DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 16, 2018

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending January 12, 2018

Transuranic Waste Processing Center (TWPC): TWPC utilizes a non-destructive assay characterization unit to quantify the radionuclide composition of waste containers in accordance with Central Characterization Project (CCP) protocols for waste certification. The unit contains an automated conveyor system that loads waste drums onto a turntable in a shielded assay chamber. Last week, a waste drum tipped over during the automated loading process. The conveyor's automated emergency stop function activated immediately. Operators subsequently performed a visual inspection of the drum and reported that no breach had occurred; however, North Wind personnel were concerned that waste could be blocking the drum vent. North Wind management issued a formal work pause and restricted access to the storage area surrounding the drum until a path forward could be developed.

This week, North Wind personnel executed the recovery operation, which involved installing a drum lid restraint, hoisting the drum into a vertical position, and overpacking the drum. The primary controls for the hazards presented by the potentially unvented drum (e.g., drum lid ejection due to overpressurization) included installation of a drum lid restraint and an administrative requirement for the operators to avoid placing their upper body in the path of a possible drum lid ejection event. North Wind and CCP operators completed the recovery operation without incident. The resident inspectors observed the pre-job briefing and walkdown and found that both covered the work scope and key hazard controls effectively.

Criticality Accident Alarm System (CAAS): This week, the plant shift superintendent's office received an alarm indicating failure of an amplifier in the annunciation portion of the Building 9212 CAAS. The shift manager, as required, identified via voice test that a portion of CAAS annunciation was inoperable and entered the appropriate Technical Safety Requirements limiting condition of operation. Additionally, the operations manager reported the issue as a performance degradation of a safety-significant system. The responsible system engineers investigated the issue and were able to reset the failed amplifier and return it to service. They also identified that the failed amplifier lost power during a monthly diesel generator test. During the test, load is briefly transferred to uninterruptible power supply batteries until the diesel generator begins to supply power. System engineers believe that this load transfer may have caused the amplifier to trip and intend to repeat the generator test next week in order to further investigate the issue.

Freeze Protection Program: The Y-12 site recently experienced freezing conditions for several weeks that compelled CNS to take a significant number of proactive measures to protect equipment from freeze-related damage. Nevertheless, several Y-12 facilities experienced freeze-related damage. Although no safety-related systems were impacted by the cold weather, at least three non-credited fire suppression systems were impacted including an antifreeze loop in a small electrical equipment building. The antifreeze in the system was inadvertently diluted due to a deferred maintenance item that was not addressed prior to the beginning of the cold weather season. Additionally, at least three tower water lines ruptured, including an out of service line on the roof of Building 9206. The number of freeze-related equipment issues identified recently at Y-12 is significantly smaller than that experienced during the last extreme cold weather event (see 1/10/14 report). As a result of the earlier event, site personnel implemented improvements to the Freeze Protection Program that appear to have been successful in preventing significant issues thus far this year. Regardless, CNS is meeting next week to review the most recent freeze-related events and identify corrective actions/program improvements.