DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 4, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending June 4, 2021

Highly Enriched Uranium Materials Facility: Last Thursday, the shift manager discovered that the secondary confinement system's human machine interface had received alarms indicating that three pressure differential indicating transmitters were not reporting pressure readings. The pressure transmitters had automatically locked out due to a high pressure indication that was out of range. At least one of the pressure transmitters is required for operability of the secondary confinement system/exhaust system. The shift manager declared the secondary confinement system inoperable and entered the applicable limiting condition for operation. Personnel restored the pressure transmitters to service by shutting down several air handling units and manually controlling air handling units to bring the pressure back within range. Personnel investigated the cause of the pressure transient and determined that an air handling unit had malfunctioned on Wednesday night. They secured the malfunctioning air handling unit and the pressures returned to normal. CNS reported the event as a performance degradation of a safety system which prevents satisfactory performance of its design function when it is required to be operable.

This is the second recent event at HEUMF where an issue occurred overnight, when the facility was not in operation, that caused a credited safety system to not meet its operability criteria. In last week's event and the brief power loss event (see 5/14/21 report), personnel were not aware that the secondary confinement system was impacted until they began their morning shift. The event investigation for the event last week only had an action to repair the malfunctioning air handling unit. The prior event screened out of having an event investigation. The resident inspectors have noted the gap in time between the system being inoperable and when CNS discovered the impact. By comparison, some Y-12 systems have non-credited alarm signals that are sent to the continuously staffed Y-12 Operations Center for real-time awareness of impacts.

Nuclear Criticality Safety: CNS closed a nuclear criticality safety deficiency from 2018 regarding unanalyzed uranium holdup in the exhaust ductwork and filters of the out-of-service carbon burners and destructive distillation units in Building 9212 (see 12/7/18 and 12/14/18 reports). Last year, CNS isolated those systems and cleaned out uranium-bearing material from them (see 10/9/20 report). As part of the rationale for closing the deficiency, CNS updated the suspension instructions to include a technical basis for why remaining uranium holdup, that was not able to be removed, will remain subcritical under normal and credible abnormal conditions.

Building 9215: NPO concurred with CNS's determination that a project to replace cables that feed several transformers in Building 9215 does not constitute a major modification per 10 CFR 830, *Nuclear Safety Management*, and DOE Standard 1189-2016, *Integration of Safety into the Design Process*. The project will replace approximately 11,000 feet of cables that are over 30 years old and beyond their design life. During the project, CNS will need to establish an alternate power source for the transformer that feeds the criticality accident alarm system.