**DEFENSE NUCLEAR FACILITIES SAFETY BOARD**

May 19, 2023

**TO:** Christopher J. Roscetti, Technical Director
**FROM:** Frank Harshman and Clinton Jones, Resident Inspectors
**SUBJECT:** Oak Ridge Activity Report for Week Ending May 19, 2023

**Building 9212:** The resident inspectors observed portions of the final Oxide Conversion Facility (OCF) run. The system was shut down with material still in process due to the premature failure of two rupture disks that are part of the hydrogen fluoride (HF) primary confinement boundary (see 3/10/23 and 3/17/23 reports). When the primary confinement boundary is compromised, HF secondary confinement in conjunction with an installed system scrubber keeps HF from affecting the co-located worker as well as the public. CNS declared a positive unreviewed safety question after determining the unexpected rupture disk failures could indicate a new failure mode not fully analyzed and bounded in the current safety basis. CNS determined that while the new potential failure mode may exist, the consequences and frequencies of postulated accidents are unchanged. CNS's assessment was that the material remaining in the system was pyrophoric in nature and cleanout of the material presents new hazards that could be avoided by processing it to its final form. Thus, CNS concluded that completing a final run to process the material would place OCF in the safest configuration to begin shutdown activities. NPO approved the Justification for Continued Operation (JCO) and Evaluation of the Safety of the Situation to allow CNS to complete the final run after replacing the failed rupture disks. The JCO allowed CNS to continue to run OCF even if there was an indication that the first disk of the HF primary confinement boundary had ruptured. If the first disk ruptured, the JCO directed CNS to enter the appropriate limiting condition for operations (LCO) and perform the required actions within the completion times specified while continuing to run OCF. This would be allowed provided there were no indications of a second disk rupture in secondary confinement. If this occurred, automatic interlocks would actuate to contain the HF, the alarm response procedure would be performed, and the remaining LCO actions would be completed. The final OCF run was completed without incident, or need for any of the contingencies in the JCO, and the resident inspectors did not note any deficiencies during their observations.

**Building 9204-02E:** The resident inspectors attended an event investigation for an unexpected power outage in Building 9204-02E. Power Operations opened a load break switch on the east bus at Building 9204-02E in preparation for a scheduled outage to replace a power pole in the alley of Building 9998. The load break switch that was opened was not supposed to affect the power feed to Building 9204-02E based on the expected power lineup, but when it was opened all power to Building 9204-02E was completely removed. This disabled all electrically powered systems, including the criticality accident alarm system and breathing air, during normal working hours. The workers that opened the load break switch noticed that the outside lighting in the area went out because of the switch manipulation, notified their supervisor, and within seconds were directed to close the load break switch to restore power. The cause of the loss of power was due to the west bus load break switch being left in the incorrect position (i.e.,open) during an outage in December. The high voltage electricians in the Power Operations group perform weekly checks on the status of the switches in the field. For 15 weeks, they had signed off that the lineup was in the correct configuration. The incorrect configuration was only discovered due to the power loss event. CNS plans to perform a causal evaluation on this issue and the resident inspectors will observe that effort.