

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 13, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending March 13, 2020

Nuclear Criticality Safety: CNS recently completed the causal analysis for the significant issues identified in a CNS assessment of the Large Geometry Exclusion Area (LGEA) program (see 1/17/20 report). The barrier analysis used in the causal analysis found that nearly all of the barriers had failed across a range of categories including procedures and documents, training, oversight, management, equipment, markings and postings. Criticality safety officers performed updated surveillance walkdowns in all LGEAs in December. After completing those initial walkdowns, CNS nuclear criticality safety engineers have been leading another set of LGEA walkdowns in February and March. The latest series of walkdowns have found a large number of additional unfavorable geometry items in the LGEAs. Nuclear criticality safety engineers have determined that the majority of the unfavorable geometry items are not a significant concern based on proximity to fissile solutions. However, these items were not formally evaluated and approved to be in the LGEA prior to being brought into the LGEA. Over 150 such items have been identified during this second set of walkdowns. The walkdown teams have also identified several areas that require fixes such as sealing gaps and holes.

Recent heavy rain has resulted in another instance of water leakage through the roof of Building 9212 into an LGEA. This same LGEA had two prior instances of roof leakage in 2019 that resulted in significant amounts of water entering the LGEA (see 12/6/19 report). CNS made roof repairs in 2019 in response to those events, but additional repairs will be needed to fix the problem.

Continued Safe Operability Oversight Team (CSOOT): The CNS CSOOT issued a report documenting its annual evaluation of the adequacy of Buildings 9212, 9215, and 9204-2E to sustain continued reliable and safe operations. The team did not identify any safety concern that would currently provide reason to limit enriched uranium operations in those buildings. The report discussed ongoing efforts to reduce material-at-risk and the continuation of extended life program activities. One of several accomplishments noted by the team was that Building 9204-2E reached target working level inventory levels last year. This is a substantial reduction in material-at-risk compared to a decade ago. The report discussed four concerns and progress toward their resolution, including (1) the sustainability of criticality safety program improvements resulting from the uranium accumulation events of 2017 and 2018, (2) the unexpected oxidations of stored briquettes more than two years ago, (3) previous recommendations for additional maintenance resources, and (4) the challenges associated with loss of knowledge and operational experience due to staff turnover.

Knowledge Preservation Program: The resident inspectors attended an enriched uranium process training course for CNS and NPO employees as part of Y-12's knowledge preservation program. The program had been developed in response to the Board's 93-6 Recommendation, *Maintaining Access to Nuclear Weapons Expertise in the Defense Nuclear Facilities Complex*.