

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 9, 2006

**TO:** J. Kent Fortenberry, Technical Director  
**FROM:** R. Todd Davis/Donald Owen, Oak Ridge Site Representatives  
**SUBJECT:** Activity Report for the Week Ending June 9, 2006

A. Vacuum Pump Filter - Criticality Safety. This week, BWXT continued activities to remediate the enriched uranium hold-up in a filter housing associated with the casting furnaces in the Enriched Uranium Operations Building. BWXT removed the bottom section of the filter housing and found the holdup in the bottom section to be distributed over a thin layer with no substantial moderating material present. The holdup material was manually removed from the bottom section, the filter media was removed and other accessible sections of the filter housing were cleaned. Mass estimates of the removed materials and filter media are to be determined to compare with prior non-destructive assay (NDA) mass estimate data provided by the Uranium Holdup Survey Program (UHSP).

As noted last week, NDA mass estimates for holdup in certain vacuum producer equipment (associated with the Dry Vacuum system) were not reliable due to complex internal geometry. The geometry and potential for distributed internal holdup had not been adequately factored into the mass estimate model. Actions to shutdown and isolate the equipment had been taken. This week, YSO personnel inquired as to why this situation had not been declared a Potential Inadequacy in the Safety Analysis (PISA). Following discussions with YSO on this issue, BWXT declared a PISA. In the external report of the PISA, BWXT indicated that the NDA mass estimate reliability for the vacuum producer equipment was such that there was insufficient information to ensure criticality safety evaluation assumptions are protected.

B. Y-12 Uranium Holdup Survey Program. On Friday, YSO formally responded to prior actions identified by BWXT to assess and correct deficiencies with the UHSP (see the 5/19/06 site rep. report). YSO noted lack of valid bases for some monitoring points and complex geometries, lack of timely response and control of NDA survey results, and other issues. YSO directed that BWXT perform a comprehensive review of all fissile material operations where the UHSP is or should be relied upon for material holdup monitoring. YSO requested a briefing from BWXT in the near future on actions taken or planned to restore confidence in the program.

C. Feedback and Improvement. At BWXT's critique following declaration of the PISA noted above, BWXT personnel stated that the NDA mass estimate reliability issue for the vacuum producer equipment had been identified in mid-May as part of follow-up from the filter housing holdup issues noted above. There was no discussion nor follow-up action identified, however, regarding the delay in declaring the situation a PISA and potential for improvement actions. The site reps. discussed this observation with YSO and BWXT management.

D. Emergency Management Exercise. On Wednesday, the site rep. observed a joint emergency management exercise that included participation of the DOE Office of Secure Transportation and the Y-12 National Security Complex. The scenario involved the on-site collision of a material transport vehicle and a fuel truck. While the site continues to evaluate the overall results, it does appear that the primary exercise objectives were achieved. Initial review of the exercise identified areas for improvement in scenario control, local hospital interface, and other areas.