DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 23, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Frank Harshman and Clinton Jones, resident inspector
SUBJECT: Oak Ridge Activity Report for Week Ending September 23, 2022

Nuclear Criticality Safety: The resident inspectors attended the CNS Nuclear Criticality Safety Committee (NCSC) meeting. The two separate sessions consisted of in-field walkdowns with discussions and a virtual meeting. The walkdowns included the legacy Raschig ring drum that is currently under nuclear criticality safety (NCS) control in Building 9212 (see 9/2/22 report). The discussion of the Raschig ring drum focused on CNS's plan for disposition of the material and the capabilities required to properly characterize the drum contents. Currently CNS is awaiting NPO approval of the Justification of Continued Operation to move forward with the next step of x-raying the drum to better understand the distribution of materials contained within. The NCSC group walked down the Oxide Conversion Facility (OCF), discussed the plan for transitioning the facility to cold standby (see 9/16/22 report) and NCS considerations with long term cold standby. Specifically, the estimated uranium holdup remaining inside OCF after shutdown, the rigor of those holdup estimates, what amount of uranium holdup is acceptable for long term shutdown, and what level of effort will be made to reduce the amount of uranium holdup. Also, the NCSC group visited the Building 9212 calciner project area and discussed progress on the project, NCS design considerations, and expected challenges going forward. In the second session, CNS provided an update on continuing efforts to resolve the dropped part analysis deficiency (see 7/29/22 report). The group was provided an update on select legacy NCS issues including the completion of the asbestos drum campaign in Building 9212 (see 8/19/22 report) and completion of processing the final deficient legacy drums in Building 9215 (see 7/22/22 and 1/28/22 reports), allowing CNS to close out those long standing NCS non-compliant issues.

Building 9212: During a review of the draft Fiscal Year 2022 Integrated Safety System Oversight Assessment Report for Y-12 Building 9212, NPO questioned aspects of the Accountable Steam Condensate (ACS) Automatic Isolation System. Specifically, leak tests are not performed for all of the valves that can be used to provide an alternate manual isolation, and other valves are not identified or are incorrectly graded. Because the ASC alternate isolation valves are not clearly identified or evaluated in the safety basis and requirements for grading and testing the valves may not have been properly implemented, CNS entered the potential inadequacy of the safety analysis (PISA) process to determine if the valves should be credited in the safety basis. Per the Nuclear Criticality Safety Program Description, NCS controls developed in criticality safety evaluations are required to be evaluated for inclusion in the documented safety analysis using the Criticality Control Review (CCR) process. In the Building 9212 Complex Criticality Control Review, CNS selected the conductivity monitor, valve actuators, and associated interlock wiring as the credited safety significant components to accomplish the ASC safety functions when the system is operable. When the system is not operable, manual isolation of the system occurs using several valves that are paired to establish multiple passive barriers to postulated system upsets. The nuclear criticality safety control elevation criteria do not result in these barriers being elevated to safety basis controls. Although the documented safety analysis has a provision for alternate valves, there are no alternate valves specifically identified. CNS determined that this new information is not a PISA.