

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 7, 2003

**TO:** J. Kent Fortenberry, Technical Director  
**FROM:** Tim Hunt, Oak Ridge Site Cognizant Engineer  
**SUBJ:** Activity Report for Week Ending March 7, 2003

Staff member T. Dwyer was on site this week providing site representative coverage. Staff members F. Bamdad and W. Linzau were on site Tuesday and Wednesday to participate in the 30% design review of the Highly Enriched Uranium Materials Facility (HEUMF).

A. HEUMF. Members of the Board's staff attended a kick-off meeting for the National Nuclear Security Administration's (NNSA) Review of Title I (30%) Design for HEUMF, and participated in a working session with that portion of the NNSA review team focusing on the safety basis. It is encouraging to see that NNSA has decided to start their review now instead of waiting until the previously scheduled May start date. The current design will have safety class storage racks and fire barriers. The fire protection system will be safety significant. The ventilation confinement strategy for an upset condition continues to evolve, and the contractor is debating whether it should be designated safety significant or defense-in-depth. The latest system design isolates the facility supply side (outside) air and has a vented, filtered, exhaust line that will allow passive exhaust of any internal pressure build-up. The exhaust fans will not have backup power and are not designated safety significant. Questions still exist regarding what materials, in what containers, will be chosen for storage in HEUMF. More details will be available when the site response to the December 27, 2002, Board reporting requirement is finalized. (1-C)

B. Purification Facility. This week a team of 13 NNSA headquarters/support contractor personnel conducted an independent review of the new Purification Facility construction project. Much of the preliminary hazard evaluation documentation has now been submitted to the Y-12 Site Office (YSO) for this non-nuclear facility, and YSO personnel are working to an April 1, 2003, deadline to prepare the Preliminary Safety Evaluation Report (PSER). BWXT Y-12 has identified a number of hazards in this facility, especially two materials of specific concern. There are no proposed safety class controls for this facility, although the hazard evaluation shows significant off-site [non-radiological] effects for some specific scenarios. More than 15 safety significant, non-nuclear ( $SS_{nn}$ ) controls have been proposed so far. However,  $SS_{nn}$  controls are grade 3 controls at Y-12, one step below nuclear safety significant controls (i.e., grade 2). Many of the controls are driven by postulated fire or explosion scenarios discussed in the preliminary Fire Hazards Analysis. Some of the key controls include code-stamped vessels and process piping, a nitrogen blanket system, a glove-box sprinkler system, and room sprinkler and deluge systems. Of note, the facility does not have a containment or confinement ventilation system, as the roof is being designed with pressure relief (blow-out) panels due to the explosion concerns. This facility remains of concern to the Board's staff due to the potential impact of postulated Purification Facility accident scenarios on nearby nuclear facilities. (2-A)

C. Wet Chemistry Restart. A new issue has surfaced: approximately 12 incomplete work packages exist with regard to welds in the wet chemistry oxide dissolver and intermediate evaporator systems. Impact of this information is not known, although radiographic inspection records for the welds are reported to be in the work packages. Enriched Uranium Operations management had been planning to start up next week; those plans may have to be deferred. (2-A)

*post pressure vessels*  
- Amend Specs of Mechanical Systems (ASME) Bore + Pressure Vessel Code