

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 4, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending September 4, 2020

Transuranic Waste Processing Center (TWPC): Last month, TWPC personnel discovered that the contents of a drum had been characterized as potentially pyrophoric and this drum was not listed in the specific administrative control that contains all known pyrophoric drums allowed at TWPC (see 8/13/20 report). The initial characterization of the material as potentially pyrophoric was based on a review by energetic materials subject matter experts (SME) from TWPC and the waste generator. Following the initial characterization, the waste generator SME referred TWPC personnel to another SME who was more familiar with the origin of the subject waste material. The second waste generator SME visited TWPC to review the waste documentation and non-destructive evaluation records and advised TWPC personnel that the waste material was not pyrophoric. The original waste generator SME concurred with the results of this re-evaluation. Based on the re-evaluation, TWPC determined that the potential inadequacy of the safety analysis does not represent an unreviewed safety question.

In a separate event, personnel from the Central Characterization Project informed TWPC in July that they discovered an error in a calculation that when corrected, increased the value of fissile gram equivalents for some remote handled waste containers that had been processed at TWPC. The containers were no longer at TWPC and they notified the contractor at the current Oak Ridge National Laboratory storage facility. The increase in fissile gram equivalents resulted in two technical safety requirement violations at the current storage facility and was a reportable event under DOE Order 232.2A. Subsequently, they determined that the higher fissile gram equivalent value had violated a TWPC technical safety requirement when the waste was processed in 2017. Based on this realization, the TWPC facility manager declared a technical safety requirement violation on Monday.

Emergency Management: On Tuesday, CNS conducted an emergency management exercise involving a nuclear criticality incident at the Highly Enriched Uranium Materials Facility. The exercise used the current COVID-19 safety protocols, which tested the ability of personnel to respond to an emergency under these conditions.

Nuclear Criticality Safety: CNS has been working to complete the extent-of-condition review of fissile material holdup in legacy out-of-service equipment in Building 9215 (see 2/14/20 and 8/7/20 reports). During this review, CNS determined that fissile material holdup is anticipated in an out-of-service system, but the mass cannot be accurately quantified by non-destructive assay measurements due to the large size of components and the complex geometry of the system. Lacking a measured value for the fissile material mass and distribution, CNS classified this criticality safety violation as a deficiency because it does not have an effective or suspended criticality safety evaluation and is not completely isolated from other systems. CNS placed the system under administrative control by posting it as deficient and ensuring that it is identified as out-of-service. Nuclear criticality safety personnel will provide further guidance for the handling and disposition of the system.