

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 30, 2022

**TO:** Katherine R. Herrera, Acting Technical Director  
**FROM:** B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors  
**SUBJECT:** Hanford Activity Report for the Week Ending December 30, 2022

**PUREX:** A contractor Hazard Review Board (HRB) met to evaluate a work package that workers will use for characterization and sampling activities at the 203A cold chemical storage area. This area consists of a pump house, a railroad loading dock, and a secondary containment area containing nine above ground tanks. The resulting characterization data collected will be used to determine appropriate mitigative controls for demolition work activities and a disposal path for the waste. While this is largely a non-radioactive area, previous work activities indicated contamination may be present (see 5/6/2022 report). The review of the work package by the HRB was comprehensive and identified several areas where improvements were required. Consequently, the HRB decided to vote on the package after the improvements are made. The contractor president attended the meeting and shared his expectations for improved work planning and execution in the coming year.

**Waste Treatment Plant:** BNI and WTCC have completed testing of the Low-Activity Waste (LAW) Facility melter startup heater power supplies after replacing the incorrectly designed line reactor assemblies with new sine wave filters (see 10/14 and 12/2/2022 reports). The testing, which used external load banks to apply expected loading to the modified power supplies, determined that they should function as expected when placed back in service with the startup heaters. BNI and WTCC engineers are continuing their evaluation and testing of the joule heating and discharge heater power supplies.

In mid-November, WTCC personnel noted periodic spikes in the LAW Facility caustic scrubber differential pressure. Subsequent investigation determined that the cause of the anomaly was the unexpected accumulation of substantial quantities of water in the off-gas system. The largest amount of water (several hundred gallons) was found in low points in system piping associated with the caustic scrubber. However, smaller quantities were also found in other locations within the system, including the high-efficiency particulate air (HEPA) filter housings. Water can cause significant performance degradation of HEPA filter media. Subsequent evaluation of the filter media did identify evidence of wetting. WTCC engineers are performing a rigorous evaluation to determine the source of the accumulated water. To date, the efforts have not identified a definitive cause. Identification of the cause is necessary to support continued testing and the start of facility operations.

**Tank Farms:** Over the past weeks, adverse weather including snow, high winds, and extreme cold, have impacted several facilities onsite. Among the impacts were tank farm exhauster shutdowns and the loss of heating to the K-1 ventilation system at the 242-A Evaporator. Loss of heat in the evaporator led to freeze damage to fire suppression piping. WRPS and HMIS personnel are developing work packages to determine the extent of damage to raw and fire water piping in the facility and perform necessary repairs.