

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 5, 2003

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending December 5, 2003

A. Y-12 Conduct of Operations. As noted in prior site rep. reports. (October 17th, September 19th, and September 12th), BWXT had committed to a site-wide effort to improve conduct of operations in response to YSO and DNFSB observations. A project execution plan defining the specific tasks to be accomplished going forward was being developed. This week, the BWXT General Manager submitted the Conduct of Operations Project Execution Plan to YSO and stated the plan "... addresses BWXT Y-12's need to demonstrate marked improvement in the state of Conduct of Operations." The plan defines a variety of tasks/initiatives related to conduct of operations. The plan is being provided to staff for review. (I)

B. Melton Valley Waste Processing Facility (WPF). As reported on November 21st, the DOE Office of Environmental Management (EM) Operational Readiness Review (ORR) for startup of supernate processing was scheduled to begin on December 8th. As of this report, DOE-ORO line management were deciding whether to issue their declaration of readiness to DOE-EM. The primary open issue under debate was the heat-sealing of bags following loading of dried waste. Efforts since the Foster-Wheeler ORR have not resulted in demonstration of reliable heat-sealing of the bags, and planning to deal with a deficient bag seal is apparently not in place. (III)

C. Y-12 Building 9212 Oxide Conversion Facility (OCF). A major OCF process step is reduction of uranium oxide in a reduction fluid bed using hydrogen gas. The reduction fluid bed and hydrogen supply piping are contained in a ventilated enclosure. Two hydrogen detectors are used to identify any hydrogen leaks in the enclosure. The hydrogen detectors are located in upper corners of the enclosure, behind and above the two ventilation exhaust ducts that protrude several feet from the enclosure walls. A DOE-YSO Facility Representative (FR) had recently noted to the site rep. and staff that he had been (informally) questioning the location of the detectors for several months. BWXT OCF personnel believed the location was acceptable based on smoke tests (i.e., leaking hydrogen would readily migrate to the detectors). The YSO FR had asked for another smoke test to view flow patterns in the enclosure.

This week, the site rep. observed the smoke test. Viewing the smoke test through the enclosure window, it was not clear to the YSO FR and the site rep. that any smoke was reaching the hydrogen detectors. The YSO FR asked that the test be repeated and viewed from inside the enclosure (BWXT OCF personnel indicated that prior smoke tests had only been viewed from outside the enclosure). Upon observing the repeated test from within the enclosure, it was determined that smoke was not migrating to the detectors. This result indicates that reliable detection of a hydrogen leak in the enclosure is in serious question. BWXT OCF personnel indicated to the FR and site rep. that they would take corrective action to either relocate the hydrogen detectors or add additional detectors prior to OCF startup. (II)

D. Building 9204-2E - Excess Generation of Machine Chips. As reported on November 21st, uranium machine chips were generated during machining operations on three recent occasions that exceeded a criticality safety limit. This week, the site rep. observed this operation following incorporation of several design improvements to the machine. The chip masses generated during the individual machine cuts were as expected and would allow compliance with the limit. (II)