DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 24, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: A. Z. Kline, L. Lin, Z. C. McCabe, and E. P. Richardson, Resident Inspectors
SUBJECT: Savannah River Site Activity Report for Week Ending June 24, 2022

Savannah River National Laboratory (SRNL): Recently received bioassay results revealed an uptake of americium-243 by a lab technician at SRNL during an event that occurred on 5/18/2022. The event that caused the uptake was from a SRNL employee bumping into a transuranic (TRU) waste drum that was initially loaded in 2016 that did not have the drum lid secured (see 6/3/2022 report). Further investigative actions taken by SRNL into the TRU waste drum determined that three waste bags had failed due to puncture by sharp objects inside the bags. Adequate controls were not in place to address the sharp items being placed into the bags. When the event initially happened on 5/18/2022 the employee was immediately sent to internal dosimetry for a whole-body count, chest count and 24-hour bioassay instructions. SRNS internal dosimetry personnel initially reported a negative whole-body count. However, the bioassay sample results received on 6/20/2022 showed a radiological uptake from an americium-243 source. Internal dosimetry re-analyzed the initial chest count spectra and determined they missed the uptake due to only analyzing plutonium source terms and not americium. The attributed dose for the individual in question is still being determined through additional bioassay samples.

H-Canyon: SRNS personnel recently identified a series of less than adequate conduct of operations (CONOPS) events dating back to early 2021 at H-Outside Facilities that likely resulted in the continued low pH readings at the HP-50 outfall first identified on 3/19/22. Following a confirmed correlation between specific equipment operations and observed flow in an abandoned process sewer, engineering identified an abnormal trend in level for the Recycle Sump, which is a 20,000-gallon tank that collects drainage and overflow from some Outside Facilities tanks. Investigating that trend uncovered multiple CONOPs deficiencies, along with a suspected failure of an abandoned sewer isolation point, that aligned to likely cause liquid containing nitric acid to enter the outfall. These issues included purposely overflowing Tank 709 due to failed level indication, operating multiple tanks (Recycle Sump and Tank 606) above Hi-Hi level alarms for extended periods of time, and failing to take corrective action or make logbook entries following high and low tank level alarms indicative of an overflow of material. The Recycle Sump also overflowed onto the sidewalk in H-Outside Facilities in 2015 following a material failure of level indication on another tank. The corrective actions from that event were ineffective at preventing similar reoccurrences.

L-Area: On 6/18/22, while loading High Flux Isotope Reactor (HFIR) fuel into the CD-3 transfer vehicle, an outer fuel core did not fully seat as expected. The fact finding confirmed that all cask loading procedures prior to the issue were followed properly and identified that the issue occurred a few years earlier when the core was stored in the HFIR rack not fully seated on the carriage. The operations team immediately identified the issue, called a timeout, and placed the Transfer Bay in a safe condition pending an issue investigation.

The E3S accountability system that has been a recurring issue (see 06/10/2022 report) was repaired and tested satisfactorily on 6/14/22.