DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 8, 2025

TO: Technical Director
FROM: Savannah River Site Resident Inspectors
SUBJECT: Savannah River Site Activity Report for Week Ending August 8, 2025

Surplus Plutonium Disposition (SPD): While performing hydrolazing activities for the SPD project, components on the machine became loose and cut outside of the designated area, resulting in structural concrete damage. Due to previous issues during hydrolazing, the subcontractor added a requirement for the machine operator to perform a visual verification check of the machinery to ensure proper functionality and conformance to the travel path every 30 minutes. During the subcontractor's issue investigation of the recent issue, personnel noted that the operator did not perform a check of all components prior to restarting the machine. They attributed this to complacency and overconfidence due to the operator's previous experience performing these visual inspections and not finding any deficiencies in the machine components. SRNS personnel initiated a non-conformance report and issued a stop-work to the subcontractor on hydrolazing activities pending completion of follow-up actions that the subcontractor had committed to implementing as part of their internal corrective action and issue investigation process. SRNS project management communicated to the resident inspectors (RI) that they did not initiate their own issue investigation due to their determination that the subcontractor's issue investigation met site standards for adequacy in identifying associated problems and causes. The RIs noted that the subcontractor did not invite personnel from SRNS and SRFO to the issue investigation meeting. However, SRNS did perform a review of the subcontractor's final issue report and a field observation to confirm that associated corrective actions submitted by the subcontractor had been fully implemented prior to releasing them back to work.

H-Canyon: As a result of a previous issue in which H-Canyon personnel identified higher fissile material inventory within the segregated solvent tanks than expected, they were sampling tanks that have legacy solvent as part of the Extent of Condition Review (EOC) (see 5/2/2025 and 6/20/2025 reports). From the sample results, they discovered uranyl phosphate fissile solids had formed, and engineering determined this was due to the solvent breaking down over time and combining with the uranium holdup. They entered the Potential Inadequacy in the Safety Analysis (PISA) process, which resulted in two positive Unreviewed Safety Questions (USQs). One USQ evaluation determined that the increased material-at-risk in these tanks meant that the source term used in their accident analyses was not bounding for the segregated storage tanks. The second USQ evaluation determined that the presence of uranyl phosphate solids was not considered in their nuclear criticality evaluation, which had assumed the breakdown of the solvent was not credible. Historically, H-Canyon had used the solvent in the uranium recovery process but had not seen this type of degradation. H-Canyon personnel traced the sources of fissile material back to tanks that had been flushed during a recent campaign to consolidate solvent and ultimately dispose of the legacy solvent. Facility personnel will continue EOC on the current tanks holding solvent, including sampling for the presence of fissile solids. From the samples so far, engineering believes that each tank will be far below the single-parameter mass limit for criticality. As a PISA compensatory measure, the facility has prohibited the transfer into or out of the tanks that are currently holding solvent and is controlling activities such as critical lifts or hot work near those tanks.