

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 12, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending November 12, 2021

DNFSB Staff Activity: D. Andersen, D. Shrestha, and S. Thangavelu were at Y-12 to attend an enriched uranium process training course developed as part of Y-12's knowledge preservation program. The resident inspectors attended the course last year (see 3/13/20 report). In addition, two of the staff members and a resident inspector walked down Building 9212 to observe and assess recent structural concerns.

Building 9212: The staff's walkdown included observation of a cracked steel channel member pipe support for the High Capacity Evaporator System (see 10/15/2021 report) and observation of an area of recent concrete spalling of the ceiling of B-1 Wing (see 8/6/2021). For the cracked pipe support, the staff observed a temporary support structure that had been installed recently. CNS is planning to install a more permanent fix soon. The staff observed other nearby structural members and connections to look for similar issues. The damage is isolated to the one pipe support. Regarding concrete spalling of the B-1 Wing ceiling, the staff observed corrosion below the roof panel, including exposed reinforcement. The staff also examined the condition of the roof directly above the spalling concrete. The corroded panel is not part of the primary structural lateral load path and was designed only for supporting roof loads. CNS performs structural surveillances of the entire facility every five years but has decided to increase the frequency for this particular area to once every year. Monitoring this roof panel after significant rainfall, both from above and below, could provide additional insight regarding the current adequacy of the roof membrane and drainage.

CNS installed the temporary support structure for the cracked pipe support last week. While the work had been properly evaluated in order to grant work start approval, the shift manager did not add the work package to the plan of the day prior to signing the paperwork. The event investigation and critique also found that maintenance personnel did not receive shift manager approval and a briefing to enter the administrative control boundary that had been established for nuclear criticality safety, contrary to the requirements of the work package.

Operators noticed a bag containing wet paper towels and liquid in a bag while processing a drum containing a small amount of enriched uranium in the sorting hood. The operators performed the actions required by the procedure for abnormal conditions involving fissile material, established a 15-foot administratively controlled boundary, and contacted their supervisor. Nuclear criticality safety provided guidance regarding how to safely transfer the wet material to approved storage. The criticality safety evaluation for containers and material handling prohibits wet material in that type of drum. In addition, the criticality safety evaluation for the sorting hood prohibits liquids and wetted materials when processing fissile material. Therefore, CNS determined that this was a nuclear criticality safety infraction. The operators that had placed the bag the into the drum the previous week recalled looking at the bag and did not see any liquid at that time. CNS attempted to further determine the source of the bag but was not able to do so. Among several potential actions developed during the event investigation and critique, CNS plans to revise applicable criticality safety evaluations to allow bags to be left open to dry.