

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 2, 2025

**TO:** Technical Director  
**FROM:** Savannah River Site Resident Inspectors  
**SUBJECT:** Savannah River Site Activity Report for Week Ending May 2, 2025

**Defense Waste Processing Facility (DWPF):** SRMC conducted an Implementation Verification Review (IVR) for repurposing two tanks to store cesium-laden strip effluent transferred from the Salt Waste Processing Facility to DWPF. Actions required to support the change in tank purpose include implementing three new specific administrative controls in the safety basis. Physical modifications, such as removing and installing new jumper hoses and nozzles, were also required. The IVR team identified five findings, mostly due to documentation errors. Four were corrected before the end of the IVR, while the last item was a post-implementation finding. The also team noted that procedures were being revised during their review, rather than being ready and available at the start of the IVR. Ultimately, the IVR determined that the facility is ready to implement the safety basis changes for the new storage tanks.

**Building 235-F:** During a review of the 235-F safety basis prior to its annual update, engineering personnel identified a potential inadequacy of the safety analysis (PISA). The facility was deactivated in 2023 and remains in surveillance and maintenance mode until DOE completes decommissioning, which will involve grouting the process areas. However, holdup remains in the building, mostly in the form of plutonium-238 with a small amount of neptunium-237. The accident analyses convert these various isotopes to a plutonium-239 equivalent curie (PEC) to support dose determinations. However, Np-237 is more soluble, and therefore has a higher rate of absorption in the body, than Pu-238. The dose consequences calculations for a seismic event may be non-conservative because they use a single PEC form, and therefore under-represents the Np-237 contribution. Facility management determined that no compensatory measures are needed given that the facility is seismically qualified and is neither operating nor routinely occupied.

**H-Canyon:** The contractor entered the PISA process for H-Canyon when engineering personnel discovered a discrepancy between the Consolidated Hazard Analysis (CHA) and an engineering calculation that used different time periods for reaching lower flammability limits (LFL) in the segregated solvent tanks. Tank contents can produce hydrogen via radiolysis, which can lead to an explosion if the hydrogen accumulates and reaches its LFL. The CHA considered a hydrogen deflagration event for the segregated solvent tanks in outside facilities and concluded that it was “not credible” due to the extended time required to reach LFL (greater than one year). Conversely, a supporting calculation for flammable gas generation determined that it would take approximately 93 days to reach LFL in those tanks. Upon further review, engineering personnel found that the CHA similarly assumes that a radiolytic hydrogen explosion in the water handling facility tanks is “not credible,” while the flammable gas generation calculation concluded that it would take approximately 104 days. Given these discrepancies, the frequency assumed in the safety basis for these two events may not be conservative. As a compensatory measure, the facility verified at least one ventilation fan was operating for four consecutive hours for the tanks in question. They will continue to verify this at least once every 30 days to ensure hydrogen is removed from the tanks’ headspace.