

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 17, 2009

TO: Timothy Dwyer, Technical Director  
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives  
SUBJECT: Activity Report for Week Ending April 17, 2009

**Furnace Reduction Operations.** Last November, B&W formally suspended furnace reduction operations after discovering damage of two reduction reactor vessels and one lid and reported a Potential Inadequacy in the Safety Analysis (PISA). After determining that the credited safety function of the vessel is not lost during such events and, therefore, no Unreviewed Safety Question (USQ) exists, B&W resumed furnace reduction operations last week (see the 4/10/09 site rep. report). Early this week, B&W discovered that the lid of a recently fired reactor vessel was damaged (similar to the damage discovered last November) despite that corrective actions had been implemented. B&W suspended reduction operations, entered the PISA process, determined that no PISA exists (i.e., the damage is bounded by the damage evaluated in the recently completed USQ determination), and subsequently resumed operations. The site reps. note that an Initial Event Information report was not issued on this most recent damage.

Later this week, after firing another reactor vessel, operators were disconnecting the pressure sensing line from the reactor lid when they observed sparks from the reactor-vessel-side of the connection. Operators regularly observe sparks (from unreacted calcium) while removing the crucible cover from within the vessel, but they do not recall observing sparks while disconnecting either the pressure sensing line or pressure relief line from the vessel lid. An Initial Event Information report was developed and issued in response to this event. B&W safety basis personnel have determined that there is not a PISA associated with this event; however, operations remain suspended while engineering personnel determine the cause and whether changes are warranted.

**Fire Protection.** During a walk-down in the Assembly/Disassembly Building, the site rep. observed several drums of oil in a main processing area, some with dispensing outlets tapped in the lid. Following site rep. inquiry regarding compliance with fire protection requirements, B&W determined that the oil and other flammable/combustible liquids present in that fire zone exceeded a limit of 120 gallons. The limit, noted in the Y-12 Fire Protection Manual, is based on a National Fire Protection Association standard to govern flammable/combustible liquids for "incidental operations" and ensure that fire suppression sprinklers can adequately control a fire. At the critique of this violation, facility management determined that facility fire protection procedures did not have this limit properly implemented. Corrective actions are being determined and extent-of-condition evaluations for other nuclear facilities are in progress.

**ORNL Building 3019B.** Building 3019B, adjacent to Building 3019, was historically used for high radiation analytical work and has been undergoing surveillance and maintenance by Bechtel Jacobs Company (BJC) pending future decommissioning. The presence of perchlorates in ventilation ductwork is addressed in the Building 3019B safety basis (see the 9/14/07 site rep. report). DOE Headquarters recently directed DOE-ORO to transfer responsibility for Building 3019B from BJC to Isotek. This week, DOE-ORO issued a Safety Evaluation Report to Isotek approving the transfer of the Building 3019B safety basis from BJC to Isotek.

**Microwave Casting.** The YSO Manager has approved Critical Decision-2/3 for the production microwave project (see the 2/27/09 site rep. report). This approval authorizes B&W to procure a microwave casting unit and install that unit in the Enriched Uranium Operations Building.