DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 28, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending May 28, 2021

Building 9212: CNS violated a technical safety requirement at the oxide conversion facility meant to ensure the scrubber is operable. When personnel opened the door to the cylinder enclosure per procedure, the required vacuum was lost for approximately one minute. This should not have been unanticipated. In addition, the procedure allowed silencing, acknowledging, and resetting alarms related to the differential pressure. Vacuum is required for the scrubber to be considered operable. This violation involved the same limiting conditions for operations as the violation reported in April (see 4/30/21 report). Both involved the first time the procedure was used following implementation of a significant change to the technical safety requirements in December. CNS is evaluating all oxide conversion facility procedures to look for other examples where following the procedure as written could result in a technical safety violation. CNS plans to submit a safety basis supplement to NPO for approval. The scope of the causal analysis will need to include the safety basis implementation and independent verification review processes.

Nuclear Criticality Safety: Earlier this month, CNS production personnel noticed discoloration on two fissile material containers in Building 9212 that resembled rust. Some spots appeared damp. Nuclear criticality safety and radiological control personnel responded to evaluate the containers. Radiological smears were performed and did not yield a detectable reading. Production personnel reviewed information about the containers and identified two additional containers that had been processed at the same time as the original two. Those four containers contained material cleaned out of the out-of-service carbon burner and destructive distillation unit exhaust ducts (see 6/26/20 report). A CNS process engineer who witnessed the cleanout activity recalled that "tar like" material was scraped off of the interior exhaust duct floor and that the exhaust duct had significant corrosion. Personnel inspected all of the containers in the area and identified a fifth container with rust markings. Radiological control personnel performed a smear of that container and found no detectable readings. Nuclear criticality safety personnel provided guidance to post all five containers as deficient.

A resident inspector visually examined the containers. Most of the containers have several corrosion spots and some of the spots appear to contain deeper pits. It also appeared that corrosion products had flowed down the side of some containers. CNS production and engineering personnel are developing a plan to remove the material from the corroding containers and place it in a plastic liner within a replacement container until the material can be further processed. While transferring the material to the new containers, operators will also collect a sample of the material to investigate the cause of the corrosion.

Building 9204-2: Operators extinguished a small fire involving hazardous material using coke in Building 9204-2, a less than hazard category 3 facility adjacent to Building 9204-2E. This was unrelated to the fire last month (see 4/9/21 report).