

## 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 March 21, 2014

Staff members Z. Beauvais, E. Gorrepati, D. Kupferer, J. McComb, and R. Oberreuter were at Y-12 to review the integration of nuclear criticality safety into the design of the Uranium Processing Facility (UPF) Project. The staff team also reviewed Y-12's processes developing, designing, implementing, maintaining, ensuring quality assurance of and performing configuration management of criticality safety controls as compared to those processes associated with safety-significant controls.

**Aging Infrastructure:** This week, a portion of a concrete ceiling in Building 9204-2 fell into an area that had been roped off to restrict personnel access. Large chunks of concrete rebounded into a frequently used walkway and an adjacent welding station. No personnel were struck by the concrete, but workers had used the welding station earlier that day.

In April 2013, a B&W structural engineer wrote a repair plan for the ceiling that was based on a 2009 inspection that found serious delamination and potential spalling of this concrete slab. The engineers that had performed the inspection noted signs of extensive corrosion of the concrete and steel rebar. They concluded that this corrosion was caused by Kathene (aqueous lithium chloride) from a dehumidification unit on the floor above the area in question. This unit has been drained and out of service since 1988. The repair plan was not implemented due to resource constraints, but the floor immediately under the area of concern remained roped off and posted with signs requiring personnel to contact the shift manager and don a hard hat prior to entry.

After the event, the site rep walked down the area with the NPO facility representative and B&W structural engineers. The group noted that concrete debris had rebounded approximately 20 ft. from the area directly under the location of the spalled concrete. Some of the concrete chunks were greater than 1 ft. in diameter and 2 in. thick. In total, the affected area on the ceiling was approximately 8 ft. long and 3 ft. wide. The rebar in this area was severely corroded and residual pieces of rebar fell with the spalled concrete to the floor. B&W reported this event as a "near miss" and has started actions to understand the extent of condition. NPO management is also drafting a letter to provide additional expectations regarding B&W's response to the event.

**UPF:** In response to a letter of direction from the UPF Federal Project Director (see 2/7/14 report), B&W issued a letter on March 6<sup>th</sup> identifying those "low equity" design activities that could be suspended or slowed given the anticipated outcome of the ORNL Director's ongoing evaluation of project alternatives. In general, the low equity activities identified in the letter are those associated with capabilities currently housed in Buildings 9215 and 9204-2E (i.e., machining, assembly, disassembly, and quality evaluation capabilities). Design activities for most of the capabilities currently housed in Building 9212 were designated high equity, with the notable exception of metal purification and production. This week, the UPF Federal Project Director issued a letter concurring with B&W's response and directing the contractor to immediately suspend design work on the identified low equity activities.