

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 8, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending March 8, 2019

Building 9212: The ultrasonic chip cleaning system has been subject to an operation hold since June 2018 due to nuclear criticality safety concerns after identifying fissile material accumulating in the phase separator tanks (see 6/21/18 report). Additional nondestructive assay (NDA) measurements of the ultrasonic chip cleaning system were performed in February 2019 to support the criticality safety evaluation for restarting the system (see 1/25/19 report). The NDA measured count rates for the 1st Stage Evaporator and Evaporator Stripper were higher than expected. Because of the intricate inner design of this system, it was difficult for Nuclear Criticality Safety (NCS) personnel to model the system in order to accurately estimate the fissile mass. A multi-organization meeting was held to discuss potential plans for determining whether the NDA measurements were the result of uranium in the solution or residual buildup inside the evaporator stripper. The meeting participants settled on draining the 1st Stage Evaporator and Evaporator Stripper to make that determination. NCS personnel were tasked with developing guidance for performing the draining activity. Production personnel were tasked with examining the drain valves that were available on the system.

The production personnel located the drain valves and discussed among themselves that such valves are routinely opened to check for liquids under an existing procedure. The production personnel drained both the Evaporator Stripper and 1st Stage Evaporator liquids without contacting the Shift Manager's Office or receiving guidance from NCS personnel. After draining the liquids, the production supervisor contacted the Enriched Uranium Operations Production Support Manager to inform him of the activity. The Production Support Manager told the supervisor that this activity had not been approved and that the system was on an operation hold. NCS personnel were contacted and later provided guidance to collapse the 15-ft administrative boundary to the bottles containing the drained liquids. The system was then placed under NCS administrative control and the associated operating procedure was placed on hold.

CNS held a fact finding and a critique as part of their event investigation process. The resident inspector observed an unclear understanding of what constitutes operating a process/system and requirements for notifying the Shift Manager prior to starting a work activity. Actions being pursued by CNS include formalizing detailed requirements when a process or system is placed on hold; reviewing the Conduct of Operations procedure with respect to work start approval for processes or systems on hold; evaluating Conduct of Operations training; and evaluating work start authorization related events at both Y-12 and Pantex to determine if a causal analysis should be performed.

Y-12 Emergency Management: Contractors and federal employees conducted an emergency response exercise at the Y-12 National Security Complex on Wednesday. The scenario was a nuclear criticality accident in Building 9720-5. The resident inspectors observed the exercise from the Plant Shift Superintendent's office and Technical Support Center.