

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 4, 2004

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 June 4, 2004

Tank 48 Composite Lower-Flammability Limit Monitors: On Thursday, a Potential Inadequacy in the Safety Analysis (PISA) was declared due to potential errors in the instrument uncertainty calculations supporting the set points for the Tank 48 Composite Lower Flammability Limit (CLFL) monitors.

These Safety Significant CLFL monitors measure the effective concentrations of hydrogen and organic vapors in the tank head-space to ensure that flammable gasses do not accumulate to a degree that would present a deflagration hazard. The Documented Safety Analysis for Tank 48 assumes that the tank head-space flammable gas concentration does not exceed 37% of the CLFL. Previous instrument uncertainty calculations determined that a CLFL monitor set point of 20% of the CLFL was adequate to protect the 37% assumption. Subsequent data obtained during discussions with the monitor's vendor in response to recent calibration surveillance failures (Tank 48 CLFL monitors failed their calibration surveillance on 4/14/03, 7/10/03, and 5/24/04) have called into question the adequacy of previous instrument uncertainty calculations. Updated calculations incorporating the new vendor data indicate that a set point as low as 17% of CLFL may be necessary to protect the 37% assumption.

WSRC has declared the Tank 48 CLFL monitors inoperable. The associated LCO requires that all waste activities in Tank 48 be suspended and a response plan be developed and approved by DOE if the monitor cannot be restored within 7 days. WSRC has submitted a response plan to DOE that commits to resolve the calibration and instrument uncertainty issues by 8/16/04. In the interim all waste activities in Tank 48 will remain suspended and CLFL readings will be taken every 8 hours using portable instruments. Timely resolution of these issues is imperative as safety related pump runs to prevent excessive trapped gas accumulation in the liquid waste are required by 8/26/04.

Plutonium Vitrification: As noted in the Secretary of Energy letter to the DNFSB dated May 28, 2004, DOE is investigating the potential to vitrify excess plutonium that cannot be fabricated into mixed oxide fuel. The feasibility study for this process, which also evaluates existing SRS facilities for this mission, is scheduled to be complete by the end of this month. DOE-SR is developing the CD-0 (mission need) package and plans to submit this package to DOE-HQ in July 2004.

FB-Line: DOE-STD-3013 packaging and FB-Line deinventory have recently been delayed by facility conduct of operations issues and associated corrective actions. In May 2004, WSRC suspended activities to conduct training and emphasize procedure compliance. This week, WSRC management informed DOE-SR that they are confident that these issues have been resolved. Furthermore, WSRC believes they will achieve FB-Line deinventory by March 2005, which is 6 months ahead of the contract target of September 2005.