

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 13, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending September 13, 2019

DNFSB Staff Activity: A staff team held a teleconference with ORP and Waste Treatment Plant (WTP) personnel to discuss the analyses that support the hazard categorization of the Low Activity Waste facility.

T Plant and 105KW: T Plant received the last sludge shipment from the 105KW Basins this week (see 9/6/2019 report). 105KW personnel expect to ship approximately four more casks bearing contaminated sand and garnet filter media next year for long term storage at T Plant pending a permanent disposal strategy. 105KW Basin water will be eventually shipped to the Liquid Effluent Retention Facility basins for processing at the Effluent Treatment Facility.

REDOX Plant: The contractor held an In Progress ALARA Review (IPAR) to collect facts related to an elevated airborne radioactivity sample collected after a team performed characterization activities in the REDOX canyon. As a precaution, bioassay samples were ordered for potentially exposed personnel. Additionally, a sample counting error and a delay in review of the data resulted in a lag in the performance of some actions in response to the event. Conduct of the IPAR was professional and resulted in a clear set of relevant facts that DOE and contractor personnel intend to use to identify actions to prevent similar future events. The most likely cause of the event was contamination that became airborne while doffing PPE.

Building 324: Following a routine exit from a B Cell airlock entry, a worker alarmed a personnel contamination monitor because of contamination on their modesty clothing. The worker was successfully decontaminated and an IPAR was held. The facility's video recorders were a valuable tool for observing doffing practices, however no clear evidence of cross-contamination or improper doffing could be identified. Conditions in the airlock remain radiologically challenging, with high radiation levels and contamination hotspots. In addition, while the worker was wearing an impermeable outer set of personnel protective equipment (PPE), his inner set had sweated through, which could have provided a pathway for contamination to wick if the inner set was contaminated after doffing their outer set of PPE. Project and contractor management have been reviewing donning and doffing practices after recent contamination events (see August 30, 2019 report) and have issued a stop work on airlock entries pending implementation of process improvements for donning and doffing PPE.

Waste Treatment Plant: The WTP contractor started a process hazard analysis of the HLW melter feed system (see 8/30/2019 report). The team supporting the "what-if" part of the analysis is made up of a very small core team and the quorum requirement for the meetings does not require a broad base of expertise. Instead, the team is supplemented by on-call subject matter experts (SMEs). Although efficient, this method is highly dependent on the ability of the core team to recognize the potential for scenarios outside of their area of expertise and then ask for the appropriate SMEs to support the analysis. This may result in gaps in identifying relevant scenarios.