

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 25, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending July 25, 1997

Deactivation, Decontamination, and Decommissioning Strategy/Plan - A DNFSB staff trip report (2/4/97) pointed out the lack of a risk-based prioritization of deactivation and decommissioning (D&D) activities at SRS, with the expectation that a site-wide, risk-based planning effort would be completed by the end of FY97. Although the initial draft of a manual defining the process for D&D activities at SRS will be completed soon, the expectations of risk-based planning will not be met. In addition, there is currently no funding for D&D of defense nuclear facilities at SRS. DOE-SR has recently asked WSRC to develop "a comprehensive approach and plan for the execution of an integrated deactivation, decontamination, and decommissioning program that is financially self-sustaining." The thought is to develop an innovative way to fund D&D work through the resulting reduction in surveillance and monitoring costs. This plan is to be presented to DOE-SR by mid-August. In discussions with DOE-SR and WSRC, the need to consider relative risk in the prioritization of D&D activities was reiterated.

DWPF Sludge Receipt and Adjustment Tank (SRAT) Steam Coil Leak - The weekly report from March 21, 1997 discusses the failure of a coil in the Slurry Mix Evaporator (SME). The SME coil failure was attributed to erosive wear from the agitated glass frit. The recent steam coil leak observed in the SRAT has been attributed to vibration-induced fatigue failure of a weld. The SRAT receives suspended sludge slurry and treats it with nitric acid while heating and agitating to dissolve the sludge. While the SRAT coil assembly is similar to that of the SME (with coils made of Hastelloy-276), the SRAT does not contain glass frit. It should be noted that this SRAT coil assembly developed a similar leak prior to radioactive operations. The coil assembly has now been repaired and is back in service.

Safety Analyses for the Tritium Facilities Non-Nuclear Reconfiguration (NNR) Project - A site memo suggests that the conditional probability of a detonation, given the conditions for a deflagration, are approximately 20% for the shake table and 0.1% for the centrifuge. Another site memo suggests that a detonation in one of these chambers could severely damage or destroy the adjacent exterior structural wall of the building. Without crediting inerting and oxygen monitoring systems, the detonation frequency appears to fall in the range of 1E-3 to 1E-4 events per year. These inerting and oxygen monitoring systems are currently classified as safety significant. The consequences of a detonation accident have not been analyzed to demonstrate that the offsite evaluation guidelines are not exceeded. Also, it is not clear whether the detonation frequency drops to the incredible range (<1E-6 events per year) when the chamber inerting and oxygen monitoring systems are credited. The role of the inerting and oxygen monitoring systems is being assessed to re-evaluate their functional classification.