

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 16, 2018

TO: C. Roscetti, Technical Director
FROM: M. McCoy, Acting Resident Inspector
SUBJECT: Oak Ridge Activity Report for Week Ending August 17, 2018

9212 East Line Casting Hydraulic Fluid Leaks: On July 18 and August 2, 2018, production personnel noted hydraulic fluid leaks in furnace zone D and zone F, respectively (see 8/3/18 and 8/10/18 reports). On August 7, 2018, personnel noticed a small amount of what appeared to be hydraulic fluid in the furnace C bowl. Criticality safety deficiencies were declared based on all three events. This week, Consolidated Nuclear Security (CNS) personnel held a joint fact finding for the three events. CNS and NNSA Production Office (NPO) personnel did not identify a common cause for the recent hydraulic leaks, but did note that the zone D and zone F hydraulic leaks occurred at fittings in the piping system, and specifications for pipe fitting—such as torque values and the use of sealant or Teflon tape—rely heavily on skill-of-the-craft.

The source of the fluid in the furnace C bowl could not be determined and did not appear to be a result of a hydraulic leak as originally assumed. Given that the fluid source does not appear to be a hydraulic leak, CNS personnel intend to better characterize the amount of fluid in the bowl and reevaluate whether the presence of the fluid represents a criticality safety deficiency.

Nuclear Criticality Safety (NCS): Unaddressed NCS aspects of mop use in fissile solution processing areas have been an open NPO issue since January 2007 (see 10/14/16, 1/27/17, 5/19/17, and 6/23/17 reports). To address NPO's issue, contractor NCS staff developed a new criticality safety evaluation (CSE) that analyzes spill cleanup and decontamination activities in Building 9212 large geometry exclusion areas. CNS procured and fabricated specifically designed items required for implementation (e.g., new mop head storage racks, inherently geometrically safe buckets) and trained operations personnel. On August 15, 2018, CNS declared the new CSE implemented.

NPO has used this issue as a significant example in recent discussions with CNS on the efficiency and effectiveness of its issues management system. CNS intends to complete a causal analysis of the delayed CSE development and implementation.

Uranium Processing Facility (UPF): The acting resident inspector accompanied NPO and CNS personnel on a criticality safety “virtual walkdown” of UPF, including a presentation on the CSE development process for UPF. CNS personnel kicked off development of several UPF CSEs last week. They intend to complete initial CSEs using information from 3D models and design drawings. They plan to use these initial CSEs in conjunction with as-built drawings and physical walkdowns to inform subsequent revisions. CNS personnel noted that while this method would preclude CNS from following Y-12's procedures for CSE development (as Y-12's procedures assume a completed facility), early CSE development allows for more informed decision making for CSE implementation and the ability to tailor the design and implementation of safety structures, systems, and components based on insights gathered through the development process.