

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 8, 2016

TO: Steven Stokes, Technical Director  
FROM: William Linzau and Rory Rauch, Site Representatives  
SUBJECT: Oak Ridge Activity Report for Week Ending January 8, 2016

**Building 9212/Nuclear Criticality Safety (NCS):** Stack 110 is the primary ventilation system supporting Building 9212 casting operations. This week, NCS engineers documented an NCS deficiency after Production personnel reported approximately two feet of water in the discharge tube below the Stack 110 dust collector. The discharge tube geometry is NCS-safe; however, the criticality safety evaluation for the Stack 110 system requires the dust collector to limit water ingress such that water cannot accumulate to the cartridge filter housings above the discharge tubes. On this occasion, the water level was not approaching the filter housings, but nonetheless represented an off-normal condition that necessitated NCS guidance on the actions to be taken for recovery. Building 9212 casting operations are paused while NCS and system engineers determine the water ingress location and develop recovery actions.

**Highly Enriched Uranium Materials Facility (HEUMF):** Last week, the on duty HEUMF shift manager discovered an audible low coolant level alarm while passing by the HEUMF diesel generator enclosure. After consultation with the responsible system engineer, the shift manager determined the alarm rendered the diesel generator inoperable. An operable diesel generator is one of the conditions of operability for HEUMF's safety significant power distribution system, thus the shift manager took action to enter the appropriate limiting condition of operation for the system within the required time frame. An NPO engineer, recognizing the informal nature of the discovery of the alarm, questioned whether CNS had instituted a more reliable means of detecting this condition. CNS indicated that there is an alarm at the Plant Shift Superintendent's (PSS) office; however, the alarm can be triggered by several different conditions of varying significance. In this instance, a cautionary low fuel level alarm had been triggered earlier in the week, which prevented the PSS from recognizing the low coolant level alarm condition affecting system operability. CNS plans to develop a corrective action plan to address this concern.

**Building 9212/Briquette Processing:** This week, Enriched Uranium Operations personnel processed an enriched uranium (EU) briquette in the Holden Gas Furnace (HGF). This was the first briquette processing operation in the HGF since engineering personnel completed efforts to fortify the briquette container (see 12/25/15 report). The briquette fully oxidized within a desired time frame; however, the liner that was used to fortify the briquette container experienced some damage during the run. Y-12 engineering personnel never intended for the liner to be an enduring solution and now plan to pursue efforts to redesign the container.

**Building 9206:** On December 24, 2015, the Y-12 Site experienced a disruption of electrical power due to a lightning strike on the off-site public utility power distribution system. The electrical power surge caused a series of off-normal conditions and loss of power across the site, which led to the de-energization of fans in Building 9206. This resulted in a build-up of heat and elevated temperatures in the building as the steam heating system continued to operate without fan convection. The elevated temperatures caused a sprinkler head on the dry-pipe fire suppression system to activate and discharge water in the facility. The Y12 Fire Department responded to the alarm, isolated the suppression system and commenced fire patrols until the system could be restored. Building 9206 is an inactive facility, but previously housed uranium processing equipment and has enough EU inventory to warrant NCS controls. This event is similar to an event last November in Building 9202 (see 12/4/15 report) and reinforces that CNS should consider taking actions to ensure appropriate facility-specific planning is in place to prevent equipment damage or hazardous conditions following unplanned electrical transients.