6450-01-P

DEPARTMENT OF ENERGY

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

AGENCY: Department of Energy.

ACTION: Notice of intent; public meeting.

SUMMARY: The U.S. Department of Energy (DOE) announces its intent to prepare an environmental assessment (EA), (DOE/EA-1977) pursuant to the National Environmental Policy Act (NEPA) to analyze the potential environmental impacts from a proposed project to accept used nuclear fuel from the Federal Republic of Germany at DOE's Savannah River Site (SRS) for processing and disposition. This used nuclear fuel is composed of kernels containing thorium and U.S.-origin highly enriched uranium (HEU) embedded in small graphite spheres that were irradiated in nuclear reactors used for research and development purposes. DOE invites public comments on the scope of the EA and will conduct a public meeting.

DATES: DOE invites Federal agencies, state and local governments, Native American tribes, industry, other organizations, and members of the general public to submit comments on DOE's proposed scope of the EA. The public scoping period extends from the date of publication of this notice in the *Federal Register* through **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. DOE will consider all comments received or postmarked by that date. Comments submitted after that date will be considered to the extent practicable.

DOE will hold a public meeting to discuss the proposed German HEU fuel project and receive comments on the scope of the EA. The meeting will be held on:

- Tuesday, June 24, 2014, (6:30 p.m. to 9:00 p.m.) at the North Augusta Community Center, 495 Brookside Drive, North Augusta, South Carolina 29841.

ADDRESSES: Please direct written comments on the scope of the German HEU Fuel EA to Mr. Andrew Grainger, NEPA Compliance Officer, U.S. Department of Energy, P.O. Box B, Aiken, South Carolina 29802. Comments on the scope of the German HEU Fuel EA may also be submitted by email to drew.grainger@srs.gov. DOE will give equal weight to written comments and oral comments received at the public scoping meeting. Requests to be placed on the German HEU Fuel EA mailing list should be directed to Mr. Grainger at the postal or email addresses above.

FOR FURTHER INFORMATION CONTACT:

To request further information on SRS used nuclear fuel disposition activities or background information on the proposed project, please contact Mr. Grainger as listed above.

For general information concerning DOE's NEPA process, contact:
Ms. Carol Borgstrom, Director, Office of NEPA Policy and Compliance (GC-54),

U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585; (202) 586-4600, or leave a message toll-free, at (800) 472-2756; fax (202) 586-7031; or send an email to askNEPA@hq.doe.gov. This Notice of Intent (NOI) and other information related to DOE's NEPA program are available on the DOE NEPA Website at http://nepa.energy.gov.

SUPPLEMENTARY INFORMATION:

Background

DOE intends to prepare an EA in accordance with Council on Environmental Quality and DOE NEPA implementing regulations at 40 CFR Parts 1500-1508 and 10 CFR Part 1021, respectively. The EA will to analyze the potential environmental impacts of a proposal to accept, process, and disposition used nuclear fuel from Germany containing approximately 900 kilograms (kg) of HEU from the United States. The used nuclear fuel is composed of kernels containing thorium and U.S.-origin HEU embedded in thousands of small graphite spheres. The United States provided the HEU to Germany between 1965 and 1988. The fuel was irradiated at the Arbeitsgemeinschaft Versuchsreaktor (AVR) reactor, which operated from 1967 to 1988, and the Thorium High Temperature Reactor (THTR)-300, which operated from 1983 to 1989. These reactors operated as part of Germany's program to research and develop pebble bed reactor technology. AVR reactor fuel is stored at Jülich, Germany, and the THTR-300 reactor fuel is stored at Ahaus, Germany.

In a February 2012 letter, the State Secretary of the Federal Ministry of Education and Research of the Federal Republic of Germany requested DOE's Under Secretary for Nuclear Security to DOE consider accepting the fuel. The Office of Environmental Management responded on behalf of the Under Secretary that DOE would consider the request. Collaboration on the request was initiated in May 2012.

German officials and the Office of Environmental Management subsequently began work on a feasibility study regarding the potential for acceptance, processing, and disposition of the fuel, and related research and development, using facilities at SRS, located near Aiken, South Carolina. Those efforts are ongoing. In April 2014, DOE, the Federal Ministry of Education and Research of the Federal Republic of Germany, and the Ministry for Innovation, Science and Research of the State of North Rhine-Westphalia on behalf of the North Rhine-Westphalian State Government, Germany, signed a Statement of Intent[1] to cooperate in conducting the preparatory work necessary to support DOE's consideration of the request that it accept the used fuel from Germany and to use SRS facilities for processing and disposition of the fuel. The preparatory work includes the EA announced today and additional technical and engineering work needed to address uncertainties regarding potential disposition pathways for uranium and waste streams generated during processing. The environmental analysis and the engineering work will allow DOE to reach an informed decision on the proposed acceptance and disposition of the fuel. Germany will bear the costs of the preparatory phase work and, if DOE decides

[1] To request a copy of this Statement of Intent, contact Mr. Grainger as indicated in the **ADDRESSES** section above.

to proceed with the proposed project, Germany will also bear the costs associated with the acceptance, processing, and disposition of the fuel.

Purpose and Need for Action

DOE's purpose and need for this action is to support the U.S. policy objective to reduce, and eventually to eliminate, HEU from civil commerce. This action would help achieve the U.S. HEU minimization objective by removing up to approximately 900 kg of U.S.-origin HEU from Germany and returning it 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

Under the proposed action, the German government would work with DOE to transport the used fuel by ocean-going vessel to the United States in DOE/U.S. Department of Transportation-certified Type B casks. The used fuel would be received at Joint Base Charleston in Charleston, South Carolina, and then the casks would be transported by rail to SRS. DOE estimates that this could involve approximately 455 casks received over a period of approximately 3 years.

DOE will analyze alternatives for unloading and storage of the transport casks at SRS. DOE will analyze any necessary improvements to the rail spur and roads at SRS needed to safely unload the casks and transport them on-site. Storage alternatives for the

transport casks containing the used fuel may include construction of a new covered concrete storage pad and use of existing concrete pads (that may require modification).

DOE would install a capability in H-Canyon at SRS to chemically remove the graphite from the fuel kernels via a molten salt technique ("chemical digestion") being developed by the Savannah River National Laboratory. DOE currently estimates that it would take approximately 3 years to complete removal of the graphite from all the used fuel. The fuel kernels would be stored in H-Canyon. After all the fuel kernels have been extracted, they would be processed through the H-Canyon. This would separate the uranium from thorium and fission products.

DOE has identified three alternatives for disposition of the HEU that would be separated from the fuel kernels.

- Dissolution, purification, and down blending the HEU to low-enriched uranium (LEU) for reuse as reactor fuel (if the LEU can meet applicable specifications);
- Separating the uranium, down blending, and disposing of the uranium in an appropriate radioactive waste disposal facility; and
- Disposal of the uranium as waste without down blending via vitrification in the Defense Waste Processing Facility at SRS.

The EA also will evaluate alternatives for disposition of the empty transport casks and containers used to package the used fuel. Currently identified alternatives include on-site

disposal in the E-Area at SRS and, potentially, pursuing reuse of the transport casks. In addition, the EA will analyze a no action alternative under which DOE would not accept or process the used fuel.

Potential Areas of Environmental Analysis

DOE has tentatively identified the following areas for analysis in the German HEU Fuel EA. The list is presented to facilitate comment on the scope of the EA and 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 nonradiological releases, and other worker health and safety impacts.
- Impacts of emissions on air and water quality, including impacts of greenhouse gas emissions on climate change.
- Impacts on ecological systems and threatened and endangered species.
- Impacts of waste management activities.
- Impacts of the transportation of radioactive materials, including transport across the ocean.
- 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

Following the public scoping period and after consideration of all comments received during scoping, DOE will prepare a Draft German HEU Fuel EA. DOE will announce its availability to the public for comment, provide a public comment period, and conduct a public hearing to receive comments on the Draft EA. All comments submitted on the Draft EA during the public comment period will be considered and addressed in the Final German HEU Fuel EA. DOE will address comments submitted after the close of the public comment period on the Draft EA to the extent practicable. Based on the EA analysis, DOE will either issue a Finding of No Significant Impact or announce its intent to prepare an environmental impact statement (EIS).

If DOE determines that an EIS is needed, either during preparation of the EA or after completing the EA, DOE would issue in the *Federal Register* an NOI to prepare an EIS. In that case, the current scoping process would serve as the scoping process that normally

would follow an NOI to prepare an EIS. DOE would not solicit additional scoping comments but would consider any comments on the scope of the EA received during this scoping process in preparing the EIS.

Issued in Washington, DC, on May 29, 2014.

David Huizenga,
Acting Assistant Secretary
For Environmental Management.

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