

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 13, 2023

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 January 13, 2023

Tank Farms: DOE approved changes to the safety basis which will permit retrieval activities in single-shell tanks A-101 and AX-101 (see 2/4/2022 and 2/18/2022 reports). These tanks are classified as Group B, meaning they retain sufficient inventory of flammable gas in the waste to exceed the lower flammability limit if the gas is quickly released into the tank headspace. The changes to the safety basis will permit waste disturbing activities such as large water additions or modified sluicing. In order to maintain the headspace flammable gas concentration below 25 percent of the lower flammability limit, gas releases must be controlled. To ensure this, a Specific Administrative Control (SAC) was added which limits the maximum water addition volume. The SAC relies on initial flammable gas monitoring, a safety significant flowmeter for water additions, and visual determination of liquid level heights.

With the safety basis approval in place, WRPS commenced retrieval of single shell tank AX-101, the last of the four AX farm tanks to be retrieved. AX-101 is estimated to contain 372,000 gallons of salt cake and 2,000 gallons of sludge waste. The retrieval process involves an initial water addition followed by recirculation through sluicing equipment until sufficient solids have been dissolved to achieve the desired concentration. The waste will then be transferred to the double shell tank AZ-102. So far, just under 9,700 gallons of water, which was routed through the new safety significant flow meter, have been added to the tank. Recirculation and sluicing activities are planned to continue this week.

Liquid Effluent Retention Facility (LERF): A DOE team started their review of operational readiness for upgrade of the LERF from a radiological facility to a hazard category 3 facility (see 11/18/2022 report). The resident inspectors are observing performance of the readiness review with a focus on conduct of operations, safety basis implementation, and emergency response and planning.

Waste Treatment Plant (WTP): A resident inspector observed a drill conducted by an emergency preparedness organization team for qualification of new members of the facility emergency response organization (FERO). The team's conduct of the drill was effective and resulted in a robust evaluation of the individuals who are undergoing evaluation. The drill identified areas for improvement, including the decision process and methods used to dispatch the field team, classification of the event, and the identification and communication of safe travel routes. The drill also revealed that the actions in the alarm response procedure (ARP) and the emergency operations procedure (EOP), used by the control room operators to respond to an ammonia leak, are not fully aligned. This condition resulted in a delay in completing the final equipment alignment required within the ARP. Additionally, the EOP could be improved by expanding it to collect and communicate information that supports the Building Emergency Director's evaluation of and response to the event. The resident inspector also notes that the performance of the post-drill debrief was exceptional, with meaningful participation by the FERO team members as well as by the controllers/evaluators.