

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 4, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending December 4, 2020

DNFSB Staff Activity: Several members of the Board's staff had another teleconference with NPO personnel for the ongoing nuclear criticality safety program review (see 11/13/20 report).

Nuclear Criticality Safety: CNS began a significant effort in October to replace ductwork, upgrade air filters, add a new filter, add a finer mesh screen, and remove a vacuum line for the holden gas furnace in Building 9212. Modifications like these have been planned since as early as 2008 (see 7/31/20 report). When complete, the potential for further accumulation of fissile material should be minimized.

Last week, an NPO facility representative performed routine operational awareness oversight of an area of Building 9212 with ongoing construction and maintenance work. He shared several observations and questions with the shift manager near the end of the day. The shift manager consulted with nuclear criticality safety personnel, who confirmed that if true, one of the questioned conditions was not allowed per the job hazard analysis. The next morning, the shift manager walked down the area to investigate the concerns and identified additional issues. The shift manager initiated actions per the procedure for abnormal conditions involving fissile material, considered the conditions field correctable, and asked operators to correct the conditions. He then looked at the storage rack that was one of the things questioned by the NPO facility representative and confirmed it was in a condition that was not allowed. This time, he did not enter the abnormal conditions procedure and asked operators to correct the problem. The NPO facility representative, nuclear criticality safety personnel, and the shift manager walked down the area a few hours later to evaluate the situation. They discovered a fourth issue, backed off, and established an administratively controlled boundary per procedure. With verbal guidance from nuclear criticality safety personnel, operators corrected the issue. These issues were collectively considered a nuclear criticality safety deficiency, triggering the event investigation process. The investigation and critique appeared to be thorough and uncovered several additional issues. CNS identified more than ten candidate corrective actions.

The four main issues were: (1) containers with fissile material in the top locations of a storage rack were not relocated prior to erecting scaffolding, (2) a physical barrier with appropriate signage was not used when taking part of a fissile material storage array out of service to use as a staging area, (3) at least one bag containing fissile material extended beyond the boundary of the storage array, (4) two openings in the duct were not covered and were left unattended. In addition, the shift manager should not have considered the first two issues field correctable, so he should not have had operators fix the conditions without first backing off and obtaining guidance from nuclear criticality safety personnel. However, the actions taken were consistent with the guidance he would have received. He also did not make a log entry when required. Finally, criticality safety personnel were not invited to the pre-job briefing, contrary to a prerequisite requirement in the work order, and the pre-job briefing paperwork could not be found.