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 January 27, 2012

Uranium Processing Facility (UPF). Staff members J. Blackman, D. Grover and Z. McCabe visited Y-12 to review the structural design of UPF. Separately, this week B&W sent a letter to YSO that discusses the following unresolved technical issues identified by the Board and the Board's staff (see the 4/1/11 and 10/21/11 reports):

- Weaknesses in the safety analysis documentation including inadequate (a) identification of controls, (b) identification of control safety functions and functional requirements, and (c) derivation of consequence estimates in the accident analysis.
- Inadequate strategies for preventing criticality accidents and confining hazardous materials following a design basis seismic event.

B&W has developed and issued a plan to address these issues that include the following actions: (1) develop a Hazard Evaluation Studies Upgrade Plan by February 17th, (2) revise the Safety Structure, System, and Component Table (see the 2/11/11 report) to ensure adequate functional requirements have been identified, (3) develop a sensitivity analysis that analyzes bounding consequence estimates for design basis accidents by March 30th, and (4) obtain guidance from DOE Headquarters on DOE requirements associated with the seismic design of both confinement systems and design features for preventing criticality accidents. B&W's letter noted that some of these issues involve interpretation of DOE directives and that resolution of these issues is likely to highlight areas where DOE requirements and guidance should be clarified or supplemented.

Lightning Protection. Staff members A. Gwal and D. Campbell visited Y-12 to review lightning protection systems. In March 2010, B&W submitted an equivalency request to YSO associated with the requirements of NFPA 780, Standard for the Installation of Lightning Protection Systems. Specifically, B&W's equivalency request presents alternate means for meeting NFPA 780 for some nuclear facilities, based on the presence of existing roof structures and electrically continuous structural elements. In April 2010, YSO approved B&W's equivalency but directed B&W to address how contractual requirements for testing, maintenance, and inspection of equivalent lightning protection systems would be met. Recently, B&W completed an evaluation of the lightning protection coverage for Building 9212 that included electrical continuity testing of structural elements. The results of this evaluation included the identification of several lightning protection gaps on the roof of Building 9212 and that the six structural elements tested were electrically continuous. B&W is planning to perform similar evaluations for Buildings 9215 and 9204-2E and has committed to subsequently develop appropriate testing, maintenance, and inspection programs.

Building 9720-5 Documented Safety Analysis (DSA). Last week B&W declared a Potential Inadequacy in the Safety Analysis for Building 9720-5 due to the identification of a discrepancy in its DSA regarding the Criticality Accident Alarm System. The DSA requires overlapping coverage in certain areas of the building and during analysis it appeared that this was not the case. Subsequently B&W entered a Limiting Condition for Operation which prohibits personnel from remaining in or re-entering the area and facility. B&W requested YSO approval of a Justification for Continued Operations (JCO) based on compensatory measures identified in the JCO which will remain in effect until the DSA is changed or overlapping CAAS coverage is provided. This week YSO approved the JCO.