

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 17, 2003

**TO:** J. Kent Fortenberry, Technical Director  
**FROM:** Donald Owen, Oak Ridge Site Representative  
**SUBJ:** Activity Report for Week Ending July 18, 2003

The site rep. will be out of the office on Friday. Staff members Bamdad, Contardi and Raabe were at ORNL this week to review the Building 3019 Documented Safety Analysis (DSA). The staff and site rep. also reviewed recent activities and plans for ORNL processing of neptunium.

A. Y-12 Building 9212 Enriched Uranium Operations Wet Chemistry Restart. As reported last week, there was a failed attempt to start the Primary Intermediate Evaporator (PIE) process when steam was not flowing to the evaporator equipment due to a closed steam utility valve. A Management Review (or fact-finding/critique) of this issue conducted this week determined that a lock-out/tag-out permit for this valve (to support repair of a separate leaking valve) had not been placed in the system status file and was not identified to wet chemistry personnel.

This week, another restart attempt was conducted for the PIE. Solution was evaporated, density was properly controlled and some product was transferred to the holding tanks. Process condensate, however, did not appear to be being transferred to the intended tanks. The PIE was then shutdown. As of this report, it appears a valve in the condensate transfer line was closed. BWXT management review of this issue is in progress. YSO management has inquired with BWXT management and asked for a thorough review of these system alignment/conduct of operations issues. (2-A)

B. ORNL Building 3019 DSA. Building 3019 is a storage facility for several hundred kilograms of uranium-233 and other isotopes in various forms. Inspection efforts to characterize the uranium-233 inventory in response to Recommendation 97-1 are in progress. The DSA submitted by ORNL for Building 3019 is under review by the DOE-Oak Ridge Operations Office (ORO). The staff reviewed the Building 3019 DSA with ORNL personnel this week and provided observations dealing with (1) the high radiological screening criteria used for worker safety; (2) the designation of vessel off-gas and fire protection systems as only defense-in-depth systems; (3) the apparent lack of software quality assurance for the dispersion model used in accident analyses; and (4) the lack of assessment of any toxicological consequences to workers. The staff intends to discuss these observations with DOE-ORO personnel. (1-C)

C. Y-12 Building 9204-2 Material Storage. As reported on May 23<sup>rd</sup>, the site rep. and staff inquired with Y-12 management about the level of deactivation performed on the large amount of electrical and mechanical equipment (some partially energized) associated with three Environmental Rooms in nuclear material storage areas. This week, BWXT management informed the site rep. that a search of records of past work performed on this equipment did not indicate any substantial deactivation activity had been performed. As a result, BWXT management intends during the next week to perform an assessment of this equipment to identify any hazards, particularly fire hazards, and identify any necessary deactivation actions. (2-A)

D. ORNL Neptunium (Np) Program. The ORNL program for processing Np-237 (currently at Savannah River) to produce plutonium-238 for space and potential defense applications will involve a major installation to the isotope processing facilities at ORNL. This program currently calls for long-term (up to 30-year) Np storage at Y-12. The site rep. discussed potential long-term Y-12 storage of Np with Y-12 personnel who noted a number of issues under review and requiring resolution. (2-A)