

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 25, 2020

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Matthew Duncan and Brandon Weathers, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending September 25, 2020

**Nuclear Criticality Safety:** Last Thursday, personnel in Building 9215 discovered that a rinse water tank in the out-of-service sheet rinse system was actively leaking. At the time of discovery, personnel observed a steady drip of liquid from the bottom of the tank. They estimated that 10 liters had leaked on the floor in a puddle that was approximately 12 feet by 6 feet. This area of the facility has floor berms, but is not a large geometry exclusion area. The liquid had not reached a nearby hole in the floor that is several inches deep. Nuclear criticality safety personnel provided guidance to allow operators to enter the administratively controlled area around the leak to close valves and perform other necessary actions to stop the leak. Operators successfully drained the leaking tank that evening and stored the contents in a safe bottle. CNS classified this event as a nuclear criticality safety deficiency.

In 2014, personnel partially suspended the criticality safety evaluation for some operations in Building 9215. The author of the suspension form noted that “the sheet rinse system is essentially abandoned in place” and did not create inspection or monitoring requirements for the rinse water tanks (which have liquid in them).

CNS walked down Building 9215 out-of-service equipment earlier this year as part of an ongoing extent-of-condition review related to uranium holdup. Based on information at that time, there were known challenges associated with out-of-service equipment in Building 9215 due to equipment size and complexity, mass of uranium holdup, and components that contained liquid (see 2/14/20 report). Earlier this month, CNS determined that an out-of-service salt bath system in Building 9215 should be considered a nuclear criticality safety deficiency (see 9/4/20 report). Y-12 personnel did not fully isolate that salt bath system when they stopped operating it and one of the other systems that it interfaced with was the sheet rinse system.

The resident inspectors recently found a 2013 assessment performed by the previous Y-12 contractor, Babcock & Wilcox Technical Services (B&W), which noted several of the current out-of-service equipment issues that CNS has been responding to since 2019 (see 10/25/19, 11/8/19, and 1/31/20 reports). The assessment team acknowledged that fissile processing equipment that had not operated since 1994 was still in place in the facilities and was not part of periodic oversight under the nuclear criticality safety program. The assessment team recommended specific out-of-service equipment for further investigation and monitoring. Some of that equipment was the same equipment that CNS identified in a 2019 extent-of-condition review that focused on Building 9212. Due to the Y-12 contract transition in 2014, B&W concluded that CNS should determine the actions to address the assessment results. The resident inspectors found that CNS dispositioned the assessment results in October 2014. CNS decided to not include the equipment identified by the assessment as part of the non-destructive assay surveillance program for holdup monitoring. Also, CNS operations personnel determined that opening the equipment for a visual inspection was not feasible due to “funding restrictions and other priority jobs.”