

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 8, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending May 8, 1998

Asa Hadjian, Chuck Keilers, and outside experts Bill Hall, Paul Rizzo, and John Stevenson were onsite this week reviewing design of new facilities. Outside expert Bob Lewis was onsite this week providing support in the observation of the DOE ORR for Tritium Reservoir Environmental Conditioning Chambers.

Highly Enriched Urnaium (HEU) Blenddown Program - The expected product specifications for commercial use of low enriched uranium (blended down from HEU) are much more restrictive than initially anticipated by DOE. The problem is due primarily to the transuranic 'contamination' of the reprocessed uranium. HEU recovered through the H-Canyon will have to be processed twice through the Second Uranium Cycle of solvent extraction. Then, even with this increased purity, the resulting HEU solution will have to be isotopically blended with offsite (i.e., not reprocessed) uranium in order to meet the product specification. This results in a much larger demand for canyon processing to support the HEU blenddown program, as well as the inability to utilize the extensive existing supplies of depleted uranium for the isotopic blenddown. Full support of the DOE-MD HEU blenddown program may require as much as 3 to 5 additional years of H-Canyon processing.

Acquisition of Highly Invulnerable Encased Safes (HIVES): The tritium division placed an order on 4/30/98 for four additional HIVES for tritium reservoir storage and one for Hydride Storage Vessel storage. This is consistent with the strategy briefed to the Board on 4/15/98 during the site visit. This will supplement the 42 HIVES currently installed in the 217-H Vault.

DOE ORR for Tritium Reservoir Environmental Conditioning (EC) Chambers - The DOE ORR for the three EC Chambers began on 5/6/98. Operation of the EC Chambers requires two operators and an SRTC representative. Only two operators are currently qualified for these activities so there is limited staffing flexibility. Both operators are knowledgeable and have identified errors during performance of the operating procedures. The SRTC representative has significant experience operating the EC Chambers at the Mound Plant for many years prior to this mission being transferred to SRS.

Equipment operability continues to be a problem. As described in the weekly report of 4/24/98, the safety related interlock which should shut down the centrifuge on loss of chamber inerting failed to actuate during a drill. During demonstration runs for the DOE ORR this week, the drop tester oscilloscope 'pre-triggered' and prevented the shock impulse (the key parameter from this test) from being measured. Also, the Vibration Chamber inerting was lost due to a seal failure during simulated war-reserve unit testing. The chamber inerting systems are critical because they prevent hydrogen deflagrations in the event of a reservoir failure. It would appear that additional 'shake down' testing should be performed before radioactive operations are authorized.