

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 20, 2000

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers / R. T. Davis  
**SUBJECT:** SRS Report for Week Ending October 20, 2000

Staff members Jellett, Ogg, and Robinson were on site this week to review Tank 49 material disposition, tank space management, and salt processing research and development.

**Tank 49 Material Disposition:** Tank 49 contains wash water from the 1983 demonstration of the In-Tank Precipitation process and is currently not available to store high level waste. To help alleviate tank space issues, WSRC has developed a disposition plan to chemically decompose the remaining benzene-generating compounds, remove the waste water and return the tank to HLW service. Decomposition will be accomplished in two phases: (1) heating the tank to 45°C and (2) adding a copper catalyst.

DOE-SR is currently reviewing proposed Authorization Basis (AB) changes for Phase 1 (i.e., heating the tank). Proposed defenses to prevent a benzene deflagration include oxygen control (nitrogen inerting) and fuel control (gas analyzers, benzene release rate limits). Phase I will continue until analysis indicates less than 100 mg/L of sodium tetraphenylborate (NaTPB) and less than 1000 mg/L of triphenylboron (3PB) in the waste.

This week, the staff was briefed on the proposed AB controls for Phase 2 (i.e., adding the copper catalyst). WSRC plans to recommend an oxygen control strategy only. Fuel control will be implemented by procedure as defense in depth (e.g., gas analyzers will not be credited). This strategy is contrary to the staff's expectations and appears to be driven by WSRC concerns that a fuel control strategy will be difficult to implement because of potentially higher benzene release rates. DOE-SR is currently reviewing this strategy.

**Tank Space Management:** Type IV single shell tanks in H-Area are currently used to store low source term waste water (i.e., DWPF recycle and RBOF waste). However, because the 2H evaporator has been shutdown since last fall, WSRC has been unable to concentrate this material and free-up Type IV storage space (site rep weekly 8/18/00). Without the 2H evaporator, WSRC currently estimates that H-Area Type IV tanks will be full in January 2001, potentially impacting DWPF operations. Because WSRC estimates that it will be March 2001 before they can restart the 2H evaporator, WSRC has decided to transfer unevaporated DWPF recycle stored in a Type IV tank (tank 22) to old-style Type I tanks in F-Area (tanks 5 and 6, and possibly tank 4). This activity will include rewetting sludge in tank 5, which is currently a dry sludge tank. WSRC plans to begin these transfers in January 2001.

**Recommendation 94-1:** In an August 18<sup>th</sup> letter, the Board provided DOE comments on the Americium-Curium (AmCm) stabilization design and requested that DOE brief the Board regarding how these issues will be resolved and how the lessons learned will be institutionalized. In a September 6<sup>th</sup> letter, DOE (EM-1) responded to the Board. The DOE letter states that DOE would schedule a briefing, as requested, within the next two months, and at that time, DOE would address the issues raised in the Board letter and accompanying staff report. DOE has not yet scheduled the brief because of slow progress in resolving the issues. At this time, it appears that DOE may not be ready to brief the Board until December. Meanwhile, the project continues to move forward.