

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 10, 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 November 10, 2023

Radiochemical Processing Laboratory: Workers unloaded two of the three shielded waste cask assemblies (SWCAs), which were suspected of containing radioactive samples identified as missing during work in the high-level radiochemistry facility (HLRF) (see 10/27/2023 report) and located the missing radioactive material. However, additional missing material has been identified and contractor personnel are performing a complete inventory of the HLRF hot cells to confirm the total amount of missing inventory. Facility personnel are unloading the third SWCA to locate the additional missing samples.

A resident inspector observed a dry run of the SWCA unloading activity along with PNSO and contractor personnel and provided feedback on personal protective equipment and radiological control practices. This feedback was incorporated into the procedure. During the pre-job briefing for this dry run, the resident inspector observed mounting hardware fall off the facility wall and strike a person's leg. The individual was evaluated and released to duty. At the critique, PNNL and facility personnel determined that changes to the scope of work resulted in the addition of a new subcontractor. Additionally, the work was considered skill-of-the-craft and informal guidance provided to previous contractors was not adequately communicated. Further, the potential hazard to workers inside the facility was not adequately captured during work planning. PNNL is revising their subcontractor work processes to prevent recurrence.

Effluent Treatment Facility (ETF): A resident inspector observed an emergency preparedness drill held at ETF. In this scenario, a worker tripped and fell onto a broken bulb in a contamination area, resulting in cuts and glass and debris embedded into their forearm. Radiological control technicians (RCTs) were the first to arrive at the scene. There was a slight delay in addressing the injured person, however, once the lead RCT made contact, the injured worker was quickly assessed and taken to the ambulance. A few minor deficiencies were noted by the resident inspector and provided to the emergency preparedness team.

Waste Treatment Plant (WTP): DOE provided BNI specific technical direction regarding completion of work scope for establishing waste acceptance criteria (WAC) and a point of compliance for the WAC for the High-Level Waste (HLW) feed stream in a potential direct-feed HLW flowsheet. The technical direction supports ongoing work to evaluate potential implementation of alternatives for providing waste feed directly from the tank farms to the WTP HLW Facility. Among other requirements, DOE specified that the WAC shall encompass the southeast quadrant of double-shell tanks, and the analysis shall demonstrate that, with the application of a future pretreatment capacity, there is reasonable assurance that the balance of Hanford's HLW can be immobilized in the WTP HLW Facility. The direction further states that the WAC shall not preclude the use of enhanced waste glass formulations currently under development and, where possible, shall support the use of the new glass formulations. DOE further stated that the effort shall reflect lessons-learned from Hanford as well as other contractors and sites. DOE expects BNI to complete this effort before April 30, 2024.