

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Steven Stokes, Acting Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending April 26, 2013

Casting Operations: B&W declared a potential inadequacy in the safety analysis (PISA) pertaining to the newly postulated criticality accident scenario affecting induction furnace casting operations in E-Wing of Building 9212 (see 4/19/13 report). The affected operations will remain paused until the unreviewed safety question (USQ) determination for the PISA is complete.

While operations were paused, production personnel replaced the bag filters for the E-Wing process exhaust ventilation system. This is a hazardous operation that requires the operators to work under a confined space permit, utilize fall protection (the filter housing is greater than 20 feet high), and wear supplied air respirators as protection from potentially significant airborne concentrations of uranium oxide. This system is scheduled to be upgraded as part of the Nuclear Facility Risk Reduction project in November 2013. As part of the upgrade, the bag filter housing will be replaced by a cartridge filter housing with a bag-in/bag-out feature that will significantly reduce the radiological hazard during filter replacement operations. In addition, the new filter housing will have a backflush capability, which is no longer functioning on the existing filter housing. Currently, operators must manually “shake down” the bag filters when the pressure differential is out of specification. These shakedown present most of the same hazards as a filter replacement operation.

Building 9212 Operations: This week, engineering personnel completed their evaluation of the laboratory analysis of the solution samples taken after operators observed suspected organic solutions and solid precipitate in the primary intermediate evaporator (PIE) system (see 3/29/13 report). The laboratory results indicate that organic solutions are not present in significant quantities (only small amounts may exist, per the applicable criticality safety evaluation); therefore, engineering personnel recommended that the PIE system return to normal operation. Engineering personnel believe that the solid precipitate observed in the system will either react with the nitric acid in the system or be captured in the filter bank downstream of PIE. B&W plans to resume operations on the PIE system early next week.

B&W determined that the USQ for the recently declared PISA involving unanalyzed criticality accident scenarios during Holden Gas Furnace operations was negative (see 4/5/13 report). Nonetheless, B&W plans to repair the degraded brick heating surface that led to the PISA. The brick is only degraded on one side of the furnace; therefore, B&W performed a temporary modification that consisted of installing a blank flange on the natural gas supply line and disconnecting the low natural gas flow alarm on the affected side of the system. B&W plans to resume operations on the unaffected side of the furnace next week.

B&W held a fact-finding meeting for events that occurred during the installation of a new isolation valve in a steam condensate system. Following pipe removal, and despite the use of a permitted lockout/tagout (LOTO), condensate flowed out of the opening from the downstream steam condensate header, which was still in use draining condensate from other areas of the building. The valve was being installed to provide an isolation point to prevent such occurrences during the semiannual surveillance required on an upstream conductivity probe, which is used for criticality safety purposes to monitor the line for the presence of fissile material. Prior to restarting work and installing the valve, maintenance workers plan to provide additional LOTO isolations to components feeding the condensate header to limit the chance for recurrence.