DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 30, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director

FROM: J. Kent Fortenberry / Joe Sanders

SUBJECT: SRS Activity Report for Week Ending May 30, 1997

Ajit Gwal and Todd Davis were onsite this week conducting reviews of H-Canyon electrical, ventilation and fire protection systems.

ITP Temperature Limits - The ITP safety basis will likely establish upper temperature limits for Tank 48 and 49 (probably between 40 - 45 C), as well as limits on time between pump runs, to limit the inventory of benzene retained in the floating slurry. Thermal analyses indicate that solution temperature could exceed 40 - 45 C during washing, when all four slurry pumps and a filter feed pump are operated. As a result, the current strategy will be to run the slurry pumps at ½-speed, reducing their heat load by a factor of 8. If this is the case, the Chromated Cooling Water (CCW) System would serve a defense-in-depth mission to prevent solution heatup.

Thermal Requirements for the 217-H (Tritium Reservoir) Vault - Tritium reservoirs and loaded Hydride Storage Vessels (HSV) are stored primarily inside Highly Invulnerable Encased Safes (HIVES) within the 217-H Vault. The design laboratory specified that the reservoir skin temperature should normally be maintained below 120F and should not be allowed to exceed 160F except possibly for short periods. The vault HVAC system maintains an air temperature of about 71±3 F with a maximum reservoir skin temperature 27F higher (worse case). This implies that following a loss of vault cooling, the vault air temperature would have to reach 93F for reservoir temperatures to exceed 120F. A simulated loss of cooling test, which also isolated inlet air flow, showed that it would require many hours coupled with a very hot outside temperature (>100 deg F) for the vault air temperature to exceed 93F. Failure to isolate inlet air flow upon a loss of cooling during a hot day would reduce the time required, but in neither case would the 160F reservoir temperature limit be approached. To provide added assurance of vault cooling, a backup chiller is to be installed within the next 2 months.

Am-Cm Melter Development Problems - Foaming with the new glass formulation and poor offgas performance and disposal problems related to the use of lead in the previous formulation may require a third glass formulation. Additional problems are being encountered with the melter feed system. Todd Davis is planning to brief the Board on these issues.

Pu-239 Stabilization in HB-Line - It now appears an ORR will be conducted for processing Pu- 239 in the HB-Line (see 5/2/97 Weekly Report). DOE-SR approval of safety documentation is expected by the end of July 1997.