

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 29, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending May 29, 2020

Nuclear Criticality Safety: In December 2019, the CNS nuclear criticality safety committee chair chartered a common cause analysis for the series of uranium accumulation events that occurred at Y-12 from 2017 to 2019. Due to the significance of findings from an assessment of the Large Geometry Exclusion Area (LGEA) program, the chair requested that it also be included in the common cause analysis (see 1/17/20 report). The common cause team recently completed their analysis and concluded that while there are no significant gaps in the existing Y-12 analysis and response to the events, there are areas where additional actions should be considered. Some of those areas include process engineer qualification and responsibilities, alignment of criticality safety officer responsibilities and authorities, nuclear criticality safety oversight, change management processes that evaluate downstream impacts, and development of a process control strategy as a barrier to process drift.

The team also suggested that CNS evaluate the composition and outcome of the LGEA program causal analysis to determine whether the underlying root causes were identified and whether the corrective actions will prevent recurrence of the problems. While the LGEA program causal analysis was performed within the general allowance of the Y-12 issues management process, the team noted that there were concerns with line management bias overly influencing it. The LGEA assessment team found that criticality safety officers were not performing some actions that were clearly noted as their responsibility in the enriched uranium operations LGEA program guide. The LGEA issue owner ultimately delegated the responsibility for conducting the LGEA causal analysis to a small group led by the criticality safety officer manager. The criticality safety officer who authored the enriched uranium operations LGEA program guide that was effective at the time of the LGEA assessment was also one of four members of that causal analysis group. The Y-12 issues management manager and an engineering program advisor were the other members of the LGEA causal analysis group. Thus, that group was primarily made up of individuals who had responsibility for some of the findings that were identified by the LGEA assessment.

Over the past year, the nuclear criticality safety committee chair has been chartering evaluations led by personnel who are not direct stakeholders to the CNS nuclear criticality safety program. External, non-CNS members of the committee conducted a review of the committee's effectiveness last year and found several areas that needed improvement. Y-12 readiness assurance personnel led the LGEA independent assessment. The common cause analysis team consisted of an independent nuclear safety contractor and personnel from the Y-12 issues management organization. The chair's actions have resulted in a noted increase in committee chartered evaluations and an improvement in formally documenting and tracking actions that result from such evaluations.