

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 8, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending November 8, 2024

Building 9720-5: While performing a routine surveillance in the facility, a shift technical advisor (STA) discovered items that were stacked higher than the maximum approved height to ensure criticality accident alarm system (CAAS) operability. At the time of discovery, the STA notified the operations manager, shift manager (SM), and a criticality safety officer of the non-compliance and received SM direction to have the workers restack the items to a compliant height. The STA later made an operability determination that the CAAS remained operable since the stacking heights were below the modeled height in the Building 9720-5 CAAS analysis, even though the nuclear criticality safety (NCS) CAAS lead engineer advised that CAAS was inoperable.

The technical safety requirements (TSRs) for Building 9720-5 describe programmatic elements of the NCS program such as operating conditions that are required to prevent obstruction of CAAS detection and annunciation. These operating conditions are described as assumptions in the building CAAS analysis, which are enforced within operational procedures and verified through surveillances. During the event investigation, NCS and operations personnel contradicted each other on whether exceeding the maximum approved height or the modeled height results in CAAS inoperability. Based on the resident inspector (RI) discussions with YFO and CNS, the maximum approved height limit is less than the modeled height by six inches to prevent exceeding the analyzed condition assumptions and provide margin to account for slight differences in accident types and loading variations of the containers or items stacked. CNS identified several actions during the event investigation process including the need to evaluate, and possibly correct, the administrative control verbiage and/or documents to be included in the TSR relative to CAAS detection and clarify requirements contained within the Building 9720-5 CAAS analysis.

Building 9204-2E: The RI attended an event investigation for a welder that reported feeling a shock when performing a closure weld on a can containing special nuclear material. Operational Health Services evaluated the welder and he returned to work the same day without restriction. Prior to the event investigation, CNS performed a walkdown of the accident scene to validate hazards for creating a troubleshooting work package on the equipment and welding stand. During this walkdown, electricians performed resistance measurements of the welding fixture and equipment per verbal direction by engineering instead of utilizing the troubleshooting work package. These measurements, which proved the grounding path of the welding configuration were not satisfactory, were not officially recorded. The engineering personnel subsequently cancelled the troubleshooting work package to evaluate the welding equipment and stand. The senior manager for Y-12 infrastructure identified troubleshooting equipment per verbal direction as a potential issue during the investigation, but the investigative team did not capture an action to evaluate this practice until questioned by the RI.