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## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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January 31, 1996

The Honorable Thomas P. Grumbly  
Assistant Secretary for Environmental Management  
Department of Energy  
Washington, D.C. 20585-0113

Dear Mr. Grumbly:

The Defense Nuclear Facilities Safety Board (Board) has been closely following the startup and recent events at the In-Tank Precipitation (ITP) facility at the Savannah River Site. On December 1, 1995, benzene was released during Tank 48 slurry pump operation at a rate higher than expected and operators stopped the pumps. Further analysis indicated that the benzene release rates exceeded the rates contained in the ITP Authorization Basis and it was determined that an unreviewed safety question (USQ) existed. On December 8, 1995, a Justification for Continued Operation (JCO) was approved for single-slurry pump operation with additional controls in place to ensure that benzene releases were maintained within the ITP Authorization Basis. These operations continued until January 3, 1996, when it was determined that post-slurry pump operation release rates exceeded the ITP Authorization Basis, and slurry pump operation was therefore suspended. These events point to a basic lack of understanding of the tetraphenylborate decomposition and benzene release mechanisms, and raise serious questions concerning the stability of tetraphenylborate in the Tank 48 environment.

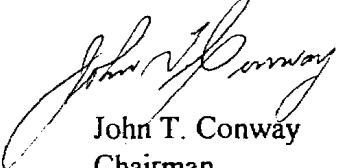
The Board has reviewed and concurs with the actions outlined in the Department of Energy Savannah River Operations Office (DOE-SR) (Watkins) letter to the Westinghouse Savannah River Company (WSRC) (Scott) of January 24, 1996. The measures required by this letter demonstrate a responsible reaction to safety problems in waste treatment activities at Savannah River. Specifically, the Board endorses the following path forward for the ITP facility:

1. The immediate concern of a holdup of large amounts of benzene in Tank 48 must be dealt with in the near term. The reliance on nitrogen inerting while the benzene is purged appears reasonable during the short period anticipated to reduce the benzene to low levels. However, controls should be in place to ensure that the benzene release rates are restrained to low levels (e.g., operate a single-slurry pump until the benzene inventory is significantly reduced) and that flammable levels not exceed 25 percent of the lower flammability limit during pump operation. The Board understands that a JCO is being prepared for this operation. This JCO should also identify compensatory measures, such as enhanced management oversight, that will be in place during slurry pump operation.

2. No additional tank waste or sodium tetraphenylborate should be added to Tank 48 until the tetraphenylborate decomposition and the benzene release mechanisms are well understood, adequate safety measures are in place, and appropriate changes are made to the ITP Authorization Basis.

The Board and our staff will continue to follow this issue closely. If you have any questions, please contact me or have your staff contact Mr. David Lowe of the Board's staff.

Sincerely,



John T. Conway  
Chairman

- c: The Honorable Tara O'Toole  
Mr. Mark Whitaker  
Dr. Mario Fiori