

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 13, 1995

MEMORANDUM FOR: G. W. Cunningham, Technical Director

COPIES: Board Members

FROM: R. Todd Davis

SUBJECT: Review of the Department of Energy Operational Readiness
Review of the In-Tank Precipitation Facility (May 17-24, 1995)

- 1. Purpose:** This report documents a staff review of the Department of Energy (DOE) Operational Readiness Review (ORR) of the In-Tank Precipitation (ITP) facility. The review was performed by Defense Nuclear Facilities Safety Board (Board) technical staff, T. Davis and T. Arcano, and outside expert, R. West, on May 17-24, 1995. A detailed review of the ORR is provided as an attachment.
- 2. Summary:** The DOE ORR team appeared to adequately characterize the status of the ITP facility. WSRC correction of the 18 pre-start findings and a properly structured startup test plan should provide assurance of operational readiness to restart radioactive operations (non-wash cycle) at the facility. Since ORR prerequisites were not met because final safety documents were not complete (identified as a pre-start finding by the DOE ORR team), it would be beneficial for DOE ORR team members to perform additional reviews in this area after these documents and associated procedures are in place.
- 3. Background:** The ITP facility is a high-level radioactive waste chemical processing facility in which radioactive salt solutions from the Savannah River Site (SRS) tank farms will be separated into high and low activity solutions by precipitation and filtration. The high activity solution will be the feed material for vitrification operations at the Defense Waste Processing Facility (DWPF). The low activity solution will be processed at the saltstone facility. The ITP facility is scheduled to begin radioactive operations in August 1995.

DOE Order 5480.31, *Startup and Restart of Nuclear Facilities*, establishes the actions to be taken and assigns the responsibilities for authorizing the startup or restart of DOE nuclear facilities. DOE Standard DOE-STD-3006-93, *Planning and Conduct of Operational Readiness Reviews*, provides additional guidance for the development and conduct of ORRs. Because ITP is a new hazard Class 2 facility, a DOE ORR was required to verify the facility's readiness to operate with respect to safety, health, environmental compliance and management.

4. Discussion:

- a. Overview: The ORR leader and team members met the experience and knowledge requirements of the DOE Order. The team reviewed documents, observed operations, and conducted interviews. The review identified 18 pre-start findings, 8 post-start findings and 15 observations. The following 9 functional areas did not meet the acceptance criteria: emergency preparedness, industrial hygiene, management, maintenance, operations, procedures, radiological protection, safety envelope, and training. The ORR team considered fire protection, configuration management, and training areas to be in good condition.

The ORR team concluded that after correction of the noted findings, there will be no major programmatic deficiencies. The team noted that operations were at the level expected for a facility starting up after a major modification.

- b. Prerequisites: The facility failed to meet the requirements in the Order for start of the ORR in the following two areas:

(1) Facility Safety Documentation: DOE Order 5480.31 requires that safety documentation be complete prior to start of the ORR. For ITP, DOE and Westinghouse Savannah River Company (WSRC) have not finalized the Safety Evaluation Report (SER), the Safety Analysis Report (SAR), the Operational Safety Requirements (OSRs), and the associated procedures. Additionally, WSRC has not completed 17 SAR and OSR related action items identified in the Authorization Commitment Matrix. This matrix identifies facility procedures, policies, and testing required to meet the authorization basis. The ORR team recommends that an independent assessment of the final safety documentation be performed prior to startup. The staff believes that appropriate member(s) of the DOE ORR team could perform this review.

(2) Closure of Pre-start Findings: DOE Order 5480.31 requires that all actions required for startup be complete with the exception of a manageable list of insignificant pre-start findings that have a well defined schedule for closure. WSRC has a number of open findings to complete with no well defined schedule for closure.

- c. Significant Findings: In addition to the items listed above, the following significant findings were identified by the ORR team:

(1) Shift management was considered to be deficient, especially with regard to maintaining the facility within the safety envelope. During shift turnover

briefings and plant evolutions, several instances were observed where operations managers failed to give adequate attention to maintaining plant operations within specified Limiting Conditions for Operations (LCOs). Deficiencies were noted in level of knowledge regarding safety requirements during interviews with shift management personnel.

- (2) The startup test plan is incomplete. The plan consists only of a schedule of actions and does not include the minimum prerequisite conditions for startup.
- (3) Operators are qualified and certified without performing all required training. This, combined with an observation about a lack of administrative control for annotating the ITP qualification roster, indicates a problem with the process of identifying qualified personnel and assigning them to tasks.
- (4) Several procedures require additional information to ensure operators understand and can properly accomplish them. Additionally, procedure revisions are still required to incorporate the anticipated safety documentation changes.
- (5) Seventeen commitments identified in the Authorization Commitment Matrix (ACM) have not been completed.
- (6) Access to high radiation areas is not adequately controlled.
- (7) WSRC has not adequately planned for the effects of contamination and radiation hazards in the filter/stripper building.
- (8) WSRC has not adequately reviewed the emergency procedure for evacuating the control room and stopping ITP operations to ensure that use of this procedure safely shuts down the facility.
- (9) Several ITP surveillance procedures do not fully verify equipment operability as described in the OSR bases.
- (10) The lockout/tagout system does not require an engineering review for all safety related systems.