

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 23, 2004

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending January 23, 2004

Staff members Gutowski and Quirk visited Y-12 to observe a review of software quality assurance.

A. Melton Valley Waste Processing Facility (WPF). As reported last week, DOE-ORO line management briefed the Board via video-conference on WPF progress toward startup of supernate processing including actions being taken to address certain staff observations. On Thursday, the DOE Office of Environmental Management authorized startup of WPF supernate operations. As of this report, preparations were being made for the initial transfer of supernate from the Melton Valley tanks to the WPF tanks with processing planned immediately thereafter. The first bag-out of processed waste (i.e., waste that is ready for shipment) is expected to be completed by Monday. (III)

B. Y-12 Building 9204-4: Storage of Machine Chips - Update. As reported last week, BWXT had been planning an effort to vent several unvented drums containing depleted uranium chips. Based on site rep. and staff inquiry on specific response plans for a fire following venting of a drum, a BWXT and YSO review of the fire response planning in handling credible contingencies had been initiated. This week, YSO and BWXT personnel discussed the overall planning for this effort with the site rep. and staff. BWXT has decided to use argon to prevent or extinguish a fire following drum venting. BWXT personnel addressed the response actions and controls they had planned to deal with credible fire contingencies. Careful planning and conservative decision making for the actions and controls, as well as proper involvement of YSO and BWXT subject matter experts, was evident in the information discussed with the staff.

The site rep. considers that the planning for credible contingencies including the subject matter expert involvement for this drum venting operation could serve as a key example to improve future planning for such emergent (or non-routine/infrequent) and potentially hazardous activities at Y-12. The site rep. discussed this observation with YSO and BWXT management. (I)

C. Y-12 Software Quality Assurance (SQA) Assessment. The staff observed a pilot DOE assessment of safety system SQA, performed in response to Recommendation 2002-1, *Quality Assurance for Safety-Related Software*. The team consisted of DOE Headquarters and YSO personnel. The team selected for detailed review the software used to implement certain safety-significant controls for the Oxide Conversion Facility (OCF) being prepared for startup in Building 9212. This OCF software is in the final testing stage. Although the team did not identify any software deficiencies, issues with configuration management and independent design verification were identified. An assessment report will be completed. YSO management noted their intention to perform a similar assessment of the site-wide criticality accident alarm system software. (I)

D. Y-12 Building 9212 Wet Chemistry Restart. As reported on November 28th, during initial Denitrator system operation, product uranium oxide was not transferring to the receiver as expected. The uranium-bearing feed solution had not thermally decomposed to a free-flowing consistency. Investigation had revealed that the temperature indicator used for controlling inner bed temperature was actually reading a shell temperature. The site rep. reviewed the Y-12 investigation report issued last week on this failure. While the report discussed factors such as equipment replacement, changing nomenclature and loss of expertise since the 1994 shutdown, the report did not identify a specific root cause leading to the problem. The site rep. discussed this observation with YSO management who indicated they would address the matter. (I)