

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 8, 2016

TO: Steven Stokes, Technical Director  
FROM: William Linzau and Rory Rauch, Site Representatives  
SUBJECT: Oak Ridge Activity Report for Week Ending August 5, 2016

**Work Planning and Control:** CNS's change control process requires Operational Safety Board (OSB) review and approval of work that affects components that serve a safety function, such as the concrete floor in a nuclear facility. Late last month, a construction work crew cored holes through a floor in Building 9998 prior to receiving OSB approval for some of the work scope. The job involved coring five holes through the floor to allow the installation of electrical cables for the Nuclear Facility Electrical Modernization initiative (see 3/18/16 report). Construction crews completed cores for all five holes but the OSB had only reviewed and approved the work package that covered two of those holes. The packages for all the holes had received the appropriate structural and safety basis reviews. The error occurred because the penetration permit evaluated all five holes and the work crews misunderstood the permit's function as defining the approved scope of work. The work crews should have used the approved drawing, which directed only two holes be cored. The primary corrective action from the CNS fact-finding meeting was a set of briefings to all construction crews and supervisors on the need to conduct work per approved drawings.

**Building 9212/Aging Infrastructure:** Last week, a criticality accident alarm system (CAAS) detector failed to activate when exposed to a source during a quarterly surveillance activity that supports a technical safety requirement. The shift manager declared the safety-significant detector inoperable and entered the appropriate limiting condition of operation (LCO). The shift manager exited the LCO when the detector was replaced by a spare detector and tested to ensure proper operation.

Y-12's original CAAS was installed in 1957 but various components (including new detectors) have been replaced over the years. In 2015, a CNS engineering report documented that the site had a total of 51 operational detectors with 36 in service and 15 spares. The report notes that the estimated life of a detector is 30 years and that within six years all but 15 of these detectors will be greater than 30 years old. The report recommends installation of a new CAAS in Buildings 9204-2E, 9998, and 9215 as these facilities have extended missions. CNS has included this work in its Extended Life Program (see 4/22/16 report).

**Building 9225-3 (Purification Facility):** In February, CNS held a Management Review Board (MRB) to evaluate continued operations near two tanks with mechanical seals designed to prevent the release of acetonitrile (ACN) vapor. Monitoring of the seals by industrial hygiene personnel revealed leakage that led to airborne concentrations of ACN above acceptable levels. These leaks persisted after several attempts to repair or replace the seals. The MRB was held to determine if it was acceptable for workers wearing their normal personal protective equipment (PPE), which includes the use of supplied air respirators, to continue to conduct rounds near the leaking seals. The MRB determined that the workers' PPE was adequate given continued monitoring of ACN vapor levels in the area until an interim engineered solution could be implemented. This week, CNS completed installation and start-up of a temporary ventilation system that has mitigated the hazard. The system comprises boots that surround the seals of both tanks and exhausts leakage away from occupied areas.