DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 21, 2003

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
J. J. McConnell, Deputy Technical Director
FROM: R. T. Davis/ T. D. Burns
SUBJECT: SRS Report for Week Ending November 21, 2003

Staff members J. Contardi, D. Burnfield, and outside-expert D. Volgenau were on-site Tuesday through Thursday. Messrs. Contardi and Volgenau observed the DOE Voluntary Protection Program re-certification review, while Mr. Burnfield reviewed the site's Integrated Safety Management System re-validation process.

Tank Farm Activities: On Tuesday, the contamination containment barrier was breached during an evolution to remove an adjustable-height transfer jet (telescoping transfer jet) from Tank 51. Tank 51 is one of two Extended Sludge Processing tanks in which sludge macro-batches are prepared and washed prior to transfer to the Defense Waste Processing Facility. The current contents of Tank 51 include the americium and curium inventory discarded from F-Canyon in January and April 2003.

The transfer jet assembly is nearly 40 feet tall and removal operations require the use of large cranes to lift the transfer jet out of the tank riser hole and place it into a SeaLand container for subsequent disposal in the E-Area solid waste disposal facility. Prior to removal, the jet is flushed with water to minimize surface contamination. An expandable (accordion-like) plastic sheathing is placed over the riser with holes cut in the top to accommodate necessary rigging. Once the rigging is installed and the holes have been sealed, the jet is lifted up into the sheathing and the bottom of the sheathing is cinched and sealed to provide a contamination containment barrier. The sheathed jet is then placed in the SeaLand for disposal.

During Tuesday's evolution, the top of the plastic sheathing ripped open while the jet was suspended above the tank. Operators were able to place the jet in the SeaLand before the hole in the sheathing expanded to the point of total containment failure. Fortuitously, contamination was limited to the SeaLand container and the crane.

The post-event critique concluded that design alternatives were available that could have prevented the containment breach. However, a breakdown in communications between the operations and engineering personnel executing the evolution and the sheath fabricators constructing the containment resulted in a plastic sheath that was inadequate for the job. Additional management emphasis is warranted to improve the interface between operations, engineering, and the fabrication shop to ensure all future containment structures are designed and constructed commensurate with the environment in which they are expected to perform.

H-Canyon: On Thursday, a construction worker in the H-Canyon Hot Gang Valve Corridor was nearly exposed to a steam leak. The construction worker was in the process of removing asbestos insulation from a gang valve bank when operations personnel opened the steam supply valve and placed the gang valve in the jet position. This activity pressurized the line that had a previously identified steam leak near the construction worker. There were no personnel injuries; however, WSRC has identified this as a near miss occurrence. The work control process that authorized the insulation removal failed to identify the steam hazard and provide adequate hazardous energy control. In addition, because of the potential for personnel to transit near the area of the steam leak, the site representatives believe that controls (e.g., a barricade) should have been provided to protect facility workers.