Savannah River Site
Citizens Advisory Board

Recommendation 348
H-Canyon and SRS Spent Nuclear Fuel Program

Background

Under the Domestic and National Nuclear Security Administration Material Management and Minimization Program, Spent Nuclear Fuel from research reactors is brought to the Savannah River Site for processing. Once onto site boundaries, the fuel becomes Environmental Management (EM) material. The material is stored in the L-Area Basin while awaiting a processing decision. The current campaign allows for approximately 1,000 bundles of Material Test Reactor Fuel and 200 High Flux Isotope (HFIR) to be processed through H-Canyon. The canyon dissolves the fuel, with Plutonium and Fission Productions moving through the high-level waste system and into the Glass Waste Storage Building while awaiting a future federal repository. The uranium by-product is down-blended with natural uranium to create low-enriched uranium and is used as a fuel fabricator outside of the site, including at the Tennessee Valley Authority. H-Canyon is the only hardened nuclear chemical separations plant still in operation in the United States. Without H-Canyon, the United States would have less capability than many other third world nations in processing fuel.

Spent Nuclear fuel at the Savannah River Site (SRS) is securely and safely stored in a reinforced concrete facility known at L-Basin. From the original reactor basin, L-Basin's capacity was expanded in the 1990s. Holding roughly 3.4 million gallons of water in a pool ranging from 17-50 feet, L-Basin generally receives Foreign Research Reactor Fuel Assemblies (FRR) and Domestic Research Reactor (DRR) Fuel Assemblies, and stores the material in "bundles." The bundle capacity limit of L-Basin is 3,650 bundles; current inventory is around 3,000 bundles, meaning the basin is at 80% capacity. Bundle racks for High Flux Isotope Reactor (HFIR) Fuel is completely full.

At this time, fuel is being safely stored in L-Basin, and Spent Nuclear Fuel is being transported under regulations of the Department of Transportation and Nuclear Regulatory Commission. Safeguards are in place to ensure the safety of the fuel stored in the basins. Spent Nuclear Fuel has several disposition paths, including dry storage and processing of fuel. H-Canyon is continuing to process Spent Nuclear Fuel under the current record of decision, however, a departmental decision from the Department of Energy is needed for the future of Spent Nuclear Fuel, chiefly, a decision as to whether to store the fuel or process the fuel. Of note, the FY2015 budge for Program Baseline Summary for 11C Nuclear Material was $260 million. For FY 2017, the budget was $278 million, an increase of $23 million.

Recommendations

The SRS Citizens Advisory Board recommends that DOE:

1. Continue to recognize the value and uniqueness of H-Canyon and advocate for the fullest level of funding to ensure that the Canyon remains fully operational and can continue processing spent nuclear fuel.
2. Release a decision on spent nuclear fuel. While the community surrounding the site believes that the site can safely store fuel, the SRS CAB believes that H-Canyon is able to process fuel and use that output productively. Additionally, storage space is limited and the site is not intended to be a permanent repository. Processing the fuel allows more of the material to leave the site boundaries, and offers the opportunity for H-Canyon, the only canyon of its design in the country, to use its capabilities.
3. Continue to make funding and maintenance of H-Canyon a priority. Given the age of the Canyon, there has been discussion that if the Canyon's work is halted, it may not restart properly.
4. Continue to work with agency partners to work on a final disposition plan, and corresponding schedules, for material processed through H-Canyon.

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