Savannah River Site

Salt Processing Alternatives

Draft Supplemental
Environmental Impact Statement

U.S. Department of Energy
Savannah River Operations Office
Aiken, South Carolina

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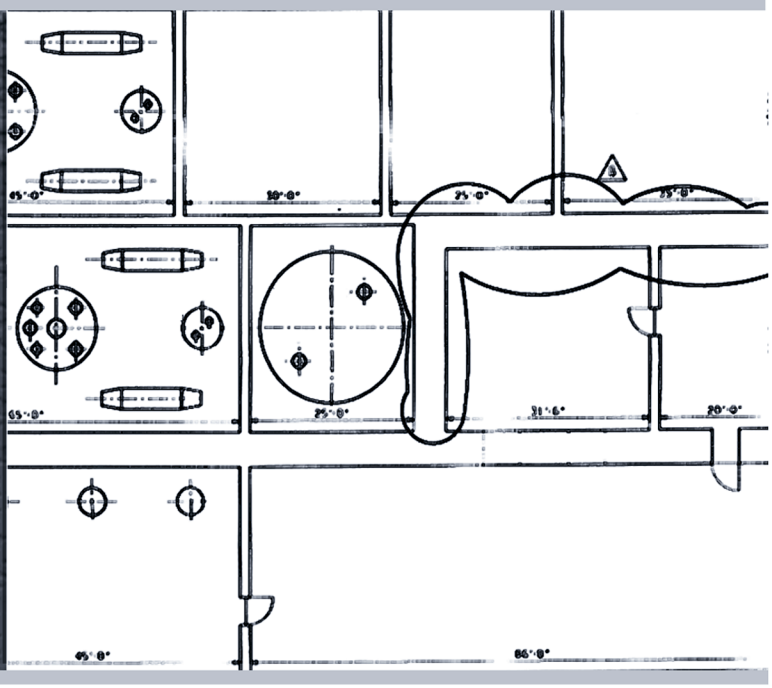
DOE/EIS-0082-S2D



COVER SHEET

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

TITLE: Savannah River Site Salt Processing Alternatives Draft Supplemental Environmental Impact Statement (DOE/EIS-0082-S2D)

CONTACT: For additional information on this supplemental environmental impact statement (SEIS), write or call:

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The SEIS is available on the internet at: http://tis.eh.doe.gov/nepa/docs/docs.htm.

ABSTRACT: DOE prepared this Draft SEIS on alternatives for separating the high-activity fraction from the low-activity fraction of the high-level radioactive waste salt solutions now stored in underground tanks at the Savannah River Site (SRS) near Aiken, South Carolina. The high-activity fraction of the high-level waste (HLW) salt solution would then be vitrified in the Defense Waste Processing Facility (DWPF) and stored until it could be disposed of as HLW in a geologic repository. The low-activity fraction would be disposed of as low-level waste (saltstone) in vaults at SRS.

A process to separate the high-activity and low-activity waste fractions of the HLW salt solutions is needed to replace the In-Tank Precipitation (ITP) process which, as presently configured, cannot achieve production goals and safety requirements for processing HLW. This SEIS analyzes the impacts of constructing and operating facilities for four alternative processing technologies – Small Tank Precipitation, Ion Exchange, Solvent Extraction, and Direct Disposal in Grout – and the No Action Alternative. DOE has not selected a Preferred Technology Alternative. Preferred sites for locating processing facilities within S and Z Areas at SRS are identified.

Because replacing the ITP process constitutes a substantial change to the HLW salt processing operation of the DWPF, as evaluated in a 1994 SEIS (DOE/SEIS-0082-S) to the 1982 DWPF EIS (DOE/EIS-0082), DOE prepared this second SEIS to evaluate the potential environmental impacts of alternatives to the ITP process.

PUBLIC INVOLVEMENT: In preparing this Draft SEIS, DOE considered comments received by letter and voice mail and comments received at two public scoping workshops held in Columbia and North Augusta, South Carolina, on March 11 and March 18, 1999, respectively.

A 45-day comment period on the Draft Salt Processing Alternatives SEIS begins with the U.S. Environmental Protection Agency's publication of a Notice of Availability in the *Federal Register*. Public meetings to discuss and receive comments on the Draft SEIS will be held on May 1, 2001, at the North Augusta Community Center in North Augusta, South Carolina, and on May 3, 2001, at the Holiday Inn Coliseum in Columbia, South Carolina. Comments may be submitted at the public meetings and by voice mail, e-mail, or regular mail to the first address above. Comments received or postmarked by the end of the comment period will be considered in the preparation of the Final SEIS. Comments received or postmarked after the close of the comment period will be considered to the extent practicable.

FOREWORD

The U.S. Department of Energy (DOE) published a Notice of Intent (NOI) on February 22, 1999, to prepare this supplemental environmental impact statement (SEIS). DOE prepared this SEIS on alternatives for separating the high-activity fraction from the low-activity fraction in the radioactive high-level waste (HLW) salt solution now stored in underground tanks at the Savannah River Site (SRS) near Aiken, South Carolina. The high-activity fraction of the HLW salt solution waste would then be vitrified in the Defense Waste Processing Facility and stored until it could be disposed of as high-level waste in a geologic repository. The low-activity fraction would be disposed of as low-level waste (saltstone) in vaults at SRS.

A process to separate the high-activity and low-activity waste fractions in the high-level waste salt solutions is needed to replace the In-Tank Precipitation (ITP) process which, as presently configured, cannot achieve production goals and safety requirements for processing high-level waste. This SEIS analyzes the impacts of constructing and operating four alternative processing technologies – Small Tank Precipitation, Ion Exchange, Solvent Extraction, and Direct Disposal in Grout – and the No Action Alternative. Because replacing the ITP process constitutes a substantial change to the HLW salt processing operation of the Defense Waste Processing Facility, as evaluated in a 1994 SEIS (DOE/SEIS-0082-S) to the 1982 Defense Waste Processing Facility EIS (DOE/EIS-0082), DOE prepared this second SEIS to evaluate the potential environmental impacts of alternatives to the ITP process.

The NOI requested public comments for DOE to consider in determining the scope of the SEIS and announced a public scoping period that ended on April 8, 1999. Two public scoping workshops were held during the scoping period: one on March 11, 1999, in Columbia, South Carolina, and one on March 18, 1999, in North Augusta, South Carolina. From the scoping process, DOE identified approximately 90 comments considered applicable to the Salt Processing SEIS. A Summary of the comments received during the scoping period, and how they influenced the scope of this Draft SEIS, is included in Appendix C.

Transcripts of public testimony, copies of scoping letters, responses to those comments, and reference materials cited in the SEIS are available for review in the DOE Public Reading Room, University of South Carolina at Aiken, Gregg-Graniteville Library, University Parkway, Aiken, South Carolina.

DOE has prepared this SEIS in accordance with the National Environmental Policy Act (NEPA) regulations of the Council on Environmental Quality (40 CFR 1500-1508) and DOE NEPA Implementing Procedures (10 CFR 1021). This SEIS identifies the methods used for analyses and the scientific and other sources of information consulted. In addition, results available from ongoing studies are incorporated directly or summarized and referenced. The organization of the SEIS is as follows:

- Chapter 1 describes the background and purpose and need for DOE action regarding salt processing at SRS.
- Chapter 2 describes the proposed action and the alternatives that DOE is evaluating.
- Chapter 3 describes the SRS environment as it relates to the alternatives described in Chapter 2.
- Chapter 4 assesses the potential environmental impacts of the alternatives.
- Chapter 5 discusses the cumulative impacts of salt processing in relation to other past, present, and reasonably foreseeable future activities at SRS, and in the surrounding region.
- Chapter 6 identifies irreversible and irretrievable resource commitments.

- Chapter 7 discusses applicable statutes, state and Federal regulations, and DOE Orders, and agreements.

- Appendix A describes the facilities and processes that would be used for each of the alternatives.

- Appendix B discusses the methods used for accident analysis and the results of the analysis.

- Appendix C describes the SEIS scoping process, the comments received, and how DOE has addressed those comments.

- Appendix D gives the methods and the results of long-term performance modeling that was used to evaluate the impacts of salt processing alternatives.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

List of Tables

TABLE OF CONTENTS (Continued)

List of Tables (Continued)

TABLE OF CONTENTS (Continued)

List of Tables (Continued)

TABLE OF CONTENTS (Continued)

List of Figures