DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 15, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending August 11, 2017

R. Oberreuter was at Y-12 to augment resident inspector activities. K. Deutsch, R. Jackson, and S. Thangavelu were in Oak Ridge to observe the NNSA final design review of UPF. R. Rosen was at Y-12 to attend a DOE Nuclear Materials Packaging Program meeting.

Nuclear Criticality Safety (NCS): Enriched Uranium Operations (EUO) operators recently resumed Building 9212 reduction operations after working with NCS staff to develop a new control strategy to address uranium holdup in the sand separator (see 7/14/17 report). In accordance with the new strategy, non-destructive analysis staff measured the holdup in the sand separator following the first eight runs and identified approximately 200g of U-235. This amount was approaching the new NCS mass limit of 300g U-235, thus EUO and NCS staff met this week to determine the best course of action to address the holdup. As an interim measure, they agreed to update the applicable procedure to allow operators to bypass the sand separator and collect the sand in an NCS-approved container. CNS engineers issued an on-the-spot change to the procedure and EUO operators resumed operations.

Building 9215: This week, Building 9215 operations and engineering staff met to define a path forward for determining the safety basis implications of recent failed surveillances of overflow drains credited to limit the height of coolant in machine chip pans (see 7/28/17 report). They determined that one of the failures resulted from a flaw in the approach to the surveillance. The acceptance criteria for the surveillance states that the test is satisfactory if no coolant is observed flowing through an overflow hole. For most pans, this hole is located at a height above the overflow drain being tested. However, the two features are located at approximately the same height on the pan that failed the most recent surveillance. The meeting attendees also found that there exists an unnecessary margin between the height of the overflow holes for all machines and the limit from the safety analysis. Building 9215 operations staff plan to update the acceptance criteria to eliminate coolant flow through overflow holes as an indicator of a failed surveillance and replace it with a measurement against a height in line with the safety analysis value.

Building 9204-2E: A mechanical seal on a piece of equipment that interfaces with a Building 9204-2E glovebox was allowing air to leak by, preventing operations in that section of the glovebox. This week, maintenance personnel attempted to replace the mechanical seal. While using a facility bridge crane to lift the new seal and install it onto the glovebox, one of the swivel hoist rings that riggers had attached to the seal stripped its threads and pulled free of the load. The mechanical seal, which weighs approximately 1000 pounds, swung and contacted a worker's hand. The worker was taken to medical for evaluation and released back to work. To aid in the recovery, CNS convened a senior review board, a team of senior management and safety representatives that reviews and approves work activities deemed high risk by maintenance management. As a near term measure, workers repaired the threaded holes of the mechanical seal's lifting points and installed new swivel hoist rings. Workers attempted to complete the job, but encountered an interference issue mating the seal to the glovebox and placed the mechanical seal in a stable configuration supported by wooden cribbing and the facility bridge crane. CNS engineering staff are currently evaluating the incident to determine the cause of the lifting failure and a path forward to address the interference issue.