

## 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 August 26, 2011

**Uranium Processing Facility (UPF).** The System for the Analysis of Soil Structure Interaction (SASSI) is a computer program for performing finite element analysis to analyze soil-structure interaction during seismic ground motions. In response to the Board's letter dated 4/8/11 regarding concerns associated with use of SASSI in the seismic analysis and design of nuclear facilities, NNSA Headquarters requested that the Site Offices provide information regarding use of SASSI. This week, YSO responded to this request. YSO's response states that the results obtained from SASSI for UPF are conservative. YSO's response also states that this conservatism can be assumed for prior use of SASSI during design of the Highly Enriched Uranium Materials Facility since its site conditions and building characteristics are similar to those modeled for UPF.

**Building 9212 75-Ton Press Fire Extent of Conditions (EOC) Review.** B&W issued a preliminary EOC report. The EOC review intent was to determine the risk to other processes and facilities for a similar event as the one reported on June 6<sup>th</sup>, regarding the Building 9212 75-Ton press. The site-wide vulnerability to a similar fire was found to be small due to the widespread use of noncombustible filter media and differential monitoring of hood and/or exhaust flow to minimize hold up. However, the EOC review concluded that Buildings 9212 and 9204-2E have other systems that present vulnerabilities similar to the 75-Ton press. B&W is actively addressing these vulnerabilities.

**Technology Development.** B&W recently installed an Electrowinning (ER) prototype in Development (i.e., Building 9202) and has produced several batches of refined depleted uranium metal (see the 11/19/10 report). B&W plans to install a Direct Electrolytic Reduction (DER) prototype later this year. B&W anticipates achieving Technology Readiness Level (TRL) - 6 by the end of FY2013 for both of these technologies. If testing with the prototypes is successful, B&W plans to evaluate the possibility of (a) installing ER and DER in an active Y-12 nuclear facility to augment existing operational capabilities and (b) including ER and DER in the baseline for the UPF project. If successful, these technologies could:

- Improve nuclear safety, reduce risk, and remove certain hazards;
- Accelerate and improve Building 9212 transition and shutdown (e.g., allow early shutdown of some areas while maintaining purified metal capability during UPF construction); and
- Reduce operating requirements/costs (e.g., 25 fewer surveillances, 150 fewer procedures, and 500 fewer calibrations);
- Reduce complexity; and
- Free up space in UPF and potentially reduce UPF equipment costs.

**ORNL Tank W-1A.** Board staff members observed the DOE Operational Readiness Review this week. There will be findings but many have been closed during the review and the contractor anticipates closing the remainder next week. There does not appear to be any major findings that would delay the planned startup on or about September 7<sup>th</sup>. An outbrief is scheduled for Monday.