



## Department of Energy

Washington, DC 20585

September 26, 1995

Mr. John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue  
Suite 700  
Washington, D.C. 20004

Dear Mr. Conway:

Thank you for your staff's observations from their trip to the Savannah River Site during the period March 20 - 24, 1995. My staff and I were also concerned about the occurrences at the In-Tank Precipitation Facility and the Defense Waste Processing Facility, discussed in your July 11, 1995, letter. My staff has held several discussions with cognizant Department of Energy, Savannah River Operations Office (SR) personnel, both prior to and after your staff's visit.

The enclosure provides a status of corrective actions taken to resolve these specific occurrences, as well as programmatic efforts implemented to prevent recurrence of similar problems.

On an ongoing basis, the SR operations and independent technical assessment program facilitates identification of operational and engineering deficiencies before they become significant occurrences. These assessments will focus more on the engineering process in order to identify systemic or fundamental concerns. I am confident that Westinghouse Savannah River Company, SR, and my staff will incorporate lessons learned from these occurrences and continue to be vigilant in identifying practices that assure safe operation of these facilities.

If you have any questions regarding our actions for resolving these concerns, please contact me at (202) 586-7710 or Ralph Erickson at (301) 903-7188.

Sincerely,

A handwritten signature in cursive script that reads "Thomas P. Grumbly".

Thomas P. Grumbly  
Assistant Secretary for  
Environmental Management

Enclosure

cc:  
M. Whitaker, EH-9  
A. Watkins, SR

**STATUS OF DEFENSE NUCLEAR FACILITIES SAFETY BOARD ISSUES  
IDENTIFIED DURING MARCH 24-26, 1995 TRIP TO SAVANNAH RIVER SITE**

**Chemical Downcomer in In-Tank Precipitation Facility (ITP)**

During installation of a modified chemical addition downcomer in ITP tank 48 on February 9, 1995, Westinghouse Savannah River Company (WSRC) personnel determined that the downcomer exceeded the tank depth due to a dimensional error during design. This event was declared an Off-Normal event and is documented in Occurrence Report SR-WSRC-ITP-1995-0005. The Occurrence Report has been reviewed and approved by the Savannah River Operations Office (SR). The root cause of the error was determined to be inattention to detail and inadequate independent review by the Design Agency supporting WSRC ITP Engineering, the Design Authority. (The individual who performed the independent review was no longer employed at the Savannah River Site at the time the error was discovered.) Corrective actions identified in the occurrence report included: 1) reviewing this event with all Design Agency and Design Authority personnel, and 2) reviewing the event with ITP engineering personnel, emphasizing the importance of providing complete design input documentation to the Design Agency. Additionally, the Design Agency has completed a training session with their design and engineering personnel. The session focused on the importance of attention to detail during dimension setting and checking.

**Water Addition to the Defense Waste Processing Facility (DWPF) Melter Feed Tank (MFT)**

On January 21, 1995, water was inadvertently added to the MFT during testing of recently installed ammonia scrubbers. This event is documented as an Off-Normal event in Occurrence Report SR-WSRC-WVIT-1995-0004. The cause of this event resulted primarily from an inadequate brief prior to commencing the test. WSRC has implemented corrective actions which have had a positive impact on conduct of testing. A contributing cause identified was personnel error during the fabrication of orifices in a drain line which established the mechanism for causing the flooding. Corrective actions contained in the DNFSB trip report were expeditiously taken to respond to the event. SR High-Level Waste personnel are ensuring that WSRC resolution of the root cause of this event will be adequate.

**Overflow of the Low Point Pump Pit Precipitate Tank (LPPPPT)**

Overflow of the LPPPPT occurred on two occasions, February 19, 1995, and March 16, 1995. In both instances, the overflow resulted from filling the tank above the tank overflow take-off pipe and then pressurizing the tank with nitrogen during a routine test of the ventilation system oxygen analyzer. These events were jointly classified as an Off-Normal event and documented in Occurrence Report SR-WSRC-WVIT-1995-0014. The root cause identified in the report was design error. The calculation performed to determine the maximum level did not account for the relationship between indicated and actual tank level (i.e., indicated tank level is zero inches until actual tank level reaches four inches.) Followup of this event determined that the calculation performed by DWPF Engineering was not independently reviewed. Actions have been completed to correct the calculation. All tank profiles and instrumentation for tanks in use were reviewed for adequacy. No additional

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To Charles Watson From Krystal Carter

errors were identified at that time. Subsequent to the review of tanks in use, an error with a tank high-level alarm was discovered during plant operations. This tank was inadvertently overlooked during the review. Review of remaining tank profiles will be completed and discrepancies corrected prior to placing the tanks in service. SR HLW has reviewed a sample of these calculations and confirmed they are correct. Actions to improve the tank design have been identified and will be completed prior to radioactive operations. In addition, the WSRC DWP Engineering Manager has reviewed the conduct of calculation review and approval process with his staff. The Occurrence Report is currently being finalized for submittal to SR.

### Summary

SR HLW has reviewed these and other events related to Conduct of Engineering to ensure the corrective actions WSRC has taken, or plans to take, are adequate and address the underlying causes of occurrence. Another example of a problem in the area of Conduct of Engineering is the determination of the time needed to reach the composite lower flammability limit during chemical cleaning of the ITP filter cell. The engineering analysis and review considered only one of the chemicals, oxalic acid, used in the cleaning process, to determine the amount of benzene generation. Additionally, the analysis failed to address water as part of the chemical cleaning process. This error was apparently due to an inadequate interface between the facility and the engineering personnel performing the calculations. This weakness in the engineering process has been addressed with WSRC management and improvements in this area are being pursued by both WSRC and SR. SR will continue to evaluate WSRC Engineering performance through the conduct of routine and reactive assessments and will include the results in its monthly assessment reports.