DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 30, 2023

TO: Katherine R. Herrera, Acting 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 30, 2023

Staff Activity: The resident inspectors (RI) and members of the Board's technical staff met with the NNSA Associate Administrator for Environment, Safety and Health, members of his staff, and representatives from the office of the Chief of Defense Nuclear Safety. The discussion topics included Board Recommendation 2019-2, ongoing concerns with emergency preparedness and worker dose consequences at the Savannah River Tritium Enterprise (SRTE), facility worker protection at the Savannah River Plutonium Processing Facility, and 3013 container fire testing impacts on the safety basis at K-Area and the Surplus Plutonium Disposition project.

H-Canyon: H-Canyon utilizes three general service portable air compressors under a safety management program. The portable air compressors provide purge air flow to the canyon tanks and vessels upon loss of normal purge air following the design basis earthquake. Until a recent revision to the safety basis, one was designated as the primary compressor for this task and was subject to a periodic Technical Safety Requirement surveillance (start-up testing). During a recent walkdown of the portable air compressors, an engineer identified that the required preventative maintenance (PM) for each pressure safety valve (PSV) for all three compressors had expired. H-Canyon personnel investigated the issue and determined that the compressors were owned by Portable Equipment Commodities Management Center (PECMC) until 2014; however, when PECMC transferred the equipment over to the H-Canyon management and operating contractor, they did not transfer the PMs for the PSVs. The PMs for the PSV were tagged as "infrastructure" rather than as "PECMC," causing them to be missed in the database when the other PMs were transferred.

SRTE: Over the course of three days at the Tritium Extraction Facility (TEF), TEF personnel received three separate sequence malfunction alarms on two tritium air monitors (TAMs) in the same process room. The first malfunction persisted after operators cycled the solenoid operated valve. This prompted TEF personnel to enter the Limiting Condition for Operation (LCO) for an inoperable TAM and establish alternative air monitoring. Normally, the lights would be capable of re-flashing if another alarm condition occurred which happened the following day when they received the second alarm. TEF personnel were able to successfully restore the system when the second alarm came in the following day; however, the control room operator failed to reset the alarm on the instrumentation control system (ICS). This caused the programmable logic controller to still consider that sequence malfunction alarm (the safety-significant lights and horns) to be locked in. For the third alarm, TEF personnel only received a production support alarm on the ICS, while the safety-significant alarms in the field and in the control room did not illuminate or sound. After investigation, TEF personnel identified the error that had occurred with resetting the second alarm. Since the safety significant alarms were not reset and inoperable, TEF personnel should have entered the LCO for this second sequence malfunction alarm as well, although TEF personnel had already completed the LCO required actions due to the first alarm received.