DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 4, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Brandon Weathers, Resident Inspector
SUBJECT: Oak Ridge Activity Report for Week Ending March 4, 2022

DNFSB Staff Activity: Members of the technical staff were in Oak Ridge to observe the resumption of Isotek's Contractor Operational Readiness Review for the Initial Processing Campaign (see 1/21/22 report). Isotek declared a formal pause of the Contractor Operational Readiness Review for this activity in late January (see 2/4/22 report).

Nuclear Criticality Safety: CNS obtained preliminary results from the samples that were collected from the legacy drum that contained Raschig rings and an unknown uranium-bearing material (see 2/4/22 report). The sample results identified the material as a carbon-based material along with fissile material. Based on this information and process history of carbon-based fuel production and recovery activities in Building 9212, CNS determined that the preliminary results support this discovery not being an Unreviewed Safety Question. CNS continues working on a plan to safely disposition the drum contents and preparing an Evaluation of the Safety of the Situation.

During an operational health led review of glovebox operations in Building 9204-2E, operators found an area in the glovebox where metal chips had accumulated. The chips were in an area that was not easily accessible (underneath a lathe and adjacent work surface). There is a nuclear criticality safety requirement that operators remove machining chips from the glovebox after each machining operation (for accessible chips) or after each disassembly (for not easily accessible chips). Since no machining operations were occurring, the accumulation of the chips meant that operators had not previously cleaned out the glovebox as required. Personnel established administrative control of the area and nuclear criticality safety provided guidance to collect the chips and have them assayed. Based on process knowledge of the operations that are typically conducted in the glovebox and a review of Uranium Holdup Survey Program measurement points for this area, CNS believes that the chips are non-fissile depleted uranium. Last year, CNS discovered a latent issue with Building 9204-2E glovebox operations where a control was not properly implemented (see 8/20/21). After that event, the resident inspector discussed with CNS and NPO whether nuclear criticality safety operational reviews were adequately covering all aspects of operations on a recurring basis. At that time, CNS did not have a method to formally track that level of detail. In response to the current event, CNS created a corrective action to evaluate whether the operational reviews need further delineation.

Building 9212: Following the NPO identified issue of whether conductivity probes were properly positioned in the wet vacuum system, CNS completed a series of measurements to verify the probe position (see 1/7/22 report). CNS found that one of the seven traps had a non-compliant probe height (greater than 2 inches from the bottom of the trap). A second probe that was originally suspected to be non-compliant was found to be marginally less than 2 inches from the bottom of the trap, when measured. CNS adjusted both of these probes to restore the wet vacuum system to an operable condition. Over the past several weeks, CNS has been completing the causal analysis evaluation for this event.