

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Timothy Dwyer, Technical Director  
FROM: Wayne Andrews and David Kupferer, Site Representatives  
SUBJECT: Oak Ridge Activity Report for Week Ending November 19, 2010

**Staff Visit.** Staff member David Campbell visited Y-12 this week to augment site representative coverage. Mr. Campbell met with Y-12 management to discuss the status of several projects, programs and initiatives including the following: the Uranium Processing Facility (UPF) project, the Nuclear Facility Risk Reduction project, the Integrated Facility Disposition project, YSO oversight, conduct of operations, criticality safety, and startup readiness assurance. Mr. Campbell also conducted walkdowns of the major nuclear facilities including Buildings 9212, 9215, 9204-2E, 9720-5 and 9720-82 (the Highly Enriched Uranium Materials Facility). Some noteworthy items from the visit include the following:

- The site representatives observed B&W's restart of the disassembly glovebox in Building 9204-2E. This glovebox was last operated about 18 months ago.
- The UPF project is revising its Safety Design Strategy (SDS) and plans to submit the revision to YSO next month (see the 1/22/10 and 5/21/10 reports). B&W has informally briefed the staff and site representatives on the more significant changes it is planning to make to the SDS as part of this revision. The UPF project is also planning to kick-off its 'vertical slice' review next month as described in the UPF 'roadmap' (see the 9/3/10 report). This vertical slice review is to ensure (1) all safety structures, systems, and components and their associated functional requirements have been identified and (2) that this information is being effectively incorporated into the design effort.
- B&W is planning to finish removing all of the legacy material from Building 9201-5/5E within the next several months (see the 3/12/10 and 5/14/10 reports).

**Technology Development.** B&W recently issued a Project Execution Plan to procure and install two gloveboxes in Technology Development Building. These gloveboxes are needed to support research and development efforts associated with the possibility of using Direct Electrolytic Reduction and Electrowinning (DER/ER) technology to recover uranium from various material forms. B&W researchers are currently investigating the possibility of using DER/ER processes as an alternative to some of the chemical processes currently utilized in Building 9212. Successful implementation of the DER/ER process would reduce the number of chemical processing operations required and the overall footprint of the chemical processing area. This technology has been demonstrated at Argonne National Laboratory. Given the immaturity of B&W's research and development efforts in this area, DER/ER processing is not currently included in the baseline for the UPF project. B&W plans to install the gloveboxes this spring.

**Uranium-233 Disposition Project.** This week, the Core Team met in Oak Ridge to discuss the current status of the disposition alternatives analysis and to assign actions to team members that will allow for the draft report to be completed in December and the results of the review to be briefed to DOE Headquarters in January (see the 11/5/10 report). DOE's programmatic needs may include shipping Zero Power Reactor (ZPR) plates to the Critical Experiments Facility at the Nevada Test Site and utilizing some of the high purity metals and oxide powders for future use in either the Test Readiness Program or at New Brunswick Laboratory. It appears that direct disposal of the Consolidated Edison Uranium Solidification Project (CEUSP) material—which makes up almost three-fourths of the Uranium-233 inventory—is possible although some work still needs to be done to ensure the viability of this alternative.