

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 20, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending December 20, 2024

Nuclear Criticality Safety (NCS): A resident inspector (RI) attended the critique of the event investigation for the discovery of yellow colored dust on the floor of Building 9212's legacy oxide conversion facility enclosure (see 12/6/2024 report). CNS initially could not identify the source of the material, requiring them to perform multiple inspections of the area, including the inspection of attached ductwork via an access port. CNS did not observe any indication of fissile material in the ductwork but did identify that the east enclosure wall was not completely sealed to the stainless-steel floor. CNS concluded that the source of the material was from a pump located outside of the enclosure that had failed in October, spilling solution onto the floor within the geometry-controlled area. In response to the spill, NCS personnel, with Shift Manager concurrence, gave verbal guidance for operators to clean up the spilled material; however, there was no indication that a check inside of the enclosure had been conducted. The material crystalized and remained confined to the enclosure until its discovery during a work planning walkdown for the enclosure's eventual demolition. CNS conducted a non-destructive assay (NDA) survey of the area. The NDA report showed that the enclosure floor and surrounding walls contained 3,614 g U-235, including a 50% uncertainty. NCS personnel determined with the geometry controls in the area and with no active leaks to introduce a moderation concern, the material within the enclosure is in a safe configuration. CNS established an administrative boundary for the enclosure until the material can be collected. Once collected, CNS can perform a sampling analysis and more accurate NDA measurement. CNS intends to create a lessons learned of the event.

Qualification Board: An RI attended a final oral qualification board for a candidate qualifying for both a shift technical advisor and shift manager. The board selected questions for the candidate that adequately covered facility operations, NCS, and abnormal scenarios involving safety basis credited systems. Although these questions were appropriate, the board presented two specific multiple part questions in their entirety prior to requiring a response from the candidate, resulting in the later questions revealing answers to earlier questions. Additionally, when the board did not receive answers they were expecting, several leading follow-up questions were asked that provided additional information for the candidate to successfully answer the question. In addition, the board chair read the topical area and scope of the questions to the candidate prior to administering the question that gave indications to proper responses. For example, the board chair provided the topical area as "NCS Abnormal Condition" and followed with the question "is this an abnormal condition?" When grading the candidate on their responses and how they performed overall during the board, it was clear that the board chair and board members had not identified "make or break" criteria during the pre-board meeting as required by the CNS oral board procedure. The RI provided feedback to CNS oral board chairpersons on the observations discussed above and additional feedback from other recent oral boards attended (see 3/24/2023 and 8/9/2024 reports).