DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 23, 2005

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending September 23, 2005

Staff members Joel Blackman and Roy Kasdorf along with outside experts Paul Rizzo and John Stevenson were at Y-12 this week reviewing the construction of the Highly Enriched Uranium Materials Facility and Building 9212 seismic issues.

A. Oxide Conversion Facility. On Thursday, BWXT completed a purge of the hydrogen fluoride process lines. This activity completes the initial stage of system testing without enriched uranium. As previously noted (see 9/9/05 site rep. report), BWXT has identified several instrumentation problems during initial testing. BWXT now plans to take the next 2 to 4 weeks to comprehensively address these issues prior to beginning the next phase of testing that involves introduction of enriched uranium.

B. Chip Oxidation Process Filter - Followup. This week, the staff and site reps. discussed with Y-12 personnel issues associated with the uranium loading and non-destructive assay (NDA) of a pre-filter associated with the chip oxidation process (see last week's site rep. report). BWXT noted that the NDA technique used for this particular filter was developed in 1998 and did not adequately account for geometry and self-shielding. In addition, assay results indicate that holdup estimates are not accurate beyond a certain threshold due to self-shielding. BWXT is reviewing other holdup survey results to verify that estimates are accurate. For the chip oxidation process, BWXT continues to evaluate system design to address the amount of material that is carrying over to system pre-filters. Chip oxidation operations are on-hold pending this evaluation. YSO management noted that YSO is addressing potential lack of site-wide protocols for monitoring/changeout of such non-credited filters (e.g., criteria for time in service, differential pressure, high NDA results).

C. Fasteners in Tooling, Safety Systems and Design Features. Responding to an event at the Pantex Plant with un-torqued fasteners in special tooling, BWXT had started an initiative to assess the practices for torquing fasteners in various tooling, safety systems and credited design features in nuclear facilities at Y-12 (see 12/17/04 site rep. report). BWXT has completed inspections of various tools and equipment and performed other assessments such as determining need for specific fastener torque levels. The BWXT Engineering Division report on these efforts notes that for lifting equipment operators are trained and procedurally required to check fasteners for tightness prior to each lift. While the report identified that such pre-use checks apply for some other equipment, BWXT personnel noted to the site rep. that such checks do not apply for safety-related equipment in general (e.g., dollies and nuclear material transport cages where a loose or missing fastener(s) could lead to compromising a criticality safety spacing control). The site rep. has inquired with YSO and BWXT management on whether such pre-use fastener checks should be more broadly applied for safety-related equipment.

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Board Members