

Savannah River Site

Citizens Advisory Board

---

### **Recommendation 313**

L-Basin Inventory as Trial Test for a Federal Repository

#### **Background**

Currently, the capacity for typical Research Reactor Used Nuclear Fuel (RRUNF) assemblies in L-Basin is 90% full, with 3,181 bundles. The capacity for High Flux Isotope Reactor (HFIR) Fuel Racks, also stored in L-Basin, is 100% full, with 120 cores in the basin. There are also over 400 individual Isolation cans stored in the basin, with 12 oversized cans containing a portion of the 400.

Implementation of the Enriched Uranium Disposition Project would have resulted in L-Basin being emptied by around 2019. If the Augmented Monitoring and Condition Assessment Program (AMCAP), developed in January 2012, is implemented it is predicted that the basin could store its used/spent nuclear fuel inventory for another 50 years. The AMCAP program includes periodic examination of bundled fuel; assessment of fuel in Oversized Isolation Cans, core sampling from C-Basin to assess L-Basin basin structural integrity; and continuation of existing programs which includes:

- Basin Water Chemistry
- Corrosion Evaluation
- Structural Integrity
- Aging Facility Management Assessments
- Infrastructure Maintenance

On 3/26/13, an Amended Record of Decision (AROD) was signed which allows for processing up to 1,000 bundles of L-Basin RRUNF bundles and 200 HFIR cores. Processing, in H-Canyon, would eliminate the need for re-racking the basin to make room for anticipated future domestic and foreign receipts.

#### **Comments**

Currently, the capacity for typical RRUNF assemblies is 90% full, with 3,181 bundles. Without the 2013 AROD actions, the most probable projections indicate that L-Basin inventory would exceed 3,950 bundles of RRUNF by 2019, and 4,250 by 2033. Required geometric spacing requirements may no longer be possible.

Certain of the 400 HFIR cores are in urgent need of processing due to container degradation. Others cannot be processed through H-Canyon due to their zirconium cladding. It is also likely that H-Canyon processing will be reduced by the 2014 budget reduction. In addition to the other obstacles to continued safe storage of L-Basin inventory, a portion of the L-Basin water chemistry has been invaded by a "cobweb" bacterial growth on the top of some fuel bundles.

In addition to H-Canyon processing, dry cask storage was under consideration at SRS in order to augment need storage capacity in the L-Basin. Each dry cask would hold 36 assemblies and, in order to completely deinventory L-Basin, 120 10ft by 2ft casks would be needed. This avenue of disposition has also become problematic. The Nuclear Regulatory Commission (NRC) released an April 2013 report

indicating that “premature degradation of spent fuel storage cask structures and components” had occurred in some Peach Bottom Atomic Power Station (TN) dry casks due to environmental moisture. Budgetary cuts have also impacted the dry cask concept at SRS. Plans for a Dry Storage System have now been deferred.

There is no current date or pathway set for dispositioning used/spent nuclear fuel, HFIR cores, and isolated cans from L-Basin and SRS. There is no current plan to discontinue anticipated future foreign and domestic receipts so the inventory will continue to grow in the basin, with required geometric spacing requirements challenged.

### **Recommendation**

Given the urgent need to find increased storage capacity at the SRS L-Basin facility, the need to process certain at-risk materials in the basin, and the deferment of disposition pathways due to current budget exigencies, the Savannah River Citizen’s Advisory Board recommends:

1. DOE develop a contingency plan for utilizing older and critical eligible L-Basin materials in a trial test at a federal repository in order to develop processing, containerization, transporting and permanent storage requirements for securing U.S. nuclear waste and used/spent nuclear fuel in a deep geologic national repository.
2. Provide the necessary funding for developing the contingency plan in 2014.
3. Provide regular interim status reports to SRS CAB during the contingency plan development period.
4. Provide a completed contingency plan to the SRS CAB by FY 2016.