DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 23, 2003

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending May 23, 2003

Staff member Wayne Andrews was at Y-12 to review various nuclear activities. Staff member William Linzau and outside experts Paul Rizzo and John Stevenson were at Y-12 to review progress on the structural/foundation design for the Highly Enriched Uranium Materials Facility.

A. Y-12 Building 9202 - Update. As reported on May 2nd, BWXT had been investigating the explosion and fire that occurred in a glovebox during testing of a process related to uranium metal production. Late last week, the investigation team provided an initial briefing of their observations and recommendations to senior BWXT management. Among the team's observations were: limited safety analysis had been performed to support going from a bench scale process to a production scale process with no specific chemical safety analysis; insufficient design reviews were conducted; and schedule pressures were present. The team's recommendations include: integrate chemical process safety assessment into activity planning; incorporate a design review process for technology development efforts; and develop specific methodologies for operational scale-up of new technologies and processes. The team is expected to issue their final report by June 6th. (1-C)

B. Y-12 Building 9720-5 Material Packaging. As reported on January 24th, BWXT is preparing to perform sampling, repackaging and off-site shipment of enriched uranium button materials that have high dose rates due to isotopes that are remnant from a fuel recycle program. Modifications to support this new activity in Building 9720-5 (Warehouse) included the addition of lead shielding, leaded viewing windows and a new glovebox exhaust system to the Warehouse Glovebox.

The BWXT Operational Readiness Review (ORR) for this activity was started late last week and was completed on Friday. The site rep. and staff observed portions of the ORR. The BWXT ORR team briefed the results to Y-12 management. The ORR team concluded that preparations for this activity were generally satisfactory, but identified several prestart findings including: lack of implementation of certain Warehouse Fire Hazard Analysis controls (e.g., double containment of pyrophoric materials, and surveillance of fire extinguishing agents and equipment); lack of specific process/controls in the Startup Plan; improper setting of direct reading dosimeter alarm level; lack of justification for radiological air monitor placement; and lack of established supervisor knowledge level beyond the knowledge level required for operators.

It is anticipated that the NNSA ORR will start in mid-June following resolution of prestart findings and any issues identified by YSO line management. (2-A)

C. Y-12 Building 9204-2 Material Storage. The site rep. and staff performed a walk-down of a nuclear material storage area in Building 9204-2. In this area, the site rep. and staff noted the large amount of electrical and mechanical equipment associated with three Environmental Rooms that have not been operated in more than 10 years. A partially energized control panel and potentially oil-filled pumps were present in the area. The level of prior deactivation performed on this equipment was not known by BWXT personnel present. The site rep. and staff have inquired with BWXT management on the level of deactivation performed on this equipment to support safe storage of nuclear material in this area. (2-A)