

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 23, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending July 23, 2021

Y-12 Excess Facilities: A resident inspector walked down Building 9204-4 with CNS and NPO personnel. Building 9204-4 is an approximately 300,000 ft² excess production facility that was constructed in 1945. The mission of the facility evolved over the decades from its originally intended purpose of housing beta calutrons. The operations included lithium separation using the electrical exchange process, quality evaluation of weapon components, and depleted uranium metalworking. Since 2009, Y-12 personnel have removed a significant amount of legacy materials from the facility (see 3/20/09 report). NNSA continues to manage the facility until DOE EM accepts it and begins demolition activities. CNS is completing some utility isolation work and has a project planned to drain several thousand gallons of brine. Over the past year, CNS has demolished several ancillary facilities around 9204-4, including a 12,000 ft² expansion to 9204-4 that shared a wall. The DOE Roof Asset Management Program has applied a spray foam to the roof to mitigate leaks, but that has not been completely effective in preventing leaks. CNS infrastructure personnel frequently walk down the facility to identify any changes. During the walkdown, they demonstrated a detailed knowledge of the facility conditions and discussed several projects that would help maintain the facility until it is transferred to DOE EM.

Nuclear Criticality Safety: Building 9212 operators identified an unexpected green/grey film of material on a tube furnace oil bubbler and contacted nuclear criticality safety personnel. Upon further inspection, personnel found the same material on an out-of-service tube furnace oil bubbler and condensate trap. Since the source of the material could not be identified as non-fissile, personnel established administrative control of the area. Non-destructive assay personnel determined that the material contains a trivial amount of U-235. Nuclear criticality safety personnel provided additional guidance to drain one of the oil bubblers and sample the drained material for uranium content and if possible, material composition.

Building 9212: Upon receipt of a loaded ES-3100 shipping container at the Highly Enriched Uranium Materials Facility, personnel found that all eight nuts on the container lid were not fastened to the required torque (only hand tight). CNS noted in the event investigation that the Building 9212 operators followed the loading procedure and appropriately torqued the nuts. Most of the corrective actions focus on strengthening the loading procedure and performing additional checks of the torqued nuts. CNS will perform a causal analysis for this event.

Building 9206: Early Sunday morning, an unexpected power loss occurred and resulted in the criticality accident alarm system not being operable. The criticality accident alarm system has a backup generator, but it is not credited and it does not power all of the required components. The shift technical advisor entered the applicable limiting condition for operation. Utilities personnel found that a fallen tree limb caused the power loss and restored power to Building 9206 later Sunday morning. Operations personnel completed a surveillance of the system and returned it to operation. CNS reported this event under DOE's Occurrence Reporting and Processing System for performance degradation of a safety significant system.