

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 28, 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 July 28, 2023

**Waste Treatment Plant (WTP):** Maintenance personnel performed an annual preventative maintenance package associated with LAW plant cooling water leak testing. The work required the bladder pressure inside the expansion vessels to be adjusted, which inadvertently caused a low suction pressure trip of the melter power supply cooling pumps. The work was paused, and the pumps were restored. A fact-finding meeting was held by the contractor. It was identified that the package was written when the pumps were not operating. In addition, the Shift Operations Manager was not notified that the work was being performed, which is a prerequisite step in the work package. The work package will be updated to address the impacts to the system, and a review of upcoming work packages will be performed to verify the current configuration of the systems have been evaluated.

**Tank Farms:** The project has been performing mockup testing of the Tank Dome Core Cutting System at the Hanford Cold Test Facility. This system is intended for use in installing a new riser in tank A-106, where existing pit contamination levels are high enough to preclude conventional equipment installation. The system performs multiple functions, including installation of drill casings into the soil overburden, pilot hole drilling into the tank dome, installation of a lifting anchor, dome core drilling, and core removal. A resident inspector observed drilling of the pilot hole and, although there were challenges with limited clearance, the lifting anchor was successfully installed. Another resident inspector observed the core drilling stage. The 48-inch core drill successfully cut through the leveling grout at the top of the mock tank dome then proceeded to cut through the dome itself, including the embedded steel rebar. While it was unable to achieve its design RPM for much of the drilling operation, it eventually cut into the mock headspace as verified by a video camera installed under the mock tank dome.

**REDOX Plant:** A CPCCo Plant Review Committee determined that a Potential Inadequacy of the Safety Analysis (PISA) exists related to the use of a Transportable Criticality Alarm System (TCAS). The TCAS is required by the REDOX documented safety analysis (DSA) to reduce collocated worker dose to within evaluation guidelines while draining high fissile liquids at the REDOX facility. The DSA does not establish the use of TCAS as a Technical Safety Requirement control and the system is not designated as safety significant. Because of the PISA determination, plant operations issued a timely order as a compensatory measure until the safety analysis issue is resolved, which prohibits draining of high fissile liquids within REDOX where a liquid criticality event is credible. Facility management subsequently determined that the PISA is a positive unreviewed safety question.

**Advanced Modular Pretreatment System (AMPS):** DOE Project Management kicked off a review of the AMPS infrastructure conceptual design. The AMPS specification and conceptual design address over 100 lessons learned collected during design, construction, and operation of the TSCR system. DOE expects to complete the review and incorporate comments into the design before the end of August.