

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 17, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending May 17, 2024

DNFSB Staff Activity: R. Csillag was onsite to perform routine oversight activities, receive training, and observe the Hanford Site annual field exercise.

Hanford Site: The site emergency planning organization conducted its annual evaluated field exercise. The scenario, intended to fulfill the DOE O 151.1D, *Comprehensive Emergency Management System*, 5-year severe event training requirement, simulated a tornado impacting multiple facilities within the Solid Waste Operations Complex, and continuing a trajectory that impacted vehicles traveling on an adjacent highway. The event simulated multiple injuries, a fatality, radiological releases from two facilities, and a simultaneous offsite wildland fire, which made mutual aid response from area emergency responders unavailable. The resident inspectors observed the response at the incident command posts and the event scenes, and the Board's site cognizant engineer observed activities at the Emergency Operations Center. The exercise scenario was especially challenging given simulated loss of communications and multiple response locations for the fire department.

242-A Evaporator: The Contractor Readiness Assessment (CRA) team completed their two-week long evaluation of evaporator facility readiness to restart (see 5/10/2024 report). Team evaluators assessed 17 different activities, reviewed 500 documents, and performed 50 interviews. The CRA team out-brief identified six pre-start findings and six post-start findings, including weaknesses in procedure adherence and procedure quality, operator unwillingness to pause work, and unreviewed safety question screenings that didn't adhere to contractor procedures. The team expects to issue their final report at the end of May.

During testing of the P-B-2 pump, shift managers elected to test a new section of the seal water filter operating procedure that allows draining process condensate from the filters to protect them from freeze damage. Several hours after completing the procedure, operators received a process condensate tank low-level alarm. The procedure had left valves open that provided a path for approximately 2500 gallons of water in the process condensate tank to drain into double shell tank AW-102. WRPS is investigating the event.

WRPS engineers are designing a new safety-significant (SS) temperature monitoring system for the 242-A Evaporator Facility. The safety instrumented system is expected to prevent failure of other SS systems, structures, and components when their operability is required during low temperature conditions (see 7/7/2023 report). WRPS management convened a meeting to evaluate proposed safety integrity levels (SIL) for the new system. The attendees recommended SIL-2 for the parts of the system that prevent functional loss of the SS flammable gas control system due to freezing. They further recommended SIL-1 design for other parts of the system, which will protect the waste high level control system, slurry discharge pressure safety valve, and piping that must remain intact to protect facility workers from chemical burns. They based their recommendations on frequency and consequence evaluations for analyzed hazard events.