

## 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 July 22, 2011

**Highly Enriched Uranium Materials Facility (HEUMF).** Staff members F. Bamdad, D. Campbell, and C. March were at Y-12 to discuss the safety analyses and safety systems for HEUMF (see the 6/24/11 report). These discussions primarily focused on the analysis and controls associated with the design basis and beyond design basis fire scenarios. The staff identified two primary concerns: (1) the unmitigated design basis fires identified in the safety analysis documents are limited to scenarios that were determined to be credible (rather than possible) based on the implementation of passive design features and safety management programs and (2) the scenario involving a small fire (i.e., a fire that would not result in actuation of the fire suppression system) is not well defined and evaluated in the safety basis documents.

**Uranium Processing Facility/Building 9212 Operations.** Last year, B&W issued an Enriched Uranium Transition Plan to improve integration of the activities necessary to transition enriched uranium operations from existing facilities to UPF. This plan identified that enriched uranium operations in Building 9212 would be shut down by 2021. Six weeks ago, NNSA provided formal direction to B&W regarding the scope and schedule for the UPF project (see the 6/17/11 report). Based on recent changes to NNSA's Production and Planning Directive, B&W informed YSO that it expects Building 9212 will be unable to produce a sufficient quantity of purified enriched uranium metal to support customer requirements beginning in 2019. This issue is exacerbated by the capability gap created by the current plan to shutdown enriched uranium purification and metal production operations in Building 9212 prior to startup of those capabilities in UPF. B&W is evaluating actions that could be taken to increase its metal production capability. B&W expects to update its Transition Plan by October to include recommended actions that are identified during this evaluation.

The site representatives note that numerous equipment issues during the past year have significantly hampered operations associated with enriched uranium purification and metal production in Building 9212. In particular: the intermediate evaporator was down for 4 months; the oxide dissolver was down for 3 months; the wiped film evaporator and denitrator were down for 5 months; the oxide conversion facility was down for 7 months; and reduction was down for 5 months. The serial nature of these operations compounds the overall operational impact of these equipment issues.

**Small Fire Event Update.** Last week, B&W completed its independent investigation of a small fire that occurred during routine operation of the 75-ton press in Building 9212 (see the 6/10/11 report). The investigation team concluded that the fire was most likely a result of the energetic release of hot metal shards while breaking uranium rather than spontaneous combustion of uranium particulate trapped in the filter media. The investigation team also noted that B&W had no plan or requirement to periodically inspect the filter. Several recommendations were identified in the investigation report including the following: (1) use a bronze wool roughing filter in the 75-ton press rather than a combustible filter, (2) periodically inspect the bronze wool filter for uranium holdup and accumulation of dust and dirt, and (3) evaluate use of a spark arrestor in the 75-ton press in lieu of or in addition to the bronze wool filter. This week, subsequent to replacing the combustible filter with a bronze wool filter, B&W resumed limited operation of the 75-ton press.