

John T. Conway, Chairman  
A.J. Eggenberger, Vice Chairman  
John W. Crawford, Jr.  
Joseph J. DiNunno  
Herbert John Cecil Kouts

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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

94-0000680



August 20, 1993

The Honorable Thomas P. Grumbly  
Assistant Secretary for Environmental  
Restoration and Waste Management  
Department of Energy  
Washington, DC 20585

Dear Mr. Grumbly:

Enclosed are several observations on the DOE Richland Operations Office monitoring and oversight of DOE Order 5480.21, *Unreviewed Safety Questions (USQ)*. The Defense Nuclear Facilities Safety Board (DNFSB) staff developed these observations following a visit to the Hanford site on June 14-17, 1993.

Safety evaluations performed using the USQ process are an essential activity in maintaining the safety envelope of defense nuclear facilities. Changing missions and transition activities at these facilities make it an especially important process for assuring that a safety envelope appropriate to the missions is maintained. The enclosed report shows an apparent lack of monitoring and oversight of the USQ process by the Richland Operations Office.

The Board is providing this staff report for your consideration and such follow-up action you deem appropriate. However, pursuant to 42 U.S.C. § 2286b(d), the Board requests that DOE submit a report back to us advising of the disposition made of the matters identified.

Sincerely,

A handwritten signature in cursive script, appearing to read "John T. Conway".

John T. Conway  
Chairman

Enclosure

c:  
M. Whitaker, Acting DR-1  
P. Grimm, EM-1  
T. O'Toole, ES&H-1 (Designee)

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD**

August 16, 1993

**MEMORANDUM FOR:** Board Members  
G. W. Cunningham, Technical Director

**FROM:** J. Kent Fortenberry

**SUBJECT:** Trip Report - Review of the Department of Energy - Richland Operations Office (DOE-RL) oversight of DOE Order 5480.21, *Unreviewed Safety Questions*

1. **Purpose:** This memorandum describes the monitoring and oversight being performed by DOE-RL to ensure that DOE Order 5480.21, *Unreviewed Safety Questions (USQ)*, is being properly implemented at the Hanford site.
2. **Summary:** During a recent visit to the Hanford site (June 14 through 17, 1993) the Defense Nuclear Facilities Safety Board (DNFSB) staff investigated DOE-RL oversight activities relative to the USQ order. Although the order assigns specific oversight activities to the DOE field organizations, these activities are not being performed.
3. **Background:**

The purpose of DOE Order 5480.21. The safety basis of a nuclear facility includes the management, design, construction, operation, and engineering characteristics necessary to protect the public, the workers, and the environment. The Safety Analysis Report (SAR) evaluates this safety basis. DOE uses the SAR as a basis for authorizing the operation of a nuclear facility. Operation of the facility as described in the SAR should provide adequate protection for the public, the workers, and the environment. DOE Order 5480.21 provides a method for contractors to make changes or additions to a facility, and to the authorization basis (such as the SAR), without prior DOE approval. The changes can be made without prior approval provided they do not involve a USQ, *as determined by the contractor*. DOE Order 5480.21 is modeled after title 10, part 50.59 of the Code of Federal Regulations governing the commercial nuclear industry.

The importance of the USQ process. The Board has consistently emphasized the importance of training and qualification of operations, maintenance, and technical support personnel. A qualified and well trained staff can provide some compensation for older and possibly substandard facilities. However, an imprudent change to a procedure, an unwise facility modification, or a poorly planned test or experiment can thwart the best trained and qualified staff. A well implemented USQ process ensures that the potential safety impacts of changes are properly assessed.

Many facilities in the DOE defense nuclear facilities complex are experiencing changing missions and transition activities. When these activities are performed under the existing authorization basis, the USQ process is the tool used to ensure that the safety aspects of the proposed change or activity have been considered. A proper USQ screening will identify activities or operations not described in the authorization basis and will require that a safety evaluation be performed.

4. **Discussion:** DOE Order 5480.21 was issued December 24, 1991. The DOE-RL Quality Safety and Health (QS&H) Division was assigned as the Hanford Site Office of Primary Responsibility (OPR) for this order on February 3, 1992. QS&H issued DOE-RL Implementing Directive (RLID) 5480.21, on July 2, 1992.

On June 14 and again on June 17, 1993, DNFSB staff held discussions with DOE-RL personnel to assess DOE-RL oversight activities, particularly the oversight functions assigned to the Heads of Field Organizations by the order and subsequently assigned to Division Directors by the DOE-RL Implementing Directive (RLID 5480.21). The staff asked to review the periodic reports, required by the order, which summarize all situations for which safety evaluations were required. Inquiries were also made into DOE-RL's Order Compliance Self-Assessment for DOE Order 5480.21 requirements applicable to the Richland Operations Office itself. The results of these discussions follow.

- a. DOE Order 5480.21 requires the heads of field organizations to "ensure that adequate contractor procedures are in place and assess the effectiveness of their implementation . . ." The DOE-RL Implementing Directive (RLID 5480.21) assigns this activity to the Division Directors. No evidence could be provided to the DNFSB staff that the DOE-RL Division Directors or the OPR has ensured adequate and effectively implemented procedures are in place.

A partial assessment of the USQ process was performed by the DOE-RL Office of Performance Assessment (OPA) as a result of a July - September 1992 appraisal of WHC Electrical Safety, Emergency Preparedness, Explosives Safety, Fire Safety, Nuclear Safety and Criticality (CMP-SES-92-007). This appraisal was not conducted to assess the USQ process, but was a management appraisal as defined and required by DOE Order 5482.1B, *Environmental Protection, Safety, and Health Appraisal*. Findings from this appraisal resulted in a Corrective Action Request (CAR CMP-92-01) that identified failures to evaluate potential USQs and failures to perform USQ screening for facility modifications at Tank Farms. Despite these findings, neither OPA nor DOE-RL management questioned the effectiveness of DOE-RL oversight of the USQ process.

A partial DOE Order Compliance Self-Assessment was performed in response to Board Recommendation 90-2. However, this assessment was performed primarily by the contractor, and not by DOE-RL.

- b. DOE Order 5480.21 requires the heads of field organizations to "actively monitor the USQ identification, review, and decision making process of contractors . . ." The DOE-RL Implementing Directive (RLID 5480.21) assigns this activity to the Division Directors. No evidence could be provided to the DNFSB staff that the DOE-RL Division Directors or the OPR has monitored the USQ process. The lack of assessments in this area was discussed above (see Section 4.a). The obscurity of required periodic contractor reports on USQ activity is discussed below (see Section 4.c).
- c. DOE Order 5480.21 requires the contractor to submit a report summarizing all situations for which a safety evaluation was required. The DOE-RL Implementing Directive (RLID 5480.21) specifies that these reports are to be submitted quarterly to the appropriate RL Division Director. It is reasonable to assume that these periodic reports would play a major role in DOE-RL oversight of the contractor's implementation of the USQ order. However, DOE-RL personnel were not familiar with these reports, and did not know if they were being submitted. Although requested, no reports could be provided to the DNFSB staff for review.
- d. The staff had previously reviewed Westinghouse Hanford Company's (WHC's) Order Compliance Self-Assessment activities (trip report transmitted to DOE on April 1, 1993). However, the staff had not previously reviewed the self-assessment performed by DOE-RL for order requirements applicable to the Richland Operations Office itself. The documented self-assessment of DOE-RL compliance to DOE Order 5480.21 is currently in draft form. Compliance is "demonstrated" by referencing the DOE-RL Implementing Directive (RLID 5480.21). No evidence of implementation is provided, as required by the Order Compliance Self-Assessment Instruction (DP-AP-202), to show that DOE-RL is in compliance with DOE Order 5480.21.