DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 10, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director

FROM: J. Kent Fortenberry / Joe Sanders

SUBJECT: SRS Report for Week Ending July 10, 1998

APSF Organizational Changes and Phase Change Test Program Status - Both the DOE-SR and contractor organizations have been changed in order to better support both the APSF and K-Area Plutonium Storage (KAPS) projects. Charlie Anderson, DOE-SR, has been selected as the Project Director for both APSF and KAPS. He most recently served as the director of the Spent Fuel Division. On the contractor side, Jim Fay will assume the role of APSF Senior Project Manager and Dan Wood will serve as the Project Engineering Manager.

The site reps met with DOE-SR and WSRC to discuss potential shortcomings of the plutonium storage temperature test plan. The projected program completion date of 2/10/99 may not adequately support the APSF project with construction expected to begin in 10/98. Representatives from DOE-SR and WSRC indicate that they are willing to proceed at risk because they have a high confidence that the program results will be positive and no meaningful changes to the APSF will be needed. However, if this is not the outcome, a backup contingency would be to either alloy or oxidize the plutonium metal to eliminate the alpha-phase. Installing a safety class chiller system to maintain alpha-phase metal below 100°C is expected to be much more expensive and could delay facility startup. DOE-SR indicated that they would develop a memo which documents this position. DOE-SR is also pursuing whether LANL can begin testing earlier in order to accelerate the completion date.

Americium-Curium Test Melter Eructation - While operating at minimum power to boil-off excess water, the 3" cylindrical induction melter (CIM) spewed out over half its content of surrogate material and glass making constituents. Two differences from previous melter runs were (1) glass making constituents were being used instead of glass frit or cullet, and (2) the surrogate oxalate precipitate had been added to the melter and then allowed to sit overnight before the initial heatup. The most likely cause of the eructation is rapid steam expansion from trapped water. As a result of this event, WSRC will be addressing safety of the testing activities, determining the phenomenon that caused the expulsion, and addressing possible impact on Am-Cm vitrification. Further melter testing is suspended until WSRC has finished its review of testing safety.

94-1 Stabilization Status - WSRC has recently revised the schedule projections for nuclear material stabilization at SRS. These schedule revisions have not been formally established as revisions to 94-1 milestones. Comparison of the revised schedule to the Board accepted Phased Canyon Strategy include:

- completion of americium-curium vitrification remains ‘to be determined’
- completion of spent fuel dissolution has been extended from 12/2000 to late 2001
- conversion of HEU solutions to LEU remains ‘to be determined’
- start stabilization of H-Canyon Pu solutions has been extended from 4/1999 to 7/2000
- Completion of Np stabilization has been extended from 9/2003 to early FY2005.

Note that 94-1 SRS sand, slag, and crucible processing in F-Canyon has now been completed.