

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 6, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending December 6, 2019

Nuclear Criticality Safety: Two nuclear criticality safety deficiencies were issued this week for Large Geometry Exclusion Area (LGEA) requirements not being met in Building 9212. The LGEA program is credited for controlling spilled fissile solution such that it cannot collect into an unsafe geometry with respect to nuclear criticality safety. Nuclear criticality safety personnel responded three times under the applicable abnormal operating procedure to evaluate the situation. Administrative boundaries were established around the non-compliant items. These items included a cabinet with drain holes that had a smaller diameter than required, light fixtures that have drain holes in the wrong location, and cabinets that could collect liquid at a greater depth than allowed under the LGEA program. The deficiencies were identified in two separate Building 9212 LGEAs.

The deficiencies were identified during a CNS independent assessment of the LGEA program implementation. The assessment was requested in late October by the Nuclear Criticality Safety Committee Chair and is being conducted by CNS readiness assurance personnel and an external subject matter expert. The assessment began on November 25 and is planned to be completed this month. The specific LGEAs within the scope of the assessment are in Buildings 9212 and 9206.

Prior to the CNS independent assessment kickoff, there have been several recent events involving LGEAs. In November, personnel in Building 9212 identified multiple scales and associated readout displays that were not reviewed, documented, and labeled before being brought in to a LGEA. Two significant flooding events have occurred in Building 9212 LGEAs within the past two months. One of the flooding events was due to rain water leaking through the roof. The rain water came in contact with heavily contaminated equipment and leaked onto the LGEA floor. The second flooding event occurred when water from a supply fan chilled water line leaked through the roof into a different LGEA. The water had accumulated to a depth of approximately $\frac{3}{4}$ to 1 inch within LGEA berms on the first floor and had overflowed a LGEA berm on the second floor. Cleanup associated with this event involved approximately 200 gallons of water. The second flooding event was later identified as a deficiency due to discovering three bags of contaminated waste that contained water. The chilled water line of the same supply fan burst in February 2013 and significantly flooded this area with a large enough quantity of water to overflow LGEA berms.

CNS has an existing corrective action plan for performance problems that were identified in a 2018 NPO assessment of the LGEA program (see 2/13/18 report). The CNS corrective action plan was transmitted to NPO on October 15, 2018 and a review of the issues management system found that all five actions remain open.