

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 6, 1998

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director  
**FROM:** J. Kent Fortenberry / Joe Sanders  
**SUBJECT:** SRS Report for Week Ending February 6, 1998

**Suspension of DOE Readiness Assessment (RA) for H-Canyon Phase 2 Operations:** WSRC requested that DOE-SR suspend the RA on 2/6/98; the RA began earlier in the week. Phase 2 involves 1st Cycle Solvent Extraction and associated solvent recovery and waste handling activities. The contractor's declaration of readiness appears to have been premature. The following conditions led to suspension of the RA:

- Programmable Logic Controller (PLC) - The PLC is the first computer-controlled system onsite to be functionally classified as safety significant. It controls numerous process parameters and provides several interlock functions to support the Double Contingency Analysis (DCA). The PLC was not functioning satisfactorily and was still being tuned during the RA. In addition, the system's software configuration was not being properly controlled. In one example, the operators were unable to achieve and maintain the temperature for the nitric acid feed stream to the 1A Mixer-Settler (a DCA control) because the system engineer put in a software "clamp" which restricted the amount that a valve supplying steam to the heat exchanger could open. This configuration was not known by the operations staff and had not been identified in the system configuration documents. The RA team is also evaluating the common mode failure potential for the DCA scenarios in which both DCA controls are performed by the PLC.
- Authorization Basis (AB) Implementation - The AB was not approved to support startup of the RA. As a result, the to-be-approved AB is not fully reflected in the operating procedures nor has the operations staff been fully trained on the changes.
- Facility Material Condition - Equipment problems experienced during cold runs (e.g. mixer-settler motor failures, jumper leaks, line pluggage) prevented the operators from sufficiently exercising the equipment and gaining hands-on experience with operating procedures. In one case this lack of experience, combined with the inability to establish proper stream temperature (as discussed earlier), led to the nitric acid feed tank (Tank 12A) being inadvertently emptied.

WSRC is developing a response plan and expects that the RA will be restarted in approximately four weeks.