

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 14, 2002

**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 June 14, 2002

Staff member Robert Quirk was on site this week for training. On Thursday and Friday, Mr. Quirk and a site representative discussed the status and plans for Distributed Control Systems at DWPF and H-Canyon.

**Saltstone Process Upset:** A pre-mix tank located on the roof of the Saltstone Processing Facility (SPF) is fed from both a dry material (cement, fly-ash, and slag) chute and a salt solution transfer line. Contents of the pre-mix tank are gravity fed to a grout mixer inside the SPF. Mixed grout then gravity drains to the Saltstone hold tank where it is pumped, via the grout transfer lines, to the Saltstone vaults.

On Tuesday, partial plugging of the grout transfer lines between the Saltstone hold tank and the grout transfer pumps led to a decision to shutdown the process and flush the lines. During the shutdown evolutions, plugging also occurred between the grout mixer and the Saltstone hold tank. The latter pluggage was not recognized until attempts to flush the mixer resulted in solution backing up and overflowing the dry material chute onto the roof. Approximately, 100 gallons of solution were spilled.

This is the third significant process upset in the Saltstone facility in as many months. The actual consequences of these events to the workers were insignificant. However, they would have been more significant if the material being processed was the low-curie salt scheduled for introduction to the SPF later this year. The site representatives believe this recent event further emphasizes the need to thoroughly assess and correct the vulnerabilities of the SPF prior to the introduction of low-curie salt solution.

**CSSX Research:** Bench-scale testing of the caustic-side solvent extraction technology for cesium removal is on-going in the SRTC shielded cells. Last week, approximately 50 liters of actual waste from tanks 37 and 44 was run through the SRTC CSSX mock-up (32 stages with 2 cm contactors) using an optimized solvent formulation. Results of the test made available this week indicate promising results. An average decontamination factor of 520,000 was achieved, significantly exceeding the goal decontamination factor of 40,000.

**Unreviewed Safety Question:** In April, WSRC identified that the frequency analysis for helicopter and small plane crash scenarios at several facilities may be non-conservative. This issue potentially impacted the L-Reactor, K-Reactor, 235-F, and HB-Line facilities. Based on additional analysis, WSRC declared an Unreviewed Safety Question (USQ) for L-Reactor and K-Reactor this week. Authorization Basis changes are being developed to address this USQ. Analyses for 235-F and HB-Line are on-going.