

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 16, 2024

**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 February 16, 2024

**Tank Farms:** In support of future tank farm missions, WRPS plans to remediate double shell tank SY-103, which is currently classified as a Waste Group A tank because of its potential for buoyant displacement gas release events (BDGRE) that could result in the headspace reaching the hydrogen lower flammability limit. Waste disturbing activities in Waste Group A tanks are currently not authorized in the tank farms documented safety analysis. The remediation includes first decanting the supernatant from the tank then dissolving the remaining soluble waste solids prior to transferring out the waste. Resident inspectors observed a meeting where the control strategy for decanting was presented. The strategy involves monitoring for hydrogen releases during decanting and is based on a previous analysis by Pacific Northwest National Laboratory that concluded any BDGREs induced by the decanting process will be bounded by historical behavior, and therefore will not challenge headspace flammability limits.

To support retrieval operations, two hoses were connected to a hydraulic power unit (HPU) that will transfer waste from double shell tank AP-101 to AP-104. Per the Technical Safety Requirements (TSRs), this condition requires an administrative lock to prevent inadvertent waste transfers. Operations verified an upstream breaker that provides power to the HPU was administratively locked open to implement the control. Later, a separate maintenance activity on a different portion of the HPU required the breaker to be shut to power the unit's electronics. Contrary to TSR requirements, a different control was not implemented prior to removing the lock from the breaker. When the condition was discovered, operations declared multiple TSR violations. WRPS has issued a timely order that requires level one management approval prior to removing administrative locks as it investigates the event.

**High Level Waste (HLW):** A resident inspector observed a field office Senior Review Board (SRB) meeting held to review a safety basis review team recommendation to approve revision 12A of the HLW preliminary documented safety analysis. This revision is focused on revising hazard analyses for events involving facility cranes to support downgrading them from safety-significant to defense-in-depth controls. The new waste acceptance criteria reduced the consequences of crane drop events below the threshold to consider safety-significant controls. However, during a seismic event, cranes were postulated to fall on safety systems in the facility. In place of crediting the crane's components, a load drop design feature was added to the revision demonstrating that the geometry of facility cranes prevents them from falling off their supports and impacting facility systems. The SRB voted to recommend approval of the revision.

**Central Waste Complex:** The Mission Need Statement supporting a new contact handled mixed low-level waste and transuranic waste processing capabilities project was approved by DOE last June (see 8/26/2022 report). The needed capabilities include characterization, treatment, repackaging, storage, and shipping functions. The project is currently working to identify and analyze alternatives to develop the conceptual design. The Safety Design Strategy document is under development and expected to be submitted to DOE in March 2024.