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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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99-0000057



January 8, 1999

The Honorable Ernest J. Moniz  
Acting Deputy Secretary of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-0104

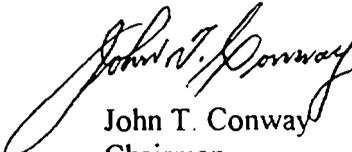
Dear Dr. Moniz:

The Department of Energy (DOE) recently completed a Phase I verification review of the Integrated Safety Management System (ISMS) at the Hanford Tank Waste Remediation System (TWRS, or Tank Farms). Hanford Tank Farms is one of 10 priority facilities charged with implementation of an ISMS per the DOE Implementation Plan for Defense Nuclear Facilities Safety Board (Board) Recommendation 95-2. The scope of the Phase I review includes a determination of the adequacy of the policies and procedures that implement the site's ISMS. The Board's staff observed the Phase I review, and a report of resulting observations is enclosed for your information.

The Board's staff found that the review team was well qualified and conducted a rigorous review. In addition to the review team's findings, however, the Board's staff identified weaknesses in the contractor's Unreviewed Safety Question procedures that warrant further review. Additionally, because of the unique structure of the Hanford ISMS, it may be advisable for DOE-Richland to develop a revised Criteria and Review Approach Document specifically tailored to the site ISMS Plan and its associated "expectations."

The Board is prepared to further discuss this matter with you if you desire. Mr. Daniel Ogg, the Board's Hanford Site Representative will be prepared also to discuss this with your staff.

Sincerely,

  
John T. Conway  
Chairman

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

Enclosure

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD****DNFSB Staff Issue Report**

December 10, 1998

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

**COPIES:** Board Members

**FROM:** D. G. Ogg, Hanford Site Representative

**SUBJECT:** Department of Energy (DOE) Phase I Verification Review of Hanford Tank Farms Integrated Safety Management System (ISMS)

This report documents two reviews by the staff of the Defense Nuclear Facilities Safety Board (Board) conducted in October and December 1998. These reviews addressed the Department of Energy (DOE) Phase I verification review of the Hanford Tank Waste Remediation System (TWRS, or Tank Farms) Integrated Safety Management System (ISMS).

**Introduction.** Under the Implementation Plan for Board Recommendation 95-2, Hanford Tank Farms is one of two Hanford priority facilities required to implement an ISMS. Tank Farms is operated by Lockheed Martin Hanford Company (LMHC) under subcontract to Fluor Daniel Hanford, Inc. (FDH). During the past year, LMHC worked to formalize its ISMS, and issued an ISMS Implementation Plan and "gap analysis" that identified open items relative to the site-wide ISMS Plan. LMHC declared readiness for the DOE Phase I verification review in August 1998, and DOE conducted the review from September 28 to October 9, 1998.

**Summary.** The Board's Hanford Site Representative and outside expert D. Boyd observed the Phase I review in its entirety. The Hanford Site Representative also performed a follow-up review during the week of December 7, 1998. The staff believes that the review team did a satisfactory job in determining the adequacy of the policies and procedures within Tank Farms that institutionalize the ISMS. The Board's staff also agrees with the conclusion of the team that Tank Farms ought to be directed to proceed with preparations for a Phase II verification review. However, the staff identified three items that warrant further review and/or action by DOE-Richland (DOE-RL) and the contractor:

- It is not clear that the team met one of its objectives—to "identify which gaps require closure as a prerequisite for performing a Phase II verification. . . ."
- Because of the unique structure of the Hanford ISMS, and because there are many more Phase I and Phase II reviews to be conducted, it may be advisable for DOE-RL

to develop a revised Criteria and Review Approach Document (CRAD) specifically tailored to the site ISMS Plan and its associated “expectations.”

- There are inconsistencies between one site-wide and three Tank Farms procedures on the processing and management of Unreviewed Safety Questions (USQs). This was not identified as a gap by the contractor or as a concern by the review team.

**ISMS at Tank Farms.** The ISMS for the Project Hanford Management Contract (PHMC) is documented in the *Integrated Environment, Safety and Health Management System Plan*, HNF-MP-003, Rev. 0, September 5, 1997. This site-wide guidance provides PHMC-, facility-, and activity-level expectations for an acceptable ISMS at Hanford. These expectations form the basis for the development and implementation of ISMSs at each of the PHMC facilities.

In preparation for the Phase I review, LMHC conducted a gap analysis of its existing policies and procedures versus the facility-level expectations, developed corrective action plans for the identified gaps, and issued an ISMS Implementation Plan. These documents, in conjunction with the PHMC ISMS Plan, form the ISMS “description” for Tank Farms, and were among the documents reviewed during the Phase I verification.

**Phase I Verification Review of Tank Farms ISMS.** The DOE Phase I review team consisted of 16 members from DOE-RL, DOE-Savannah River, DOE-Headquarters, and a support contractor. The DOE-RL Division Director for the TWRS Safety and Characterization Division led the team. The team participated in orientation meetings during the week of September 7, 1998, and was well prepared for the review.

In addition to several identified strengths, the verification report lists 29 “concerns” (or findings) to be addressed by the contractor and 4 concerns to be addressed by DOE-RL. These concerns are also summarized in “Opportunities for Improvement.” A few of the more significant weaknesses are as follows:

- FDH and LMHC do not have a documented, comprehensive, and integrated feedback process to ensure that corrective actions are dispositioned.
- In numerous instances, the contractor roles and responsibilities are not clearly defined.
- Inconsistencies between key documents for the control of work and hazard analysis and inadequate guidance provided for application of the graded approach could result in work being performed without a proper hazard analysis.
- Pre-job briefing requirements are not sufficiently detailed to ensure worker readiness.

Although the concerns of the review team are clearly documented, what is not clear is DOE’s expectation for closure of these concerns. One objective of the verification review was to

“identify which gaps require closure as a prerequisite for performing a Phase II verification for TWRS.” The review team does not clearly make this identification in its report. Instead, there is a recommendation that “concerns from this review are to be incorporated into the Phase II implementation plan.” However, the contractor’s draft Corrective Action Plan of November 23, 1998, states that all necessary actions will be complete prior to the Phase II review.

Because of the unique structure of the PHMC ISMS Plan and the nature of the expectations contained therein, the expectations and the review objectives that satisfy the core requirements in the *Integrated Safety Management Systems Verification (ISMSV) Process Team Leader’s Handbook*, DOE-HDBK-XXXX-97, are not well correlated. Therefore, a crosswalk between the expectations and the review objectives was necessary to facilitate the review. The staff noted that even with the crosswalk, team members had difficulty in reconciling the results of the contractor gap analysis (which were based on the expectations) with the review objectives of their CRAD. The staff believes it may be advisable for DOE-RL to develop a revised CRAD that satisfies the handbook’s core requirements and is also specifically tailored to the site ISMS Plan and its associated “expectations.”

The Board’s staff identified one issue involving USQ procedures that requires further review and/or corrective action by DOE-RL and the contractor. There are three Tank Farms procedures and one PHMC procedure that specify requirements for processing USQs and for USQ training. A staff review of these procedures revealed a number of inconsistencies that could lead to confusion about roles and responsibilities, USQ processes, and USQ training requirements. Detailed examples are provided in the attachment to this report. Although the ISMS Plan includes expectations for adequate USQ and USQ training procedures, this deficiency was not identified as a gap by the contractor or as a concern by the verification review team.

**Future Staff Actions.** The Board’s staff will continue to monitor the progress of the Tank Farms organization as it prepares for Phase II verification, and will follow the corrective actions taken in response to the Phase I review.

## ATTACHMENT

### Inconsistencies in Unreviewed Safety Question (USQ) Procedures

References are identified as follows:

Ref. A: HNF-PRO-062, *Identifying and Resolving USQs*

Ref. B: HNF-IP-0842, Vol. IV, Sect. 5.4, "USQs"

Ref. C: HNF-IP-0842, Vol. IV, Sect. 5.1, "Plant Review Committee (PRC)"

Ref. D: HNF-IP-0842, Vol. III, Sect. 10.8, "USQ Training"

Examples of inconsistencies among the above references are as follows:

1. The PRC is established by the facility manager per Ref. A, 2.4, and by the VP for tank waste operations per Ref. C, 3.1.
2. Ref. A includes facility manager responsibilities not covered in Ref. B.
3. One criterion for a USQ is "probability of occurrence or the consequences . . . could be increased" per Ref. A, 2.2, but "frequency of occurrence or the consequences . . . could be significantly increased" per Ref. B, 6.0.12.
4. The PRC is a "group of trained USQEs [USQ Evaluators] set up for a facility . . ." per Ref. B, 6.0.9, and "all voting PRC members and designated alternates shall be trained as unreviewed safety question evaluators" per Ref. C, 4.4.1; but Ref. C, Attachment A, shows that PRC members do not complete training to become qualified USQEs.
5. Ref. D, 4.2, lists responsibilities of the USQ process manager, but this position is not included in the responsibilities of Ref. B, 4.0.
6. The TWRS Operations Director designates authorized USQEs with the concurrence of the director of TWRS engineering and nuclear safety per Ref. D, 4.1, whereas this concurrence is not required per Ref. B, 4.2.
7. Ref. B, Figure 1, shows the USQ screening signed by USQE No. 1 and USQE No. 2, but per Ref. B, 5.3, the screening can be performed by a USQ screener (not evaluator).
8. A core USQE is specifically trained and designated per Ref. B, 6.0.3, but no specific training for core USQEs is included in Ref. D.
9. A USQ determination is made by the PRC per Ref. A, Figure 1, but a determination is made by either (or both) the USQE or core USQE before reaching the PRC per Ref. B, 5.2.8.
10. A USQ screening shall be completed within 2 weeks of reporting a potential inadequacy in the authorization basis per Ref. B, 5.3.3, but per Ref. A, Waiver 1, the 2 weeks may be only a temporary relaxation of the 48-hour requirement in Ref. A.