

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 27, 2022

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 May 27, 2022

DNFSB Staff Activity: R. Csillag was onsite to support an ongoing staff review activity. The visit included walk downs of the Canister Storage Building, Waste Receiving and Processing Facility, parts of the 242-A Evaporator Building, and a representative sample of Tank Farms ventilation systems at Hanford Site, and a walk down of the PNSO managed Radiochemical Processing Laboratory. E. Tetteh was onsite for training and site familiarization.

Waste Encapsulation and Storage Facility. The Plant Review Committee (PRC) met to evaluate an unreviewed safety question determination related to a discovery that the hot pipe and ventilation trenches under the grouted hot cells contain less grout than previously analyzed (see 05/20/2022 report). Based on the results of an operability evaluation that shows the hot cell floors can withstand the weight of the grout in the hot cells without failing and the overall structure will maintain integrity during a design basis event even though the trenches are not completely filled, the PRC concluded that no further action is required.

Waste Treatment Plant (WTP): The WTP contractor submitted a revised safety strategy for addressing ashfall hazards for the High-Level Waste (HLW) Facility. The strategy is the result of an option evaluation that was conducted to identify an affordable safety strategy to adequately address ashfall risk. The proposed strategy involves placing the HLW facility in a safe shutdown configuration such that the only residual hazard is hydrogen generation and accumulation in the HLW melter feed process vessels. The document provides the contractor's justification for the safe shutdown approach and identifies proposed control options for the hazard. The WTP contractor will incorporate the final strategy into the HLW preliminary document safety analysis to provide a basis for the credited controls and safety design criteria for this event.

Hanford Site: A Resident Inspector observed a post-exercise timeline and issue review for the annual site exercise. The attendees engaged in a frank discussion of significant issues identified during the exercise. The discussion was valuable and provides a firm basis for identifying necessary actions to improve site response to emergencies.

A resident inspector observed DOE-RL management conduct the final oral examination of a Facility Representative candidate assigned to oversee Building 324. The board's examination was rigorous, and the board voted to pass the candidate.

Tank Farms: During a routine inspection, contractor personnel discovered water in the encasement of a liquid waste transfer line. This condition can cause corrosion as well as hydrogen generation in the encasement resulting in a need for ignition controls. Review of the supporting calculations for hydrogen accumulation determined that some of their assumptions did not reflect the as-built condition of transfer line encasements and could overestimate the ability for hydrogen to vent. TOC management has scheduled a PRC meeting to review the condition and determine whether a potential inadequacy of the safety analysis exists.