



Department of Energy

Washington, DC 20585

September 15, 1995

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, N.W.
Suite 700
Washington, D.C. 20004

Dear Mr. Chairman:

I have been asked to forward the enclosed report "Managing the Safety of Defense Nuclear Research and Development Activities" in response to your letter of April 28, 1995.

The report responds to the three matters raised in your letter and recognizes the need for the Department and the laboratories to continue to develop integrated safety management systems in coordination with the ongoing standards related initiatives. The laboratories already have made some progress in articulating the basic principals and elements which will serve as a basis of consensus and for identification of criteria for integrated safety management systems. Clearly, however, more work is needed in this area.

Accordingly, I and senior representatives from the affected laboratories will brief the Board within 60 days on progress made to establish integrated safety management systems.

If you have any further questions, please contact me at (202) 586-2179.

Sincerely,

A handwritten signature in cursive script, appearing to read "Everet H. Beckner".

Everet H. Beckner
Principal Deputy Assistant Secretary
for Defense Programs

Enclosure

**Managing the Safety of
Defense Nuclear
Research and Development
Activities**

**Response to the Defense Nuclear
Facilities Safety Board Letter of
April 28, 1995**



**United States Department of Energy
August 1995**

FOREWORD

Early in 1995, the Defense Nuclear Facilities Safety Board initiated a series of meetings with the Department of Energy and its three nuclear weapons Laboratories, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories. These meetings focused on effective means of managing the safety of research and development activities while maintaining the flexibility needed to conduct research and development in support of national security objectives.

As a result of these meetings, the Board issued a letter to the Department of Energy on April 28, 1995, "discussing the issues associated with the development of integrated safety management systems tailored to the operations at research and development facilities." The Board concluded that "Although the weapons Laboratories have implemented various research and development experiment control systems, safety management systems that are truly integrated are still in development." Subsequently, the Board requested that the Department of Energy develop a report providing individual responses to the three statements which synopsized the common issues. This letter and the three statements, together, emphasize the need for management systems that integrate safety throughout Laboratory organizations and into Laboratory operations. This emphasis was confirmed during subsequent meetings between the Department of Energy, the nuclear weapons Laboratories (Laboratories), and the Board.

The Department of Energy and the Laboratories are using this reporting request as an opportunity to jointly develop a set of essential elements for integrated safety management systems that may be offered as models for use throughout the complex. As noted by the Board, the Laboratories have initiated efforts to integrate safety activities through this process; the knowledge gained from these efforts will be used during development of this set of essential elements. This approach ensures that the Laboratories' experience and expertise is captured, and that those responsible for its implementation participate in the development of the set of essential elements.

This report focuses on how the Department of Energy and the Laboratories will proceed in developing a set of essential elements for integrated safety management systems. Brief responses to the Board's three statements are also provided.

This document was developed jointly by a working group with representatives from the Department of Energy, the Laboratories, and the Board. In preparing it the following were reviewed:

- o current Departmental guidance associated with safety management;
- o activities of the Department Standards Committee associated with standards based management;

- o Departmental initiatives such as integrated oversight pilots;
- o ongoing Laboratory efforts to integrate safety into management systems;
- o recent Departmental commitments to the Board (i.e., the Recommendations and Implementation Plans for Recommendation 90-2, 93-3, and 94-5);
- o documents discussing standards-based safety management such as the *Paper Prepared for the Defense Nuclear Facilities Safety Board Public Meeting, May 31, 1995 on Standards-Based Safety Management*;
- o the response to the May 6, 1994, Board letter addressing the nuclear health and safety program; and
- o efforts associated with Order reduction.

Based on these reviews, the Department of Energy and the Laboratories agreed that a shared vision for integrating safety management activities is needed. This integration will ensure management systems and sets of requirements are tailored to Laboratory activities; and that activities are managed efficiently and effectively.

INTEGRATED SAFETY MANAGEMENT SYSTEMS

Introduction

The Department of Energy and the Laboratories have defined the objective of integrated safety management to be incorporation of safety management mechanisms and safety review systems into work practices so that missions are accomplished with an adequate level of protection to the public, the worker, and the environment.

To date, the Department of Energy has not provided adequate guidance or uniform expectations for developing integrated safety management systems. Despite this, the Laboratories have initiated activities that support integration of safety into their management systems. Additionally, various Departmental organizations have initiated activities that are key to the success of integrated safety management systems. These ongoing activities emphasize the need for the Department of Energy and Laboratories to work together toward integrating safety into management systems. To achieve this, it is necessary that integrated safety management systems be functional within both the Department of Energy and the Laboratories. It is also essential that a common understanding and agreement of what constitutes adequate and effective integrated safety management be developed and communicated. To accomplish this, the Department of Energy and Laboratories are working together to develop a shared vision for integrated safety management systems and to communicate this in a set of essential elements.

Objective of the Set of Essential Elements

The objective of this set of essential elements is to communicate joint expectations for integrated safety management systems. The Department of Energy and the Laboratories are working together to define the essential elements, principles, and characteristics of an integrated safety management system. This will also involve identifying the necessary interfaces and clearly defining roles, responsibilities, and authorities within and between the Department of Energy and the Laboratories.

Important outcomes of this effort will be an improved joint understanding of the underlying principles of operation, a sharing of lessons learned and practical experiences in implementing integrated safety management systems, and an improved basis for Laboratory self-assessments and complementary Departmental oversight. This effort will also result in effective, comprehensive, and consistent assurance of line management commitment, accountability, and agreed-upon performance.

Process for Developing the Set of Essential Elements

The Department of Energy and Laboratories will continue working together to develop this set of essential elements and will use additional expertise as appropriate. To ensure success, the elements must be developed and endorsed by those who will be implementing the systems. The basic strategy is to: analyze the work to be done and the associated hazards, utilize an Environmental, Safety and Health Management Plan to deal with those hazards, and execute that plan utilizing performance measures and an associated self assessment plan.

The process for defining this shared vision and the resultant set of essential elements will include the identification of underlying principles of operation. These will be organized in a manner to facilitate the development of a tailored set of elements for integrated safety management systems. Examining special characteristics and requirements of the facilities and activities will be involved.

The development of the set of essential elements will be based on safety principles, and derived from sources such as commercial industry publications, environmental management publications, quality organization standards, and Department of Energy and Laboratory publications related to safety management. Ongoing Departmental and Laboratory efforts will also be reviewed. The elements will be established to capture the essence of the underlying principles in a robust set of top-level characteristics that can be used as a practical guide during implementation. These elements will address, at a minimum, the following:

- o technical, management, and administrative policies and protocols to achieve safe and cost effective operations,
- o a process for identifying and implementing standards appropriate for the work to be performed (mission and programs) that are adequate to protect the workers, the public, and the environment,
- o focus on performance and ultimate outcomes, rather than strict compliance.

Performance objectives will be identified that will be more detailed than the top-level elements. These performance objectives will provide the basis for Laboratory self-assessments and complementary Departmental oversight of the implementation process.

Commitment

The Department of Energy and Laboratories are committed to working together to develop the set of essential elements, and to clearly define the roles, responsibilities, authorities, and lines of communication within and between the Department of Energy and the Laboratories. Based on this, the Department of Energy and the Laboratories will revise or establish, as necessary, guidance and policy to support implementation of integrated safety management systems. The resulting set of essential elements will be used as a basis to gauge implementation of such systems.

After developing the set of essential elements, Laboratory management will be responsible for defining specific programs, processes, and procedures for achieving the performance objectives in a manner consistent with the underlying principles. This approach will provide the Laboratories with flexibility to perform their operations efficiently, while meeting Departmental and Laboratory expectations.

RESPONSES TO THE THREE STATEMENTS

The following brief responses address significant points from each Board statement.

Statement Number 1

The adequacy of the guidance given by DOE to the field to ensure that the integrated safety management systems under development at DOE's defense nuclear laboratories will contain and implement an appropriate set of safety requirements and adequate management structures that incorporate and are consistent with the intent of S/RIDs commitments.

Adequacy of guidance for integrated safety management systems

The Department of Energy has not provided the laboratories with clear or adequate guidance or expectations for integrating safety into management systems. Past guidance and expectations have not been uniform, having been promulgated by various independent program offices. Additionally, Departmental guidance and expectations have often been provided inappropriately by micromanaging corrective action responses to assessments and appraisals.

The Department of Energy acknowledges the need to develop consistent guidance and expectations for integrating safety into management systems.

Appropriate set of safety requirements

The Department of Energy recognizes the need to develop appropriate and applicable sets of safety requirements for Laboratory operations. The necessary and sufficient process being developed by the Department Standards Committee is a technique for selecting appropriate environmental, safety and health standards. The Department of Energy is currently demonstrating and evaluating the *Necessary and Sufficient Closure Process* through nine pilot programs, and expects to develop the process for application throughout the Department of Energy by the end of 1995.

Adequate management structures

Management and management actions must be structured to support operational safety. This requires integrating leadership, infrastructure, safety standards, and authorization bases. The Department of Energy has begun addressing these issues as discussed in the October 24, 1994, Secretarial response to the Board's letter of May 6, 1994, addressing nuclear health and safety management, and in the Department of Energy Implementation Plan for Recommendation 94-5.

Intent of S/RIDs commitments

The Department of Energy's efforts to date on Order Compliance Self Assessment have not met the intent of Recommendation 90-2. The Department of Energy believes implementing integrated safety management systems, especially using a process to identify applicable and appropriate sets of standards, and making appropriate use of authorization bases, will meet the intent of Recommendation 90-2. Results obtained from the Necessary and Sufficient pilots will guide the future actions of the Department.

In the Implementation Plan for Recommendation 94-5, the Department of Energy committed to evaluating the value added of continuing efforts associated with Recommendation 90-2 and 93-1 in light of recent Departmental activities, including those of the Department Standards Committee.

Statement Number 2

A description of how DOE plans to address the need for adequate technical talent, mechanisms, and acceptance criteria to review and expeditiously approve tailored integrated safety management systems at these laboratories, including appropriate disposition of proposed technically-justified equivalencies and exemptions.

Technical talent

The Department of Energy is continuing to improve the level of competence of its Federal work force through high priority training and qualification initiatives (e.g., Implementation Plan for Board Recommendation 93-3), to include specific training for those who will participate in the necessary and sufficient processes both at Headquarters and in the field. However, the primary obstacle to completing reviews and approvals expeditiously is not a lack of subject matter experts. The experience at the Laboratories provides the Department of Energy a vast array of expertise that can be used to supplement that within the Department. Approval delays are more a result of impediments such as the lack of a well defined process including integrated procedures and the delegation of approval authority for exemptions to those most knowledgeable of the work. Also, there is a general perception that less-than-literal compliance is unacceptable. This issue is being addressed through DOE-STD-DRAFT-SAFT 0045, *Requesting and Granting Exemptions to DOE Orders, Notices, Manuals, and Immediate Action Directives* (see Disposition of Exemptions, page 8).

Mechanisms

The necessary and sufficient process under development by the Department Standards Committee provides a process for developing and approving sets of necessary and sufficient environmental, safety and health standards. The Department of Energy and Laboratories will partner, using the necessary and sufficient process to identify and expeditiously approve appropriate sets of standards. Emphasis will

be on including appropriate standards, rather than on excluding standards from a universal set.

Acceptance criteria

Reviewing and approving the sets of necessary and sufficient environmental, safety and health requirements is described by the *DOE Closure Process for Necessary and Sufficient Sets of Standards* (Draft 2D-3/16/95). Criteria for this process state that approval of necessary and sufficient sets of standards will be at the organizational level appropriate for effective management. It is recognized that this process requires some clarification in the area of acceptance criteria.

Approval of integrated safety management systems

Approval authority of integrated safety management system elements will be related to the complexity and hazard level of system elements such as: sets of necessary and sufficient requirements; authorization bases; and readiness to proceed. The Department of Energy recognizes that appropriate levels of approval need to be defined. Other integrated safety management system elements may require delineated approval as the set of essential elements evolve.

Disposition of exemptions

Exemptions to Departmental Rules are controlled under 10 CFR Part 820 Subpart E and DOE STD 1083-95, *Requesting and Granting Exemptions to Nuclear Safety Rules*. Approval authority for these cannot be delegated.

The exemption process for requirements other than those contained in Departmental Rules is described in DOE-STD-DRAFT-SAFT 0045; *Requesting and Granting Exemptions to DOE Orders, Notices, Manuals, and Immediate Action Directives*. This draft document identifies that exemption requests contain: a description of the alternative or mitigating actions necessary to ensure an equivalent level of safety while the exemption is in effect; that the requester identify and justify acceptance of any additional risks incurred as a result of granting the exemption; a description of the benefit to be realized by not meeting the requirement; and any additional information that will clarify the request and support its approval. Additionally, this document encourages approval authority for exemptions be delegated to the field, which should result in requests being disposed of more quickly.

Statement Number 3

A summary of actions needed to coordinate DOE line management and independent oversight safety audits at the weapons laboratories.

Coordinate DOE line management oversight safety audits

Departmental line management is working with the Laboratories to define an oversight process and integrate environmental, safety and health assessments with the goals of eliminating redundant audits, clarifying relationships between oversight organizations, and defining expectations through performance objectives. This process is being demonstrated in the *Pilot Environmental, Safety, and Health Oversight Program for the University of California Laboratories* and the *PILOT OVERSIGHT PROGRAM FOR LINE ES&H MANAGEMENT, Albuquerque Operations Office/Sandia National Laboratories*.

Coordinate DOE independent oversight safety audits

By definition, independent oversight processes must remain autonomous. In its October 24, 1994, response to the Board letter discussing nuclear health and safety management, the Department of Energy committed to maintaining a demonstrable separation of the independent oversight and enforcement functions from line management and from the technical assistance activities conducted by the Office of the Assistant Secretary for Environment, Safety and Health. To preclude redundant audits, the operations offices will serve as gatekeepers to integrate audits conducted by the line with those conducted by independent organizations.

SUMMARY

This report provides a brief response to the three statements contained in the Board's letter of April 28, 1995, but more importantly describes a process for the Department of Energy and the Laboratories to work together towards achieving implementation of integrated safety management systems. This will require careful development, and will take time. The Board is encouraged to continue its support of this effort, to request input from the Laboratories on the status of progress on this effort, and to visit the Laboratories to keep abreast of implementation.