

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 5, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending November 5, 2021

Waste Treatment Plant (WTP): Resident inspectors observed the performance of the loss of offsite power commissioning test. Although most systems and components were individually tested during the startup test phase, this test was intended to confirm effective, integrated restoration and operation of systems which are necessary to ensure safety of workers if normal power supplies to the WTP site are lost. This includes automatic operations that establish a known electrical system lineup and then start and connect the standby diesel generator (SDG) to the electrical system. Once electrical power is established, other systems and components that are required for safety, including ventilation, cooling water, compressed air components, and instrumentation and control systems are automatically and sequentially placed back in service. During the performance of the test, the team identified deficiencies that resulted in a test pause. They are evaluating the deficiencies to determine actions necessary to complete the test criteria and objectives. The test and recovery of power to the plant also revealed other deficiencies that were not covered under the test instruction. These included problems with component labeling, control, and indication, and operation of the SDG and its support systems. Although not important to the test, these deficiencies directly affect operation of the plant. The operations team recorded the deficiencies for disposition outside of the test deficiency process. The resident inspectors noted that the operations team professionally and effectively worked through several problems that occurred during the test, including the need to establish a recovery plan to support restoration of power to the facility from an electrical lineup that was not covered by the recovery procedure.

A resident inspector observed a contractor team perform a process hazard analysis review of an ammonia leak scenario that results in an explosive environment inside the ammonia dilution skid room. The mixture is ignited, and the resulting explosion causes damage to the ammonia piping resulting in further release of ammonia. The analysis was performed under a revised set of hazard analysis rules that the contractor developed for the performance of chemical safety hazard analyses. The resident inspector noted that there are some significant differences between the revised rules and those defined by DOE STD 3009-2014 for the performance of nuclear safety hazard analyses. The differences result in a less conservative consideration of the hazards and a less stringent identification of required controls.

Building 324: The contractor successfully completed a second micropile in Room 18 (see October 22, 2021 report). A resident inspector observed both the pre- and post-job meetings and parts of the work evolution. He noted that the team effectively applied lessons learned from the first micropile. Consequently, this evolution did not encounter any significant difficulties. He also noted good teamwork and effective radiological control practices. The team is moving their equipment to support the next micropile drilling and grouting evolution.

PUREX Canyon: The contractor held its second Hazard Review Board (HRB) to review a spill mitigation work package for entries to the facility (see October 15, 2021 report). The HRB voted to approve the work package with comments.