

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 5, 2017

TO: Steven Stokes, Technical Director  
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors  
SUBJECT: Oak Ridge Activity Report for Week Ending June 2, 2017

**Nuclear Criticality Safety (NCS):** Last week, contractor NCS engineers reported a potential NCS issue (see 7/8/16 report) after non-destructive analysis (NDA) data indicated unexpected quantities of uranium holdup in the sand recycling system that supports Building 9212 reduction operations. The concern is specific to the sand separator, an unfavorable geometry container fitted with screens designed to sieve recycled sand to an acceptable particle size distribution for reuse. The criticality safety evaluation (CSE) for reduction operations does not analyze uranium holdup in the sand separator. This week, NDA staff performed confirmatory NDA measurements on other locations on the sand separator and the data also showed elevated uranium holdup readings. NCS engineers plan to develop a temporary addendum to the CSE that supports an operation to empty the sand separator and gather more accurate information on the uranium holdup in the system. This information will be used to support changes to the CSE and NCS controls, if warranted.

**Highly Enriched Uranium Materials Facility (HEUMF):** CNS Y-12 safety basis and NCS programs utilize nuclear material control and accountability (NMC&A) processes and associated material form codes as a means of implementing facility-specific restrictions on forms of hazardous material that have not been analyzed in safety basis or NCS documentation. Recently, while reviewing the documentation for two containers stored at HEUMF, a member of the Special Nuclear Materials Operations (SNMO) organization identified a discrepancy between the form code specified in NMC&A documentation and that identified in other site material tracking systems. One of the codes reflected a material form not authorized for storage at HEUMF. NMC&A, safety basis, and NCS personnel subsequently determined that the material was authorized and the proper form code was distributed to all applicable systems and documentation. This week, SNMO management convened a fact-finding meeting to evaluate the source of the discrepancy. Y-12 personnel brought the materials on site as part of a non-proliferation program in 2014. The fact-finding meeting reconstructed a complicated timeline showing that the form code for these materials was changed on several occasions in the months leading to the arrival of the containers in HEUMF. The timeline revealed a process gap in which the HEUMF personnel responsible for ensuring compliance with safety basis and NCS requirements were not made aware of the last several form code changes. The SNMO manager plans to conduct a critique prior to establishing long-term corrective actions.

**Container Shipments:** Since the beginning of May, CNS Y-12 personnel have encountered several container loading and labeling issues. These events included a drum that was shipped to an offsite customer without the required transportation index, a non-nuclear waste shipment to an offsite vendor that included the incorrect drum, and containers that were shipped to the Pantex Plant without required radiological labels. Last week, in response to these events, the SNMO operations manager issued a daily order requiring Y-12 labeling requirement experts to check each container in an outgoing shipment for labeling compliance. SNMO personnel plan to institutionalize this check and other labeling compliance improvement measures by establishing a new labeling and compliance group. The group's charter is scheduled for completion by the end of this month. The CNS Y-12 Site Manager has requested that personnel from the Supply Chain Management organization evaluate the potential expansion of the charter to cover non-production (e.g., waste) shipments. NPO is also planning to evaluate CNS performance in this area as part of a previously scheduled assessment of CNS packaging and shipping operations, which is scheduled to begin later this month.