

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 17, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending April 14, 2017

Highly Enriched Uranium Materials Facility (HEUMF): CNS continues to progress in its efforts to address NPO concerns with the technical safety requirement (TSR) surveillance for the HEUMF secondary confinement system's smoke detectors (see 8/14/15 report). Last week, crafts and HEUMF operations personnel successfully completed a pilot round of modified smoke detector surveillances. The modifications added in-situ aerosol smoke testing and differential pressure tests to the prior methodology, which solely tested the ability of the detector to send a signal to the fire alarm control panel. The resident inspectors observed a practice evolution on a mock-up smoke detector test apparatus and identified no concerns with the approach. Crafts and operations personnel tested five detectors and all passed the acceptance criteria. Next week, CNS plans to submit for NPO approval the TSR changes that reflect the new surveillances.

Nuclear Criticality Safety (NCS)/Aging Infrastructure: Enriched uranium operations (EUO) personnel recently responded to two separate spills of fissile solution in the Building 9212 special processing area. The spills totaled less than 10 L and occurred inside a large geometry exclusion area. The spill material was uranium-bearing nitric acid that operators drained from a utility line to support a maintenance activity. Operators had poured the nitric acid into tanks on a nearby system designed to handle aqueous fissile solutions. An operator discovered the first spill the morning following the maintenance activity. The EUO work team's response and subsequent spill cleanup was in accordance with Y-12 NCS protocols. The work team performed a visual inspection of the area and found no further indications of a leak. The responsible manager concluded it would be best to transfer the solution from the tanks and directed operators to pump the solution to a new storage location. Operators could not complete the transfer due to issues with the pump and suspended work. Shortly thereafter, an operator returned to the area and found solution leaking from the failed pump. Cognizant NCS staff provided direction to close a valve that isolated the pump from the tanks and provided direction for spill cleanup. Last week, EUO personnel held a fact-finding meeting to discuss the events surrounding the two spills and identify corrective actions. The resident inspectors have several outstanding questions related to the procedures used for the nitric acid pour-up and pump transfer activities, as well as indications of the leak point and isolation actions following the first spill.

Equipment Inspection and Calibration: Since March 2017, CNS personnel working in several production facilities have identified equipment with expired calibration or inspection stickers. For instance, Building 9204-2E workers recently utilized a lifting fixture that was overdue for inspection (see 3/3/17 report). Workers in Building 9204-2E also identified a lifting fixture with two pressure sensors and two leak tanks with installed standards that were due for calibration. In Building 9212, workers discovered that the carbon monoxide detector calibration on the in-service breathing air system inadvertently expired the previous day.

In all cases, CNS personnel either determined after discovery that workers did not use the expired equipment or did not identify any safety- or quality-related impacts as a result of equipment use. Regardless, CNS management held a critique this week to identify programmatic weaknesses and corrective actions that will better ensure that equipment is calibrated/inspected in a timely manner or properly tagged and segregated to prevent use. For instance, they identified corrective actions to review site procedures on calibration and inspection and evaluate the site's approach to electronically tracking equipment.