

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 2, 2018

TO: C. Roscetti, Technical Director
FROM: D. Shrestha and T. Davis, Acting Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending August 3, 2018

Staff members A. Miller and M. Bradisse were on site to conduct a review of the Y-12 National Security Complex Nuclear Criticality Safety Program.

9212 East Line Casting Hydraulic Fluid Leak: On July 18, 2018, operators noticed hydraulic fluid dripping from the stack lifting fixture into an east line casting furnace bowl. The criticality safety evaluation states that the hydraulic lines inside the casting line enclosure shall be designed to at least 1.5 times the maximum system pressure to prevent a hydraulic fluid leak. Nuclear Criticality Safety personnel determined that the mass of fissile material in the bowl and the furnace zone did not exceed the applicable limits. The process engineer also determined that the east line casting losses were within the expected nuclear material bounds outlined in the casting management plan. The hydraulic fluid leak was caused by a loose threaded fitting. Maintenance work was completed on July 26, 2018 to repair the threaded fitting and post maintenance testing was performed the same day.

9212 Casting Status: West line casting operations were put on hold for cleanout after reaching the operational limits (see 7/20/18 report). After evaluating the cleanout data, CNS decided to resume casting operations with the same operational limits in place for the next batch. An attempt to restart west line casting operations this week was not successful due to electrical issues with the conveyor belt. East line casting operations were shut down due to a hydraulic fluid leak (see above). After the leak was resolved, east line casting operations resumed and performed multiple batches. East line casting is now shut down for preventive maintenance work to preclude another fitting fluid leak.

Storage Drums Nonconformance: Savannah River Nuclear Solutions (SRNS) identified a nonconformance with Skolnik Industries, Inc. (Skolnik) Type A and UN Drums due to weld issues that impact drum integrity. Skolnik placed a new drum fabrication and welding machine into service in early 2018. The new machine results in a 50% reduction of the lap overlay and weld width. Recent tensile testing at Savannah River Site (SRS) revealed a weld failure on one of the four coupons that were tested. SRNS deemed the quality and reliability of the drums produced by Skolnik using the new machine to be indeterminate. This information was shared with other affected sites.

The affected Skolnik drums are used at Y-12 facilities and Transuranic Waste Processing Center (TWPC) to store nuclear materials. Y-12 has a large population of these drums. TWPC has 428 affected Skolnik drums, of which 3 drums contain waste. CNS initiated the new information process to address this potential issue. TWPC issued a nonconformance report. URS CH2M Oak Ridge, LLC continues to evaluate potential impacts from this issue.