

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 17, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending November 17, 2023

Qualification Board: A resident inspector observed the final qualification oral board and question selection process for a Building 9204-02E shift technical advisor candidate. The resident inspectors have expressed concerns over the conduct of these boards in the past in areas such as question selection, asking leading questions, and general conduct of the boards (see 12/23/22, 03/24/23 reports). The questions for this board had been preselected in a prior meeting and covered a broad range of topics. Before the candidate was brought into the room the chairperson reviewed board etiquette and reinforced several important rules surrounding the conduct of the board. Overall, the resident inspector concluded that the conduct of the board was adequate and met the qualification board standards. The resident inspector did not observe weaknesses in the conduct of the board, such as leading questions, that had been observed in previous boards. In the resident inspector's opinion, there was one question that lacked complexity. CNS board members self-identified this issue when discussing grading of the question and identified possible improvements to the question for future boards. This was also identified by the NPO facility representative (FR) overseeing the board. In addition, there was detailed discussion during the grading process that was thorough and sufficiently critical. The resident inspector did question why the board did not include any questions on one of the building's safety significant systems. CNS responded that the candidate had a strong knowledge of that system and elected to focus on other topics to best determine the candidate's level of knowledge. The resident inspector found this reasoning acceptable.

Nuclear Criticality Safety: CNS identified potential Nuclear Criticality Safety issues based on the lack of technical bases for certain non-destructive analysis (NDA) measurements. This is the second issue this year related to NDA analysis-based controls in a CSE (see 9/8/2023 report). As a result of learning this new information, the nuclear criticality safety (NCS) engineering group issued two potential NCS issues (PNI). The first PNI questioned the performance of a go/no-go assay check on depleted uranium (DU) chips. The check was in place to verify that the chips being dispositioned were indeed DU and not enriched uranium (EU) as a bulk check. The second PNI questioned the adequacy of a high fidelity NDA engineering measurement required by the CSE to protect against the inadvertent mixture of small quantities of EU in a predominantly DU chip container. The CSE control requires an NDA verified assay check be performed on DU chips before they are dispositioned into a DU chip container with a basis that requires the assay check to be able to identify tens of grams of EU chips in a DU chip container. Both PNIs are questioning whether the NDA measurements are able to perform their intended safety function for all potential container loadings. Subsequently, CNS paused operations that involve the production and handling of DU chips while the PNIs are resolved. The resident inspectors discussed the PNIs with the NPO FR in the affected building and the NPO NCS program manager and both agreed with the current actions taken by CNS.