

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 28, 2006

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for the Week Ending April 28, 2006

A. Vacuum Pump Filter - Criticality Safety. On Tuesday, BWXT declared a criticality deficiency based on indications of excessive uranium hold-up in a filter associated with a vacuum pump in the Enriched Uranium Operations Building. This filter is part of the vacuum system for the vacuum induction melt furnaces used for enriched uranium casting and is in a filter housing that is not geometrically safe from a criticality standpoint. Facility personnel isolated the filter and established administrative control of the area consistent with direction from criticality safety personnel. On Thursday, BWXT declared a Potential Inadequacy in the Safety Analysis because they could not confirm double contingency for the filter housing configuration. BWXT is reviewing procedures for removing the filter and cleaning the filter housing. These activities are planned for early next week.

As part of the Uranium Hold-up Survey Program, operators survey this filter every two months and compare against a threshold value that requires additional Non-Destructive Assay (NDA). BWXT personnel noted that this filter exceeded the threshold value on two successive surveys in early-2005; however, additional NDA did not occur. Subsequent operator surveys in 2005 did not exceed the action threshold. In January 2006, this filter again exceeded the threshold value and additional NDA was initiated in February. Quantitative results were completed last week that indicated nominally 1.4 kg of enriched uranium hold-up in the filter housing. As noted above, facility personnel established administrative controls on Tuesday. Both YSO and BWXT personnel are reviewing this event, including the timing of various actions on current and past survey results, with a critique planned for early next week.

B. New Enriched Uranium Operations Glovebox. As reported on October 7th, a new glovebox to perform blending of enriched uranium materials was being installed in the Enriched Uranium Operations Building. Based on the safety analysis for this activity, safety-significant sprinkler coverage is required for fire protection in the area of the glovebox. To provide this sprinkler coverage, BWXT modified an existing sprinkler system that had not been functionally classified as safety significant. A BWXT submittal to incorporate the new glovebox into the building's safety basis was provided to YSO in March. This week, YSO responded to the submittal noting that BWXT had not performed a safety system design adequacy review. The process to perform a design adequacy review when a safety system is upgraded in functional classification was developed by Y-12 in response to the Board's letter of October 16, 2003 (also see 11/10/2004 and 2/13/04 site rep. reports). BWXT is now performing this review to support the safety basis submittal.

The site reps. inquired on causes for not performing the design adequacy review for the sprinkler system. In a subsequent discussion between BWXT and YSO personnel, BWXT noted that engineering and facility personnel were trained on the design adequacy review when it was implemented. However, there is no reference to the design adequacy review process in the BWXT safety basis development procedure. In addition, the training was not incorporated into the qualification requirements for the appropriate engineering personnel. BWXT is developing corrective actions.