



6450-01-P

DEPARTMENT OF ENERGY

Environmental Assessment for the Commercial Disposal of Defense Waste Processing Facility Recycle Wastewater from the Savannah River Site

AGENCY: Office of Environmental Management, U.S. Department of Energy.

ACTION: Notice.

SUMMARY: The U.S. Department of Energy (DOE) announces its intent to prepare an environmental assessment (EA) pursuant to the National Environmental Policy Act of 1969 (NEPA) to dispose of up to 10,000 gallons of stabilized (grouted) Defense Waste Processing Facility (DWPF) recycle wastewater from the Savannah River Site (SRS) at a commercial low-level radioactive waste (LLW) disposal facility located outside of South Carolina licensed by either the Nuclear Regulatory Commission (NRC) or an Agreement State. This effort will analyze capabilities for alternative treatment and disposal options through the use of existing, permitted, off-site commercial treatment and disposal facilities.

ADDRESSES: This *Federal Register* Notice (Notice) is available on <https://www.energy.gov/em/high-level-radioactive-waste-hlw-interpretation>. The Draft EA will also be made available at this website.

FOR FURTHER INFORMATION CONTACT: James Joyce, U.S. Department of Energy, Office of Environmental Management, Office of Waste and Materials Management (EM-4.2), 1000 Independence Avenue, S.W., Washington, DC 20585. Telephone: (301) 903-2151. Email: James.Joyce@em.doe.gov.

SUPPLEMENTARY INFORMATION: The DWPF recycle wastewater would be treated, characterized, and if the performance objectives and waste acceptance criteria of a specific disposal facility are met, DOE could consider whether to dispose of the waste as LLW under the Department's high-level radioactive waste (HLW) interpretation published elsewhere in this issue of the *Federal Register*. As DOE explained in the Supplemental Notice, the HLW interpretation does not change or revise any current policies or other legal requirements with respect to HLW. As a result of this NEPA process, DOE may consider what actions, if any, are needed and appropriate to implement any decision to dispose of the DWPF recycle wastewater as LLW.

Background

SRS occupies approximately 300 square miles primarily in Aiken and Barnwell Counties, South Carolina. Until the early 1990s, the primary SRS mission was the production of special radioactive isotopes to support national defense programs. More recently, the SRS mission has emphasized waste management, environmental restoration, and the decontamination and decommissioning of facilities that are no longer needed for SRS's traditional defense activities.

SRS generated large quantities of liquid radioactive waste as a result of its nuclear materials production mission. This waste resulted from dissolving spent nuclear fuel and nuclear targets to recover valuable isotopes¹. The waste was placed into underground storage tanks at SRS and consists primarily of three physical forms: sludge, salt, and liquid supernatant.

¹ DOE issued a Supplemental Notice Concerning U.S. Department of Energy Interpretation of High-Level Radioactive Waste published elsewhere in this issue of the *Federal Register*, in which DOE provided its interpretation of the term high-level waste as defined in the Atomic Energy Act of 1954, as amended (AEA, 42 U.S.C. 2011 et seq.) and the Nuclear Waste Policy Act of 1982, as amended (NWPA, 42 U.S.C. 10101 et seq.). DOE interprets the statutes to provide that a reprocessing waste may be determined to be non-HLW if the waste meets either of the following two criteria: I) does not exceed concentration limits for Class C low-level radioactive waste as set out in 10 CFR 61.55, and meets the performance objectives of a disposal facility; or II) does not require

The sludge portion in the underground tanks is being transferred on-site to the DWPF for vitrification in borosilicate glass to immobilize the radioactive constituents, as described in the *Defense Waste Processing Facility Supplemental Environmental Impact Statement* (DOE/EIS-0082-S, November 25, 1994) and subsequent Record of Decision (60 FR 18589). The resulting vitrified waste form is poured as molten glass into production canisters where it cools into a solid waste-glass, and is securely stored at SRS until DOE establishes a final disposition path.

Recycle wastewater is generated as part of DWPF operations. The wastewater is a combination of several dilute liquid waste streams consisting primarily of condensates from the pretreatment and vitrification processes. Other components of the recycle wastewater include process samples, sample line flushes, sump flushes, and cleaning solutions from the decontamination and filter dissolution processes. Currently, the recycle wastewater is returned to the tank farm for volume reduction by evaporation or is beneficially reused in salt dissolution and pretreatment, or sludge washing. As described in SRS Liquid Waste System Plan, Revision 21, beginning in FY 2024, SRS assumes that the practice of returning the recycle wastewater to the tank farm will be discontinued in order to support acceleration of tank closures. In lieu of the current evaporation process performed in the tank farm, the DWPF recycle wastewater is currently planned to undergo an alternative pre-treatment process prior to transfer to the SRS Effluent Treatment Project and the Saltstone Production Facility.

Purpose and Need for Action

DOE's purpose and need for this action is analyze capabilities for alternative treatment and disposal options for DWPF recycle wastewater through the use of existing, permitted, off-

disposal in a deep geologic repository and meets the performance objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable requirements.

site commercial treatment and disposal facilities. At the time DOE prepared the 1994 and 2006 supplemental environmental impact statements for DWPF (DOE/EIS-0082-S) and Savannah River Site Salt Processing Alternatives (DOE/EIS-0082-S2), respectively, it did not analyze the potential environmental impacts associated with potential commercial treatment and disposal options for DWPF recycle wastewater. DOE now proposes to use commercial LLW disposal facilities for up to 10,000 gallons of DWPF recycle wastewater to provide treatment and disposal options for completion of the tank closure program. Any proposal to dispose of more than 10,000 gallons, would be evaluated in separate NEPA documentation. Treatment or disposal of this waste at a commercial LLW facility could help facilitate and accelerate completion of the environmental cleanup mission at SRS and would provide an alternative disposal option in the event on-site treatment and disposal capabilities become unavailable.

Proposed Action and Alternatives

Under the proposed action, DOE would dispose of up to 10,000 gallons of stabilized (grouted) DWPF recycle wastewater at SRS at a commercial LLW facility outside of South Carolina licensed by either the NRC or an Agreement State under 10 CFR part 61. The EA will analyze the potential environmental impacts of up to 10,000 gallons proposed for commercial disposal. Prior to a disposal decision, DOE would characterize the DWPF recycle wastewater to verify with the licensee of the commercial LLW disposal facility whether the waste meets DOE's HLW interpretation for disposal as non-HLW (the interpretation is published elsewhere in this issue of the *Federal Register*). DOE would also demonstrate compliance with waste acceptance criteria and all other requirements of the disposal facility, including any applicable regulatory requirements (e.g., Resource Conservation and Recovery Act) for treatment of the waste prior to disposal and applicable Department of Transportation (DOT) requirements for packaging and

transportation from SRS to the commercial facility. DOE has identified three action alternatives for the proposed action:

- **Alternative 1:** Deploy treatment capability at SRS to stabilize up to 10,000 gallons of DWPF recycle wastewater. Depending upon whether the final packaged waste form is classified as Class A, B, or C LLW², it would then be shipped for disposal to either the Waste Control Specialists Federal Waste Facility in Andrews County, Texas (if determined to be Class A, B or C LLW)³ and/or the *EnergySolutions* LLW disposal facility near Clive Utah (if determined to be Class A LLW)⁴, depending upon waste content and facility waste acceptance criteria.
- **Alternative 2:** Transfer up to 10,000 gallons of DWPF recycle wastewater at SRS into a DOT-approved package and ship the waste to either the WCS facility and/or the *EnergySolutions* facility for treatment into a solid waste form and disposal as LLW, depending upon waste content and facility waste acceptance criteria.
- **Alternative 3:** Transfer up to 10,000 gallons of DWPF recycle wastewater into a DOT approved package and ship the waste for treatment to a commercial treatment facility with appropriate permits and licenses. Following treatment, ship the solidified DWPF recycle waste for disposal at either the WCS facility or the *EnergySolutions* facility, depending upon waste content and facility waste acceptance criteria.

² In its 10 CFR part 61 regulations, NRC has identified classes of LLW—Class A, B, or C—for which near-surface disposal is safe for public health and the environment. This waste classification regime is based on the concentration levels of a combination of specified short-lived and long-lived radionuclides in a waste stream, with Class C LLW having the highest concentration levels.

³ WCS is licensed by the Texas Commission on Environmental Quality for the disposal of Class A, B, and C LLW that meets specified waste acceptance criteria.

⁴ *EnergySolutions* is licensed by the Utah Department of Environmental Quality for the disposal of Class A LLW that meets specified waste acceptance criteria.

The EA will also analyze a no action alternative under which the DWPF recycle wastewater would remain in the SRS liquid waste system until disposition occurs. As currently planned, beginning in FY 2024, the DWPF recycle wastewater would undergo a pre-treatment process prior to transfer to the SRS Effluent Treatment Project and the Saltstone Production Facility. The potential environmental impacts of the no action alternative are anticipated to be similar to those analyzed by the supplemental environmental impact statements for DWPF (DOE/EIS-0082-S) and Savannah River Site Salt Processing Alternatives (DOE/EIS-0082-S2), relative to the quantities of waste involved. DOE's purpose and need for this proposal is to expand its disposal options, and hence no NEPA analyses on treatment and disposal at Federal disposal facilities will be conducted.

Potential Areas of Environmental Analysis

DOE has tentatively identified the following areas for detailed analysis in the EA. The list is not intended to be comprehensive or to predetermine the potential impacts to be analyzed.

- Impacts to the general population and workers from radiological and non-radiological releases, and other public and worker health and safety impacts.
- Impacts of emissions on air and water quality, including impacts of greenhouse gas emissions.
- Impacts on ecological systems and threatened and endangered species.
- Impacts on waste management activities.
- Impacts of transportation of radioactive materials to commercial treatment and disposal facilities.
- Impacts that could occur as a result of postulated accidents and intentional destructive acts (terrorist actions and sabotage).

- Potential disproportionately high and adverse effects on low-income and minority populations (environmental justice).
- Short-term and long-term land use impacts, including potential impacts of disposal.
- Cumulative impacts.

NEPA Process and Public Participation

DOE will issue a *Federal Register* Notice later this year on the availability of the Draft Commercial Disposal of Recycle Wastewater EA and will include instructions on how to submit public comments on the Draft EA. DOE adheres to all NEPA regulations including those related to public participation and stakeholder interactions. In general, the NEPA process requires meaningful opportunities for public participation. Key opportunities for public participation in the NEPA process include submitting comments on publicly available draft NEPA documents such as the Draft Commercial Disposal of Recycle Wastewater EA announced in this *Federal Register* Notice. Based on the EA analysis, DOE will either issue a Finding of No Significant Impact or announce its intention to prepare an environmental impact statement.

Signed at Washington, DC on May 30, 2019.

Anne Marie White,

Assistant Secretary for Environmental Management.

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