

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 19, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending June 16, 2017

Highly Enriched Uranium Materials Facility (HEUMF): Last week, CNS system engineers completed design modifications to two safety-significant systems: the secondary confinement system (SCS) and power distribution system (PDSS). The modifications are intended to address recurring conditions that result in unplanned limiting condition of operation entries. One modification changed the logic on the PDSS diesel generator controller such that activation of a low coolant level sensor would generate a local annunciation alarm rather than shutting down the system. This change is intended to prevent spurious low coolant level sensor activations from affecting generator reliability (see 3/3/17 report). The other modification involves a change in controller logic that results in transfer of power to the diesel generator and full activation of the SCS, even for short duration loss of power events. This is intended to prevent a recurring condition in which certain facility exhaust fans would remain shut down if normal power is restored before diesel generator startup is complete (see 12/16/16 report).

Additionally, CNS recently changed the alarm settings on the PDSS so that only those alarms indicating a potential inoperable condition will result in activation of the PDSS “Master Caution” notification at the plant shift superintendent’s office. Other cautionary alarms will result in a local annunciation at the diesel generator enclosure. This addresses a concern previously expressed by the resident inspectors and cognizant NPO engineering staff regarding the potential for cautionary alarms to mask alarms indicating PDSS inoperability (see 1/8/16 report).

Building 3019: In early June, approximately 36 square feet of pavement directly adjacent to Building 3019 suddenly collapsed. The impacted area of the building is near a deactivated hot cell but is structurally separate from the portion of the facility in which legacy U-233 materials are currently stored. UT-Battelle workers excavated the affected area; as a result, UT-Battelle and Isotek identified that the collapse was caused by leaking sections of underground storm water and sewer lines that caused soil in the area to wash away. They also noted, via video taken by a subcontractor, that the impacted area extended some distance below the foundation of the facility. Isotek management declared a potential inadequacy in the safety analysis due to possible impact to the safety-significant hot cell structure and restricted access to the affected area of the facility. This week, Isotek workers filled the excavated void space, including the areas under the facility, with grout. Isotek is also planning work to further stabilize the ground in the immediate vicinity of the facility. Isotek safety basis staff are developing the unreviewed safety question determination and the evaluation of safety of the situation.

Special Nuclear Materials Operations (SNMO): During a recent container weight verification activity, SNMO material clerks measured a gross weight that was larger than the weight identified on the paperwork from the container’s originating facility. Nuclear Criticality Safety (NCS) staff issued a temporary addendum to the appropriate NCS evaluation to account for the weight discrepancy and authorize SNMO material clerks to ship the container back to its originating facility. Personnel at the originating facility reweighed the contents of the container and found all loadings to be within NCS limits and consistent with customer requirements. During the fact-finding meeting for the event, the packaging crew from the originating facility stated that they were able to recreate a condition in which the container transfer apparatus applied force to the scale in a manner that underestimated the gross weight of the container. The responsible manager plans to evaluate applicable packaging procedures for changes that will prevent recurrence of the condition.