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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
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July 5, 1996

The Honorable Alvin L. Alm
Assistant Secretary for Environmental Management
Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585-0113

Dear Mr. Alm:

The Defense Nuclear Facilities Safety Board's (Board) staff observed Phase II of the Department of Energy's Operational Readiness Review (ORR) for startup of the High-Level Liquid Waste Evaporator (HLLWE) at the Idaho Chemical Process Plant from April 29 to May 2, 1996. Although notable improvements were made since Phase I, the ORR team again identified numerous deficiencies in operating procedures, indicating that the HLLWE was still not ready for startup when Phase II commenced. Enclosed is the Board's staff trip report from this review. This trip report complements the staff trip report for Phase I of the HLLWE ORR provided to you on May 10, 1996. The Board is interested in any actions you may take to prevent the recurrence of premature ORRs at the Idaho National Engineering Laboratory in the future.

Please call me if you need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "John T. Conway".

John T. Conway
Chairman

c: The Honorable Tara O'Toole
Mr. Mark B. Whitaker, Jr.
Mr. John M. Wilczynski
Mr. Brian Monson

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 22, 1996

MEMORANDUM FOR: G.W. Cunningham, Technical Director

COPIES: Board Members

FROM: Russell A. Green

SUBJECT: Review of Phase II of the Department of Energy's Operational Readiness Review of High-Level Liquid Waste Evaporator at the Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, April 29 - May 2, 1996.

- 1. Purpose:** This report documents a review of the High-Level Liquid Waste Evaporator (HLLWE) by Defense Nuclear Facilities Safety Board's (Board) staff member R. Green and outside expert D. Boyd. The review took place at the New Waste Calcining Facility (NWCF) of the Idaho Chemical Processing Plant (ICPP) at Idaho National Engineering Laboratory (INEL) from April 29 - May 2, 1996. The staff observed Phase II of the Department of Energy's (DOE) Operational Readiness Review (ORR) for startup of the HLLWE.
- 2. Summary:** Design deficiencies have been corrected, and improvements have been made in some areas of conduct of operations; however, when the ORR was resumed, procedures were still deficient, indicating that the HLLWE was not ready to startup. It appears that the premature resumption of the ORR can be linked to the perception held by some of the HLLWE/NWCF DOE line management that the ORR is a tool to confirm readiness. This perception is in direct conflict with the DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, which clearly states: "The readiness reviews are not intended to be tools of line management to confirm readiness. Rather, the readiness reviews provide an independent review to start or restart operations."

The Board's staff was generally impressed with the persistence of the DOE Idaho Operations Office (DOE-ID) ORR team. However, because both phases of this ORR were commenced prematurely and because the NWCF has a history of conduct of operations problems, it may be appropriate for the DOE-Headquarters (DOE-HQ) ORR team to be used to conduct the upcoming NWCF ORR. The DOE-HQ ORR team has conducted ORRs throughout the weapons complex and has set a standard which INEL has not, as of yet, had the benefit of experiencing.

- 3. Background:** The DOE ORR for the HLLWE began on March 28, 1996, and was suspended on April 2, 1996, by the ORR team leader. The main reasons for the suspension were that the evaporator did not operate per design and that there were inadequate implementation and understanding of conduct of operations, which precluded safe operation of the HLLWE. The ORR resumed on April 29, 1996. The portions of the ORR conducted prior to and after the suspension (i.e., March 28 - April 2, 1996, and April 29 - May 2, 1996, respectively) are referred to as Phase I and Phase II, respectively.

The Deputy Assistant Manager for Program Execution in the DOE-ID is the designated startup authority for the HLLWE and the restart authority for calcining operations. According to DOE-ID, operation of the HLLWE is essential for meeting the dates specified in the Notice of Noncompliance consent order and the Settlement Agreement signed by DOE and the State of Idaho for reducing the volume of waste in the tank farm by 330,000 gallons by December 31, 1997, and for emptying the tank farm tanks by the year 2012.

4. **Discussion:** Due to deficiencies in procedures and the lack of operator proficiency in performing operating procedures, the NWCF organization was not ready to operate the evaporator with proper conduct of operations when Phase II of the ORR commenced. This was despite LITCO's efforts (and improvements) made during the period between Phase I and Phase II to train personnel, revise procedures, and increase management involvement in operations.

In addition, the Board's staff had the following observations:

- a. **Modification to the HLLWE:** The problem of process condensate flow splitting between tanks NCC-122 and NCC-119, instead of only to NCC-122 per design, has been corrected by the installation of a vent line. LITCO reported that the evaporator has operated reliably as designed on cold feed following installation of the vent line.
- b. **Conduct of Operations:** Marked improvements were observed in shift turnovers and the operators' understanding of how to report deficiencies in procedures (i.e., the Document Action Request system). However, despite an LITCO interoffice memorandum dated April 12, 1996, outlining a rather rigorous review of the four procedures specific to the HLLWE and a few NWCF procedures, numerous procedure deficiencies still existed at the time Phase II of the ORR commenced. This brings the effectiveness of LITCO's procedure review process into question.

Numerous changes to procedures and to existing practices have been made in a relatively short period (i.e., between Phase I and II of the DOE ORR). Continuing emphasis and follow-up by both DOE and LITCO management over an extended period will be required to ensure implementation of the new initiatives. The NWCF ORR, which is scheduled for later this year, will indicate whether these cultural changes have been embraced.

- c. **DOE Line Management:** Interviews with DOE line management and the review of documentation indicate that, in conflict with DOE orders, the ORR is being used as a tool to verify readiness and not as an independent review of readiness to start operations. A DOE-ID ICCP Facility Manager's memorandum to resume the ORR dated April 25, 1996, certified readiness for resumption of the ORR but failed to verify that LITCO's preparations for facility startup had been completed as required by DOE Order 425.1.

5. **Future Staff Actions:** The staff will monitor LITCO's and DOE's preparations to start the HLLWE and NWCF, including observation of the NWCF ORR. In addition, the staff will perform a process safety review of both the HLLWE and the NWCF in June 1996.