

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 24, 2023

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending March 24, 2023

Waste Treatment Plant (WTP): WTCC personnel are performing an inspection of the Low Activity Waste (LAW) Facility off-gas system following a carbon bed over-pressurization event that spread carbon dust into the system (see 2/24/2023 report). A layer of dust, up to one-quarter inch thick in some areas, was found in the inlet and outlet plenums of carbon bed A and in the outlet plenum of bed B. Smaller amounts of dust were found in the off-gas piping surrounding the carbon beds and thermo-catalytic oxidizer (TCO), and in the caustic scrubber. No dust was observed at the high-efficiency particulate air filters or in the associated housings or preheaters; no dust was found in the off-gas exhausters. Additionally, preliminary results of a finite element analysis (FEA) of the carbon bed shell determined that stress in some limited areas of the unit may have approached the yield stress of the fabrication material. To recover, the heavier dust accumulations associated with the carbon beds and TCO will be collected with a vacuum cleaner. Plant personnel will then run the off-gas system with the caustic scrubber in recirculation to remove residual dust. Engineers will also perform a structural evaluation based on the results of the FEA. To confirm the condition of the shell, plant personnel will remove insulating material to allow inspection of the high stress areas for material deformation.

Tank Side Cesium Removal System (TSCR): Operators shut down TSCR processing when solid residue, most likely from a waste leak, was identified on a fitting of a hose attached to the vent port on ion exchange column C. The location of the potential leak prevents blowdown of the ion exchange columns, which is required before personnel can enter to repair the fitting. WRPS operations is working to develop a path forward. At the time of shutdown, plant operations had processed about 65,000 gallons of waste during this batch run. Total waste processed, so far, through TSCR to double-shell tank AP-106 is about 440,000 gallons. This represents about 45% of the quantity planned for this campaign.

Central Waste Complex (CWC): Validation of the radiological characterization for six waste boxes located within one of the CWC outdoor storage areas (OSA) is required so the disposition path for each waste package can be determined. To perform the characterizations, critical lifts are required when relocating the boxes to and from a low dose area where non-destructive assay can be performed. A resident inspector observed a Hazard Review Board (HRB) Chair review of the work team's readiness to perform the planned activities. The field work supervisor gave a highly detailed description of all work steps to be performed, and demonstrated expert knowledge of the hazards, controls, and contingencies that may be required. The critical lift plan was also presented in detail. The HRB Chair noted the exceptional level of knowledge of the planned work by the team and approved the work without conditions.

224B Facility: A resident inspector observed a full up drill outside of building 224B. The scenario was a simulated plane crash into the south side of B Plant, injuring one worker. The controllers and evaluators met after the drill terminated and provided an excellent breakdown of the scenario and identified items that went well and items that need improvement, such as communication and delay in doffing the fire fighter.