

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 29, 2001

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** R.T. Davis  
**SUBJECT:** SRS Report for Week Ending June 29, 2001

Staff members Burns, Contardi, and Zull were on-site this week reviewing the americium-curium (AmCm) stabilization project and the high level waste system.

**Recommendation 94-1:** WSRC continues development of the HLW option for the F-Canyon AmCm solution (site rep weekly 5/18/01). In early June, DOE approved the ramp down and temporary suspension of the F-Canyon vitrification project. WSRC has identified a baseline plan that involves batch neutralization and dilution in the canyon and a single transfer through the interarea transfer line to extended sludge processing Tank 51. This AmCm solution would then be mixed with sludge from Tank 7 and vitrified in DWPF as sludge batch 3. WSRC is currently evaluating the hazards and appropriate controls for both F-Canyon and tank farm activities. SRTC is also testing an AmCm sample to help resolve solubility questions that might impact salt processing or saltstone waste acceptance criteria. WSRC has identified an alternate option that could be implemented if the AmCm solubility is higher than anticipated. WSRC is expected to make a recommendation on the HLW option by mid-August.

**HLW Tank 49:** On Wednesday, WSRC completed the 4<sup>th</sup> copper strike in an attempt to decompose the remaining phenylborates in Tank 49 (site rep weekly 3/2/01). WSRC had originally planned to perform only 3 strikes with a maximum copper concentration of 0.2 mg/L; however, the phenylborate decomposition in the tank has been much slower than lab testing indicated. The latest strike will increase the copper concentration to 3.2 mg/L. The Authorization Basis control for a deflagration accident is oxygen control. Fuel control is maintained as defense-in-depth. This copper strike is not expected to challenge the fuel control limits even using the higher rate kinetics seen in lab testing. After sufficient decomposition, WSRC will transfer this waste to Tank 50 and Tank 49 will be available for HLW storage.

WSRC is also pursuing activities to return Tank 50 to HLW service. Tank 50 currently stores waste destined for the saltstone facility. Current plans are to restart the saltstone facility in April 2002 to process the combined Tank 49 and 50 material. Field work will also be required to tie Tank 50 into the HLW system. Without Tank 50 available to store a large amount of feed for saltstone, WSRC will be required to operate saltstone significantly more often than previously planned (e.g., every few months vice every few years).

**2H Evaporator:** WSRC continues to pursue resolution of the spill into the neutralization tank dike area that occurred 3 weeks ago (site rep weekly 6/15/01). It appears that the leak was caused by failure of the recirculation pump mechanical seal. The weather hut that surrounds this area has now been certified as a radiological hut and decontamination activities within the hut continue. WSRC plans to install a new pump (different design than the failed pump) so that the final pot cleaning can be accomplished. The site rep believes that WSRC should consider whether additional design changes are appropriate to help ensure this event does not recur (e.g., dike leak detection).