

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Steven Stokes, Technical Director  
FROM: William Linzau and Rory Rauch, Site Representatives  
SUBJECT: Oak Ridge Activity Report for Week Ending August 29, 2014

**Highly Enriched Uranium Materials Facility (HEUMF):** Late last week, a worker sustained a fractured leg while off-loading a drum-like container from an onsite transportation vehicle. The worker was manually moving the loaded drum to the back of the truck using a “tip and roll” method in preparation for moving the drum into the facility via a ramp. The drum became unstable and, as the worker repositioned his feet to regain control of the drum, the worker’s left foot stepped backward off the side of the ramp. The loss of footing caused the worker and the drum to fall and the drum contacted and fractured the worker’s right leg. Prior to HEUMF beginning full operations, the ramp was modified to make it easier for workers to position it inside the truck. The modification may have contributed to the event, as it was in the area where the worker stepped off the ramp and lost his footing. CNS management is pursuing corrective actions that focus on reducing the amount of manual drum movements by maximizing the use of drum handling equipment across the site and evaluating engineered controls to eliminate or mitigate the footing/fall hazard. Lastly, the Y-12 Site Manager has directed the formation of an accident investigation team that will start its review next week.

**Building 9212:** A CNS design engineer discovered an error in a calculation that supports safe operation of the E-wing dry vacuum systems. The engineer was conducting an extent-of-condition review as one of the corrective actions from the supply pressure discrepancy on the Oxide Dissolver system (see 8/22/14 report). The engineer discovered that the amount of vacuum pulled by the systems is measured in inches of mercury but the calculation and various other controlled documents had the units of vacuum in inches of water (the difference is roughly a factor of 14). This error was initially introduced to the calculation in 1996 and has been carried forward into the current analysis. The calculation was used as the basis for the timing of an interlock that prevents a criticality event in downstream components of the dry vacuum systems. When design engineers re-ran the calculation using the higher vacuum value, the time to reach the hazardous condition was faster than the time credited in the Technical Safety Requirements for the interlock to actuate. Based on this information, the Operations Manager declared a Potential Inadequacy in the Safety Analysis (PISA).

The extent- of-condition review from the Oxide Dissolver supply pressure issue has also revealed that a calculation supporting the operation of an automatic condensate isolation valve used the wrong number of steam traps (eight versus nine) associated with the Tray Dissolver system. The Operations Manager entered Y-12’s pre-PISA process following this discovery.

**Uranium Program Manager (UPM):** The UPM was at Y-12 this week to receive briefings on CNS’s initial response to the UPM’s recent letters of direction affecting Y-12’s enriched uranium infrastructure strategy (see 8/15/14 report). The briefings primarily served as a forum for the UPM, along with NPO and UPO representatives, to provide CNS feedback on its preliminary approach to addressing the UPM’s letters. The topics included the status of the Calcliner, Electrowinning (ER), and Area 5 de-inventory projects; a review of Red Team recommendations; and the status of risk reduction measures in mission-critical facilities.

Late last week, the UPM issued a letter to the NPO manager approving Critical Decision (CD)-0 for the Calcliner project. The rough order of magnitude total project cost is estimated between 20 million and 79 million dollars with a point estimate of 40 million. In the letter, the UPM delegates the NNSA Associate Administrator for Infrastructure and Safety (NA-00) to serve as the acquisition executive until the CD-1 determination.