

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 17, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending July 17, 2020

Building 9212: On Tuesday, CNS reported a 4A-1 occurrence under DOE Order 232.2A due to a dry vacuum system interlock relay that failed a technical safety requirements annual surveillance. This safety significant interlock is credited to shut down vacuum producers if a pressure switch indicates that the fire suppression sprinklers have been activated. Operators use the dry vacuum system to collect residual uranium oxide and other materials that are produced or used in the casting area of Building 9212. The dry vacuum system criticality safety evaluation credits this interlock to minimize the amount of water that could be introduced into the system from the fire suppression sprinklers. Upon failing the surveillance, facility personnel entered the applicable limiting condition of operation and took the required actions to ensure the system was shut down and placed in warm standby. At the fact finding meeting, the system engineer noted this is the first time that this functional test has failed. CNS developed corrective actions to troubleshoot the system, make any necessary repairs, and re-perform the test. CNS also created an action to evaluate whether the current annual frequency of performing this test is adequate.

Nuclear Criticality Safety: Operators use a walk-in enclosure within Building 9212 to segregate uranium-contaminated materials that may come into Building 9212 from other facilities at Y-12. While performing sorting activities last week, operators discovered a bottle containing liquid waste (within a plastic bag) that resulted in the operators establishing administrative control of the area and notifying nuclear criticality safety personnel of the abnormal condition. The liquid violated a requirement in the applicable criticality safety evaluation that states “liquids and wet uranium-bearing materials shall not be taken into the sorting hood when processing fissile materials.” The liquid was also a violation of the large plastic bag container requirements. When personnel investigated the bag and bottle, they found that it was the same bag and bottle that was discovered during sorting operations in January. The January event resulted in the same nuclear criticality safety requirement violations and was classified as a nuclear criticality safety deficiency.

CNS had recently closed the January deficiency at the June corrective action review board meeting. CNS’ investigation into the January deficiency found that the waste being sorted in Building 9212 originated in Building 9215. CNS believes that the offending items were generated in a break room in Building 9215 and personnel erroneously placed a bag containing this break room waste in a fissile storage array. The waste bags from this array were loaded into a drum and sent to Building 9212 for sorting. In closing the January deficiency, CNS took corrective actions aimed at preventing the potential to mix waste streams. The plastic bag containing the bottle remained in a staging area in Building 9212 until an operator asked about disposing of it and several other bags while performing area housekeeping earlier this month. The production support manager informed the operator that the bags could be disposed of. Operators put the bags into a drum and requested that a non-destructive assay (NDA) measurement be performed. After the NDA measurement, the sorting hood operators began sorting the items and identified the same liquid waste items from the January event.