

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 28, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Brandon Weathers, Resident Inspector
SUBJECT: Oak Ridge Activity Report for Week Ending January 28, 2022

DNFSB Staff Activity: D. Shrestha was in Oak Ridge to provide oversight of Isotek's contractor Operational Readiness Review for the Initial Processing Campaign (see 1/21/22 report). While in Oak Ridge, he also augmented resident inspector coverage.

Building 9215: CNS successfully dispositioned the first of seven drums that personnel originally identified as overloaded in 2009. In 2017, CNS moved the drums to an area of the facility where they could be inspected to obtain more data about the drum contents. The drums have remained in that area awaiting a disposition path. Late last year, CNS developed the nuclear criticality safety guidance to facilitate unpacking the contents of the drums. In early January 2022, CNS unloaded the first drum and obtained non-destructive assay measurements of the individual components that were within it. Based on the non-destructive assay measurements and radiological surveys, CNS was able to compliantly package the six components from the first drum into five separate drums. Three of those drums can leave the facility as waste. The other two drums will be sent to Building 9212 for further material recovery and decontamination prior to being classified as waste. The overloaded drums are one of two long-standing groups of material in this area of Building 9215 that need to be dispositioned. The other group of material consists of several pans and liners that contain salt bath sludge (see 10/15/21 report).

Nuclear Criticality Safety: On Monday, CNS issued a nuclear criticality safety deficiency after discovering that water and uranium bearing material were in a trap of a stack baghouse. When nuclear criticality safety personnel inspected the trap, they noted it was full of water and the uranium bearing solids had settled out of the mixture (with the exception of a few floating particulates on top of the water). They stated that the solids were in the trap prior to it filling with water. They collapsed the administrative boundary to the trap based on historical cleanout data that showed the traps normally contain a small quantity of uranium. CNS is developing a plan to remove and dispose of the material.

In December, CNS obtained non-destructive assay measurements that indicated a greater than expected quantity of U-235 was present in an out-of-service system (see 12/10/21 report). Last week, CNS executed a cleanout job to remove the uranium holdup from that portion of the system. Non-destructive assay measurements following the cleanout showed that CNS removed nearly all of the previously unknown fissile material. CNS has completed the electrical and piping isolations for this system and plans to perform the exhaust isolations in the coming weeks.

CNS declared a potential inadequacy of the safety analysis for the legacy drum that was recently estimated to contain an elevated amount of U-235 in an unknown material form (see 1/21/22 report). CNS stated that the unknown fissile content of the drum challenged the safety basis since it may contain unanalyzed legacy material not bounded by the current accident analysis.