

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 5, 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 September 5, 2003

**Tank 42 Valve Leak:** While preparing for a Tank 42 to Tank 32 transfer, operators encountered difficulty in opening a valve on the Tank 42 transfer jet discharge line. Camera inspections revealed that a salt mass, which had accumulated on the outside of the valve around the stem, was obstructing proper valve operation. The source of the salt mass was concluded to be a waste leak across the valve packing, specifically as a result of degradation of the Teflon valve seal. The time of the waste leak is unclear as this segment of the transfer line has not been used in approximately two years. The volume of waste leaked is believed to be very small due to the absence of corroborating conductivity probe alarms.

Given the propensity for Teflon to degrade under service conditions encountered in the high-level waste system, many valves now use more robust graphite seals. Subsequent inspection of the transfer path between Tank 42 and Tank 32 revealed that three additional valves contained Teflon seals and that one of these also had an accumulation of salt around the valve stem. Efforts are currently underway to remove the salt accumulations with flush water and replace the four Teflon valve seals. As a more broad scope corrective action, WSRC will identify the remaining valves in the high-level waste system with Teflon seals and will replace them prior to use.

**Saltstone Upgrades:** On Tuesday, modifications to the Saltstone Production Facility (SPF) were completed that will allow for processing of dissolved salt-cake with cesium-137 concentrations up to 0.1 Ci/gal (site rep weekly 6/6/03). Component testing is on-going and facility cold runs and contractor readiness assessment activities are expected to commence next week. Though the SPF is scheduled to be ready-to-operate by the end of the month, preparation of feed materials has been delayed indefinitely due to both legal (site rep weekly 7/11/03) and technical issues (site rep weekly 8/22/03).

**F-Canyon:** In early August, WSRC identified a through wall crack in the F-Canyon 8.5 evaporator (site rep weekly 8/8/03). Last week, WSRC attempted to remotely repair the evaporator vessel using an epoxy patch to seal the leak. During subsequent vessel flushing this week, WSRC identified another leak in the vessel at a different location. A new path forward is being developed. Likely options include replacing the evaporator vessel or restarting the 17.7 evaporator.

The 8.5 evaporator was the only operating low activity waste evaporator in F-canyon and is used to concentrate waste water prior to sending it to high level waste. In the interim, the 16.1 evaporator is being used to process waste; however, the throughput is much lower than the 8.5 evaporator. Solvent washing and vessel flushing activities have been on hold pending resolution of this issue. Other suspension activities (e.g., isolation of 2<sup>nd</sup> plutonium cycle head tanks) continue in the facility.