DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 15, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending May 12, 2017

Building 9204-2: CNS continues to progress in its effort to relocate a process involving nuclear material from Building 9204-2 to Building 9402-2E in order to downgrade Building 9204-2 to a non-nuclear facility (see 7/15/16 report). Building 9204-2E production personnel recently completed a phase of this effort in which they operated both Building 9204-2 and Building 9204-2E production equipment in parallel for several months. The Building 9204-2E production equipment demonstrated sufficient reliability to allow Building 9204-2E production personnel to transition to the next phase: a contingency mode in which operations involving nuclear material in Building 9204-2 are prohibited unless a written return to service request is approved by Building 9204-2E production management. If the new equipment continues to perform reliably, CNS forecasts the permanent cessation of nuclear operations in Building 9204-2 early next fiscal year. In parallel, CNS engineering personnel have been formulating a safety basis modification strategy to support Building 9204-2's downgrade.

Transuranic Waste Processing Center (TWPC): In a letter to OREM management, the Northwind program manager recommended this week that Transuranic Packaging Transporter Model II (TRUPACT-II) loading operations at TWPC restart pending successful completion of a DOE readiness assessment (RA) and authorization from the DOE startup authority. Northwind completed the RA last week with support from the Central Characterization Program (CCP) Mobile Load Team. The RA evaluated whether Northwind documentation, equipment, and personnel are in an acceptable state of readiness to conduct TRUPACT-II receipt and loading activities inside the TWPC Multi-Purpose Building (MPB). It included demonstrations of TRUPACT-II loading operations and a simulated emergency preparedness drill. The RA team identified one pre-start finding and eight observations. The finding was related to a legacy control identified in the governing activity hazard analysis that prohibited internal combustion vehicles in the MPB and should have been removed in conjunction with a recent facility safety basis change. Northwind resolved the pre-start finding before the RA concluded. DOE held its RA this week, though Northwind does not plan to ship waste via TRUPACT-II containers to the Waste Isolation Pilot Plant until later this summer.

Building 9212: Last week, CNS Enriched Uranium Operations (EUO) personnel utilized a new casting stack assembly for the first time during briquette casting operations. CNS implemented the stack assembly as part of an initiative to improve briquette casting throughput (see 1/27/17 report). It utilizes a new passive nuclear criticality safety (NCS)-related geometry control that allows EUO personnel to safely process more briquettes in each casting run. EUO personnel successfully completed the initial casting run and lowered the stack assembly into the cooling tunnel. The following morning, EUO personnel found the assembly in an unexpected orientation such that some oxide, produced as a result of the prior day's briquette casting operations, was discovered outside of the components of the stack that are credited for geometry control. As a result, they suspended use of the new stack assembly pending recovery operations.

This week, EUO personnel recovered the loose oxide and stack assembly in accordance with NCS engineering direction. CNS also held a fact finding meeting. During this meeting, a responsible engineer postulated that the stack assembly assumed the unexpected orientation while located in the cooling tunnel as a result of briquette expansion caused by the ongoing oxidation reaction. He also discussed stack modifications that CNS engineering is considering. EUO will not use the new stack assembly again until such modifications are made.