

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 27, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending October 27, 2023

Waste Treatment Plant: Plant operators completed the first glass pour from Melter #1 to a low-activity waste glass container, lowering the molten glass level of the melter by one inch. This event supports management of melter pool chemistry while the melter remains in an idled condition pending completion of modifications to reduce air in-leakage (see 9/29/2023 report).

Radiochemical Processing Laboratory (RPL): A resident inspector observed a critique for the loss of control of radioactive material within the High-Level Radiochemistry Facility (HLRF) hot cells. Samples of radioactive material for a project had been moved between HLRF hot cells after refurbishment during backlog waste removal activities. As a result, two samples were discovered in the wrong hot cell and several other missing samples are presumed to either have been incorrectly packaged as waste and placed into a shielded waste cask assembly (SWCA) or fallen into inaccessible locations inside the hot cell. The critique meeting was well planned and executed. All participants freely offered self-critical input and subject matter expertise. RPL management has paused movements of radiological waste in and out of the facility pending inspection of five suspect SWCAs to determine if they contain the missing samples and a causal analysis is being scheduled.

222-S Laboratory: 222-S Laboratory personnel are continuing their work to replace eleven leaking hot cell windows (see 7/14/23 report). Three windows have been replaced. A resident inspector observed installation of the third hot cell window in room 11-A. The pre-job brief was thorough. Though the restricted workspace was challenging, the work crew removed and staged the blank, which was installed as a temporary cover after the old window was removed, using teamwork and excellent communication. The same approach was used for successfully installing the window, which required the workers to precisely align it for correct installation.

Tank Farms: WRPS nuclear safety held a control decision meeting to discuss and select hazard controls for the system they will use to retrieve and remove cesium from 2000 gallons of tank waste supernatant for the Test Bed Initiative. The primary focus of the discussion was control of caustic hazards that might result if leaks occur in the system. The system is already constructed, so the control strategy must consider its existing configuration. The team identified several questions and decided to delay any control decisions pending engineering resolution.

242-A Evaporator: The contractor Plant Review Committee met and made a positive Unreviewed Safety Question Determination regarding new information that shows there is a potential chemical burn hazard for facility workers from a caustic spray leak when the 242-A Evaporator is in shutdown mode. Recent analyses indicate that, on previous occasions, sufficient residual waste remained in the evaporator so that a pH exceeding 12.5 could remain after the evaporator is filled with water. As a compensatory measure, the evaporator will remain in shutdown mode with the dump valves disabled in the open position, thus preventing the hazardous condition.