order, or legal action under CERCLA. SCDHEC and DOE-SR acknowledge that this plan does not

address mixed waste subject to corrective actions pursuant to RCRA and response actions pursuant to CERCLA, unless waste is removed from the area of contamination and not otherwise subject to the provisions of the RCRA/CERCLA orders or agreements.

2.3.6 Environmental Restoration

This plan excludes (1) environmental restoration mixed wastes derived from RCRA corrective actions and CERCLA response actions that do not involve the land disposal of hazardous wastes (e.g., the placement of remediation wastes into or within a corrective action management unit or area of contamination), and/or (2) mixed waste for which a specific treatment path is included in another existing regulatory agreement (e.g., Federal Facility Agreement (FFA), mixed aqueous IDW in the SRS IDW Management Plan, mixed waste with a designated treatment listed in RODs/orders), permit or order or modifications thereof. Other environmental restoration mixed waste streams which are not specifically excluded will be dispositioned in accordance with the strategy provided in Volume II, Section 6.1. Any mixed waste for which SRS proposes to be excluded from the STP shall be submitted to SCDHEC for approval.

2.3.7 Compliance Issues

This plan does not address RCRA compliance issues other than those issues specifically addressed herein. Therefore, SCDHEC and DOE-SR acknowledge that this plan does not affect the rights of SCDHEC to address any RCRA violations which exist or may exist at SRS, which are not specifically covered by this plan.

Section 2.4 Funding

2.4.1 Process

DOE-SR shall use its best efforts, in accordance with the DOE federal appropriations process, to request timely funding to meet its obligations under this plan. DOE-SR's intent is to further explain, before issuance of the Order, the process DOE intends to follow in developing, approving, and requesting funding for all STP requirements for this Compliance Plan Volume.

DOE-SR will provide SCDHEC an opportunity to input into formulating the SRS budget and setting the SRS budget priorities. Nothing herein shall affect DOE's authority over its budget and funding level submissions.

2.4.2 Anti-Deficiency Act

No provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

Section 2.5 Changes to STP

2.5.1 Annual Update

SRS shall submit to the SCDHEC an Annual Update to the STP. This Annual Update shall be in compliance with section 3021(b) of the Federal Facility Compliance Act and shall include, but is not limited to an updated inventory of all mixed waste, the status of all treatment residuals, and an updated implementation schedule. Projections of new mixed waste streams generated or to be generated onsite and to be received from offsite shall be included in the Annual Updates. The Annual Update lists all proposed changes to the approved plan with a justification for requesting such changes. Unless otherwise notified by the SCDHEC, SRS shall not propose modifications or revisions to the STP in the Annual Update that have been previously denied by the SCDHEC.

2.5.2 **Modifications and Revisions**

SRS shall submit, for SCDHEC approval, a request for a modification or revision as defined in the STP, to Volume I of the approved STP. All requests for modifications or revisions must meet the requirements of Section 3021(b) of the FFCAct. SRS may begin implementation of any modification or revision only upon receipt of written approval by the SCDHEC after appropriate public notice if required. The SCDHEC shall ensure that the public notice requirements of the FFCAct are addressed.

2.5.3 **Additional RCRA Permit Identification**

If SRS determines that treatment preparation steps, such as characterization may require RCRA permits or an RCRA Interim Status Expansion, SRS will submit a revision or modification, as appropriate, to identify proposed permit application submittal dates to be included in Volume I project activity schedules.

2.5.4 **Alternate Treatment Strategy**

If SRS determines that a proposed treatment strategy is inappropriate, SRS will submit a revision or modification and identify the new proposed strategy.

CHAPTER 3 MIXED LOW-LEVEL WASTE TREATMENT

The following project activity schedules are proposed for the treatment of mixed waste in accordance with Section 2.2 of this volume. Chapter 3.0 identifies mixed low-level waste streams, Chapter 4.0 identifies mixed TRU waste streams, and Chapter 5.0 identifies high level waste.

The table below identifies each mixed waste stream, the preferred treatment option (PO) and the section where the waste stream is described in Volumes I and II of the PSTP. Waste streams that have been eliminated, combined, are in compliance, or will be in compliance by October 1995 do not appear in Volume I. Waste stream noted by (*) in Volume II column have been eliminated or consolidated (see Section 2.6.1 of Volume II).

User's Guide to Chapters 3.0, 4.0, and 5.0 – Plan and Schedules

Waste Stream No.	Waste Stream Name	Preferred Option (PO)	Volume I Section Identification	Volume II Section Identification
SR-W001	Rad-Contaminated Solvents	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.A
SR-W002	Rad-Contaminated Chlorofluorocarbons	Consolidated with SR-W001	N/A	*
SR-W003	Solvent Contaminated Debris (LLW)	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.B
SR-W004	M-Area Plating Line Sludge from Supernate Treatment	Stabilization by Vitrification – M-Area Vendor Treatment Process	3.1.2.1	3.1.2.1.A
SR-W005	Mark 15 Filtercake	Stabilization by Vitrification – M-Area Vendor Treatment Process	3.1.2.1	3.1.2.1.B
SR-W006	Mixed TTA/Xylene – TRU	Characterization in TWCCF – WIPP Disposal	N/A	4.1.1.1.A
SR-W007	SRL (SRTC) Low Activity Waste	SRTC Ion Exchange	N/A	3.1.1.3.A
SR-W008	SRL (SRTC) High Activity Waste	SRTC Ion Exchange	N/A	3.1.1.3.B
SR-W009	Silver Coated Packing Material	Macroencapsulation in S. S. Container – Containment Bldg.	3.1.3.1	3.1.3.1.A
SR-W010	Scintillation Solution	Consolidated with SR-W001	N/A	*
SR-W011	Cadmium-Coated HEPA Filters	Scrap Metal Exclusion	N/A	*
SR-W012	Incinerable Toxic Characteristic (TC) Material	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.C
SR-W013	Low Level Waste (LLW) Lead – to be Decontaminated	Decontamination by Offsite Vendor	3.1.4.1	3.1.4.1.A
SR-W014	Tritium-Contaminated Mercury	Amalgamation – Offsite DOE-INEL-WEDF	3.1.5.1	3.1.5.1.A
SR-W015	Mercury/Tritium Contaminated Equipment	Macroencapsulation in S. S. Container as 90-Day Generator	N/A	3.1.1.7.A

Waste Stream No.	Waste Stream Name	Preferred Option (PO)	Volume I Section Identification	Volume II Section Identification
SR-W016	221-F Canyon High Level Liquid Waste	Stabilization by Vitrification – DWPF	5.1.1	5.1.1.1.A
SR-W017	221-H Canyon High Level Liquid Waste	Stabilization by Vitrification – DWPF	5.1.1	5.1.1.1.B
SR-W018	Filter Paper Take Up Rolls (FPTUR)	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.D
SR-W019	244-H RBOF High Activity Liquid Waste	Consolidated with SR-W017	N/A	*
SR-W020	In-Tank Precipitation (ITP) and Late Wash (LW) Filters	Acid Washing followed by Placement in an Engineered S. S. Container – ITP	N/A	3.1.1.4.A
SR-W021	Poisoned Catalyst Material	Waste stream eliminated	N/A	*
SR-W022	DWPF Benzene	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.E
SR-W023	Cadmium Safety/Control Rods	Macroencapsulation in a cask, as a 90-day generator	N/A	3.1.1.7.B
SR-W024	Mercury/Tritium Gold Traps	Meets LDR Treatment Standard	N/A	3.1.1.6.A
SR-W025	Solvent/TRU Job Control Waste <100 nCi/g	Characterization in TWCCF	3.3.1	3.3.1.1.A
SR-W026	Thirds/TRU Job Control Waste	Characterization in TWCCF – WIPP Disposal	4.1.1	4.1.1.1.B
SR-W027	Solvent/TRU Job Control Waste	Characterization in TWCCF – WIPP Disposal	4.1.1	4.1.1.1.C
SR-W028	Mark 15 Filter Paper	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.F
SR-W029	M-Area Sludge Treatability Samples	Stabilization by Vitrification – M-Area Vendor Treatment Process	3.1.2.1	3.1.2.1.C
SR-W030	Spent Methanol Solution	Consolidated with SR-W001	N/A	*
SR-W031	Uranium/Chromium Solution	Preferred treatment to be determined	3.1.6.1	3.1.6.1.A
SR-W032	Mercury Contaminated Heavy Water	D-Area Facility	3.1.1.4	3.1.1.5.A
SR-W033	Thirds/TRU Job Control Waste <100 nCi/g	Characterization in TWCCF	3.3.1	3.3.1.1.B
SR-W034	Calcium Metal	Deactivation by Wet Oxidation – DOE Mobile Reactive Metals Unit – Offsite	3.1.5.2	3.1.5.2.A
SR-W035	Mixed Waste Oil – Sitewide	Incineration followed by Stabilization – CIF	3.1.1.1	3.1.1.1.G

Section 3.1 Mixed Low-Level Waste Treated Onsite

3.1.1 Onsite Treatment in Existing Facilities

3.1.1.1 Consolidated Incineration Facility (CIF)

Incineration followed by stabilization in the CIF is the preferred option for certain mixed waste streams including, but not limited to, the following:

- SR-W001, Rad-Contaminated Solvents
- SR-W003, Solvent Contaminated Debris (LLW)
- SR-W012, Incinerable Toxic Characteristic (TC) Material
- SR-W018, Filter Paper Take Up Rolls (FPTUR)
- SR-W022, DWPF Benzene
- SR-W028, Mark 15 Filter Paper
- SR-W035, Mixed Waste Oil – Sitewide
- SR-W042, Paints and Thinners
- SR-W045, Tri-Butyl-Phosphate and n-Paraffin
- SR-W051, Spent Filter Cartridges and Carbon Filter Media
- SR-W055, Job Control Waste Containing Solvent Contaminated Wipes
- SR-W070, Mixed Waste from Laboratory Samples
- SR-W071, Wastewater from TRU Drum Dewatering
- SR-W073, Plastic/Lead/Cadmium Raschig Rings

Estimated Schedule for this Onsite Facility

Submittal of all applicable permit applications:
Completed

Entering into contracts:
Entering into contracts has been completed

Initiating Construction:
Initiating construction has been completed

Conducting Systems Testing:
Initiate testing 4th quarter federal FY 95.

Testing period shall mean the period following completion of the CIF construction when the facility performs integrated testing such as test burns using simulated or actual waste to determine readiness to conduct a trial burn before the receipt of waste for incineration.

Commencing Operations:
Operations shall commence no later than February 2, 1996.

Commence operations shall mean the introduction of waste into the CIF rotary kiln or secondary combustion chamber for treatment.

Processing Backlogged and Currently Generated Mixed Waste:
Submit an LDR waste processing rate at the CIF within 180 days after commencing operations, including the time necessary to prepare or repack certain mixed waste streams.

Schedule Assumptions

The ability to perform in accordance with the estimated schedule for the CIF is contingent upon, but not limited to, the following:

- The LDR waste processing rate will include offsite waste identified in 3.1.1.1.A
- Receipt by DOE-SR of adequate funding specifically identified for this project to support the schedule
- Completion of appropriate National Environmental Policy Act (NEPA) documentation (Waste Management EIS) and issuance of a Record of Decision (ROD) on CIF. Decisions reached following additional NEPA review are expected to be consistent with CIF schedule. Selection of a different alternative may require submittal of a revised proposal.
- No significant technical deficiencies are identified during the trial burn or from an operational readiness assessment
- SCDHEC Resource Conservation and Recovery Act (RCRA) permit modifications, including the trial burn plan, approved and effective by September 30, 1995, to support CIF operation and startup
- No changes in regulations, statutes, or the regulator's interpretations (except for the EPA combustion strategy)
- Schedule can be extended where good cause exists including, but not limited to:
 - circumstances unforeseen at the time the schedule was prepared that significantly affect the work required
 - delays in review of permit application(s), permit(s), or delays in approval of any other documents or other items needed to satisfy the requirements outlined
 - any other event or series of events, including, but not limited to, the discovery of new technological information or technological barriers that significantly affects the work required
 - a delay caused by insufficient funding where DOE timely and in good faith requested adequate funding in accordance with the federal appropriations process but Congress failed to appropriate such funding

3.1.1.1.A Treatment of Offsite Waste in the Consolidated Incineration Facility (CIF)

The following Charleston Naval Shipyard (CNS) mixed waste will be brought to SRS and stored in a RCRA regulated storage facility prior to treatment at CIF

CN-W001, Solids Containing Potassium Chromate
CN-W004, Organic Debris Contaminated with Lead and/or Chromium
CN-W007, Flammable Organic Debris

3.1.1.2 F-Area and H-Area Effluent Treatment Facility (ETF)

Ion Exchange in the Effluent Treatment Facility (ETF) is the preferred option for certain mixed waste streams, including the following:

SR-W041, Aqueous Mercury and Lead

Estimated Schedule for Treatment of this Waste Stream

Submit Applicable Permit Applications
None Required

Entering into Contracts:
None Required

Initiating Construction:
No construction required; ETF operational

Conducting Systems Testing:
No testing required; ETF operational

Commencing Operations:
Complete

Processing Backlogged and Currently Generated Mixed Waste:
Complete

This page intentionally left blank

Commencing Operations:

Commence operations within 12 months of initiating systems testing. "Commence operations" shall mean begin preparation of polymer batch.

Submitting Waste Processing Schedule:

Within 90 days after commencing operations, submit schedule for processing backlogged and currently generated mixed waste(s).

Schedule Assumptions

The ability to perform in accordance with the estimated schedule for the Containment Building treatment process is contingent upon, but not limited to, the following:

- Receipt by DOE-SR of adequate funding especially identified for this project to support the schedule
- Completion of appropriate NEPA documentation
- An existing SRS building will be refurbished to meet Containment Building requirements.
- Resolution of any technically related finding(s) which might result from an operational readiness self-assessment or the systems testing phase
- No changes in regulations, statutes, or the regulator's interpretations
- Schedule can be extended where good cause exists including, but not limited to:
 - circumstances unforeseen at the time the schedule was prepared that significantly affect the work required
 - delays in review of permit application(s), permit(s), or delays in approval of any other documents or other items needed to satisfy the requirements outlined
 - any other event or series of events including, but not limited to, the discovery of new technological information or technological barriers that significantly affects the work required
 - a delay caused by insufficient funding where DOE, in a timely manner, and in good faith, requested adequate funding in accordance with the federal appropriations process but Congress failed to appropriate such funding
- Approved of RCRA Part B no earlier than end of federal FY 04

3.1.4 Offsite Vendor Treatment Facilities

3.1.4.1 Decontamination

Decontamination by a commercial vendor in an offsite facility is the preferred option for certain mixed waste streams, including, but not limited to, the following:

SR-W013, Low Level Waste (LLW) Lead – to be Decontaminated

Estimated Schedule for Treatment of this Waste Stream

By 4Q federal FY 98, issue a Request for Proposal.

A revised schedule for this activity will be submitted with the first Annual Update. The revised schedule shall consist of a date for entering into contract and a date for submission of a shipping schedule including initiation of first shipment and completion of last shipment.

Schedule Assumptions

The ability to perform in accordance with the estimated schedule for the Vendor treatment process is contingent upon, but not limited to, the following:

- Receipt by DOE-SR of adequate funding specifically identified for this project to support the schedule
- Completion of appropriate NEPA documentation
- No changes in regulations, statutes, or the regulator's interpretations.
- Schedule can be extended where good cause exists including, but not limited to:
 - circumstances unforeseen at the time the schedule was prepared that significantly affect the work required
 - delays in review of documents or other items needed to satisfy the requirements outlined
 - any other event or series of events including, but not limited to, the discovery of new technological information or technological barriers that significantly affects the work required
 - a delay caused by insufficient funding where DOE, in a timely manner, and in good faith, requested adequate funding in accordance with the federal appropriations process but Congress failed to appropriate such funding

3.1.5 Offsite Department of Energy Facilities

3.1.5.1 Idaho National Engineering Laboratory Waste Engineering Development Facility

Amalgamation or stabilization at Idaho National Engineering Laboratory (INEL) Waste Engineering Development Facility (WEDF) is the preferred option for the following waste streams:

SR-W014, Tritium-Contaminated Mercury
SR-W049, Tank-E-3-1 Clean Out Material
SR-W068, Elemental (Liquid) Mercury

Estimated Schedule for treatment of these waste streams

Disposition of these waste streams is contingent upon receipt of shipping schedule from INEL. INEL will provide detailed treatment information. See PSTP Volume II for additional information.

Completing Shipment of Waste Offsite:

By 4Q FY 97, SRS will provide a schedule for completion of offsite waste shipment.

Schedule Assumptions

The ability to perform in accordance with the estimated schedule for the INEL treatment process is contingent upon, but not limited to, the following:

- Receipt by DOE-SR of adequate funding identified for this project to support the schedule
- Approval by INEL to ship waste
- Completion of appropriate NEPA documentation
- Agreement by the states involved

3.1.5.2 Department of Energy Mobile Treatment Facilities

Treatment by wet oxidation with a DOE Mobile Treatment Facility at Los Alamos National Laboratory (LANL) is the preferred option for the following waste stream:

SR-W034, Calcium Metal

Estimated Schedule for Treatment of this Waste Stream

Completing Shipment of Waste Offsite:

Within 90 days of LANL's receipt of a state approved schedule for processing backlogged and currently generated mixed wastes, including offsite SRS waste, SRS will provide a schedule for completion of offsite shipment.

Schedule Assumptions

The ability to perform in accordance with the estimated schedule for the LANL treatment process is contingent upon, but not limited to, the following:

- Receipt by DOE-SR of adequate funding identified for this project to support the schedule
- Approval by LANL to ship waste
- Completion of appropriate NEPA documentation

3.1.6 Detailed Treatment to be Determined

3.1.6.1 Process Requiring Further Evaluation

SR-W031, Uranium/Chromium Solution
SR-W048, Soils from Spill Remediation

Estimated Schedule for Treatment Determination

The M-Area vendor facility will not be available for treatment of streams SR-W031 and SR-W048. Additional evaluation of treatments is required to select an alternative preferred option.

- Selection of a preferred treatment and schedule will be provided with the next STP annual update.

3.1.6.2 Process Requiring Further Evaluation

SR-W072, Supernate or Sludge Contaminated Debris from High Level Waste Operations

Estimated Schedule for Treatment Determination

The preferred option is macroencapsulation of debris. Due to uncertainties of design created by the nature of the waste, a treatment schedule will be provided with the next STP Annual Update.

Section 3.2 Waste Stream Requiring Technology Development

3.2.1 Development of Mobile Unit Technology

SR-W036, Tritiated Oil with Mercury

Identifying and Developing Technology

DOE-SR will provide updates on the status of this technology in the annual STP update. SRS will provide a schedule by 1Q federal FY00 consisting of dates for the submitting of applicable permit applications, conducting systems testing, commencing operations, and processing backlogged and currently generated mixed waste. If this technology is determined to be inappropriate SRS will notify SCDHEC and submit an alternate treatment strategy including a project activity schedule no later than FY01 annual update.

3.2.2 Development of Characterization Technology

SR-W056, Job Control Waste with Enriched Uranium and Solvent Applicators

Identifying and Developing Technology

In the next annual update, a schedule will be provided to identify and develop a treatment technology for these wastes. The schedule will address the need for treatability study exemptions and research and development permit applications as appropriate.

Section 3.3 **Mixed Low Level Waste Streams for Which Technology Development or Further Characterization is Required**

3.3.1 Waste Streams to be Further Characterized

The following waste streams require further characterization before selecting a preferred option.

SR-W025, Solvent/TRU Job Control Waste <100 nCi/g

SR-W033, Thirds/TRU Job Control Waste <100 nCi/g

Estimated Schedule for Characterization of these Mixed Waste Streams

Refer to schedule identified in Volume I, Chapter 4, for characterization activities.

CHAPTER 4 MIXED TRU WASTE STREAMS

The following project activity schedules are proposed for the treatment of mixed TRU waste in accordance with Section 2.2 of this volume.

Section 4.1 National Strategy for Managing Mixed Transuranic Waste

As discussed in greater detail in Chapter 4 of the Background Volume of this STP, DOE plans to achieve compliance with the requirements of the FFCAct for MTRU destined for WIPP by using the No-Migration Variance petition approach described in 40 CFR Section 268.6. Under this strategy, DOE intends to continue interim storage of such MTRU, continue preparation of such wastes for shipment to WIPP, and then ship and dispose of such wastes in WIPP. After the Secretary's decision to operate WIPP as a disposal facility, the Savannah River Site (SRS) will submit, no later than January 1999, a supplemental plan outlining schedules and additional activities required to prepare the MTRU waste for shipment to WIPP if not already included in this plan or in the event that significant changes transpired as a result of the final permit or the final No-Migration Determination. In addition, at that time, SRS will provide a timetable for submitting a shipment schedule to WIPP for its MTRU waste. SRS will coordinate with the Carlsbad area office in developing the shipment schedule to ensure proper throughput and receipt of waste at WIPP.

SRS will begin discussions with the South Carolina Department of Health and Environmental Control (SCDHEC) regarding alternative treatment options for MTRU waste in January 1998 if the Secretary of Energy does not decide to operate WIPP as a disposal facility by that time, or at such earlier time as DOE determines that (1) there will be a delay in the opening of WIPP substantially beyond 1998, or (2) the No-Migration Variance petition is not granted by the EPA. DOE shall propose modifications to the STP for approval by SCDHEC within a time frame agreed upon between the DOE and SCDHEC. These modifications will describe planned activities and schedules for the new MTRU strategy.

DOE shall include information regarding progress of MTRU waste management in the update to the STP required by Chapter 2, Section 2.2. This will include, as applicable and appropriate, the status of the No-Migration Variance petition and information related to characterization, packaging, and/or treatment capabilities or plans for MTRU waste related to WIPP Waste Acceptance Criteria (WAC) and disposal.

4.1.1 Mixed TRU Waste Streams Proposed for Shipment to the Waste Isolation Pilot Plant

Characterization and shipment to WIPP is the proposal for certain mixed waste streams, including, but not limited to, the following:

- SR-W026, Thirds/TRU Job Control Waste
- SR-W027, Solvent/TRU Job Control Waste

DOE's current policy is that mixed TRU waste will be characterized and treated to meet WIPPWAC and then shipped to WIPP for disposal. Consistent with this policy, the treatment of mixed TRU waste to meet Land Disposal Restrictions (LDR) standards has not been included in the PSTP.

Estimated Schedule for Characterization of these Waste Streams

Submit applicable permit application(s):

Submit RCRA Part B permit application to SCDHEC by 4Q federal FY 2008.

Entering into Contracts:

Not applicable

Initiating Construction:

Within 90 days of the permit effective date, initiate construction. Initiation of construction shall mean equipment ordering.

Conducting Systems Testing:

Initiate systems testing within 30 months of the permit effective date. "Initiate systems testing" shall mean begin equipment checkout.

Commencing Operations:

Commence operations within 15 months of initiating systems testing. "Commence operations" shall mean begin preparation of the first drum.

Submitting Waste Processing Schedule:

Within 120 days after commencing operations, submit schedule for processing backlogged and currently generated mixed waste(s).

Schedule Assumptions

The ability to perform in accordance with the estimated schedule is contingent upon, but not limited to, the following:

- Receipt by DOE-SR of adequate funding specifically identified for this project to support the schedule
- Completion of appropriate NEPA documentation and issuance of a Record of Decision.
- Resolution of any technically related finding(s) which might result from an operational readiness self-assessment or the systems testing phase
- No changes in regulations, statutes, or the regulator's interpretations.
- WIPP will operate for a period of 35 to 50 years, as described in the Carlsbad Area Office "Strategic Plan", March 1995. (Document DOE/WIPP 93-025) Revision 1, p. 5.
- Schedule can be extended where good cause exists, including, but not limited to:
 - circumstances unforeseen at the time the schedule was prepared that significantly affect the work required
 - delays in review of permit application(s), permit(s), or delays in approval of any other documents or other items needed to satisfy the requirements outlined
 - any other event or series of events including, but not limited to, the discovery of new technological information or technological barriers that significantly affects the work required
 - a delay caused by insufficient funding where DOE, in a timely manner and in good faith, requested adequate funding in accordance with the federal appropriations process but Congress failed to appropriate such funding
- Receipt of RCRA Part B Permit no earlier than end of 4Q federal FY 2012.

Section 4.2 Mixed Transuranic Waste Stream Proposed for IDOA

4.2.1 Waste Shipped Offsite for Treatment

The preferred treatment for this waste stream is shipment to Rocky Flats for treatment.

SR-W053, Rocky Flats Incinerator Ash

Estimated Schedule for treatment of this waste stream

Schedule for shipment to Rocky Flats for treatment is to be determined, but expected to be no sooner than 2006.

CHAPTER 5 HIGH-LEVEL WASTE

The following project activity schedules are proposed for the treatment of high-level waste in accordance with Section 2.2 of this volume.

Section 5.1 High-Level Waste (HLW) Treated Onsite in Existing Facilities

5.1.1 Defense Waste Processing Facility

Vitrification in Defense Waste Processing Facility (DWPF) is the preferred option for certain mixed waste streams, including, but not limited to, the following:

SR-W016, 221-F Canyon High-Level Liquid Waste
SR-W017, 221-H Canyon High-Level Liquid Waste

Estimated Schedule for this Onsite Facility (target dates – not yet finalized)

Submittal of all applicable permit applications:
Completed

Entering into Contracts:
Completed

Initiating Construction:
Completed

Conducting Systems Testing:
Systems testing underway. Systems testing using water has been completed. Systems testing using nonradioactive chemicals (Cold Chemical Runs) was completed in October 1993. Melter heatup testing was initiated in April 1994.

Commencing Operations:
For the purpose of the PSTP, operations shall commence by 3Q federal FY 97. Commencing operation shall mean initial transfer of high-level waste to the DWPF vitrification building.

Processing Backlogged and Currently Generated Mixed Waste:
Provide schedule for processing backlogged and currently generated mixed waste within 120 days after commencing operations

Schedule Assumptions

This schedule was prepared for the purpose of the PSTP, and is not intended to replace or supersede aggressive work performance goals set by DOE in facility management work plans/schedules for the DWPF.

Upon the final determination of schedule for the DWPF, the ability to meet the schedule is contingent on, but not limited to, the following:

- Receipt by DOE-SR of adequate funding specifically identified for this project to support the schedule

- Completion of the DWPF Supplemental Environmental Impact Statement (EIS) and issuance of a Record of Decision (ROD) that supports salt feed preparation for DWPF vitrification via the In-Tank Precipitation process
- Resolution of any technically related finding(s) that might result from an operational readiness assessment
- Supporting high-level waste management processes/facilities will not impact the commencement of DWPF operations by the Commence Operations date.
- No changes in regulations, statutes, or the regulator's interpretations
- Schedule can be extended where good cause exists including, but not limited to:
 - circumstances unforeseen at the time the schedule was prepared that significantly affect the work required
 - delays in review of permit application(s), permit(s), or delays in approval of any other documents or other items needed to satisfy the requirements outlined
 - any other event or series of events including, but not limited to, the discovery of new technological information or technological barriers that significantly affects the work required
 - a delay caused by insufficient funding where DOE timely and in good faith requested adequate funding in accordance with the federal appropriations process but Congress failed to appropriate such funding

APPENDIX A
CURRENT FISCAL YEAR COMMITMENTS
FEDERAL FISCAL YEAR 1996

Appendix A is a summary of commitments compiled from Volume I for the current federal fiscal year and federal fiscal year 1996, including the deliverable date to meet each commitment. The process used to prepare this Appendix is found in Section 2, Chapter 2, of this volume.

APPENDIX A
Project Activities Schedule for the Current Federal Fiscal Year

Federal Fiscal Year Identified: 1995 and 1996

No.	Commitment	Schedule Date
1.	Initiate construction of the M-Area Vendor Treatment Process. (Volume I, Section 3.1.2.1).	08/09/95
2.	Initiate systems testing for CIF. (Volume I, Section 3.1.1.1).	09/30/95
3.	Commence operations of the CIF. (Volume I, Section 3.1.1.1).	02/02/96
4.	Initiate system testing for the M-Area Vendor Treatment Process. (Volume I, Section 3.1.2.1).	03/06/96*
5.	Commence operations of the M-Area Vendor Treatment Process. (Volume I, Section 3.1.2.1).	04/20/96*
6.	Submit a revised schedule for recycling elemental lead. (Volume I, Section 3.1.4.1).	04/30/96
7.	Submit preferred treatment and schedule for the treatment of Uranium/Chromium Solution and Soils from Spill Remediation. (Volume I, Section 3.1.6.1).	04/30/96
8.	Submit preferred treatment and schedule for the treatment of Supernate or Sludge Contaminated Debris from High Level Waste Operations. (Volume I, Section 3.1.6.2).	04/30/96
9.	Submit an update on the status of treatment technology development for Tritiated Oil with Mercury. (Volume I, Section 3.2.1).	04/30/96
10.	Submit a schedule to identify and develop a Treatment Technology for Job Control Waste with Enriched Uranium and Solvent Applicators. (Volume I, Section 3.2.2).	04/30/96
11.	Submit a schedule for the processing of backlogged and currently generated mixed waste at the M-Area Vendor Treatment Process. (Volume I, Section 3.1.2.1).	06/19/96*
12.	Submit waste treatment schedule for the treatment of mixed waste in the CIF. (Volume I, Section 3.1.1.1).	07/31/96*

*Projected date based on previous compliance action. See the referenced document section for the actual commitment.

APPENDIX B
COMMITMENTS FOR UPCOMING FEDERAL FISCAL YEAR +1 AND +2

Appendix B is a summary list of commitments compiled from Volume I for the first and second years after the upcoming federal fiscal year including the deliverable dates for each commitment. The process used to prepare this Appendix is found in Chapter 2, Volume I of the Approved Site Treatment Plan.

APPENDIX B
Project Activities Schedule for the Federal Fiscal Year +1 and +2

Federal Fiscal Year Identified: 1997 and 1998

No.	Commitment	Schedule Date
1.	Initiate transfer of High Liquid Waste to the Defense Waste Processing Facility for treatment. (Volume I, Section 5.1.1).	06/30/97*
2.	Complete processing of backlogged and currently generated waste to be treated in the D-Area Heavy Water Processing Facility. (Volume I, Section 3.1.1.4).	09/30/97
3.	Submit treatability variance request to the EPA for approval to macroencapsulate Silver Coated Packing Material as debris. (Volume I, Section 3.1.3.1).	09/30/97
4.	Submit treatability variance request to the EPA for approval that Tritiated Water With Mercury meets macroencapsulation as debris and requires no further treatment. (Volume I, Section 3.1.1.3).	09/30/97
5.	Submit the schedule for completion of the shipment of waste for off site treatment at Idaho National Engineering Laboratory in the Waste Engineering Development Facility. (Volume I, Section 3.1.5.1).	09/30/97
6.	Submit schedule for the treatment of High Level Liquid Waste in the DWPF. (Volume I, Section 5.1.1)	10/28/97*
7.	Begin discussion with SCDHEC regarding alternative treatment options for MTRU. (Volume I, Section 4.1).	01/30/98
8.	Submit a treatability variance request for approval to macroencapsulate lead-acid batteries by a vendor in an on site containment building. (Volume I, Section 3.1.3.2).	09/30/98
9.	Issue Request for Proposal for Low Level Waste (LLW) Lead, to be Decontaminated. (Volume I, Section 3.1.4.1).	09/30/98

*Projected date based on previous compliance action. See the referenced document section for the actual commitment.

Section 1.3 Framework for Developing the Department of Energy's Site Treatment Plan

RCRA Land Disposal Restriction (LDR) requirements require the treatment of hazardous waste (including the hazardous component of mixed waste) to certain standards before the waste can be land disposed, and prohibit storage of hazardous wastes that do not meet LDR standards, except for the purposes of accumulating sufficient quantities to facilitate proper recovery, treatment, or disposal of the waste. DOE is currently storing mixed waste inconsistent with the LDR provisions because the treatment capacity for such wastes, either at DOE sites or in the commercial sector, is not adequate or is unavailable at this time.

The Federal Facility Compliance Act, signed on October 6, 1992, waives sovereign immunity for fines and penalties for RCRA violations at federal facilities. However, the Act postpones the waiver for three years for LDR storage prohibition violations for DOE's mixed wastes and requires DOE to prepare plans for developing the required treatment capacity for its mixed waste at each site at which it stores or generates mixed waste. Each plan may be approved, approved with modification, or disapproved by the state, after consultation with other affected states and consideration of public comment. Upon approval of the plan, the state shall issue an order requiring compliance with the approved plan. The Act further provides that DOE will not be subject to fines and penalties for LDR storage prohibition violations for mixed waste as long as it is in compliance with an approved plan and order.

The Act requires the plans to contain schedules for developing capacity for mixed waste for which identified treatment technologies exist, and for mixed waste without an identified existing treatment technology, schedules for identifying and developing technologies. The Act also requires the plan to provide certain information where radionuclide separation is proposed. The Act states that the plans may provide for centralized, regional, or onsite treatment of mixed waste, or any combination thereof, and requires the states to consider the need for regional treatment facilities in reviewing the plans.

The "Schedule for Submitting Plans for the Treatment of Mixed Waste Generated or Stored at Each Site" was published April 6, 1993, in the Federal Register (58 FR 17875). In the notice, DOE committed to providing the site treatment plans in three phases: a conceptual plan completed in October 1993, a draft plan no later than August 1994, and a proposed plan no later than February 1995. This process provides opportunity for early involvement by the states and other stakeholders to discuss technical and equity issues associated with the plans.

The *Conceptual Plan* submitted October 1993, focused on identify the treatment needs, capabilities, and options for treating the site's mixed waste. The *Draft Plan* focused on identifying site-specific preferred options for treating the site's mixed wastes, wherever possible, as well as proposed schedules for constructing capacity. The options presented represent the site's best judgment of the available information and the states' preferences, and should be viewed as a starting point for discussion leading to the development of the proposed plans. The proposed plan is being submitted to the regulatory agency for review and approval, approval with modification, or disapproval, as required by the Act. Each version of the plan reflects discussions among states, as well as site-specific input from the individual regulatory agency and other interested parties on the previous submittal. It is DOE's intent that this iterative process, with ample opportunity for input and discussion, will facilitate approval of the Site Treatment Plan and issuance of the compliance order required by the Act. DOE's goal is to have all plans and orders in place by October 1995.

Section 1.4 PSTP Organization

Savannah River Site's Proposed Plan follows the same format at the proposed plans of other DOE sites to facilitate cross-site comparisons. The Proposed Plan is organized in two separate, but integrated volumes. The *Background Volume* provides the detailed discussion of the options; it contains information on the waste streams and treatability groups a particular treatment option or options would address and describes uncertainties associated with that

option, as well as the budget status of the option, and regulator and stakeholder input. The *Plan Volume* is a short, focused document containing the preferred options and schedules for implementing the options and is intended to contain all the information required by the Act. The *Plan Volume* also contains a mechanism to implement the plan and establish milestones that will be enforced by the Order. It references, but does not duplicate, details on the options in the *Background Volume*.

Chapters 1.0 and 2.0 in both volumes contain introductory material relevant to the purpose of the volume. The *Background Volume* contains general information on the Proposed Plan and the site in Chapter 1.0 and provides top-level assumptions and a description of the process used to determine the preferred options in Chapter 2.0.

Chapters 1.0 and 2.0 of the *Plan Volume* propose certain administrative provisions appropriate for implementing the plan when finalized. These include provisions such as project activity schedules describing funding considerations.

Chapters 3.0 through 5.0 discuss the preferred option or options for low-level mixed waste, mixed transuranic waste, and mixed high-level waste, and each volume discusses the same waste streams and options in parallel sections. The *Background Volume* discusses the waste streams, technology needs, and uncertainties and other details on the preferred options. In the *Plan Volume*, the sections include proposed schedules, to the extent feasible, as required under the Act.

Volume II includes eight additional sections that are not included in Volume I. Chapter 6 discusses mixed wastes expected to be generated from future activities such as environmental restoration and decontamination and decommissioning actions. These waste streams will be incorporated into Volume I, and treatment approaches and schedules developed, when the wastes are generated. Chapter 7 discusses storage capacity needs, describes compliant storage provided, and gives information on projected storage needs.

Chapter 8 describes the process that is being followed by DOE and the states for evaluating options for disposal of mixed waste treatment residues. Information regarding disposal in Chapter 8 has been developed by DOE-HQ.

Chapter 9 provides a description of all existing treatment facilities at SRS for the treatment of mixed wastes. Also included is a description of all treatment activities necessary for the treatment of SRS mixed waste.

Chapter 10 provides information on offsite waste from Naval Reactors that lists SRS as the preferred option. Final decisions on actual treatment will be made by the requesting DOE site, SRS, DOE-HQ, affected states, and other stakeholders in the course of negotiations leading to the development of the compliance order.

Chapter 11 provides summary information in two tables. Table 11.1 lists SRS mixed waste stream, their preferred treatment options, currently generated volume and future estimated generation over the next five years. Table 11.2 provides the same information, but lists waste streams by treatment facility or treatment method.

Chapter 12 is a list of acronyms in the Site Treatment Plan.

Chapter 13 provided a reference list of documents used in the development of the Site Treatment Plan.

3.1.1.1.N SR-W070 Mixed Waste from Laboratory Samples

3.1.1.1.N.1 GENERAL INFORMATION

Waste Stream Number: SR-W070

The preferred treatment option for the Mixed Waste from Laboratory Samples is Incineration followed by Stabilization at the Consolidated Incineration Facility (CIF).

Background Information:

Future waste stream consisting of aqueous lab waste from the analytical testing of ground water samples taken from the site and processed at commercial, offsite laboratories.

Volume

- Future waste generation, 1995 through 1999, is 2.2 m³.

Waste Stream Composition

- Aqueous liquid

Waste Code

- D004A (TCLP As)
- D005A (TCLP Ba)
- D006A (TCLP Cd)
- D007A (TCLP Cr)
- D008A (TCLP Pb)
- D009A (TCLP Hg)
- D010A (TCLP Se)
- D011A (TCLP Ag)
- F001, F002, and F005 (spent solvents – these waste codes pertain only to samples that may contain a listed waste)

LDR Treatment Standard

- D004 = concentration based standard = 5 mg/l
- D005 = concentration based standard = 100 mg/l
- D006 = concentration based standard = 1.0 mg/l
- D007 = concentration based standard = 5.0 mg/l
- D008 = concentration based standard = 5.0 mg/l
- D009 = concentration based standard = 0.2 mg/l
- D010 = concentration based standard = 5.7 mg/l
- D011 = concentration based standard = 5.0 mg/l
- F001, F002, and F005 = concentration based standards = 6.0-170 mg/kg, except for 2-Ethoxyethanol and 2-Nitropropane = Incineration

Waste Characterization

- Process knowledge used to characterize the waste stream
- Confidence level varies depending on the specific waste, it is generally medium to high.

Radiological Characterization

- H³, Am-²⁴¹, Cs-¹³⁷, Pu-²³⁸, Pu-²³⁹, Pu-²⁴⁰, Pu-²⁴¹, Sr-⁹⁰, U-²³⁴, U-²³⁵, U-²³⁶, U-²³⁷, U-²³⁸
- Activity unknown
- Contact handled

3.1.1.1.N.2 TECHNOLOGY AND CAPACITY NEEDS

The process flowsheet for the preferred option is shown above. Incineration followed by stabilization at the CIF will be an appropriate treatment to destroy organics entrained in the aqueous and treat the metals. If portions of the waste are determined to contain hazardous metals above an LDR standard, then CIF would be prohibited from treating the waste unless one or more organic hazardous constituent is present at significant levels. Alternative treatment would need to be applied if this situation occurs. The presence of hazardous metals and organic hazardous constituents will be verified.

The capacity limiting CIF subsystem for the entire CIF is the ashcrete unit. The ashcrete unit will have spare capacity even with the proposed addition of CIF blowdown. However, waste treatment rates at the CIF must be established so that volumes of ash and blowdown do not exceed the operating capacity of the ashcrete unit.

3.1.1.1.N.3 TREATMENT OPTION INFORMATION

Thermal destruction of this waste in the CIF followed by stabilization in the ashcrete process provides a treatment that is capable of meeting the treatment standards for the waste codes found in this waste stream. Since the waste is expected to carry F listed waste codes, initial incineration provides organic contaminant destruction and proper volume reduction in preparation for stabilization of the metals in the waste stream.

SRS committed to reassess the evaluation of waste streams for which incineration originally had been determined to be the best and most practical treatment technology. The *CIF Mission Need and Design Capacity Review* (July 7, 1993) and the supporting *Alternative Treatment Technologies for SRS Hazardous, Mixed and Job Control Wastes* (SWE-CIF-93020, July 29, 1993) reevaluated the treatment of certain existing and future SRS wastes in the CIF. The review was structured to generally reexamine the appropriateness of each Functional Performance Requirement (FPR) design basis waste group. The FPR is an initial engineering design document that defines the scope of the design project and serves as a baseline for subsequent project design work. The review included additional mixed waste groups that are not listed in the FPR but are chemically and physically similar to FPR nonradioactive waste groups that were addressed in the FPR. The review compared the incineration of each waste group to treatment by other candidate technologies using comparison criteria such as waste volume and toxicity reduction, treatment and disposal costs, and RCRA LDR requirements. The review program concluded that the waste groups originally designated for CIF and the additional mixed waste groups are most effectively treated by incineration.

3.1.1.1.O SR-W071 Wastewater from TRU Drum Dewatering

3.1.1.1.O.1 GENERAL INFORMATION

Waste Stream Number: SR-W071

The preferred treatment option for the Wastewater from TRU Drum Dewatering is Incineration followed by Stabilization at the Consolidated Incineration Facility (CIF).

Background Information:

This waste is generated by the removal of rainwater from the space between the metal TRU waste storage drum and the drum's plastic liner. The TRU waste stored in the drums is assumed to contain solvent contaminated wipes. When analysis of water recovered from the space between the drum and the liner indicates the presence of radionuclides, the water is presumed to have been in contact with the solvent-contaminated wipes. Thus, the water is conservatively assumed to be a mixed waste.

Volume

- Current volume through 09/30/94 is 11.8 m³.
- Future waste generation, 1995 through 1999, is 4.2 m³.

Waste Stream Composition

- Aqueous liquid

Waste Codes

- F001, F002, F003, F005A (halogenated and nonhalogenated spent solvents)

LDR Treatment Standard

- F001 = concentration based standards = 6-30 mg/kg
- F002 = concentration based standards = 6-30 mg/kg
- F003 = concentration based standards = 2.6-180 mg/kg
- F005 = concentration based standards = 10-170 mg/kg, except 2-Ethoxyethanol, 2-Nitropropane = Incineration

Waste Characterization

- Radiological analysis of water recovered from the space between the drum and the liner has been done. Water screened and found to have a radionuclide contamination is assumed to have come in contact with the TRU waste (containing solvent rags) and characterized as hazardous under the mixture rule. Confidence level about the radionuclide analyses is high. Process knowledge has been used to characterize waste from a RCRA standpoint. Chemical analysis will be necessary to further characterize this waste for treatment in the CIF.

Radiological Characterization

- 10 to 100 nCi/g alpha emitters
- Contact handled
- Mixed low-level waste

3.1.1.1.O.2 TECHNOLOGY AND CAPACITY NEEDS

The process flowsheet for the preferred option is shown above. Incineration followed by Stabilization at CIF will be an appropriate treatment to destroy the organics. If portions of the waste are determined to contain hazardous metals above an LDR standard, then CIF would be prohibited from treating the waste unless one or more organic hazardous constituent is present at significant levels. Alternative treatment would need to be applied if this situation occurs. The presence of hazardous metals and organic hazardous constituents will be verified.

The capacity limiting CIF subsystem for the entire CIF is the ashcrete unit. The ashcrete unit will have spare capacity even with the proposed addition of CIF blowdown. However, waste treatment rates at the CIF must be established so that volumes of ash and blowdown do not exceed the operating capacity of the ashcrete unit.

3.1.1.1.O.3 TREATMENT OPTION INFORMATION

Thermal destruction of this waste in the CIF followed by stabilization in the ashcrete process provides a treatment that is capable of meeting the treatment standards for the waste codes found in this waste stream. Initial incineration provides organic contaminant destruction and proper volume reduction in preparation for stabilization of the radionuclides in the waste stream.

SRS committed to reassess the evaluation of waste streams for which incineration originally had been determined to be the best and most practical treatment technology. The *CIF Mission Need and Design Capacity Review* (July 7, 1993) and the supporting *Alternative Treatment Technologies for SRS Hazardous, Mixed and Job Control Wastes* (SWE-CIF-93020, July 29, 1993) reevaluated the treatment of certain existing and future SRS wastes in the CIF. The review was structured to generally reexamine the appropriateness of each Functional Performance Requirement (FPR) design basis waste group. The FPR is an initial engineering design document that defines the scope of the design project and serves as a baseline for subsequent project design work. The review included additional mixed waste groups that are not listed in the FPR but are chemically and physically similar to FPR nonradioactive waste groups that were addressed in the FPR. The review compared the incineration of each waste group to treatment by other candidate technologies using comparison criteria such as waste volume and toxicity reduction, treatment and disposal costs, and RCRA LDR requirements. The review program concluded that the waste groups originally designated for CIF and the additional mixed waste groups are most effectively treated by incineration.

CHAPTER 6 FUTURE GENERATION OF MIXED WASTE STREAMS

This chapter addresses waste streams generated by Environmental Restoration and Decontamination and Decommissioning for which specific waste characterization data is needed before an in-depth options analysis can be performed. The section explains the types of waste to be generated in future activities at the Savannah River Site (SRS) and the general estimates of those waste volumes.

Section 6.1 Environmental Restoration Waste

The SRS Environmental Restoration (ER) Mission is to remediate inactive waste sites to ensure that the environment and the health and safety of the people are protected. SRS has implemented a comprehensive environmental program to maintain compliance with environmental regulations and to mitigate impacts to the environment. ER activities at SRS are governed by the Federal Facility Agreement (FFA). The FFA is a tri-party agreement among the Department of Energy (DOE), the Environmental Protection Agency (EPA), and the South Carolina Department of Health and Environmental Control (SCDHEC), which became effective on August 16, 1993. The FFA requires that SRS set work priorities on an annual basis with schedules and deadlines for environmental restoration actions. These priorities will be negotiated and updated each year. SRS must also submit to EPA and SCDHEC long term projections including projected deliverable dates for work activities to be conducted over the next two fiscal years and Record of Decision (ROD) dates for the third fiscal year and beyond. Other ER activities are defined by Resource Conservation and Recovery Act (RCRA) permits, closure plans, groundwater corrective action requirements, settlement agreements, and consent decrees. Known mixed wastes for which a cleanup decision is scheduled within the next five years and for which treatment in accordance with the RCRA LDRs may be required, are discussed for general planning purposes. Due to the uncertainty of how these ER wastes ultimately will be managed, their inclusion into the Site Treatment Plan (STP) (and therefore the specification of how and when they will be treated) will not occur until a final cleanup decision (under Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or RCRA) has been reached. This final decision, which will be reviewed with the SCDHEC RCRA group, will be made in compliance with applicable statutory/regulatory requirements and, where appropriate, established schedules in existing compliance documents. If environmental mixed waste is removed from an area of contamination and is not otherwise subject to an RCRA/CERCLA order or agreement or specifically excluded from the STP, the following actions will be taken to include these waste streams in the STP: 1) review characterization data and obtain more information if necessary to proceed with the preferred option selection process; 2) determine if the new waste would fit into any existing waste stream category by reviewing the waste opposite the characterization information and the preferred treatment option for the existing waste stream; 3) if able to fit into an existing waste stream, modify the MWIR and the STP at the next annual update of the MWIR and STP and proceed with treatment on the same schedule as has been identified for the existing waste stream; 4) if unable to fit this new waste stream into an existing waste category, create a new waste stream and identify the new waste stream in the next annual update of the MWIR and STP; 5) identify a preferred treatment option (using the same or similar process as was used to develop other preferred treatment options) and schedule.

Given all of the uncertainties associated with the volume and contaminant concentration of ER waste, it is expected that it will consist of the following broad categories: 1) soils, 2) liquid wastes, 3) noncombustible debris (tools, equipment, etc.), 4) combustible debris, and 5) recoverable waste and sludges (e.g., residues in unearthed containers).

In general, the five ER waste categories could be treated as follows:

Soil could be treated in the same manner as is determined appropriate for SR-W048 soils from spill remediation. Liquid wastes could receive treatment at a waste water treatment facility.

Noncombustible debris would be decontaminated (potentially in a containment building or in a tank/container in a 90 day staging area). Combustible debris may be incinerated at the CIF. Recoverable wastes and sludges may be incinerated at CIF (if organic or combustible debris) or stabilized at the CIF ashcrete unit if only metal contaminants are present.

Investigation-Derived Waste

One element of the ER program is the investigation of waste units. Environmental investigations typically employ activities such as drilling and excavating, which produce investigation by-products. In cases where investigations confirm the presence of contamination and the by-products contain wastes in concentrations high enough to be of environmental or health concern, special management procedures are warranted. The term used by the EPA and SCDHEC for these potentially contaminated by-products is Investigation-Derived Waste (IDW).

The *Investigation-Derived Waste Management Plan* (WSRC-RP-94-1227, Rev. 2) which was approved by EPA and SCDHEC on 2/28/95, describes how IDW generated during characterization and assessment activities will be managed. Finalization of the *IDW Management Plan* was a milestone commitment under the FFA. The *IDW Management Plan* describes the SRS plan for the management of IDW generated during investigations performed under the regulatory authority of RCRA, as amended, and CERCLA, as amended. IDW includes potentially contaminated environmental media such as monitoring well purge water, well pumping test and development water, drilling mud, and soil drill cuttings. IDW also includes decontamination and rinse waters as well as equipment and personnel protective equipment that have not been decontaminated. The SRS IDW management strategy is to minimize the quantity of IDW generated while cost-effectively managing the IDW which must be generated.

One of the management programs encompassed within this Plan is for the IDW derived from contact with mixed wastes. (Note: References to Appendix A, B, and C are the Appendices in the IDW Management Plan.) The Plan describes the following IDW streams that may be potentially mixed waste:

- Non-listed radioactive IDW is defined as media contaminated with radioactive and hazardous constituents in excess of the *IDW Management Plan* Appendix A (Aqueous) and Appendix B (Non-Aqueous) levels. This contaminated media will be managed as mixed waste if the hazardous substance component exceeds the levels outlined in the South Carolina Hazardous Waste Management Regulations R. 61 -79. 261 Subpart C.
- Listed radioactive IDW is defined as media contaminated with radioactive and listed hazardous constituents in excess of the *IDW Management Plan* Appendix A (Aqueous) and Appendix B (Non-Aqueous) levels. Listed IDW exceeding the levels in the Appendices will be managed as a hazardous waste, consistent with EPA's Contained-In Policy.

This program is consistent with EPA guidance for management of IDW and is protective of human health and the environment.

ER has developed four general IDW waste stream records which have been included in the latest update of the Mixed Waste Inventory Report (MWIR). The following summaries provide a general overview of the potential IDW mixed waste generated by ER activities. These records are not to preclude the record of decision (ROD) process:

SR-W064 IDW Soils/Sludges/Slurries: This IDW stream includes soil cuttings, drilling fluids, and turbid well development water with soil being the primary matrix. Depending on the site of the remediation activity, metals and organics may also be present. Radiological levels and hazardous constituent levels depend on the source location.

SR-W065 IDW Monitoring Well Purge/Development Water: This IDW stream includes purge water from monitoring wells generated during routine groundwater sampling events and well development water generated directly after monitoring well installations or during well redevelopment. Radiological levels and hazardous constituent levels depend on the source location.

SR-W066 IDW Debris: This IDW stream includes tools and devices used to sample soils and sediments at waste sites. Examples include drill bits, split spoons, and augers. Radiological levels and hazardous constituent levels depend on the source location.

SR-W067 IDW Personnel Protective Equipment (PPE) Waste: This waste stream includes plastic glove boxes, plastic film, coveralls, gloves, shoe covers, and associated waste. Waste matrices may include paper, cloth, plastic, and wood. As with the other three IDW streams, radiological levels and hazardous constituent levels depend on the source location.

Since the *IDW Management Plan* is a regulatory commitment under the FFA, negotiations on the Plan's content and treatment schedules have occurred with EPA and SCDHEC. The negotiations resulted in an *IDW Management Plan* that was approved by all parties on 2/28/95. To avoid dual regulatory commitments in the FFA and STP compliance order, the details of management of IDW have been deferred to the *IDW Management Plan* for those treatment processes specified in the *IDW Management Plan*. The *IDW Management Plan* Appendix C implementation schedules contain regulatory commitments for the treatment of the aqueous mixed waste stream (SR-W065). Thus, an in-depth option analysis for this stream has not been done and the treatment schedules are not provided in Volume I of the STP. Because of the coverage provided by the *IDW Management Plan*, this waste stream is specifically excluded from the STP process.

The mixed waste non-aqueous IDW media (SR-W064, SR-W066, SR-W067) which is generated outside the Area of Contamination will be placed in storage for treatment and disposal. Since these waste streams are future waste streams, characterization data does not exist enabling an in-depth options analysis to be performed. Thus, upon the availability of characterization data, these future waste streams will be addressed in the STP. In general, a review of existing waste streams and their preferred treatment options will be made once the IDW stream has been characterized. Should the IDW stream be comparable to an existing waste stream and meet the preferred treatment option's Waste Acceptance Criteria (WAC), the IDW stream will be treated as identified in the STP for the existing waste stream. If a comparable waste stream is not found, a new waste stream will be created and identified in the next annual update of the MWIR and STP. A preferred treatment option, using the same or similar process as was used to develop other preferred treatment options, and schedule will be identified.

Remediation Waste

In addition to IDW, ER activities could generate remediation wastes. These wastes would be generated during closure or restoration of inactive waste units or during groundwater corrective action. Contaminated soil, waste pits, and groundwater are the focus of many remedial actions. A variety of contaminated soils, sludges, and liquids will result from cleanup activities including secondary waste streams from remediation treatment processes. Many remediation units are currently in the assessment phase, so the nature and extent of contamination has not yet been defined. In addition, detailed information on the specific cleanup activities that may be applied to the various contamination problems is not yet available, so the resultant waste that could be generated cannot yet be reliably determined. In fact, the plans for many remediation units have not yet advanced to the stage where even the broad category of response is known. For example, the decision on whether a given contaminated area such as a waste pit is to be excavated or stabilized in place is not typically

made until after the nature of the problem has been adequately defined, various response alternatives and related impacts have been evaluated in considerable detail, and other agencies (EPA and SCDHEC) and the local community have had a chance to comment on the preferred alternative. If characterization activities identified both radioactive and hazardous contaminants in the pit, it is possible that mixed waste could be generated if the pit were excavated, whereas no waste would be generated if the pit were capped in place. Thus, early volume estimates for mixed waste associated with this pit are uncertain because of the nature of the remedial action process.

Even in those cases where the decision has already been made and specific activities have advanced beyond the conceptual planning stage, the information needed to support a reasonable estimate of resultant waste volumes is still generally unavailable. For example, a site may already have conducted bench-scale and pilot-scale testing for a given water treatment system, and scale-up and construction may have been completed, but key data such as the operating efficiencies of its individual components, including pretreatment and post-treatment processes, cannot be known until the actual treatment is well under way. Similarly, the contaminant concentrations of the effluents cannot be reliably known until the system is in full use, so the specific nature of the treatment residuals that may be produced over the next five years cannot be reliably determined.

IDW and Remediation Waste Forecasts

Because this information is not available for ER, the waste inventories and projections listed on the attached Table 6.1, "Environmental Mixed Wastes Forecast," are based on generally conservative assumptions. These estimates will continue to be updated as cleanup activities progress at the individual sites and the appropriate information becomes available. Since detailed waste stream information is not currently available for environmental restoration activities, future mixed waste generation data has been estimated. The estimates are given in Table 6.1. In most instances, the forecast of new mixed waste streams resulting from ER activities will occur after a decision document such as a CERCLA ROD, RCRA closure plan approval, or RCRA Part B Permit for the waste unit is issued.

These same limitations inherent to the cleanup process also preclude the provision of certain detailed data that was broadly requested for the FFCAct. This request presumed detailed knowledge of waste streams, such as EPA waste codes and specified LDR treatment technologies. That information is not available for the ER program. For most sites, the contamination has not yet been fully characterized and the specific activities, including treatment, that may be conducted have not yet been finalized. Therefore, more specific detail

CHAPTER 10 OFFSITE WASTE STREAMS FOR WHICH SRS TREATMENT IS THE PO

Naval Reactors has selected SRS mixed waste treatment facilities as preferred options in the Naval Reactors Program DSTP. SRS has completed its evaluation confirming its ability to treat Naval Reactors mixed wastes.

SRS cannot fully determine a schedule for treating Naval Reactors wastes at this time. The schedule for acceptance of offsite DOE Complex waste will depend on the volume and characterization of waste to be treated as well as prioritization of onsite and offsite waste treatment. WSRC has recommended that the DOE Complex develop prioritization protocols for treatment of mixed waste to ensure timely treatment of wastes subject to RCRA Land Disposal Restrictions and wastes not stored in compliance with RCRA regulations.

Prior to actual acceptance of Naval Reactors wastes major changes to the SRS facility baseline documents including regulatory permits will be required prior to the initiation of waste treatment operations. The required modifications to the baseline documents have not been forecasted, and an accurate schedule for waste treatment operations has not been determined at this time.

WSRC has assumed that all waste treatment residues returned to the generating site would meet the published disposal waste acceptance criteria for the specified site.

Table 10.1 identifies the SRS treatment facilities selected as preferred options for Naval Reactors mixed wastes.

For Charleston Naval Shipyard waste (since this facility will be closed April 1, 1996), shipment to SRS will occur in January 1996 provided that the SCDHEC is in agreement with this approach.

In general, shipment of Naval Reactors (NR) wastes to CIF will occur within 24 months of commencing CIF operations. This schedule assumption is subject to SCDHEC approval of permit modifications and the facility production schedule. For wastes generated subsequent to the initial waste shipment, NR may ship wastes within 90 days of accumulating sufficient quantities.

SRS will treat NR's waste according to the approved CIF processing schedule and will provide for treatment according to Land Disposal Restrictions (LDR) requirements.

Table 10.1 – Naval Reactors Program Waste

Waste Stream No.	DOE Site/ Waste Stream	SRS Treatment Facility	Potential Issues	Current cumulative inventory through 09/30/94 (m ³)	Future forecast generation (1995-1999) (m ³)
BT-W001	Oil Containing Heavy Metals #1	CIF	(1) (2) (3) (4)	0.21	0.21
BT-W002	Spent M-192 Solvent Rags	CIF	(1) (2) (3)	0.21	0.0
BT-W003	Oil Containing Heavy Metals #2	CIF	(1) (2) (3)	0.73	0.21
BT-W007	Solids with Solvents	CIF		0.42	0.0
BT-W018	TCLP Extract Fluid	CIF	(1) (2) (3) (6)	0.0	0.001
CN-W001	Solids Containing Potassium Chromate	CIF	(1) (2) (3)	0.5	0.6
CN-W004	Organic Debris contaminated with Lead and/or Chromium	CIF	(1) (2) (3)	0.61	0.9
CN-W007	Flammable Organic Debris	CIF	(1) (2) (3) (6)	0.0	0.2
KA-W002	Cutting Oils and Liquids, Lubricants	CIF	(1) (2) (3) (6)	0.0	0.1
KA-W003	Trichloroethylene	CIF	(1) (2) (3)	0.2	0.1
KA-W006	Freon® 113 on Rags	CIF	(1) (2) (3)	0.4	0.0
KA-W007	Oils	CIF	(1) (2) (3)	0.23	2.0
KA-W009	Organic Debris	CIF	(1) (2) (3)	0.05	2.0
KA-W013	Organic Debris without Metals	CIF	(1) (2) (3) (6)	0.0	0.4
KA-W014	Organic Sludges and Particulates with Heavy Metals	CIF	(1) (2) (3) (6)	0.0	0.4
KK-W003	Oils	CIF	(1) (2) (3) (6)	0.0	0.25
KK-W005	Organic Debris	CIF	(1) (2) (3) (5)	1.0	0.6
KK-W008	Organic Sludges/Particulates	CIF	(1) (2) (3) (6)	0.0	0.75
KK-W009	Organic Debris without Metals	CIF	(1) (2) (3) (6)	0.0	0.4
KK-W011	Cutting Oils and Liquids	CIF	(1) (2) (3) (6)	0.0	0.4
KW-W001	Oil with Heavy Metals	CIF	(1) (2) (3) (6)	0.0	0.45
KW-W003	Organic Debris	CIF	(1) (2) (3) (6)	0.0	1.5
KW-W006	Organic Sludges/Particulates	CIF	(1) (2) (3) (6)	0.0	1.6

Waste Stream No.	DOE Site/ Waste Stream	SRS Treatment Facility	Potential Issues	Current cumulative inventory through 09/30/94 (m ³)	Future forecast generation (1995-1999) (m ³)
NN-W002	Solid Waste Contaminated with Potassium Chromate	CIF	(1) (2) (3) (6)	0.0	2.05
PN-W015	Solids containing Potassium Chromate	CIF	(1) (2) (3) (6)	0.0	0.03
Total				4.56	15.151

Notes for Table 10.1

1. All waste must meet the waste composition and packaging limitations of the approved CIF Waste Acceptance Criteria (WAC). The approved WAC will be issued in the SRS 1S Manual and is scheduled to be issued in 1995. A copy will be sent to NR upon approval, and arrangements for packaging of the waste to meet the CIF WAC will be made at that time.
2. Adequate NEPA documentation must be completed for the operation of CIF for onsite and applicable offsite mixed waste and for transportation of waste to SRS. NEPA coverage for transportation is the responsibility of the generator.
3. Approved RCRA permit modifications to allow treatment of offsite waste at CIF and storage of offsite wastes at appropriate SRS storage facilities will be required prior to scheduling and acceptance of NR waste.
4. The CIF WAC surface radiation limit is 10 mR/hr. NR waste is shown to have a surface rate above 200 mR/hr. SRS will dilute this waste with our own waste to meet the CIF WAC.
5. The CIF cannot treat Radioactive Lead Solids (D008C). KK-W005 contains fine lead particulates from HEPA Filters. If the waste does not qualify as D008C waste, then CIF can incinerate combustible HEPA elements that exceed the lead TCLP limit as long as the CIF WAC concentration limit is not exceeded.
6. Future-generated wastes will have to be characterized at the time of generation to ensure that they meet the CIF WAC.

This page intentionally left blank.

CHAPTER 12 ACRONYMS AND GLOSSARY

– A –

ADGAS	Venting of compressed gases into an absorbing or reacting media
AEA	Atomic Energy Act
Ag	Silver
ALARA	As Low As Reasonably Achievable
Am	Americium
AMALG	Amalgamation
AOC	Area of Contamination
As	Arsenic
ASME	American Society of Mechanical Engineers
AVF	Alpha Vitrification Facility

– B –

B/D	Blowdown
Ba	Barium
BACT	Best Available Control Technology
BDAT	Best Demonstrated Available Technology
BIODG	Biodegradation
BOD	Biological Oxygen Demand
Br	Bromine
BTU	British Thermal Unit

– C –

C	Carbon
Ca	Calcium
CAA	Clean Air Act
CAB	Citizens Advisory Board
CARBN	Carbon Adsorption
CB	Containment Building
CCMC	Chemical Commodity Management Center
Cd	Cadmium
Ce	Cerium
CEP	Catalytic Extraction Processing
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
Cf	Consequence of Failure
CFR	Code of Federal Regulations
CH	Contact Handled
Chem	Chemical

CHOXD	Chemical or Electrolytic Oxidation
CHRED	Chemical Reduction
Ci	Curie
CIF	Consolidated Incineration Facility
Cm	Curium
CMBST	Combustion
CNS	Charleston Naval Shipyard
Co	Cobalt
CO ₂	Carbon Dioxide
COBRA	Computerized Radioactive Waste Burial Record Analysis
Cont. Bldg.	Containment Building
Cr	Chromium
CRADA	Cooperative Research and Development Agreement
Cs	Cesium
CSTP	Conceptual Site Treatment Plan
CTF	Chemical Transfer Facility
CWA	Clean Water Act
°C	Degrees Celsius

– D –

D&D	Decontamination and Decommissioning
DEACT	Deactivation
Decon	Decontamination
Dest	Destruction (Thermal Destruction)
DETF	Dilute Effluent Treatment Facility
DF	Disposal Facility
Distill	Distillation
DOD	Department of Defense
DOE	Department of Energy
DOE-AL	Department of Energy – Albuquerque
DOE-HQ	Department of Energy – Headquarters
DOE-SR	Department of Energy – Savannah River Office
DOT	Department of Transportation
DSTP	Draft Site Treatment Plan
DWPF	Defense Waste Processing Facility

– E –

EA	Environmental Assessment
EAV	E-Area Vaults
EC	Environmental Coordinator
ECM	Environmental Compliance Manual
EIS	Environmental Impact Statement
EM	DOE Office of Environmental Restoration and Waste Management