

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 20, 2006

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending January 20, 2006

A. Highly Enriched Uranium Materials Facility. As reported last week, concrete placements for reinforced concrete walls were suspended due to widespread non-conformance in the length of reinforcing steel that functions to tie the foundation slab to the wall. Applicable requirements in the BWXT drawings of record had been incorrectly translated to construction contractor fabrication drawings. BWXT personnel noted this week that the fabrication subcontractor had questioned the length requirements on the fabrication drawings, however, the question was not formally posed nor formally addressed by the construction contractor or BWXT. YSO and BWXT personnel indicated to the site rep. and staff that additional fact-finding with all involved organizations is necessary to support completion of causal analysis and development of long-term corrective actions. BWXT evaluation of design impact and acceptability of the affected placements is nearing completion and the analysis is undergoing external subject matter expert review, now expected by next week. Following this evaluation, BWXT intends that placements on the affected walls will be resumed with additional compensatory pre-placement checks.

B. Wet Chemistry Unreviewed Safety Question. As reported on December 16th, BWXT declared an Unreviewed Safety Question with the secondary extraction process as a result of unexpected concentration of the organic solution used in this process (tributyl phosphate in solution with mineral spirits). Such concentration can impede the operation of the organic phase separators designed to prevent transfer of organic fluids to wet chemistry process evaporators and preclude a red-oil reaction. BWXT and YSO personnel met this week to discuss evaluations performed to date and development of a path forward. BWXT noted that limited testing of the process will likely be required to fully understand the concentrating mechanism. A Justification for Continued Operation is being developed that will propose various controls to monitor the organic solution concentration and preclude any fluid transfer to evaporators during such testing.

Indications of this problem were known by BWXT personnel in the months prior to December, however, the impact to nuclear safety (i.e., the credited organic phase separators) was not recognized until December. BWXT personnel noted to the site rep. that BWXT investigation of the significant delay in recognizing the nuclear safety impact of this problem prior to December has not been started but is to be started next week.

C. Oxide Conversion Facility. In September 2005, BWXT completed system testing with hydrogen fluoride (HF) and planned to take several weeks to resolve instrumentation problems that had been identified during system testing (see 9/23/05 site rep. report). Over the last four months, system modifications and repairs have been delayed by several emergent issues, including disposition of spent potassium hydroxide, failure of a recent weld on the B-1 Wing scrubber equipment, and incomplete training of maintenance personnel (i.e., lacked hazardous material worker training). BWXT is now nearing the completion of this maintenance outage and plans to resume testing in early-February. Some of the HF system testing will be repeated to confirm that the system modifications have been successful. Testing with enriched uranium is now scheduled to begin in mid-February.