

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 22, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending November 22, 2019

DNFSB Staff Activity: J. Abrefah, A. Miller, D. Shrestha, and S. Thangavelu were on site to conduct a review of technical deviations to Y-12 nuclear criticality safety evaluations. The review team observed and discussed specific technical deviations with production personnel in Buildings 9212, 9995, 9215, and 9206.

The DNFSB Deputy Technical Director, K. Herrera, was on site this week. During the visit, she walked down and observed operations in Building 9212, the 9215 Complex, Building 9720-82, and the Uranium Processing Facility construction site at the Y-12 National Security Complex. Portions of the walk downs focused on out-of-service equipment in Building 9212 that is not compliant with the current Y-12 nuclear criticality safety program due to unanalyzed uranium holdup and the structural condition of the 9215 Complex. She also walked down and observed operations in Building 2026 at the Oak Ridge National Laboratory.

Building 9212: Last week, CNS personnel discovered approximately 100 mL of fissile liquid in coiled tubing that was stored in a plastic bag. This condition was found while performing a dry-run of an operation governed by a technical deviation in preparation for the DNFSB staff review of that operation this week. The tubing was previously used to transfer polychlorinated biphenyl contaminated liquids from safe bottles in Building 9212. Liquids are not approved for storage in plastic bags per the criticality safety requirements for material handling containers. The presence of fissile material in a storage area designated for only empty fissile material containers was also a criticality safety requirement violation. Nuclear criticality safety personnel were present when the fissile material was found and provided guidance to resolve the situation.

Calcliner Project: A significant number of non-conforming welds have been found in piping spool pieces associated with the Building 9212 Calcliner Project. The non-conforming welds were performed by a subcontractor at an off-site fabrication facility. A third-party performed weld inspections at the fabrication facility and no issues were identified prior to shipment of the parts to Y-12. The non-conforming welds that were initially identified did not require a weld inspection on site at Y-12 and normally would not have been visible due to the presence of a valve that was installed at the off-site fabrication facility. Because of issues installing one of the pipe spool pieces, it required modification at Y-12. When a CNS certified weld inspector walked past the Calcliner Project construction area, he noted that some of the welds on a pipe spool piece appeared to have defects. The certified weld inspector informed his supervisor and upon further investigation, it was determined that the welds contained rejectable defects in accordance with the American Society of Mechanical Engineers B31.3, *Process Piping Code*. CNS personnel performed additional visual weld inspections of other pipe spool pieces supplied by the subcontractor and identified 23 pipe spool pieces with 45 welds that appeared to have similar defects. Previously installed pipe spool pieces are being removed. The site preparation activities associated with these pipe spool pieces are not expected to impact the project schedule critical path. CNS reported this event as a 4C-3 occurrence under DOE Order 232.2A.