

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 5, 2023

TO: Christopher J. Roscetti, Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending May 5, 2023

Nuclear Criticality Safety: CNS filed an occurrence report due to a nuclear criticality safety (NCS) violation that occurred during a maintenance activity in Building 9215. A qualified fissile material handling worker collected over five gallons of machine coolant and sludge in non-compliant containers, contrary to their training. The maintenance work order did not contain the complete NCS guidance that was provided by the NCS engineer when the work request was originally submitted. The maintenance planning process followed in Building 9215 omits instructions for production personnel about the collection of material containing uranium, including machine coolant, and its waste disposition path when creating work orders. Due to this omission, there was a disconnect between the responsibilities of maintenance and production personnel during the work. If the material had a higher fissile concentration, the collection of it in the non-compliant containers could have led to a criticality.

Another maintenance activity performed in Building 9204-02E revealed continued issues with the implementation of the NCS general requirements procedure. Qualified fissile material handlers exceeded the criticality safety evaluation limit for staging of items in general floor space when emptying a storage area in preparation for the removal of a temporary modification. The NCS general requirements procedure was the subject of an NPO reactive assessment (see 12/02/22 report). Due to the recent Building 9204-02E and 9215 events, CNS paused all fissile material handling across the site. Re-training and subsequent testing of all fissile material handlers will occur on a risk graded approach to sequentially resume operations.

Ageing Infrastructure: An underground 14-inch potable water branch line ruptured between Building 9212 and Building 9215 requiring isolation of that section of the line. The potable water system also supplies the fire suppression systems in the area. The rupture was significant enough in magnitude to create a large sinkhole between the buildings. CNS entered a limiting condition for operation (LCO) in Building 9215 due to the drop in supply pressure for the safety significant fire suppression systems. The Building 9212 fire system pressure was also affected due to the rupture but the pressure did not decrease to the level that would require entry into an LCO. During the rupture, CNS workers observed excessive water flowing on the street adjacent to Building 9215, however no water was observed inside the building. CNS structural engineers evaluated the design and condition of a retaining wall supporting one side of the subject roadway and found no indications of degradation. The resident inspectors performed an initial walkdown of the sinkhole area to survey the extent of the damage and are monitoring the area for any changes. In the resident inspector's opinion, the area of concern was sufficiently roped off for personnel safety and the sinkhole did not pose a threat to building stability. The resident inspectors also discussed various safety concerns with Building 9215 facility operations management (FOM) personnel, Building 9212 FOM personnel, and NPO facility representatives. Separately, the resident inspectors reviewed the technical details of the potable water isolations to evaluate impacts to the fire suppression systems after the rupture was isolated. CNS successfully completed the required surveillance requirements to return the fire systems to operable status and exit the LCO.