DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 22, 2023

TO: Katherine R. Herrera, Acting Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending December 22, 2023

Staff Activities: Mark Sautman, the Associate Technical Director for Field Operations (ATD-FO), traveled to Oak Ridge this week. At Y-12, walkdowns were conducted in Buildings 9204-2E and 9212. At Building 9212, the ATD-FO and resident inspectors walked down casting operations, including the location CNS is preparing to process a longstanding noncompliant legacy drum (see 12/2/2022 report). At ORNL, the ATD-FO and resident inspector walked down Building 2026 and attended a critique for an acid spray event that occurred when a hose connection separated while personnel were transferring acid into a hot cell.

Building 9995: During routine assay on two legacy depleted uranium (DU) filled drums, one drum yielded unexpected results. Facility personnel were repackaging the contents of one of the drums and performing tests on the items when one of the items failed the test. The results indicated the assay of the item was outside what was expected. The personnel entered the abnormal operating procedure for an abnormal condition involving fissile material, establishing a 15-foot administrative boundary. CNS also entered the potential inadequacy of the safety analysis (PISA) process for a discrepant-as-found condition. The discrepant-as-found condition could indicate that unknown material present in the building is not currently evaluated in the safety basis. Upon further non-destructive analysis, the amount of material present was within the values analyzed in the safety basis, resolving the discrepant-as-found condition, and not requiring the declaration of a PISA. CNS successfully repackaged the waste from both legacy drums eliminating a longstanding issue.

Building 9204-2E: CNS continued testing the newly installed criticality accident alarm system (CAAS) this week. Previous testing of the system revealed inadequacies in the test plan such as the inability to distinguish which horns were functioning due to sound reverberation in the building. The revised test plan for this week included testing alarm circuit status indications, remote monitoring indications at the operations center, detection to alarm requirements, audio levels for the clarion tone, activation of the Building 9204-2 legacy CAAS annunciation, and uninterruptible power supply functionality. Testing will occur after normal working hours during the week to avoid conflicts with production due to the high-volume of the system and the limiting condition for operation requirement to suspend fissile material handling activities.

Building 9212: NPO questioned if the storage location of a loaded safe bottle dolly was an approved location for the storage of liquids. CNS discovered that the nuclear criticality safety (NCS) documentation allowed for the storage of a loaded safe bottle dolly in that location, however, one of the criticality safety evaluation (CSE) initial conditions was that it would be stored inside of a uranium solution control program (USCP) area. The location of the dolly did not meet the requirements of the USCP. CNS filed an occurrence for a NCS control violation and conducted an event investigation into the issue. CNS instituted two compensatory measures while it evaluates a permanent solution to the issue. First, any loaded safe bottles located outside of USCP controlled areas were relocated back into USCP controlled areas. Second, CNS placed a restriction on storing loaded safe bottle dollies outside of USCP controlled areas.