

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 1, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending April 28, 2017

Criticality Accident Alarm System (CAAS): Last week, the CNS manager for Y-12 Facility Operations reported a Potential Inadequacy in the Safety Analysis (PISA). Within the last several weeks, a total of six CAAS detectors (three of which were installed in facility CAAS systems) exhibited signs of detector drift beyond that allowed by site procedures. CNS reported the PISA because this observed failure rate (6 out of a population of 36 detectors) exceeds the failure rate used in facility technical safety requirements (TSR) to establish detector surveillance frequencies.

CNS Y-12 Engineering staff are developing the Unreviewed Safety Question determination; concurrently, CNS is drafting a standing order that will increase the CAAS detector calibration frequency from 13 months to 6 months. Additionally, the standing order requires that CNS test installed detectors monthly if they have not been calibrated within the last six months (facility TSRs currently require quarterly testing). The resident inspectors have been following the CAAS detector failure rate closely given the age of the system (see 1/6/17, 11/11/16, and 8/5/16 reports) and note that it has been steadily increasing. They discussed the detector failure rate with CNS senior management this week. Several recent CNS reports (see 11/11/16 report) highlight the need to replace aging CAAS equipment. CNS program management is actively working to address the recommendations from these reports.

Building 9212: This week, the Building 9212 operations manager reported a performance degradation for a safety-significant dry pipe fire suppression system. While performing an inspection activity, fire department personnel observed that a pressure gauge on the system read approximately 6 psi when it should have read 0 psi (the system was drained). The gauge is used for a TSR surveillance on the system. Last month, maintenance personnel replaced the gauge after a similar issue (see 3/24/17 report). Following this week's issue, cognizant engineering staff tested the first gauge and believe that exposures to pressure environments beyond the maximum reading on the gauge may have damaged it in a manner that prevented it from resetting to a zero reading. Subsequently, they reviewed the surveillance procedure on the system and believe a specific sequence of valve manipulations could have created the pressure excursions that damaged the subject gauges. Y-12 Emergency Services and engineering staff are developing a path forward to vet this preliminary causal determination.

Highly Enriched Uranium Materials Facility (HEUMF): HEUMF operations management staff continues to evaluate issues with isolation dampers installed on the secondary confinement system (SCS, see 4/10/17 report). Maintenance and engineering personnel evaluated the dampers in question and found that they were not closing fully upon activation of the SCS due to ductwork interference. Maintenance personnel have since corrected the issue. Engineering staff evaluated the damper position indicators and found that they were showing the dampers as fully closed when the damper positions in the field were slightly closed. The damper position indicators do not perform a credited safety function; however, they are used by shift managers to verify the configuration of the facility (e.g., following unplanned activations of the SCS). The HEUMF operations manager issued a timely order requiring shift managers to perform a field verification of damper positions when the situation may impact TSR compliance. HEUMF staff is also considering a change to the position indicator settings that would reflect the dampers as closed when their actual position is closer to fully closed.