

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 14, 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 February 14, 2003

DWPF Outage: This week, WSRC completed non-destructive examination of the failed Slurry Mix Evaporator (site rep weekly 10/18/02). General erosion was observed around the cooling coil supports (nominal vessel thickness of 3/4" worn down to less than 1/2"). However, this was not determined to be the cause of the leak experienced last September (site rep weekly 9/20/02). Contrary to earlier positions, WSRC now believes that the leak was likely the result of rapid localized erosion induced by misaligned air sparge equipment. The air sparge equipment was being used as part of a non-routine evolution to remove solids from between the coil guides to allow proper installation of repaired cooling coils. Though the air sparge equipment was designed to preclude direct jet impingement on the vessel wall, damage to the sparge assembly during installation is believed to have altered the jet position.

The feasibility of repairing the damaged SME continues to be evaluated. The current repair strategy is to weld additional plate material to the vessel underside to seal the leak site and compensate for the general erosion. This approach would represent a deviation from the national consensus code applicable to this Safety Class piece of equipment and would require equivalency to be demonstrated. WSRC is currently assessing whether equivalency can be demonstrated under this approach. Preparation of a replacement vessel is proceeding in parallel.

WSRC continues to evaluate whether the general erosion phenomena observed in the SME is applicable to other DWPF process vessels. With regard to the air sparge problem, increased diligence appears necessary for future non-routine activities to preclude similar failures.

Saltstone Authorization Basis: In late-November, WSRC submitted to DOE-SR their technical basis for downgrading the Saltstone Production Facility's (SPF) hazard categorization from HC-3 to Radiological Facility (site rep weekly 11/29/02). Subsequent reviews by the site representative and DOE-SR indicate that the submitted technical basis does not address all of the potentially relevant exposure pathways. Additionally, the methodology used for the analyzed exposure path (inhalation) may not be consistent with relevant requirements. Ambiguity in the DOE standard applicable to facility hazard categorization (DOE-STD-1027) is cited by DOE-SR as a primary contributor to these problems. A letter was signed out this week by DOE-SR directing WSRC to revise the technical basis. DOE-SR also directed WSRC to establish a schedule for completing a Documented Safety Analysis for the SPF by April 10, 2003 if the revised technical basis will not support a hazard categorization downgrade. In parallel, DOE-SR is working with EM-5 headquarters staff to clarify and document acceptable approaches for performing analysis-based final facility hazard categorizations.