

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 26, 2009

TO: Timothy Dwyer, Technical Director  
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives  
SUBJECT: Activity Report for Week Ending June 26, 2009

Staff members Eyler, Foster, Gwal, Pasko, and Quirk visited Y-12 to review and observe testing of safety systems for the Highly Enriched Uranium Materials Facility. Staff member Elliott observed a DOE Headquarters review of B&W's nondestructive assay program conducted in response to Recommendation 2007-1.

**Conduct of Operations.** YSO management has discussed with B&W management the need for prompt action by B&W to reinforce with operations personnel proper attention-to-detail and adherence to procedures based on several recent events. These events include the Warehouse material movement event noted below and other externally reported events (e.g., a material identification/labeling problem and a worker sprayed by process solution). Y-12 management is determining the necessary actions.

**Unreviewed Safety Question/Occurrence Reporting.** Two weeks ago, B&W declared a Potential Inadequacy in the Safety Analysis (PISA) for the Assembly/Disassembly Building regarding the use of heat tape on the outside of a metal bell chamber to moderately heat components in the chamber. B&W put in place an operational restriction to unplug the heat tape and place it out-of-service. To address the PISA, B&W initiated testing of the heat tape on the chamber (no component was present) but had not submitted an evaluation of safety to YSO prior to removing the restriction as required by site procedures and 10CFR830, *Nuclear Safety Management*. This week, the Unreviewed Safety Question Determination was completed and an Unreviewed Safety Question (USQ) was identified.

The site reps. note that B&W's reporting of the improper removal of the restriction and the USQ was done via updates of the original PISA occurrence report. Such occurrence report updates are typically not distributed to DOE Headquarters and field management (i.e., notifications are not typically made). While now categorized as a USQ, the updated report title was not changed to identify the USQ.

**Warehouse Material Movement.** During a routine walk-down late last week, a B&W Criticality Safety Officer in the Warehouse identified 24 drums (6 pallets, 4 drums per pallet) that were double-stacked in a storage cage in violation of the applicable criticality safety posting on the cage door. At the critique this week, B&W determined that the improper stacking occurred during drum movement operations on June 8<sup>th</sup>. Due to the apparent lack of attention to the posting and material movement procedures by Warehouse operations personnel, B&W is conducting additional investigation and causal analysis. B&W has not externally reported this event in the occurrence reporting system.

**Wet Chemistry/Criticality Safety.** Prior to transferring primary extraction raffinate (a waste product) from safe-geometry storage tanks to a large tank that is not geometrically safe, the raffinate is sampled per a Specific Administrative Control credited to prevent a criticality. B&W installed a gamma radiation monitor in the raffinate transfer line last year and has been testing the monitor (see the 6/20/08 site rep. report). The monitor is not yet being credited to detect and prevent transfer of fissile material that could lead to a criticality. Test data prior to this week indicates that detection of uranium in the parts-per-million concentration range is not feasible due to the high background of gamma radiation typically present in raffinate from non-uranium sources. This week, the site rep. observed testing that indicates the monitor is likely capable of detecting uranium concentrations in the gram-per-liter concentration range. B&W will continue efforts to determine whether crediting the gamma monitor can be justified.