

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 20, 2018

TO: C. Roscetti, Technical Director
FROM: T. Dwyer, Acting Resident Inspector
SUBJECT: Oak Ridge Activity Report for Week Ending July 20, 2018

Building 9212 Casting: At the end of June, CNS Enriched Uranium Operations (EUO) had completed its initial resumption phase (Phase I) of casting operations. As discussed in last week's report, CNS subsequently initiated Phase II operations under the EUO Casting Management Plan. The Phase II plan calls for continued monitoring of furnace bowls after each casting run for visible accumulations. As of Wednesday of this week, CNS reported reaching the internal limit on one of the casting lines. For Phase II, these limits have been increased, but are still set very conservatively, and this was not an unexpected event. In accordance with the plan, CNS shut the affected line down, in order to knock out, inspect, and clean. Data from analysis of recovered material will be collected for evaluation. Monitoring includes personnel from Process Engineering, Nuclear Criticality Safety, and Production.

Building 9212 Holden Gas Furnace: Holden Gas Furnace operations fall under the umbrella of the CNS extent-of-condition plan associated with Building 9212 enriched uranium accumulation (hold-up) issues. CNS authorized the resumption of furnace operations using revised operational limits based on the type and quantity of material, cumulatively counted between cleanouts (see 6/22/18 report). Three types of material have been defined: normal content, metal fines, and single items. Specific quantity limits apply to each type. Runs are defined as consisting of only one type of material with a cleanout step required when the need arises to process a different type of material in the furnace. Last week, furnace operations concluded a run to process normal content. On Monday, cleanout operations (the first cleanout under the new accumulation tracking methodology) yielded ~ 400g of residual material, of which only ~ 30g was ²³⁵U. Furnace operations then resumed to process metal fines. The quantity of metal fines available was such that it was possible to process all of the feed material this week. CNS intends to conduct the second cleanout under the new accumulation tracking methodology next Monday.

Electrorefining: On Wednesday, NPO issued a Safety Evaluation Report (SER) approving Revision 0 of the Metal Purification Process–Electrorefining Project Preliminary Documented Safety Analysis (PDSA). The SER does not include any conditions of approval, although NPO does explicitly outline its expectation that “uranium and lithium mass tracking procedures and associated software will be successfully validated using depleted uranium prior to processing enriched uranium.” As expected, there are no Safety Class controls in the PDSA as there are no postulated events that have a significant radiological impact on the maximally exposed off-site individual (MEOI). The PDSA indicates that the project will not need any new (i.e., dedicated solely to Electrorefining) safety structures, systems, and components (SSCs).

Unreviewed Safety Question Determinations (USQD): This week NPO formally informed CNS that after reviewing a representative sample of USQDs completed by CNS in CY 2017, all negative USQD determinations were deemed executed appropriately and adequately justified.