DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 29, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: L. Lin, Z.C. McCabe, and E.P. Richardson, Resident Inspectors
SUBJECT: Savannah River Site Activity Report for Week Ending September 29, 2023

Savannah River Tritium Enterprise (SRTE) Contamination Event: A series of conduct of operations failures resulted in a low-level contamination event in several corridors and a process room at H-Area New Manufacturing (HANM). On September 5, HANM personnel were tasked with unloading a He-3 cylinder with known small amounts of tritium (150 curies as of 12 years ago). While this task was widely discussed as an upcoming planned evolution, the shift operations manager (SOM) and radiological protection department (RPD) first line manager (FLM) were not aware it had been initiated. Prior to performing work, those involved did not conduct a pre-job brief or fully understand the evolution and the potential for spreading contamination. The procedure for this evolution includes a prerequisite action to request RPD personnel establish a contamination area (CA) at the sash hood (typically a radiological buffer area) where SRTE personnel will be performing the work. A manager printed the procedure and marked this step complete without performing it or being aware of the content. The performance portion of the procedure includes two sections: one for connecting the cylinder and another for disconnecting the empty cylinder and removing it. An operator completed the connection portion of the procedure and signed the procedure off as complete. Two days later, on September 7, SRTE operations personnel requested the same operator remove the cylinder and provided them with the same working copy of the procedure that was completed previously. The operator then removed the cylinder with an RPD technician present, who was surveying airborne tritium near the sash hood and took smears at the connection point after the cylinder was disconnected. Shortly thereafter, the RPD technician performed counts on the smears which showed elevated results (~115,000,000 dpm/100cm^2 tritium). The RPD technician then proceeded to inform their FLM in the RPD office, who reached out to other nearby facilities for support in responding to the event. The SOM was not immediately notified on of the issue. The procedure also includes numerous steps in both sections of the procedure that direct RPD personnel to perform specific surveys (both airborne and contamination smears) that were not performed. SRTE personnel were able to decontaminate the numerous areas impacted and return them to their original condition. The investigation after the fact proved thorough, with appropriate questions, personnel statements, timeline reconstruction, and discussion with appropriate level of management attention. SRTE personnel are developing corrective actions.

DOE-SR: The resident inspectors met with DOE-SR senior managers to discuss concerns regarding the adequacy of the Facility Representative (FR) program. Specifically, the discussions focused on less than adequate review of FR assessments, improper scope of FR assessments, less than adequate tracking and trending of issues, identification of areas needing additional oversight, and DOE-SR manager feedback to FRs. DOE-SR provided a high-level overview of their actions since being informed of these issues (see 7/14/23 report), which includes plans to revise the implementing procedure, create a lessons learned book for FRs, and document tracking and trending of deficiencies going forward.