

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 27, 2005

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending May 27, 2005

Mr. Owen was out of the office from Wednesday to Friday this week.

A. Highly Enriched Uranium Materials Facility. Earlier this month, the BWXT construction contractor completed the mass concrete fill placement (approximately 41,000 cubic yards). No significant cracking nor excessive temperature gradients were identified during this concrete placement activity. The facility design was recently modified to meet new security requirements. Based on these design changes, the architect-engineer (Parsons Engineering) is developing conservative detailed design and drawing revisions to incorporate the change in support of initial facility concrete placements. In addition, a soil structure interaction (SSI) re-analysis is being performed to verify design assumptions. Assuming initial feedback from the SSI analysis is satisfactory, BWXT expects the facility concrete placement to begin in late-June.

B. Chip Oxidation Operation. As noted last week, a chip oxidation vessel failed (i.e., burned through) during operations in special processing. On Wednesday this week, the staff (Duncan, Moury, Tontodonato and Yeniscavich) discussed this event with BWXT and YSO personnel. BWXT personnel noted that operators had identified concerns with visually identifiable hot spots on the vessel during earlier processing activities. However, this issue was reviewed by engineering and dispositioned with no design changes deemed warranted. In addition, it does not appear that the failed vessel was a one-for-one replacement for the previous vessel (e.g., cooling system design). BWXT continues to investigate this event and will likely pursue system design changes prior to restarting this operation. A comprehensive corrective action plan is expected by June 3rd.

C. Off-Specification Uranyl Nitrate Solutions. BWXT plans to process approximately 180 safe bottles of off-specification uranyl nitrate solutions for disposition as a part of the uranium disposition program. The readiness assessment for this activity was completed in early-April (see 4/8/05 site rep. report). Earlier this month, the 1st batch of solution was converted to an oxide and successfully calcined in the tube furnaces. Several procedure improvements were identified during this evolution and are being implemented for the precipitation process. After these changes are complete, BWXT will continue precipitation operations. Once sufficient material has been calcined, the material will be blended in a glovebox and packaged for off-site shipment.

D. Oxide Conversion Facility. In response to the Unreviewed Safety Question associated with the potential for Hydrogen Fluoride (HF) cylinder pressurization (see 5/6/05 site rep. report), BWXT has developed a Justification for Continued Operation (JCO). The JCO requires that HF cylinders be vented on a periodic basis (every two years) or returned to the vendor for disposition. In addition, the scrubber exhaust header is identified as a passive design feature. BWXT calculations indicate that the HF cylinder pressure will not exceed the connected system design pressure (i.e., 150 psig) until approximately 3.2 years after the cylinder is filled. YSO is reviewing the JCO.