DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 11, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending September 11, 1998

Tritium Facilities Consolidated Safety Analysis Report (SAR) - WSRC prepared an overview of the accident scenarios, functional classifications, and safety controls in the draft consolidated SAR, contrasted to those in the existing authorization basis. Changes in the SAR methodology subsequent to the startup of 233H (Replacement Tritium Facility) have resulted in changes to safety class and safety significant systems. The accident scenarios appear without significant changes, though bounding accidents have eliminated some of the smaller accidents. Inventory controls in all facilities remain generally unchanged. It is estimated that implementation of the SAR and TSRs will take six months after DOE approval (expected early 1999).

Tritium Facilities Rupture Disks - Rupture disks have been bursting in tritium facilities on an infrequent, but somewhat routine basis. These rupture disks do not release material, but relieve excessive pressure to either a surge volume or to a recirculation line for compressors. Increases in the number of disks blown appear to loosely correlate to changes in the distributed control system (DCS) and initiation of new operations and techniques. The most recent blown rupture disk disabled a pressure control system and resulted in positive pressurization of gloveboxes in 233-H. WSRC has begun some corrective actions including facility modifications, DCS modifications, and procedure changes. Two other related issues being discussed with DOE and WSRC are the apparent high threshold for reporting events such as rupture disc bursting, and the procedural control of operational response to facility transients.

Inaudible Alarm for HLW Tank Leak Detection - All waste transfer lines have secondary containment sleeves which, in the event of a leak, drain to a Leak Detection Box (LDB) or other low point. These LDBs have conductivity probes to detect the presence of liquid, indicating a possible leak of HLW. It is not uncommon for these probes to detect condensation or rainwater in the LDBs. In several instances, a single waste tank may have multiple LDBs associated with a single control room alarm. An unusual occurrence was declared last week for Tank 26 (2F Evaporator Feed Tank) when this alarm 'locked in' but the associated evaporator feeding was allowed to continue. The alarm was associated with one of 10 LDBs linked to the alarm, and occurred during a period of heavy rain. Once acknowledged and locked in, detection of liquid in the other 9 LDBs could only be determined by viewing their associated red lights on another panel. Although not documented in the Control Room log, the justification for continuing waste transfers was that a dedicated operator was stationed at the panel to observe these lights. However, following shift turnover, the transfer continued without maintaining a dedicated operator. Approximately 36 hours later, this condition was realized and evaporator feeding was stopped. The following actions have been or are being taken as a result of this occurrence:

- A well-written briefing was developed to chronicle the events that led to this occurrence.
- The Alarm Response Procedures for alarms with multiple inputs are being reviewed to determine whether the required responses are both explicit and adequate. For the alarm which led to this occurrence, the response now requires stopping all affected transfers.