March 2, 2000

The Honorable T. J. Glauthier
Deputy Secretary of Energy
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Mr. Glauthier:

The Defense Nuclear Facilities Safety Board (Board) has been following with interest the self-assessment performed by Los Alamos National Laboratory (LANL) regarding the quality of authorization bases for a number of facilities, consistent with Department of Energy (DOE) policy DOE P 450.5, *Line Environment, Safety and Health Oversight*. The self-assessment is a good example of how feedback and improvement in the context of Integrated Safety Management (ISM) can lead to actions designed to improve the effectiveness of authorization bases and enhance safety.

Under the leadership of the DOE Los Alamos Area Office (LAAO), DOE and the University of California included in the fiscal year (FY) 1999 contract for the management and operation of LANL a requirement that the laboratory assess the quality of the 10 oldest authorization bases. These older authorization bases were compared with current DOE requirements and guidance, primarily DOE Order 5480.23, *Nuclear Safety Analysis Reports*, and DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Safety Analysis Reports*. In addition, facilities were reviewed to determine whether any immediate safety problems existed, and root causes for systemic problems with authorization bases were identified. The LANL review team recommended a centralized LANL authorization basis function for nuclear facilities, adequate funding for preparing and maintaining authorization basis documents, and actions to control the Unreviewed Safety Question Determination process and to emphasize the responsibilities of facility managers for management of authorization basis programs. The FY 2000 contract includes requirements to upgrade seven authorization bases, including two not assessed. The remaining authorization bases are to be upgraded in FY 2001.

The Board considers that similar assessments across the complex, as part of the feedback and improvement function of ISM, would lead to a better understanding of the quality of authorization bases and provide input for use in prioritizing upgrades to authorization bases. Contractor-led self-assessments, however, require well-qualified analysts working directly with facility management personnel to perform accurate assessments cost-effectively. Some sites do not have enough well-qualified personnel for the purpose and would, therefore, need external assistance in performing self-assessments.

You will note from the enclosed staff report (Bamdad) that LANL will be among those sites that are expected to have successfully completed ISM Verification Reviews Phases I and II and will meet DOE's goal of having the basic elements of ISM in place by September 2000. Nonetheless, both LANL and DOE have acknowledged that some upgrading of the authorization basis documents for nuclear facilities is merited and have developed a plan for doing so. This kind of assessment and continuing upgrade program should be recognized by DOE as representative of the effort that will be warranted in the post-September 2000 period at sites other than LANL. Such programs might well be considered a Phase III effort in the implementation of ISM throughout the complex.

DOE needs to evaluate its own technical capabilities to manage such a Phase III effort. For example, the Board's staff reported that while LAAO has a technically strong individual as Safety Authorization Basis Manager, DOE resources to support the required reviews of documents being generated at LANL may not be adequate. This observation is consistent with conclusions resulting from DOE's recent Verification Review of the LANL ISM System, which the Board's staff also observed (see both enclosures). In addition, the roles and responsibilities of the DOE Albuquerque Operations Office in supporting reviews of authorization bases are not clear.

The Board requests a briefing by DOE on what other sites will be performing self-assessments of authorization bases as part of ISM, and on DOE's resources, roles, and responsibilities for reviewing authorization basis documentation.

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

Sincerely,

John T. Conway
Chairman

c: Brigadier General Thomas F. Gioconda
Mr. Richard E. Glass
Mr. Mark B. Whitaker, Jr.
Mr. Theodore A. Wyka, Jr.

Enclosures

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Staff Issue Report

November 30, 1999

MEMORANDUM FOR: G. W. Cunningham, Technical Director
K. Fortenberry, Deputy Technical Director

COPIES: Board Members

FROM: M. Moury

SUBJECT: Verification Review of Integrated Safety Management System at Los Alamos National Laboratory

This report documents a review of the Phase I and II Verification Reviews of the Integrated Safety Management System (ISMS) at Los Alamos National Laboratory (LANL), conducted October 12–22, 1999. This review was performed by members of the staff of the Defense Nuclear Facilities Safety Board (Board) M. Moury and J. DeLoach and outside expert D. Boyd. The Department of Energy (DOE) verified the ISMS Description and the related laboratory, facility, and activity-level implementation at LANL.

Background. The two Verification Reviews involved a limited-scope ISM verification performed concurrently with a special assessment (SA) required by the University of California (UC)/DOE contract. The results of the two reviews, as well as the results of ongoing and past reviews having ISM elements, were to be integrated in the final report. The UC/DOE contract states the purpose of the SA as follows: ". . . to determine whether the overall level of performance achieved is satisfactory with regard to performance objectives in Appendix F and whether substantial progress has been made in meeting the requirements of clause 5.14." Appendix F contains the Environment, Safety and Health (ES&H) performance measures for 1999 that are used to evaluate LANL's ES&H performance. Clause 5.14 requires LANL to develop and implement specific ISM mechanisms. The results of the SA could be used to terminate the contract.

Verification Team and Conduct of the Verification. The verification team consisted of a team leader, a deputy team leader, a senior technical advisor, and seven team members. All were technically qualified, and experience summaries showed that five had ISM experience as well. The senior technical advisor's contributions in advising team members and assisting them with assessment forms, reviewing their work, and integrating the various inputs were critical to the success of the review effort.

The SA team comprised a team leader, a deputy team leader, and seven subteams with leaders and a total of 24 additional members. All were technically qualified and experience summaries showed that 9 had ISM experience as well. In preparation for the reviews, leaders of both teams coordinated lines of inquiry to satisfy core expectations for Phase I and II, while also meeting SA contractual requirements.

The concurrent reviews and use of SA results to reduce the scope of the combined Phase I and II Verification Reviews resulted in efficient use of DOE and LANL resources; moreover, the normal work of participants was impacted by one instead of two visits. However, a dedicated team performing a stand-alone, full-scope review as described in the DOE ISMS *Verification Team Leader's Handbook* would have been more effective in verifying ISMS status. The effectiveness of the reviews was compromised by the different priorities, objectives, and criteria involved; requirements to coordinate the efforts of the two teams; and the time spent in attempting to integrate the results of numerous efforts. Compounding this problem was the fact that the maturity of the ISMS did not support a combined Phase I and II Verification Review. Permanence and consistency of implementation would have been improved by conducting separate reviews—identifying and addressing Phase I issues, assessing the effectiveness of corrective actions, and then conducting the Phase II review.

The Board's staff was also concerned that the verification team leader was absent for unrelated training during the first week of the 2-week review period. He planned and coordinated with SA team leaders before the review started, and during that first week received status reports from the deputy team leader. Nevertheless, his absence conveyed a lack of high-level management commitment to the verification. The verification deputy team leader was fully engaged in assessing his assigned areas, and overall leadership of the combined effort during the first week was provided by the SA leader and SA deputy team leader.

Verification Results. LANL met most of the Phase I core expectations, but only half of the Phase II core expectations. Reverification or outside review of outstanding Phase II core expectations will be necessary at LANL after corrective actions have been completed. The verification teams will recommend that the System Description be approved with minor changes. However, the teams identified several issues, including a lack of requirements and expectations for identifying, analyzing, and categorizing hazards at the facility level; four procedures not completed that describe the expectations for authorization bases for nuclear and non-nuclear facilities; and the need for enhancements to feedback and improvement programs to ensure continuous improvement of the ISMS.

The DOE Los Alamos Area Office (LAAO) did not meet any of the core expectations for an ISMS. The verification teams identified several issues, including (1) a lack of processes and procedures for effectively carrying out ISMS responsibilities according to the DOE Functions, Responsibilities, and Authorities Manual (FRAM) and the DOE Albuquerque Operations Office (DOE-AL) FRAM; and (2) a lack of procedures for processes that involve interaction with LANL and for oversight programs designed to ensure that work is formally authorized and safely performed. The Board's staff was particularly concerned about the large backlog of authorization basis documents that LAAO must review and approve. It appears that the approval of LANL authorization basis documents was delegated to LAAO without the necessary resources being applied. LAAO will continue to be the authorization basis bottleneck unless the current review approach is changed or additional resources are applied.

Finally, the ISMS Description (FRAM and implementing mechanisms) for DOE-AL was not within the scope of the Verification Reviews. In fact, the ISMS Description for DOE-AL and its responsibilities and interrelationships with site work have not been reviewed for any of the ISMS Verification Reviews at sites under DOE-AL jurisdiction. DOE-AL management plays a significant decision-making role in programmatic mission requirements, work planning, hazard analysis, readiness reviews, and feedback and improvement. The ISMS verification team recommended the conduct of an ISMS Verification Review of DOE-AL and its interfaces with its area offices. This review is tentatively planned for September 2000.