

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 22, 2007

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending June 22, 2007

A. Building 9212 Documented Safety Analysis Implementation. Field work has been completed for YSO and BWXT Implementation Validation Reviews (IVRs) for the Documented Safety Analysis. Findings are being determined and IVR results are to be presented next week.

B. Recommendation 2005-1. This week, the site rep. met with BWXT personnel to discuss their on-going efforts related to Recommendation 2005-1, *Nuclear Material Packaging*. Based on direction from NNSA, BWXT has developed a prioritization of existing Y-12 nuclear material packages and a draft implementation plan based on the draft Nuclear Material Packaging Manual (DOE M 441.1-1). The implementation plan identifies about 2500 Y-12 packages that fall within the scope of Recommendation 2005-1. The plan proposes development of five new container designs. The site rep. suggested that these plans and schedules be integrated with prior plans for the container standardization effort that is intended to simplify compliance with criticality safety requirements. Three of the new containers have also been identified as needs from the container standardization effort. The implementation plan is under review by YSO.

C. Secondary Extraction. In February, multiple leaks were identified in the secondary extraction product tanks at glass section flanges (see 2/9/07 and 2/16/07 site rep. reports). At that time, the operation was placed on hold and system monitoring was implemented. In May, BWXT completed an investigation of the leaks including unintended transfers that contributed to the problem (see 5/4/07 site rep. report). Although the most likely mechanism for the unintended transfer has been identified, engineering evaluation is ongoing and long-term system modifications are still in development. In the interim, a compensatory measure has been established to control solution volume in the product tanks.

To address the leaking mechanical joints, BWXT planned to process the solution in the secondary extraction product tanks and replace the gaskets seals on the glass section flanges. This week, BWXT completed the processing of these solutions through the wiped film evaporator and denitrator (i.e., producing the uranium trioxide product). Maintenance activities on the glass section flanges are expected to continue through next week.

D. Criticality Safety. Immediate Evacuation Zones (IEZs) are areas requiring notification that a criticality alarm has activated. Upon receiving the alarm, personnel are to immediately leave the area to minimize potential dose. Under DOE Order 420.1A, *Facility Safety*, such zones were based on limiting the expected dose equivalent to less than 12 rads in free air. DOE Order 420.1B, *Facility Safety*, currently in the BWXT contract, invokes the ANSI/ANS consensus standard (8.23) and permits management to determine IEZs based on an acceptable maximum value for absorbed dose. New IEZs would likely encompass less area and may allow using the nuclear facility outer walls as boundaries. BWXT has developed reports providing plans and the approach for developing the IEZs for various nuclear facilities (including the Highly Enriched Uranium Materials Facility). BWXT has requested YSO approval of the overall approach prior to moving forward with revision of applicable safety basis documents.