DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 3, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending September 3, 2021

Nuclear Criticality Safety: Criticality Safety Officers in Building 9215 identified a container used as part of a prior floor scrubber activity that was not the container required by the operating procedure. The incorrect container had an erroneous inspection sticker and was visibly different from the required container. This event involved the same "information use" operating procedure as another nuclear criticality safety issue earlier this month (see 8/20/21 report).

Building 9212: Production personnel noticed a container that had significant indications of deterioration (rust). They established administrative control of the area and notified nuclear criticality safety personnel. The nuclear criticality safety personnel provided guidance to wrap the container with plastic for contamination control purposes until the material can be recontainerized. CNS does not suspect that the material is associated with a group of other containers that were found with signs of corrosion (see 5/28/21 report). The recently identified container was from a different process, but the source of the corrosion is not known at this time.

Electrorefining: For the past several months, production operators and their supervisor from the fabrication operations group have been operating metal purification process equipment in a Y-12 development facility. The equipment are duplications of the equipment that will be located in the 9215 Complex. The metal purification process electrochemically recovers purified uranium metal using electrorefining cells and furnaces. The group of production operators are the personnel who will operate the production system with enriched uranium. They have been able to gain experience operating the equipment in the development facility with depleted uranium. A resident inspector has observed some of their activities over the past few months. A positive benefit of the advance operator training has been the incorporation of operator feedback into the production procedures that were being developed. The resident inspector has observed the operators working closely with process engineers and development researchers. CNS successfully produced production-size pieces of uranium metal last year with the equipment in the development facility. The production system is projected to start up in June 2022.

NPO Oversight: NPO recently completed an assessment of selected requirements from American National Standards Institute/American Nuclear Society 8-series standards for appropriate implementation within the CNS nuclear criticality safety program and flow-down of the requirements to the appropriate working-level. The assessment team included two engineers from the NNSA Office of Nuclear Safety Services and the NPO nuclear criticality safety program manager. The assessment team determined that all of the assessment criteria were met, except for one criterion that was partially met. The partially met criterion related to the supervisor of the ultrasonic chip cleaning process not having a means to verify compliance with a nuclear criticality safety requirement for accumulation of uranium hold-up. The limits associated with that requirement rely upon the Uranium Holdup Survey Program, but the assessment team found that this program lacked adequate communication to the production operation organization.