DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 9, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan, Resident Inspector
SUBJECT: Oak Ridge Activity Report for Week Ending November 9, 2018

DNFSB Staff Activity: D. Andersen attended the Y-12 Aging Infrastructure Management Workshop. C. Berg and D. Shrestha provided resident inspector coverage.

Transuranic Waste Processing Center (TWPC): NorthWind personnel discovered an error in the Waste Inventory Control System (WICS) software—safety software that tracks fissile gram equivalent (FGE) values to ensure they are below the TSR limit (see 9/14/18 report). For Room 211, the WICS summary report showed FGE values for covered and uncovered waste as two separate values even when selected to be displayed as a combined value. As a result, a potential vulnerability exists to exceed the 200 FGE TSR limit for combined covered and uncovered waste when moving waste into the facility. NorthWind personnel reviewed the WICS data and confirmed that the TSR limit was not exceeded. They are taking several actions to resolve the concern, including: changing the WICS software to calculate a combined FGE value while ensuring it stays below the TSR limit; displaying color-coded FGE values as operator aids; and disallowing restricted individual containers from entering TWPC.

Building 9212: The resident inspectors attended a fact finding meeting regarding nitric acid at a loading dock that exceeded the location-specific hazardous material limit within the technical safety requirements (TSR). Subsequently, CNS personnel entered the appropriate limiting condition for operation (LCO), moved the material to an authorized location, and exited the LCO. Production and supply chain personnel at the fact finding meeting identified gaps within organizational practices and procedures. CNS personnel use Safety Basis Material of Concern (SBMOC) documentation to verify facility inventories against location-specific thresholds—including the applicable loading dock—prior to material receipt. They identified that SBMOC documentation identifying the hazardous material was not provided to supply chain personnel, allowing the occurrence. CNS paused ordering and receipt of similar materials until actions are taken to ensure SBMOC documentation is shared between the organizations.

Building 9995: Last year, CNS structural engineers noted crack growth in the top section of Stack 7 and determined it was in imminent danger of collapse (see 7/24/17 report). Personnel removed the top section of Stack 7 and subsequently identified a second less severe crack in the remaining top section of the stack. Approximately six months ago, CNS drilled holes at the crack terminating ends to mitigate stress and crack propagation. While performing surveillances last week, personnel discovered the existing crack around the stack perimeter had propagated approximately ten inches beyond one terminating drilled hole since the previous inspection last month. CNS plans to resolve this degradation by strengthening the stack with carbon fiber wrap, similar to the seismic upgrade technique used at the Los Alamos National Laboratory's Plutonium Facility, as well as pursuing stack replacement. The resident inspectors walked down Stack 7, noting that the crack extends approximately 50 percent of the stack's circumference. Based on a CNS structural engineering assessment, the stack does not pose an immediate risk of collapse. CNS plans to apply the carbon fiber wrap by the end of the month.