

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 3, 2004

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJ: Activity Report for Week Ending September 3, 2004

Staff members Nichols and Von Holle and outside expert West visited Y-12 to review the new disassembly glovebox and the microwave casting readiness efforts. Staff member Plaué visited ORNL to observe the 60% design review for the Uranium-233 (U-233) processing program.

A. Disassembly Glovebox. Equipment installation and testing was completed in the assembly/disassembly building in late June followed by turnover to operations personnel. The Board's staff and site rep. reviewed readiness preparation efforts and performed a walkdown of the new equipment. The new glovebox provides the capability to disassemble selected weapon component assemblies in a controlled atmosphere thereby reducing reliance on personal protective equipment. The safety basis was approved for the project at the beginning of this year. For the initial activities on the first campaign, operators and supervisors are to be certified on similar operations in another facility. Several observations were identified by the staff and discussed with Y-12 personnel including: lack of clear identification and flowdown of some fire protection controls associated with processing/movement of parts; lack of clear specification of some passive design features in the technical safety requirements; lack of clear basis for the purpose and use of the glovebox heat detection system; and potential inability to demonstrate compliance with a criticality safety control concerning machining chips. BWXT and NNSA Readiness Assessments are now projected to start early in 2005.

B. Uranium-233 Disposition at ORNL. This week, DOE began the 60% design review of the Isotek U-233 Disposition and Medical Isotope Production project. This project includes modifications of the U-233 storage facility to support extraction of thorium-229 for medical use and downblend of the remaining material for packaging and disposition. The site reps. and staff have previously discussed ion exchange resin safety issues identified by the Board at other DOE sites with DOE-ORO and Isotek personnel. Isotek is now developing resin safety controls and will include these as a part of the project design. There will be several challenges for implementing this project in an existing old facility (e.g., removal of contaminated equipment, space limitations, interface with aging facility infrastructure). After Isotek completes the design effort, the facility will be transferred from UT-Battelle to Isotek for construction and operations activities. This transfer is now scheduled to occur in March 2005.

C. Microwave Casting. The site rep. and staff reviewed safety controls for the prototype microwave caster being readied for operation in the enriched uranium operations building. Approximately sixty proof-of-concept runs with depleted uranium have been performed in the engineering development building since 1998. The prototype unit has been tested with copper and additional runs are planned before startup with enriched uranium. Readiness preparations continue with the objective of startup in the next few months subject to a pending decision on readiness review level (see last week's report) and execution of the review(s).

D. Y-12 Ten Year Comprehensive Site Plan. Late last week, YSO issued their Ten Year Comprehensive Site Plan. Notable in the plan is consolidation of all enriched uranium operations into a second facility adjacent to the planned Highly Enriched Uranium Materials Facility. The Plan calls for this new facility, termed the Enriched Uranium Manufacturing Facility, to be operational in 2013. Technology development and production deployment for microwave casting and for the Saltless Direct Oxide Reduction processes by 2007 and 2008, respectively, is also noted.