

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 14, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director

FROM: J. Kent Fortenberry / Joe Sanders

SUBJECT: SRS Activity Report for Week Ending February 14, 1997

Misoperations Involving Distributed Control Systems - Standards and good practices for conduct of operations involving manipulation of controls, independent verification, etc., were developed mainly from nuclear reactor operations and were not significantly influenced by experience with distributed control system (DCS) operations. As an example, the WSRC conduct of operations field manual provides numerous examples of how to perform independent verification of various components but does not allude to the use of a DCS. In fact, the use of a DCS is hardly mentioned throughout the entire manual. Operation of newer facilities at SRS (DWPF, RTF, RHLWE, etc.) is designed around the DCS concept. Operation of many older facilities (ITP, FB-Line, HB-Line, etc.) is conducted using a hybrid arrangement of DCS backfits. Two recent events illustrate DCS misoperation and raise questions of applicable operational standards and the assessment of good DCS conduct of operations.

On 2/11/97, a DWPF operator inadvertently transferred 1800 gallons of sludge from the Low Point Pump Pit (LPPP) to the Sludge Receipt and Adjustment Tank (SRAT). The operator had intended to perform a transfer from the Recycle Tank (RT), also in the LPPP, to the H-Area Tank Farm evaporator feed tank, but selected the wrong pump from the DCS console. In order to execute the erroneously requested transfer, the DCS required a 'supervisor permissive,' a control which exists on a small number of critical activities and requires the shift supervisor to physically key in his approval to perform the action. This 'supervisor permissive' was given and the inadvertent transfer was initiated by the DCS. After about 18 minutes, operators diagnosed the problem and stopped the pump.

On 1/12/97, an ITP operator inadvertently reduced nitrogen flow to Tank 48 below a low nitrogen flow trip setpoint resulting in the loss of the nitrogen purge ventilation system. The operator had intended to adjust the nitrogen feed flow control valves from 47% open to 45% open, but only the "5" registered. The DCS requested confirmation that the feed flow valves were to be adjusted to 5% and this confirmation was given. The appropriate abnormal operating procedure was entered, the immediate actions of the applicable LCO were taken, and the nitrogen purge system was recovered.

Bagless Transfer System in FB-Line - The SRS bagless transfer station is currently being installed in the FB-Line. Construction should be complete by April or May 1997, with the first demonstration can by August 1997 (the 94-1 milestone is 9/30/97). Construction activities appear to be progressing on schedule, but the critical path to startup is safety documentation

preparation/approval and a readiness assessment. The SRS bagless transfer station is located in a glovebox "wing" just off one of the induction furnaces in the FB-Line and will be used to package plutonium metal until the Actinide Packaging and Storage Facility (APSF) comes online. The SRS bagless transfer product containers differ from the standardized PuSAP product container developed by BNFL, but are compatible with the PuSAP boundary container.

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