

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 21, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending December 21, 2018

DNFSB Staff Activity: Members of the staff held a teleconference with DOE and Tank Farm contractor representatives to support their review of the Tank Farm Safety Basis.

PUREX Plant: The Resident Inspectors visited the PUREX Storage Tunnel Two stabilization worksite to observe grouting activities. They noted that the work site was very well maintained and that the ongoing work is well controlled. So far, the work team has placed just over 64% of the amount of grout needed to fill the tunnel. Additionally, 98% of the contaminated equipment and solid waste material stored in the tunnel is encapsulated in the grout, mitigating much of the hazard associated with a potential tunnel collapse. The current grout placement locations are at or near maximum fill. Consequently, the work team will move the grout placement equipment to different risers. Placement will resume after they complete the equipment move in mid-January.

Waste Treatment Plant (WTP): The contractor submitted a request to update the safety requirements document sections that apply to the design of safety significant instrument systems at the Low Activity Waste and High Level Waste facilities. Among other modifications, change implements a tailored version of DOE-STD-1195, *Design of Safety Significant Safety Instrumented Systems Used at DOE Nonreactor Nuclear Facilities*.

Tank Side Cesium Recovery (TSCR): The Resident Inspectors observed two Safety Design Integration Team meetings that the contractor held to identify potential controls to prevent buildup of hydrogen gas inside ion exchange columns that will be stored onsite after they have been expended in the cesium recovery process. The SDIT membership included the correct mix of subject matter experts and all members of the team were fully engaged in the discussion. They narrowed the scope of potential control sets to three options and identified one as the preferred option. They intend to brief DOE on the options and their recommended approach.

Building 324 Stabilization: The contractor held a critique for a potential hazardous energy exposure. While an equipment operator was drilling into the stainless steel liner of the D-Cell, they felt a jerk in the drill which was followed by a breaker trip. Breaker trips can occur due to heavy drill load and a backup circuit is used to continue work while an electrician investigates the tripped breaker. After switching to the second breaker, the first operator began to feel pain in their arms and legs and turned the equipment operation over to the second operator. The second operator noted that the drill was heavily loaded and attempted to shift the drill to low gear. While performing the adjustment, they felt tingling in their arm and observed that the breaker had tripped again. The breaker was reset, the workers completed the work, and then reported the two events to their field work supervisor. Both operators were wearing required personal protective equipment including voltage rated gloves. Based on the information and the non-specific nature of the sensations described by the operators, it is not clear whether the breakers tripped because of heavy loading or because of an electrical fault. Consequently, the contractor has tagged equipment out of service pending an electrical investigation.