

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 23, 1998

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director

**FROM:** J. Kent Fortenberry / Joe Sanders

**SUBJECT:** SRS Report for Week Ending October 23, 1998

**Highly Enriched Uranium (HEU) Blend-Down** - Current plans to stabilize HEU solutions at SRS are to blend-down the HEU solutions to 5% U-235 and then transfer the solutions to a private fuel vendor, beginning in January 2001. The fuel vendor would convert the solution to oxide for fabrication into commercial reactor fuel for TVA. These plans had assumed that the resulting low-enriched uranium (LEU) solutions could be shipped in available Type A trailers. However, the blend-down solutions have been determined to require Type B packaging due primarily to the high concentration of U-234, which is concentrated during the enrichment process. There is no Type B packaging available for bulk liquid, but there is a 250 gallon package in the certification process. The current schedule calls for shipping 25 to 30 thousand gallons per month for as much as 4 years. The operational feasibility of shipping this amount of material using 250 gallon packages is being evaluated. An alternative, and a potential delay, is to ship the material as a solid (crystals or oxide). DOE would have to consider a SRS or private facility onsite for this solidification.

SRS had hoped to blend-down the HEU solution with depleted uranium (DU) solutions already on-site. Contaminants in these DU solutions, primarily actinides, prevent this material from being used. SRS will need to receive LEU solution from Fernald, or more likely, natural uranium solutions from private sources to blend with the HEU.

The lead test assembly (LTA) program is on-track for loading LTA's into TVA's Sequoyah plant by spring 1999. Nuclear Fuels Services (Erwin, TN) has dissolved scrap HEU material from SRS and converted it to oxide. The oxide will be sent to Siemens Power Corp. (Richland, WA) for fuel pellet fabrication, and the pellets will be shipped to Framatome Cogema Fuels (Lynchburg, VA) for assembly into fuel rods. Type B packaging issues might also delay this LTA program.

A draft TVA proposal for the HEU blend-down is expected by early November. This proposal should specify the type of shipments, the operations to be performed, the vendors to be involved, etc. After receiving this proposal, DOE will be able to evaluate the feasibility of the program.

**ITP Tank 49 Justification for Continued Operation (JCO)** - Higher than expected benzene concentrations were observed in the Tank 49 vapor space when the ventilation was shut down (8/14/98 weekly report). WSRC has declared an Unreviewd Safety Question since conservative calculations now indicate that the composite lower flammability limit (CLFL) will be exceeded following a loss of ventilation in only 3 days instead of 9 days. A proposed Justification for Continued Operation (JCO) requires the facility to install and operate portable backup ventilation within 12 hours. However, the portable ventilators were originally conceived to be installed within 3 days, taking into consideration post-NPH response times. This has been discussed with DOE and should be reflected in their forthcoming Safety Evaluation Report.

**Installation of Highly Invulnerable Enclosed Safes (HIVES)** - The Tritium Facilities have removed all the Stanley-Vidmar cabinets in the 217-H vault and replaced them with HIVES about a month

ahead of schedule. This activity, coupled with steady progress in unloading, should result in meeting their commitment to eliminate reservoir storage outside of HIVES by March 31, 1999.