

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 2, 2021

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Matthew Duncan and Brandon Weathers, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending July 2, 2021

**Nuclear Criticality Safety:** A CNS nuclear criticality safety engineer discovered that a drum was loaded approximately 31% above that container's U-235 loading limit. The material was received at Y-12 in the mid-1990s. CNS elected not to perform an event investigation for this nuclear criticality safety deficiency because they screened it as a legacy issue. There were no other containers other than this single drum that were received by Y-12 in that shipment.

Last week, CNS performed an air pulse activity to move material that had accumulated in a hopper to a discharge tube (see 6/25/21 report). That activity brought the U-235 mass in the hopper below the applicable mass limit. CNS then performed additional air pulses of the hopper in an attempt to move more material from the hopper into the discharge tube. However, no material was observed exiting the hopper. Non-destructive assay (NDA) measurements indicated that the material had collected at the bottom of the hopper and that it may be clogged. Nuclear criticality safety personnel concurred with a plan to change out some filters and remove debris from the hopper. During the filter replacement, multiple continuous air monitors in the area alarmed. Bronze wool was found in the hopper. During the event investigation, a resident inspector observed that there was not a requirement to link NDA measurements of the hopper with operations personnel conducting the dust collector manual blowback activity. The NDA measurement last week that identified the accumulation of material in the hopper was specially requested by operations for a routine manual blowback. It is possible that without that requested NDA measurement, additional dust collector blowbacks could have resulted in a greater mass of U-235 accumulating without CNS' awareness. Operations personnel may perform manual blowbacks of the dust collectors as often as every few months. The next required NDA measurement of the hopper would not have occurred until later in the fall. CNS' corrective actions included bi-monthly NDA measurements of the hopper and performing an Inadvertent Accumulation Prevention Program review that considers the basis of the monitoring frequency.

**Fire events:** Last Thursday, a fire occurred when workers were cutting piping during demolition work in a non-nuclear building that had previously been used for processes that involved hazardous materials. Residual material was known to be present in some areas and the personnel were in supplied breathing air. The workers quickly extinguished the fire and all personnel evacuated the facility. Another fire also occurred last Thursday at the DOE EM construction site for the Outfall 200 Mercury Treatment Facility that is located at Y-12.

**Transuranic Waste Processing Facility:** OREM issued a safety evaluation report approving a revision to the documented safety analysis and technical safety requirements. The revision added a new safety significant horn to the credited glovebox low differential pressure alarm.

**Emergency Management:** CNS issued the after action report for the April emergency management exercise and graded the performance as very good based on 113 of 114 objectives being met (see 4/30/21 report).