

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 23, 1999

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director  
J. Kent Fortenberry, Deputy Technical Director  
**FROM:** C. H. Keilers / R. T. Davis  
**SUBJECT:** SRS Report for Week Ending April 23, 1999

Herb Massie, Larry Zull, and Jessica West were on site this week to review high level waste activities including preparations for startup of the Replacement High Level Waste Evaporator.

**Fiscal Year 2001 Environmental Management Budget** - DOE-SR submitted their FY '01 budget plans for EM programs to DOE Headquarters this week. This submittal included a target case of \$1.22 billion, a planning case of \$1.52 billion, and a requirements case of \$1.71 billion. Under the target case, H-Canyon, the vitrification facility, and the incineration facility would be placed in warm standby (i.e., not stabilizing/processing material). Additionally, HB-Line Phase I startup to support residue stabilization and canyon critical infrastructure projects would not be funded for this case. Under the planning case, these activities would be funded; however, an F-Area project to support near-term packaging of plutonium in accordance with DOE Standard 3013 would only be funded under the requirements case. The impacts of the FY '01 budget on Recommendation 94-1 commitments are summarized in the attached table.

**HLW Safety Issues** - The following is a status of several Potential Inadequacies in the Safety Analyses (PISAs) for High Level Waste operations:

- ! **Dry Sludge PISA:** The tank farm safety analysis is based on wet sludge; however, several waste tanks have dry or drying sludge. A PISA was identified in 1996, which addresses the impacts of dry sludge including accident release mechanisms, chronic release of alpha contamination, potential for shock sensitive compounds, accumulation of alpha contamination on HEPA filters, and impacts on hydrogen generation rates. WSRC has measured alpha contamination in the tank vapor space and HEPA filters and is currently accessing the adequacy of controls. Programs for studying shock sensitive compounds and hydrogen generation rates are ongoing. WSRC is also evaluating the impact of rewetting the two remaining dry sludge tanks.
- ! **Organic PISA:** As a part of developing new SAR/TSRs for the tanks farms, WSRC concluded that the current safety basis analysis concerning the effects of organic material in the waste tanks may be inadequate. WSRC is currently studying the behavior of organics under storage and processing conditions, inspecting tanks for the presence of organics, and evaluating the impacts on the safety basis analysis and associated controls.
- ! **Trapped Gas PISA:** This PISA, identified in 1997, addresses the potential for release of trapped flammable gas during tank transients. A Justification for Continued Operations, written in December 1997, identified compensatory measures for this issue. In 1998, WSRC concluded that the identified controls were adequate for tank transients except a seismic event, which was still being evaluated, and revised the JCO accordingly. WSRC is currently investigating and evaluating the impacts of key parameters (void fraction, percent flammable gas, and vapor volume) on seismically induced flammable gas release to determine if additional controls or engineered solutions are appropriate.

<b>Impacts of FY '01 Budget on Recommendation 94-1 Milestones</b>			
<b>Implementation Plan Milestone</b>	<b>Implementation Plan</b>	<b>Level Funding at Target Case (\$1.22B)</b>	<b>Planning Case</b>
<b>H-Canyon Pu-239 to Oxide</b>	June 2002	June 2002	June 2002
<b>APSF Operational</b>	December 2001 to December 2003	Not Funded	December 2005
<b>Repackage SRS Pu Metal and Oxide to 3013 Standard</b>	May 2002*	Not Funded	May 2006*
<b>Stabilized/Package SRS Pu Residues to 3013 Standard</b>	September 2004*	Not Funded	September 2006*
<b>Vitrify Am/Cm Solution</b>	September 2002	Funded (Re-baseline in June 1999)	Funded (Re-baseline in June 1999)
<b>H-Canyon Np-237 to Oxide</b>	December 2005	December 2005	December 2005
<b>Disposition HEU Solution</b>	December 2003	Not Funded	MD Funding Required
<b>Dissolve Mark 16/22 SNF</b>	December 2001	Not Funded	September 2002
<b>Stabilized/Package RFETS Residues &amp; Scrub Alloy to 3013 Standard</b>	May 2002*	Not Funded	May 2006*

\* Linked to APSF Startup