

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 24, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending May 24, 2019

Waste Treatment Plant: ORP communicated their resolution of Board issues related to control of the pulse jet mixers (PJMs). To resolve the issues, the contractor completed full scale testing of PJMs in two prototypical vessels. The tests, which included a broad range of simulants, determined that the control system will support mixing functions while preventing overblows and impact to the vessel structure and ventilation system. They also performed a structural analysis of the standard high solids vessel (SHSV) and the High Level Waste Facility radioactive liquid waste disposal (RLD) vessel designs. The analysis determined that the SHSV design, and a modified RLD vessel design are not vulnerable to damage from PJM overblows.

Tank Farms: The contractor completed operational acceptance testing of the recently installed safety significant airflow instrumentation (see 7/27/2018 and 1/4/2019 reports) which will provide real-time monitoring of ventilation flow from each double shell tank (DST). Except for minor deficiency correction, this action completes all planned fieldwork for actions 2-3 and 2-4 of DOE's implementation plan to resolve issues identified in Board Recommendation 2012-2.

ORP approved the safety basis amendment (see 11/16/2018 and 1/25/2019 reports) that removes the applicability of induced gas release event prevention controls to DST AY-102 and revises LCO 3.5 to provide flammable gas monitoring of the AY-102 annulus. The contractor will use flammable gas monitoring for the AY-102 annulus instead of level monitoring. Both changes are appropriate since most of the waste has been retrieved from AY-102.

Radioactive Particle Research Laboratory (242B): Skin on a worker's face was contaminated during insulation removal work. The individual was successfully decontaminated and is undergoing a bioassay analysis to confirm that there was no uptake. In a separate event at the facility, a routine work survey discovered contamination that exceeded the contamination limits for their radioactive waste permit. The events point to a need to better characterize the radiological hazards in this facility, which is being prepared for demolition. Additionally, facts obtained during a critique and an in-progress ALARA review indicate that radiological control technicians did not provide the expected continuous work coverage because of space constraints and a misunderstanding regarding respiratory protection requirements, and that the integration of industrial health and radiological hazard controls needs improvement.

PUREX Plant: The contractor held a lessons learned meeting for the Tunnel 2 stabilization project. Attendees highlighted the strong pre-jobs using visual aids, checklists, and worker involvement and the quality of mockups used to help the work planning process, as well as effective response to abnormal conditions in the tunnel. The primary challenges identified were related to the design and assumptions made prior to grouting. Parts of the grout conveyances such as hoses and ball valves were not adequately robust for the amount of wear caused by the large volumes of grout placed, and initial assumptions about the project timeline assumed no freeze protection was required, which contributed to maintenance issues during winter months.