

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 7, 2023

TO: Katherine Herrera, Acting Technical Director
FROM: B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending July 7, 2023

Tank Farms: Tank Farm operations personnel transferred approximately 7,000 gallons of waste from single-shell tank (SST) AX-101 to double-shell tank AZ-102. With this transfer, they have retrieved just over 50% of the waste originally held in SST AX-101.

Tank Side Cesium Removal (TSCR) System: Operations personnel shutdown TSCR system processing when they discovered a suspected leak in the system. The suspected leak appears to have been discovered early because of their routine monitoring of the system, and the affected area appears to be small. Since investigation and any necessary repairs will require entry into the process enclosure, and because of the limited remaining process life for two IXCs, WRPS management has elected to change out the two columns during the unplanned outage, as well. Operations personnel have completed the necessary technical safety requirement blowdowns and placed the system in maintenance mode to support the work.

242-A Evaporator: A process hazard analysis team, which was formed to evaluate potential unanalyzed hazards resulting from low temperature excursions at the 242-A evaporator (see 1/6/23, 1/20/23, and 2/10/2023 reports), determined that additional hazard controls are needed to protect onsite workers and identified two potential candidate control sets. The first candidate would credit the building ventilation system to maintain temperatures above a level of concern. It would require upgrading the ventilation system to a safety-significant classification. The second candidate would require development and installation of a safety-significant monitoring and alarm system, which would activate when building temperatures dropped below a specified value. The description of the candidate control set does not specify whether the system would automatically place the evaporator in a safe condition or if that action would be performed by an operator. Contractor management held a Control Decision Meeting to evaluate the proposed controls and select the best candidate for development. During the discussion, a safety system subject matter expert stated that the most likely approach for using the temperature monitoring and alarm system approach would include automated action to dump the evaporator system. However, other personnel noted that the final decision regarding the method for completing the required safety action would be determined during the control development process. Based on the expected difficulty associated with a ventilation system upgrade, the attendees determined that the temperature monitoring and alarm system would be the best approach.

REDOX: Contractor and DOE personnel walked down the fissile material line where a resident inspector had observed trays, which are designed to collect leaks, that did not meet criticality safety geometry requirements for containers (see 6/23/2023 and 6/30/2023 reports). During the walkdown, criticality safety personnel identified a leaking valve inside a degraded plastic sleeve in another section of the line that also did not meet expectations for containments in the contractor's general criticality requirements. Based on nondestructive assay of the area, this was deemed not to pose a criticality hazard by the contractor. The condition will be remediated as part of the work associated with sampling and draining of the line.