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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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September 18, 1998

The Honorable Elizabeth A. Moler
Deputy Secretary of Energy
Department of Energy
Washington, DC 20585-0119

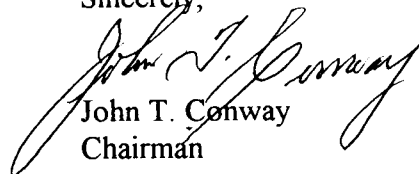
Dear Ms. Moler:

The Department of Energy (DOE) recently conducted a verification review of the Integrated Safety Management System (ISMS) at the Pacific Northwest National Laboratory (PNNL). One of the facilities, Building 325, the Radiochemical Processing Laboratory, is a defense nuclear facility. The review included Phase 1 (adequacy of documented requirements) and Phase 2 (adequacy of implementation) verification and was observed by the staff of the Defense Nuclear Facilities Safety Board (Board). A report presenting the observations of the Board's staff is enclosed for your information.

The Board's staff noted that the DOE team was professional and experienced, and conducted a thorough review. The DOE team recommended approval of the ISMS description subject to resolution of areas of concern regarding the Authorization Agreement, the Unreviewed Safety Question Determination (USQD) program, and the maintenance program.

However, the Board's staff also noted that requirements related to the "analyze hazards" safety management function were deficient. There are two requirements for new activities at Building 325. One is the completion of an electronic form (Electronic Prep and Risk), which requires a hazard identification, not a hazard analysis. The other is a requirement to perform a USQD. USQDs do not fulfill the functions of a hazard analysis. Although the Board recognizes that a tailored approach to hazard identification and analysis is appropriate, a requirement to perform a hazard analysis is a necessary element of an ISMS for more complex and hazardous work.

Sincerely,



John T. Conway
Chairman

c: Mr. Mark B. Whitaker, Jr.
Mr. Richard C. Crowe
Mr. John D. Wagoner

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Staff Issue Report

July 15, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director

COPIES: Board Members

FROM: Albert G. Jordan

SUBJECT: Department of Energy (DOE) Verification Review of the Integrated Safety Management System (ISMS) at the Pacific Northwest National Laboratory (PNNL)

This report documents a review by the staff of the Defense Nuclear Facilities Safety Board (Board) of portions of the combined Phase 1 (adequacy of documented requirements) and Phase 2 (adequacy of implementation) verification review of the Integrated Safety Management System (ISMS) at the Pacific Northwest National Laboratory (PNNL). The emphasis of the review was on Building 325, Radiochemical Processing Laboratory, the one defense nuclear facility at PNNL. During the first week (June 8–12, 1998) Albert G. Jordan and outside expert Robert Lewis observed the verification. The review team's closeout meeting with the manager of the DOE Richland Operations Office (DOE-RL) was attended by R. Arcaro.

Background. As a result of Board Recommendation 95-2, DOE has committed to implementing an ISMS at each defense nuclear facility. Although Building 325 is the only defense nuclear facility at PNNL, the ISMS verification included another 5 of the approximately 60 PNNL facilities at the site. The ISMS review is used at all PNNL facilities, and the 6 facilities reviewed were chosen as representative.

The local DOE office manager is responsible for ensuring that the adequacy of the contractor's ISMS, both on paper and in application, is verified by a technically competent team. In a letter dated April 29, 1998, DOE-RL appointed a team leader for a combined Phase 1 and Phase 2 ISMS verification at PNNL. The stated purpose of the review was to provide DOE-RL with a recommendation regarding the adequacy of the ISMS description at PNNL based on compliance with the requirements of 49CFR970.5204 (-2 and -78), as well as an evaluation of the extent and maturity of the ISMS implementation within the laboratory.

Observations of the Board's Staff on the Conduct of the Verification Review. The team leader appointed 17 team members; developed an ISMS verification plan based on DOE G 450.4, *Integrated Safety Management System Guide*, and on the draft *DOE ISMS Verification Process Team Leader's Handbook*; trained his team; and led what appeared to be an organized, thorough review. The team appeared to be professional and experienced, and capable of

conducting the verification. The team reviewed documents, interviewed personnel, and observed various work activities. An out-brief meeting was held and a report drafted.

Results of the Verification Review. The team recommended approval of the ISMS description subject to the resolution of three “areas of concern,” as follows:

- The current Authorization Agreement for PNNL facilities is not consistent with the definition in the Corporate Function and Responsibilities Assignment Manual (FRAM). The Corporate FRAM requires improvement, and DOE-RL is still developing guidance on the development of Authorization Agreements for RL facilities.
- The Unreviewed Safety Question program has not been implemented as written, and the written procedures for PNNL and Building 325 do not meet the guidelines of DOE O 5480.21, *Unreviewed Safety Questions*.
- The Maintenance Implementation Plan (MIP) and Site Maintenance Management Plan are significantly outdated.

Observations of the Board’s Staff on the Results of the Verification Review. For Building 325, there appear to be only two requirements relevant to the “analyze hazards” safety management function for new activities: completion of an Electronic Prep and Risk (EPR) form and of a USQD. The EPR is normally conducted to determine whether a proposal should be developed to solicit potential business. It is oriented toward determining business risk and requires only a hazard identification, not a hazard analysis. While the EPR can identify some of the controls needed and do so early enough to obtain the required resources, it does not substitute for a hazard analysis. Although a tailored approach is appropriate, there apparently is no requirement, even for higher-risk activities at PNNL, to perform a hazard analysis related to worker safety once a proposal has been accepted, and planning of the work has begun in earnest. While a USQD is required, USQDs do not fulfill the functions of a hazard analysis.

The 1998 Performance Evaluation Agreement for Battelle requires the laboratory to establish and pilot an integrated radiological, chemical, and biological hazard analysis process. Thus, DOE-RL and PNNL both realize the need for an improved hazard analysis process. Presumably, this effort may lead to a requirement for hazard analyses related to worker safety, where appropriate. The verification team did not state that these analyses need to be in place before the system description is approved.

The Board’s staff considers that more concrete requirements for appropriate analyses of hazards related to worker safety are needed at Building 325 before it can be concluded that PNNL has satisfied the requirements of ISMS verification Phase 1.

With regard to line management responsibility, the complexity of PNNL's organization makes assigning responsibility for projects difficult. During the presentations, questions related to roles and responsibilities were slow to be answered and sometimes received differing answers. Occasionally, even PNNL personnel on the verification team commented that they were confused by the answers. In the limited time spent by the Board's staff observing the ISMS verification, there were other indicators that the complex organization at PNNL makes assignment of line management responsibilities difficult. For instance, the results of the annual Independent Oversight Reviews of self-assessment programs are given to the head of the Environmental, Safety and Health organization, rather than the appropriate laboratory director. Apparently, the verification team nevertheless concluded that ultimate responsibility for safety rests with line management, and that those responsibilities are defined and understood. Further review by the Board's staff would be appropriate.

Future Staff Action. The Board's staff plans to review the implementation of the Performance Evaluation Agreement requiring PNNL to establish and pilot an integrated radiological, chemical, and biological hazard analysis process. The staff also plans to review line management responsibility.