

## 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 July 19, 2013

R. Tontodonato was at Y-12 to observe site rep activities.

**Highly Enriched Uranium Materials Facility (HEUMF):** The site rep was briefed by HEUMF management and engineering personnel on the design modifications for the roll-up door that failed to close during activation of the HEUMF secondary confinement system (see 5/24/13 report). The design modifications remove the acute angles on the cable that caused the deformation and knotting upon release. In addition, a more flexible cable has been procured to prevent kinks and allow proper operation of the door. Work has started to install the modified design for this door, but system engineers plan to evaluate the other doors in HEUMF to ensure that they do not have the same failure mechanism.

**Building 9212:** Last month, rainwater was discovered in the collection traps of the bag filters that are part of the exhaust ventilation system supporting casting operations in E-Wing. In response, maintenance personnel tried to find and repair the roof leak, but the water ingress was not effectively prevented until workers installed a tarp above the bag house. To allow continued operation, the Safety Analysis Engineering and Enriched Uranium Production (EUP) managers approved a technical deviation to the criticality safety evaluation that lowered the bag filter mass limit by an order of magnitude. In addition, the frequency of non-destructive assay holdup measurements on the filters was increased to every two weeks and workers are now required to inspect the traps daily. NPO and B&W management have indicated that these restrictions will remain in place until the new bag house being constructed is put in service. These lower limits will require more frequent bag filter “shakedowns,” which will increase the risk of radiological exposure to workers (see 4/26/13 report). The bag house is planned to be replaced as part of the Nuclear Facility Risk Reduction project in the fourth quarter of fiscal year 2013.

EUP last performed reduction operations in September 2012. EUP had planned to resume operations in April 2013, but a lack of feed material due to the unavailability of upstream purification and oxide conversion processes prevented operations from resuming (see 3/29/13 report). System availability in Building 9212 has since improved (see 5/31/13 report) and EUP was prepared to resume reduction operations last week, but operations were further delayed by a ground fault in the switchgear that supplies power to the exhaust fan for several of the hoods that support reduction operations. The fault cleared initially, but reappeared several days later. At that time, workers observed water dripping out of a junction box fed from this switchgear. After applying a lockout/tagout to the affected switchgear, electricians investigated the junction box and found significant moisture buildup and signs of corrosion. Additional inspections revealed moisture in the conduit line upstream of this junction box. These inspections, along with insulation resistance test results, led system engineers to conclude that moisture was the likely cause of the ground fault. System engineers are uncertain regarding the source of the moisture. Prior to re-energizing the affected feeder, B&W plans to replace the affected cables and address all postulated sources of moisture in this conduit line.

This specific feeder line was visually inspected as part of the Building 9212 electrical cable aging review plan in September 2010 and no issues were identified. The plan acknowledges that the approach used—to visually inspect only those portions of the feeder cables that are accessible (e.g., junction boxes)—would not provide complete assurance that all cable degradation issues would be identified.