

**[DNFSB LETTERHEAD]**

April 1, 1993

Dr Everet H. Beckner  
Acting Assistant Secretary for Defense Programs  
Department of Energy  
Washington, DC 20585

Dear Dr. Beckner:

Enclosed for your consideration are several observations on the DOE Order Compliance Self-Assessment activities at Hanford developed by the Defense Nuclear Facilities Safety Board (DNFSB) staff following a visit to Hanford on January 26-28, 1993.

The Board acknowledges the positive steps taken by DOE-RL and Westinghouse Hanford Company (WHC) in performing the DOE Order Compliance Self-Assessment at Hanford. However, as indicated in the enclosed report, there appear to be deficiencies in execution of the assessment effort that merit DOE scrutiny in the interest of a quality product. The Board intends to continue monitoring the assessment effort.

If you need any further information, please let me know.

Sincerely,

***John T. Conway***  
***Chairman***

Enclosure

c:  
M. Whitaker, Acting DR-1  
P. Grimm, Acting EM-1

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 26, 1993

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

**COPIES:** Wallace Kornack  
Andrew G. Stadnik  
Les A. Ettliger

**FROM:** J. Kent Fortenberry  
Steven A. Stokes

**THROUGH:** Timothy J. Dwyer, Hanford Team Leader

**SUBJECT:** Trip Report - Review of Hanford Site Order Compliance  
Self-Assessment Activities, January 26-28, 1993.

1. Purpose: This memorandum provides a compilation of observations and concerns of the Defense Nuclear Facilities Safety Board (DNFSB) Technical Staff, relative to a January 1993 review of Department of Energy-Richland Field Office (DOE-RL) and Westinghouse Hanford Company (WHC) activities, related to the Order Compliance portion of Recommendation 90-2.
2. Summary: DOE-RL and WHC have taken positive steps in performing Order compliance self-assessments at Hanford. Nevertheless, the failure to follow DOE's established instructions and guidance has resulted in several deficiencies. Correction of these deficiencies would improve the quality of the Order compliance self-assessments. Moreover, steps should be taken by DOE-RL and WHC to ensure that established instructions and guidance are consistently followed in regular facility self-assessments.
  - a. Positive Steps: Review of the Order compliance self-assessments at the Hanford site suggests a well documented, formal process that has the potential of becoming an integral part of facility operations. The evident focus at Hanford on the process of Order compliance self-assessment is encouraging. The staff members were pleased to see elements of DOE Order 5700.6C Quality Assurance, such as Criterion 2 (Personnel Training and Qualification) and Criterion 4 (Documents and Records), built into this self-assessment process. Participation and direction from DOE-RL was also evident.
  - b. Deficiencies: There were several deficiencies in the Order compliance self-assessment activities at Hanford. These deficiencies resulted primarily from the failure to properly follow instructions and guidance. These deficiencies are summarized below and discussed in detail in Section 4.

1. A review of the assessment effort for PFP facility compliance with DOE Orders 5480.21 and 5480.20 indicates a need for strengthening the procedural direction and quality assurance measures developed by DOE for the self-assessment activity. See Section 4.b.(1).
  2. Some Orders were only assessed at the site level and did not receive a facility level requirement by requirement assessment. See Section 4.b.(2).
  3. The scoping performed to determine applicable Order requirements for the Plutonium Finishing Plant (PFP) was assumed by DOE-RL and WHC to apply to the UO(3) and K-Basin facilities. See Section 4.b.(3).
  4. Four Orders were excepted from the requirement by requirement assessment process at Hanford. These four Orders were assessed using alternate methods. Adequate technical rationale was not provided for these exceptions. See Section 4.b.(4).
  5. Often in the assessment of an Order requirement, a documented policy or procedure was the only evidence provided to show compliance. See Section 4.b.(5).
  6. DOE-RL inspections did not provide assurance of the adequacy of the Westinghouse self-assessments. See Section 4.b.(6).
3. Background: Two members of the DNFSB technical staff, Kent Fortenberry and Steven Stokes, and outside expert John Straub visited the Hanford site to gather information on activities related to the Order compliance portion of Recommendation 90-2. Specifically, the DNFSB staff members discussed the following subjects with WHC and DOE-RL personnel:
- o DOE-RL Pilot Program Plan for Order compliance self-assessment at the Hanford site
  - o WHC site-wide and facility specific (PFP, UO(3), and K-Basin) Order compliance self-assessments
  - o DOE-RL inspections of the WHC Order compliance self-assessment activities
  - o WHC plans and activities for the Requirements Identification Document (RIDs) development at the Hanford site
4. Discussion: A brief summary of the Order compliance self-assessment being performed at the Hanford site is presented below. This is followed by a more detailed discussion of the DNFSB staff observations identified earlier.

- a. Summary of the Order Compliance Self-Assessment Conducted by WHC and DOE-RL: The primary direction for the Order compliance self-assessment at Hanford comes from the Office of Defense Programs (DOE-DP) document DP-AP-202, Order Compliance Self-Assessment Instruction (Reference 5.a). DOE-RL has imposed this DOE-DP direction on WHC in the DOE-RL document Order Compliance Self-Assessment Pilot Program Plan (Reference 5.b). Three WHC Implementation Plans (PFP, UO(3), and K-Basin) were written to address both facility and site-wide assessments (References 5.c, 5.d, and 5.e). In addition, a WHC administrative procedure (Reference 5.f) was written to provide detailed direction for the self-assessment activities.

The DOE Orders of interest to the DNFSB (Reference 5.g) were reviewed and 37 were determined to be applicable to the Hanford site. The applicable Orders were then screened for each facility to classify the Orders as containing either site-wide or facility level requirements. The individual requirements of the Orders were reviewed to determine the scope or list of Order requirements that would be assessed. All mandatory items identified in the Requirements Self Assessment Database (RSAD) were included in the scope. Non-mandatory items, determined to be necessary for the protection of public health and safety, were also included in the scope.

Orders that contained site-wide requirements were assessed from a site-wide perspective, generally using upper tier policies and procedures as evidence of compliance. Orders that contained facility level requirements were assessed from a facility perspective, generally using facility level procedures and evidence of implementation to demonstrate compliance.

Persons selected to perform the Order requirement assessments were trained on the meaning of Order compliance and the type of evidence needed to demonstrate compliance. Appropriate personnel qualifications relevant to the Order being assessed were certified by letter.

Order requirement assessment forms were prepared that identified:

- o The Order requirement being assessed
- o The procedure where the Order requirement was stated
- o The evidence that the requirement was being implemented at the facility (i.e., training records, audits, interviews, logs, work packages, etc.)

Noncompliances were documented using Compliance Schedule Agreements (CSAs), Short Term Compliance Schedules (STCSs), or Exemption Requests (ERs) and sent to DOE-RL for review. The Order requirement assessments were reviewed by a WHC corporate group (Regulatory Compliance). An independent

assessment of the Order compliance self-assessment activities was performed by an outside contractor. When the WHC self-assessment of an Order was completed, DOE-RL performed an inspection of the results.

b. Observations:

The deficiencies identified by the DNFSB staff in the Order compliance self-assessment activities at Hanford are described below.

1. Failure to Follow Instructions:

Observation: A review of the assessment effort for PFP facility compliance with DOE Orders 5480.21 and 5480.20 indicates a need for strengthening the procedural direction and quality assurance measures developed by DOE for the self-assessment activity.

The responsibility for implementing the Order compliance self-assessment at the PFP facility rests with the Manager, Operations Assurance. The staff interviewed this manager to gain an understanding of self-assessment activities for the PFP facility. Although much of the self-assessment work was done under previous managers, the Manager, Operations Assurance was entirely responsible for the self-assessment of DOE Orders 5480.21 Unreviewed Safety Questions and 5480.20 Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities.

From this interview and document review, several items were identified:

- (a) The DOE-DP Order Compliance Self-Assessment Instruction (Reference 5.a) directs that the Order compliance self-assessment should be performed by the responsible manager and not by a quality assurance group, central self-assessment group, or subcontractor. This direction was confirmed by discussion with the WHC Regulatory Compliance group. The WHC self-assessment at PFP for DOE Order 5480.21 was performed by two outside contractors. The assessment then received an approval signature from the Manager, Operations Assurance.
- (b) The DOE-RL Order Compliance Self-Assessment Pilot Program Plan (Reference 5.b) delineates the training and qualification package requirements for persons performing compliance assessments. These requirements are also provided in the WHC implementing documents.

Of the two outside contractors who performed the PFP self-assessment for DOE Order 5480.21, neither had a completed qualification form and only one had completed the required training. Two PFP personnel performed the PFP self-assessment for DOE Order 5480.20 with "some clerical help" from outside

contractors. Of the two PFP personnel, neither had a completed qualification form and only one had completed the required training.

- (c) The staff examined the Order requirements assessments for DOE Orders 5480.20 and 5480.21. For Order 5480.21 there was no evidence of performance-based assessments. Compliance with Orders was determined solely on the basis of documented policies and procedures. For Order 5480.20, as many as 50% of the assessments were missing the required performance-based evidence.

Taken together, these items raise disturbing questions as to the qualifications of personnel assigned the assessment task and the likely quality of the end product. This condition takes on added significance when it is pointed out that these assessments were the responsibility of a manager who has key responsibilities for implementing new standards for formal conduct of operations at PFP.

## 2. Order Applicability:

Observation:As a result of the screening process used at Hanford, some Orders did not receive a facility level requirement by requirement assessment.

Reference 5.a provides DOE-DP direction for assessing the status of Order implementation. This direction defines the process for determining the applicability of Order requirements to specific facilities:

- o Define the site
- o Determine the Orders applicable to the site
- o Determine the subdivisions of the site (i.e., facilities)
- o Determine the Orders applicable to the facility
- o Determine the Order requirements that apply to the facility (i.e. a requirement by requirement determination of applicability)

The DOE-RL program plan (Reference 5.b), as well as the WHC implementation plans for PFP, UO(3), and K-Basins (References 5.c, 5.d, and 5.e), deviate from this DOE-DP direction. Applicable Orders were screened to decide if the Order contained site level requirements or facility level requirements. If the Order contained site level requirements, then a facility level Order compliance assessment was not performed. Instead, a site level requirement by requirement assessment was performed.

The effect of this method gives the DNFSB staff cause for concern. The screening

of Orders into site or facility level requirements may be useful from an administrative perspective, however, most requirements have flow-down to a particular facility. If the site is going to provide support to the facility in meeting the requirement at that facility, then both efforts should be documented. If, however, a site level requirement is not examined for applicability at the facility, then clearly DP-AP-202 (Reference 5.a) has not been followed.

Example:DOE Order 5480.21 Unreviewed Safety Questions was determined by WHC to contain site wide requirements during the UO(3) Order compliance self-assessment. A WHC assessment of site level policy and procedure documentation was performed. A requirement by requirement assessment of facility procedures and implementation was not performed.

### 3. Order Scoping:

Observation:The scoping to determine applicable Order requirements for the PFP facility was assumed by WHC to apply to the UO(3) and K-Basin facilities.

The terms "shall" and "must" identify requirements in the Orders. Other terms appearing in the Orders include "should" and "may." The DOE Orders are not always consistent in the application of these terms. Because of this, the DOE-DP Order Compliance Self-Assessment Instruction (Reference 5.a) requires that Order statements be checked for applicability at a facility to determine if they are necessary to provide adequate protection for the safety of the workers, public, or surrounding community.

The DOE-RL Order Compliance Self-Assessment Pilot Program Plan (Reference 5.b) provides a process for assessing these Order statements in scoping meetings. Items considered in the scoping meetings include:

- o Non-mandatory "should" and "may" statements (assessed with the help of pre-filter criteria, Attachment 2 of Reference 5.b)
- o requirements to be excluded from the assessment
- o requirements in the Order that were not included in the RSAD These scoping meetings supported the Order compliance self-assessment of the PFP facility. Scoping meetings were not conducted in support of the Order compliance self-assessment at the UO(3) and the K-Basin facilities. The results of the PFP scoping meetings (i.e., a list of Order requirements to be assessed) were assumed by WHC and DOE-RL to apply to the UO(3) and the K-Basin facilities.

### 4. Assessment by Letter:

Observation: Not enough justification was provided for departure from a requirement by requirement assessment process for four Orders. In Reference 5.h DOE-DP identified an alternate method for documenting compliance with two DOE Orders: 4700.1 Project Management System and 6430.1A General Design Criteria. DOE-RL sent this direction to WHC in Reference 5.i. These referenced documents were reviewed and found to be vague and lacking technical rationale, save for convenience in entering data into the RSAD.

In addition, methods other than requirement by requirement assessment were used to document compliance with two other DOE Orders: 4330.4A Maintenance Management Program and 5480.9 Construction Safety and Health Program. This decision was made without DOE-DP involvement. No documentation was found explaining the alternate method of assessment for these Orders. The only mechanism used by DOE-RL for informing DOE-DP of these alternate methods was the monthly or quarterly status reports.

5. Adequacy of Assessments:

Observation: A limited review of some Order requirement assessments showed many instances where a documented policy or procedure was the only evidence provided to show compliance.

Appendix B of the DOE-DP Order Compliance Self-Assessment Instruction (Reference 5.a) describes the criteria for compliance. Specifically, to show compliance with an applicable DOE Order requirement one must provide the following evidence:

- o Documented policy, program, procedure, or practice and evidence that the Order requirement is being followed (interviews, observation of work, records of audits, inspections, logs, etc.), or
- o an approved waiver or exemption, or
- o evidence that required hardware is installed and operational

The staff reviewed the self-assessment documentation for DOE Order 5400.1 General Environmental Protection Program. In most cases the evidence of compliance was limited to the documented policy or procedure. Seldom was evidence provided to demonstrate that the order requirement was being followed. This is an incomplete implementation of the self-assessment guidance and does not provide assurance that Order requirements are being implemented.

WHC personnel were very familiar with the Reference 5.a definition of compliance. They understood that both evidence of documented procedures as well as evidence of implementation (interviews, observation of work, records of



audits, inspections, logs, etc.) were needed to demonstrate compliance. However, many of the assessments reviewed showed that this definition of compliance was not consistently applied.

6. DOE-RL Inspections of WHC Self-Assessments:

Observation:DOE-RL inspections did not provide assurance of the adequacy of the assessment.

In the Reference 5.a DOE-DP Order Compliance Self-Assessment Instruction, the Compliance Coordinator is assigned the responsibility to monitor and verify the self-assessment activities. Particularly, the Compliance Coordinator is to:

- o Implement appropriate quality requirements on the project
- o Ensure that follow-up quality reviews and Quality Assurance (QA) audits are completed

A DOE-RL desk instruction (Reference 5.j) describes the DOE-RL on-site inspection process. In summary:

- o A DOE-RL subject matter expert (SME) or contractor prepares an inspection plan by selecting samples from the Order requirements that he believes best address the intent of the Order
- o When the WHC self-assessment is completed, the DOE-RL SAME or contractor performs the inspection to evaluate the self-assessment

In response to staff inquiry about the validity of the sampling, DOE-RL personnel stated that a minimum of 10% of the assessed Order requirements were selected for inspection. Also, the selection was performed by an individual who was considered particularly knowledgeable of the subject Order. Finally, the selected requirements were inspected by performing a procedure verification as well as a performance-based verification (field verification, interviews, review of logs and records, etc.).

The results of several DOE-RL inspections were reviewed. This review showed that:

- o The selection of requirements for inspection (those believed to best address the intent of the Order) was not always appropriate
- o The 10% criterion was not formally defined or adhered to
- o Findings from these DOE-RL inspections were not used to draw

conclusions about the adequacy of the WHC self-assessment of that Order, but only to provide correction for the assessments of the particular Order requirements inspected

- o The inspections did not always include performance-based activities (held verifications, review of logs, etc.)

Examples:

Seventy-eight Order requirements were assessed by WHC at the PFP facility for DOE Order 5400.1 General Environmental Protection Program. The DOE-RL inspection for this order included a sample of 15 requirements (19%). During the inspection, seven of these 15 requirements were found not to be pertinent to PFP. The inspection plan was not revised. Of the remaining eight requirements, one noncompliance was identified. The possible need for further inspection due to the 13% failure rate was not addressed.

One hundred and seventeen Order requirements were assessed by WHC at the PFP facility for DOE Order 5400.5 Radiation Protection of the Public and the Environment. The DOE-RL inspection for this order included a sample of nine requirements (8%). During the inspection, two of these nine requirements were found not to apply to the PFP facility. The inspection plan was not revised.

The emergency preparedness-related DOE Orders (5500.1B, 5500.2B, 5500.3A, 5500.7B, and 5500.10) were inspected with a single inspection plan. Out of a total of 136 Order requirements assessed by WHC at the PFP facility, the DOE-RL inspection included a sample of 46 requirements (34%). This inspection consisted of only policy and procedure review. No field verifications or other performance-based verifications were performed .

Thirty-seven Order requirements were assessed by WHC at the PFP facility for DOE Order 5480.7 Fire Protection. The DOE-RL inspection for this order included a sample of 15 requirements (41%). Except for some PFP Administration Manual review, this inspection was limited to upper tier WHC policy and procedure. No facility verifications were performed. Five noncompliance were identified. The possible need for further inspection due to the 30% failure rate was not addressed.

5. References:

- a. DP-AP-202, dated August 3, 1992, "Department of Energy Defense Programs Order Compliance Self-Assessment Instruction, Revision 2."
- b. DOE Richland Field Office document, dated July 2, 1992, "Order Compliance Self-Assessment Pilot Program Plan."

- c. WHC to DOE-RL, dated December 18, 1991, "Order Compliance Self-Assessment Plan."
- d. WHC to DOE-RL, dated May 8, 1992, "UO(3) Order Compliance Evaluation Plan."
- e. WHC to DOE-RL, dated October 5, 1992, "K-E Basin Order Compliance Assessment Plan."
- f. WHC-IP-0836, dated June 27, 1992, "W Order Compliance Administration Procedure."
- g. DOE to DNFSB, V. Stello, Jr. to J. Conway, dated March 25, 1992.
- h. DOE-HQ Internal Memo, dated January 10, 1992, "Alternate Method for Documenting Compliance with 6430.1A and 4700.1."
- i. DOE-RL to WHC, dated May 1, 1992, "Direction to WHC for Alternate Method for Documenting Compliance with 6430.1A and 4700.1."
- j. RL-OTD-92.1 (Desk Instruction), draft, "DNFSB Recommendation 90-2 Order Compliance Self-Assessment Process. "