DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 12, 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 November 12, 1999

FB-Line Stand-down: This week, WSRC management ordered a complete stand-down of all work activities in FB-Line. This was motivated by several recent occurrences related to work controls and is in addition to radiological work that was previously stopped (site rep weekly, 10/22/99). One case this week involved a construction activity that had a hold-point for establishing contamination and airborne areas. During the pre-job brief, personnel decided to control contamination by just keeping the concrete damp. The job was completed successfully with radiological oversight but without the radiological controls specified in the procedure. It is likely that the procedure was not consulted during either the pre-job brief or the actual work, since the job was completed without stopping for the radiological hold-point. It also appears that this was identified later when the job supervisor tried to close out the work package with the missing hold-point. DOE-SR and WSRC management are pursuing correction actions in light of this and other recent occurrences. (3.a)

FB-Line Contamination Event Follow-up: DOE-SR has decided not to issue an interim report on the September 1 contamination event until after SRTC completes its investigation (site rep weekly, 10/1/99). The Type B report is now expected in January. SRTC has just begun destructive examination of the failed bagless transfer can. Also, WSRC has been preparing a corrective action plan for radiological deficiencies. Radiological work practices still need improvement. (3.a)

HLW Tank Structural Integrity: The current tank farm authorization basis does not consider long-term degradation of concrete exposed to elevated temperatures (site rep weekly, 10/8/99). WSRC has reviewed the operating history (e.g., maximum sludge temperature, time above 150 ^{o}F) and identified six tanks as bounding. Tank 1 is of interest since it has seen the highest maximum sludge temperature. Tank 32 also warrants monitoring since it is still actively used and is currently approaching 150 ^{o}F. The WSRC Structural Mechanics group intends to analyze the bounding type I and II tanks by February 2000. Areas of interest include potential shear cracking in tank side walls due to base mat thermal expansion; punching shear, particularly from internal steel-encased concrete columns; and adequate bond-length for tank top rebar. Resolution of this issue may be complicated by the conflicting needs of cooling the tanks to avoid long-term concrete degradation while steam-heating the tank annulus to avoid annulus corrosion. (3.a)

HLW Slurry Pumps: Four new design slurry pumps installed in tank 8 have experienced binding of their pump shafts. WSRC plans to combine and wash tank 8 sludge with tank 40 sludge in mid-2000 and begin feeding this to DWPF in early-2001. Three of the pumps froze up sometime after installation and lowering into the supernate. The fourth pump, installed in late-September, was being turned weekly; however, after three weeks, this pump could also not be turned by hand. WSRC has now freed all four pumps and is turning each pump shaft daily. The Replacement High Level Waste Evaporator feed pump (currently being installed) is a similar design and may be subject to similar problems. WSRC has a test plan and is working with the vendor to understand and correct the problem. Material and prototype testing at SRTC are on-going. (3.a)