

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 29, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending September 29, 2023

224-B Facility: Workers responded to continuous air monitor (CAM) alarms after grouting tank B1 in the 224-B facility. All three CAMs, one located on each floor of the facility's clean side, were in alarm. Access to the facility was restricted and surveys were performed around the building. Whole-body surveys and nasal smears were performed on the personnel in the work area adjacent to the facility. Results for four of the nasal smears were positive; however, no detectable contamination was found during the whole-body surveys or on the outside of the building. Bioassays kits were provided to personnel who were near the area to verify whether contamination uptake occurred. After the initial response, the contractor held an in-progress ALARA review meeting and critique laying out the timeline, possible cause, immediate actions, and potential corrective actions. The ventilation to the cells was operating during the grouting activity, but normally closed cell doors were open, and work was performed during windy conditions. Though no workers were inside the facility, they were adjacent to the cells to visually verify the tank was full and to disconnect the hose after grouting was complete. Tank B1 is the first of five tanks in 224-B that will be stabilized by filling with grout in preparation for decontamination and demolition of the 224-B building.

105-KW Annex: A worker became contaminated on the heel of their left shoe and lower pant leg while supporting work to replace filters on the skid that is being used to recirculate 105-KW basin water. The individual was not wearing anti-contamination clothing because they were working in a radiological buffer area, which was posted to control contamination. Based on information obtained during a critique of the event, it appears the individual stepped in an unnoticed puddle of liquid, which had leaked from a damaged bag they were moving. The bag contained a wet, radiologically contaminated filter. The puddle was noticed by two other workers, who initiated appropriate actions. Their actions, along with the team's response, effectively prevented further contamination spreads. The individual's contaminated clothing was found during a whole-body survey initiated during the spill response. The contaminated areas were covered, and the individual was moved to a decontamination area, where the contaminated clothing was removed. A whole-body survey performed after the clothing was removed did not discover any further contamination. Surveys of the ground, concentrating on the travel path of the individual, did not identify any further contamination spread. The critique also revealed that this event was preventable. Individuals attending the critique identified several proposed changes to the work practices that should be effective in preventing similar future events.

Waste Treatment Plant (WTP): Testing of the melter off-gas system determined that air leakage into the melter is higher than expected, resulting in higher off-gas system flow rates and higher than expected temperatures in system components. The off-normal conditions will prevent successful melter operation unless corrected. Evaluation of data and an inspection of the melter have identified four potential leak locations. One potential leak location is part of the leak path for all three other locations but cannot be repaired. Consequently, facility management is developing work instructions to repair the other three locations to reduce the air in-leakage.