DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 15, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending November 15, 2019

Highly Enriched Uranium Materials Facility: A technical safety requirement violation occurred this week due to missed fire patrols. On November 13, the facility entered a limiting condition of operation to allow draining of a safety significant wet pipe fire protection system so that internal pipe inspections could be performed. The technical safety requirements allow two options for meeting the required actions when this fire protection system is inoperable. The first option requires fire patrols to be conducted within two hours of the fire protection system being inoperable and every four hours thereafter. The second option is to remove unattended powered trucks (e.g. forklifts, scissor lifts, or tugging carts) from the affected sprinkler coverage area and ensure that fire doors are closed. The first and second required fire patrols were performed within the required time on November 13. The pipe inspections needed to continue the next day. To avoid having to perform fire patrols overnight, facility personnel intended to use the second option for meeting the required actions. The unattended powered trucks were removed from the affected area, but due to a miscommunication regarding who was closing the fire doors, the fire doors were not closed. When the shift technical advisor entered the area the next morning to conduct the first fire patrol, he discovered that the fire doors were not closed. Since the fire doors were not closed, four required fire patrols were not performed resulting in the technical safety requirement violation. CNS reported this as a 3A-1 occurrence under DOE Order 232.2A.

On November 13, facility personnel were also responding to the discovery of two containers that were not stored in accordance with the safety basis. The containers were listed as belonging to a group of containers that are required to be stored in a specific location within the facility. Since the initial discovery, three other containers have been found to not be in the required storage location. On November 14, CNS filed a 4A-1 occurrence under DOE Order 232.2A.

Nuclear Criticality Safety: A CNS nuclear criticality safety engineer identified issues with two aspects of the criticality safety evaluation for the Building 9212 skull burner. The skull burner is a hood designed to convert enriched uranium materials into a stable oxide. The criticality safety evaluation identifies the skull burner crucible as a passive design feature and assumes that it is assembled per the referenced drawings. The engineer noted that the tolerances on the drawings indicate that the inner radius may be larger than was analyzed in the criticality safety evaluation. The second issue was the use of an average oxide density rather than a bounding value. These issues led CNS nuclear criticality safety personnel to recommend that skull burner operations be placed on hold. As of November 15, the operation remains on hold.

NPO Oversight: NPO recently communicated the results of its September oversight activities to CNS, which included four performance problems and six observations. One of the performance problems was that facility representative field observations from March and September found indications that operational practices in the sorting hood may have drifted over time resulting in conflicts with nuclear criticality safety requirements. NPO requires a response regarding actions taken for performance problems within 45 days.