DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 13, 2002

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 September 13, 2002

F-Canyon: On Wednesday, DOE-SR approved a WSRC request to deenergize equipment and suspend preventive and corrective maintenance activities, where appropriate. DOE-SR also noted that the deactivation order will not be provided until the deactivation plan is submitted. WSRC is currently working on the plan and expects to submit it later this year. Consistent with the suspension plan, F-Canyon personnel are reviewing remaining activities (e.g., americium-curium transfer and vessel flushing) to determine which maintenance activities can be suspended. WSRC also continues to flush canyon vessels and piping in accordance with the F-Canyon suspension plan. The second of six canyon loops is currently being flushed. To support the americium-curium solution transfer, additional simulant testing will be performed later this month to verify that the required flow rate can be maintained out of F-Canyon tank 13.1.

Saltstone Restart: Last week, WSRC completed plant modifications to support safe and reliable processing of the existing saltstone waste input stream (i.e., Effluent Treatment Facility bottoms in Tank 50). Over the weekend, WSRC and BNFL completed facility start-up testing and grout processing started on Monday. WSRC anticipates that the remaining Tank 50 material will be processed by mid-November.

Additional facility modifications will be required to support safe and reliable processing of low-curie salt waste in the Saltstone facility. DOE-SR continues to evaluate whether upgrade of the existing facility or implementation of an alternative grout processing capability should be pursued in support of the direct-disposal initiative for low-curie salt waste (site rep weekly 7/26/02).

Shielding Degradation: During start-up preparations for Tank 7 bulk waste removal, physical degradation (cracking) of the lead shielding for a short above-ground section of the waste transfer line was observed. Metallurgical analyses by SRTC indicated that an unusually large amount of antimony (~33 weight percent) was present in the lead shielding. The antimony is un-evenly distributed, thereby resulting in non-uniform radiation attenuation. A non-conformance report was issued by WSRC in response to these findings.

Additional investigation revealed this to be a problem with potential impacts site-wide. Vendor supplied lead shielding forms are alloyed with small amounts of antimony (6 weight percent) to harden the metal. Subsequent melting and reforming of the lead shielding forms on-site effectively concentrates the antimony in the process heel. Over time, as the heels are combined into new shield batches, shielding may be formed with large amounts of antimony and a degraded capacity for attenuating radiation. WSRC is currently evaluating shielding site-wide to determine the scope of the problem, and is developing a path forward for resolving the issue.