SRS WATCH

Savannah River Site Watch

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Comment on
Notice of Intent to Prepare an Environmental Impact Statement for High-Assay Low-Enriched Uranium (HALEU) Availability Program Activities in Support of Commercial Production of HALEU Fuel (https://www.govinfo.gov/content/pkg/FR-2023-06-05/pdf/2023-11877.pdf)

To Whom it Concerns:

I hereby send in these comments for the scoping record for the preparation of an EIS on HALEU production and availability. I submit these comments on behalf of the public-interest group Savannah River Site Watch (SRS Watch) and request that be made publicly available.

I request that the following issues be considered in any draft EIS that may be prepared.

1. **I request that the draft EIS address the option of production of HALEU at the Savannah River Site as it might aid in "facilitating the commercialization of HALEU fuel production and acquisition of HALEU." SRS HALEU production could be reviewed as being part of an overarching strategy and not as a sole alternative.**

Traditionally, research reactor and medical isotope-production reactor spent fuel stored in the L-Reactor "basin" at SRS has been reprocessed via the 68-year-old H-Canyon reprocessing plant to remove highly enriched uranium (HEU). That HEU was then downblended to make LEU fuel for use in TVA reactors. As stated in a July 2022 leaflet called "SRS Overview," DOE now intends to process that spent fuel without HEU removal:

> H Canyon is the only remaining operation production-scale, nuclear chemical separations facility in the U.S. The facility's operations originally recovered uranium-235 and neptunium-237 from SNF rods from Site production reactors and from domestic and foreign research reactor programs.

> H Canyon's most recent mission has been processing SNF by dissolving it and recovering uranium from the dissolved solution through a complex chemical process. The uranium was mixed with natural uranium in a process called "blend down," producing low enriched uranium (LEU). The LEU was then made into fuel rods for use in the Tennessee Valley Authority's commercial power reactors.
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> In 2012, SRS Operations received approval from the Department of Energy to move forward with a new approach to spent nuclear fuel (SNF) disposition that will result in a lifecycle cost reduction of over $4 billion dollars and represents a more than 20-year acceleration over the LEU blend down approach. Called Accelerated Basin Deinventory, this new approach will use the H Canyon to dissolve the SNF currently stored in the L Area Disassembly Basin and then, instead of reprocessing further into LEU, send it through the Site's liquid waste program to be vitrified and safely stored onsite until a federal repository is identified. ABD allows SRS to disposition the more than 3,000 SNF bundles in L Basin by 2033, when the LEU blend down approach would have taken until 2060.

As the above decision is by DOE's Office of Environmental Management (EM), the Office of Nuclear Energy (NE), in the draft EIS, should examine this decision and if it should be reversed or concurred with. If the decision is not reversed, a large amount of HEU was be discarded into the SRS high-level waste tanks. Does NE agree that this HEU should be discarded and not downblended to HALEU? Please evaluate NE assuming costs of HALEU production at the H-Canyon.

HEU separated in the future at SRS could be downblended to HALEU, as is planned for HEU solutions now stored in H-Canyon. See presentation to SRS Citizens Advisory Board, Mach 14, 2023: *High Assay Low Enriched Uranium (HALEU) Down-blend Project* (https://www.srs.gov/general/outreach/srs-cab/library/meetings/2023/ms/HALEU%20Presentation%20Final.pdf)

As foreign and domestic research reactor spent fuel will still have to be managed after 2037, at which time the SRS high-level waste tanks are set to be emptied and closed, the draft EIS should evaluate options to place a new separation technology in H-Canyon after the current technology halts operation.

Likewise, the draft EIS should discuss construction of a new DOE reprocessing plant that could be used to reprocess DOE spent fuel and downblend the separated HEU to HALEU. The draft EIS should examine if any new reprocessing plant or continued HEU separation at the aging H-Canyon could be integrated into plans to produce HALEU at an enrichment facility.

2. As part of the EIS process, DOE must prepare a Nonproliferation Impact Assessment (NPIA) on the "proposed action" and on any alternatives to it.

In order to assess the potential proliferation impacts of production and use of uranium fuel enriched to the 20% level, just below the amount of enrichment defined as being HEU (bomb-grade uranium), a NPIA must be prepared. This would assess not only the ability of the enrichment process to exceed the 20% level but also the usability of HALEU, enriched to 20% and lower, to be used in some form of nuclear explosive device.

Such a NPIA would be used by DOE, other agencies and the public to assess and potential proliferation impacts of the technology reviewed in the "proposed action." Such a NPIA would be integral to supporting U.S. non-proliferation policies aimed at halting the spread of nuclear weapons materials and technologies.

DOE has many times in the past conducted NPIAs on programs that hold potential proliferation impacts, including:

Nonproliferation Impacts Assessment for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel. USDOE. July 1999.

Nonproliferation Impacts Assessment for the Management of Savannah River Site Spent Nuclear Fuel. DOE/NN-99001919. USDOE. December 1998.

Nonproliferation and Arms Control Assessment of Weapons-Usable Fissile Material Storage and Excess Plutonium Disposition Alternatives. DOE/NN-0007. USDOE. January 1997.

Draft Nonproliferation Impact Assessment: Companion to the Global Nuclear Energy Partnership Programmatic Environmental Impact Statement, 2008.

As part of the NPIA, or in some separate analysis, it must be reviewed if any new HALEU production facility would be utilized to process unobligated uranium into fuel to use in TVA reactors that produce tritium for use in U.S. nuclear weapons. NE should work with other offices in DOE as well as the Government Accountability Office to assess the goal of production of unobligated uranium to be used as TVA fuel.

If no NPIA is to be prepared as part of the EIS process please explain why not. Further, if no NPIA is to be prepared, please explain how decisions can be made that conform with U.S. nuclear non-proliferation policies without such an essential analysis.

3. Review the impact of any restriction of import of low-enriched uranium from Russia.

Currently a bill entitled the "Prohibiting Russian Uranium Imports Act" (https://www.congress.gov/bill/118th-congress/house-bill/1042/text) is being discussed by Congress. The bill, in the House of Representatives, would halt Russia uranium import in 2028, as stipulated in the bill:

"(B) LIMITATION ON AMOUNTS OF IMPORTS OF LOW-ENRICHED URANIUM.—
"(i) IN GENERAL.—The importation into the United States of low-enriched uranium, including low-enriched uranium obtained under contracts for separative work units, that is produced in the Russian Federation, whether or not such low-enriched uranium is derived from highly enriched uranium of weapons origin, may not exceed—
"(I) in calendar year 2023, 578,877 kilograms;
"(II) in calendar year 2024, 476,536 kilograms;
"(III) in calendar year 2025, 470,376 kilograms;
"(IV) in calendar year 2026, 464,183 kilograms; and
"(V) in calendar year 2027, 459,083 kilograms.
"(ii) TERMINATION.—Any waiver issued under this subsection shall terminate not later than January 1, 2028.

The draft EIS must review the impact of this legislation, if it were to become law, on production of HALEU in the US. Such things to be reviewed would include the impact of a halt, or constraint, on import of Russian uranium and the origin of domestic or foreign uranium that would be used in any enrichment process absent Russian uranium.

Likewise, the impact of the Nuclear Fuel Security Act (S. 452, at: https://www.congress.gov/bill/118th-congress/senate-bill/452/text), being considered in the Senate, must be reviewed in the draft EIS. According to *Nuclear News* on May 31, 2023, "S. 452 calls for the DOE to "expeditiously increase domestic production" of both low-enriched uranium and high-assay low-enriched uranium, aka HALEU, to "ensure the availability of domestically produced, converted, enriched, deconverted, and reduced uranium," and to address "gaps and deficiencies" in that front end of the nuclear fuel cycle by "partnering with countries that are allies or partners of the United States if domestic options are not practicable."

Thank you for considering these comments and responding to them in any draft EIS.

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