DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 17, 2023

TO: Christopher J. Roscetti, Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending March 17, 2023

Pyrophoric Event: The resident inspectors attended the critique of the pyrophoric event that resulted in the declaration of a site area emergency on February 22 (see 2/24/23 and 3/3/2023 reports). CNS plans to complete a causal analysis and a separate after-action report for the emergency response during the event. The resident inspectors questioned CNS's closure of an event corrective action before the completion of the casual analysis. The production manager's position was that the causal analysis was sufficiently mature to allow for closure of that action. CNS completed the final step of the recovery plan to fully clean out the subject hood.

Building 9212: CNS was conducting a startup of the Oxide Conversion Facility (OCF) when they received indications of a failed rupture disk in the hydrogen fluoride (HF) system. CNS recently replaced the same disk due to failure during a previous startup attempt (see 3/10/23 report). CNS took the applicable limiting condition for operation actions and filed an occurrence report for degradation of a safety significant system. As with the first event, CNS did not observe pressures in the system that would account for the failure of the rupture disk. CNS continues to troubleshoot the cause and is evaluating the resumptive actions to return the system to service. The resident inspectors discussed the matter with the operations manager to determine if the troubleshooting would be sufficient in scope to explore all possible causes and found the answers satisfactory.

Criticality Safety: On September 28, 2022, production personnel were moving a portable 100-ton press within the Headhouse in Building 9212 as part of an operations review of a new process for compacting high efficiency particulate air filters. A CNS nuclear criticality safety (NCS) engineer questioned whether the press, which weighs approximately 3,300 pounds, would topple the nearby storage racks and cause a potential criticality accident scenario if production personnel lost control of the portable press and it contacted the storage racks. Due to the concern, NCS engineers entered the potential NCS inadequacy process, suspended movement of the 100-ton press and submitted a request for technical information (RTI) from structural engineering to validate the scenario. Based on the initial feedback from the RTI validating the scenario, CNS filed an occurrence report due to a deficiency in a criticality safety analysis. CNS revised the criticality safety evaluation (CSE) to remove the cans (containing various forms of uranium) from the storage racks prior to moving the press through the area. However, CNS then developed a design analysis calculation (DAC) that concluded the scenario was incredible before the CSE revision was implemented. As a result, CNS performed a second revision to the CSE to include information from the DAC with the conclusion that the racks and cans would remain in place if an impact occurred. The resident inspectors walked down the Headhouse area with the NPO NCS Program Manager, a CNS NCS engineer, and a CNS criticality safety officer. During the walkdown, the resident inspector was informed that the document change notification for the press issue had been completed. The resident inspector discussed the matter with the structural engineer to verify the assumptions based on viewing the welds used to attach the rack to the floor. The resident inspector determined the assumptions in the DAC were conservative with respect to the actual attachment of the racks to the floor.