

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 24, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending July 24, 2020

Building 9212: Last month, CNS identified a small leak in a calibration valve in the Building 9212 oxide conversion facility vaporizer enclosure and has been working to repair the system since then (see 7/3/20 report). Personnel replaced the valve, but were not able to successfully complete the post-maintenance test due to pressure indications that a rupture disc failed. The rupture disc assembly consists of two rupture discs that are meant to protect downstream relief valves from hydrogen fluoride during normal operations. The rupture discs are within the bounds of the Dock 8A primary confinement which is a credited design feature. Last week, CNS reported the failed rupture disc as a 4A-1 occurrence under DOE Order 232.2A. CNS developed corrective actions to replace the rupture discs, evaluate the failed rupture disc, and evaluate the rupture disc alarm to ensure that it is functioning properly. CNS also created an action to revise the safety basis documents to clearly define the primary confinement boundary. CNS initially did not consider the rupture disc failure a reportable event due to different interpretations of that boundary.

Nuclear Criticality Safety: For the fifth time this year, personnel have discovered small amounts of liquid near a weld on two-cylinder chip dollies that resulted in establishing administrative control of the area (backoff) due to an abnormal condition involving fissile material. The first three backoffs occurred in Building 9215 (see 4/10/20 report). At that time, personnel did not inspect other chip dollies beyond those in Building 9215. Nuclear criticality safety personnel provided guidance to wipe up the liquid found in Building 9215 and return to normal operations. The fourth backoff occurred in Building 9212 and personnel responded again by wiping up the liquid and only inspecting other chip dollies in that facility (see 6/19/20 report). This week, a fifth backoff occurred when three chip dollies were found with leaks in Building 9212. After multiple instances of finding an abnormal storage condition for the uranium chips, CNS is now planning to develop a path forward to address the chip dolly issue.

This week, an NPO facility representative performed a walk down of the head house of Building 9212 and noticed that a fissile material storage rack appeared to have a container type that was not authorized to be present. The container had been moved to that location approximately one month ago. The immediate response was appropriate. Nuclear criticality safety personnel provided guidance and operators then moved the container to an authorized location. The container is four liters in volume and has been converted to a two liter container, with appropriate drainage to prevent collection or accumulation of liquids, and is widely used. However, the loading limits for the two container types are different. As this situation violated the requirements in the criticality safety evaluation, CNS determined it was a nuclear criticality safety deficiency. CNS held a fact finding meeting and will perform a causal analysis. The attendees at the fact finding meeting identified several other near term corrective actions, including an evaluation of all storage racks in the area to confirm compliance.