

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 25, 2003

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
J. J. McConnell, Deputy Technical Director
FROM: R. T. Davis/ T. D. Burns
SUBJECT: SRS Report for Week Ending April 25, 2003

Staff members J. Blackman, B. Jones, and B. Linzau along with outside experts P. Rizzo and J. Stevenson were on-site Monday through Wednesday reviewing the civil and structural evaluation methodology and acceptance criteria for KAMS and Building 235-F.

Staff members M. Piccarreta and J. Contardi were on-site Tuesday to review 3H evaporator modifications to preclude elevated workspace concentrations of di-methyl mercury vapors.

Staff members B. Yeniscavich, D. Nichols, J. Contardi and outside expert J. Stevenson were on-site Wednesday and Thursday to review construction status and associated quality assurance for the Tritium Extraction Facility.

F-Canyon: On Wednesday, WSRC identified a failed relay associated with the safety class canyon exhaust system. The failure of this relay would have prevented the backup exhaust fan from starting as designed and as required by the Authorization Basis. The cause of the failure was mechanical binding that caused the relay to stick. A similar failure occurred in October 2002. This previous failure was attributed to a manufacturing defect and a damaged spring. WSRC has not completed their investigation of the most recent failure but initial indications are that the failure mode is not the same.

Americium/Curium Residuals: After completing repairs to a failed transfer-line jacket along the intended transfer path (site rep weekly 3/28/03), WSRC began sending the residual americium/curium material (~9,000 Ci suspended in ~25,000 gallons of neutralized solution) from Tank 15.4 in F-Canyon to F-Tank 33. Four of ten batch transfers were successfully completed at a rate of roughly one per day. Transfer operations were suspended during the fifth batch transfer due to failure of the agitator in F-Pump Tank 2 (FPT-2, the receipt tank from the F-Canyon waste header). Troubleshooting has identified the cause of the failure to be a short circuit in the wiring between the motor control center and the junction box at FPT-2. Repair efforts are underway. WSRC currently expects to complete the transfers late next week.

Tank 50 Return-to-Service: Water lancing evolutions to break up tank solids proved successful (site rep weekly 4/11/03), and additional SRTC analyses have demonstrated that adequate slurring to meet the Saltstone Disposal Facility Waste Acceptance Criteria can be achieved with only half of the originally planned water additions (thereby decreasing the vault space at the Saltstone Disposal Facility required for disposition). Transfer of the Tank 50 material to the Saltstone Processing Facility, and subsequent processing into grout, began on Monday. WSRC expects to complete bulk material removal by late-May, but has not yet determined if additional heel removal will be required.

Testing to support a heel removal determination unexpectedly revealed that a fraction of the actinides in the low-curie salt solution will collect on the Tank 50 solids when mixed. WSRC is preparing a Nuclear Criticality Safety Evaluation to demonstrate that this phenomenon does not introduce the potential for a credible inadvertent criticality scenario.