

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 6, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending March 3, 2017

Highly Enriched Uranium Materials Facility (HEUMF): Two weeks ago, The HEUMF safety-significant power distribution system (PDSS) failed a technical safety requirement surveillance when the diesel generator unexpectedly shut down due to a low coolant level alarm. This is the third time in approximately one year that the PDSS has been rendered inoperable due to a spurious low coolant level alarm (see 1/8/16 and 12/23/16 reports). CNS technical staff have been working to identify a cause of these failures, but have been unable to identify anything definitive to date. Following the first failure, engineers replaced the original sensor with a more robust version that they believed to be more reliable. The recovery from the second failure involved cleaning and reinstalling the sensor. Following the third failure, engineers replaced the sensor with an identical model. CNS technical staff have started to consider design changes that would prevent these alarms from affecting PDSS operability. The resident inspectors believe these low coolant alarm sensor-related failures raise questions regarding the PDSS's ability to meet reliability standards for safety-significant systems.

The resident inspectors are also discussing a tangential line of inquiry with PDSS system engineers regarding the reliability of system alarm notifications. Currently, all PDSS system alarms, regardless of significance, trigger a single "Master Caution" alarm notification at the plant shift superintendent's (PSS) office. This creates the potential for cautionary alarms to mask more significant alarms that reflect a possible inoperable condition on the system. PDSS system engineers are currently processing a change package to limit PDSS alarms at the PSS to only those that affect system operability; however, efforts to implement this change have been delayed by the aforementioned low coolant level alarm issues. The resident inspectors have asked CNS engineering management whether alternate measures (e.g., changes in alarm response procedures) are warranted if implementation of these changes continues to be delayed.

Building 9215/Material-at-Risk (MAR) Reduction: This week, special nuclear material operations personnel completed a campaign to transfer more than 200 drums of legacy material from Building 9215 to HEUMF (see 9/30/16, 11/28/16, and 12/16/16 reports). This marks completion of a key milestone in the CNS plan for reducing MAR in Buildings 9212, 9215, and 9204-2E. CNS technical staff are now working on document changes to support the next campaign of legacy material moves. Most of the drums in this group were segregated from the first campaign because they cannot be transferred directly to HEUMF in their current configuration. A subset of these moves will clear floor space for the electrorefining project.

Building 9204-2E: CNS held a fact finding last week to discuss a lifting fixture that assembly personnel used even though it was missing a sticker that would have identified whether it was due for inspection. Assembly personnel identified that the sticker was missing but wanted to use the fixture to place a subassembly in a safe and stable condition after they encountered an operational issue. The responsible shift manager authorized a single lift with the fixture after testing it to ensure it would function appropriately. Assembly personnel performed the lift without issue and tagged the fixture out of service. Equipment test and inspection (ET&I) personnel subsequently noted that the fixture was due for inspection in March 2016. As a result of the event, facility personnel identified a second out-of-service lifting fixture within the facility; both fixtures have since been inspected by ET&I personnel and placed back in service. Corrective actions identified by CNS personnel focus on improving communications between ET&I and facility personnel to ensure that needed equipment is inspected in a timely manner.