

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 19, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan, Resident Inspector
SUBJECT: Oak Ridge Activity Report for Week Ending October 19, 2018

DNFSB Staff Activity: D. Andersen and R. Jackson were at Y-12 to perform a structural concrete construction review for the Uranium Processing Facility. The staff and resident inspector observed and evaluated portions of a large concrete placement for the Main Process Building as well as operations at the concrete batch plant.

Building 9212: During maintenance activities to replace 50-year old sprinkler heads of the wet-pipe fire protection system, CNS personnel identified three sections of piping that did not conform to safety basis expectations because they were undersized compared to NFPA requirements. CNS uses the NFPA-established pipe schedule to determine the minimum water supply pressure for the system. CNS noted that this discrepant-as-found condition called into question the ability of the wet-pipe system to perform its analyzed safety class function. However, CNS concluded that no additional credited controls were needed to fulfill the fire suppression system's safety function based on its current design. As a result, they exited the potential inadequacy in the safety analysis process. The nonconforming condition will be corrected and the system will remain in the appropriate limited condition for operability until this discrepancy is resolved. CNS identified a similar discrepant-as-found condition in March 2017 (see 3/27/17 report).

Building 9204-2E: During routine machining operations, the integrity of a glovebox was temporarily compromised due to a degraded mechanical seal. CNS issued a standing order to allow continued production operations with compensatory measures. It requires daily visual observation by the system engineer or supervisor of the first use of the affected equipment to determine the adequate functionality of the seal. The shift manager authorizes continued operations based on the results. An observer is required during all operations that use the affected equipment. The operator is required to exercise additional precautions. CNS is planning to repair the mechanical seal.

Building 9212: While performing a walk-down of portions of Building 9212 last week, the staff and resident inspector noticed several very small leaks of what appeared to be solutions containing uranium from process equipment and piping used for solvent extraction. CNS uses geometrically-favorable catch pans at some leak sites to collect uranium solution while ensuring criticality safety, though most of these leak sites did not have catch pans. Given the age of the facility and equipment, leaks are a recurrent concern. The contractor continually tracks and prioritizes needed repairs to the facility and process equipment. Some known leaks have not been repaired for significant periods of time due to various reasons, such as the need to drain an entire process system to fix a small manageable leak. In 2010, there were 120 identified leaks from process equipment awaiting repair. By May 2016, CNS had reduced the number to 47 (see 5/6/16 report). As of June 2018, the number remained at 47 as the rate of repairs now roughly matches the number of new leaks identified over time. Of these, 24 are considered leaks of solutions containing uranium.