

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 1, 2005

**TO:** J. Kent Fortenberry, Technical Director  
**FROM:** R. Todd Davis/Donald Owen, Oak Ridge Site Representatives  
**SUBJECT:** Activity Report for Week Ending July 1, 2005

A. Oxide Conversion Facility. This week, hydrogen fluoride (HF) system testing was initiated as the first HF cylinder was connected to the system and (liquid) HF introduced to the vaporizer. Shortly after introducing HF to the vaporizer, a high level alarm actuated and tripped vaporizer isolation valves. Indications (e.g., amount of HF transferred) were that the alarm was spurious. On two successive attempts to drain the HF from the vaporizer back to the HF cylinder, a low flow indication for the Dock 8/8A scrubber system resulted in a safety controller interlock that actuated system isolation valves. Initial investigation indicates that both of these issues were caused by the HF environment versus previous system testing with water. BWXT is pursuing corrective actions (i.e., instrument adjustments) and plans to resume the test procedure next week.

A flow limiting valve for the hydrogen system is credited as a Design Feature for Safety in the Enriched Uranium Operations Building Operational Safety Requirements (OSR) to ensure that the maximum assumed flow to the reduction fluid bed is not exceeded. In mid-June, BWXT engineering personnel determined that the surveillance test to confirm the valve's flow limiting function did not cover the necessary range of system pressure. The range was specified in system design documentation as 25 psig to 125 psig (the OSR states that the flow rate requirements are "... over the entire range of pressures supplied by the hydrogen supply system."). BWXT investigation of this event to date has found that the system design documentation did not correctly establish test acceptance criteria corresponding to 125 psig (upstream pressure relief device setting), but rather only to 50 psig (nominal system pressure). The technical basis for the acceptance criteria was lacking in the system design documentation. Corrective actions are in development.

B. Chip Container Failure - Update. As reported on June 3<sup>rd</sup>, a container with machine chips in storage since 1987 was observed to have a small hole in the wall of the container and a few liters of sludge-like substance had spilled onto the floor. On June 14<sup>th</sup>, a second chip container was observed to have also leaked. Following this second failure (out of five containers), BWXT reported the issue in the DOE occurrence reporting system. This week, the staff and site rep. discussed the container failures with YSO and BWXT personnel. The chips have been stored for the past 18 years in thin-walled, tall-cylinder, stainless steel containers that are typically used for handling chips during production operations. The failures appear to be at the welded seam of the container. BWXT personnel noted that normal production chip storage rarely exceeds two months, that the containers are cleaned after every five uses, and that no failures from such short-term storage are known. BWXT plans to repackage these chips into containers intended for longer-term storage within the next several weeks and then examine the failed containers. BWXT intends to process the chips into a form suitable for off-site disposition by 2007.

These chips were included under NNSA's inactive actinide efforts responding to Board correspondence in May 2002. The staff and site reps. have inquired on Y-12's implementation of NNSA's "Strategy Part 2" that addresses item-level characterization to support decisions on current storage adequacy and on any other assessments that would have addressed current storage of the chips. BWXT expects to respond to this inquiry in the next few weeks.