DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 26, 2004

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending March 26, 2004

Board member R. Bruce Matthews and staff member J. Kent Fortenberry visited Y-12 on Wednesday. Staff member W. Linzau and outside expert P. Rizzo visited Y-12 on Monday and Tuesday to review construction plans for the Highly Enriched Uranium Materials Facility

A. Board Member Visit to Y-12. YSO and BWXT management discussed a number of issues with Board member Matthews including: actions to improve Y-12 conduct of operations (see item C.); evaluations completed for Building 9212 B-1 Wing fire protection (see last week's site rep. report); and, safety assessment of security upgrades. Board member Matthews and staff performed walk-downs and observed operations in Buildings 9212 and 9204-2E (see item D.). (I)

B. Highly Enriched Uranium Materials Facility (HEUMF). As noted on March 5th, HEUMF site preparation will be starting this spring. Construction is expected to start in the fall. The staff reviewed aspects of the construction specifications and the engineering geology report for HEUMF; in particular, foundation construction plans and specifications that will ensure that the foundation will meet the required performance goals. Some open questions are being pursued regarding seismic-structural considerations. The staff and site rep. inquired with YSO personnel on any lessons-learned interchanges envisioned by YSO with other sites with similar construction projects, chiefly the Hanford Waste Treatment Plant (WTP). No such interchanges were planned. The staff and site rep. suggested that an interchange with Hanford personnel may be warranted to avoid recurrence of problems experienced at WTP with large, thick concrete placements. (II)

C. Y-12 Conduct of Operations. An action under the conduct of operations improvement initiative includes institution of a manager observation program calling for increased and documented manager observations of activities in nuclear facilities. Nuclear facility managers discussed initial program implementation with Board member Matthews and staff. The staff noted that attention to managers' knowledge and/or focus on nuclear safety hazards and controls in executing the program (in addition to industrial safety) may be warranted to assure intended program effectiveness. (I)

D. Building 9212 Oxide Conversion Facility (OCF). As reported on December 5th, corrective action was to be taken by BWXT following YSO identification of uncertainties with reliable detection of a hydrogen leak in the reduction fluid bed enclosure (largely due to the current location of the two hydrogen detectors). During walkdown of OCF, BWXT management pointed out to Board member Matthews and staff that two additional hydrogen detectors will be installed in the reduction fluid bed enclosure to help ensure reliable hydrogen detection. (II)

E. Y-12 Building 9212 Wet Chemistry Restart. As reported on November 28th, during initial Denitrator system operation uranium-bearing feed solution had not thermally decomposed to a free-flowing consistency thereby failing to produce product oxide. Initial investigation had revealed that the temperature indicator used for controlling inner bed temperature was actually reading a shell temperature. As reported on January 23rd, the site rep. noted to YSO management that the BWXT investigation report did not identify a specific root cause leading to the problem, but discussed only possible contributing factors such as equipment changes and loss of expertise since the 1994 shutdown. This week, YSO personnel noted to the site rep. that their review revealed that the control temperature had been lowered in the procedure just prior to the initial Denitrator operation. YSO management has requested a briefing from BWXT management on cause determination. (I)