

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 26, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending July 26, 2024

Staff Activity: W. Dumayas, B. Sharpless, and M. Wright were onsite to review and evaluate aspects of the HMIS, WRPS, WTCC, and CPCCo fire protection programs. During their visit, they met with both DOE and contractor fire protection subject matter experts to discuss the programs. They also performed spot checks on the fire suppression systems at the Central Waste Complex, 222-S Laboratory, and 242-A Evaporator facilities; equipment and apparatuses at the 200 West fire station; and the firewater supply systems in the 200 east and 200 west areas.

Test Bed Initiative (TBI): A WRPS team installed the TBI mast into double-shell tank (DST) SY-101. The mast includes a retrieval pump, ion-exchange column to remove cesium, and a filter to remove any entrained solids from the waste stream during its retrieval from the tank. Follow-on work to support the upcoming TBI demonstration includes installation of remaining above ground equipment and operational acceptance testing of the system prior to using it to retrieve 2000 gallons of supernatant waste.

Tank Side Cesium Removal (TSCR): WRPS completed batch two of TSCR campaign 1A. Batch 2 processed approximately 191,000 gallons of supernatant waste, raising the total processed feed inventory in DST AP-106 to approximately 450,000 gallons. WRPS will sample the processed waste in AP-106 to confirm that it remains in compliance with DFLAW waste acceptance criteria. DST AP-107, the TSCR feed tank, still contains approximately 570,000 gallons of ready-to-process waste. Batch three of campaign 1A will start after WRPS replaces two expended ion-exchange columns.

Waste Treatment Plant: A pressure excursion occurred in melter #2 during the replacement of a vacuum breaker on its associated submerged bed scrubber. The event included both a positive excursion, which resulted in a lift of the system's special relief device releasing untreated off-gas into the process cell near the work area, and a subsequent negative excursion, which exceeded the design criteria for melter plenum vacuum. Workers exited the process cell and placed the area in a safe condition. No workers were injured, and a subsequent operability evaluation determined that the melter was not damaged. Facts obtained following the event determined that the event resulted from inadequate coordination between the maintenance team and the melter operator. Both the sequence and timing of some procedure steps are critical when performing the vacuum breaker replacement. These critical steps were not identified or specifically briefed during the pre-job meeting. Additionally, no one was actively coordinating actions during the performance of the steps, resulting in untimely actions to control system pressures. The work was completed after plant and engineering management resolved the conditions that led to the event. Additional follow-up is necessary to identify and correct the underlying causes to prevent similar future events.