

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 7, 2006

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for the Week Ending April 7, 2006

Todd Davis was out of the office on Friday.

A. Oxide Conversion Facility. The site reps. observed initial conversion testing operations this week using hydrogen and hydrogen fluoride (HF). The reduction operation (uranium trioxide to uranium dioxide) was completed on Wednesday. There was not a direct temperature indication of an exothermic reaction during the reduction operation. A small batch size for this initial run was used and BWXT believes the material was reduced given the time at temperature and hydrogen flow rates in the reduction fluid bed. The material was transferred to the hydrofluorination fluid bed on Thursday. On Friday, HF was introduced and the hydrofluorination operation (uranium dioxide to uranium tetrafluoride) was performed with a direct temperature indication of an exothermic reaction. Product examination is pending.

B. Highly Enriched Uranium Materials Facility. As reported on March 24th, corrective actions to support resumption of concrete placements for Performance Category-3 structures for the Highly Enriched Uranium Materials Facility (HEUMF) had been determined by BWXT and the actions were briefed to YSO. Late last week, BWXT formally outlined results of causal analyses of various non-conformances as well as BWXT, construction contractor and subcontractor corrective actions in a letter to YSO. BWXT has been working toward a limited resumption of placements in areas where extent of condition assessments are completed and any non-conforming items have been dispositioned. By Friday, pre-placement rebar inspections had been approved by BWXT for two wall sections, but weather conditions forced a delay in going forward. These placements are now expected to be performed next week.

YSO personnel have been monitoring the rebar inspections for the resumption placements and implementation of other corrective actions. Long-term YSO oversight plans for HEUMF construction have been drafted and are awaiting approval. YSO management noted their intention to continue to assign several personnel full-time on HEUMF construction oversight.

Extent of condition reviews involving non-destructive evaluation were completed this week and results are under review. Efforts to disposition all current non-conformances (including outside expert review) are expected to take a few more weeks. BWXT personnel also noted plans for a follow-up review in June by the team of BWXT/Bechtel personnel from outside of Y-12 that recently reviewed HEUMF construction quality assurance (see the 2/17/06 site rep. report).

C. Y-12 Criticality Safety Program. As reported on November 10th, the Y-12 Nuclear Criticality Safety Committee started their annual review of the Y-12 criticality safety program. This review was focused on the Warehouse and Building 9206 (a facility undergoing deactivation). The report of this review was recently completed. Among issues noted by the review team were lack of justification for mass density assumptions for certain forms of uranium in some criticality safety evaluations, some computational errors for a Warehouse storage application, and the need to fully address the potential for criticality during a seismic event and a flooding event for Building 9206. Line management response actions are being developed.