



The Secretary of Energy  
Washington, DC 20585

January 25, 2002

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

Dear Mr. Chairman:

Enclosed is the Department's report in response to your letter that contained reporting requirements regarding annual reviews and updates to Integrated Safety Management (ISM) systems at defense nuclear facilities.

We agree that competent annual reviews of ISM systems are essential for effective implementation and continuous improvement. Our report shows that most sites are using competent annual review and update processes, consistent with established Department of Energy policy and guidance. Other sites can and need to learn from the experiences of those further along the ISM journey. Our program offices continue to monitor the effectiveness of site efforts to sustain and maintain their ISM systems and to provide aid and direction where necessary.

Sincerely,

A handwritten signature in black ink that reads "Spencer Abraham".

Spencer Abraham

Enclosure



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U. S. Department of Energy

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Annual Reviews and Updates  
Of Integrated Safety Management (ISM)  
Implementation



Washington, D.C. 20585

December 2001

## **DOE REPORT ON ANNUAL REVIEWS AND UPDATES OF ISM IMPLEMENTATION**

On November 8, 2001, the Defense Nuclear Facilities Safety Board (Board) issued the following reporting requirement:

"Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests that DOE provide a report within 45 days of receipt of this letter that encompasses the following items:

- A schedule for when the sites with defense nuclear facilities will complete their ISM annual updates.
- A description of the process each site will use to conduct its ISM review.
- An evaluation by the Safety Management Implementation Team, or other group with the requisite ISM expertise, of the adequacy of each site's ISM review approach. The evaluation group should provide line managers with recommendations for improving their annual update process and share any best practices identified during the evaluation."

### **I. Background**

Contractor requirements for annual ISM updates and reviews evolve from the Department of Energy Acquisition Regulation (DEAR) Clause 48 CFR 970.5223-1, "Integration of environment, safety, and health into work planning and execution," approved December 2000.

Section (c) of this DEAR clause requires contractors to establish and maintain a valid, up-to-date ISM system description: "The contractor shall manage and perform work in accordance with a documented Safety Management System (System) that fulfills [the ISM guiding principles] at a minimum. Documentation of the System shall describe how the contractor will [accomplish the ISM core functions]."

Section (e) of this DEAR clause requires contractors to submit system descriptions and updates to DOE: "The contractor shall submit to the contracting officer documentation of its System for review and approval. Dates for submittal, discussions, and revisions to the System will be established by the contracting officer. Guidance on the preparation, content, review, and approval of the System will be provided by the contracting officer. On an annual basis, the contractor shall review and update, for DOE approval, its safety performance objectives, performance measures, and commitments consistent with and in response to DOE's program and budget execution guidance and direction."

DOE requirements for annual ISM updates and reviews are described in DOE Manual 411.1B, Safety Management Functions, Responsibilities and Authorities Manual (FRAM), approved May 2001. FRAM Section 9.2.2.6, "Approval, implementation, and maintenance of safety management system documentation," delineates DOE responsibilities for Program Secretarial Officers (PSOs), Field Element Managers (FEMs) and Contracting Officers, as follows:

- PSO and FEM Responsibilities: "Conduct line oversight of safety management systems to ensure effective implementation and maintenance."
- FEM Responsibilities: "a) Ensure that contractors describe and document their safety management systems, and b) Ensure that contractor safety management systems are implemented and kept current."
- Contracting Officer Responsibilities: "a) Decide on the need for team review, and, if a team is needed, select members of the review team for specific applications and select the team leader from the approved list, b) Approve safety management systems and revisions thereto (48 CFR 970.5223-1(e)), and c) Determine annually whether contractor safety management systems and systems requirements (i.e., safety management system descriptions, lists of applicable directives, and authorization agreements) are current, valid, and appropriately reflected in the implementation procedures."

Chapter IV, "Maintaining an Approved ISM System," in DOE Guide 450.4-1A, "Integrated Safety Management System Guide," approved in March 2001, provides DOE guidance for annual ISM reviews and updates.

## **II. Environmental Management (EM) Report**

EM is the Lead Program Secretarial Officer (LPSO) for the sites listed below; Board questions are addressed within this context:

- Carlsbad Field Office (CB)
- Idaho Operations Office (ID)
- Ohio Field Office (OH)
- Richland Operations Office (RL)
- River Protection Office (ORP)
- Rocky Flats Field Office (RF)
- Savannah River Operations Office (SR)

Albeit EM manages the East Tennessee Technology Park, Portsmouth and Paducah activities under the Oak Ridge Operations Office (OR), the OR declaration of ISM implementation has been revoked and a re-verification of the Operations Office is being planned. ISM at OR is the topic of a separate Department response to an October 15, 2001, Board reporting requirement. The Department plans to report results separately to the Board. Oversight of the implementation and maintenance of ISM at OR is the responsibility of its lead program secretarial office, the Office of Science.

Schedule for EM site completions of ISM annual updates:

Site	Q1- FY01	Q2- FY01	Q3- FY01	Q4- FY01	Q1- FY02	Q2- FY02	Q3- FY02	Q4- FY02	Q1- FY03
Carlsbad					C				P
Idaho				C				P	
Ohio					C				P
Richland					Partial			P	
River Protection			C				P		
Rocky Flats			C				P		
Savannah River				C				P	

C = completed

P = planned

Processes for ISM Reviews at Sites and Strengthened EM Headquarters involvement:

The EM Office of Safety, Health and Security (EM-5) is assigned responsibility for conducting oversight and assessments of EM Operations and Field Offices as described in the FRAM and DOE P 450.5. A major focus is to provide feedback to the Assistant Secretary on how ISM principles and functions are being implemented and maintained at EM Operations/Field Offices. Assessments are directed at Federal activities in the areas of ISM, safety and health, safeguards and security, quality assurance, and emergency preparedness. To the maximum extent feasible, these efforts will be integrated with similar field activities.

It is recognized that processes for annual field element ISM reviews will differ somewhat in approach. This flexibility is inherent upon a myriad of factors, including contractual obligations, program maturity, oversight schedules, and number/diversity of contractor organizations. While approaches may differ, common objectives and core criteria in the process pivot from DOE Policies and Manuals. Ensuring consistency of ISM reviews is a key objective in the integrated EM assessment program. Increased use of field line management is an expectation and an important approach for ISM reviews. Sharing of site personnel and strengthened headquarters involvement are expected to produce a cascade of learning across the complex.

### EM ISM Annual Assessment Process Commonalities

	CB	Idaho	Ohio	RL	ORP	Rocky	SR
FRAM used to develop Field Element Manager ISM requirements	✓	✓	✓	✓	✓	✓	✓
ISM program maintained per the ISM Guide, Chapter 4		✓	✓			✓	
Contractor maintains assessment/self-assessment program (evaluated by DOE as part of annual update)	✓	✓	✓	✓	✓	✓	✓
DOE performs assessments/self-assessment (evaluated as part of annual update)	✓	✓	✓	✓	✓	✓	✓
Annual DEAR updates	✓	✓	✓	✓	✓	✓	✓
Formal DOE site-specific process for annual assessment	✓	✓	✓	✓			✓
Process includes review of lessons learned and trending of contract performance measures	✓	✓	✓	✓		✓	✓
HQ oversight (EH and/or EM) results considered in annual review					✓	✓	

Current ISM annual review processes for each EM field element are summarized below.

Carlsbad Field Office. CB uses the FRAM direction and the ISM Implementation Criteria developed by the DOE Safety Management Implementation Team (SMIT) and issued by the Deputy Secretary on October 25, 1999, to guide the annual review of ISM implementation by Department and M&O personnel at the Waste Isolation Pilot Project (WIPP) site. Prior to the CB review, the WIPP Management and Operating (M&O) Contractor completes an annual self-assessment and an annual update of the WIPP ISM system description. CB provides oversight and guidance for the M&O Contractor self-assessment and the ISM system description annual update. CB requires the contractor to perform an annual review and update of the WIPP ISM system description and an annual self-assessment in accordance with guidance and oversight provided by DOE. The CB Senior Technical Advisor integrates all ISM implementation, review and update activities and issues an annual report to EM headquarters.

Idaho Operations Office. The Idaho National Engineering and Environmental Laboratory (INEEL) has a comprehensive ISM system maintenance process in place, formalized in the INEEL ISM system description as Section 6, *Maintaining An Approved ISM System*. The process calls for the ISM system update and maintenance process to be completed annually in conjunction with the budget cycle.

The INEEL applies key processes inherent to the INEEL ISM system infrastructure to measure, maintain and improve the effectiveness of the ISM system. Updates to system requirements, competency requirements, and authorization bases are ongoing processes that maintain the ISM system and are carried out continuously throughout the year. The lessons learned process offers a mechanism to provide feedback for improving the system. Trending and reporting safety performance objectives, performance measures and commitments are the tools for measuring system effectiveness. These processes are coupled with a vigorous assessment program applied at each level of the organization from the worker and individual activities through the facilities and the site. When the results of assessments are funneled and blended in total with the other inputs, they provide the comprehensive tool to determine the status of implementation, integration, and effectiveness of the ISM system. The INEEL approach relies heavily on the results of a yearlong process of reviews and assessments, especially the findings and lessons learned from the contractor's independent Facility Evaluation Board (FEB) which are based on rigorous performance evaluations. An annual report is issued. In many respects, INEEL parallels the SR approach. ID maintains a current ISM system description document (ID G 450.E-1) which describes the ISM annual review process used by ID.

Ohio Field Office. OH has adopted a rigorous annual assessment and review plan, very similar to the RF approach, for Fernald, Mound, and West Valley. The ISM reviews are based on formally approved ISM annual review plans. Teams are formed by each project; however, at least 2 members of each team are OH personnel. Each project and the Field Office share experienced resources for each review, thus promoting a 'hands-on' lessons learned experience for OH.

Office of River Protection. The ORP contractor provided an updated ISM system description document in early 2001, which was approved by DOE in March 2001. An ISM Annual Review was scheduled in the ORP Master Assessment Plan for May 2001; however, the EH-22 assessment team performed a focused review of ISM in May 2001. Findings of that review were extensive and ORP then took credit for the EH-22 review and emphasized corrective actions on the part of DOE and the contractor. ORP documented the EH-22 findings, the results of ORP assessments, performance indicator reports, and the contractor assessment results in a report to the ORP DOE manager in July 2001. Because changes in ISM system descriptions are anticipated, ORP has directed the contractor to conduct an ISM Phase I and II re-verification in the spring of 2002. DOE plans follow up to Phase I and II verifications by June 2002.

ORP's waste treatment plant contractor, Bechtel National, does not have an approved ISM system. Bechtel National plans to submit its ISM system description in April 2002. ORP plans to perform verifications of the ISM description and implementation prior to approval.

Richland Operations Office. DOE RL has been employed a yearlong review, oversight and assessment process, as documented in RIMS, to determine the need (if any) for rigorous, formal annual reviews performed by teams designated for that purpose. In light of the November 8, 2001 Board letter, RL is revisiting its approaches. Prior to this

consideration, RL had conducted approximately 290-contractor surveillance, assessments or oversight of contractor self-assessments. Contractors also provided their own annual self-assessments. The results of these had indicated to RL that contractors were successfully implementing/maintaining satisfactory ISM system. RL is upgrading the processes and procedures contained in its management system to more efficiently and effectively complete the annual ISM review. RL expects its ISM oversight and annual review processes to continue to evolve and improve with experience.

Rocky Flats Field Office. As cited in the Board letter of November 8, 2001, RF did complete a rigorous assessment of ISM implementation in accordance with DOE G 450.4-1B guidance for performing annual updates in February 2001. RF continues to draw upon experienced technical resources from other sites and advisers to the Team Lead from DOE Headquarters personnel to supplement their technical staff and to draw upon experience and lessons learned from others.

Savannah River Operations Office. The SR strategy for annual review culminates in a formal evaluation of a yearlong set of activities including operational awareness, document reviews, and technical assessments. SR assures contractors remain current throughout the year through its oversight program. Feedback from the prior evaluations is used to improve the subsequent year's oversight program. An ISM Executive Steering Committee has incorporated recommendations for enhancement into the ISM Strategic Plan and its associated Implementation Action Plan for continuous improvement. The process of institutionalizing the strategy is being included in a SR guidance document.

#### Evaluation of Site's ISM Review Approach:

The EM assessment of field responses to the Board letter of November 8, 2001 was conducted in accordance with the requirements of the DOE FRAM, DOE M 411.1-1B, of May 22, 2001. The field inputs were evaluated using the responsibilities listed in section 9.2.2.6, "Approval, implementation, and maintenance of safety management system documentation." The principal role of the Assistant Secretary for Environmental Management (EM-1) in this context is "to conduct line oversight of safety management systems to ensure effective implementation and maintenance." The field element contracting officers are responsible to "determine annually whether contractor safety management systems and systems requirements are current, valid, and appropriately reflected in the implementation procedures."

EM assigned two senior representatives from the Office of Safety, Health and Security, both of whom are designated Verification Team Leaders and who have personally participated in reviews, assessments and related oversight activities at most of the EM sites. They have both worked extensively with the SMIT since its inception in April 1996. They invited participation in the process from qualified EM management and staff technical specialists from both headquarters and field locations. Additionally, both of the assigned persons participated in the team that analyzed lessons learned from all ISM verification reports in October 1999, while one person served as the team leader. Both EM reviewers have a broad base of experience with ISM systems across the complex from which to draw for this evaluation.



The review disclosed that many EM sites are implementing rigorous annual reviews. EM headquarters intends to provide the oversight and assistance necessary to enable the EM Operations/Field Office and contractor organizations to fully meet and sustain the standards of an efficient and effective ISM system.

The ISM review processes at Carlsbad, Idaho, Ohio, Rocky Flats, and Savannah River were all evaluated as satisfactory. Richland employed a yearlong review, oversight and assessment process via approximately 290-contractor surveillance's, assessments or oversight of contractor assessments. While there is no direct evidence to indicate the Richland review approach is less than adequate, EM headquarters plans to assist the site in reviewing the current process to determine if improvements are needed. The Office of River Protection approach was evaluated as inadequate. ORP has encountered difficulty in sustaining effective implementation and maintenance of ISM. EM headquarters plans to assist ORP achieve success in re-verification through oversight and participation on the review process.

### **III. National Nuclear Security Administration (NNSA) Report**

NNSA is the LPSO for the field offices listed below:

- Albuquerque Operations Office (AL)
- Nevada Operations Office (NV)
- Oakland Operations Office (OAK)
- Y-12 Area Office (YAO)

The NNSA field responses to the Board letter of November 8, 2001, were evaluated by a team of Line Managers supported by the Office of Environment, Safety and Health (ES&H) Operations Support (NA-53) staff who have led ISM verifications and served as SMIT members. Criteria for this evaluation were built around the Board request, 48 CFR 970.5233-1b, and the DOE FRAM, Section 9.2.2.6. The criteria for this evaluation are listed below:

- Dates are established by the Contracting Officer to the contractor on revisions to the ISM system description (11/8/01 Board letter and 48 CFR 970.5223-1b);
- A description of the process each site will use to conduct its ISM review (11/8/01 DNFSB letter);
- Report progress and plans for periodic review and update of safety performance objectives, performance measures, and commitments between the contractor and DOE for approval consistent with DOE's program and budget execution guidance (48 CFR 970.5223-1b)
- Resources shall be identified and allocated to meet the safety performance objectives, measures and commitments as well as maintain the integrity of the entire ISM System (48 CFR 970.5223-1b); and
- Field Element Managers determine annually whether contractor safety management systems and system requirements (system description, lists of applicable directives, and authorization agreements) are current, valid, and appropriately reflected in the implementation procedures (FRAM 9.2.2.6).

The DEAR clause requirements to annually update safety performance objectives, performance measures and commitments are being accomplished through the budget process. The feedback that is the basis for the line management decisions continues to evolve and mature. NNSA Headquarters organizations, in cooperation with the DOE Office of Independent Oversight and Performance Assurance (OA), plan to conduct on-site reviews of field element performance and plan to include an evaluation of how this requirement is being met. These assessments are consistent with the Secretary's line oversight of ES&H policy and the independent oversight criteria of the Quality Assurance order and rule.

It is the position of NNSA that the guidance provided in DOE Guide 450.4-1A, Chapter 4 to maintain an approved ISM system provides appropriate expectations and should be followed. Within the NNSA, verifications have stressed the need for a viable "feedback and improvement" program that is consistent with the Chapter 4 guidance. The goal is for self-assessments to be conducted by each echelon of line management, a sharing of results within the corporation and a "rollup" of the results in such a manner that would allow line managers to measure system effectiveness and initiate modifications to the system and implementing mechanisms. Thus, rather than having a schedule to conduct a comprehensive review, the NNSA model sought numerous evaluations that provide nearly continuous data to line managers. When this approach is coupled with the results of the independent oversight and headquarters assessments it is believed that NNSA will have a comprehensive system to nurture a continuously improving system.

The data provided by the field in response to the Board's letter confirms that the multi-layered approach mandated by policy and guidance is being implemented. A full appreciation of the goal to accomplish the mission safely needs each level of line management as well as worker involvement to mature our management system. Each field site has specific contributions to this model as summarized below.

Albuquerque Operations Office. Since October 2000, AL has had an established process for maintaining approved ISM system descriptions through Supplemental Directive AL 450.4-1A. Each of the four site offices (Kansas City, Kirtland, Los Alamos, and Pantex) is responsible for managing ISM annual updates through performance assessments and an annual report to AL. AL works with each site office to develop a Performance Analysis Matrix (PAM) on an annual basis. The PAM includes an assessment of ISM along with pertinent ES&H topical areas to address implementation and adequacy of ISM system descriptions. The PAM is also used by AL to scope the annual contractor performance assessment program reviews. As part of AL's contract management responsibilities, safety performance objectives, performance measures, and commitments between the contractor and DOE are periodically reviewed and updated at each site office. The periodicity of these efforts vary from quarterly to semi-annual, depending on the site office.

For 2001, Los Alamos National Laboratory (LANL) did not perform an annual update due to the recent validation that ISM system was in place. In its place, AL documented future expectations with interim milestones to more clearly direct the contractor regarding ISM system maturity. The Pantex, Sandia National Laboratories (SNL), and Kansas City Plant annual update reviews have been completed by site offices and are presently in review by Albuquerque.

The NNSA evaluation concludes that the review approach is adequate. NNSA plans to conduct Headquarters on-site reviews of field element performance in accordance with DOE P 450.5.

Nevada Operations Office. NV and the Nevada Test Site (NTS) contractors completed their ISM system validation during 2001. The first update to NTS contractor's (Wackenhut Services and International Technologies) ISM system descriptions were submitted during FY01 but have not yet been approved by NV. The updates for all contractors are scheduled to complete during FY02. The process for maintaining the ISM system descriptions by contractors and user organizations at NV is detailed in NV O 450.4. This supplemental directive includes the eleven core expectations from Chapter IV of the ISM System Guide, DOE G 450.4-1A. Additionally, NV annually performs an ISM program review with established criteria to address concerns raised by the ISM Council to ensure continuous improvement and maintenance of ISM. Finally, NV contractors and DOE have established an ISM Council to ensure continuous improvement and maintenance of ISM. The ISM Council is a working group chaired by a Deputy Assistant Manager with representation from all prime contractors and user organizations. This Council provides high level attention to the Field Element Manager on a quarterly and annual basis to review existing performance measures and propose changes; develop ISM self-assessment plans and roll-up results to determine ISM vitality; and coordinates the preparation and review of all ISM system description updates.

The NNSA evaluation concludes the NV ISM review approach is adequate, but has not been fully implemented to yield continuous improvement and adequate oversight. NNSA plans to conduct Headquarters on-site reviews of field element performance in accordance with DOE P 450.5.

Oakland Operations Office. OAK completed its ISM system validation in September 2000 and the annual update of the Lawrence Livermore National Laboratory (LLNL) ISM system description was completed in September 2001 and approved by DOE in November 2001. This was the culmination of self-assessments performed by each of the Laboratory directorates and a corporate/independent assessment that included an ISM assessment and evaluation of each directorate self-assessment. This process is to be repeated on an annual basis as required by Document 4.1 in the LLNL ES&H Manual. OAK utilizes varied types of evaluations to determine the effectiveness of implementation of the ISM system. The primary method is the interface with the contractor through the performance objectives, performance measures, and commitments established in the contract. Evaluation criteria are established and closure rates are discussed between LLNL and DOE on a quarterly basis to verify that corrective action plans include all of the DOE identified issues against the performance measure. The Laboratory's safety performance criterion within the contract is re-established each fiscal year through a series of discussions centered upon mission needs, resource allocation, and safety. Other methods utilized by OAK to evaluate implementation of the ISM system description include operational awareness evaluations, validating corrective actions and their status, and targeting directorates for ISM system reviews that had not been previously evaluated by ISM verification teams.

The NNSA evaluation concludes the OAK ISM review approach is adequate. NNSA plans to conduct Headquarters on-site reviews of field element performance in accordance with DOE P 450.5.

Y-12 Area Office. YAO, and the Y-12 contractor, BWXT-Y12 had their ISM system implementation validated in November 2001. The first formal update since verification of the approved system description is scheduled for November 2002. The DOE Contracting Officer's requirements for these updates are included within the BWXT ISM system description and the contract. YAO has committed to using the core expectations identified in Chapter IV of the ISM System Guide, DOE G 450.4-1A. YAO has a formal contractor oversight process that includes assessments, Facility Representative walkthroughs, management walkthroughs, and a self-assessment process to guide the reviews. BWXT is committed to management self-assessments during the year and an annual independent self-assessment of the ISM system. The annual independent self-assessment was implemented during 2001 and the evaluation team considers this to have been an effective tool. YAO and BWXT demonstrated a robust interface during the recent ISM system validation in evaluating contract safety performance measures and commitments. Evaluations are rolled up monthly to senior management by BWXT and YAO subject matter experts and DOE Facility Representatives.

The NNSA evaluation concludes the YAO ISM review approach is adequate, and the coming year will better indicate the vitality of the process for continuous improvement and adequate oversight. NNSA plans to conduct Headquarters on-site reviews of field element performance in accordance with DOE P 450.5.

The following table summarizes the relevant schedules for major NNSA sites and facilities.

Site or Office	Initial ISM Implementation Accomplished	Annual Review/Update Completed During 2001?	Schedule for Completion of Next Annual Review/Update
AL LANL	April 2001	No, too soon after initial implementation	by December 2002
AL Pantex	November 2000	Yes, November 2001	by December 2002
AL SNL	July 2000	Yes, December 2001	by December 2002
NV	October 2001	Yes, update submitted but not yet approved by NV	by September 2002
OAK	September 2000	Yes, December 2001	by December 2002
YAO	November 2001	No, too soon after initial implementation	by December 2002