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DEPARTMENT OF ENERGY

Finding of No Significant Impact 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: Finding of No Significant Impact.

SUMMARY: The Department of Energy (DOE) has completed the *Final Environmental Assessment for the Commercial Disposal of Defense Waste Processing Facility Recycle Wastewater from the Savannah River Site* (Final EA). The Proposed Action in the Final EA is the disposal 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 and licensed by either the Nuclear Regulatory Commission (NRC) or an Agreement State. Based on the information and analysis in the Final EA, DOE intends to ship up to 8 gallons of the DWPF recycle wastewater to the Waste Control Specialists, LLC (WCS) Federal Waste Facility (FWF), a licensed commercial disposal facility located in Andrews, Texas, for stabilization and disposal.

ADDRESSES: This Finding of No Significant Impact and the Final EA are available on the DOE National Environmental Policy Act (NEPA) website at:

<https://www.energy.gov/nepa/doeea-2115-commercial-disposal-defense-waste-processing-facility-recycle-wastewater-savannah>.

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SUPPLEMENTAL INFORMATION:

Background

DOE prepared the Final EA in accordance with Council on Environmental Quality (CEQ) regulations and DOE NEPA implementing procedures at 40 CFR parts 1500 through 1508 and 10 CFR part 1021, respectively. In the Final EA, the proposed action is the disposal of up to 10,000 gallons of stabilized (grouted) DWPF recycle wastewater from the SRS H-Area Tank Farm at a commercial LLW disposal facility located outside of South Carolina and licensed by either the NRC or an Agreement State under 10 CFR part 61. Treatment and disposal alternatives for this waste are discussed under the “Proposed Action and Alternatives” section. Any proposal to dispose of more than 10,000 gallons of DWPF recycle wastewater would be evaluated in a separate NEPA review.

The proposed action would be implemented starting within 12 months¹ of this Finding of No Significant Impact and would inform planning activities for the three years between the completion of the Salt Waste Processing Facility (SWPF) mission (estimated 2031) and DWPF mission completion (estimated 2034). During that three-year period, DOE will not have the option of returning DWPF recycle wastewater to the tank farm (which is how SRS presently

¹ This small quantity (up to 8 gallons) would enable DOE to initiate the transportation, stabilization, and disposal within the next 12 months.

addresses DWPF recycle wastewater) and SWPF for processing because SWPF will have completed its mission of treating salt waste from the tank farms and will undergo closure. The proposed action enables DOE to develop an alternative capability for stabilization and disposal of DWPF recycle through the use of a licensed commercial facility.

SRS generated large quantities of liquid radioactive waste as a result of its nuclear materials production mission. This liquid radioactive waste has historically been managed as high-level radioactive waste (HLW). The waste was placed into underground storage tanks at SRS and consists primarily of three physical forms: sludge, saltcake, and liquid supernatant. 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. The resulting vitrified waste form is poured as molten glass into production canisters where it cools into a solid glass-waste and is securely stored at SRS until DOE establishes a final disposition path. DWPF operations generate recycle wastewater. The DWPF recycle wastewater is a combination of several dilute liquid waste streams consisting primarily of condensates from the vitrification processes. Other components of the DWPF recycle wastewater include process samples, sample line flushes, sump flushes, and cleaning solutions from the decontamination and filter dissolution processes. Currently, the DWPF recycle wastewater is returned to the tank farm for volume reduction by evaporation or is beneficially reused in salt dissolution or sludge washing. The DWPF recycle wastewater is currently managed as HLW because it has radionuclides from reprocessing waste as a result of DWPF operations or storage in tanks that contain residual quantities of reprocessing waste.

On October 10, 2018, DOE published a notice in the *Federal Register* requesting public comment on its interpretation of the definition of the statutory term, “high-level radioactive

waste,” as set forth in the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.) and the Nuclear Waste Policy Act (NWPA) (42 U.S.C. 10101 et seq.) (83 FR 50909). In that notice, DOE explained the history and basis for its interpretation to classify the reprocessing waste based on its radiological contents and not on the origin of the waste. Subsequently, on June 10, 2019, DOE published a Supplemental Notice in the *Federal Register* (84 FR 26835) that provided DOE’s interpretation as informed by public review and comment and further consideration by DOE. DOE revised its interpretation after consideration of public comments, which included comments from the NRC, members of Congress, affected states and Native American tribes, and individual stakeholders, in order to clarify its meaning and import. This interpretation intends to facilitate the safe disposal of defense reprocessing waste if the waste meets either of the following two criteria:

1. does not exceed concentration limits for Class C low-level radioactive waste as set out in section 61.55 of title 10, Code of Federal Regulations, and meets the performance objectives of a disposal facility; or
2. does not require 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.

NRC’s performance objectives for commercial LLW disposal facilities are specified in 10 CFR part 61, subpart C, “Performance Objectives.”

As stated in the Supplemental Notice, DOE will continue its current practice of managing all of its defense reprocessing wastes as if they were HLW unless and until a specific waste is determined to be another category of waste based on detailed technical assessments of its characteristics and an evaluation of potential disposal pathways.

As discussed in the Final EA, DOE has evaluated representative samples of the DWPF recycle wastewater (see Final EA, Appendix A) and prepared a technical evaluation and an official determination for up to 8 gallons of DWPF recycle wastewater that demonstrate and document, that the DWPF recycle wastewater would meet criterion 1 for non-HLW under DOE's interpretation of the NWSA definition of HLW. As part of this process, DOE would verify with the licensee of the disposal facility that the stabilized waste meets the facility's waste acceptance criteria and all other requirements of the disposal facility, including applicable regulatory requirements for treatment and disposal prior to disposal and applicable U.S. Department of Transportation (USDOT) requirements for packaging and transportation from SRS to the commercial treatment or disposal facility.

DOE announced in a June 10, 2019, notice in the *Federal Register* (84 FR 26847) its intent to prepare an Environmental Assessment for the Commercial Disposal of Defense Waste Processing Facility Recycle Wastewater from the Savannah River Site (Draft EA). On December 10, 2019, DOE announced in the *Federal Register* (84 FR 67438) the availability of the Draft EA for public comment. DOE also posted the Draft EA on DOE websites for public review. DOE held an informational meeting on the Draft EA in Augusta, Georgia on December 17, 2019, and an informational internet webinar meeting on December 19, 2019, to provide the public and stakeholders with an overview of the Draft EA and the Department's HLW interpretation. On December 30, 2019, DOE announced in the *Federal Register* (84 FR 71909) that, in response to stakeholder requests, the original 30-day public comment period was extended to February 10, 2020 (i.e., an extension of 32 days).

Proposed Action and Alternatives

DOE's Proposed Action in the Final EA is the disposal of up to 10,000 gallons of stabilized (grouted) DWPF recycle wastewater from SRS H-Area Tank Farm at a commercial LLW disposal facility located outside of South Carolina and licensed by either NRC or an Agreement State under 10 CFR part 61. If implemented, this proposal would provide alternative treatment and disposal options for DWPF recycle wastewater through the use of existing, licensed, off-site commercial treatment and disposal facilities. DOE has developed three action alternatives for accomplishing this Proposed Action. The Final EA also evaluated the No Action alternative.

- *Alternative 1:* Deploy retrieval and on-site treatment capability at SRS to stabilize up to 10,000 gallons of DWPF recycle wastewater and then transport the solid waste form to a licensed commercial LLW disposal facility. The stabilization technology planned for the DWPF recycle wastewater is grout. Depending upon whether the final packaged waste form is classified as Class A, B, or C LLW, it would then be shipped for disposal to either to the WCS FWF in Texas and/or the *EnergySolutions* in Utah.
- *Alternative 2:* Retrieval and transport of up to 10,000 gallons of SRS DWPF recycle wastewater to a licensed commercial LLW disposal facility (WCS FWF or *EnergySolutions* site) with the capability to stabilize and dispose of the final waste form.
- *Alternative 3:* Retrieval and transport of up to 10,000 gallons of SRS DWPF recycle wastewater to a permitted and/or licensed commercial treatment facility for stabilization and then transport the final solidified waste form to a licensed commercial LLW disposal facility (WCS FWF or *EnergySolutions*).

Under the No Action alternative, up to 10,000 gallons of DWPF recycle wastewater would remain in the SRS liquid waste system until disposition occurs. This alternative would require another, as yet determined, process to handle the DWPF recycle wastewater during the final years of the DWPF mission (2031-2034), when DOE will no longer have the option of returning DWPF recycle wastewater to SWPF for processing.

Potential Environmental Impacts

The analyses in the Final EA demonstrates that the proposed action and alternatives entail minimal risk to human health or to the quality of the environment for all three action alternatives analyzed. All the proposed alternatives would have minor potential environmental impacts. Section 3 of the Final EA analyzed the following resource areas in detail: (1) air quality, (2) human health (normal operations), (3) human health (accidents and intentional destructive acts), (4) waste management, and (5) transportation.

Air quality impacts would be negligible for all alternatives. The recycle wastewater would be transferred from Tank 22 to a temporary enclosure for on-site stabilization (Alternative 1 only) and packaging (Alternatives 2 and 3). Measures would be taken to prevent radiological air emissions during the on-site activities. These measures would include the use of air filters on containers, transfer hoses, and temporary structures. The estimated number of truck shipments (up to 30 shipments) would produce negligible air emissions, including greenhouse gas, and treatment and disposal actions at the commercial facilities would not cause any additional air emissions beyond those already expected from their ongoing, permitted and/or licensed operations.

Potential impacts to workers at SRS and the public from normal operations would be minimal for all three action alternatives. Potential doses to workers would be well within the administrative control level for SRS workers and would result in zero latent cancer fatalities (LCFs). In addition, DOE would implement measures (e.g., use of shielding and personal protective equipment) to minimize worker exposures and maintain doses as low as reasonably achievable. Because there would be no radiological emissions or effluents associated with any of the three alternatives, and no direct radiation dose off-site, there would be no dose to the public from normal operations. Potential impacts from treatment and disposal actions at the commercial facility would not result in any notable increase in human health impacts beyond those already expected from ongoing LLW treatment and disposal operations under their environmental permits and/or licenses.

An accident or intentional destructive act involving the release of DWPF recycle wastewater during on-site activities would result in minimal impacts to workers and the public, based on conservative accident scenario analysis. For example, the potential dose from an accident to a maximally exposed worker would be less than or equal to 30 to 38 millirems (mrem), which is significantly below DOE's administrative control level of 2,000 mrem per year for a worker, and below the SRS contractor's administrative control level of 500 mrem per year. This exposure would be expected to result in zero LCFs. The potential dose from an accident to an off-site maximally exposed individual would be less than or equal to 17 to 28 mrem, which is approximately 1,000 times below the DOE exposure guidelines of 25 rem for a member of the public at the nearest site boundary. This exposure would be expected to result in 0 zero LCFs. Treatment and/or disposal of the DWPF recycle wastewater at a permitted and/or licensed

facility would not change the accident impacts at those sites compared to their ongoing operations.

Waste management impacts at SRS and the potential disposal sites would be minimal. The 10,000 gallons of DWPF recycle wastewater would represent about 10,000 gallons of stabilized waste, or about 0.002 percent of the EnergySolutions licensed capacity or .01 percent of WCS FWF licensed capacity. Actions at SRS would also result in small quantities (probably less than 10 cubic yards) of job control waste that would be negligible compared with LLW quantities generated by existing operations at SRS. Stabilization activities at a commercial site for Alternatives 2 and 3 would not generate additional waste types beyond those already expected and associated with the site license.

The transportation of stabilized (solid form) or liquid DWPF recycle wastewater would involve approximately 9 truck shipments for Alternative 1 (solid form), 15 truck shipments for Alternative 2 (liquid form), and 30 truck shipments for Alternative 3 (15 shipments in liquid form and 15 shipments in solid form). The waste would be packaged and shipped in accordance with USDOT requirements. The potential radiological and non-radiological risks to the truck crew and the public along the transportation route would be negligible. In the event an accident did occur, the probability of a release of radiological material would be extremely unlikely.

Consistent with both CEQ and DOE NEPA regulations, the analysis in the Final EA focused on the subjects relevant to the proposed action and its impacts. Based on a screening analysis described in the Final EA, the following resource areas do not require additional detailed analysis: land, visual, geology and soils, water resources (surface, groundwater, and wetlands), cultural and paleontological resources, ecological resources (biota, threatened and

endangered species), noise, socioeconomics and environmental justice, infrastructure and utilities, and industrial safety.

External Review and Comments

Nineteen comment documents were received during the public comment period on the Draft EA. Commenters included federal and state agencies, environmental groups, advisory groups, and citizens. Appendix C of the Final EA includes responses to public comments received on the Draft EA. DOE considered all public comments received in preparing the Final EA.

Determination

In the Final EA, DOE evaluated the potential environmental impacts associated with retrieval, transportation, stabilization, and disposal of up to 10,000 gallons of DWPF recycle wastewater from SRS at a licensed commercial LLW disposal facility outside of the state of South Carolina. Implementation of any of the action alternatives analyzed in the Final EA would entail minor impacts and low risks, and does not constitute a major Federal action significantly affecting the quality of the human environment in accordance with DOE's NEPA implementing procedures, 10 CFR part 1021, and the regulations promulgated by the CEQ for implementing NEPA, 40 CFR 1508.27. Therefore, the preparation of an environmental impact statement is not required.

Based on the analysis in the Final EA, DOE intends to ship the DWPF recycle wastewater to WCS FWF, a licensed commercial disposal facility located in Andrews, Texas, for stabilization and disposal (Alternative 2). Current characterization analysis shows that the DWPF recycle wastewater is anticipated to be Class B LLW. Of the licensed commercial

facilities analyzed in the Final EA, the WCS FWF is the only facility that can accept Class A, B, and C LLW for disposal. In addition, WCS has the capability to stabilize the DWPF recycle wastewater on-site prior to disposal.

Specifically, as soon as August 26, 2020, DOE intends to initiate removal of DWPF wastewater from Tank 22 to begin the disposition process and within the next 12 months², DOE intends to initiate the shipment of a small quantity (up to 8 gallons) from the up to 10,000 gallons of DWPF recycle wastewater to the WCS FWF for treatment and disposal in accordance with the facility's waste acceptance criteria, license conditions, environmental permits, and all other applicable requirements. DOE has evaluated representative samples of the DWPF recycle wastewater (see Final EA, Appendix A) and prepared a technical evaluation and an official determination for up to 8 gallons of DWPF recycle wastewater that demonstrate and document, that the DWPF recycle wastewater would meet criterion 1 for non-HLW under DOE's interpretation of the NWSA definition of HLW. The technical reports are available at: <https://www.energy.gov/em/program-scope/high-level-radioactive-waste-hlw-interpretation>.

Signing Authority

This document of the Department of Energy was signed on August 4, 2020, by Elizabeth A. Connell, Associate Principal Deputy Assistant Secretary for Regulatory and Policy Affairs, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for


² This small quantity (up to 8 gallons) would enable DOE to initiate the transportation, stabilization, and disposal within the next 12 months.

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publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed on the August 4, 2020, in Washington, D.C.

Elizabeth A.
Connell



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