

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 13, 2003

**TO:** J. Kent Fortenberry, Technical Director  
**FROM:** Donald Owen, Oak Ridge Site Representative  
**SUBJ:** Activity Report for Week Ending June 13, 2003

Staff member Michael Piccarreta and Outside Expert Ralph West were at Y-12 to observe the NNSA Operational Readiness Review (ORR) discussed below. Staff member Don Nichols was at Y-12 to review startup activities for wet chemistry operations in Building 9212.

A. Y-12 Building 9720-5 (Warehouse) Material Packaging. The NNSA ORR for the planned effort to sample and repackage enriched uranium button materials in the Warehouse was completed this week. These materials have high dose rates due to isotopes that are remnant from a fuel recycle program and are to be shipped off-site. The NNSA ORR team concluded that readiness preparations were generally satisfactory, but did identify three pre-start findings and one post-start finding. The pre-start findings involve the implementation of criticality safety requirements related to machine turnings, swarf, oxide, and water during glovebox operations and the use of incorrect units (grams/milliliter vs. grams) in a surveillance procedure. The post-start finding notes drill program issues related to maintaining crew proficiency in responding to abnormal events (an "observation" was also provided by the ORR team calling for Y-12 management attention to general drill program issues in the Y-12 Material Control Organization). Startup authorization is expected in the next few weeks following pre-start finding closure. (1-C)

B. Y-12 Building 9212 - Fire During Beaker Leaching Operations. A small fire occurred on Wednesday during Small Batch Beaker Leaching operations in Building 9212. These operations involve dissolution of various uranium solids in 4-liter stainless steel beakers using hot plates to ensure a complete reaction. This was the first beaker leaching fire since startup of these operations about five years ago. The fire occurred in one of four beakers being used for nitric acid dissolution of uranium fines from a billet sawing operation. The operator observed a flame extending to near the top of the beaker and took immediate action to extinguish the flame using powdered graphite (coke). There was no indication of any spread of contamination outside of the ventilated hood used for this operation.

Based on a BWXT review of the event, it is believed that the operator did not add enough nitric acid into the beaker for full dissolution resulting in some of the fines being uncovered and igniting during the hot plate heating portion of the operation. Review of the procedure indicated that there is not specific guidance on adding proper amounts of acid. BWXT is developing a procedural change to ensure that material remains covered during dissolution. (2-A)

C. Y-12 Work Planning/Feedback and Improvement. During an evolution to replace the plexiglass window on a glovebox enclosure for a large machine in Building 9212 E-Wing, a worker received a skin contamination on his arm. It was determined during the BWXT critique of the event that a decision had been made that the gloves from the old window would be reinstalled into the new window. The worker was not wearing personal protective equipment appropriate for retrieving and reinstalling the old gloves. The radiological work permit, work instructions and job hazard analysis were not reviewed, however, during the critique as part of determining causes and corrective actions. The site rep. considers that this does not meet the requirements governing critiques in the Y-12 Conduct of Operations Manual. The site rep. discussed this observation and has inquired on the work planning for this evolution with BWXT and YSO management. (1-C)