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**DOE HANDBOOK**

**INTEGRATED SAFETY MANAGEMENT  
SYSTEMS (ISMS) VERIFICATION**

**TEAM LEADER'S HANDBOOK**



**U.S. Department of Energy**  
**Washington, D.C. 20585**

**AREA SAFT**

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## **INTEGRATED SAFETY MANAGEMENT SYSTEMS (ISMS) VERIFICATION TEAM LEADER'S HANDBOOK**

### **FOREWORD**

This ISMS Verification Team Leader's handbook has been developed to provide guidance to the ISMS verification Team Leader and the verification team. The Team Leader has a significant responsibility to ensure that the ISMS presented for review conforms to DOE regulations, directives, policy, and guidance for the establishment of safety management programs across the complex. This responsibility must be filled in conformance with the direction of the Approval Authority, normally the DOE Operations Office Manager. In addition, this handbook also provides information useful in developing personnel to conduct verification reviews and to assist organizations in preparing for such reviews. This handbook supplements and is consistent with the Integrated Safety System Management Guide (DOE G 450.4-1).

Another purpose for this handbook is to provide recommended actions and procedures to help develop the skills and understanding necessary for effective membership on a verification team. The handbook provides recommended training, experience, and skills that are important components to ensure that individual team members are prepared to effectively participate in the verification. The handbook also provides useful information for those individuals who are preparing for a verification.

An ISMS verification involves considerable investment in time and resources requiring a carefully devised review plan, a dedicated and well trained team, and good coordination with the contractor and Department of Energy (DOE) office for which the ISMS pertains. ISMS verifications are similar to Operational Readiness Reviews (ORRs) in that Criteria and Review Approach Documents (CRAD) define criteria to be met that satisfies the objective through interviews, record reviews, and activities to be observed. However, an ISMS verification is more wide ranging, requires more preparation and training, and is more subjective than an ORR. All ISMS verifications need a tailored Review Plan, including CRADs, for the organization being reviewed.

This handbook provides guidance for the Team Leader and the team in conducting ISMS verifications. This guidance complements the requirements found in the following:

- C DEAR 970.5204;
- C DOE P 450.4, SAFETY MANAGEMENT POLICY;
- C DOE G 450.4-1, INTEGRATED SAFETY MANAGEMENT GUIDE ;
- C DOE P 450.5, LINE MANAGEMENT, SAFETY, AND HEALTH OVERSIGHT;
- C DOE P 450.6, SECRETARIAL POLICY STATEMENT, ENVIRONMENT, SAFETY, AND HEALTH; and
- C DOE M 411.1, MANUAL OF SAFETY MANAGEMENT FUNCTIONS, RESPONSIBILITIES, AND AUTHORITIES (FRAM).

This is Revision 1 of this handbook. A subsequent revision will be issued in about one year and will reflect additional lessons learned from ISMS verifications.

This Department of Energy handbook is approved for use by all DOE components and their contractors. Beneficial comments (recommendations, additions, deletions) and any pertinent data that may improve this document should be sent to: Jim Winter, DP-45, US DOE, 19901 Germantown RD., Germantown, MD 20874-1290 by letter or by using the Document Improvement Proposal (DOE F 1300.3) attached at the end of this document.

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## **INTEGRATED SAFETY MANAGEMENT SYSTEMS (ISMS) VERIFICATION TEAM LEADER'S HANDBOOK**

### **1.0 PURPOSE**

The primary purpose of this handbook is to provide guidance to the ISMS verification Team Leader and the verification team in conducting ISMS verifications. The handbook describes methods and approaches for the review of the ISMS documentation (Phase I) and ISMS implementation (Phase II) and provides information useful to the Team Leader in preparing the review plan, selecting and training the team, coordinating the conduct of the verification, and documenting the results. The process and techniques described are based on the results of several pilot ISMS verifications that have been conducted across the DOE complex. A secondary purpose of this handbook is to provide information useful in developing DOE personnel to conduct these reviews. Specifically, this handbook describes methods and approaches to:

- a. Develop the scope of the Phase I and Phase II review processes to be consistent with the history, hazards, and complexity of the site, facility, or activity.
- b. Develop procedures for the conduct of the Phase I review, validating that the ISMS documentation satisfies the DEAR clause as amplified in DOE Policies 450.4, 450.5, 450.6 and associated guidance and that DOE can effectively execute responsibilities as described in the Functions, Responsibilities, and Authorities Manual (FRAM).
- c. Develop procedures for the conduct of the Phase II review, validating that the description approved by the Approval Authority, following or concurrent with the Phase I review, has been implemented.
- d. Describe a methodology by which the DOE ISMS verification teams will be advised, trained, and/or mentored to conduct subsequent ISMS verifications.

This handbook provides proven methods and approaches for verifying that commitments related to the DEAR, the FRAM, and associated amplifying guidance are in place and implemented in nuclear and high risk facilities. This handbook also contains useful guidance to line managers when preparing for a review of ISMS for radiological facilities, non-nuclear, or non-Defense Programs facilities. DOE line managers are encouraged to tailor the procedures described in this handbook for ISMS verifications for low risk facilities.

### **1.1 Organization of the Team Leader's Handbook**

This handbook provides detailed guidance for ISMS verification Team Leaders and team members in the conduct of ISMS verifications. The handbook should be useful to the ISMS Approval Authority and to contractors preparing their ISMS for review and implementation and should be of benefit in developing local DOE personnel to perform ISMS verifications.

**Scope:** This section discusses the relationship of this handbook to the Department of Energy Acquisition Regulation (DEAR) and the FRAM, and provides a general overview of the ISMS verification process.

**Applicable Documents:** This section lists references directly applicable to the methods and processes described in the handbook.

**Definitions:** This section supplements the Glossary of Appendix A of Volume II of the ISMS Guide, DOE 450.4-1, and provides the meaning of the terms and statements used in the handbook. The description or definition of the terms have been expanded to be specific to the intended meaning in this handbook. The usage in the handbook is consistent with the usage in other DOE documents.

**General Guidance:** This section provides a summary of the actions, responsibilities, decisions, and documents associated with ISMS verifications. Recognizing that each site, facility, or activity will have an ISMS unique to its specific needs, this section provides the general sequence of review actions to be followed. The section also contains general information on the expectations for the ISMS verification.

**Detailed Guidance:** This section describes suggested methods and techniques which the Team Leader and the team should consider when preparing for and conducting ISMS verifications.

**Appendices:** The appendices contain detailed information useful to the ISMS verification Team Leader and individual ISMS verification team members or line managers to help them in the preparation for the review process.

- X Appendix 1 contains a list of Core Expectations for the review.
- X Appendix 2 contains a Criteria and Review Approach Document (CRAD) template for the Phase I ISMS verification.
- X Appendix 3 contains a Criteria and Review Approach Document (CRAD) template for the Phase II ISMS verification.
- X Appendix 4 contains a sample Approval Authority Letter of Appointment to the Team Leader.
- X Appendix 5 contains Lessons Learned from the first ISMS pilot verifications.
- X Appendix 6 contains a sample format for the documentation of team member qualifications.
- X Appendix 7 contains a Writer's Guide which provides assistance in documenting the ISMS verification and preparing the final report.

## 2.0 SCOPE

DOE M 411.1, MANUAL OF SAFETY MANAGEMENT FUNCTIONS (LEVEL I FRAM), is the DOE directive that assigns responsibilities to approve safety management system descriptions and revisions to the Head of the Contracting Activity. The Functions, Responsibilities, and Authorities document (Level II FRAM) assigns flow down requirements to the Principal Secretarial Officer (PSO) and field elements. Responsibilities as Head of the Contracting Activity



are normally assigned to the Manager of the cognizant DOE Operations Office who is generally known as the Approval Authority. As described in the FRAM, the documentation of the ISMS and the description of how ISMS will be integrated into work practices must be submitted to the Approval Authority for review. Per FRAM 9.2.2.6, the Approval Authority must decide whether the ISMS Description should be reviewed by a team, and, if a team is needed, select the Team Leader. The review process is called "verification" and is required in FRAM 9.5.2. General guidance for conducting ISMS verifications is found in Appendix E of Volume II of the ISMS Guide, DOE G 450.4-1. This handbook supplements this guidance and provides additional information useful to the Team Leader and the team assigned to conduct ISMS verifications.

### 3.0 APPLICABLE DOCUMENTS

#### 3.1 DOE Policy and Guidance

- a. DOE Policy 450.4, SAFETY MANAGEMENT POLICY
- b. DOE Policy 450.5, LINE MANAGEMENT, SAFETY, AND HEALTH OVERSIGHT
- c. DOE Policy 450.6, SECRETARIAL POLICY STATEMENT, ENVIRONMENT, SAFETY, AND HEALTH
- d. DOE Guide 450.4-1, INTEGRATED SAFETY MANAGEMENT GUIDE
- e. DOE M 411.1-1, MANUAL OF SAFETY MANAGEMENT FUNCTIONS (LEVEL I FRAM)

#### 3.2 Federal Regulations

- a. 48 CFR 970 (DOE Acquisition Regulations) -DEAR
- b. 10 CFR 830.120, Quality Assurance

### 4.0 DEFINITIONS

This section supplements the Glossary of Appendix A, Volume II, of DOE G 450.4-1, INTEGRATED SAFETY MANAGEMENT SYSTEM GUIDE, for the purposes of standardizing terms used in the ISMS verification process. Where the definition is verbatim to DOE G 450.4-1, it is annotated by brackets.

**Approval Authority:** The senior DOE Line Manager responsible for the approval of the documented Integrated Safety Management System Descriptions, usually the Manager of the Operations Office. Head of the Contracting Activity (HCA) has also been used with a similar meaning.

**Core Technical Group (CTG):** The CTG maintains a system and process to share Federal technical resources within DOE and across organizational lines. A database is maintained by

technical specialty area to assist customers in identifying the best individuals or mixes of expertise needed to support the customer's projects. [DOE G 450.4-1]

**Head of the Contracting Activity (HCA):** Head of a DOE element who has been delegated authority by the Deputy Assistant Secretary for Procurement and Assistance Management to (1) award and administer contracts, sales contracts, and/or financial assistance instruments; (2) appoint contracting officers; and (3) exercise the overall responsibility or managing the contracting activity. [DOE G 450.4-1]

**Integrated Safety Management System:** A Safety Management System (SMS) systematically integrates safety into management and work practices at all levels as required by DOE P 450.4, SAFETY MANAGEMENT SYSTEM POLICY, and the other related Policies: DOE P 450.5 and DOE P 450.6. [DOE G 450.4-1]

**Letter of Appointment:** The Approval Authority's written designation of a Team Leader, selected from the approved team leader list. This letter directs the Team Leader to select and form a team to conduct an ISMS verification at a site, facility, or activity. The letter outlines the scope of the verification effort, the tentative dates of the verification, and any special instructions to the Team Leader.

**Line Management:** Any management level within the line organization, including contractor management, that is responsible and accountable for directing and conducting work. [DOE G 450.4-1]

**Phase I ISMS Review:** A review of the documentation as submitted to the Approval Authority by the contractor. This review is not only a review of the ISMS Description documentation, but is also a review of the procedures, policies, and manuals of practice used to implement safety management. The review evaluates how these procedures, policies, and manuals of practice have been implemented at the upper levels of management and includes detailed discussions with key management personnel who are assigned, or will be assigned safety management responsibilities.

**Phase II ISMS Review:** A review to determine that the ISMS, as approved by the HCA, satisfactorily implemented at the site, facility, or activity. The review is normally accomplished by sampling at various facilities or activities to determine that the safety management system outlined in the ISMS Description is in fact being effectively carried out.

**Qualified Team Leader:** A person selected from a list of Senior Technical Safety Managers who has been approved by the Director, Safety Management Implementation Team. Additional Team Leaders may be added to the Approved Team Leader List after the member has successfully served on at least one team and was recommended by an Approved Team Leader.

**Qualified Team Member:** A person selected by the Team Leader with appropriate technical or managerial skills and assessment experience, as required, to conduct the review. The ISMS verification membership list of qualified DOE team members can be supplemented by experienced contractor personnel who have successfully participated in, and qualified for, other DOE assessments such as Operational Readiness Reviews (ORRs). A list of qualified team members will be maintained by the CTG.

**ISMS Verification Review Plan (RP):** The plan developed by the Team Leader to conduct the ISMS verification.

**Work:** Process of performing a defined task or activity; for example, research and development, operations, maintenance and repair, administration, software development and use, inspection, safeguards and security, data collection, and analysis. [DOE G 450.4-1]

**Work Authorization:** The process used by line management to permit a task or activity to be initiated as planned, having determined that it can be performed safely. [DOE G 450.4-1]

**Work for Others:** The performance of work for non-DOE entities by DOE/contractor personnel and/or the use of DOE facilities that is not directly funded by DOE appropriation. [DOE G 450.4-1]

**Work Planning:** The process of planning a defined task or activity. Addressing safety as an integral part of work planning includes execution of the safety-related functions in preparation for performance of a scope of work. These functions include (1) definition of the scope of work; (2) formal analysis of the hazards bringing to bear in an integrated manner specialists in both ES&H and engineering, depending on specific hazards identified; (3) identification of resulting safety controls including safety structures, systems and components, and other safety-related commitments to address the hazards; and (4) approval of the safety controls. [DOE G 450.4-1]

**Worker(s):** Those individuals involved in tasks directly related to the safe accomplishment of work, which is consistent with the in-place ISMS. Such tasks include a scope of work from the inception of mission/design through accomplishment of the work and lessons learned. Workers could include for example: craftsmen, operators, planners, designers, safety professionals, responsible supervisors, and managers (in some cases). These examples serve only as a guide to the possible breadth of "workers" in a given task and are not meant as a minimum or maximum complement of any ISMS verification team.

## **5.0 GENERAL GUIDANCE**

### **5.1 Purpose of ISMS Verification**

The primary purpose of the ISMS verification is to review the adequacy of the contractor's ISMS and its implementation in order to provide a recommendation to the Approval Authority. A secondary purpose is to evaluate the role of DOE in the implementation and oversight of the contractor's ISMS. ISMS verifications are more subjective and wide ranging than other DOE reviews such as ORRs and oversight activities. By its very nature, this is a subjective review requiring mature leadership. There are many ways to satisfy ISMS requirements and good judgment and practical experience are often needed to identify the real issues and concerns.

The ISMS verification activities should be well planned and coordinated by an approved Team Leader. The Team Leader should carefully plan the review process and select and assemble a dedicated team of safety management professionals. Dedicated is used here to mean that during the period for the review, the team member will devote his/her time exclusively to the verification review as opposed to his/her normal duties. The PSO or HCA may assist the Team Leader in

assembling the dedicated team of safety professionals by placing high priority on the effort. This may ensure that the selected team members are made available for the duration of the verification.

As more experience is gained in ISMS verifications, it is envisioned that each DOE site should be able to conduct these reviews, when appropriate, using their own qualified staff. A goal of this handbook is to provide information useful in developing personnel to conduct these reviews. In all cases, the review should be well coordinated and documented and should confirm the capability of DOE and the contractor to implement all aspects of the ISMS as required in DOE policies, the DEAR, and the FRAM. The role of DOE in the success of the ISMS implemented by the contractor is a major one that cannot be overstated.

It is Departmental policy (DOE P 450.4, 450.5, and 450.6) that safety management systems are integrated into management, operations, and work practices at all levels of the Department's facilities. In simple and straightforward terms, the department will "do work safely." These concepts are embodied as requirements in the DEAR clause of 48 CFR 970, the FRAM, and as amplified by DOE policies as noted above and in DOE G 450.4-1. The Department is committed to achieving an integrated safety management system for all its activities as appropriate. This handbook provides an acceptable process for the review and approval of the ISMS Description plus approaches and methodologies for evaluation of the implementation of these agreements in site and facility operations.

According to the DEAR Clause, "Guidance on the preparation, content, review, and approval of the system will be provided by the contracting officer." The "system" being described is the Integrated Safety Management System (ISMS) and the means by which the ISMS is normally presented to DOE for review and approval is for the contractor to prepare an ISMS Description. Experience has shown that the Contracting Officer's guidance is best developed through a process that includes consultation with the contractor. So, it may evolve somewhat as the actual ISMS is being developed. It is, therefore, important that the ISMS Description be maintained under a configuration and change control process. The Contracting Officer's guidance to the contractor will be used by the ISMS verification team as one of the principle elements against which the ISMS is reviewed.

For the ISMS to be effective, contractor and DOE field organizations must integrate the contractor's ISMS with DOE requirements outlined in DOE M 411.1-1, MANUAL OF SAFETY MANAGEMENT FUNCTIONS (FRAM). At the Field Element level these requirements are promulgated in lower tiered Functions, Responsibilities, and Authorities (FRA) documents. The FRAM/FRA documents highlight many important DOE functions necessary for the development and implementation of an ISMS. These DOE functions will also be reviewed during ISMS verifications. DOE elements essential to the development and implementation of ISMS are discussed in detail in Volume I, Chapter III of DOE G 450.4-1, ISMS GUIDE.

## **5.2 The Phase I Verification**

The following sections broadly describe the activities, decisions, and sequence of events necessary to provide the Approval Authority with a recommendation for the approval of the ISMS Description for a given site, facility, or activity. The Phase I verification process is outlined by a flow chart, which is included as Figure 1 of this handbook.

Phase I is a review of the Description of the Integrated Safety Management System developed by the contractor in response to formal direction provided by the Approval Authority in accordance with the ISM DEAR clause. To be successful, Phase I should not just be an administrative review of the ISMS Description, but should also be a review for adequacy of the procedures, policies, and manuals of practice used to implement safety management. The review should evaluate whether the procedures, policies, and manuals of practice adequately address the functions and the principles of the ISMS Description prepared by the contractor. Implementation of these procedures, policies, and manuals of practice at the upper levels of management should be evaluated by detailed discussions with key management personnel who are assigned, or will be assigned, safety management responsibilities. The primary goal of the Phase I review is to provide a recommendation to the Approval Authority as to whether the ISMS documentation should be approved. This handbook is intended to be used as a tool to help in determining the adequacy of the submitted documentation.

The ISMS verification should be a well structured review process and should be conducted by a review team of qualified team members led by a Team Leader who is selected from a list of approved team leaders. The ISMS verification team members are selected by the Team Leader who prepares and trains the team. The team will prepare a Review Plan (RP), conduct the review, and provide a report of the review to the Approval Authority. This report will include a recommendation for approval, or identify the actions required for approval to be recommend.

### **5.3 The Phase II Verification**

The following section broadly describes the activities, decisions, and sequence of events to help the Approval Authority in determining the adequate implementation of the ISMS at a site, facility, or activity. The Phase II ISMS verification process is outlined by a flow chart included as Figure 2 of this handbook.

The purpose of Phase II is to verify that the contractor's ISMS submitted to and approved by the Approval Authority is in-place at the site, facility, or activity. The Phase II review is developed, prepared, and conducted by a team of safety management professionals. Like the Phase I verification, the Team Leader is selected by the Approval Authority from a list of approved Team Leaders. The team members are selected by the Team Leader who leads the preparations and training of the Team Members. The team then prepares a Review Plan (RP), conducts the review, and provides a report of the review to the Approval Authority. For continuity, team members from the Phase I verification should be used for Phase II to evaluate the response to Phase I issues.

### **5.4 Combined Phase I and Phase II Verification**

At some sites, facilities, and activities the status of implementation of the ISMS has been viewed by the contractor and the DOE HCA as mature. Thus, it was the view of the contractor and the HCA that verification of implementation (Phase II verification) could be conducted at the same time as the verification of the adequacy of the ISMS Description (Phase I verification). Experience gained as a result of conducting a combined Phase I and Phase II review has provided several lessons learned:

- X Management and successful completion of a combined review is difficult, but can be accomplished.
- X A combined review takes less total time and can result in a reduced impact on the site, although a combined verification is more demanding on the team and those organizations being verified.
- X If the site, facility, activity has truly achieved a mature ISMS implementation, the benefits of a combined verification outweigh the difficulty.
- X The verification team should include several team members in each functional area with previous ISMS Verification experience.
- X A sub-team leader who has previous ISMS verification experience should be assigned to each verification Functional Area
- X Contractor and DOE efforts to fully and effectively prepare for and support the verification effort must be assured before making a commitment to a combined verification.

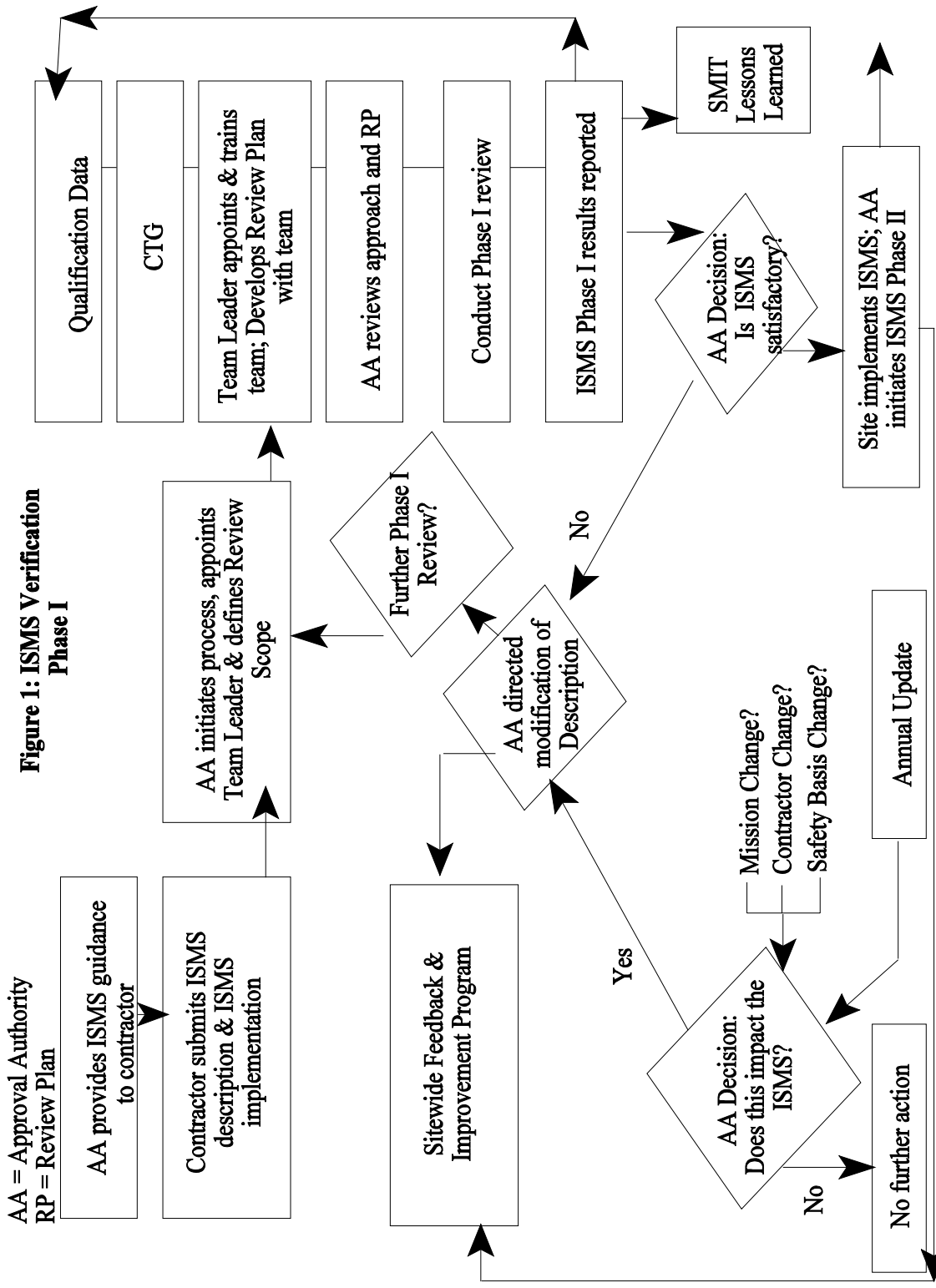
To be successful, the conduct of a combined verification must be carefully planned, by the verification Team and by the contractor and DOE. Figures 1 and 2 portray the Phase I and Phase II planning considerations as well as the dependency of Phase II aspects upon Phase I. The presentations to the team must provide information on both the policies and procedures (implementation mechanisms) that implement the ISMS Description as well as the work site's implementation of those mechanisms. The members of the verification team focusing on the Phase II portion of the review must understand the implementing mechanisms prior to focusing on the Phase II aspects. One section of Appendix 5, Lessons Learned, discusses a combined verification in detail.

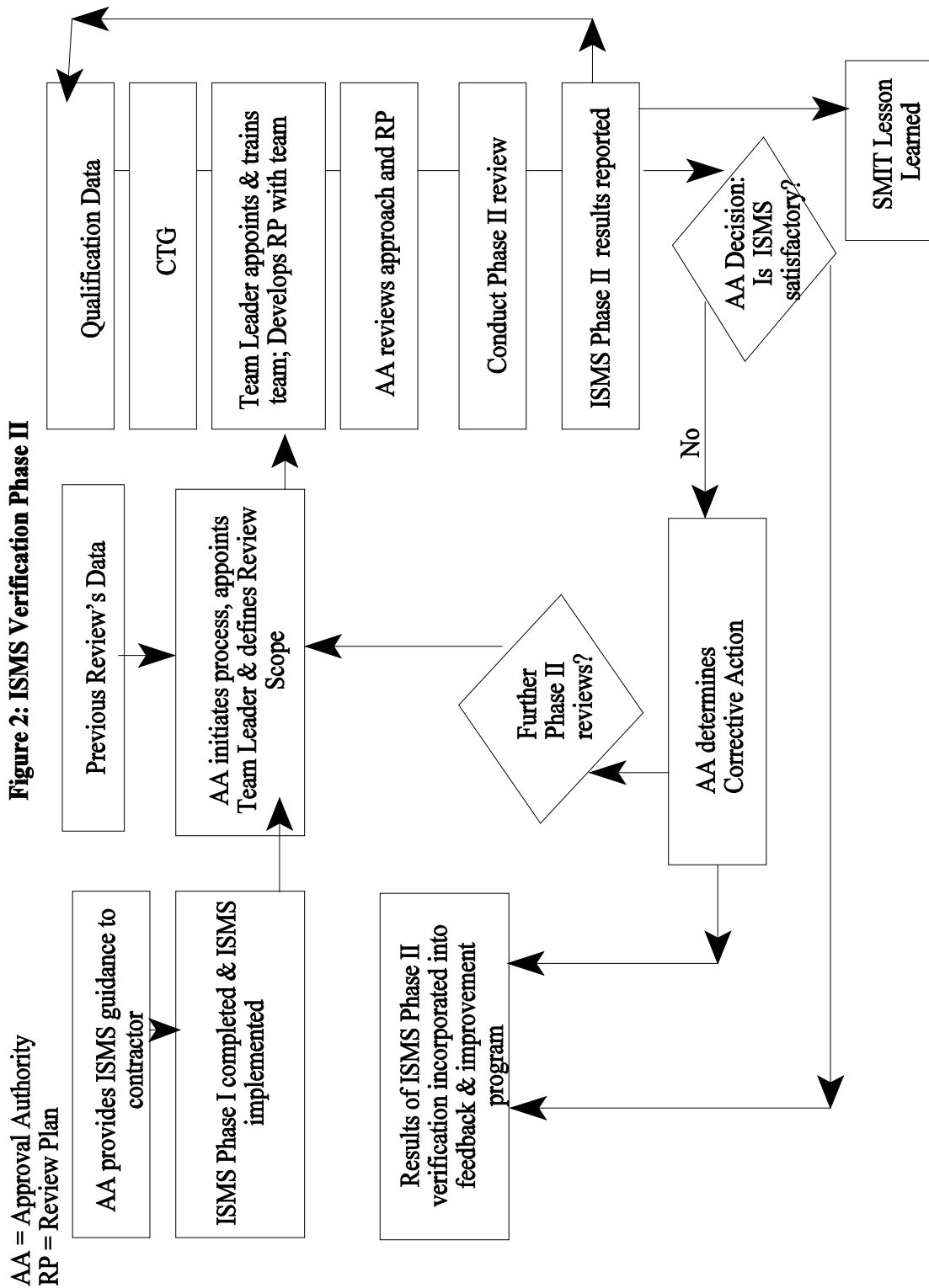
Experience has also shown that a combined verification may not be successful when there are gaps in the implementing policies and procedures. Similarly, the combined verification may not be meaningful if the implementation has only progressed at a few pilot facilities.

Careful review and candid judgement is required when making the decision whether to conduct a combined verification. If the conditions are met for a successful combined verification, it is recommended that a combined verification be conducted. The overall savings of time, effort, and distractions at the site will be worth the extra effort associated with the combined verification.

### **5.5 Training, Advising, and Mentoring of DOE Staff**

The following sections describe the principles and methodologies for the development of staff capabilities to integrate ISMS throughout the DOE complex.







### 5.5.1 Team Leaders

ISMS verification Team Leaders were initially designated by an Under Secretary memorandum dated February 21, 1997. These Team Leaders were selected for their technical competence and experience in similar evaluation processes. The process for developing Team Leaders includes efforts to provide on-the-job training by recognized safety management professionals. The Approval Authority, with the Team Leader, may designate potential Team Leaders from his or her staff or other DOE organizations. These potential candidates accompany the Team Leader during the preparation for, and conduct of, an ISMS verification. Assignment as a sub-team leader should be considered to provide the candidate with experience in coordinating the verification activities of a small team. During the verification, the Team Leader evaluates the candidate's grasp of the overall verification process. Upon the completion of the verification, the Team Leader provides a recommendation to the Approval Authority regarding the suitability of this individual to act as a Team Leader for future reviews. This favorable recommendation is provided to the Director, Safety Management Implementation Team, who provides the final designation of the individual as a Team Leader. This certification is also included in the CTG database.

### 5.5.2 Team Members

Team members will be selected and qualified by the Team Leader. There are several considerations that the Team Leader should use to choose qualified team members. Each team member should have expertise in functional areas related to the verification. Also, sufficient site experience should be resident in sub-teams to have familiarity and understanding of site programs. A combination of local and federal employees and team training is needed. Finally, experience in the conduct of ISMS verifications or similar assessments is necessary for a qualified team.

The team as a whole will have the collective technical expertise to conduct the verification by effectively sampling the ISMS for the given site, facility, or activity. A methodology similar to the development and qualification of Team Leaders will be used to prepare the DOE staff to serve as team members. The Approval Authority may designate members of his or her staff to participate with qualified team members in the ISMS verification. Upon completion of the review, the currently qualified team members will make a recommendation to the Team Leader regarding the suitability of the individual to participate independently as a team member on future reviews. The Team Leader recommends the individual as a team member to the Approval Authority and provides the individual's name for input into the CTG Database for the functional area expertise demonstrated so that he or she can be made available for future reviews.

There are many ways to establish successful safety management programs and there are many different methodologies which can be proposed to meet the functions and principles of ISMS. In order for the verification to be successful, the team must have a good understanding of ISMS principles, the processes and mechanisms the contractor proposes to meet the requirements specified in DOE P 450.4, 450.5, 450.6 and the DEAR. In addition, it is important that the team understand the ISMS interface requirements for DOE as specified in the FRAM. Training for the ISMS verification team members in preparation for the verification is a critical step toward a successful review. Due to the unique nature of each ISMS, some training is generally necessary

before each review, without regard to the previous experience of the team members. The following subjects are recommended for training as a minimum:

- X ISMS Training (ISMS Executive Level Course or equivalent)
- X Discussion of the review plan including the methodology used to develop it.
- X Discussion of ISMS verification process including the goals, scope, methods, and processes for a Phase I and a Phase II verification.
- X Review and understanding of the FRAM as implemented at the Field Element Manager level.
- X Presentation of the ISMS Description. This review should be presented by contractor personnel who are familiar with the concepts and methodologies used in the development of the ISMS.
- X Presentations by line managers (contractor and DOE) to describe the manner in which the ISMS is or will be carried out in their areas of responsibility and how requirements flow down through their respective organization. Through these presentations, the team will get a better understanding of the methodologies and strategies that the contractor plans to use to establish the ISMS. The team will also receive some insight on how the DOE ISMS interface responsibilities are being met.
- X Discussion of verification skills and processes such as interview techniques, field assessment techniques, and report writing. The training should make clear that the verification is not an ORR. The review is evaluating the functions and principles of ISM, not the conduct of work.

## **6.0 DETAILED GUIDANCE**

### **6.1 Purpose**

The primary purpose of this handbook is to provide advice and guidance to ISMS verification Team Leaders so that they can effectively carry out their responsibilities to coordinate the efforts of the ISMS verification team in the conduct of reviews of the contractor's ISMS. A secondary purpose of this handbook is to provide information useful to the Approval Authority, the ISMS team members, DOE staff, and the contractor and his staff in the preparations for, and the conduct of, ISMS verifications. This handbook provides proven approaches and methodologies for the review of the ISMS Descriptions provided by contractors. It also provides proven approaches and methodologies for evaluating the implementation of these agreements.

#### **6.1.1 ISMS Verification Techniques**

Generic core expectations for the implementation of each of the ISMS core functions and guiding principles are thoroughly discussed in Appendix E of Volume II of the ISMS GUIDE, DOE G 450.4-1 and are included in Appendix 1 of this handbook for reference. Each ISMS verification

team will develop acceptance criteria for each applicable core expectation along with review approaches to permit an assessment of the expectations. These tailored review approaches will be unique to the site, facility, or activity. When they are evaluated as effective, it should be possible to conclude that the core expectations have been met. The techniques used by the verification teams will differ; however, it has been shown that a carefully selected sampling of records, interviews with responsible personnel, and observations of work and operations is sufficient to evaluate the status of ISMS.

Templates of Criteria and Review Approach Documents (CRADs) have been developed for both phases of ISMS verifications and are included in Appendices 2 and 3. They serve as a frame of reference from which a tailored set of CRADs may be developed to fit the particular needs of the specific ISMS to be reviewed.

The ISMS verification Review Plan (RP) should define how the review will be structured. Experience shows that the review is best conducted using CRADs grouped along functional areas. By establishing these groupings, personnel can be assigned responsibilities in designated review areas in which they have the required expertise. This also is an effective way to distribute report writing responsibilities and contributes to the overall efficiency of reaching an overall conclusion. The functional areas most frequently used and found to be effective include:

#### Phase I

- + Business, Budget, and Contracts (BBC)
- + Hazards Identification and Standards Selection (HAZ)
- + Management (MG)
- + Department of Energy (DOE)

#### Phase II

- + Hazards Identification and Standards Selection (HAZ)
- + Management (MG)
- + DOE ISMS Implementation (DOE)
- + Operations (OP)
- + Subject Matter Expert (SME)

It has been necessary to include SMEs to ensure that specific safety management functions are effectively addressed. It is highly recommended that all Phase II verifications include an SME for Maintenance and Work Control since these are basic functions of all ISM systems. SMEs to be considered may include experts in the following disciplines:

- + Criticality Safety
- + Fire Protection
- + Industrial Hygiene and Safety
- + Radiation Protection
- + Security
- + Training and Qualification
- + Maintenance and Work Control

- + Quality Assurance
- + Configuration Management
- + Environmental Compliance (including pollution prevention/waste minimization)

The selection of the appropriate SMEs should be tailored to the site, facility, or activity and the SME composition should be determined by the Team Leader based on the size, complexity, and state of maturity of the safety management programs. It is important to select SMEs who have expertise in the functional area of interest and understand implementation of ISMS at the floor level.

## **6.2 Roles and Responsibilities**

The DOE M 411.1-1, MANUAL OF SAFETY MANAGEMENT FUNCTIONS, RESPONSIBILITIES AND AUTHORITIES (FRAM) defines the overall ISMS roles and responsibilities for personnel within the DOE. The DOE ISMS GUIDE, DOE 450.4-1 Volume I, Chapter III, Sections 2 and 3 discuss expectations for DOE and contractor ISMS development and implementation. The documents described can provide a focus to the verification and are important to the development of a site, facility, or activity specific review plan.

### **6.2.1 Field Element Managers (FEM) or Approval Authority**

The FEM is directly responsible for day-to-day control of activities at a site. The FEM directs, plans, and monitors the field element's safety management activities. The following specific roles and responsibilities defined by the FRAM and the DEAR apply to the ISMS verifications:

- a. Provide the contractor guidance on the preparation, content, review and approval of the safety management system. Dates for submittal, discussions, and revisions to the System will be established by the Contracting Officer. DEAR 970.5204-2(e)
- b. Ensure that contracts establish clear expectations and work performance measures and to ensure the contracts define the action necessary to meet site mission and safety expectations. FRAM 9.2.2.4
- c. Determine the need for the team to review the safety management description. If a team is needed, the HCA selects members of the review team for specific applications and the team leader from the approved List of senior technical managers approved by the Deputy Secretary. FRAM 9.2.2.6
- d. Ensure that the safety management system adequately prioritizes work to ensure that, when implemented, mission and safety expectations for the site are met within available budget and resources. FRAM 9.2.4
- e. Review and support development of expected performance objectives and related CSO goals and priorities. FRAM 9.2.4
- f. Ensure that the ISMS is properly implemented. FRAM 9.5.2

### **6.2.2 Site Operating Contractor**

This is the business entity with whom the Approval Authority has established a contract in accordance with the DEAR to operate a particular site or facility. The contract will require development of an ISMS that will define the requirements by which the site, facility, or activity is to be operated. The following specific roles and responsibilities should be applied to the Site Operating Contractor as they relate to the ISMS verification process:

- a. Develop a plan for an ISMS verification according to the direction provided by the Approval Authority.
- b. Prepare and submit the elements of the ISMS following the schedule specified by the Approval Authority.
- c. Support the conduct of the ISMS verification.
- d. Place all elements of the ISMS into effect to ensure that work is done safely and in accordance with the ISMS as approved by the Approval Authority.

### **6.2.3 ISMS Verification Team Leader**

The Approval Authority selects the Team Leader per FRAM 9.2.2.6. The following specific roles and responsibilities are recommended for assignment to the Team Leader:

- a. Select, prepare, and train team members to serve on the verification team.
- b. Prepare, with support of the team members, the Review Plan (RP) for the verification. The RP should reflect the scope and requirements identified in the letter from the Approval Authority appointing the Team Leader.
- c. Manage the team in the conduct of the verification review in accordance with the RP.
- d. Oversee preparation of the verification report including appropriate recommendations to the Approval Authority.
- e. Carry out other related activities as directed by the Approval Authority in support of review and implementation of the ISMS.

### **6.2.4 ISMS Verification Team**

The verification team is selected by the Team Leader and/or Approval Authority. It consists of federal safety management professionals from DOE line management and contractor or laboratory personnel, where needed or appropriate. Team qualification will be directed and approved by the Team Leader. Duties and responsibilities include the following:

- a. The team members assist the Team Leader in the preparation of the Review Plan.

- b. The team members take actions required to achieve the qualification to perform the review as specified by the Team Leader.
- c. The team members will conduct the assigned portion of the verification following the Review Plan under the supervision of the Team Leader.
- d. The team members will support the preparation of the report and the recommendations to the Approval Authority as required by the Team Leader.

### **6.3 Conducting the ISMS Verification**

#### **6.3.1 Appointing the Team Leader**

The Approval Authority will appoint the Team Leader for the ISMS verification from a list of Senior Technical Safety Managers approved by the Director, Safety Management Implementation Team. Within the Letter of Appointment, the Approval Authority should define the scope, expectations, and desires for the ISMS verification. Since the ISMS verification may be conducted in two phases, defining the expectations for each phase of the ISMS verification in a separate letter is appropriate. The quality of the review and the degree to which it is successful is significantly influenced by the level of detail and specificity with which the expectations for the review are defined by the Approval Authority. A sample format for an Approval Authority Letter of Appointment is included as Appendix 4.

#### **6.3.2 Team Leader Considerations for ISMS Verification Preparations**

In preparing to conduct ISMS verifications, the Team Leader must make several decisions shortly after he/she is designated. There are a number of key areas to address. Significant among these are establishing the relationship and determining the requirements of the Approval Authority, selecting and training the team, establishing relationships with the contractor, and developing the basis or approach on which to prepare the review plan. The following is a discussion of some of the more critical decisions that the Team Leader should make soon after being designated to set the stage for a successful verification. The Lessons Learned provided in Appendix 5 should be consulted to assist in developing possible approaches to making these decisions. The Lessons Learned provide, in detail, an historical record of several pilot ISMS verifications and should give some insight into possible ways to address key questions.

##### **6.3.2.1 Determining the Interface with the Approval Authority**

It is important to establish an effective relationship with the Approval Authority. The Team Leader should gain a good understanding of the scope and expectations for the review and should establish the mechanisms with which he/she will update the Approval Authority on the status of review preparations. Items such as the sequence of the review(s) (Phase I, Phase II, Combined Phase I/II decisions), establishment of the schedule, dedicated team member selection, establishment of contractor interfaces, and development and approval of the review plan are subjects for which the Team Leader and the Approval Authority should have complete agreement. It is also important that the Approval Authority support and assist the Team Leader in gaining the dedicated resources necessary to ensure that the verification is successfully

completed. It is also important that the Approval Authority support and assist the Team Leader in gaining the dedicated resources necessary to ensure that the verification is successfully completed. As the verification proceeds, it is important to establish what briefings and status reports are desired. This is particularly important for any ISMS issues affecting the DOE staff, as the Approval Authority is normally responsible for directing action for any improvements required. The Team Leader must not lose sight of the fact that he/she is ultimately responsible for providing a recommendation to the Approval Authority as to the acceptability of the ISMS Description and implementation.

### **6.3.2.2 Selecting and Training the Team**

Selecting the team is one of the most important steps of preparing for an ISMS verification. As discussed earlier, ISMS verifications are more wide ranging and subjective than other DOE reviews such as ORRs, oversight assessments, and compliance audits. The team should develop a broader approach to the review than would normally be required in these or similar review processes. There are many ways to establish ISMS and the evaluation of the ISMS proposed must be conducted with an open mind. Just because the ISMS proposed does not exactly conform to a team member's past experience does not necessarily mean the ISMS will not work. Good judgement and some good practical experience are needed to determine whether the described ISMS provides appropriate and sufficient integration. The ISMS verification is by nature more complex than other review processes. Issues and concerns developed in one functional area may have significant consequences in other areas. There has to be unusually good communications between the team and the site during the review to ensure the correct perspective of an issue is understood. Team members must be good communicators and information must be freely shared among the team, the affected contractor, and the DOE staff. Often this information must be provided quickly so that an issue may be identified early in the review. The Team Leader should ensure that a system, such as a daily team status meeting (with selected contractor and DOE staff attending), is planned into the schedule. Team members should have a proven ability to express their thoughts well both verbally and in writing.

Team members should be fully dedicated to conducting the ISMS verification. This is sometimes difficult because ISMS verifications can be quite lengthy. There are always pressures for persons at a site to continue to pursue their regularly assigned duties to the detriment of their temporary review assignment. If team members lack the full dedication required, either in the time spent or in personal commitments, the quality of the effort will suffer. In some cases, the Team Leader may be forced into doing some of the specific team member's assignments just to get the ISMS verification completed. This obviously detracts from the capability of the Team Leader to effectively supervise the effort. There should be an understanding between the Approval Authority and the Team Leader concerning the need for commitment from the team. If a team member is selected and cannot dedicate the required time, a replacement should be obtained.

The Team Leader should have a good understanding of the history of the status of the safety management programs at the affected site, facility, or activity. This understanding is a key factor in tailoring the review approach. Selection of Subject Matter Experts (SMEs) for the team should be based on the Team Leader's understanding of that history. Disciplines that have a

history of poor performance or problems should normally dictate an assignment of an SME to the team. Other disciplines that have a good record of performance would not necessarily require an SME.

The question of how the team will be organized should also be considered by the Team Leader in selecting the team. If the review is particularly complex and the size of the site, facility, or activity is large, it may be important to identify sub-team leaders. Also, if team members are inexperienced in ISMS verifications, it may be desirable to have an experienced sub-team leader to act as a mentor and to provide assistance to the individual team members. These individuals should be persons the Team Leader can count on to coordinate and administer the review to lessen the burden on his/her duties. A Senior Advisor is recommended but not required as a knowledgeable resource to the Team Leader for identification of Noteworthy Practices, Opportunities for Improvement, and related summarization and conclusions during the verification.

Considerations should be given to the need to train the team. If there are a number of team members who have conducted ISMS verifications and have recent audit/assessment experience at the site, then the training needs may be reduced. If it is not possible to get experienced persons, then a more comprehensive training process will be required. The Team Leader needs to be prepared to justify the technical competence of each individual member for his/her area of expertise and the credentials of the team as a whole. Technical credentials and assessment experience are appropriate considerations. Appendix 6 is a sample form used to document a team member's training and qualification.

### **6.3.2.3 Establishing Effective Contractor Interfaces**

The conduct of ISMS verifications requires a significant amount of coordination with the contractor's and local DOE staffs. It is the contractor's responsibility to present and explain his ISMS, and it has been found to be productive for the contractor to conduct formal presentations to the team on the ISMS. For this presentation to be effective, the Team Leader should provide the contractor with the type and scale of magnitude necessary. Examples of schedules of presentations provided during Phase I and Phase II verifications are provided in Appendix 5, Lessons Learned. A dedicated contractor point of contact (POC) for the ISMS verification has been valuable. This POC has normally been a member of the contractor's management staff who has been involved in developing the ISMS. As the ISMS verification preparations reach closure, there are a multitude of details that will require close coordination between the Team Leader and the POC. Details such as establishing the briefing schedule and format, developing the list of personnel to be interviewed by the team, establishing a library of manuals of practice and records available for the team, and selecting activities for observation are examples of some of the details of the verification that will require close coordination to ensure these activities occur efficiently. Since a portion of the verification will involve a review of DOE, it is also just as important to have a DOE POC designated who performs similar functions.

### **6.3.2.4 Concepts for developing the Review Plan**

The Team Leader must be able to present to the team his/her expectations on the format of the final report. The reviewers must understand the format required in order to effectively plan their



review. This guidance is essential in the development of the Review Plan (RP). The RP, if prepared correctly, provides guidance and direction to the team so that they have a clear goal for accomplishing the review. The RP provides the contractor and DOE staff with an outline of exactly what is expected for the review. Thus they can be better prepared to provide the team with the information necessary to determine the adequacy of the ISMS.

The development of the Criteria and Review Approach Documents (CRADs) should be one of the first tasks conducted in preparing for the verification review. The Team Leader should suggest the functional areas to be specified in tailoring the CRADs. Appendices 2 and 3 of this handbook provide templates to assist in preparing the CRADs. CRADs should be tailored to address the site, facility, or activity being reviewed. One of the first team projects is to develop the CRADs. This is a key step. By involving the team in the development of the CRADs, the team develops a sense of ownership. The contractor and the DOE staff should be included in the writing of the CRAD. At the end of this effort, if it is conducted rigorously, the team will clearly understand what it is that they must do to satisfy their CRADs, and the inspected contractor and DOE staff will understand the scope of the review for which they are to be held responsible. Experience has shown that when this process has been effectively conducted, an effective verification has resulted. When this process has not been conducted so that the team members, contractor, and DOE staff have been involved, the ISMS verification has proceeded in a chaotic fashion.

The Team Leader must carefully craft the Review Plan so that the information gained will lead to a recommendation to the Approval Authority as to the acceptability of the ISMS. This result is usually required to be documented in a report. As part of the ISMS verification preparation process, the Team Leader must carefully consider what format he/she will use for the report. The input of the team and sub-team leaders, if assigned, should be crafted to efficiently support the report format. The manner of identifying issues and concerns should be understood by the team and there should be agreement that those determinations will support the needs of the Approval Authority.

The following outline provides a suggested format for the Review Plan.

1.0 Introduction/Background: Describes the site, facility, or activity that will be reviewed. This section provides background information concerning the basic process, hazards, and issues associated with the activity to be reviewed.

2.0 Purpose: Describes the reasons why the review will be conducted and provides the basic rationale for the defined scope of the review.

3.0 Scope: Defines the physical and administrative boundaries of the site, facility, or activity and justifies those defined boundaries and support functions for review. This section of the Review Plan should describe the approved scope as identified by the Approval Authority. It should define the major objectives of the review. These objectives define the disciplines or areas which are selected for review and define the approach and guidelines for the reviewer.

4.0 Prerequisites: Summarizes prerequisites specified by the Approval Authority. The use of defined prerequisites has proven beneficial both in the preparation and conduct for the review.

It is not the responsibility of the team to develop the prerequisites but they must understand them as they reflect the expectations of the Approval Authority. Appendix 4 provides examples of prerequisites that have proven to be effective.

5.0 Overall Approach: Defines a generic approach by which the review will be conducted, and provides an introduction to the verification. The Criteria and Review Approach Documents (CRADs) will be defined by the processes described in this section.

6.0 Preparations: Describes any preparations, including team pre-review site visits, document reviews, etc., that will be undertaken prior to the on-site review. A discussion of qualifications and training considerations for team members should appear here.

7.0 Process: Describes the criteria and review approaches that will be used to review the ISMS. These CRAD should be developed in a format to include the following items:

- A. Objective - Identification of the expectation which will be verified as having been achieved.
- B. Criteria - The specifics by which the objectives will be measured, which may include Approval Authority direction in Phase I, and regulatory requirements.
- C. Review Approach - What combination of review of documentation, interviews of personnel, walkdown of systems, and observations that will be conducted to derive objective evidence by which the team will measure the defined criteria of the particular objective or sub-objective.

8.0 Administration: Describes the mechanism for meetings, correspondence, communications, team structure, etc. of the review. The team composition and organization, interface requirements, any oversight groups, and DOE organizations to be involved in the review should be discussed in this section.

9.0 Reporting and Resolutions: Details the methods for preparation and completion of items identified by the Approval Authority as deliverables at the conclusion of the review.

10.0 Schedule: Presents the proposed schedule for any preparation, pre-review site visits, on-site review, conduct of review, report preparation, and closeout.

11.0 Appendices: Includes the check lists or other specific evaluation and review documents which are to be used by the Team Members to conduct the individual assessments. They may also include reporting forms, writing guides, and other sections appropriate to stand alone in an appendix. The appendices of this handbook contain information and examples that may be useful during development of the appendices.

### **6.3.3 ISMS Phase I Verification Specifics**

The primary purpose of the Phase I review is to provide the Approval Authority with a recommendation for approval of the ISMS Description, showing that the requirements of 48 CFR

970 (DEAR) are met. A secondary purpose of the review is to evaluate the role of DOE in support of the contractor's ISMS. For the most part, this is an administrative review of the ISMS Description and a review of the line management processes that will be used to implement the ISMS. However, to be successful, the Phase I review should not just be an administrative review of the ISMS documentation but should also be a review of the procedures, policies, and manuals of practice used to implement safety management. The team should seek an understanding of how management integrates the documentation's processes to "perform work safely." It is anticipated that the Approval Authority will require that a high hazard and high activity site, facility, or activity will be required to undergo a more rigorous and in-depth ISMS review than one of a lesser hazard. The CRADs detailed in Appendix 2 of this handbook are provided as a template to assist in the preparation of a tailored review approach for the appropriate site, facility, or activity. These approaches, developed by the Team Leader with assistance from the team, should be included in the RP.

An important consideration in planning and conducting the review is to verify the adequacy of the "integration" which the ISMS Description provides. Integration must be evident from the DOE direction concerning programs and mission through the site or corporate level direction to the intermediate level, the facility, and finally to the individual work or process action level. For example, work at the activity level should be consistent with budget commitments and agreements between DOE and the contractor. Similarly, work control hazard analysis procedures at the worker level should be consistent with the corporate or site level descriptions. There should also be integration across functional areas. Each functional area (criticality, environmental protection, worker protection, etc.) must be integrated with other safety functions such that all relevant safety functions are addressed.

The core functions of safety management should be addressed in a manner that is consistent with the appropriate guiding principles. Take for example, line management responsibility for safety in the core function of analyzing hazards. The roles and responsibilities ensuring that line management responsibility for safety when analyzing hazards must be clearly defined. Similarly, the other individual core functions should be integrated so that the decisions and information from one function to an adjacent function is fully and consistently used. For example, the work controls that are in place for a specific maintenance action must be consistent with the hazards that were analyzed for that maintenance action. The ISMS Description must provide for this integration and the Review Plan should require evaluation of the effectiveness of integration concepts.

#### **6.3.4 ISMS Phase II Verification Specifics**

The purpose of the Phase II review is to provide the Approval Authority with an assessment of the status of the ISMS implementation for a given contractor site, facility, or activity. It is essential that the Phase I review be completed prior to the Phase II review except in those case where the Phase I and Phase II reviews are combined. The review methodology at this point should concentrate on the implementation of documentation, that is the manuals of practice or mechanisms used. Appendix 3 of this handbook contains a template of CRADs that can be used to develop a tailored review approach for a specific site, facility, or activity. CRADs should reflect the known conditions of the facility or activity as well as the work that is conducted. The Review Plan should be designed to take advantage of past reviews and assessments.

The focus of Phase II verification is the implementation of integrated processes for accomplishing work safely. The documentation of other reviews can be enlightening and reduce the verification effort. It is an evaluation based on performance of the adequacy of the implementation of the ISMS. All available information such as previous ORRs, ISMS verifications, EH site assessments, etc. should be used. It should also include an assessment of facility level performance.

The Phase II verification is more focused on the planning and control of work including feedback and improvement. Through the evaluation of work planning, control, and feedback and improvement, it is possible to evaluate the effectiveness of the implementation of the ISMS Description. Two different aspects are addressed and evaluated.

- (1) Are the practices and mechanisms that are observed relevant to accomplishment of work, and do they follow and comply with the mechanisms that are discussed in the ISMS Description?
- (2) Do the practices and mechanisms observed during the conduct of actual work meet the functions and principles of Integrated Safety Management?

The Phase II evaluation is conducted by focusing on the management, operations, and Subject Matter Expert (SME) areas. Implementation of the Authorization Basis or Authorization Agreement is evaluated. Practices for definition of individual work (maintenance, processes, experiments, or construction projects), identification of the hazards associated with the work, development and implementation of the controls, authorization and control of the actual work, and feedback and improvement processes are evaluated. The Phase II verification also includes an evaluation of the status of implementation of the DOE commitments to Integrated Safety Management. Through this evaluation from the perspective of line management, SMEs, and DOE, the status of implementation of ISM can be determined.

It is important to recognize that the ISMS Phase II verification is not an ORR that determines the readiness to conduct work safely. The Phase II verification focus is on the implementation of the processes through which work is planned and managed to ensure that it is conducted safely. The Phase II verification is an evaluation as to whether the functions and principles described in the DOE Policy 450.4 have been effectively translated into policies and procedures and whether those policies and procedures have been effectively implemented within the workplace.

While the Phase I verification consists primarily of documentation reviews and management interviews, the Phase II verification is primarily a performance-based review of the functioning ISMS. This should be clearly reflected in the RP used to guide the Team. The site, facility, or activity procedures and policies that implement the Phase I requirements should be reviewed to validate the flowdown of requirements. Personnel in the operations and support organizations should be evaluated to determine their understanding of these requirements in all appropriate aspects of operations. Most importantly, the review should include the observation of program mission operations as a demonstration of the integration of all aspects of the ISMS.

### 6.3.5 ISMS Combined Phase I and Phase II Verification Specifics

As discussed in Section 5.4, a combined verification should be conducted only when it is clear that the site had achieved a mature implementation of the ISMS. The ISMS should also be consistent with the system description that was submitted to the HCA for approval. It is possible to conduct a combined verification when the implementation is not complete or mature in some known areas but which is complete and mature in a majority of the areas. A combined verification should not be attempted when all of the mechanisms for implementation of the ISMS Description have not been developed or have not been implemented.

The ISMS verification team for a combined verification should contain members with previous ISMS verification experience as well as a good understanding of the site and the work that is conducted at the site. Experience with the site and the work conducted there is particularly important for the members of the operations and SME sub-teams and some members of the management sub-team. Each sub-team should have an experienced sub-team leader for a combined verification.

For a combined verification, it is recommended the team and review be divided into the following Functional Areas:

- + Business, Budget, and Contracts (Phase I)
- + Hazards Identification and Standards Selection (Phase I & II)
- + Department of Energy (Phase I & II)
- + Management (Phase I & II)
- + Operations and Implementation (Phase II)
- + Subject Matter Experts (Phase II)

The bulk of the Phase II portion of the verification is assigned to the Operations and Implementation and Subject Matter Expert sub-teams. Some portion of the DOE and Management assessment activities are also focused on implementation of the ISMS, although more of their effort is focused on the Phase I aspect of the verification.

A major challenge to a successful combined verification is development of an effective and efficient Review Plan. The Review Plan must be developed with a detailed understanding of the site, facility, or activity. The draft or preliminary plan is normally developed by the Team Leader or an individual who has been tasked by the Team Leader to prepare the draft Review Plan. The draft is then further tailored by the individual team members. The development of the draft Review Plan must occur with full and detailed knowledge of the site, facility, or activity, its history including recent ORRs and other verifications and with an understanding of the work that is accomplished, and an understanding of the procedures and processes that are utilized. The verification must build from the history of the site, facility, or activity and look at the work involved. The success of the verification will depend in large measure on the effectiveness of the Review Plan. The draft CRADs for both a Phase I verification and a Phase II verification should be included in the Review Plan. The CRADs must be tailored to reflect the work, the unique aspects, and the history of the site, facility, or activity. The CRADs should also be tailored to remove overlap and redundancy that exists with the CRADs that are designed for stand alone

Phase I and Phase II verifications. It is not a trivial exercise to get the Review Plan right. It is one of the most important challenges of the entire combined verification process.

The conduct of the review must be carefully planned. For the Review Plan to be effectively utilized, it is necessary that the team determine the status of development of the implementing mechanisms before evaluating the implementation of those mechanisms at the work place. The quality and content of the presentations made to the team by the contractor and DOE is key to success in this important aspect of the verification process. The discussion of the content and agenda for the presentations provided in Appendix 5 should be carefully considered as the presentations for a combined verification are being planned.

Another challenge to the combined verification is the final report. The report must clearly define the recommendation as to whether the ISMS Description should be approved or what changes to the Description are considered to be necessary. In addition, the report must discuss the status of implementation of the mechanisms, including a discussion of a recommended path forward to verify corrective actions or conduct additional verifications, if required. Experience indicates that the entire verification should be included in a single report. The interrelationships between the Phase I aspects of the verification and the Phase II aspects are too tightly intertwined to effectively separate the report of each phase.

Another challenge associated with the report is the decision as to how it should be structured. Several choices are possible. It could be structured by functional areas or by CRAD. It could also be structured by the functions and principles of Integrated Safety Management. It could also be structured with a Phase I and Phase II focus. The choice of how the report is to be focused and structured must be made before the start of the verification and integrated into the Review Plan. The Team Leader should review past reports for information and for guidance. The Approval Authority Letter of Appointment to the Team Leader should also provide insight into the expectations and the desires of the AA as to the content and the format of the report. The ability of the team to successfully complete the verification including issuing a report, will depend on the prior planning and decisions associated with the format, focus, and content of the report.

If the conditions at the site, facility, or activity are right, a combined review should be considered. It will save time and resources for the site and for the verification team. It will challenge the planning and management skills of the Team as well as the site. It will, however be worth the effort.

#### **6.4 The Report of the ISMS Verification**

The report of the ISMS verification should be the basis by which the Approval Authority will determine the results of the Phase I or Phase II reviews for the site, facility, or activity. The report should be sufficiently detailed to allow a knowledgeable reader an understanding of the verification process. The report should contain a conclusion and recommendation by the Team as to whether the Phase I or Phase II results meet the direction for that site, facility, or activity. The report process should have a provision for the team members to provide dissenting opinions or individual observations not reflected by the team as a whole. In that the report is the record of the review, it is as important as the review itself.

#### **6.4.1 Specifics of the ISMS Verification Report**

A suggested format, derived from an ISMS Verification Final Report, is discussed in detail in Appendix 7, the Writer's Guide.

#### **6.4.2 Other Report Considerations**

Additional considerations may include:

- a. the ISMS Review Plan;
- b. how the plan was followed;
- c. deviations from the plan; and
- d. whether findings and observations are traceable and related to specific objectives.

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## **Appendix 1**

### ***Core Expectations for ISMS Verifications***

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## **INTEGRATED SAFETY MANAGEMENT SYSTEM VERIFICATION CORE EXPECTATIONS**

The following core expectations were developed from the requirements of the DOE policies, the requirements of the DEAR, FRAM, and the fundamental attributes that support the implementation of ISMS. These core expectations have been developed to provide a reference or starting point which can serve as the basis for developing the Criteria and Review Approach Documents (CRADs). The CRADs are tailored to support the verification efforts at the particular site, facility, or activity. The following core expectations are annotated as being applicable to Phase I or Phase II. The Phase I core expectations are used to evaluate the adequacy of the safety management documentation and the establishment of these programs at the site or corporate level. The Phase II core expectations are used to evaluate the status of implementation at the facility or activity. There is a complete discussion of the ISMS core expectations in Volume II Appendix E of the ISMS Guide, DOE G 450.4-1. The core expectations are reiterated here for ease of reference.

### **Phase I ISMS Core Expectations**

Nine core expectations are recommended for conducting the Phase I review. To be fully effective, the Phase I review should evaluate whether safety management programs and institutional processes have been implemented at the site or corporate level.

1. The ISMS documentation is consistent with DOE P 450.4, the DEAR, and the guidance provided to the contractor by the Approval Authority. (CE I-1)
2. DOE and the contractor effectively translate mission into work, set expectations, provide for integration, and prioritize and allocate resources. (CE I-2)
3. An ISMS should include methods for identifying, analyzing, and categorizing hazards. (CE I-3)
4. The ISMS should include methods for establishing and maintaining an agreed-upon set of safety standards before work is performed. (CE I-4)
5. Contractor policies, procedures, and documents are established and are adequate for the work or process to be performed safely. (CE I-5)
6. The ISMS should be continuously improved through an assessment and feedback process, which should be established at each level of work and at every stage in the work process. (CE I-6)
7. The ISMS should establish that at every level of control, line management must be responsible for safety. Clear and unambiguous roles and responsibilities should be defined and maintained at all levels within the organization. (CE I-7)
8. The ISMS should ensure that personnel are competent commensurate with their responsibility for safety. (CE I-8)

9. The DOE Approval Authority should have a set of processes that interface efficiently and effectively with the contractor organization. (CE I-9)

## **Phase II Core Expectations**

The following eight core expectations should be considered during a Phase II assessment of ISMS implementation following the approval of the ISMS Description. This assumes that the Approval Authority has formally approved the ISMS Description or has approved it with comments. This acknowledges that contractor ISMS programs are satisfactory at the corporate or site level. Any comments that affect the adequacy of the safety management programs should be resolved and incorporated before the Phase II review occurs.

1. An integrated process has been established and is utilized to identify and prioritize specific mission discrete tasks, mission process operations, modifications and work items. (CE II-1)
2. The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the environmental, health and safety, and worker protection hazards are integrated with those personnel assigned to analyze the processes. (CE II-2)
3. An integrated process has been established and is utilized to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensure adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms provide integration, which merge together at the workplace. (CE II-3)
4. An integrated process has been established and is utilized to effectively plan, authorize and execute the identified work for the facility or activity. Both workers and management demonstrate a commitment to ISMS. These mechanisms demonstrate effective integration. (CE II-4)
5. A process has been established and is utilized which ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CE II-5)
6. Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE II-6)
7. DOE ISMS procedures and mechanisms should ensure that work is formally and appropriately authorized and performed safely. DOE line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE II-7)

8. DOE ISMS procedures and mechanisms ensure that hazards are analyzed, controls are developed, and that feedback and improvement programs are in place and effective. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. (CE II-8)

**Core Expectations for Combined Phase I and II ISMS Verifications**

If the Approval Authority elects to combine the ISMS Phase I and II verifications, use of all Phase I and II core expectations with some combinations to account for efficiency is appropriate.

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## **Appendix 2**

### ***Criteria and Review Approach Template for Phase I ISMS Verifications***

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Criteria and Review Approach Template for Phase I ISMS Verifications

The following set of criteria and review approach documents (CRADs) provide a template for developing a tailored approach for conducting a Phase I ISMS verification of an ISMS Description. As discussed in Volume 2, Appendix E of DOE G 450.4-1, *ISMS Guide*, this review is an assessment of the adequacy of the ISMS documentation as submitted to the Approval Authority by the contractor. To be successful, Phase I is not just an administrative review of the ISMS documentation, but is also a review of the procedures, policies, and manuals of practice used to implement safety management. The review evaluates how these procedures, policies, and manuals of practice have been implemented at the upper levels of management and includes detailed discussions with key management personnel who are assigned, or will be assigned, safety management responsibilities. The primary goal for the review is to provide a recommendation to the approval authority as to whether the ISMS documentation should be approved. To reach that conclusion, it is necessary to develop a complete understanding of the safety management programs and to determine that, when implemented, they will satisfy DOE requirements for ISMS and adequately manage the work safely. The review also includes an assessment of the adequacy of the local DOE office responsibilities as they relate to ISMS interface functions, responsibilities, and authorities.

Each CRAD objective includes a reference to the specific ISMS Core Expectation (CE) it addresses. The referenced CE as delineated in DOE G 450.4-1, *ISMS Guide*, and Appendix 1 of this handbook is included in parenthesis after the statement of the objective.

The full scope of the review of DOE responsibilities to support the development of ISMS is contained in the Business, Budget and Contracts (BBC), Hazards Identification and Standard Selection (HAZ), and DOE CRADs. These review approaches involve the review of DOE programs and policies, interviews with DOE managers, and selected observations of DOE interactions with the contractor. In preparation of the tailored CRADs for the DOE review, the applicable DOE FRAM/FRA documents should be reviewed to determine the extent of the review approaches. The policy does not specifically require a verification of DOE performance. It is recommended that the Team Leader negotiate the inclusion of DOE in their verification.

Integrated Safety Management policy requirements are applicable to subcontractors as well as the Management and Operation (M&O) or Management and Integration (M&I) contractors. This applies to M&O/M&I subcontractors and any contractors working for DOE, if applicable. The DEAR clause specifies that the subcontractors be required to either develop an individual ISMS Description or to meet the requirements of the M&O/M&I ISMS Description. Therefore, it is necessary that the ISMS verification include subcontractors and that as appropriate their ISMS Description be evaluated utilizing the same core expectations. The CRADs should be appropriately tailored to include the subcontractors.

## **BUSINESS, BUDGET, AND CONTRACTS (BBC)**

### OBJECTIVE

**BBC.1** DOE and contractor procedures ensure that missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated. (CE I-2, CE I-6, CE I-7, CE I-9)

#### Criteria

1. DOE guidance for translating mission into work includes delineating its plan of work. This means the scope, schedule, and funding allocations for each fiscal year. (FRAM 9.2.1)
2. DOE guidance for setting expectations for the contractor is established through contracts and regulations. These contracts and regulations provide guidance on expected performance, set goals and priorities, and allocate resources. (FRAM 9.2.2)
3. DOE roles and responsibilities are clearly delineated to ensure a satisfactory level of safety, accountability, and authority to define the scope of work. (FRAM 9.2.2)
4. DOE procedures ensure that the contractor adequately prioritizes work so that, when the ISMS is implemented, mission and safety expectations are met within available budget and resources. DOE procedures require that performance objectives and related goals and priorities are reviewed and approved. (FRAM 9.2.4)
5. Contractor procedures translate mission expectations from DOE into tasks that permit identification of resource requirements, relative prioritization, and performance measures that are established consistent with DOE requirements (DEAR 970.5204-2, DOE P 450.5).
6. DOE and contractor procedures provide for DOE approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
7. DOE and contractor procedures provide for change control of approved tasks, prioritization, and identification of resources.
8. Contractor procedures provide for flowdown of DEAR 970.5204-2, "Integration of Environment, Safety and Health into Work Planning and Execution," requirements into subcontracts involving complex or hazardous work.

#### Approach

Record Review: Review the FRAM/FRA and DOE implementing procedures. Determine if there is adequate guidance for DOE involvement in the clear definition of the scope of work. Determine if the mechanisms for translation of the missions and policies from higher authority are appropriate, if a mechanism for assigning priorities has been established, and if performance objectives are reviewed and approved. Determine if the roles and responsibilities for DOE personnel are adequate to support the corporate/site mission. Verify that DOE line management and staff personnel roles, responsibilities, and authorities are appropriate to support ISMS. Review personnel position descriptions, selection criteria, training programs and training records to determine if the staff competency is adequate. Review mission

prioritization procedures to determine if tailoring of resources is appropriate. Verify that the budget process allows adequate resources for standards selection, hazard controls, and work authorization processes to support work planning and scope definition.

Review corporate/site manuals of practice that describe the budget and planning process and those documents that identify mission requirements, the approval of contractor plans, and those that address the assignment of budget priorities. Review corporate/site procedures for formally documenting change control procedures. Review how safety requirements are included in subcontracts as well as the flowdown of the DEAR clause into subcontracts for hazardous work.

Select several mission tasks from the DOE programs and planning documents and track the tasks through the process to evaluate how the above criteria are met. Review future year planning and current year authorized work. Select several current year authorizations and track change control. Select several DOE and contractor subcontracts and review for incorporation of the ISM DEAR clauses.

Interviews: Interview DOE and contractor personnel responsible for management of the budget process. Interview line managers responsible for Headquarters directed mission accomplishment. Interview the ES&H manager to determine how the process for integration of safety into mission tasks is accomplished. Interview managers at selected corporate/site level to determine their understanding and implementation of the defined process for translation of mission into work authorization. Interview selected ES&H professionals and line managers to determine how safety is incorporated into the budget plans and authorization. Interview DOE and contractor procurement personnel regarding subcontract flowdown requirements.

Observations: If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the contractor.

OBJECTIVE

**BBC.2** DOE and contractor budgeting and resource assignment procedures include a process to ensure the application of balanced priorities. Resources are allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and environment is a priority whenever activities are planned and performed. (CE I-2, CE I-7)

Criteria

1. The prioritization and allocation process clearly addresses both ES&H and programmatic needs. The process involves line management input and approval of the results.
2. Priorities include commitments and agreements to DOE as well as stakeholders.
3. Contractor procedures provide resources to adequately analyze hazards associated with the work being planned.
4. Contractor procedures for allocating resources include provisions for implementation of hazard controls for tasks being funded.
5. Resource allocations reflect the tailored hazard controls.
6. The incentive and performance fee structure promote balanced priorities.
7. DOE procedures for defining the scope of work ensure balanced priorities. (FRAM 9.2.3)

Approach

Record Review: Review corporate/site manuals of practice that describe the budget and planning process and those documents that address the assignment of budget priority as well as the procedures for their development. Review DOE procedures that identify mission requirements, balancing of resource allocations, and approval of contractor plans in the work authorization documents.

Select several mission tasks from the DOE requirements and outyear planning documents to determine if they adequately address the assignment of resources with balanced priorities. Select several current year authorizations and review selected funded tasks at the individual task level to verify balanced priorities.

Interviews: Interview responsible DOE and contractor personnel who manage the budget process to determine their understanding of the priority for assigning resources. Interview line managers responsible for DOE mission accomplishment. Interview the ES&H manager to determine the process used for integration of safety into mission tasks. Interview selected managers at each level of corporate/site organizations to determine their understanding of the allocation of resources with appropriate priority.

Observations: If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the contractor.

OBJECTIVE

**BBC.3** The contractor procedures and practices ensure that personnel who define the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities. (CE I-8)

Criteria

1. Contractor procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.
2. Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.

Approach

Record Review: Review organizational documentation to determine the personnel positions with responsibility associated with this objective. Review the position description for those positions. Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions. Review any training or qualification material including corporate/site manuals that support gaining or verifying competence to fill the positions.

Interviews: Interview selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work with tailored hazard controls.

Observations: None.

## DEPARTMENT OF ENERGY (DOE)

NOTE: The team should negotiate with the Operations Office Manager to include the review of DOE performance in the verification.

### OBJECTIVE

**DOE.1** DOE has established processes that interface efficiently and effectively with the contractor's organization to ensure that work is performed safely. (CE I-7, CE I-8, CE I-9)

#### Criteria

1. DOE line management responsibility for safety includes responsibility to ensure that work is performed within the approved controls.
2. DOE has established clear roles and responsibilities to ensure that work is performed within controls.
3. DOE procedures ensure that personnel who review or oversee the performance of work have competence commensurate with the responsibilities to which they are assigned.
4. DOE procedures ensure that priorities are balanced so that work is performed within controls.
5. DOE procedures require work readiness be properly verified and authorized before work commences.

#### Approach

Record Review: Review the FRAM/FRA and DOE implementing procedures for effective interface with the contractor. Determine if there is adequate guidance for the authorization and oversight of work by DOE. Verify that those authorized to perform these functions have clear roles and responsibilities. Determine if the chain of command is clearly described. Verify that the Facility Representative (FR) program is tailored to match the work. Determine if oversight is balanced with risk and the priority of the mission being performed.

Interviews: Discuss work authorization and performance activities with the DOE and contractor personnel and determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if work safety is perceived as an integral part of work authorization methods and issue resolution. Discuss the systematic oversight of work with DOE and contractor personnel. Determine if oversight is adequate or excessive. Discuss the FR program with the FRs and with contractor personnel to determine if it is effective.

OBJECTIVE

**DOE.2** DOE has established processes that interface efficiently and effectively with the contractor's organization to provide feedback and continuous improvement. Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur. (CE I-6, CE I-7, CE I-8, CE I-9)

Criteria

1. DOE procedures describe clear roles and responsibilities to provide feedback and continuous improvement.
2. DOE procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.
3. DOE procedures ensure that feedback is provided and continuous improvement results in the identification of safety standards and requirements.
4. DOE procedures ensure that feedback is provided and continuous improvement results in the tailored hazard controls of the work being performed.
5. DOE procedures promote the continuous improvement and efficiency of operations. DOE priorities are balance and corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned.
6. DOE procedures provide line oversight of the contractor's self-assessment programs.

Approach

**Record Review:** Review the FRAM/FRA and DOE implementing procedures to determine how the feedback program functions. Verify that there is DOE line management involvement. Determine that the roles and responsibilities for these programs are clear. Review DOE training requirements and records to ensure that personnel are trained to perform feedback functions and participate in the continuous improvement process. Verify that balanced priorities and tailored approaches are used to conserve and maximize use of resources. Review the procedures for issue management and determine if this system enhances the improvement process. Review the procedures established to provide line oversight of the contractor's self-assessment programs. Review the process established to ensure lessons learned are incorporated into the feedback system. Determine if the lessons learned between the federal safety offices and offices of similar functions are appropriately integrated and shared.

**Interviews:** Discuss the feedback and continuous improvement process with DOE personnel. Verify that safety is integrated into this process and that DOE efforts in this area are important to safety. Determine if process improvement includes efforts to reduce unnecessary safety

requirements and improve efficiency. Evaluate the status of establishing line oversight of the contractor's self-assessment programs. Determine if personnel believe that safety activities are tailored to the risk and the priority of the work being performed.



## HAZARDS IDENTIFICATION AND STANDARD SELECTION (HAZ)

### OBJECTIVE

**HAZ.1** Hazards associated with the work are identified, analyzed, and categorized. (CE I-3, CE I-9)

#### Criteria

1. Contractor and DOE procedures require identification, analysis, and categorization of all hazards associated with the site. Contractor ISMS procedures for analysis of hazards reflect accepted rigor and methodology. The resulting hazards are utilized in selection of standards included in the contract as List A/List B.

2. Contractor procedures require identification, analysis, and categorization of all hazards associated with facilities or activities. Hazards that are considered include nuclear, chemical, industrial or others applicable to the work being considered. Contractor procedures for analysis of hazards reflect accepted rigor and methodology.

#### Approach

Record Review: Review the contractor's procedures for identifying, analyzing, and categorizing hazards at both the site as well as the facility level. Review DOE procedures for authorizing operations to ensure that adequate provisions are included so that hazards are properly identified and analyzed. Determine that these procedures are adequate to address the hazards associated with the work and operations.

Review the approved or proposed hazard analysis documentation for selected facilities and activities to verify consistency and compliance with contractor procedures and mechanisms as well as compliance with DOE review and approval mechanisms.

Personnel Interviews: Interview corporate/site personnel responsible for identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements. Interview DOE personnel responsible for the oversight of the hazards analyses processes to determine that an effective interface with the contractor has been established.

**OBJECTIVE**

**HAZ.2** Applicable standards and requirements are identified and agreed upon. (CE I-4, CE I-9)

**Criteria**

1. Contractor procedures utilize acceptable methodologies to identify adequate hazard control standards at both the site or corporate level and at the facility level to protect the public, worker, and environment. Controls at the corporate level appear in the contract while those at the facility level are reflected in the authorization basis documentation.
2. Contractor procedures ensure controls are tailored to the hazards associated with the work or operations to be authorized.
3. Contractor procedures ensure the identified controls, standards, and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized.
4. Contractor procedures utilize accepted and structured methods and processes to identify, select, gain approval for, periodically review, and maintain safety standards and requirements.
5. DOE procedures specify an appropriate review and approval process for the hazard controls and safety standards and requirements.
6. DOE contracting procedures require that the requirements of applicable Federal, State, and local regulations (List A) and the requirements of Department of Energy directives (List B) are appended to the contract.
7. Contractor and DOE procedures define the processes for the development, approval, and maintenance of documentation addressing the establishment of authorization protocols and authorization agreements.

**Approach**

**Record Review:** Review contractor procedures for identification and designation of standards that become contract requirements and assess their adequacy. Review contractor procedures for identification and designation of standards that are incorporated into facility authorization basis documentation and assess their adequacy. Review DOE procedures established to review and approve standards submitted by the contractor for approval. Review the approach to tailoring the selection of standards and requirements to the identified hazards and maintenance of an appropriate set of standards over time. Review the procedures established to ensure that the appropriate requirements are included in the contract as specified in List A or List B. Review the processes established to develop, approve, and maintain authorization protocols and authorization agreements as applicable.

**Interviews:** Interview contractor site/corporate and DOE personnel responsible for selection and approval of standards. Determine the understanding and compliance with the procedures for identification, tailoring, review, submittal, approval, and maintenance of the set of standards.

Observations: Observe DOE and contractor activities involving the preparation, review, approval and/or maintenance of the selected set of standards and requirements; or observe DOE and contractor activities that are scheduled to develop, approve, or maintain authorization protocols and authorization agreements as applicable.

OBJECTIVE

**HAZ.3** Contractor procedures ensure that contractor personnel responsible for analyzing the hazards and developing, reviewing, or implementing the controls, have competence that is commensurate with their responsibilities. DOE roles and responsibilities are clearly defined to ensure appropriate oversight and review of the analysis of hazards and the identification of controls. Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities. (CE I-7, CE I-8, CE I-9)

Criteria

1. Contractor procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, approve the analysis of hazards, and establish controls associated with facilities and activities.
2. Contractor procedures require that personnel responsible for analyzing hazards and identification of adequate controls have competence that is commensurate with their responsibilities.
3. DOE procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, and approve the analysis of hazards and controls associated with facilities and activities.
4. DOE procedures require that personnel responsible for approving hazards analyses and controls have competence commensurate with their responsibilities.

Approach

Record Review: Review contractor organization documentation to identify personnel including all levels of management to whom this objective applies. Review the position descriptions for those personnel to determine the required competencies. Review corporate/site training manuals and qualification and competency procedures. Review selected training and qualification records for those personnel identified above to determine how the required competency has been gained, retained, and validated.

Review DOE FRAM/FRA or other implementing procedures that identify the roles and responsibilities for personnel who conduct oversight and review of the hazard analyses and the establishment controls. Verify that DOE line management and staff personnel's roles, responsibilities, and authorities are appropriate. Review selected qualification program records.

Interviews: Interview selected contractor individuals to verify their understanding of the required competencies and the degree to which they meet them.

Interview selected DOE personnel to determine their understanding of the assigned responsibilities and determine that they are competent to meet these requirements.

## MANAGEMENT (MG)

### OBJECTIVE

**MG.1** The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority. The contractor policies and procedures ensure that the ISMS Description is maintained, implemented, and that implementation mechanisms result in integrated safety management. (CE I-1)

### Criteria

1. The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority.
2. The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all corporate/site organizational functions.
3. The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Description is maintained current and that the annual update information is prepared and submitted.
4. The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance. The ISMS describes how system effectiveness will be measured.

### Approach

**Record Review:** Review the ISMS Description and the direction concerning the guidance on the preparation, content, review and approval of the ISMS. Review corporate/site procedures for the implementation review, and maintenance of the ISMS Description and associated items, including provisions for the annual review and update to DOE. Review charters and “output documentation” from any ISMS coordinating committees. Review contractor assessment activities incident to determination of the adequacy of implementation of ISMS. Review implementation planning efforts and any “gap analysis” reports, which may have been developed. Review the process established to measure the effectiveness of the ISMS to ensure that the methods support the establishment, documentation, and implementation of safety performance objectives that support DOE program and budget execution guidance.

**Interviews:** Interview contractor managers who are responsible for the development and maintenance of the ISMS Description. Interview contractor line managers who are or will be responsible for administering the mechanisms of the ISMS. Interview chairman and key members of any ISMS coordinating committees, if established.

OBJECTIVE

**MG.2** Contractor roles and responsibilities are clearly defined to ensure satisfactory safety, accountability and authority. Line management is responsible for safety. Competence is commensurate with responsibilities. (CE I-7, CE I-8)

Criteria

1. Contractor ISMS defines clear roles and responsibilities of all personnel to ensure that safety is maintained at all levels. ISMS procedures and implementing mechanisms specify that line management is responsible for safety.
2. Contractor procedures identify line management as responsible for ensuring that the implementation of hazard controls is adequate to ensure that work is planned and approved and conducted safely. Procedures require that line managers are responsible for the verification of adequate implementation of controls to mitigate hazards prior to authorizing work to commence.
3. Contractor procedures identify line management as responsible for ensuring that hazard controls remain in effect so long as hazards are present.
4. Contractor procedures ensure that personnel who supervise work have competence commensurate with the responsibilities.

Approach

**Record Review:** Review corporate/site manuals of practice that define roles and responsibilities of personnel responsible for safety. Review position descriptions and other documentation that describes the roles and responsibilities related to ensuring safety is maintained when developing the definition of the scope of work. The review should consider personnel in both line management and staff positions and should evaluate whether line managers are responsible for safety.

**Interviews:** Interview selected personnel at all levels of management who are identified by the record review above. Verify their understanding and commitment to ensuring safety during the processes of defining the scope of work.

**Observations:** Observe scheduled activities that demonstrate the planning and approval activities prior to authorizing work to assess that clear roles and responsibilities are established and that line management is responsible for safety. Activities such as weekly planning meetings, plans of the day, or site/corporate safety meetings are typical meetings, which may provide good examples of the safety decision making process.

OBJECTIVE

**MG.3** Feedback information on the effectiveness of the ISMS is gathered, opportunities for improvement are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur. (CE I-6, CE I-7, CE I-8)

Criteria

1. Contractor procedures describe clear roles and responsibilities to provide feedback and continuous improvement including line management responsibility for safety.
2. Contractor procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.
3. Contractor procedures ensure that priorities are balanced to ensure feedback is provided and continuous improvement results.
4. Contractor procedures require line and independent oversight or assessment activities at all levels. Oversight and assessment activities verify that work is performed within agreed upon controls.
5. Contractor procedures ensure oversight or assessment results are managed to ensure lessons are learned and applied; that issues are identified and managed to resolution; that fundamental causes are determined and effective corrective action plans are developed and implemented.
6. Contractor procedures ensure that performance measures or indicators and performance objectives are developed in coordination with DOE as required. Contractor procedures require effective management and use of performance measures and objectives to ascertain the status of the ISMS.
7. Contractor procedures provide for regulatory compliance and enforcement as required by rules, laws, and permits such as PAAA, NEPA, RCRA, CERCLA, etc.

Approach

Record Review: Review corporate/site manuals of practice to determine that the procedures, processes and requirements that meet this objective are effective. The review should include determining compliance with regulations in accordance with laws, rules, and permits.

Review the results and schedules of self and independent assessments. Review procedures for scheduling and tracking routine assessments. Track issues identified during assessments to completion. Assess the effectiveness of the assessment and feedback process to achieve process improvement.

Review the issues management program for adequacy, effectiveness, and support for process improvement.

Review the performance measures or indicators and performance objectives. Ensure that a process has been established to measure the performance of the ISMS. Review the process

for development of the performance indicators including how the development and change is coordinated with DOE.

**Interviews:** Interview selected managers to determine the adequacy and effectiveness of the assessment activities. Interview contractor assessment managers to determine the adequacy and effectiveness of the contractor's oversight program, as well as other compliance or independent assessment programs that may be established.

**Observation:** If possible, observe senior management assessments or self assessment activities, including documentation and post activity briefing of results. Observe a critique or management review including development of lessons learned and determination of root causes.



OBJECTIVE

**MG.4** Contractor procedures provide a method to ensure that controls are implemented during preparation for the initiation of work at each level. The procedures ensure that adequate controls are identified to mitigate the identified hazards and the controls are effectively implemented. Contractor procedures provide assurance that controls will remain in affect so long as the hazards are present. (CE I-5, CE I-7, CE I-8)

**NOTE:** This objective will evaluate both the line management practices and mechanisms, as well as the practices and mechanisms associated with the selected individual disciplines such as maintenance, radiological controls, industrial safety, criticality safety, etc.

Criteria

1. Contractor procedures for individual processes or maintenance actions ensure that controls are implemented prior to commencing work and that these controls remain in affect so long as the hazard is present.
2. Contractor procedures for individual disciplines ensure that individual processes or maintenance actions include adequate controls associated with the individual discipline prior to commencing work and that the controls remain in affect so long as the hazard is present.
3. Contractor procedures provide mechanisms or processes for gaining authorization to conduct operations or perform work.
4. Contractor mechanisms for the control of work specify that line management is responsible for safety.
5. Contractor personnel who plan, control, and conduct work are required to have competence commensurate with the assigned responsibilities.

Approach

**Record Review:** Review contractor manuals of practice that define requirements to verify controls are in place prior to performing work and that these controls remain in place as long as the hazards are present. Review the processes for authorizing the commencement of work to ensure that managers are responsible for safety. Review the contractor's training and qualification process to ensure that personnel who plan, control, and conduct the work are competent. Review procedures for selected disciplines to ensure consistency and adequacy.

**Interviews:** Interview line and support personnel responsible for implementation of requirements to control work. Through interviews, assess their understanding, support, and implementation of the control of work within the approved controls.

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## **Appendix 3**

### ***Criteria and Review Approach Template for Phase II ISMS Verifications***

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Criteria and Review Approach Template for Phase II ISMS Verifications

The following set of criteria and review approach documents (CRADs) provide a template for developing a tailored approach for conducting a Phase II ISMS verification of the implementation of ISMS within a facility or activity. The CRADS have been developed to provide a tool to enable the verification team to tailor a review based on evaluating the five functions of ISMS as implemented at the facility or activity. They support the expectations and attributes of ISMS described in Volume I, Chapter III of the ISMS GUIDE, DOE G 450.4-1.

All CRADs apply to each facility or activity to be reviewed. The Phase I ISMS verification report should be carefully reviewed prior to preparing the Phase II ISMS CRADs to ensure the recommended areas from the Phase I verification are included in the Phase II review. Team composition and review duration should be tailored to the specific facility or activity. Experience has shown that to successfully conduct a Phase II verification at a nuclear facility requires a team of 6-8 personnel. The review can be completed in one week. A second week following the on site verification is generally required to analyze the results and write the report.

Each CRAD objective includes a reference to the specific ISMS Core Expectation (CE) it addresses. The referenced CE as delineated in DOE G 450.4-1, ISMS GUIDE, and Appendix 1 of this handbook is included in parenthesis after the statement of the objective.

The CRADs have been divided and numbered to support a review that has Functional Areas of Hazard Identification and Standard Selection (HAZ), Management (MG), Operations (OP), Subject Matter Experts (SME), and Department of Energy Implementation (DOE).

In preparation of the tailored CRADs for the DOE review, the applicable DOE FRAM/FRA documents should be reviewed to determine the extent of the review approaches.

## **DOE ISMS IMPLEMENTATION**

NOTE: The Team Leader should negotiate with the Approval Authority to include a review of the effectiveness of DOE in their role in ISMS.

### OBJECTIVE

**DOE.1** DOE procedures and mechanisms should ensure that work is formally and appropriately authorized, and performed safely. DOE line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE II-7)

### CRITERIA:

1. DOE procedures and/or mechanisms are in place that establish a process for confirming readiness and authorizing operations. (FRAM 9.5.1 and 9.5.2)
2. DOE procedures and/or mechanisms ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed. (FRAM 9.5.2)
3. DOE procedures and/or mechanisms require day-to-day operational oversight of contractor activities through Facility Representatives. (FRAM 9.5.2)
4. DOE procedures and/or mechanisms ensure the implementation of quality assurance programs and ensure that contractors implement quality assurance programs. (FRAM 9.5.3)

### APPROACH:

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that the process for the authorization and oversight of work is adequate. Verify that those DOE personnel assigned to perform these functions have clear roles and responsibilities. Determine if the oversight policy is balanced with risk and priority of mission. Review the quality assurance program established by DOE and the interactions of that program with the contractors quality assurance program. Verify DOE programs hold line management responsible for safety and contain clear roles and responsibilities.

Interviews: Discuss work authorization and performance activities with DOE and contractor personnel to determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if worker safety is perceived as an integral part of the work authorization process and that workers are involved in issue resolution if appropriate. Discuss the oversight programs with DOE and contractor personnel. Discuss the Facility Representative (FR) programs with facility representatives and contractor personnel to determine if the FR program is effective. Discuss oversight programs with DOE staff who perform ES&H management and supervision assignments. During interviews, verify understanding of line management responsibility for safety and understanding of clear roles and responsibilities.

Observations: Observe selected facility representative and DOE staff oversight activities

OBJECTIVE

**DOE.2** DOE procedures and mechanisms ensure that hazards are analyzed, controls are developed, and that feedback and improvement programs are in place and effective. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. (CE II-8)

CRITERIA:

1. DOE processes and/or mechanisms are in place to ensure that the contractor's hazard analysis covers the hazards associated with the work and is sufficient for selecting standards. (FRAM 9.3.1)
2. DOE procedures and/or mechanisms are in place in which DOE directs the contractor to propose facility or activity-specific standards tailored to the work and the hazards. DOE procedures require that appropriate safety requirements in necessary functional areas are included in contracts. (FRAM 9.4.1)
3. DOE procedures and/or mechanisms are in place that direct DOE line manager oversight to ensure that implementation of hazards mitigation programs and controls are established. (FRAM 9.4.2)
4. DOE procedures and/or mechanisms are in place that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented. (FRAM 9.4.3)
5. DOE procedures and/or mechanisms require that contractors develop a lessons- learned program and monitor its implementation. A process is established for reviewing occurrence reports and approving proposed corrective action reports. A DOE process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned. DOE provides effective line oversight of the contractor's self-assessment programs. (FRAM 9.6.2)

APPROACH:

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that a process for ensuring that effective interfaces with the contractor's ISMS has been established. Review DOE procedures for ensuring that adequate provisions are included for verification that hazards are properly identified, analyzed, and categorized. Review the approved and in process hazards analysis documentation to verify that contractor procedures and mechanisms have been properly reviewed and approved. Review DOE procedures that specify the process to be followed for the review and approval of standards and hazard controls. Ascertain that DOE has approved the process used by the contractor to tailor the selection of standards and requirements.

Review the process used for the review, approval, and implementation of authorization basis documentation including authorization protocols and agreements. Review the DOE process

established to provide line oversight of the contractor's self-assessment programs. Review DOE guidance to the contractor concerning the establishment of a lessons learned program. Determine if the lessons learned between federal safety offices and offices of similar functions are appropriately integrated and shared. Evaluate the DOE issues management and tracking system to ensure that there is an adequate system in place.

Interviews: Interview selected DOE personnel responsible for the review and approval of the results of the contractor's identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements. Interview DOE personnel responsible for the review and approval of the standard selection process including the approval of the authorization protocols and agreements. Interview DOE personnel responsible for administering the issues management program and those DOE line managers who provide oversight of the contractor's self-assessment programs.

Observations: Observe the programs, processes, and mechanisms identified in practice.



**HAZARD IDENTIFICATION AND STANDARD SELECTION (HAZ)**

**NOTE:** The primary focus of this section of the review is the identification of hazards and development, review, and approval of Authorization Basis documentation at the facility level. Controls for individual work items or activities will be evaluated by the Operations and Subject Matter Expert functional area.

**OBJECTIVE**

**HAZ.1** The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the environmental, health and safety, and worker protection hazards are integrated with personnel assigned to analyze the processes. (CE II-2)

**CRITERIA:**

1. Procedures and/or mechanisms are in place and utilized by personnel to ensure hazards associated with the work throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensure personnel responsible for the analysis of environmental, health and safety concerns are integrated with those assigned to analyze the hazards for the facility or activity. These mechanisms ensure direction and approval from line management and integration of the requirements.
2. Procedures and/or mechanisms are in place and utilized by personnel that describe the interfaces, roles and responsibilities of those personnel who identify and analyze the hazards of the scope of work. Personnel assigned to accomplish those roles are competent to execute those responsibilities.

**APPROACH:**

**Record Review:** Review the documents that govern the conduct, review, and approval of facility or activity hazard analysis and documentation such as Process Hazards Analysis (PHA), Preliminary Hazards Review (PHR), Preliminary Safety Analysis Report (PSAR), job hazards analysis (JHA), and Work Control Permits (WCP). Verify that these records conform to the hazard analysis requirements. Coordinate the review of work related documents such as Job Hazard Analysis (JHAs), and WCPs with the OP and SME functional area reviewers.

**Interviews:** Interview personnel responsible for the identification and analysis of work hazards. In nuclear facilities, for example, this should include personnel responsible for USQ determination, lock and tag preparation, procedure technical reviews, etc.

**Observations:** If possible, observe the actual preparation and field implementation of the analysis of hazards. In nuclear facilities, this should include an Unreviewed Safety Question Determination (USQD), preparation of a JHA, SAR/TSR, or Criticality Safety Evaluation, etc.

**OBJECTIVE**

**HAZ.2** An integrated process has been established and is utilized to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensure adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. (CE II-3)

**CRITERIA:**

1. Procedures and/or mechanisms are in place to develop, review, approve and maintain current all elements of the facility Authorization Basis Documentation with an integrated workforce.
2. Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation within the facility or activity are developed and utilized by workers (see Section 4 for definition) and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.
3. Standards and requirements are appropriately tailored to the hazards.
4. Procedures and/or mechanisms are in place to develop, maintain, and utilize Authorization Agreements.
5. Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the Authorization Basis.

**APPROACH:**

**Record Review:** Review a sample of hazard control documents to verify safety controls are provided for the hazards identified and that the control strategy encompasses a hierarchy of 1) hazard elimination, 2) engineering controls, 3) administrative controls, and 4) personnel protective equipment. Typical documents include Authorization Agreements (AAs), Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), Health and Safety Plans (HASPs), Radiological Work Permits (RWPs), operating procedures, etc. Review procedures and mechanisms to ensure accurate and effective implementation of Authorization Basis documentation. Sample actual implementing documentation. Coordinate the review of work related documents such as RWPs and operating procedures with the OP and SME functional area reviewers.

**Interviews:** Interview personnel responsible for developing and implementing hazard controls and/or Authorization Basis Documentation at the facility level. This should include personnel such as those responsible for SAR/TSR preparations and implementation, ALARA review requirements, Process Hazard Analysis activities, etc.

**Observations:** Observe the actual processes development, review, approval, and implementation of SAR/TSR, AA, and other Authorization Basis Documents as available.

## MANAGEMENT (MG)

### OBJECTIVE

**MG.1** An integrated process has been established and is utilized to identify and prioritize specific mission discrete tasks, mission process operations, modifications and work items. (CE II-1)

### CRITERIA:

1. Procedures and/or mechanisms that require line management to identify and prioritize mission-related tasks and processes, modifications, and work items are in place and utilized by personnel.
2. Procedures and/or mechanisms are in place and utilized by personnel that define the roles and responsibilities for the identification and prioritization of mission-related tasks and processes, facility or process modification, and other related work items. Personnel assigned to the roles are competent to execute these responsibilities.
3. Procedures and/or mechanisms are in place and utilized by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

### APPROACH:

Record Review: Review the facility or activity long-range planning documentation. This should include such items as: summary schedules, plan of the week, long-range maintenance schedules, modification schedule, etc. Review the procedures and mechanisms that line managers utilize to identify and prioritize mission-related tasks and processes, modifications, and work items.

Review organizational documentation to determine the personnel positions with responsibility associated with this objective. Review the position description for those positions. Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions.

Review any training or qualification material including in training and qualification manuals that support gaining or verifying competence to fill the positions.

Review the procedures and/or mechanisms that are utilized by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements.

Interviews: Interview management personnel responsible for the identification and prioritization of work. This should include personnel such as those responsible for long-range planning documentation, schedule preparation, etc.

Observations: Observe work definition and planning activities such as plan of the week meetings, long-range scheduling meetings, etc.

OBJECTIVE

**MG.2** Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Managers at all levels demonstrate a commitment to ISMS through policies, procedures, and their participation in the process. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE II-6)

CRITERIA:

1. Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Facility or activity procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place that ensure that personnel who supervise work have competence commensurate with their responsibilities.
4. Procedures and/or mechanisms are in place that ensure that personnel performing work are competent to safely perform their work assignments.

APPROACH:

**Record Review:** Review facility or activity manuals of practice that define roles and responsibilities of personnel responsible for safety. Review position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained. The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety. Review the procedures established to ensure that managers and the work force is competent to safely perform work. Review the records of qualification and certification as applicable.

**Interviews:** Interview selected personnel at all levels of facility or activity management who are identified by the record review above. Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity. Interview a selected number of supervisors and workers (see definition) to determine their understanding of competency requirements and their commitment to performing work safely.

**Observations:** Observe scheduled activities that demonstrate that clear roles and responsibilities are established and understood, that line managers are actively involved with decisions affecting safety, and that managers and workers are competent to perform their duties. Activities such as weekly planning meetings, plans of the day, event critiques, safety training, and safety meetings are typical events that may provide good examples of the safety training and decision making process.

OBJECTIVE

**MG.3** An integrated process has been established that ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CE II-5)

CRITERIA:

1. Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.
2. Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is utilized to provide feedback and improvement during future similar or related activities.
3. Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.
4. Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions.
5. Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained.

APPROACH:

**Record Review:** Review the performance monitoring documentation for the feedback and continuous improvement process. This should include such documents as occurrence reports, shift orders, deficiency reports, post-job reviews, safety observer reports, employee concerns programs, and reports of self assessments. Review procedures for work to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or activity level. Review actual data from these processes to evaluate the effectiveness of the implementation of these mechanisms.

**Interviews:** Interview personnel responsible for administering the feedback and continuous improvement progress. This should include personnel such as those responsible for occurrence reporting, lessons learned preparation, shift orders preparation, worker concerns program, self assessment, and oversight. Interview personnel responsible for capturing and utilizing feedback and improvement information during individual maintenance or other work activities.

Observations: Observe development and utilization of feedback and continuous improvement activities. This should include such things as conducting post-job critiques, monitored evolutions, post ALARA reviews, conducting a self-assessment or independent assessments, etc.

## **OPERATIONS (OP)**

### OBJECTIVE

**OP.1** An integrated process has been established and is utilized to effectively plan, authorize and execute the identified work for the facility or activity. (CE II-4)

### CRITERIA:

1. Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual maintenance or activity level fully analyzes hazards and develops appropriate controls.
2. Procedures and/or mechanisms are in place which ensure that there is a process used to confirm that the facility or activity and the operational work force are in an adequate state of readiness prior to authorizing the performance of the work.
3. Procedures and/or mechanisms are in place which ensure that there is a process used to gain authorization to conduct operations.
4. Procedures and/or mechanisms are in place which ensure that safety requirements are integrated into work performance.
5. Procedures and/or mechanisms are in place which ensure that adequate performance measures and indicators, including safety performance measures are established for the work.
6. Workers (see definition) actively participate in the work planning process.
7. Procedures and/or mechanisms demonstrate effective integration of safety management.

### APPROACH:

**Record Review:** Review documents and/or mechanisms that govern the process for planning, authorizing, and conducting work with emphasis on the individual maintenance or activity level. Evaluate the adequacy of the division of responsibilities, worker involvement, and work authorization process. Review the performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being performed. Review the mechanisms used to prepare authorization agreements and protocols. Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

**Interviews:** Interview personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the Plan of the Day (POD), equipment status files, pre-job briefings, and the conduct of facility or activity operations. Interview personnel responsible for development of maintenance or individual activity procedures and controls. Verify adequate worker involvement at each step of the process.

Observations: Observe the actual authorization and performance of work activities. This should include such items as pre-job briefings, authorization by the managers to proceed, command and control of the work, review of safety requirements, etc. Observe work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.



## **SUBJECT MATTER EXPERT INTERACTIONS**

The following CRAD should be adapted as required and utilized by subject matter experts (SME) to assess whether the core functions and guiding principles of ISMS are met for the control of work within the specified discipline. Specific disciplines that have proven useful in past verifications include:

- C Criticality Safety
- C Fire Protection
- C Industrial Hygiene and Safety
- C Radiation Protection
- C Security
- C Training and Qualification
- C Maintenance and Work Control
- C Quality Assurance
- C Configuration Management
- C Environmental Compliance (including pollution prevention/waste minimization)

The evaluation of the maintenance and work control should be considered in every verification since this discipline normally demonstrates the essence of safely conducting work.

## **SUBJECT MATTER EXPERTS**

### OBJECTIVE

**SME.1** Within the individual subject area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the individual subject area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE II-4, CE II-5, CE II-6)

### CRITERIA:

1. Procedures and/or mechanisms for the individual subject area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the individual subject area contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the individual subject area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the individual subject area require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the individual subject area require that within the subject area feedback and continuous improvement results.

### APPROACH:

**Record Review:** Review the manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the individual subject area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the subject area. Review training records of personnel in the subject area to determine that they meet competency standards.

**Interviews:** Interview personnel and responsible managers in the subject area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the subject area to assess the level of competence.

**Observations:** Observe events such as the development of a procedure, development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item, which includes interactions with personnel of the subject area.

## **Appendix 4**

### ***Sample Approval Authority Letter of Appointment to the Team Leader***

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### **Approval Authority Expectations and Scope for the Review**

The Approval Authority should discuss the expectations for the ISMS verification in the appointing letter to the Team Leader. The discussion should define both the expectations of the Approval Authority and the scope of the review. With a thorough description of the assumptions, limitations, and the scope of the review, the probability the review will meet the expectations of the Approval Authority is increased. The following subjects or information should be considered for inclusion with the appointing letter:

- a. A description of the activity to which the ISMS verification applies, or to which the review is to be limited. This might include an entire site, one or more specific facilities, or an activity within a facility.
- b. A discussion of the background and historical perspective of the ISMS at the site or facility in question. The discussion should include the maturity of the ISMS and the adequacy of the existing ISMS and the status of implementation. In some cases, the ISMS may be very mature and implementation thought to be complete. In other cases, the ISMS may be newly developed and not yet implemented, as for a new facility that is not yet completed. This background and historical perspective will help in defining the scope of the ISMS verification.
- c. Whether the review is to be a Phase I or Phase II or a combined Phase I and II, and whether it is expected that the review will occur in segments.
- d. A definition of the scope or focus of the review. For a Phase I review, the scope could be limited to an ISMS that is developed but not yet implemented. Or, the review could involve a review of facilities that have a mature safety management system already in place, that has been routinely evaluated by readiness and operational reviews. In the second case, the scope of the review could be limited to responses to issues identified in previous reviews and to changes since the previous reviews. However, an ISMS review should never simply be a validation of a plan for a future ISMS. That is, the verification must review the ISMS Description and implementing program requirement documents. Similarly, a Phase II review might include all aspects of an implemented ISMS, or only those areas that were not considered in a recent independent review such as an ORR or an EH Assessment.
- e. The information provided by the Approval Authority to the contractor that specifies the dates for submittal, discussion, and reviews of the system and the guidance on preparation, content, review, and approval of the system. This information could be in the form of an attachment or a reference.
- f. If the verification is to be a Phase II review, the report from the Phase I review and the direction from the Approval Authority to the contractor concerning implementation of the ISMS should be discussed or attached.

- g. The Approval Authority should specify the deliverables of the review. The letter may specify a report documenting the process and the results, or only a summary of the results. Either should require a recommendation for future action.
- h. The prerequisite conditions that the Approval Authority considers necessary before the verification may commence. The prerequisites should be specific and measurable to minimize any confusion as to what is expected. Effective prerequisites which have been used in past verifications include:

For Phase I Verifications

- C The ISMS Description has been formally submitted
- C Corporate/Site manuals of practice supporting the ISMS Description are available for review
- C Authorization Agreements (draft/approved) are available for review
- C ISMS Verification Team Leader has been appointed, team has been designated and trained, and ISMS Verification Review Plan has been approved and promulgated

For Phase II Verifications

- C The ISMS as described in the approved ISMS Description has been implemented
  - C ISMS Verification Team Leader has been appointed, team has been designated and trained, and ISMS Verification Review Plan has been approved and promulgated
- i. There should be a discussion of previous reviews that could affect the scope of the verification. Examples of reviews that may affect the scope of a review include a previous ORR, a SAR review and associated SER, or the implementation of Work Smart Standards or Enhanced Work Planning programs. The Approval Authority should define the amount of consideration to be given to each of these previous reviews or assessments.
  - j. The estimated date or commitment for the verification with recognition that the review will not be started until the prerequisites have been achieved.
  - k. Any additional information useful to the designated Team Leader for meeting the expectations of the Approval Authority.

### **Sample Letter of Appointment to the Team Leader**

The following sample letter provides an example and discussions of elements of the letter of appointment. It illustrates a way in which the Approval Authority could pass the expectations for the ISMS verification to the Team Leader. For this example, a fictitious site, XYZ, is used. For purposes of demonstrating as many options as possible, the site contains many different types of conditions and hazards. Each Approval Authority should prepare the Appointing Letter to address the particular situation that exists at the site, facility, or activity for which the verification is intended.

**SAMPLE**

*AA ORGANIZATION LETTERHEAD*

Date

FROM: Approval Authority (*Name or title as appropriate*)

TO: *Selected Team Leader by name and position*

In accordance with the requirements of the DEAR, the FRAM [ *specify FRA document*], and the associated contract for operation of Site XYZ [ *specify the site or facility*] you are selected to be the Team Leader for the Phase II ISMS verification. [ *specify the phase or phases for which this designation applies*]

**1.0 Description of Facility/Activity:** The review will verify the implementation of the ISMS for operation of all facilities and activities within Site XYZ (XYZ).

**2.0 Background and History:** The maturity of the ISMS vary among the individual facilities at XYZ. The contractor's ISMS Description, that was submitted and approved, indicated that four of the facilities will continue to use the existing SARs, two will use existing BIOs, and the final two will operate according to an approved set of standards (Work Smart Standards). All facilities and activities have approved Authorization Agreements. The contractor's ISMS Description identifies that the site integrated budget and schedule process and the sitewide maintenance, radiological controls, and emergency management programs will be utilized at all facilities and activities. The contractor's ISMS Description was approved following the Phase I ISMS verification. The ISMS Description, as well as the Phase I ISMS verification report and recommendations, are included as enclosures to this letter.

**3.0 Phase II ISMS Verification:** You are appointed as the Team Leader for the Phase II ISMS verification for XYZ. The scope and special considerations of the review are discussed below.

**4.0 SCOPE and Special Considerations for the Phase II ISMS Verification:** The purpose of this review is to verify satisfactory implementation of the ISMS Description that was submitted by the contractor and approved as a result of the Phase I ISMS verification. Many aspects of XYZ's ISMS are mature and have been the subject of previous implementation reviews. These reviews should not be repeated as previously identified deficiencies of those reviews should have been adequately resolved. Several internal programs (e.g., maintenance, environmental compliance, and calibration control) are mature and have been determined to be satisfactory by previous independent reviews. These programs are included within this review only to the degree necessary to ensure ISMS has been expanded into the new facilities at XYZ. The following specific guidance is provided:



Facility: Special considerations for review:

XYZ 1 XYZ 1 continues to operate in accordance with an approved SAR. Satisfactory readiness to conduct operations was verified by an ORR two years ago. Operations since startup have been satisfactory.

The scope of the review should be limited to evaluating corrective actions for ORR findings and the adequacy of the self-assessment program specified in ISMS.

XYZ 2 XYZ 2 continues to operate with an approved BIO. Operations at XYZ 2 were independently evaluated within one year. Periodic EH assessments indicate weakness in the radiological controls program. Several recent occurrences raise questions about the adequacy of radiological controls.

The scope of the review should be limited to evaluating corrective actions for the EH assessment, verifying the adequacy of the self-assessment program, and a reviewing the radiological controls program within XYZ 2.

XYZ 3 XYZ 3 is in the final stage of construction. A SAR is being prepared. Readiness to commence operations will be verified by an ORR in the next fiscal year. Construction safety programs are in accordance with OSHA requirements and project management programs are in accordance with DOE Order 4700.1, as specified in the ISMS.

Verifying satisfactory implementation of Construction Safety and project management programs are within the scope of this review. The contractor's self assessment program should also be evaluated to determine whether it is consistent with the ISMS.

XYZ 4 All program work within XYZ 4 has been completed. The facility is scheduled for D&D in two fiscal years. Some spaces within XYZ 4 are in use as office and storage space. One vault is used to store low level mixed radiological waste in accordance with a site RCRA Part B permit. A recent sitewide RCRA compliance inspection verified the implementation of the RCRA permit was satisfactory. Due to the limited inventory of material, XYZ 4 is a radiological facility. Previous facility representative reports indicate that radiological controls may be deficient.

The scope of the review should be limited to the fire protection aspects of housekeeping as well as adequacy of radiological controls within the storage areas. The self assessment program established by the part time Facility Manager should also be evaluated.

XYZ 5 XYZ 5 is a low hazard, non-nuclear facility with limited chemical hazards and is being operated by a sub contractor. All work is controlled in accordance with OSHA requirements. Your verification efforts should include a review of the responses to a recent review by my OSHA compliance office and the implementation of ISMS by the sub contractor.

XYZ 6 The same as XYZ 2 except that radiological controls are satisfactory. Your review need not go beyond a general review of radiological controls.

XYZ 7 The same as XYZ 4 except that the RCRA compliance inspection identified several areas of concern. The scope of the verification for XYZ 7 should therefore, include a follow up of the issues identified during the RCRA inspection.

XYZ 8 XYZ 8 is a new facility that will be starting operations within one month. It is a Hazard Category 2 facility. An ORR will be conducted to authorize the start of operations.

Therefore, only those aspects of the ISMS for XYZ 8 that are outside of the scope of the ORR should be included. These include programmatic and budgetary control procedures that were identified in the ISMS.

The following special considerations apply to the Phase II ISMS verification for the infrastructure programs, which are described as follows:

Maintenance: The ISMS Description indicates that the site maintenance program is mature and will be continued across XYZ. A recent Headquarters' Maintenance evaluation determined the program was satisfactory. Therefore, the verification need not include a review of the maintenance program except for XYZ 4.

Emergency Preparedness: Same as Maintenance.

Radiological Controls: Recent staff assessments, as well as the contractor's self assessments and recent occurrence reports, raise questions as to the adequacy of the radiological controls program at XYZ. Consequently, the scope of this Phase II ISMS verification should include a thorough review of the radiological controls program at XYZ as well as the implementation of radiological controls procedures within each facility at XYZ.

DOE Implementation of ISMS: The scope of your review should include verifying that the ISMS responsibilities for my staff have been implemented. These responsibilities are defined in the Manual of Safety Management Functions, Requirements, and Authorities (FRA).

The review should be limited to the implementation aspects of the XYZ ISMS including:

- C preparation and approval of mission assignments and program guidance,
- C allocation of adequate resources to support the mission and safety responsibilities,
  
- C approval of hazards analysis and identified controls,
  
- C adequacy of guidance provided to staff regarding the safety management system, and
  
- C participation of staff in feedback and improvement mechanisms including verifying contractor performance and evaluating the performance of the ISMS.

**5.0 Phase II ISMS Verification Letter of Appointment:** You should prepare an ISMS verification review plan for my approval, select and train the team, and confirm readiness to conduct the verification. The following documents to assist you in the determination of the scope of your review are attached: the contractor's ISMS Description; the Report of the Phase I ISMS verification with recommendations; and direction to the contractor concerning implementation of the ISMS.

**6.0 Desired Deliverables from the review:** The Phase II ISMS verification team should document the review with a report written in accordance with the guidance of Appendix 7 to the ISMS verification Process Team Leader's Handbook. The report should include any recommended actions that the team considers necessary or desirable to ensure work is done safely.

**7.0 Prerequisites for Phase II ISMS Verification:** The ORR for XYZ 8 must be completed. In addition, the conditions discussed in my letter that approved the contractor's ISMS Description concerning implementation of new or modified programs must be met. The contractor will provide written confirmation when the conditions discussed in the ISMS approval letter have been met.

**8.0 Reviews that reduce the scope of the Phase II ISMS Verification:** The following reviews should be considered as indicated to reduce or modify the scope of the verification for XYZ:

1. At Headquarter's direction, a sitewide evaluation of the maintenance program was completed six months ago. Few deficiencies were noted and the program was determined to be in compliance with ISMS. The sitewide maintenance program should be excluded from the scope of your review except as noted above.
2. The areas that were reviewed during the ORRs at XYZ 1 and XYZ 8 should not be repeated. Satisfactory resolution of ORR findings should be evaluated. For XYZ 1, the contractor self assessment program, as well as the assessment program by the assigned Facility Representative should be evaluated.
3. The sitewide RCRA Compliance inspection determined that conditions were in accordance with the applicable CFR and the Permit. This area should not be included in the review beyond an assessment of the adequacy of the management of the issues identified by the review.
4. EH completed an assessment of XYZ 2 and XYZ 6 nine months ago. Areas that were evaluated by that review should not be repeated in the Phase II ISMS verification beyond a verification of the adequacy of the contractor's management of the issues, which were raised by the EH assessment.

**9.0 Estimated date for Commencement:** The Phase II ISMS verification should commence as soon as possible following the ORR of XYZ 8 and following the contractor's verification that the implementation of the ISMS has been completed.

**10.0 Point of contact:** The point of contact for the Phase II ISMS verification is J. S. Jones [*name of point of contact*]. Copies of all the documentation and reports discussed above are available and will provide additional information to assist you in determining the details of the specific scope of the verification at each facility within XYZ. Copies of recent occurrence reports applicable to each XYZ facility are also available through J. S. Jones. Review that documentation prior to or during the development of your Review Plan.

## **Appendix 5**

### ***Phase I, Phase II and Combined Phase I/II Verification Lessons Learned***

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## **LESSONS LEARNED**

These lessons learned were developed during several pilot ISMS verifications, which were conducted in 1997 and 1998. It should be recognized that some of these lessons may not be directly applicable to ISMS verifications at all locations. Most of the lessons are of a general nature however, and are expected to be of benefit across the complex as ISMS verifications are planned and conducted. Lessons Learned are normally included in all reports of ISMS verifications. These reports can be reviewed on the ISMS home page (<http://tis-nt.eh.doe.gov/ism>).

## PHASE I LESSONS LEARNED

**1. Team.** The team assembled for the Savannah River Site (SRS) Phase I verification consisted of DOE-HQ, DOE-SR, and contractor personnel who conducted the review over a four week period. Most of the team members had recent ORR experience at SRS and were familiar with site programs in the functional areas assigned. This team composition was adequate for a site-wide review of this magnitude. A team with lesser experience would not be able to conduct an effective evaluation in a similar time frame. Continuity of the team through the Phase I review process is essential.

The following team member experience is considered beneficial in conducting ISMS verifications: expertise in a functional area; site experience (especially familiarity and understanding of site programs); assessment experience (Assessment, Audits, ORRs); ISMS training (knowledge of ISMS Policy, Guide, and Verification Team Leader's Handbook). The verification team will lack breadth and the review will be of reduced value if the members lack a conceptual understanding of ISMS. The ISMS training builds on the basic, conceptual understanding of ISMS that each team member must bring to the team. The ISMS training will not ensure an adequate understanding unless the individual team members have already reviewed the policy, FRAM, the DEAR, and the ISMS Guide to gain an appreciation for the principles and functions of ISMS.

**2. Tailoring and Functional Areas Selected for Review.** Five functional areas were established for the review. These areas were Business, Budget, and Contracts (BBC), Hazards Identification and Standards Selection (HAZ), Management (MG), Operations and Implementation (OI), and DOE Savannah River Site Office (DOE-SR).

These functional areas were selected for a logical grouping of experts for the review. The Operations and Implementation functional area was further augmented by four Subject Matter Expert (SME) areas. Areas of SME expertise included maintenance and work control, industrial safety/industrial hygiene, training, and radiological controls. Additional SME areas considered but not addressed included quality assurance, criticality safety engineering, configuration management, and environmental compliance. These areas were not sampled. This tailored approach eliminated some potential review areas, however, these areas were not expected to show weaknesses in the establishment of ISMS at the site. The functional areas appeared to be a good selection and permitted a comprehensive sampling of the safety functions and guiding principles of ISMS. Subsequent reviews have revealed that functional areas of BBC, HAZ, MG, and DOE are generally sufficient for a Phase I verification. SME evaluations have generally been performed in Phase II.

**3. Criteria and Review Approach Document (CRAD) Development.** The CRADs developed for this verification were developed in a format similar to CRADs used for Operational Readiness Reviews (ORRs). These CRADs permitted a thorough review of the ISMS Description. It should be noted that the CRADs used in subsequent verifications must be individually tailored for the site, facility, or activity.

**4. Review Sequence.** A four week period was established to prepare the team, conduct the review, and prepare the report. An initial site visit by the Team Leader was conducted well before the start of the review to meet site personnel responsible for ISMS and discuss the conduct



of the review. Two weeks, outside of the normal review activities, were scheduled to review operations to assist in the preparation of a recommendation to the Approval Authority concerning Phase II activities at eleven identified priority facilities.

- a. Week One/Initial Site Orientation and Team Preparations. An initial three day site visit was used to train the team, to explain the verification methodology, and to develop the CRADs to be used for the review. The Team Leader presented a “straw man” as a starting point for the team. This pre-visit was also an opportunity for the team to meet the WSRC management personnel responsible for developing the Description. The ISMS Executive Course, developed at DOE Headquarters, was presented for the team training.
- b. Week Two/ISMS Briefings and Final Preparations. A second one week period at the site was scheduled to permit the WSRC and DOE-SR management to present an overview of the Plan to the team. WSRC presented three and one-half days of briefings on topics relating to the manner in which the five safety functions were addressed in the WSRC ISMS Description and provided two facility examples of the implementation strategy. DOE-SR personnel presented a half day session on topics germane to the DOE oversight of ISMS programs. An outline of the schedule used for these briefings is included at the end of the Phase I Lessons Learned. Following the four days of briefings, team members developed a list of personnel to be interviewed and records to be reviewed. This process was effective in preparing the team and the WSRC and DOE-SR personnel and in establishing the expectations for the review. The following lessons learned are pertinent to the team briefing and final preparations:

- C The briefings by the contractor provide the verification team members with information concerning the processes in place and should be made a part of every verification effort. These briefings should be comprehensive to convince the team that the ISMS is well understood and the efforts are *integrated*. (See "Content of the Presentation" below.)
- C Good communications between the team and the contractor and DOE are required so that the presentations provide information useful to the team.
- C Briefings provided for review should include information on the site's organization, points of contact, and pertinent programs and documents.
- C Guidance from the Team Leader should be provided sufficiently well in advance of the briefings to ensure the content and format of this material is correct. See paragraph 4.b. (1) below for suggested guidance regarding content of the briefings.
- C Allow sufficient time between the briefing, final preparations phase, and commencement of the review process to permit the contractor to make all the necessary preparations such as developing the interview schedule, assembling documents for the team, and briefing site personnel on expectations. The one week period allowed in this review was not sufficient. A two-week interval for this effort would provide enough time for the contractor to develop the schedule and submit it to the Team Leader for approval prior to the team arriving on site.

- C A presentation on the Management Systems, Programs, and processes used by the DOE Operations Office to execute its roles and responsibilities for the ISMS functions should be provided to the team.

**(1) Content of the Presentation.** The following guidance is provided for consideration in developing and preparing for the presentation portion of the review. This information has proven beneficial as the team enters into discussions with the contractor regarding the ISMS and helps the team and the contractor to "hone in" on the significant issues during the presentations and subsequent discussions of the program. It would be beneficial for the Team Leader to provide the following information, edited as necessary, to the contractor. The earlier in the verification process that it is provided, the greater the opportunity for productive discussions during the presentations.

- a) A description of the ISMS from the perspective of senior Contractor and DOE leadership. Address what benefits, if any, are being achieved? How "Line Management" executes their responsibility and what mechanisms Senior Management uses to keep the program on track. Some discussions of the organizational roles and responsibilities should be included.
- b) An overview of the ISMS, and identification of the processes that are used to execute the programs. This presentation should identify those guiding principles that are useful in the execution of those processes.
- c) Discussion of the process utilized for development of requirements such as Lists A and List B, SRIDs or Work Smart Standards (WSS) and the methods to manage, control, and verify the flowdown of those standards to actual work requirements. The discussion should include the seamless vertical integration of the requirements from the highest level to the most specific aspect of control of individual work items.
- d) Following the overview, a more detailed look at each functional area should be provided. Key principles identified for each function should be as described below.
  - 1. Define Scope.
    - C Discussion of the budget process.
    - C Definition of the work.
    - C Detailed presentation on process of how resources are identified and represented.
    - C How tradeoffs for resources are executed at site level.
    - C How shortages are distributed in respect to the safety resources
    - C Tools (mechanisms and processes) used in each area.
  - 2. Analyze hazards, identify controls and implement controls. Demonstrate what process is used to execute these functions within nuclear, public, and worker safety concerns. Demonstrate who is responsible and how the interface between Nuclear Safety, Worker Safety, Industrial Hygiene, Radiation Control Safety is executed. Demonstrate the process used for standards development and change to the required standards. Demonstrate how the hazard controls,

once identified, are put into place and how they are assessed to remain in place.

3. Perform work. Demonstrate how the management system determines work is ready to be performed and how this work is monitored for safety during the execution. What are the key control mechanisms that management uses to ensure only properly reviewed work is accomplished?
  4. Feedback. Describe how the feedback process works. Management self-assessments, independent assessments, performance indicators, evaluations of issues, and corrective action plans are processes that need to be described.
- e) DOE line managers should present the mechanisms and processes that they use to assist in the integration and oversight of the execution of the ISMS. The DOE input into the Define Scope of Work from the macro (site, budget) level to the micro (high risk maintenance on safety or process equipment) level and input and/or approval on the hazards and control of hazards may be better integrated into the contractor mechanism and process or it can be provided separately. DOE processes for input and approval requirements for readiness to perform work, processes for monitoring the work, and processes for feedback may be presented separately or in conjunction with the contractor functional areas. A discussion of the organization and the responsibilities as defined in the level II FRA should be included.
- f) Once these program processes have been described, the presentation should provide an example of activity in two or three existing organizational structures at the site that demonstrate the execution of those described processes. The example may be a work item that includes several work activities or may be a major work activity. The responsible organizations should describe how resources were obtained, how the hazards were analyzed and controls were installed, how readiness to conduct the activity was verified. It should also include how the work was monitored and feedback was obtained. Of particular interest, is the integration of the safety controls, for example, criticality safety, radiation controls, and the risk trade off. These examples should demonstrate how the sub-tier organization executes the processes and mechanisms that are described by programmatic presentations.
- g) Any principal, function, or mechanism that is thought to be useful, necessary, or laudable to the ISMS should be presented to the team.
- h) Future activities - What activities at the site will tell management about how well the integration of safety is being accomplished. What is the forcing function to cause integration improvement? What is the feedback and improvement mechanism for ISM?

**(2) General Considerations for the Presentations**

- a) Line Management involvement should be emphasized.
- b) Areas should be presented by personnel responsible for execution.
- c) The goal is to provide the mechanism, processes, and controls that management uses to provide integrated safety management. Safety statistics on their own are not useful to demonstrate those processes and controls. (Those statistics may be the result of no work or layering of requirements that prevent useful work.)
- d) Contractor presentations should allow for coordinated presentation of DOE information as well. For instance, DOE involvement in the budget process may be easily demonstrated in conjunction with the contractor rather than two separate presentations of the material related to that topic.
- e) The environment in which the presentation is conducted is important. Presentations will be given over a period of several days. Allow the team space to spread out notes, handouts, and references. You will provide a lot of paper, provide space for the team to use it.
- f) Make clear the difference between what is the enforced practice and new idea testing. If the new idea will solve a deficiency in the system, then demonstrate how the new idea (if it works) will be accepted and implemented into an enforceable process.
- g) Presentations should go to the level of detail that would convince the team that the specific aspect of the ISMS presented is being executed in such a fashion that further review is unnecessary.

c. Week Three/Review Process Activities. A one week period was established to conduct the review. The review consisted of interviews, document reviews, and observations (primarily attendance at site coordinating meetings when possible). The one week review period was sufficient. The team was dispatched to various parts of the site to conduct the interviews rather than having the interviewees report to a central location. This worked well; however, most of the team had previous site experience. A team with little site experience might be better served by establishing a central location for interviews. Approximately 90 interviews of corporate, division, and facility level managers were conducted. The following lessons learned as they affect the review process are provided:

A central Point of Contact (POC) was provided by the contractor for this review. The involvement and effectiveness of the POC were key factors in ensuring all coordinating functions were accomplished as requested and in a timely manner. Coordination of interviews was a major effort. The POC's efforts in scheduling and rescheduling interviews were important to ensure that the necessary interviews were completed.

- C Some interviews were scheduled with multiple team members attending. This sometimes intimidates the interviewee, but time constraints may make this unavoidable. When possible, this practice should be avoided. The Team Leader should insist that one team member be the interviewer. That person can collect data for other team members as required.
- C Should it be necessary for more than one team member to be involved in an interview, team members should agree on an approach to follow prior to starting the interview.
- C In the team preparation phase, team members should be briefed on proper interview technique. For ISMS verification efforts it is important to identify the purpose of the interview at the beginning of the interview session.
- C Do not plan interviews for the first day of the review. It is better to start the first day of the review with the team dedicated to reviewing records. This permitted the interview schedule to be reviewed by the team and adjusted if necessary. The team can be more focused after reviewing the records.
- C Consider assigning pagers to team members so that they may be notified promptly of interview schedule changes.
- C The contractor should provide advance information to their employees on the purpose and expectations of ISMS. This will assist them in preparing for the interview and review process.
- C The records of program implementation should be collected and available to the team in a central or designated location at the start of the review.

d. Facility Reviews in support of Providing a Phase II Recommendation. The Approval Authority (Field Office Manager at SRS) directed that the Phase I activities include a review of eleven priority facilities to provide a recommendation for an approach to be used to conduct Phase II verifications. During a two week period outside of the Phase I review schedule, personnel from the team conducted a two-day review of each of the eleven priority facilities. The review included a table top presentation of the status of ISMS programs given by facility management, a review of records (e.g., Operational Readiness Reviews, Facility Evaluation Board Reports, EH Oversight Reports, Occurrences and pertinent facility documentation), and a facility walkdown. The facility walkdown was conducted to provide an assessment of facility operating and material conditions. The results of these reviews were presented to the team during the review and formed the basis for recommended actions in Phase II. Where facilities had recently undergone ORRs and extensive oversight, and had demonstrated safe operations, recommendations were appropriately tailored and credit for these evaluations was given as meeting Phase II goals. This process is considered to be effective in providing a tailored approach to assessing actions required to meet ISMS criteria for Phase II.

**(4) Week Four/Report writing and Briefings.** A one week period was used to prepare the report and to brief contractor and DOE management on the results of the review. For a site-wide

verification, one week is considered adequate. This period is considered essential to ensure a quality report is prepared on site before the team is released.

**(5) Report.** A report similar in form to an ORR Report was drafted to document the team findings. No Form Deficiency Forms (Form 2) were used. Issues, where identified, were highlighted in the Assessment Form. Only Assessment Forms (Form 1) were used. This worked well. Categorizing problems in the form of “Issues,” “Concerns,” and “Observations” may be useful.

**(6) General Recommendations**

a. The establishment of a site-wide ISMS Description provides the optimum opportunity for an ISMS verification team to fully evaluate an ISMS baseline. Where it is possible to conduct ISMS reviews on a site-wide basis, this option should be exercised. Other approaches (facility or activity reviews) while not restricted by policy, may be more difficult to administer and evaluate and less efficient.

b. The ISMS verification is normally conducted in two phases. Phase I involves a review of the ISMS Description including enabling documents and processes. Phase II involves the acceptability of the ISMS implementation. A review of the documentation without consideration of the implementation process is not a totally worthwhile exercise. It is considered necessary that a review of any ISMS Description include the implementation of that ISMS at least at the corporate or division level.

c. When tasked to conduct a two-phase review, it is important to ensure that issues affecting implementation are appropriately relegated to Phase II. It is appropriate to provide implementation issues to the contractor informally; however, these issues should not be made a part of Phase I. At SRS, the ISMS was reported as implemented. During the Phase I Review, implementation issues were routinely developed and required some rethinking to categorize them correctly.

d. The contractor should develop and provide the ISMS verification team with key summarized information that assists in the evaluation of the core functions and guiding principles. Examples are:

- C calendars of ISMS related events and work evolutions
- C a key document locator reference
- C site maps and facility layouts
- C ISMS mechanism/process flow diagrams and descriptions
- C organization charts, phone/fax/e-mail lists
- C key roles and responsibilities at each level of the organization

C identification rosters of key ISMS personnel

e. The ISMS verification team members should be provided individual word processing computer disks with assessment form templates at the beginning of the review. An example of a completed assessment form should be provided to each ISMS verification team member to show the expected level of detail required by the Team Leader.

f. Scheduling of ISMS verification team activities should include an allowance of time for interaction between the team members to discuss common findings, coordinate lines of inquiry, and coordinate the flow of information.

## Example Outline of Phase I Briefings to an ISMS Verification Team

**Westinghouse Savannah River Site (WSRC) ISMS Verification Overview Agenda**

Duration	Topic	Presenter
<b>Day 1</b>		
1100-1115	Introduction	Manager, Savannah River Operations Office (DOE-SR)
1115-1215	WSRC/ISMS Overview Organization Roles and Responsibilities	Executive Vice President and General Manager WSRC
1300-1350	Planning and Budget/Annual Operating Plan (AOP)	Site Programs/Integration Managers (WSRC and DOE-SR)
1400-1430	Hazard Identification/Manual 11Q	Safety Management Programs Manager
1430-1500	Safety Analysis Overview	Engineering/Nuclear Safety Manager
1510-1600	Standard Selection-S/RID, WSS	Regulatory Compliance Manager
1600-1630	WSRC Procedures Management System	Standards Department Manager
1630-1700	Disciplined Operations/Manuals 2S, 1Y, 4B, and E7	Operations Division Deputy Manager
<b>Day 2</b>		
0815-0845	Worker Safety Processes	Occupational Safety and Health Manager
0845-0915	RADCON operations	RADCON Manager
0940-1045	Assessment processes	
	Self Assessment	Integrated Safety Management Manager
	Readiness Assessments/Independent Oversight	Head Facility Evaluation Board (FEB)
1100-1130	Management Evaluations	Safety Management Programs Manager



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1230-1300	Metrics/Performance Indicators	Industrial Safety Manager
1300-1400	Division Level Planning and Budgeting	Operations Division Deputy Manager (WSRC)/ Assistant Manager (DOE-SR)
<b>Day 3</b>		
0815-0915	Facility ISMS Discussion-RBOF (organization, mission, roles & responsibilities, hazards, standards, implementation-CONOPS, ENG, & Maint)	Facility Operations Manager
0930-1100	RBOF (contd)-facility assessment/oversight, facility management evaluation, vertical integration)	Facility Operations Manager
1200-1600	DOE-SR	DOE-SR
<b>Day 4</b>		
0815-0915	Facility ISMS Discussion-Tritium (organization, mission, roles & responsibilities, hazards, standards, implementation-CONOPS, ENG, & Maint)	Tritium Engineering Manager
0930-1015	Tritium (contd)--facility assessment/oversight, facility management evaluation, vertical integration)	Tritium Engineering Manager
1030-1200	Facility Panel Question and Answer	
1300-1600	Question/Answer Session-General Lists, Documents for review, interview schedule, operations to be witnessed at Corporate/Division level	

## PHASE II LESSONS LEARNED

The following lessons learned were developed during the conduct of a Phase II verification of the contractor's ISMS implementation at FB-Line at the Savannah River Site. These lessons learned apply specifically to this facility and may not be directly applicable to Phase II ISMS verifications at other locations.

**1. Team Size.** A 13-member team was assembled for this verification. The team consisted of DOE-HQ, DOE-SR, and independent contractor personnel who conducted the review over a four day period. Most of the team members had recent ORR experience at SRS or were familiar with site programs in the functional areas assigned. This team composition was adequate for a facility level review of this magnitude. As in the Phase I review, the following team member experience is considered beneficial in conducting ISMS verifications:

- C Expertise in a functional area
- C Site experience (especially familiarity and understanding of site programs)
- C Assessment experience (Assessment/Audits/ORRs)
- C ISMS training (Knowledge of ISMS Policy, Guide, and Verification Team Leader's Handbook)

**2. Functional Areas Selected for Review.** The purpose of the review was to evaluate the facility management's ability to identify and control work, to conform to the processes for control of operations and maintenance, and to learn from the effort. Five functional areas were established for the review. These areas were selected:

- C Define the Scope of the Work
- C Feedback and Continuous Improvement
- C Operations (including analyzing hazards, identify and establish controls, and perform work)
- C Maintenance (including analyzing hazards, identify and establish controls, and perform work)
- C DOE Savannah River Site Office

These functional areas were selected so that personnel having expertise in these areas could be assigned to a logical grouping of effort for the review. The Operations and Maintenance functional areas are the two areas used at this facility that provide a practical review approach to determine the effectiveness of the implementation of integrated safety management. Three SMEs were selected to provide expertise to the operations and maintenance functional areas of the review. Two SMEs provided expertise in the areas of radiological controls and industrial hygiene. A third SME provided expertise in the areas of criticality safety and the authorization safety basis. The functional areas appeared to be a good selection and permitted an adequate review of the safety functions of ISMS. Similar functional areas are recommended for Phase II ISMS verification reviews of a nuclear facility.

**3. Criteria and Review Approach Document (CRAD) Development.** The CRADs developed for Phase II verification were developed in a format similar to CRADs used during Operational Readiness Reviews (ORRs) and were written to address the five core safety functions. They

were prepared so that each team member was responsible for an individual CRAD. This worked well from the standpoint of report preparation, however, some of the team member's findings overlapped other functional areas. This required the use of cross references between some CRADs. When aligning the CRADs to address the five core safety functions, it is important to ensure that the CRADs also adequately address the seven principles of ISMS. A technique to accomplish this is to include specific criteria to address the principles within each CRAD. This technique is used in the CRAD template for Phase II ISMS verifications contained in Appendix 3 of this handbook. CRADs must be individually tailored for the facility or activity reviewed.

**4. Review Sequence.** An initial two day team visit to the facility was conducted a week and a half prior to the start of the review. The actual review occurred in four days, with three days following used to prepare the report and brief contractor and DOE management.

a. Initial Team Visit. The purpose of this two day visit was to perform required team indoctrination and training, to meet facility personnel responsible for the management of the facility, and to discuss the conduct of the review with the facility. The two day time frame allotted for this was marginal. Three days may be required to effectively plan for this review. During this visit, the proposed CRADs were provided to the facility for their review and agreements were reached on records to be reviewed, personnel to be interviewed, and activities to be observed. The thoroughness of these preparations, as in an ORR, determines the successful execution of the review. Should the team be composed of site personnel exclusively, this visit may be shortened; however, it is important to assemble the team as a group for meetings with the facility personnel. It is important to ensure the team members are sufficiently indoctrinated that the review is not an operational assessment, but rather is a review of the implementation of an ISMS program. As such, it is essential that team members understand that they are to review processes such as the implementation of control systems and the interactions among interface organizations at the facility. They should be cautioned not to pursue deficiencies as would be appropriate during an audit. As discussed below, it is suggested that the initial team visit precede the actual review by at least two weeks to permit the facility to adequately prepare for the review.

b. Verification. The first day of the review consisted of presentations from the facility concerning the process to implement ISMS. This briefing should be consistent with the approved ISMS Description. There was also a companion briefing provided by DOE managers with oversight responsibilities for the facility. Both the contractor and DOE were requested to format their briefings to address the individual core safety functions of ISMS. An outline of the schedule used for these briefings is included at the end of the Phase II Lessons Learned. Record reviews followed these briefings. Interviews with facility and DOE personnel were scheduled after the record reviews to permit the team to familiarize themselves with the material presented by the facility personnel. Observations were scheduled as time permitted and as occurring in accordance with the facility schedule.

(1). For this review it was specified that the interviews should not start for at least a day following the facility presentations. This is important to ensure that the facility has an opportunity to present their ISMS and to ensure that the verification team is focused on issues identified from the briefings. This schedule worked well.

(2). A useful technique to enable the team to understand the approach to ISMS, is to ask the facility managers to explain in their presentations what has changed in the administration of the facility to support ISMS implementation. Further discussions on the effectiveness of the results of the efforts of continuous feedback and the effectiveness of determining root causes for problems are also useful. Reference to any gap analysis which may have been developed during implementation is helpful.

(3). The facility should allow sufficient time to prepare for the review. It is important that the presentations at the beginning of the review be well prepared. FB-Line did this well. Their success can be attributed to conducting several briefing dry runs with site personnel knowledgeable of ISMS. FB-Line personnel still felt they had insufficient time to get ready. Site ISMS knowledgeable personnel should assist the facility in ensuring that key site ISMS issues are understood at the facility level prior to the Phase II verification. The facility suggested that two weeks be allowed to prepare for the visit following the initial team visit. This appears to be reasonable.

(4). The schedule followed for this review was intense with a lot to be accomplished in a short time. The facility had difficulty supporting the record reviews, interviews, and observations in conjunction with normal operations. Requirements for stationing Senior Supervisory Watches and demonstrating a newly established facility process caused difficulties in supporting the interview schedule. While this review is not an ORR, a review of ISMS implementation will involve the majority of facility operations, maintenance, and support personnel. It should be recognized by the team and the facility that the verification will significantly impact the normal routine.

**5. Report.** A report similar in form to an ORR Report was drafted to document the team findings. Form 1s (Assessment Forms ) were utilized to provide results from the record reviews, interviews, and observations. No Form 2s (Deficiency Forms) were used. Issues, where identified, were listed in the Form 1s. The Executive Summary selected the more important issues identified as "Noteworthy Practices" or "Opportunities for Improvement."

## **6. General Recommendations**

a. This Phase II verification did not develop issues that were significantly different from those identified in the Phase I review. This may be indicative of the mature safety management infrastructure that exists at SRS. In cases where the infrastructure is less mature or just being established, this may not always be the expected result. For verifications following the review of a site ISMS Description, where a mature infrastructure is in place, it may be possible to conduct the Phase II verification using established site/DOE Operations Office evaluations in conjunction with routinely scheduled evaluations. The Facility Evaluation Board (FEB) at SRS, which is a formally established and effective evaluation process, could conduct this review with local DOE oversight. It would be necessary for some external review of the local DOE office ISMS in conjunction with the facility review. This external review should only involve one or two persons to evaluate the local DOE functions.

b. The review phase for this verification was too short. Since a day was allotted for facility and DOE presentations, this only permitted three days for the record review, interviews, and

observations. It is recommended that a full week (5 days) be allotted for the review. Alternatively, facility and DOE presentations could be presented during the initial team visit. This would provide the team with the necessary information, allow them to fully understand the most logical approach to follow, and permit the review to proceed efficiently at the commencement of the verification.

c. It is necessary to understand the status of corrective actions from the Phase I review prior to commencing the Phase II review. The corrective action plan for the Phase I review was signed out the day the Phase II review started. Facility personnel had no opportunity to understand the site approaches to correcting ISMS implementation issues and were at a disadvantage in presenting their programs. The Team should consider the corrective action plan for Phase I as a prerequisite for commencement of the Phase II review.

d. The accomplishment of this pilot verification successfully proved the evaluation of a facility level ISMS.

Example Outline of Phase II Briefings to an ISMS Verification Team: FB Line Integrated Safety Management System Review

Duration	Topic	Presenter
<b>Day 1</b>		
0800-1000	FB Line Integrated Safety Management	FB Line Facility Manager
1030-1200	Example Maintenance Activity	
	Operations	Operations Manager
	Work Control	FBL Maintenance
	Operations Maintenance Coordination	Maintenance and Construction Support
	Maintenance	FBL Maintenance
	Operations	Operations Manager
1300-1700	Example Operations Activity	
	Project Development	F Area Projects
	Design and Authorization Basis Development	Process Systems Engineering
	Construction, Testing & Turnover	Maintenance and Construction Support
	Assessment and Operation	Operations
<b>Day 2</b>		
0800-1000	Department of Energy	DOE Facility Representative

## COMBINED PHASE I AND PHASE II ISMS VERIFICATIONS LESSONS LEARNED

These lessons learned were developed during the conduct of a site-wide verification of the contractor's ISMS Descriptions (ISMS Manual) at the Rocky Flats Environmental Technology Site during the period of January 12-23, 1998. This verification covered both Phase I (evaluation of the ISMS Description and manuals of practice) and Phase II (assessment of implementation in Buildings 371 and 664). Most of the lessons are of a general nature and are expected to be of benefit across the complex as ISMS verifications are planned and conducted.

The decision to conduct a combined review, such as the one discussed here, must be evaluated on a site specific basis. This decision should consider the degree of progress made by the contractor both in the preparation of an ISMS Description and in the implementation of this Description. Care must be taken to prevent one phase of the review from taking precedence over the other. The Team Leader must clearly define the scope of each phase from the outset. As the verification progresses, the Team Leader should ensure his/her team members are giving all elements of the review proper attention.

**1. Team Size and Composition.** The team assembled for this verification was headed by an approved Team Leader from RFFO and was comprised primarily of RFFO personnel. Mentors, consisting of personnel having experience during the Savannah River ISMS verifications, were assigned to assist the team with the review. The total team consisted of 34 members including the Team Leader, a deputy team leader, 6 mentors, 23 team members, and 3 administrative support personnel. A significant factor in determining the size of the team was the need to develop a cadre of RFFO staff capable of conducting subsequent ISMS reviews. A smaller team could accomplish the verification if they are experienced in ISMS processes and verification techniques and have previously served as a verification team member. As in the SRS experience, team member capability is considered beneficial in conducting ISMS verifications including:

- C Expertise in a functional area
- C Site experience (especially familiarity and understanding of site programs)
- C Assessment experience (Assessments, Audits, and/or ORRs)
- C Conceptual working knowledge of ISMS (Knowledge of ISMS Policy, ISMS Guide, and Verification Team Leader's Handbook)
- C Familiarity with the DOE Level I FRAM, DOE M411.1-1

When staffing an ISMS verification team from on site personnel, it is essential to ensure that personnel assigned are able to devote full time to the verification. It is also important that the individual selected have an ability to put personal agendas or issues aside in order to ensure an objective and balanced assessment.

**2. Functional Areas Selected for Review.** Five functional areas were established for the review were similar to the SRO effort. These areas were:

- Business, Budget, and Contracts
- Hazards Identification and Standards Selection
- Management

Operations and Implementation  
DOE Rocky Flats Field Office

The Operations and Implementation functional area sub-team was further augmented by six Subject Matter Experts (SMEs). Areas of SME expertise included maintenance, industrial hygiene, training, radiological controls, security, and criticality safety. Experiences in similar verifications demonstrate that these functional areas and SME assignments are optimum for a review of ISMS. SME selection should reflect the unique conditions at the individual site. The combination of Business, Budget, and Contracts (BBC) with Management (MG) should be considered in review preparation and planning as these areas are closely associated.

**3. Criteria and Review Approach Document (CRAD) Development.** The ISMS verification team developed the CRADs for this verification in a format similar to CRADs used during Operational Readiness Reviews (ORRs). The review approach provided flexibility for developing CRADs among the functional area sub-teams. Based on the unique nature of the Integrating Contract at Rocky Flats, the management functional area sub-team used separate CRADs for the Integrating Contractor and each of the first-tier subcontractors. Phase II management results for B371/374 and B664 were evaluated using the same CRADS for Phase I. The results were recorded separately. The Operations and Implementation functional area sub-team used a specific objective to document Phase II results separately. Other functional area sub-teams recorded Phase I and Phase II results together and separated them later during the report writing phase. It is recommended that in future reviews, one approach be used for the entire team which would eliminate the Phase I and Phase II distinction when the reviews are conducted concurrently. Conformity simplifies the development and the compilation of the results.

**4. Review Sequence.** Site preliminary meetings with the Team Leader were held well before the start of the review to meet site personnel responsible for ISMS and to discuss the conduct of the review. A four week review sequence was used for the ISMS verification at Rocky Flats and was similar to that used during the Savannah River Site ISMS verification. The sequence was as follows:

a. Week One/Initial Site Orientation and Team Preparations. A three-day site visit was used to train the team, to explain the verification methodology, and to develop the CRADs to be used for the review. This pre-visit was also an opportunity to assemble the team and for the team to meet the Kaiser-Hill (K-H) management personnel responsible for developing the ISMS. The ISMS Executive Course, recently developed at DOE Headquarters, was presented for the team training. The following lessons learned are pertinent to the initial site orientation and team preparations:

- C It was necessary to replace some team members after the first team visit. This is not optimum and consideration must be given to providing new team members with appropriate training and indoctrination.
- C It is essential to emphasize that an ISMS verification is not a programmatic review, but rather a review of established policy, manuals of practice, and processes at the site. This should be made a part of the training for the team and replacement team members should receive this indoctrination.



- C The verification will lack breadth and have reduced value if the team members lack a conceptual understanding of ISMS. The training will not ensure an adequate understanding unless the individual team members are familiar with the Policy, FRAM, the DEAR, and the ISMS Guide to gain a full appreciation for the principles and the functions of ISMS.
- C Discussions of the process used to complete forms and agreements on format should be provided to the team. Samples of completed assessment forms should be passed out to all team members and should be used to stimulate discussion.
- C Briefings should be provided which focus at the site level as well as at the division or individual subcontractor level. In addition, briefings should be provided which show ISMS at the individual facility or activity as appropriate.

b. Week Two/ISMS Briefings and Final Preparations. A second one week period at the site was scheduled three weeks following the first visit to permit the K-H and RFFO management to present an overview of the ISMS Description and ISMS processes used at the site to the team. K-H and the four first tier subcontractors presented three and one-half days of briefings on topics relating to the manner in which the five core functions and seven principles were addressed in the ISMS Description and site manuals. As in the Savannah River experience, this process was effective in preparing the team and the K-H and RFFO personnel in establishing the expectations for the review. An outline of the schedule used for these briefings is included at the end of the Combined Phase I and Phase II Lessons Learned. The following lessons learned are pertinent to the Team Briefing and Final Preparations:

- C The briefings by the contractor are necessary to provide the verification team members with information concerning the processes in place and should be made a part of every verification effort.
- C Good communications between the team and the contractor/DOE are required so that the presentations provide information useful to the team.
- C Briefings provided for review should include information on site organization, points of contact, and pertinent programs and documents.
- C Guidance from the Team Leader should be provided sufficiently well in advance of the briefings to ensure the content and format of this material is helpful in initiating the review. Guidance on the content of the briefings is provided in the Phase I lessons learned from the SRS reviews. These generic guidelines are applicable here as well.
- C Allow sufficient time between the briefing, final preparations phase, and commencement of the review process to permit the contractor to make all the necessary preparations such as developing the interview schedule, assembling documents for the team, and briefing site personnel on expectations. Because of the sequence occurring in the Christmas holiday period, five weeks was allowed

for this preparation. This was adequate and permitted the contractor sufficient time to make preparations for the presentations. A two week period for the contractor to prepare is considered sufficient.

- C A presentation on the processes used by RFFO was useful in permitting the team to understand the role of RFFO in the manner in which it executes roles and responsibilities for the ISMS functions and principles.
  - C The deliverable from the team members at the end of this briefing is a list of the documents to be reviewed, interviews to be conducted, and activities to be observed during the review phase.
- c. Week 3/Review Process Activities. A one week period was established to conduct the review. The review consisted of interviews, document reviews, and observations (primarily attendance at site coordinating meetings when possible). The team conducted interviews at both the central team location and various facility and administrative offices throughout the site. Because Rocky Flats is a relatively small site, this posed few coordinating problems. The one week review period was sufficient, but accomplishing the Phase I and Phase II activities for the selected buildings was challenging for the team. Points of Contact (POCs) were provided by the contractor for this review. POCs were assigned to each functional area sub-team. This was an effective technique to ensure good coordination for the team and to ensure that issues arising were passed to the contractor/DOE in an expeditious fashion. The following lessons learned are pertinent to the review process activities:
- C Some interviews started on the first day of the review. This is not optimum. Time should be allowed prior to the start of site personnel interviews for team members to complete a portion of the record review of the ISMS Description implementing documents. This allows the team members to tailor and focus lines of inquiry and individual interview questions. The following is an optimum recommended schedule:
    - Day 1- Read/find requested material
    - Day 2/3-Interviews
    - Day 4/5-Observe Evolution/meeting: Identify issues
    - Day 6-Coordination of comments/follow up on issues
  - C Some interviews were scheduled with multiple team members attending. This should be avoided. Should it be necessary for more than one team member to be involved in an interview, team members should agree on an approach to follow prior to starting the interview. To be most effective, coordination between members of the same team should also occur.
  - C In the team preparation phase, team members should be briefed on proper interview techniques. For ISMS verification efforts, it is important to identify the purpose of the interview at the beginning of the interview session.

- C The records of program implementation should be collected and available to the team in a central or designated location at the start of the review. The requests for documents for this review were based upon an understanding that there would be on-line access to the library of directives and manuals of practice. This did not happen. The team requires ready access to the policies and procedures that are pertinent to the operation of the site. At a site administered by an integrating contractor, this would include subcontractors as well as the prime contractor.
  - C Team meetings are particularly important during this phase.
  - C A daily wrap up meeting should be held. The purpose of the meeting is to identify issues and to ensure good coordination among sub-teams. Contractor representatives should attend to gain first hand the status of issue development. Feedback from the contractor should be encouraged.
- d. Week Four/Report Writing and Briefings. A one week period was used to prepare the report and to brief contractor and DOE management on the results of the review. This period is considered essential to ensure a quality report is prepared on site before the team is released. For a site-wide verification, one week is considered necessary. The following lessons learned are applicable to the report writing phase:
- C Clear and consistent expectations for the form and content of the Assessment Forms needs to be provided to the team at the start of the review. This is especially true for those team members who have not had experience in writing assessment forms such as used in an ISMS verification.
  - C Some suggested scale to grade potential issues should be established prior to the final report writing phase. Categorization of issues should be clearly defined for the team members.

**5. Report.** A report similar in form to an ORR Report was drafted to document the team findings. Assessment Forms (Form 1s) were utilized to provide results from the record reviews, interviews, and observations. For this report, no Deficiency Forms (Form 2s) were used. Issues, where identified, were identified as “Findings.” Noteworthy practices were also highlighted. Groupings of findings were binned as “Opportunities for Improvements.” If a Phase I and Phase II review are completed simultaneously, as in this case, the results should be compiled in a single report. Attempting to address the Phase I and Phase II discussions separately in the final report hampered the conduct of this review as the issues were deeply interrelated. If this approach is considered appropriate at a given site, a verification of the documentation which comprises the ISMS should be reviewed followed by an implementation verification at an appropriate number of facilities.

## 6. General Recommendations

- a. The establishment of a site-wide ISMS Description provides the optimum opportunity for an ISMS verification team to fully evaluate an ISMS baseline. Where it is possible to conduct ISMS reviews on a site-wide basis, this option should be exercised. Other

approaches (facility or activity reviews) while not restricted by policy, may be more difficult to administer and evaluate.

b. When tasked to conduct a two-phase review, it is important to ensure that issues affecting implementation are appropriately relegated to Phase II. It is appropriate to provide implementation issues to the contractor informally; however, these issues should not be made part of Phase I. At Rocky Flats, a Phase II verification at two facilities (B371 and B664) was simultaneously conducted. During the Phase I Review, implementation issues were routinely developed and required some rethinking to categorize them correctly. Some of the Phase I concerns affected the approach to verifying ISMS implementation at the two facilities. While these issues were not terribly significant in the Rocky Flats case, if there does appear to be significant issues in the Phase I verification, then the decision to simultaneously conduct the Phase II review should be reconsidered.

c. In a combined Phase I and II ISMS verification it is incumbent on the contractor to provide some assurance to the team that the ISMS process has been effectively established and implemented. One method to demonstrate this accomplishment is by conducting comprehensive ISMS independent self assessments at both the corporate and divisional levels. The contractor can then present the documented results of these self assessments to the ISMS verification team during the orientation discussions and later in written form during the review.

d. In combined Phase I and Phase II ISMS verifications, the ISMS verification team members should begin with detailed record reviews prior to proceeding to any interviews or evolution observations. This allows the ISMS verification team member to establish a baseline understanding for the structuring of interviews and evolution observation. For example the development of questions related to identified lines of inquiry, the identification of additional lines of inquiry, and the tailoring of questions to the individual being interviewed will be more substantive. The record review provides the basis for the Phase II evaluation. To proceed with other Phase II activities without first reviewing the records establishing the ISMS processes is counterproductive.

Sample Outline of Briefings of a Combined Phase I and Phase II Review to an ISMS  
Verification Team: Rocky Flats Environmental Technology Site  
and Buildings 371 and 664

Duration	Topic	Presenter
<b>Day 1</b>		
1000-1020	Introduction	Manager, Rocky Flats Field Office (RFFO)
1020-1040	President's View of ISMS	President and Chief Executive Officer, Kaiser-Hill (K-H)
1045-1100	President's View of ISMS	President Safe Sites of Colorado (SSOC)
1100-1120	President's View of ISMS	President Rocky Mountain Remediation Services (RMRS)
1120-1140	President's View of ISMS	President Dyncorp (DCI)
1140-1200	President's View of ISMS	President Wackenhut Services, Inc. (WSLLC)
1300-1400	Work Scope Definition	Vice President Planning & Integration (K-H)
		Manager, Life-Cycle Planning (K-H)
1400-1500	Planning/Budgeting Process Example for an Activity in Building 371	Building 371 Project Director (K-H)
	Application of Integrated Safety Management for SSOC	Executive Vice President (SSOC)
	Application of Integrated Safety Management in Building 371	Building 371 Facility Manager (SSOC)

## DOE-HDBK-3027-99

Duration	Topic	Presenter
<b>Day 2</b>		
0800-0815	Introduction to the ISMS Manual	Vice President, Nuclear Operations (K-H)
0815-1000	ISMS Manual	ISM Manager (K-H)
1015-1115	DOE-RFFO ISMS Integration	Assistant Manager for Performance Assessment (RFFO)
1115-1200	Councils and Committees	Vice President, Safety Systems and Engineering (K-H)
1300-1500	ISMS Integration Story	
1300-1400	ISMS Functional Approach to Draining Hazardous Liquid Waste Storage Tanks in Building 771	President, SSOC/Facility Manager, Building 771 (SSOC)
1400-1500	ISMS Functional Approach to Decontaminating and Decommissioning Building 779	Vice President Closure Projects (K-H)/Executive Vice President, Projects (SSOC)
<b>Day 3</b>		
0800-0930	Benelex Removal in Building 771	Deputy Closure Project Manager (SSOC)
	Pencil Tank Removal in Building 777	B776/777 Facility manager (SSOC)
0945-1115	Mound Restoration	D&D Manager, RMRS
	Enhanced Work Planning (EWP) projects in Building 444	Building 444 Facility Manager (RMRS)
	ISMS in the Steam Plant	DCI Deputy Utilities Manager
	Safety Analysis of Force on Force Security Exercise	General Manager WSLLC

Duration	Topic	Presenter
1300-1400	ISMS in Building 371	Building 371 Facility Manager (SSOC)
1400-1500	ISMS in Building 664	Building 664 Facility Manager (RMRS)
<b>Day 4</b>		
0800-0900	Future of ISMS	Chief Engineer K-H

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## **Appendix 6**

### ***Sample Team Member Qualification Form***

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## TEAM MEMBER QUALIFICATION

The designated ISMS verification Team Leader is responsible for assembling a team with the requisite technical experience to conduct the review. Individuals selected for the team should be safety and management professionals who have the appropriate experience, knowledge, and training. In addition, they must be familiar with the ISMS verification process and with the site for which the review is to be conducted. The team, taken together, must have the technical credentials to review all aspects of the ISMS as described in the Letter of Appointment to the Team Leader.

The attached form, a TEAM MEMBER QUALIFICATION SUMMARY, is one suggested method for the ISMS verification Team Leader to document the experience and training of the ISMS verification Team.

The listing of required reading and training is a guide. Items should be added or deleted by the Team Leader as appropriate for the specific review and as necessary for the qualification of team member.

**TEAM MEMBER QUALIFICATION SUMMARY**

Name:

Objectives Assigned:

Employer/Normal Work Assignment:

Summary of Technical Qualifications: (Bullet format, no narrative)

Summary of Assessment/Inspection Qualifications: (Bullet format, no narrative)

Summary of Facility Familiarization:

Required Reading	Initials
ISMS Description	_____
Approval Authority Guidance to Contractor	_____
ISMS Verification review plan	_____
ISMS Verification writer's guide	_____

Training	Date
ISMS training	_____
General Employee Training	_____
RADWORKER/ II Qualification	_____
Nuclear Criticality Safety Training	_____
Chemical Safety Training	_____
HAZWOPER Training	_____

**Team Leader Signature:** \_\_\_\_\_

## **Appendix 7**

### ***Writer's Guide for ISMS Verifications***

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## INTRODUCTION

The process of ISMS verifications will involve technical and management assessments at each specific site, facility, or activity. The verifications will be conducted by safety and management professionals, who are experienced, knowledgeable, and trained in the ISMS verification process. The results of the ISMS verification process are used by the Approval Authority as a means to determine the state and status of the ISMS for the given site, facility, or activity. The Approval Authority will normally require that a report be written to document the results of the verification process. It is essential that any report of the ISMS verification be written factually and accurately, and it should clearly describe ISMS strengths and weaknesses so that improvements, if required, can be identified and planned.

This writer's guide is intended to assist ISMS verification teams in documenting their activities and findings. ISMS verification team members should understand that the final outcome of their efforts will be their contribution to the ISMS report. The ISMS Team Leader should establish report requirements to the team members early in the review process. Team members should begin preparation of the ISMS verification assessment forms as soon as information is gathered. Team Leader preparation of the final report should begin as soon as the Team Leader determines that sufficient information has been developed to identify issues and concerns. As new information is developed, it should be entered into the report draft. If the process is to proceed in an optimum manner, by the time the schedule actually reflects "write the report," the report should be relatively mature and should only need some final pieces of information to complete it. This will permit sufficient time to ensure the report is effectively written and accurate.

## USE OF ISMS VERIFICATION REPORTS

The ISMS verification report is normally used as the basis by which the Approval Authority will determine whether the ISMS is satisfactory for the site, facility, or activity. The report should be sufficiently detailed to allow a knowledgeable reader to understand the verification process utilized. The report should contain a recommendation by the ISMS verification team as to whether the ISMS meets the requirements of the DOE policies, the DEAR, and the FRAM and the guidance of the Approval Authority for that site, facility, or activity. The report process should have a provision for team members to provide dissenting opinions or individual observations which may not reflect the views of the team members.

## ISMS VERIFICATION REPORT FORMAT

The following is a suggested format for Volume I of the ISMS Verification Report and a discussion of the material to be included in each section.

1. Title Page (Cover) - The cover and title page state the subject, and the date of the verification.

2. Signature Page - A signature page should be provided. The signatures on the final report should include all team members. Signatures by individual team members signify their agreement as to the report content and conclusion in the areas to which they were assigned. In the event all team member signatures cannot be obtained due to logistical considerations, the Team Leader should gain their concurrence via fax or telcon and sign for them.

3. Table of Contents - A Table of Contents should be provided to facilitate reviewing the report. The Table of Contents should identify, with page numbers, all sections and subsections of the report, illustrations, charts, and appendices.

4. Executive Summary - An executive summary is recommended. This summary is a one to three page synopsis of the review, findings, and conclusions of the verification. The executive summary should introduce information and direct the reader to those portions of the report that provide more detail concerning the information. Some suggested points for the executive summary include:

- C a brief synopsis of the verification, which provides information concerning the team's evaluation;
- C a conclusion that the ISMS Description is adequate and a recommendation that the Description should be approved or the actions required to correct discrepancies or inadequacies of the ISMS Description before it can be approved (Phase I), or an assessment of the state of implementing ISMS (Phase II);
- C a discussion of noteworthy practices and opportunities for improvement; and
- C the adequacy of the management system which provides direction for the ISMS.

5. Introduction - An introduction should provide information and background regarding the site, facility, or activity being reviewed. This should include any specific requirements the Approval Authority has communicated to the team for the review. Additionally, the phase or the segment within a phase should be discussed as required. Other information that may be provided include a brief discussion of:

- C the overall objectives of the verification,
- C the review process and methodologies used in the verification,
- C the team composition, and
- C definitions applicable to the review.



6. Purpose - A discussion of the purpose of the verification and the process of tailoring the review.
7. Background - A general discussion of the site, facility, or activity and the state of maturity of the safety management programs.
8. Scope - A discussion of the bounds of the verification if necessary.
9. Prerequisites - An assessment of meeting the Approval Authority's prerequisites.
10. ISMS Assessment Results - The Team Leader should establish the format in which the assessment results are presented. Past ISMS Verification Reports have presented results of the verification as they pertain to the Five Core Functions, Seven Guiding Principles, or designated functional areas. A consistent approach should be specified and maintained throughout the report.
  - a. For Phase I verifications, the report should discuss whether the ISMS Description and manuals of practice adequately address the DEAR, the FRAM, and the functions and principles of the DOE policies. It should document the conclusion reached on the adequacy of the contractor's ISMS Description to conform to the above guidelines as amplified or modified by the Approval Authority. The report should include a final recommendation to the Approval Authority regarding approval of the ISMS Description.
  - b. For Phase II verifications, the report should discuss the implementation of the documents, procedures, and/or manuals of practice used in the approved ISMS Description. The report should draw conclusions regarding the state of implementation of this system by the contractor and DOE. The report should include an overall conclusion regarding the adequacy of the implementation of the ISMS at the subject site, facility, or activity.
  - c. Any deviations from the Review Plan should be discussed, along with the reasons for the deviation(s), and what alternative actions were taken to compensate, if required. The detailed documentation to support the conclusions may be included in an appendix, which consists of the individual check lists with the accompanying appraisal and issue forms.
  - d. The specific forms to assist in identifying ISMS issues and concerns and to document the specific details of the verification are included at the end of this appendix. The ISMS Verification Assessment Form (Form 1) is used to document the methods and actions of the team members in conducting the verification, and documenting the findings and observations identified.
11. Conclusions and Recommendations - An overview of the conclusions and recommendations.

12. Lessons Learned - The report should identify lessons learned that may be applied to future ISMS reviews. The final report should address the problems and the successes encountered in the verification (what worked, what did not work). These activities should be documented to provide guidance for future ISMS reviews.

Volume II contains the ISMS Verification Assessment Forms and the following Appendices:

- C Review Plan,
- C Criteria and Review Approaches,
- C Letter of Appointment to the Team Leader, and
- C Team List and Biographical information of team members
- C A separate appendix provided only to DOE which summarizes the DOE interface for the ISMS

Distribution of the ISMS Verification Report should be as designated by the Approval Authority, but should include annotation to send a copy of the report to: Director, Safety Management Implementation Team.

## ISMS VERIFICATION REPORT ISSUE CRITERIA

This checklist may be useful to provide a logical process for screening potential ISMS issues.

1. Does this issue involve a safety system?
2. Does this issue involve processes, functions, or components identified in ISMS procedures?
3. Does this issue involve potential adverse environmental impact exceeding regulatory or site specific release limits?
4. Does this issue impact non-safety processes, functions, or components which could adversely impact safety related processes, functions, or components?
5. Is this issue non-compliant with a ISMS approved document?
6. Does this issue indicate a lack of adequate procedures or administrative systems?
7. Does this issue indicate operational or administrative non-compliance with ISMS procedures or policy?
8. Has this issue occurred with a frequency that indicates past corrective actions have been lacking or ineffective?
9. Does this issue require operator training not specified in existing facility training requirements?
10. Does this issue involve a previously unknown risk to worker or public safety and health or a previously unknown threat of environmental release?

If the response to any of the above is yes, the issue should be considered and discussed within the following ISMS Verification Assessment Form.

## ISMS VERIFICATION ASSESSMENT FORM

<b>FUNCTIONAL AREA:</b> <i>ISMS Area</i>	<b>OBJECTIVE:</b> <i>Numbers</i> <b>DATE:</b> <i>Date of Form Completion</i>
---	---

**OBJECTIVE:** *The Objective as stated within the ISMS functional area*

**Criteria** *The Criteria as stated within the Phase I/II ISMS verification CRAD template.*

**Approach** *The Approach as stated within the Phase I/II ISMS verification CRAD template.*

**Record Review:** (Review procedures, logs, documents, and other records of note to assess compliance with their requirements, operating procedures, and principles, etc.)

**Interviews:** (Interview operators, supervisors, and management personnel to assess their understanding of the ISMS and how it is applied to the operations and performance of their duties, etc.)

**Observations:** (Attend representative meetings and ISMS associated activities to determine if the site, facility, or activity is effectively addressing or implementing the requirements of the manuals of practice referenced in the ISMS Description. Attend shift turnovers, incident critiques, and pre-job briefings and observe operating activities, operator rounds, panel walk downs, procedure use, communications, and response to alarms, control of system status, and lockout/tagout activities, etc.)

**Record Review:**

- o *The listing of records and documents reviewed by title and alphanumeric designations.*

o

**Interviews Conducted:**

- o *The listing of each person interviewed for this objective, by TITLE AND NOT BY NAME.*

o

**Observations:**

- o *The listing of all evolutions and processes observed for this Objective.*
- o

**Discussion of Results:**

Specific results of the record reviews, interviews, and observations should be described in short concise sentences and paragraphs that refer to the stated criteria for the objective. The discussion should be in a logical sequence as stated in the order of the criteria.

**Conclusion:** *The Objective has either been met or has not been met.*

**Issue(s):** *A short and concise explanation of the issues (normally characterized as opportunities for improvement). This section should also include comments of praise (normally characterized as noteworthy practices).*

- o
- o

<b>Submitted:</b> _____ <i>Team Member</i>	<b>Approved:</b> _____ <i>Team Leader</i>
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**CONCLUDING MATERIAL**

**Review Activity:**

DOE

DP-2/24/45

EH-31/52/53

S-3.1

Field Offices

AL

RF

RL

SR

**Preparing Activity:**

DOE-DP-45

**Project Number:**

SAFT-0065

National Laboratories

LLNL