

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 9, 2022

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 December 9, 2022

DNFSB Staff Activity: N. Huntington began her assignment as the fourth Hanford Site resident inspector.

242-A Evaporator: Plant management convened a Plant Review Committee (PRC) meeting to evaluate a proposed amendment to the HNF-14755, *242-A Evaporator Documented Safety Analysis (DSA)*, and a supporting amendment to RPP-13033, *Tank Farm Documented Safety Analysis*, which ensures consistency between the two documents. The committee also evaluated technical safety requirement changes associated with the 242-A Evaporator DSA change. Among other changes, the evaporator DSA change documents the replacement of the existing relay-based safety instrumented system with a new programmable logic controller-based system, which will reduce time and effort required for both planned and corrective maintenance. This equipment modification is considered a key enabler for an expected increase in tank retrieval pace, which is necessary to support Waste Treatment Plant operations. Additionally, the change includes new safety controls intended to prevent fire damage to solenoid valves, which must operate to dump the evaporator under certain conditions to prevent flammable gas accidents. The flammable gas control strategy documented in the DSA is also modified to reflect a recent change in evaporator piping configuration, which removes one potential flammable gas accumulation location, and reworked technical bases, which modify the design inputs for a safety interlock, time to lower flammability limit calculations, the evaporator drain time model, an evaluation of facility shutdown after a fire, and nuclear safety consequence calculations for flammable gas events in the evaporator vessel and process condensate tank. Lastly, the format and content of two administrative control key elements were modified to address comments received from the Board and from the DOE office of enterprise assessments. The PRC voted to forward the proposed amendments to the DOE safety basis approval authority for approval after the resolution of minor comments collected during the meeting.

105-KW Basin: A spill of radioactively contaminated liquid occurred both inside and outside the 105-KW Basin Annex building while a team was installing equipment to grout the sand filter. The liquid splashed on the clothing of two individuals but did not result in any skin contamination. The team temporarily mitigated the contamination spread by placing a soil cover over the spill area and closing the door to the building. Facility personnel will perform a more permanent cleanup after completing appropriate planning activities.

Office of River Protection: Resident inspectors observed DOE-ORP personnel conduct the final oral examination of a Facility Representative candidate who will be assigned to oversee tank farm activities. The examination is the last step in their qualification training and was focused on knowledge of tank farm operations and safety systems, their oversight roles and responsibilities, and the application of DOE requirements to onsite work. The examining board performed a rigorous examination and voted to pass the candidate.