

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 9, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Hanford resident inspectors
SUBJECT: Hanford Activity Report for the Week Ending September 9, 2022

Radiochemical Processing Laboratory (RPL), Pacific Northwest National Laboratory: RPL maintenance personnel are performing their first maintenance outage of the gas-fired steam plant that supports facility operations. This plant had been previously operated by a separate contractor. Maintenance personnel locked out the natural gas supply at the beginning of the outage, locking the valves upstream and downstream of an in-line filter and locking open a third valve between the closed locks to allow any residual or leaking gas to escape prior to entering the steam plant. During a recent activity under the outage, workers smelled the odorant in the natural gas several times in and around the steam plant. A RPL facility representative then checked the lockout devices and found the upstream lock to not be effective due to excess slack in the chains securing the lock which could allow for the lockout device to be moved off the valve stem it protected. Facility personnel verified the other two lockout devices of the same type were effective and held a critique to discuss the event. Unlike the Hanford Site lockout/tagout (LOTO) program that requires a safe-to-work check every shift, the Pacific Northwest National Laboratory (PNNL) LOTO only required it at the beginning of the outage unless locks are manipulated again. Follow-up flammable gas surveys after the critique identified that the upstream valve allowed for some intermittent leak-by of small quantities of gas inside the vent pipe. The vented configuration and downstream locked valve prevent gas from entering the steam plant. Corrective actions are being developed to correct the deficiencies.

Tank Farms: The tank farms operations contractor plant review committee (PRC) met to review whether a potential inadequacy of the safety analysis (PISA) exists for excavations near waste transfer lines. The waste transfer system freeze protection Specific Administrative Control relies on an analysis of soils and structures covering transfer lines to determine whether additional freeze protection controls are required, but the assumptions of the calculation are not directly protected by the current requirements for excavation near waste transfer lines. The current pre-transfer excavation walkdown is oriented toward other safety considerations such as shielding from direct radiation but does not call out the tank farms technical safety requirements for freeze protection, which include adequate soil cover. The PRC voted to declare a PISA and place restrictions on excavations around waste transfer lines.

Building 324: The central plateau contractor is continuing to develop a strategy to address the discovery of high radiation material underneath the facility but outside the expected B Cell contamination plume (see 9/2/2022 report). The material is located underneath a pipe trench and ventilation tunnel that runs under the Radiochemical Engineering Complex Airlock. This location is known to have higher contamination than other parts of the Airlock but is not known to have leaked material into the soil beneath the facility. Project personnel are reviewing old geoprobe data performed in 2010 and using the horizontal drilling procedure to perform additional radiological surveys and take samples of the soil to determine the extent of contamination and isotopic composition of the material. No permeation grouting will be performed using this modification to the work package, but Room 18 drilling and micropile grouting will be allowed to continue under their current radiological controls.