[6450-01-P]

DEPARTMENT OF ENERGY

Highly Enriched Uranium Blend Down to High-Assay Low-Enriched Uranium, at the Savannah River Site

AGENCY: U.S. Department of Energy.

ACTION: Amended Record of Decision.

SUMMARY: The U.S. Department of Energy (DOE) is amending its August 5, 1996, Record of Decision (ROD) (61 FR 40619) for the *Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement* (DOE/EIS–0240) (hereafter referred to as the HEU EIS), and its April 19, 2022, Amended ROD (87 FR 23504) for the *Savannah River Site Spent Nuclear Fuel Management Environmental Impact Statement* (DOE/EIS-0279) (hereafter referred to as the SRS SNF EIS).

DOE now amends its previous decisions and will blend down approximately 2.2 metric tons (MT) of highly enriched uranium (HEU) to produce high-assay low-enriched uranium (HALEU) at H-Area at the Savannah River Site (SRS). DOE anticipates this activity would begin as early as 2025 and continue approximately 2 to 4 years consistent with program and policy priorities, and funding. DOE will transport the HALEU liquid to an offsite commercial vendor for fabrication into reactor fuel for use in nuclear reactors.

Because the 2.2 MT of HEU will be blended down for use in reactor fuel, it will not be sent to the SRS liquid high-level waste (HLW) management system for disposal as described in the Amended ROD (87 FR 23504) for the SRS SNF EIS.

ADDRESSES: This Amended ROD, the HEU EIS, the SRS SNF EIS, and related National Environmental Policy Act (NEPA) documents are available on the DOE NEPA website at www.energy.gov/nepa/nepa-documents and the SRS NEPA website at www.srs.gov/general/pubs/envbul/nepa1.htm. To request copies of these documents, please contact Mr. Jeffrey Bentley by mail: NEPA Document Manager, Savannah River Operations Office, U.S. Department of Energy, P.O. Box B, Aiken, South Carolina 29802; by telephone: (803) 226–5113; or by email: jeffrey.bentley@srs.gov.

FOR FURTHER INFORMATION CONTACT: For further information on HEU blend down to HALEU at SRS, please contact Mr. Jeffrey Bentley as listed above. For information on DOE's NEPA process, please contact Mr. William Ostrum by mail: NEPA Compliance Officer, U.S. Department of Energy, Office of Environmental Management, 1000 Independence Avenue SW, EM–4.13, Washington, DC 20585; by telephone: (202) 586–2513; or by email: william.ostrum@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

Background

DOE's purpose and need for action, as described in the HEU EIS (DOE/EIS-0240), is as follows:

> *The Department of Energy proposes to blend down surplus HEU[1] from the weapons program to LEU[2] to eliminate the risk of diversion for nuclear proliferation purposes and, where practical, to reuse the resulting LEU in peaceful, beneficial ways that recover*

[1] HEU = highly enriched uranium. Highly enriched uranium contains 20 or more weight percent uranium-235 (U-235) (the primary fissile isotope of uranium that supplies power during a nuclear chain reaction).
[2] LEU = low-enriched uranium. Low enriched uranium contains less than 20 weight percent U-235. In the HEU EIS, DOE proposed to blend down HEU to LEU containing approximately 4 weight percent U-235.

its commercial value. The purpose of the proposed action is to reduce the threat of nuclear weapons proliferation worldwide in an environmentally safe manner by reducing stockpiles of weapons-usable fissile materials, setting a nonproliferation example for other nations, and allowing peaceful, beneficial reuse of the material to the extent practical.

Comprehensive disposition actions are needed to ensure that surplus HEU is converted to proliferation-resistant forms consistent with the objectives of the President's nonproliferation policy. These proposed actions would essentially eliminate the potential for reuse of the material in nuclear weapons and would demonstrate the U.S. commitment to dispose of surplus HEU and encourage other nations to take similar actions toward reducing stockpiles of surplus HEU. The proposed actions would begin to reduce DOE's HEU inventory and costs associated with storage, accountability, and security rather than depending upon indefinite storage of all such material.

In the HEU EIS, DOE proposed to blend down surplus HEU from the weapons program to 4 weight percent U-235 LEU to eliminate the risk of diversion for nuclear proliferation purposes and, where practical, to reuse the resulting LEU in peaceful, beneficial ways that recover its commercial value. The HEU EIS assessed the disposition of a nominal 200 MT of surplus HEU. Material that could not be economically recovered would be blended to 0.9 weight percent U-235 for disposal as low-level radioactive waste (LLW).

The HEU EIS analyzed four alternatives that represented different proportions of the resulting LEU being used in commercial reactor fuel or disposed of as LLW. The Preferred Alternative was Alternative 5, the Maximum Commercial Use Alternative, which represented

blending about 85 percent of the material to 4 weight percent U-235 LEU for use in nuclear reactor fuel (170 MT) and about 15 percent (30 MT) of the material to 0.9 weight percent U-235 for disposal as LLW. The HEU EIS analyzed the blending of HEU using three different processes at four potential sites including SRS. Three blending technologies were analyzed including uranyl nitrate hexahydrate (UNH) blending at SRS. The transportation of UNH was also analyzed. DOE issued the Final HEU EIS in June 1996 and issued a ROD on August 5, 1996 (61 FR 40619), selecting the Preferred Alternative, which was also the environmentally preferrable alternative.

Between 2003 and 2011, the H-Area facilities at SRS blended down 14.9 MT of HEU to produce 301 MT of 4.95 weight percent uranium-235 LEU. The LEU was sent to commercial facilities for fabrication into reactor fuel and was subsequently used in Tennessee Valley Authority (TVA) reactors to produce electricity.

HALEU[3] fuels are being developed to support the replacement of HEU fuels used in U.S. High-Performance Research Reactors as well as for use in advanced nuclear power reactor designs. The projected demand for HALEU far exceeds the current supply. The current inventory of HEU solution in storage in H-Area can be blended down to HALEU, which could help satisfy the short-term nation's needs until other commercial initiatives can begin HALEU production. Facilities for production of LEU in H-Area can be readily transitioned to HALEU production.

The DOE regulations for compliance with NEPA, 10 CFR § 1021.314(c), direct that, "[w]hen it is unclear whether or not an EIS supplement is required, DOE shall prepare a Supplement Analysis" to assist in making that determination. In accordance with the DOE NEPA

[3] HALEU is LEU enriched in U-235 to between 5 weight percent and less than 20 weight percent.

regulations, DOE prepared the *Supplement Analysis for Highly Enriched Uranium Blend Down to High-Assay Low-Enriched Uranium at the Savannah River Site* (hereafter referred to as the SRS HALEU SA) (DOE/EIS–0240–SA–02 and DOE/EIS-0279-SA-08, 2024). Based on the SRS HALEU SA, DOE determined that a supplemental or new EIS is not required.

Because the Proposed Action activities would be a small subset of HEU blend down activities evaluated in the HEU EIS, the potential environmental consequences of the Proposed Action would be similar to, or less than, those evaluated in the HEU EIS. In the SRS HALEU SA, these effects were determined to be small, and would not result in releases to the environment, or radiation doses or risks to members of the public or workers that would be substantially larger than those evaluated in the HEU EIS.

Because this HEU will be blended down for use in reactor fuel, it will not be sent to the SRS liquid HLW management system for disposal as described in the 2022 Amended ROD (87 FR 23504) for the SRS SNF EIS. Therefore, the environmental effects will be less than those described in the *Supplement Analysis for the Spent Nuclear Fuel Accelerated Basin De-inventory Mission for H-Canyon at the Savannah River Site* (DOE/EIS-0279-SA-07, 2022).

DOE concluded in the SRS HALEU SA that the proposed change and new information is not a substantial change relative to the proposal analyzed in the HEU EIS and the SRS SNF EIS, and thus, that no further NEPA documentation is required.

Amended Decision

DOE has decided to implement the Proposed Action as described in the SRS HALEU SA. DOE will not send the 2.2 MT of HEU (as uranyl nitrate liquid) to the SRS liquid HLW management system for disposal and instead will blend the HEU with natural uranium (as uranyl

nitrate liquid) to produce HALEU (as uranyl nitrate liquid) at H-Area at SRS. DOE anticipates this activity would begin as early as 2025 and continue approximately 2 to 4 years, consistent with program and policy priorities, and funding. DOE will transport the HALEU liquid to an offsite commercial vendor for fabrication into reactor fuel for use in nuclear reactors.

In the ROD for the HEU EIS (61 FR 40619; August 5, 1996), DOE identified the Preferred Alternative as the environmentally preferable alternative; this has not changed. No environmental effects resulting from operations under this amended decision would require specific mitigation measures. DOE will continue its current practices and policies and has adopted all practicable means to avoid or minimize environmental harm, including effects to workers when implementing the actions described herein. For example, DOE will continue to evaluate and implement, as appropriate, physical modifications to the H-Area facilities and administrative practices, that would reduce personnel exposure, facility effluents, and waste generation.

Basis for Decision

The blending down of 2.2 MT of HEU to HALEU as described in the SRS HALEU SA (DOE/EIS-0240-SA-02, 2024) and this amendment to DOE's HEU EIS ROD (61 FR 40619) and SRS SNF EIS Amended ROD (87 FR 23504), takes advantage of existing processes in existing facilities. As described in the SRS HALEU SA, the activities encompassed by this amended decision will not incur potential health or environmental effects substantially different from those analyzed in existing NEPA reviews. Further, the actions resulting from this Amended ROD, would help satisfy the nation's short-term needs for HALEU until other commercial initiatives can begin production.

Signing Authority

This document of DOE was signed on April 18, 2025, by Roger A. Jarrell II, Principal Deputy Assistant Secretary for Office of Environmental Management, 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 the 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 publication, as an official document of DOE. The administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington DC on April 18, 2025, 2025.

ROGER A. JARRELL II Digitally signed by ROGER A. JARRELL II
Date: 2025.04.18 09:56:17 -04'00'

Roger A. Jarrell II,
Principal Deputy Assistant Secretary for
Environmental Management,
U.S. Department of Energy