

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 5, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending December 5, 1997

Outside expert Ralph West was onsite this week assisting the site representatives in reviewing operational readiness for the upcoming restart of HB-Line Phase I Plutonium-239 processing.

HB-Line Pu-239 Processing - Cold runs of the HB-Line Phase I Pu-239 processing were observed this week. Although HB-Line Phase I operators exhibited good conduct of operations, adjunct operations require improvement. Poor simulation has resulted in personnel performance not being assessed in some areas, and has not adequately exercised the procedures (obvious procedure errors persist). Deficiencies were also noted in equipment status control and in knowledge of Technical Specification Requirements. In addition, the knowledge of the Shift Engineers needs augmenting in areas. These observations were provided to WSRC and DOE-SR for their use. Although the facility was scheduled to restart this month, the WSRC Operational Readiness Review has been delayed and is now scheduled to begin in January, followed by a DOE Operational Readiness Review.

Americium-Curium Vitrification Development Program Plan - In response to Board observations regarding the absence of an R&D plan, and prompted by the two latest melter problems (fatigue failure and pressurization), WSRC has issued an Am-Cm Vitrification Development Program Plan to describe a strategy for resolving technical issues. The plan emphasizes the evaluation of alternate designs that would be better suited to remote operation. A surprising number of development problems are discussed in the plan including:

- (1) Concerns with the performance of the liquid feed system requiring further development as well as evaluation of alternative feed systems and techniques,
- (2) Concerns with the melter design (to eliminate/minimize splatter and deposition) and ultimate life requiring that alternative designs be considered and that potential advantages of an induction heated right cylindrical Pt-Rh bushing melter be examined,
- (3) Concerns with long-term durability of the drain tube heater requiring testing of alternative resistance heating designs and induction heating for the drain tube,
- (4) Concerns with recurrent plugging requiring modification of the off-gas system, and
- (5) Potential advantages with a batch feeding/pouring operation requiring evaluation of a flowsheet for batch operation.