DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 11, 2009

TO: Timothy Dwyer, Technical Director
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending December 11, 2009

Staff members Abrefah, Anderson, and Pasko and outside expert J. King observed the first week of NNSA's Operational Readiness Review for the Highly Enriched Uranium Materials Facility.

Highly Enriched Uranium Materials Facility (HEUMF). On Monday, NNSA began the Operational Readiness Review (ORR) for startup of HEUMF. Last week, one of the three exhaust fans in the Secondary Confinement System (SCS) shut-down unexpectedly during a diagnostic check to evaluate a prior fan shutdown event during the B&W ORR (see the 11/20/09 site rep. report). B&W determined that fan to be inoperable. This week, while B&W was performing the loss of normal power surveillance for the NNSA ORR, one of the remaining two exhaust fans also shutdown unexpectedly. B&W determined the second fan to be inoperable. Subsequently, B&W declared the SCS to be inoperable and entered the Limiting Condition of Operation (LCO). The LCO requires B&W to verify the fire protection systems on a weekly basis. NNSA is planning to complete the ORR next week.

Criticality Safety/Conduct of Operations. YSO and B&W management held their quarterly senior management meeting on the Y-12 criticality safety program. YSO management inquired on actions taken to address the conduct of operations concerns with recent criticality safety violation events in Building 9212 (see the 11/20/09 site rep. report). B&W discussed various briefings to reinforce expectations and noted improvements being made in pre-job briefs in Building 9212. B&W management indicated that a written summary of the actions would be provided to YSO. High priority Criticality Safety Evaluation upgrades to current standards for certain wet chemistry operations have been drafted and will be undergoing internal review.

Uranium Processing Facility (UPF). B&W has submitted a revision of the UPF Safety Design Strategy (SDS) to YSO for review and approval. Changes include the proposal for a revised, "tailored" Critical Decision strategy (see the 10/23/09 site rep. report) and plans to request YSO approval for controlling a single parameter (rather than multiple parameters) to ensure criticality safety of some processes (similar to the deviations discussed in the 11/21/08 site rep. report). B&W has developed preliminary, unmitigated consequence analyses to support the SDS that B&W considers indicates no need for safety-class controls. Primary safety strategies rely on limiting storage of nuclear material to "in-process" materials and relying on the design of the facility and engineered controls (e.g., gloveboxes, containers, etc.) for worker protection.

Two months ago, the staff reviewed UPF geotechnical and structural engineering design (see the 10/9/09 site rep. report). In response to the staff's observations from that review, B&W recently issued its *Seismic Analysis and Design Plan for Safety Related Structures*. B&W's plan includes roles and responsibilities of the structural analysis and design team in addition to covering other technical details of the geotechnical and structural engineering design.

ORNL Building 3019/Uranium-233 Disposition. DOE-ORO completed its combined Phase I and II verification review (see last week's site rep. report) of Isotek's Integrated Safety Management System (ISMS). The review team concluded the ISMS description is adequate but did identify some findings regarding Quality Assurance, activity-level work planning, design document control, and certain radiological work practices. The review team also identified observations in several areas. The review team is completing its report.