

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 22, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: L. Lin, Z. C. McCabe, E. P. Richardson Resident Inspectors
SUBJECT: Savannah River Site Activity Report for Week Ending April 22, 2022

Savannah River National Laboratory (SRNL) Safety Basis Review: B. Broderick, D. Campbell, R. Eul. S. Seprish, and W. Dumayas were on site this week for a review of the Savannah River National Laboratory safety basis and walked down the facility with representatives of DOE-SR, BSRA and SRNS Nuclear and Criticality Safety.

Defense Waste Processing Facility (DWPF): DWPF personnel were transferring material from the Precipitate Reactor Feed Tank (PRFT) to the Sludge Receipt and Adjustment Tank (SRAT) when the SRAT steam flow fell below the required level and tripped a safety class interlock. DWPF personnel set the SRAT steam flow at 3000 pounds per hour (pph) and began ramping up the Slurry Mix Evaporator (SME) steam flow. Shortly after SME steam flow was set to 2000 pph, DWPF personnel noted fluctuation in the flow and reduced the steam to 1750 pph. Personnel in the control room then received a PRFT transfer pump trouble alarm, SRAT steam low flow alarm and a fault of the PRFT transfer pump, which stopped the transfer. Over two hours later, DWPF personnel discovered that the transfer pump fault was due to the activation of the safety class interlock when the steam flow dropped below the interlock setpoint of 2601 pph. During a fact-finding meeting, SRMC personnel discussed a known upper limitation of 5000 pph (combined for SRAT and SME) before steam flow fluctuation issues occur which had never been adequately documented. The limitation is due to equipment issues which had not been a problem previously due to the recent limited operational pace and efficiency of DWPF.

The resident inspector performed a walkdown of the DWPF on 4/20/2022 along with the DOE Facility Representative. Several housekeeping issues were identified in the third level west corridor. These included multiple buckets full or overflowing with chemical residue, a very disorganized and partially open tool cabinet along with multiple tools, locking devices, and trash on the floor presenting a safety hazard. While receiving a delivery of new canisters, the Foreign Material Exclusion covers were removed from six canisters and not replaced when the workers broke for lunch, leaving them vulnerable to foreign material intrusion. A safety barricade was also incorrectly left intact after the evolution was paused.

Savannah River Tritium Enterprise (SRTE): During Open Glovebox Maintenance (OGM) restoration activities on 4/18/2022, an employee inadvertently cut an energized 120-volt power/communication cable for temporary smoke detection. After seeing a spark, the employee immediately notified management. They were escorted to and subsequently cleared by site medical. All OGM work was stopped and placed in a safe state and the hut was barricaded due to the exposed conductor. SRTE personnel entered the appropriate Limiting Condition for Operation for the loss of monitoring capabilities and the facility is generating a response plan as required. The smoke detector was repaired on 4/19/2022. The resident inspector attended a fact finding where additional issues were identified, including poor procedural compliance, failure to call multiple time-outs when required, and lack of proper supervision. A causal analysis is scheduled for next week.