

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 10, 2005

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending June 10, 2005

Mr. Davis was out of the office this week.

A. Oxide Conversion Facility. As reported on May 27th, in response to the potential for Hydrogen Fluoride (HF) cylinder pressurization from hydrogen based on an HF reaction with iron in the cylinder, BWXT had developed a Justification for Continued Operation (JCO). Following interactions with YSO staff, a revision to the JCO was submitted by BWXT this week. The revised JCO identifies that HF cylinders will be vented to the Dock 8/8A scrubber at least once a year (in lieu of every two years) to avoid the potential for challenging pressure relief devices in connected equipment. Several additional specific measures are identified including to: ensure cylinder fill date is known and used; check cylinder pressure upon connecting the cylinder to the system as well as prior to HF transfers to the vaporizer and vent when pressure is greater than 17 psig; and, purge vent paths with nitrogen prior to venting. As with the original JCO, the revised JCO indicates that the potential for hydrogen to undergo combustion during venting is possible but unlikely with the given controls and that the system would withstand such combustion. BWXT considers a detonation is not credible given the system design. On Friday, YSO approved the revised JCO. In the JCO approval letter, YSO asked BWXT to inform YSO of the approach being taken to ensure that the controls are properly implemented.

B. Microwave Casting. As reported on May 20th, during the initial microwave operation with enriched uranium, the power supply to the microwave failed at the later portion of the heat-up. Initial troubleshooting found blown fuses in the power supply. BWXT has completed troubleshooting and review of the microwave power supply with vendor support. BWXT has processed an engineering design change to go from 20 amp to 30 amp fuses with vendor agreement (the 20 amp fuses had been chosen as the lowest available size based on past power measurements). Late Friday, BWXT was preparing to resume operations with enriched uranium.

C. Chip Container Failure - Update. As reported last week, a container with machine chips from a special program dating back to 1987 was observed to have a small hole in the wall of the container and a few liters of sludge-like substance had spilled onto the floor. The spill was cleaned up late last week. Review of past management, storage conditions, and disposition planning for these containers (the material is included under NNSA's inactive actinide effort) continues. YSO and BWXT management noted to the site rep. this week that Y-12 does not intend to report this event in the DOE occurrence reporting system. Aspects of this event may be of interest to NNSA's inactive actinide effort as well as with DOE's implementation of Recommendation 2005-1, *Nuclear Material Packaging*, and potentially warrant reporting under the general Management Concern criteria.

D. Uranium-233 Disposition at ORNL. On Friday, DOE-ORO started their 90% Design Review of the Uranium-233 Disposition and Medical Isotope Production Program in Building 3019. This design review is expected to be completed by June 24th.