

**[DNFSB LETTERHEAD]**

June 2, 1997

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:

Staff members of the Defense Nuclear Facilities Safety Board (Board) have continued their surveillance of the actions at the Idaho National Engineering and Environment Laboratory preparatory to starting operation of the High-Level Liquid Waste Evaporator (HLLWE) and restarting the New Waste Calcining Facility (NWCF). The Board provided the Department of Energy (DOE) with letters on May 10, 1996, and July 5, 1996, that commented on the failure of the DOE Idaho Operations Office (DOE-ID) to identify inadequacies in the contractor's state of readiness before certifying readiness for operations and commencement of the Operational Readiness Review (ORR) for the HLLWE.

DOE responded to the Board's letters on June 13, 1996, and August 26, 1996, stating that DOE-ID "will thoroughly document the process used to verify readiness and review post-start findings to ensure proper categorization." The August 26, 1996, letter further stated, ". . . a review and upgrade of the Plan of Action for Department of Energy (DOE) ORR for the NWCF is underway to more clearly underscore line management responsibility for determination of readiness...."

The results of the subsequent ORR conducted on the NWCF by DOE demonstrated that DOE-ID again failed to identify inadequacies in the contractor's readiness to begin operations. The DOE-ID process for verifying readiness remains deficient and has not received a level of attention commensurate with its importance to the safe resumption of operations. This deficiency has delayed the conversion of high-level liquid waste to a safer storage form in the NWCF.

Therefore, the Board requests that DOE provide a report that evaluates the current process used by DOE line management at the Idaho National Engineering and Environmental Laboratory (INEEL) to verify readiness, in light of good practices developed elsewhere, and that documents any corrective actions for INEEL resulting from these evaluations.

The Board requests that the above report be submitted within 90 days of receipt of this letter. [Enclosed](#) is the report of the Board's staff on this subject. If you need additional information, please do not hesitate to contact me.

Sincerely,

**John T. Conway**  
Chairman

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

Enclosure

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 26, 1997

**MEMORANDUM** G. W. Cunningham, Technical Director  
**FOR:**  
**COPIES:** Board Members  
**FROM:** M. B. Moury  
**SUBJECT:** Review of Actions Taken to Verify Readiness to Operate the High Level Liquid Waste Evaporator (HLLWE) and the New Waste Calcining Facility (NWCF) at the Idaho National Engineering and Environmental Laboratory (INEEL)

## 1. Purpose

This report documents observations made by Defense Nuclear Facilities Safety Board (Board) staff members M. B. Moury and R. A. Green and outside expert D. Boyd during the past 12 months regarding actions taken by Department of Energy Idaho Operations Office (DOE-ID) line management to verify the readiness of the HLLWE and the NWCF for DOE Operational Readiness Reviews (ORRs) and subsequent startup. Although these observations focus on DOE-ID, they could also apply to the contractor line management.

## 2. Summary

Despite repeated identification of the issue by the Board staff and independent review groups, DOE-ID line management has failed to adequately determine the state of readiness to proceed with DOE ORRs at the Idaho Chemical Processing Plant (ICPP), as required by DOE Order 425.1, *Startup and Restart of Nuclear Facilities*.

## 3. Background

Calcining operations at the NWCF were routinely shut down in November 1993 at the end of Campaign H-3. Following the shutdown, the Hazard Category 2 HLLWE was constructed in the NWCF blend-and-hold cell, and several modifications were made to the NWCF systems. The HLLWE is a thermo-siphon evaporator, regulated under the Resource Conservation and Recovery Act (RCRA), and designed to reduce the volume of radioactive waste stored in the ICPP Tank Farm. Because the schedules for operation of the HLLWE and NWCF were different, separate ORRs were conducted for each. The HLLWE ORR was conducted in March 1996; because of significant deficiencies identified by the ORR team, a second phase was required, in May 1996. The evaporator began operations in June 1996. The ORR for the NWCF was conducted in January 1997. Again because of the number and significance of the deficiencies identified by the ORR team, a second review of several functional areas will be required in May or June 1997.

#### 4. Discussion

**Basic Requirements for Verification of Readiness.** DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, defines the requirements for certification and verification of readiness by the DOE Operations Office:

Section 4. b. (7) (b) - At the start of the DOE Operational Readiness Review, all actions required for startup or restart shall be complete with the exception of a manageable list of open prestart findings that have a well-defined schedule for closure to allow review of the results of the closure process by the DOE Operational Readiness Review team. In the certification and verification process, DOE Operations Office line management shall document their actions taken to verify Operations Office and contractor readiness including review of closure of Operational Readiness Review findings, assessments of completion of defined prerequisites, and other assessments performed to ascertain readiness.

This certification and verification process is not intended to be an additional "ORR-like" review, but a confirmation of DOE line management's knowledge of readiness, based on day-to-day involvement in facility activities. DOE Standard DOE-STD-3006-93, *Planning and Conduct of Operational Readiness Reviews (ORR)*, Section 5.2.6, further defines DOE's oversight role:

**Oversight of Activities.** Provide day-to-day oversight of the responsible contractors activities to achieve and verify readiness to conduct operations including review of the contractor ORR report and prestart finding closure plans and closure documentation. Through this day-to-day oversight, the Operations Office management will be able to provide knowledgeable recommendations concerning responsible contractors actions and proposals.

This process assumes that the basic elements of a management and independent assessment program—including an effective issue management system, as defined in the *Implementation Guide for Use with Independent and Management Assessment Requirements of 10CFR 830.120 and DOE 5700.6C Quality Assurance* exist within the appraisal program for effectively evaluating activities on a continuous basis. The following examples raise questions concerning the effectiveness of the DOE-ID programs.

**DOE HLLWE ORR.** The HLLWE ORR started on March 28, 1996, and the ORR team suspended it on April 2, 1996. The suspension was based on an HLLWE split condensate flow problem, and the severe deficiencies observed in the accuracy of operating procedures and operator execution of those procedures. The DOE readiness-to-proceed memorandum certified only DOE's readiness to oversee operations, not the readiness of the facility to operate. In the final ORR report, the DOE ORR Team stated: "At commencement of the DOE ORR on March 28, 1996, DOE line management had not recognized or executed it's [sic] responsibility to determine readiness of the facility to operate prior to requesting commencement of the DOE

ORR."

A Board letter to DOE, dated May 10, 1996, states: "The findings of the ORR team, confirmed by the Board staff, indicate that DOE and contractor line management did not achieve a state of readiness ...." The letter also states:

DOE line management did not properly assess the contractor's state of readiness before certifying readiness for this operation and commencement of the ORR. This may cause the ORR team to function as an adjunct to line management, rather than as a means of independently confirming that a state of readiness has been achieved. This is contrary to the original intent of DOE's policy on ORRs as defined in DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, and is a key tenet of Board Recommendation 92-6.

**DOE HLLWE ORR (Phase II).** The Board staff observed Phase II of the DOE ORR for startup of the HLLWE from April 29 to May 2, 1996. In a July 5, 1996, letter to DOE, the Board noted: "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."

DOE responded to the Board letters on June 13, 1996, and then again on August 26, 1996, stating that DOE-ID "will thoroughly document the process used to verify readiness and review post-start findings to ensure proper categorization." The August letter further stated, ". . . a review and upgrade of the Plan of Action for Department of Energy (DOE) ORR for the NWCF is underway to more clearly underscore line management responsibility for determination of readiness ...."

**NWCF DOE ORR.** The DOE ORR for restart of the NWCF began on January 13, 1997. The ORR team observed deficiencies leading to 32 pre-start findings and 17 post-start findings. Programmatic and systemic problems were noted in the areas of operations, procedures, radiological controls, and environmental management. Because of the facility's inability to demonstrate integrated operations, as well as the large number and nature of the findings, the ORR team concluded that the NWCF was not ready to conduct hot radiological operations. The ORR team determined that it would reconvene for portions of the NWCF startup sequence to reassess readiness for the start of cold/hot calciner operations.

The February 4, 1997, DOE ORR report stated: "Of particular concern however, is the fact the multi-layered review and preparation process did not identify these issues. This is a key concern, and one on which DOE-ID should focus analysis and corrective actions."

The Board staff found that the documented plan developed by DOE-ID for verifying readiness of the NWCF to operate was a significant improvement over what was done for the HLLWE ORR, but the implementation was clearly inadequate to verify readiness to proceed. Despite the recurring failure to adequately verify readiness to proceed with operations, no formal guidance has been developed by DOE-ID to govern

line management preparation for the ORR and certification of readiness at INEEL. DOE personnel at the ICPP are currently soliciting assistance from DOE Headquarters and the Savannah River Site to address this issue for the NWCF startup. However, it is not clear that the actions being taken will prevent a similar deficiency at other INEEL facilities.

#### **5. Future Staff Actions**

The Board staff intends to continue to follow the NWCF restart and corrective actions to address the deficiencies with the DOE-ID line management verification of readiness.