

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 29, 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 October 29, 1999

Staff members Burns, Gwal, Roarty, and Zavadoski were on site this week, reviewing KAMS, canyon exhaust upgrades, tank farm ventilation, and site-wide criticality control improvements.

K-Area Material Storage (KAMS): Contractor and DOE Operational Readiness Reviews are scheduled to begin November 8 and December 13, respectively. The facility will start up in two phases. The Phase 1 area is in good material condition and is close to being ready. Construction (e.g., new fire walls) continues in the Phase 2 area, and construction controls are being implemented to avoid impacting Phase 1 operation. One open item may be that currently there are no contingency procedures for a leaky container. The containers do have multiple barriers to release. (3.a)

Follow-up on FB-Line Contamination: On Thursday, SRTC began a peer review of results from non-destructive testing of the defective bagless transfer can. Three outside experts are participating. SRTC intends to brief the DOE Type B investigation team next week and obtain its agreement to start destructive testing. The defect area has been better characterized. Specifically, the welding process involves making 3 tack welds, 90° apart, to minimize distortion and then running over the tack welds with one weld pass. The hole appears to occur at or near the 2nd tack weld. Upstream of the hole is a lump of weld metal. Some observers believe that this lump appears partially remelted, and some have noted a slight rise at or near the 3rd tack weld. Also, inside the can at the defect location, the grit-blast finish on the lid is interrupted by arc scratches, but their relationship to the defect (if any) is unknown. Investigation to determine the cause of the defect continues. (3.a)

Tritium Facilities: As part of Authorization Basis upgrades made earlier this year, several tritium facilities now rely on the fire suppression system to reduce the frequency of design basis fires. This is a Safety Class function for Building 233-H (formerly the Replacement Tritium Facility, RTF). Recently, SRS had an outside consultant assess compliance to national codes. He identified several deficiencies, characterized as minor, that involve incomplete coverage by detectors and sprinklers. The most challenging appears to involve open ceiling grates in corridors that could allow smoke to bypass detectors. By design, the grates are part of the building ventilation system and supply fresh air to the corridors, which in turn, supply air to the process rooms. Resolving this deficiency will require balancing ventilation and fire protection needs. A second significant deficiency involves sprinkler heads that drop below nearby cable trays but rely on ceiling heat collectors. Testing has shown this configuration is inadequate. WSRC appears committed to correct the deficiencies. (2.a)

Seismic Confinement Requirements: Recently, the staff has questioned the seismic confinement in the Tritium Extraction Facility (TEF) design. That design is based on a 1996 change to a DOE standard (STD-1021) that permits less conservatism if off-site consequences are low. Future plutonium facilities may interpret these requirements similarly, resulting in less conservatism than in past plutonium facilities (DOE Order 5480.28, pg 19). Compared to TEF, it appears that passive seismic confinement in major plutonium facilities is much more likely to be effective at mitigating the release, while loss of confinement in such facilities could have much greater consequences. (3.a)