

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 23, 2021

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Matthew Duncan and Brandon Weathers, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending April 23, 2021

**Highly Enriched Uranium Materials Facility (HEUMF):** Earlier this month, CNS entered the new information process to evaluate a drum that might be loaded in excess of a key assumption in the HEUMF documented safety analysis. CNS determined there was no potential inadequacy of the safety analysis partly based on their view that the key assumption can be interpreted as either net alloy mass or U-235 enriched uranium alloy mass. CNS noted that the U-235 mass is the appropriate distinction for the key assumption and that the drum loading is below the net alloy mass analyzed in the safety basis. The resident inspectors discussed this evaluation with NPO and CNS and whether it should have been reportable as a violation of a credited hazard control specified in the approved documented safety analysis.

**Building 9204-2E:** Maintenance craft personnel in Building 9204-2E noticed that a plug was not in place for a port in the ventilation system that services two gloveboxes and informed the production support supervisor. The supervisor instructed everyone to back away from the area and notified the shift manager and personnel from industrial hygiene and radiological control. Over the next hour, representatives from multiple organizations evaluated the situation based on results of radiological control surveys and determined that the situation was not an emergency. The shift manager informed the criticality safety officer who discussed it with nuclear criticality safety engineering. The criticality safety officer directed entry into the procedure for an abnormal condition involving fissile material. This was approximately an hour and a half after the initial discovery. This was a nuclear criticality safety deficiency because it violated a control for glovebox integrity meant to prevent liquid entering a glovebox due to sprinkler activation or other sources. Maintenance personnel reinstalled the plug later that day allowing the glovebox to return to service. During the event investigation, CNS was not able to determine when or why the plug was removed. A work crew had performed a test on the ventilation system four weeks prior, bounding how long this deficient condition could have been present.

**Building 9212:** Ultrasonic chip cleaning operators in Building 9212 noticed that the amount of residual material they removed from chip cylinders appeared larger than usual and followed the requirements of the procedure for an abnormal condition involving fissile material. With nuclear criticality safety personnel guidance, the operators processed the material and determined that the mass of residual material remained below the normal condition analysis in the criticality safety evaluation. This was a good example of operators recognizing there had been a change that might impact nuclear criticality safety and taking appropriate action.

**Disciplined Operations:** CNS began a pilot of a new readiness recertification process focused on disassembly operations in Building 9204-2E. The vision for this process would be to perform a readiness review-like process to recertify operations every four to five years. This would be a good practice that goes beyond the requirements of DOE Order 425.1D, which covers startup or restart of nuclear facilities.