

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Timothy Dwyer, Technical Director  
FROM: Rory Rauch and David Kupferer, Site Representatives  
SUBJECT: Oak Ridge Activity Report for Week Ending July 27, 2012

Board members Peter Winokur, Joseph Bader, John Mansfield, and Jessie Roberson and staff members David Campbell, Tim Dwyer, and Dan Ogg visited Oak Ridge this week.

**Board Visit to Oak Ridge.** NPO, DOE ORO-EM and contractor personnel briefed the Board members and staff on nuclear operations and safety initiatives at Y-12 and ORNL. The Board members and staff walked-down Building 9204-2E, Building 9215, Building 9202 (the Technology Development Building), and ORNL's Transuranic Waste Processing Center (TWPC). Some noteworthy items from the visit include the following:

- Uranium Processing Facility (UPF) – B&W plans to re-submit the Preliminary Safety Design Report (PSDR) to NPO next month (see the 6/1/12 report). B&W is planning to issue a limited-scope Preliminary Documented Safety Analysis (PDSA)—to include PDSA-level analysis of the building shell and facility safety systems (e.g., fire suppressions system) and PSDR-level analysis of the process systems—in September 2013 and issue a full-scope PDSA in September 2014. The UPF project team is planning to begin site preparation activities—including demolition of existing buildings, grading and excavation, rerouting of utilities, and placing the mass fill—in 2013. B&W is still developing its strategy associated with the deferred scope of work for UPF (see the 6/15/12 report). B&W stated that it is in the process of defining break points in the design for the deferred scope with the intent of ensuring the safety basis associated with the deferred scope can be sufficiently developed to support future final design, procurement, and construction activities. B&W is planning to issue its revised analysis of post-seismic fires in the next few weeks (see the 1/20/12 report).
- TWPC – WAI initiated operation of the Cask Processing Enclosure last week (see the 7/6/12 report). WAI is developing a project to process and dispose of approximately 2000 m<sup>3</sup> of legacy sludge current stored at TWPC and ORNL. This processing is planned to be accomplished by solidifying the sludge in a form that is acceptable for disposal at Nevada National Security Site. WAI is planning to develop and execute large-scale prototypical testing of its technologies for mobilizing, blending, and mixing the sludge. WAI is in the process of identifying lessons learned from other complex-wide sludge treatment projects to incorporate into the project. WAI is developing its (a) Safety Design Strategy in compliance with DOE Standard 1189, *Integration of Safety into the Design Process* and (b) Preliminary Project Execution Plan in compliance with DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*. WAI's current schedule for the project includes completing final design and beginning construction in 2015 and processing sludge beginning in 2018 and completing in 2021.
- Technology Development – B&W has operated its first generation Direct Electrolytic Reduction (DER) prototype for a few months and is assessing the equipment to identify modifications that could improve the efficiency of the process (see the 4/20/12 report). B&W is still in the process of completing installation and testing of a second generation Electrorefining (ER) prototype. B&W is planning to install production versions of ER and DER in Building 9215 by 2016 and 2018, respectively. B&W noted that it is relying on production versions of DER and ER to augment Building 9212 uranium purification and metal production capabilities and to facilitate shutting down enriched uranium operations in Building 9212 beginning in 2019 (see 3/23/12 report).