

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 September 17, 2010

Criticality Safety. This week, DOE's Nuclear Criticality Safety Program manager visited Y-12 to get updates on several B&W initiatives related to criticality safety.

Criticality Safety Evaluation Improvements and Upgrades – In a letter to NNSA dated 1/23/09, the Board noted that the Criticality Safety Evaluations (CSEs) prepared by B&W for operations in the Highly Enriched Uranium Materials Facility (HEUMF) did not comply with some requirements from national consensus standards, DOE directives, and Y-12 administrative procedures. In particular, some credible abnormal conditions were not properly analyzed because the terms 'double contingency' and 'unlikely' were misapplied. In response to the Board's letter, B&W committed to review active CSEs (137 in total) to identify similar non-compliances (see the 7/30/10 report). B&W recently completed this review and issued a report, which included the following observations:

- Several CSEs identified some events to be 'unlikely' that did not meet the criterion for unlikely and should have been considered anticipated abnormal operating conditions,
- Several CSEs did not assign specific values to changes in process parameters, and
- More than half the CSEs did not specifically address multi-parameter events associated with natural phenomena and design basis accidents.

B&W concluded that although it plans to make improvements to the CSEs, the CSE reviews confirmed that additional controls are not needed to ensure the safety of nuclear operations. B&W is planning to incorporate the potential improvements identified during this review into its CSE Upgrade Plan. During the next few weeks, B&W is planning to finalize four upgraded CSEs for wet chemistry operations in Building 9212 (see the 12/11/09 report).

Benchmarking Visits – In July, B&W visited Los Alamos National Laboratory and Lawrence Livermore National Laboratory as part of an initiative to benchmark other criticality safety programs (see the 6/25/10 report). Based on observations from these trips, B&W is developing improvement actions related to the following aspects of the Y-12 criticality safety program: (a) personnel qualification, (b) annual assessments, (c) CSE format and content, (d) work prioritization, and (e) safety basis integration. B&W is planning to conduct additional benchmarking visits at B&W Lynchburg and Nuclear Fuel Services.

Uranium Processing Facility (UPF) – During the next few weeks, B&W is planning to issue the next iteration of several criticality safety process studies for UPF. B&W intends for these studies to reflect improved criticality safety strategies being implemented for future operations in UPF as compared to those utilized in current operations (e.g., liquid carts versus safe bottles, three container types versus dozens of container types, etc.). B&W is planning to periodically update these studies in parallel with the maturing design and safety analyses associated with UPF.

Special Material Capability Project. Three weeks ago, B&W determined that a readiness certification assurance (RCA) process would be used to validate readiness efforts for the Special Material Capability project (see the 8/6/10 and 1/8/10 reports). This is the same process that was successfully used during the startup of HEUMF. During the past few weeks, B&W line management has been presenting evidence to an RCA Board to affirm that approximately 110 performance objectives associated with the Special Material Capability Project have been met. B&W is planning to initiate its Readiness Assessment within a few weeks.