DEPARTMENT OF ENERGY

Environmental Assessment for the Acceptance and Disposition of Spent Nuclear Fuel Containing U.S.-Origin Highly Enriched Uranium From the Federal Republic of Germany

AGENCY: Department of Energy.

ACTION: Notice of availability; public meeting.

SUMMARY: The U.S. Department of Energy (DOE) announces the availability of its draft environmental assessment (EA) (DOE/EA-1977) evaluating the potential environmental impacts from a proposed action to receive, store, process and disposition spent nuclear fuel (SNF) from the Federal Republic of Germany at DOE's Savannah River Site (SRS) (Draft German Spent Nuclear Fuel EA). This SNF is composed of kernels containing thorium and U.S.-origin highly enriched uranium (HEU) embedded in small graphite spheres that were irradiated in research reactors used for experimental and/or demonstration purposes. DOE invites public comments on the Draft Spent Nuclear Fuel from Germany EA and is announcing a public meeting.

DATES: The 45-day public comment period extends from the date of publication of this notice in the Federal Register through March 11, 2016. DOE will consider all comments received via email by 11:59 p.m. Eastern Standard Time or postmarked by that date. Comments submitted after that date and time will be considered to the extent practicable.

DOE will hold a public meeting to receive comments on the Draft Spent Nuclear Fuel from Germany EA. The meeting will be held on:
- February 4, 2016, (7:00 p.m. to 9:00 p.m.) at the North Augusta Community Center, 495 Brookside Drive, North Augusta, South Carolina 29841.

ADDITIONAL INFORMATION:

1 This environmental assessment was announced as the Environmental Assessment for the Acceptance and Disposition of Used Nuclear Fuel Containing U.S.-Origin Highly Enriched Uranium from the Federal Republic of Germany in DOE's Notice of Intent (NOI) on June 4, 2014 (79 FR 32256). The title has been changed.
acceptance, processing, and disposition of the spent nuclear fuel.

Purpose and Need for Action
DOE’s purpose and need for the receipt, storage, processing, and disposition of the SNF from Germany is to support the U.S. policy objective to reduce, and eventually to eliminate, HEU from civil commerce. This action would further the U.S. HEU minimization objective by returning U.S.-origin HEU from Germany to the United States for safe storage and disposition in a form no longer usable for an improvised nuclear device, a radiological dispersal device, or other radiological exposure device.

Proposed Action and Alternatives
In the Draft Spent Nuclear Fuel from Germany EA, DOE considers a No Action Alternative as required under NEPA, and two action alternatives for acceptance and disposition of the graphite-based SNF currently stored in Germany. Under the No Action Alternative, the SNF would not be transported to the United States for management and disposition. The two action alternatives differ in processing technology and location at SRS where the processing would occur. Under both of the proposed action alternatives, the SNF would be transported from Germany and processed at SRS for final disposition as a proliferation-resistant waste form. The proposed action alternatives are identified by the respective SRS processing location. The H-Area Alternative (so named because most activities would involve H-Area facilities) includes three processing options (Vitrification Option, Low-Enriched Uranium Waste Option, and Low-Enriched Uranium/Thorium Waste Option) that use H-Canyon to differing extents: the L-Area Alternative (so named because the alternative would involve mostly L-Area facilities) would implement melt and dilute processing in L-Area. Existing and planned SRS infrastructure and facilities would be used to transport the spent nuclear fuel from Germany.

The shipping campaign from Germany would involve about 30 shipments over approximately a 3.5-year period to transport 455 CASTOR casks containing the SNF from Germany aboard chartered ships across the Atlantic Ocean to Joint Base Charleston-Weapons Station near Charleston, South Carolina. From Joint Base Charleston-Weapons Station, the CASTOR casks would be transported to SRS on dedicated trains.

Processing steps would involve separating the HEU kernels from their graphite matrix, then processing the kernels through either H-Canyon and the SRS Liquid Nuclear Waste Facilities, or through a new melt and dilute process that would be installed in L-Area. The HEU kernels are embedded in a graphite (carbon) matrix which must be removed for the HEU kernels to be processed. Two methods for removing the graphite surrounding the fuel kernels (referred to as carbon digestion), a molten salt digestion process and a vapor digestion process, are evaluated in this EA.

H-Area Alternative
Under the H-Area alternative, three options for dissolving the kernels after carbon digestion are evaluated:
- The vitrification option provides for dissolution of the kernels in H-Canyon with direct transfer of the entire dissolver solution to the existing Liquid Nuclear Waste Facilities. Under this option, the high-activity fraction of the dissolver solution would be dispositioned as vitrified high-level radioactive waste and the low-activity fraction as low-level radioactive waste salstone.
- The low-enriched uranium waste option provides for dissolution of the kernels in H-Canyon followed by solvent extraction in H-Canyon to separate the uranium. The resulting uranium solution would be down blended and grouted (i.e., solidified by mixing with cement) to meet acceptance criteria for disposal as low-level radioactive waste. The remainder of the dissolver solution would be processed through the Liquid Nuclear Waste Facilities into high- and low-level radioactive waste as indicated for the vitrification option.
- The low-enriched uranium/thorium waste option provides for dissolution of the kernels in H-Canyon followed by solvent extraction in H-Canyon for separation of the uranium and thorium. The resulting uranium/thorium solution would be down blended and grouted to meet acceptance criteria for disposal as low-level radioactive waste. The remainder of the dissolver solution would be processed through the Liquid Nuclear Waste Facilities into high- and low-level radioactive waste as indicated for the vitrification option.

L-Area Alternative
Under the L-Area Alternative, the kernels would be down-blended and converted to a uranium-aluminum alloy in a melt and dilute process in L-Area.
The resulting ingots would be stored in concrete overpicks on a pad in L-Area. Unlike the H-Area processing methods, the kernels would not be dissolved prior to final processing.

NEPA Process
All comments on the Draft Spent Nuclear Fuel from Germany EA received during the public comment period will be considered and addressed in the Final Spent Nuclear Fuel from Germany EA. DOE will address comments submitted after the close of the public comment period on the Draft EA to the extent practicable. Following the public comment period, and based on the EA and consideration of all comments received, DOE will either issue a Finding of No Significant Impact (FONSI) or announce its intent to prepare an environmental impact statement (EIS). If DOE determines that a FONSI is appropriate, both the Final EA and FONSI will be made available to the public.

If DOE determines that an EIS is needed, either during preparation of the Final Spent Nuclear Fuel from Germany EA or after completing the EA, DOE would issue in the Federal Register a Notice to prepare an EIS. In that case, the June 2014 public comment process would serve as the scoping process that normally would follow a Notice of Intent to prepare an EIS.

Issued in Washington, DC on January 15, 2016.

Edgardo DeLeon,
Director, Office of Nuclear Materials Disposition.

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DEPARTMENT OF ENERGY

Quadrennial Energy Review; Notice of Public Meeting

AGENCY: Office of Energy Policy and Systems Analysis, Secretariat,
Quadrennial Energy Review Task Force, Department of Energy.

ACTION: Notice of public meeting.

SUMMARY: At the direction of the President, the U.S. Department of Energy (DOE or Department), as the Secretariat for the Quadrennial Energy Review Task Force (QER Task Force), will convene a public meeting to introduce the topic of the second installment of the Quadrennial Energy Review, an integrated study of the U.S. electricity system from generation through end use. A mixture of panel discussions and a public comment period will frame multi-stakeholder discourse around deliberative analytical questions relating to the intersection of electricity and its role in promoting economic competitiveness, energy security, and environmental responsibility.

DATES: The public meeting will be held on February 4, 2016, beginning at 9:00 a.m. Eastern Time. Written comments are welcome, especially following the public meeting, and should be submitted within 60 days of the meeting.

ADDRESSES: The meeting will be held at the United States Capitol Visitor Center Congressional Auditorium, in Washington, DC.


SUPPLEMENTARY INFORMATION: On January 9, 2014, President Obama issued a Presidential Memorandum—Establishing a Quadrennial Energy Review. To accomplish this review, the Presidential Memorandum establishes a Quadrennial Energy Review Task Force to be co-chaired by the Director of the Office of Science and Technology Policy, and the Director of the Domestic Policy Council. Under the Presidential Memorandum, the Secretary of Energy shall provide support to the Task Force, including support for coordination activities related to the preparation of the Quadrennial Energy Review (QER) Report, policy analysis and modeling, and stakeholder engagement.

The Quadrennial Energy Review process itself involves robust engagement of federal agencies and outside stakeholders, and further enables the federal government to translate policy goals into a set of analytically based, integrated actions for proposed investments over a four-year planning horizon. Unlike traditional federal Quadrennial Review processes, the QER is conducted in a multi-year installment series to allow for more focused analysis on particular sub-sectors of the energy system. The initial focus for the Quadrennial Energy Review was our Nation’s transmission, storage and distribution infrastructures that link energy supplies to intermediate and end users, because these capital-intensive infrastructures tend to set supply and end use patterns, investments and practices in place for decades. On April 21, 2015, the Quadrennial Energy Review Task Force released its first Quadrennial Energy Review installment report entitled, “Energy Transmission, Storage, and Distribution Infrastructure.” Among the issues highlighted by the analysis in the first installment of the QER were the growing dependencies of all critical infrastructures and economic sectors on electricity, as well as, the increasing interdependence of the various energy subsectors. In response to these findings, and to provide an appropriate consideration of an energy sector undergoing significant technological and regulatory change, the second installment of the QER will conduct a comprehensive review of the nation’s electricity system, from generation to end use, including a more comprehensive look at electricity transmission, storage, and distribution infrastructure covered in installment one. The electricity system encompasses not just physical structures, but also a range of actors and institutions. Under this broad framing, the second installment intends to consider the roles and activities of all relevant actors, industries, and institutions integral to continuing to supply reliable and affordable electricity at a time of dramatic change in technology development. Issues to be considered in QER analyses include fuel choices, distributed and centralized generation, physical and cyber vulnerabilities, federal, state, and local policy direction expectations of residential and commercial consumers, and a review of existing and evolving business models for a range of entities throughout the system.

Significant changes will be required to meet the transformational opportunities and challenges posed by our evolving electricity system. The Administration is seeking public input on key questions relating to possible federal actions that would address the challenges and take full advantage of the opportunities of this changing system to meet the Nation’s objectives of reliable, affordable and clean electricity. Over the course of 2016, the Secretariat for the Quadrennial Energy Review Task Force will hold a series of public meetings to discuss and receive comments on the issues outlined above, and well as, others, as they relate to the second installment of the Quadrennial Energy Review.