

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 20, 1998

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director  
**FROM:** J. Kent Fortenberry  
**SUBJECT:** SRS Report for Week Ending November 20, 1998

**High-Level Waste (HLW) Salt Disposition Alternative** - DOE-SR will probably not fully embrace the WSRC recommended HLW salt disposition alternative. The final selection of salt disposition processes was narrowed to four alternatives: three cesium separation alternatives (Small Tank ITP, CST Ion Exchange, and Solvent Extraction) and one alternative that does not separate the cesium (Direct Grout). Last month WSRC recommended Small Tank ITP as the primary technology with CST Ion Exchange as a backup. WSRC eliminated Direct Grout because the schedule uncertainty (7 years) due to public and regulatory approval and litigation did not meet a 2010 schedule requirement based on Tank Farm space. WSRC did not select Solvent Extraction due primarily to its technical immaturity.

DOE-SR does not see a clear technical or economical choice between the cesium removal alternatives. DOE-SR, consistent with WSRC assessments, sees Direct Grout as a clear technical and economical winner if the schedule could be controlled. Preliminary discussion with the local Citizens Advisory Board, the state, and the NRC have apparently been encouraging. Furthermore, while WSRC recommended Small Tank ITP as the primary technology due to concerns with CST Ion Exchange such as hydrogen generation, thermal leaching, and potential mineral phase change, DOE-SR favors CST Ion Exchange due to concerns with Small Tank ITP such as the downstream control of benzene and the need for DWPF Salt Processing Cell operation. DOE-SR will likely recommend that the NEPA process be initiated, addressing all four alternatives, to allow a closer look at the less well defined acceptance issues of Direct Grout. DOE-SR will also recommend a formal assessment of Tank Farm capacity (looking at water management, re-use of old style tanks, new tank construction, etc.), in order to better establish schedule flexibility. Finally, DOE-SR will recommend that additional R&D be pursued, as money allows, on all three of the cesium removal alternatives. DOE-SR would prioritize this R&D in the following order: CST Ion Exchange, Small Tank ITP, and Solvent Extraction.

**Actinide Packaging & Storage Facility (APSF) Cost Estimate** - The estimate for APSF in December 1995 was \$133.6M for an above ground facility with 2000 storage positions. This cost was updated in August 1998 (100% design) to \$268.5M, incorporating significant design changes including the decision to build the facility below ground (to save life cycle security costs), an increase in the number of storage positions from 2000 to 5000, and the identification of safety class ventilation and backup power systems. WSRC is now estimating a total project cost for APSF of about \$330M. This most recent cost increase results primarily from incorporating findings from the recent independent project review sponsored by DOE-SR and a recent project risk assessment (see 10/9/98 weekly report). Significant changes include staffing increases, security upgrades, schedule slip, and computer upgrades. This latest cost estimate has not yet been finalized.

**Revised Fire Scenario** - WSRC completed preliminary assessments confirming the adequacy of each SRS nuclear facility's safety envelope relative to the revised fire scenario identified for the Replacement Tritium Facility (see 11/6/98 weekly report). No compensatory actions are needed based on this preliminary assessment. These assessment results will be reviewed by DOE-SR and finalized by WSRC.