

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 17, 2020

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Matthew Duncan and Brandon Weathers, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending January 17, 2020

**DNFSB Staff Activity:** A staff review team conducted a teleconference with NPO and CNS personnel to discuss the results of the staff's review of hazards associated with materials in the Highly Enriched Uranium Materials Facility.

**Nuclear Criticality Safety:** A CNS independent assessment of the Large Geometry Exclusion Area (LGEA) found significant issues that led the assessment team to conclude that the adequacy and effectiveness of the LGEA program have been compromised due to non-rigorous implementation, non-compliant configuration management, and ineffective program oversight.

The LGEA program is a credited support program to the Y-12 nuclear criticality safety program. Y-12 has been working on corrective actions since 2017 stemming from unanalyzed uranium accumulations that highlighted the ineffectiveness of the Inadvertent Accumulation Prevention Program (IAPP), which is another credited support program to the Y-12 nuclear criticality safety program. The LGEA assessment team noted that several of the root causes associated with the uranium accumulation events can be applied to the condition of the LGEA program. Of note, both the LGEA and IAPP programs were not well maintained, had unclear roles and responsibilities, and lacked appropriate communication between organizations.

Some of the CNS assessment team's findings were previously found in a 2018 NPO assessment of the LGEA program. For example, the Building 9212 equipment identification list for LGEAs was not being updated. This document is intended to be a living document that is updated after LGEA annual surveillances. It was last updated in 2013. NPO also found examples of LGEA annual surveillance walkdown checklists that had not been updated in over 10 years. As a result of not updating and maintaining these documents, many engineering features have not been surveilled annually for multiple years. When the CNS LGEA assessment began, none of the corrective actions resulting from the 2018 NPO LGEA assessment were completed. Further, corrective actions remain open from issues identified by a 2012 LGEA program assessment.

Multiple nuclear criticality safety infractions (three deficiencies and five minor non-compliances) were reported as a result of numerous items and conditions found in LGEAs that did not meet existing requirements (see 12/6/19 report). Prior to the final assessment report being issued, CNS criticality safety officers had begun updating the LGEA surveillance walkdown checklists, updating the equipment identification list, and performing walkdowns of all LGEAs. Several noncompliant items have been addressed (e.g. drilled holes or removed from the LGEA). Issues found with LGEA postings and markings have been fixed.

In addition to responding to issues with the LGEA and IAPP support programs, CNS personnel are working to complete corrective actions in response to a 2019 NPO assessment that found nuclear criticality safety and conduct of operations training of production operations personnel was not fully effective (see 8/23/19 report).