

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 9, 2022

TO: Katherine R. Herrera, Acting Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for the Week Ending December 9, 2022

DNFSB Staff Activity: DNFSB staff members J. Flora, E. McCullough, and B. Weathers were onsite to conduct walkdowns and observe operations at Y-12, the Transuranic Waste Processing Center, and Building 2026 (OREM). DNFSB staff member R. Eul also joined the staff for a meeting with NPO to discuss DNFSB reviews and operational events that occurred at Y-12.

Fire Protection: The resident inspectors conducted fire barrier walkdowns in Building 9204-2E and Building 9215. The resident inspectors elected to focus on these buildings due to CNS's plans to continue to operate these facilities for the next 25+ years and Building 9204-2E is in the process of replacing the criticality accident alarm system, which resulted in numerous penetrations through the fire barriers as part of the new construction. The resident inspectors also reviewed documentation such as the fire hazard analysis, compensatory measures, fire barrier drawings, and equivalency requests for both buildings. Overall, the resident inspectors found the program to be adequate with only minor issues identified that had not already been documented by CNS. For example, the resident inspectors identified a fire door that would not latch without assistance in Building 9215 and that one fire door exceeded the combustible labeling limit outlined in NFPA 80 in Building 9204-2E. The resident inspectors reported the issues to the appropriate Shift Manager for resolution.

Building 9204-2E: CNS has completed the enhanced oversight plan that was in effect due to the birdcage loading issue (see reports 10/28/22, 11/4/22, 11/11/22). The plan called for additional oversight in the performance of birdcage loading for specific procedures for three cycles. CNS management is compiling the input from the different disciplined operations specialists and supervisors that participated in the plan to make an evaluation on whether to extend or discontinue the oversight.

CNS entered the potential inadequacy of the safety analysis (PISA) process due to the use of carbon microspheres (coke) as a manual fire suppression method for uranium fires instead of magnesium oxide (MgO). Appendix B of DOE-HDBK-1081-2014, "Primer on Spontaneous Heating and Pyrophoricity" lists MgO as the preferred method for extinguishing uranium fires. The Building 9204-2E safety analysis report discusses the use of coke as a manual fire suppression method and the hazard evaluation study includes the use of coke as a potential control for the gloveboxes. Due to the inclusion of coke in the hazard evaluation study and the potential effects of MgO on the glovebox operations, CNS determined that the use of coke as an extinguishing method in Building 9204-2E does not meet the criteria to be declared a PISA.

Qualification Board: The resident inspectors observed a final qualification board for a NPO criticality safety engineer candidate. The board was comprised of members of NPO management, qualified NPO criticality safety engineers, and a CNS criticality safety subject matter expert. The examination spanned a variety of topics specific to criticality safety practice and theory, operations, and administrative content. The resident inspectors did not have any comments or concerns with the quality or conduct of the qualification board.