

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 7, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending May 7, 2021

DNFSB Staff Activity: Members of the technical staff met with Hanford Site DOE and prime contractor representatives to discuss the results of an ongoing review of the Hanford Site Emergency Preparedness and Response program and related capabilities (see 3/19/2021 report).

Tank Side Cesium Recovery (TSCR): As part of their ongoing readiness preparations, operations and maintenance personnel assigned to the TSCR project conducted a mockup of a TSCR ion exchange column replacement. The activity included a simulation of the expected radiological conditions. During column replacement, the work area will be posted as a high radiation area/high contamination area/airborne radioactivity area. This will require personnel to perform the activity in appropriate personal protective equipment and introduces potential time constraints to limit the assigned workers' radiation exposure. Based on the results of the mockup activity, project personnel determined that placement of a column into the process enclosure under the expected conditions using the existing procedure and equipment is extremely challenging; the allowed tolerances for ion exchange column location in the enclosure are small and existing equipment configuration makes fine adjustments difficult. Because of the challenges they encountered, personnel were in the simulated high radiation environment longer than is appropriate from an ALARA radiation exposure perspective. Project personnel intend to use lessons learned from the mockup to identify equipment and procedure changes to shorten the duration of the column replacement activity. Like several previous examples on Hanford Site, this activity points out the value of performing high fidelity mockups prior to introducing hazardous materials into a new system. The performance of required system or equipment changes will be much easier in a contamination free, low radiation environment. Based on the status of ongoing preparations, it appears that the Tank Farm Operations Contractor is on track to support a readiness assessment for TSCR this summer.

Building 324: Workers entered room 18 to remove equipment and waste packages as part of the project team's efforts to reduce congestion in the room prior to resuming micropile drilling and grouting. Toward the end of the work evolution, a number of issues were identified: (1) A radiological control supervisor noted that the hose for the airborne radioactive area boundary air sampler had not been connected to the sampler during the work activity. (2) A worker who was asked to retrieve an air sampler head from the high contamination area (HCA) after they had already doffed their powered air purifying respirator hood re-entered the HCA briefly without donning a head covering, violating the conditions of the radiological work permit (RWP). (3) Another individual who had been working in a contamination area (CA) had upgraded their personal protective equipment without consulting with radiological control personnel; as a result they required additional doffing assistance to exit the CA. There were no instances of personnel contamination or contamination spread associated with the work evolution. Contractor personnel convened an In-Progress ALARA review to document the concerns. During the discussion, they further determined that the need for a boundary air sample during this room 18 activity had not been incorporated into the RWP used for the entry. This action had been discussed in the pre-job meeting as necessary since the day's work involved opening the room 18 airlock. As a result, work activities in room 18 were paused until the RWP was revised.