DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 9, 1999

MEMORANDUM FOR: G. W. Cunningham, Technical Director
J. Kent Fortenberry, Deputy Technical Director
FROM: C. H. Keilers / R. T. Davis
SUBJECT: SRS Report for Week Ending July 9, 1999

DWPF Potential Inadequacy in the Safety Analysis (PISA) - WSRC declared a PISA at DWPF because analysis of a recent sludge sample for the current sludge feed batch indicated higher solids than assumed in the consequence analysis for the DWPF Justification for Continued Operations (JCO). In preparation for processing sludge batch 1B in 1998, WSRC requested SRTC to analyze sludge samples based on the assumption that WSRC would decant sludge in tank 42 to 110". A WSRC path forward document indicated that the 110" decant level was higher than the target decant level of 100" and would provide conservative results from a hydrogen generation and glass waste acceptance standpoint. However, the analysis was not conservative regarding isotopic concentrations used in consequence analysis calculations. Personnel involved in the consequence analysis did not recognize that the sample analysis did not accurately reflect the sludge batch 1B isotopic concentrations. WSRC compliance verification that sludge batch 1B met DWPF Waste Acceptance Criteria (WAC) in July 1998 (before processing in October 1998) did recognize that the total solids were higher because of the 100" decant level; however, the WAC was based on design basis analysis and did not reflect the JCO impact. Preliminary analysis at the higher isotopic concentrations indicates that the offsite consequence will only be slightly higher and will likely not result in an Unreviewed Safety Question (USQ). WSRC is investigating corrective actions to prevent recurrence of similar problems. (III.A.2)

Building 235F Rack Seismic Issue - Last week, WSRC concluded that a USQ exists for building 235F because storage racks in one vault are not sufficiently anchored to resist design basis seismic loads (site rep report, 5/28/99). In early 1997, a WSRC natural phenomenon hazard evaluation identified an issue with rack anchorage and recommended further evaluation and upgrades. However, the report characterized the deficiencies as minor and WSRC did not recognize the impact on the safety analysis until May 1999. The WSRC JCO for this USQ concludes that the compensatory measures identified ensure the rack seismic issue will not increase the risk of material release or criticality in building 235F. Compensatory measures include limiting material storage to the bottom row of the racks and restricting the addition of new material to the racks. DOE-SR is reviewing the JCO and is expected to issue a Safety Evaluation Report in the next few weeks. (III.A.1)