The Under Secretary of Energy
Washington, DC 20585

September 9, 1998

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

Dear Mr. Chairman:

This is in response to your April 15, 1998, letter requesting a report on the status of Recommendation 94-1 milestones at the Plutonium Finishing Plant (PFP) and the efforts in place at the Department of Energy Richland Operations Office (RL) to improve the readiness review process. We share your interest in seeing the project move ahead. We are focusing current efforts on resolving operational delays, and also are working with our regulators and other stakeholders to address competing priorities and funding allocations at the Hanford site.

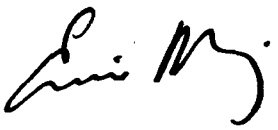
The Acting Assistant Secretary for Environmental Management requested that RL provide proposed changes to the implementation plan. The change proposal will form the basis of our response to your request for a report on the status of Recommendation 94-1 milestones at PFP, and the reasons for schedule delays. The Department has informally shared a preliminary copy of the proposed interim PFP implementation plan changes with your staff, along with other site changes.

The Richland Office attributed the delay to a combination of technical, operational, and funding issues. We are working with them to understand and resolve their technical issues, planning assumptions, work priorities, and site constraints in carrying out the 94-1 implementation plan at PFP.

The Department forwarded to you on September 2, 1998, a technical update of the implementation plan for 94-1, which will discuss the proposed implementation plan changes for PFP. We intend to complete a comprehensive revision to the implementation plan before December 1998, and will continue to work with your staff to ensure Board concerns are considered in revisions to the implementation plan.

We are enclosing a memorandum providing responses to the other five specific items highlighted in your letter that were related to the Hanford readiness process and other specific PFP issues. I share your concerns with the issues that you raise and want to assure you that efforts are under way at the site to improve the overall readiness program.

Sincerely,



Ernest J. Moniz

Enclosure

RL-F-1325.6 (02/98)

United States Government **Department of Energy**

memorandum

Richland Operations Office

DATE: MAY 23 1998

REPLY TO ATTN OF: SOD/KAB 98-TPD-089

SUBJECT: RESPONSE TO DEFENSE NUCLEAR FACILITIES SAFETY BOARD (DNFSB) APRIL 15, 1998, LETTER

TO: David G. Huizenga
Acting Deputy Assistant Secretary for
Nuclear Material and Facility Stabilization
Office of Environmental Management, EM-65, HQ

The U.S. Department of Energy (DOE), Richland Operations Office (RL) staff has reviewed the DNFSB letter to Ernest Moniz dated April 15, 1998. As requested in your letter dated May 11, 1998, RL is providing a response to the Board's issues related to the readiness review process, technical qualifications and safety envelope. The response to Plutonium Finishing Plant (PFP) 94-1 Implementation Plan changes will be provided as a separate response by June 5, 1998.

The April 15, 1998, DNFSB letter requested readiness review information in five specific areas:

1. "How the readiness review process is managed at the Hanford Site at both the DOE and contractor levels."

   RL has recently assigned Site Operations Division (SOD) as the Program Owner to DOE Order 425.1 and Richland Implementing Directive (RLID) 425.1 in accordance with the Functions, Responsibilities, and Authorities Manual (FRAM). RLID 425.1 is a comprehensive directive integrating the requirements of DOE Order 425.1, "STARTUP AND RESTART OF NUCLEAR FACILITIES", DOE Standard 3006-95, "PLANNING AND CONDUCT OF OPERATIONAL READINESS REVIEWS (ORR)" and DOE Handbook 3012-94, "TEAM LEADER'S PREPARATION GUIDE FOR OPERATIONAL READINESS REVIEWS (ORR)".

   The specific process flow for readiness reviews are defined in RLID 425.1. A brief summary of the process is:

   a. The facility/subcontractor develops a Memorandum of Understanding (MOU) or Plan of Action (POA).
   b. The contractor (Fluor Daniel Hanford, Inc [FDH], Bechtel Hanford, Inc. [BHI], Pacific Northwest National Laboratory [PNNL]) reviews the MOU or POA and determines whether the scope is correct. The contractor ensures that expectations are clearly established and lines of inquiry in the document are adequate.

c. Once the contractor approves the MOU/POA it is transmitted to the RL line organization for review and approval.
d. RL Line and Independent Team review the MOU/POA and approve the document. The approved MOU/POA is transmitted back to the contractor.
e. The approved MOU/POA becomes the official guideline document used by all parties to perform the readiness review.
f. The contractor completes the process reviews and notification is made to RL of contractor completion.
g. RL begins the line review and upon successful completion the Independent Team review is initiatiated.
h. Upon completion of assessment activities, corrective actions are identified as pre and post start items.
i. When the contractor satisfactorily completes all pre-start corrective actions RL approves release for operations.

RL has developed a matrix of our technical staff qualified to perform assessments. Currently, the matrix is under review to address improvements to qualifications and training. In addition SOD is performing a comprehensive internal review of the readiness review process. The objectives of the internal review are to; improve the qualifications of the participants; to increase the number of qualified staff through training and on-the-job participation during performance of site readiness reviews; and to integrate lessons learned identified by review of DOE complex information. There have been issues raised in the area of ORR Team member's qualifications. The qualification requirements will be revised accordingly to correct any deficiencies that may be identified during the internal review.

RL contractors manage the readiness review process in accordance with the requirements set forth in RLID 425.1.

2 "How RL performs oversight of its own and contractor's readiness review activities."

RL performs independent self-assessments of RL line organizations with personnel assigned to the Performance Assessment Division (PAD) within the Environmental Safety and Health (ESH) organization. PAD performs independent oversight of readiness review activities at the Hanford Site. PAD assesses the adequacy of the readiness reviews conducted by RL ORR/Readiness Assessment (RA) teams, and the contractor and RL line management organizations. In this oversight role, PAD normally reviews all ORRs and selected RAs. This oversight process is proceduralized in a PAD procedure, PAD 14-01. The process defined in RLID 425.1 requires the RL line organization to assess readiness of the contractor prior to initiating the Independent Team readiness review activities. As part of the Independent Team readiness review, the RL line is evaluated as part of their assessment activity.

3. "Corrective actions taken or planned to ensure that the readiness review process at Hanford is followed in accordance with DOE Order 425.1, Startup and Restart of Nuclear Facilities, and DOE-STD-3006-95, Planning and Conduct of Operational Readiness Reviews."

The ongoing internal review of DOE complex lessons learned and the subsequent process improvements will implement a more rigorous assessment process that ensures compliance with the readiness review Order and guidance documents. These improvements will increase RL and contractor performance in the readiness review process.

RL:
SOD initiated a comprehensive readiness assessment process review as part of the initial program assignment. The review included integration of lessons learned from the DOE complex, PFP and Tank Farms W-030 readiness assessments. New lessons from the RL 233S readiness review are being folded into the effort. Implementation of the review recommendations will begin in June 1998. In addition to the process review, an evaluation of the RL qualification matrix has begun to assess the expertise of readiness review participants and to identify any additional training needs. The qualification matrix will address areas of experience that readiness review participants must have to assist in the selection of team members. The matrix will be used to identify the criteria to utilize DOE complex personnel to acquire the expertise needed.

FDH:
A process improvement action has begun to increase the number of technically qualified staff for performance of readiness reviews. The contractor has initiated the use of an advisor (start-up coach) to assist the facility in working through the contractor readiness review in preparation for the RL line and Independent Team reviews. In addition to the personnel improvements, a revised more comprehensive process procedure is in final draft, HNF-PRO-055, "Facilities Start-Up Readiness."

BHI and PNNL:
The RL readiness review improvement team is evaluating issues raised during the current Environmental Restoration 233-S Facility ORR to establish process improvements for the BHI and PNNL readiness review activities.

Increased RL participation will be utilized in future activities including assignment of a qualified independent oversight staff member during the facility contractor readiness review activity.

4. "How RL intends to verify the technical and managerial qualifications of the DOE managers and staff responsible for PFP."

RLID 425.1 requirements include implementation of the DOE Order 425.1 core requirement number 16 which evaluates DOE technical and management staff.

RL personnel assigned to PFP are qualified in accordance with the RL Technical Qualification Program designed to meet the criteria of DNFSB Recommendation 93-3. The staff assigned to PFP are fully qualified under DNFSB Recommendation 93-3.

5. "How RL intends to verify the adequacy of the safety envelope of PFP prior to resumption of operations."

   The adequacy of the safety envelope of the PFP Facility is being addressed by the POA, and will be verified during the ORR as Core Requirement number 4. Additional detail will be available in the RL ORR Plan of action, which is being developed at this time.

If you have any further questions, please contact me or your staff may contact Larry Romine, of the Transition Program Division, at (509) 376-7471.

John D. Wagoner
Manager

Attachment:
1. DNFSB letter from John T. Conway to Ernest J. Moniz, dated April 15, 1998.
2. Memorandum from David G. Huizenga, EM-65, to John D. Wagoner, dated May 11, 1998.

United States Government Department of Energy

memorandum

DATE: MAY 11 1998

REPLY TO ATTN OF: EM-65 (J. Newson, 301-903-4469)

SUBJECT: Report on the Status of Recommendation 94-1 Milestones at the Plutonium Finishing Plant

TO: John D. Wagoner, Manager, Richland Operations Office

This memorandum forwards the attached Defense Nuclear Facilities Safety Board (Board) letter dated April 15, 1998, for your action. The letter requests a report on the status of Recommendation 94-1 milestones at the Plutonium Finishing Plant (PFP) and the efforts in place at the Richland Operations Office (RL) to improve the readiness review process.

I share the Board's concern with the lack of plutonium stabilization progress at PFP. I am, however, pleased that PFP satisfactorily completed a recent Readiness Assessment, and that the material handling hold was partially lifted on April 20, 1998. This is a step in the right direction. To ensure the approach to restarting other PFP operations is adequate, the Board requested that the Department address a number of issues regarding the readiness review process, including personnel technical qualifications and facility safety envelope verification.

You are requested to provide your formal response to EM-60 by May 22, 1998, for the issues related to the readiness review process technical qualifications and safety envelope. We are looking forward to receiving your proposed change to the PFP 94-1 Implementation Plan for PFP and my staff will continue to work with you to finalize any changes. Your proposal will be forwarded to the Board for information, as we intend to work with the Board staff to fully understand the concerns of the Board, prior to issuing final changes to the 94-1 Implementation Plan for PFP. The Department is committed to providing these changes to the Board by June 1998.

If you have any further questions or concerns please do not hesitate to call me at 202-586-5151 or Scott Purvis of my staff at 301-903-2810.

David G. Huizenga
Acting Deputy Assistant Secretary for
Nuclear Material and Facility Stabilization
Office of Environmental Management

Attachment

cc: M. Whitaker, S-3.1

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
(202) 208-6400

April 15, 1998

The Honorable Ernest J. Moniz
Under Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Dr. Moniz:

The Defense Nuclear Facilities Safety Board (Board) has reviewed the Department of Energy Richland Operations Office (DOE-RL) monthly progress report regarding operations in support of Recommendation 94-1 at the Hanford Plutonium Finishing Plant (PFP). The Board is disappointed to learn of the anticipated 1- to 2-year delay in meeting the milestones of Recommendation 94-1. The report details a combination of causes for this delay, including a shortage of funding, as well as an inability to verify that PFP is ready to resume plutonium stabilization operations.

There has been essentially no progress toward reducing the risk of plutonium storage at PFP since fissile material handling was put on hold in December 1996. The Board considers PFP restart to be essential to safety. Notwithstanding this urgent need to resume operations at PFP, the process by which the readiness of the facility is verified must be deliberate, objective, and well managed to ensure that the facility is safe to operate. Following a Board recommendation on this subject, this process was codified in DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, and DOE-STD-3006-95, *Planning and Conduct of Operational Readiness Reviews*. The enclosed issue report prepared by the Board's staff describes what appears to be a systemic problem with the way DOE-RL implements its startup and restart readiness verification process.

The Board is aware of DOE-RL efforts to develop a startup plan for the more hazardous plutonium stabilization operations at PFP. Likewise, the Board understands that the DOE Office of Environmental Management had requested that DOE-RL provide proposed changes to the DOE implementation plan for Recommendation 94-1 by March 6, 1998. Therefore, the Board requests that, as soon as practicable after your receipt of these reports, DOE prepare a report on the status of Recommendation 94-1 milestones at PFP and the efforts in place at DOE-RL to improve the readiness review process. In particular, the report should address the following:

- The proposed implementation plan changes and the exact reasons for schedule slippage, including technical, management, and funding issues.

- How the readiness review process is managed at the Hanford Site at both the DOE and contractor levels.
- How DOE-RL performs oversight of its own and contractors' readiness review activities.
- Corrective actions taken or planned to ensure that the readiness review process at Hanford is followed in accordance with DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, and DOE-STD-3006-95, *Planning and Conduct of Operational Readiness Reviews*.
- How DOE-RL intends to verify the technical and managerial qualifications of the DOE managers and staff responsible for PFP.
- How DOE-RL intends to verify the adequacy of the safety envelope of PFP prior to resumption of operations.

Should you have any questions on this matter, please do not hesitate to call me.

Sincerely,

John T. Conway
Chairman

c: Mr. James M. Owendoff
Mr. Mark B. Whitaker
Mr. John Wagoner

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

DNFSB Staff Issue Report

March 9, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director

COPIES: Board Members

FROM: R. Arcaro

SUBJECT: Operational Readiness Reviews at the Hanford Site

This memorandum documents an issue reviewed by member of the staff of the Defense Nuclear Facilities Safety Board (Board) R. Arcaro.

Summary. The Department of Energy Richland Operations Office (DOE-RL) has made attempts to start two activities in the past year in which intervention by the Board and its staff has been required to ensure adherence to the appropriate requirements and intent of DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, and DOE-STD-3006-95, *Planning and Conduct of Operational Readiness Reviews*. The process by which readiness is confirmed at Hanford requires improvement to ensure that operations can proceed safely.

Readiness of the Plutonium Finishing Plant (PFP). In December 1996, the PFP contractor, Babcock and Wilcox Hanford Company (BWHC), stopped all fissile material handling because of repeated violations of the criticality safety program and other noted deficiencies in conduct of operations. Since April 1997, BWHC and DOE-RL have made several attempts to verify the readiness of the facility to resume fissile material handling. Continued failure to verify PFP readiness exacerbates the safety issue of continued storage of plutonium-bearing materials in forms poorly suited for long-term storage. PFP was to begin stabilization of plutonium-bearing solutions by June 1997. In part, because of the failure to resume fissile material handling, and also because of DOE's recently realized need to perform an Operational Readiness Review (ORR) for the startup of the Vertical Calciner, this milestone may be delayed by as much as 2 years.

The Board's staff has followed activities at PFP closely, and has determined that the failure of BWHC and DOE-RL to establish and verify PFP readiness is indicative of a lack of understanding of how this process is to be performed. The following are examples of this apparent lack of understanding:

- In the fall of 1997, after a DOE-RL Readiness Assessment (RA) was suspended because of inadequate PFP readiness, DOE-RL line management argued that a repeat

RA was unnecessary and not required by DOE O 425.1. After Board concerns with this approach were communicated to DOE by the Board's Site Representative, DOE-RL committed to a second RA.

- In November 1997, after the contractor had declared readiness, BWHC operators and managers violated the criticality safety program while performing a heavily supervised fissile material inventory. It was this type of poor performance that led to the original hold on the handling of fissile material.

- Fissile material handling has been on hold at PFP for more than a year. In accordance with DOE O 425.1, this extended shutdown of operations requires a more rigorous ORR before operations resume. Despite the continued inability to adequately establish readiness, DOE-RL granted itself an exemption to this Order requirement. Only after intervention by DOE's Office of Environment, Safety and Health did DOE-RL commit to performing a ORR for the higher-hazard stabilization operations.

Operational Readiness Review of the Aging Waste Ventilation System (W-030). The Tank Waste Remediation System's W-030 project installed a new ventilation system for the aging waste tanks. The aging waste is the hottest and most radioactive waste in the Hanford tank farms. DOE-RL's actions in verifying readiness and authorizing startup of W-030 again showed a lack of complete understanding of the tenets of DOE O 425.1 and DOE-STD 3006-95:

- The contractor and DOE ORRs for the startup of W-030 identified several significant pre-start findings. These findings included the following:

  - Shift managers were not qualified on the new system.
  - The Safety Equipment List referenced by the authorization basis document was incomplete and not used.
  - Procedures to implement some Technical Safety Requirements were not developed.
  - Operators received no training on manual operation of the W-030 system.

  These findings are fundamental to the safe operation of the system and indicate that line management had not sufficiently readied the system for operation.

- In January 1998, contrary to the requirements of DOE Order 425.1, the DOE-RL manager authorized startup of Project W-030 *pending satisfactory closure of 10 pre-start items*. This action reduced the value of the senior manager's approval by allowing restart without his review of the closure of pre-start findings. After objection by the Board's staff, the Manager rescinded this approval.

The W-030 ventilation system is an improvement over the current system, and as such provides an increased margin of safety in the tank farms. Similar to the situation at PFP described

above, continued problems with the readiness verification process exacerbate the delay encountered in implementing an improvement in safety. The readiness verification process at the tank farms needs to be improved to ensure that startup of future facilities is performed such that operations can proceed safely.

Fluor Daniel Hanford Review. In January 1998, a Fluor Daniel Hanford review of the ORR/RA process revealed that the process was inefficient, time-consuming, and inconsistent. The review resulted in a number of observations, including the fact that ORR/RA team leader qualifications did not exist, and that at times, the team leader was under schedule pressure to allow the facility to start up. Significantly, the review also revealed that the contractor readiness review was often used in developing a checklist to prepare the facility for the DOE review. Such action effectively removes the contractor's responsibility to prepare the facility for operation by relying on a readiness review to identify those activities that require improvement.