

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 10, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending July 7, 2017

Nuclear Criticality Safety (NCS): Last week, CNS engineering and production management convened a critique to discuss the timeline of events that resulted in unexpected uranium holdup in the sand separator that supports Building 9212 reduction operations (see 6/30/17 report). Production and NCS staff identified a process change that most likely caused the issue. The change involved eliminating the use of a port at the bottom of the reduction knockout glovebox to disposition reduction slag (a non-uranium reduction reaction byproduct). In doing so, production personnel discontinued the periodic replacement of the container used to collect the slag. However, this container was also used to collect waste sand from the sand separator; discontinuing its replacement thus allowed sand to back up into the sand separator. The critique attendees identified an action for engineering staff to evaluate how this change occurred without full recognition of its impact on other parts of the process. The evaluation will serve as the core component of the causal analysis and could help to scope an extent-of-condition review. NCS staff are still awaiting laboratory non-destructive analysis results for the sand collected last week.

Building 9995: This week, the resident inspectors discussed improvements made to the waste bulking process at Building 9995 with contractor NCS personnel. In September 2016, facility operations personnel identified a waste drum located in Building 9995 with contents that exceeded an applicable NCS enriched uranium mass limit (see 9/23/16 report). The drum was loaded as part of a “non-accountable” (i.e., contains sufficiently small amounts of uranium to be below site security-related material control thresholds) organic waste collection activity and contained multiple samples. Prior to this event, the uranium content of drums filled with non-accountable waste were only sampled after a drum was filled. In April, CNS implemented a new NCS control strategy for the portions of the facility that handle non-accountable waste. Laboratory analysts now must perform an activity scan of radiological samples upon receipt at the facility and assign a conservative uranium concentration to the sample as a result of the scan. These concentrations are reviewed prior to drum collection activities in order to ensure that total drum contents do not exceed NCS limits.

Transuranic (TRU) Waste Processing Center (TWPC): North Wind management is currently performing a management self-assessment (MSA) in preparation for an operation to repackage 19 shielded waste boxes that are filled with TRU-contaminated soils from the Tank W-1A remediation project (see 7/1/16 report). The MSA will prepare North Wind for their contractor readiness assessment. This week, as part of the MSA, operators utilized equipment in a training facility to demonstrate a portion of the process they will use to remotely repackage the soils within the facility’s Cask Processing Enclosure. Using a draft procedure, operators first prepared the contents of a simulated waste box by breaking up a hardened soil “crust” using portable power tools. They next utilized remote equipment to transfer the soil and an approved absorbent material to a mixer, blend the two, and send the resulting mixture via conveyor to a downstream waste drum. The resident inspectors observed these activities and noted that the operators were well-trained on the use of the equipment. The resident inspectors provided several suggestions regarding the draft operating procedure to the OREM facility representative, who also observed the demonstration. North Wind plans to start up soil remediation activities this fall, after contractor and DOE readiness activities are complete.