

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 20, 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 September 20, 2024

Central Waste Complex: CPCCo initiated their root cause evaluation (RCE) regarding an inoperable safety significant fire sprinkler system that resulted in a technical safety requirement violation (see 9/6/2024 report). A resident inspector observed the RCE kickoff, which was well attended by facility and engineering management, and subject matter experts. The team was professionally facilitated and able to define the problem statement and identify preliminary operational and engineering barriers that could have prevented the occurrence.

Low Activity Waste Facility: While performing a melter #1 container pour, an operator noticed high level indications on the pour stream camera and immediately secured the pour. Subsequently it was determined the container had been over-filled. The fact finding determined that although plant engineering performed rough calculations estimating the level of glass in the container to be below the emissivity strip used for infrared level detection, the level was not known at the beginning of the pour. It was also determined that the procedure did not contain an adequate method for operators to track fill levels. A maximum total pour time of 205 minutes is specified. However, establishing container fill levels from pour times requires knowledge of the pour rate requiring a relatively complex mass balance on the melter, incorporating both melter level changes and feed rates. A check of previous operational logs revealed total pour times had exceeded the limit for other containers. The project has paused all melter pour operations and will confirm the fill levels of all containers. Development of an accurate fill-tracking methodology and procedural changes are required before container fill operations can resume.

Canister Storage Building: After welding the 4-inch diameter cover plate onto the cover cap assembly on the 12th multi-canister overpack (MCO) welded to date (see 8/23/2024 report), the dye penetration test revealed a defect that was verified by helium detection to be a leak. The code requirements for repairing base metal defects call for radiographic testing, which is not possible in this case. However, the N-stamp certificate holder for the welding operation reasoned that, given the proximity of the imperfection to the cover plate weld, the stresses induced by the welding caused a latent defect to open up, rendering the defect to be within the weld-affected area. They reasoned that the requirements for repair of a weld metal defect apply, and no radiograph is required. The subcontractor successfully completed the repair in addition to completing the welding of cover cap assemblies on all the remaining MCOs.

U Plant: A resident inspector observed a post-job review of the recent U Plant annual surveillance of material and radiological conditions (see 8/23/2024 report). Subject matter experts reviewed the results of the inspection and determined planned actions addressing the findings. These included modifying the surveillance procedure to take measurements of cracks on walls so that a baseline can be established from which to track changes over time. Additionally new photographs will be obtained to evaluate potentially degrading grout on the building exterior and rad postings will be updated on the building perimeter and exterior.