

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 18, 2023

**TO:** Timothy J. Dwyer, Acting Technical Director  
**FROM:** Clinton Jones and Frank Harshman, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending August 18, 2023

**Building 9212:** Last week, a uranium chip briquette underwent an exothermic reaction inside a metal container (see 8/11/2023 report). The resident inspectors walked down the scene to review the conditions after attending the event investigation. During the walkdown, the resident inspectors discussed the results of testing performed by CNS to evaluate the effectiveness of the current method used to inert the containers. The testing determined that when the lid of the container is opened, the forced ventilation in the hood removes the argon quicker than it can be replaced, leading to oxygen levels above what is desired in the container. CNS is evaluating possible engineered controls and additional procedural changes to resolve the issue. Chip pressing operations will remain paused until the evaluations have been completed.

**Highly Enriched Uranium Materials Facility (HEUMF):** CNS declared a potential inadequacy of the safety analysis (PISA) after identifying drums that potentially contain pyrophoric material. A material review team identified the issue during a meeting that included discussions about the disposition of legacy material stored in HEUMF. The material in question is stored in four drums, however, one of the drums had previously been identified as non-compliant and CNS entered the PISA process based on a concern that the material could be potentially pyrophoric (See 4/10/2020, 4/24/2020 reports). CNS based this assessment on photographic evidence of material degradation taken during repackaging by New Brunswick Laboratory personnel in 2002. Photos indicated water corrosion and oxidation of the material. CNS reviewed the previous documentation and confirmed the three additional drums used to store the same type of material had not been evaluated. CNS considered the degradation exhibited by the material during packaging in 2002 and could not confirm that the remaining material is non-pyrophoric. The current safety analysis does not evaluate pyrophoric material storage in HEUMF. CNS placed operational restrictions on the drums of material to prevent the movement and opening of the drums in HEUMF. CNS determined that this issue does not constitute an unreviewed safety question and is producing an evaluation of the safety of the situation to address the issue.

**Building 9204-2E:** The resident inspectors attended an event investigation following the discovery of a quantity of dielectric oil that exceeded limits established in the CNS Fire Protection Program Manual. Engineering staged seven drums of oil to replace an existing oil reservoir inventory as part of a troubleshooting activity that went unused. Once discovered to exceed the limits, a fire protection engineer specified compensatory measures and established a combustible exclusion area around the drums until the oil can be dispositioned. The shipment of the oil did not go through the required review by facility operations management due to an error in a computer program that allowed an unauthorized person to override the approval. CNS instituted this approval method to prevent recurrence of exceeding hazardous material limits in the facility after a similar issue where the facility exceeded its maximum anticipated quantity of isopropyl alcohol (see 7/9/2021 report). Follow up actions to evaluate and fix the approval process for hazardous material shipments are ongoing as a result.