

# U.S. Department of Energy Orders Self-Study Program

**DOE O 450.2**

INTEGRATED SAFETY MANAGEMENT

**DOE P 450.4A**

INTEGRATED SAFETY MANAGEMENT POLICY



**DOE O 450.2**  
**INTEGRATED SAFETY MANAGEMENT**  
**AND**  
**DOE P 450.4A**  
**INTEGRATED SAFETY MANAGEMENT POLICY**  
**FAMILIAR LEVEL**

---

**OBJECTIVES**

Given the familiar level of this module and the resources listed below, you will be able to answer the following questions:

1. What is the purpose of DOE O 450.2?
2. What is the requirement of the integrated safety management Champions Council?
3. What is the purpose of a memoranda of understanding (MOU)?
4. When are officials permitted to delegate their assigned safety management functions?
5. How often must delegations of authority be reviewed?
6. What are five of the nine content requirements of a functions, responsibilities, and authorities (FRA) document?
7. What are three of the five responsibilities of DOE field element heads?
8. Who is qualified to be delegated authority of nuclear safety?
9. What are five of the nine process attributes for nuclear safety delegations?
10. Who is qualified to be delegated authority for FRA documents?
11. What are five of the nine content requirements of an FRA document?
12. How often is a comprehensive self-assessment performed on delegations of authority?
13. What are three of the five assessment criteria for individual and organizational capabilities?
14. What is the purpose of DOE P 450.4A?
15. What is DOE's safety policy?
16. How will DOE achieve its safety policy?
17. What are the two documents that are the basis for the DOE integrated safety management systems (ISMS)?
18. What are the three ways DOE will meet its ultimate responsibility for ensuring adequate protection for the workers, the public, and the environment?
19. What are the five phases of DOE life cycle of missions?
20. Who does DOE require to make decisions impacting safety?
21. Who is ultimately responsible and accountable for ensuring adequate protection of the workers, the public, and the environment from the operation of DOE facilities?

**Note: If you think that you can complete the practice at the end of this level without working through the instructional material and/or the examples, complete the practice now. The course manager will check your work. You will need to complete the practice in this level successfully before taking the criterion test.**

**RESOURCES**

- 10 CFR 830, subpart B, "Safety Basis Requirements." January 1, 2011.  
50 U.S.C. 2406, "Deputy Administrator for Naval Reactors." February 1, 1982.  
50 U.S.C. 2511, "Naval Nuclear Propulsion Program." February 1, 1982.  
DOE O 426.1, *Federal Technical Capability*. November 19, 2009.  
DOE O 450.2, *Integrated Safety Management*. April 25, 2011.  
DOE P 450.4A, *Integrated Safety Management Policy*. April 25, 2011.

## **INTRODUCTION**

The familiar level of this module is divided into two sections. In the first section, we will discuss the additions to DOE M 450.4-1, *Integrated Safety Management System Manual*, which has been replaced by DOE O 450.2, *Integrated Safety Management*. In the second section, we will discuss the additions to DOE P 450.4, *Integrated Safety Management Policy*. We have provided examples and a practice to help familiarize you with the material. The practice will also help prepare you for the criterion test.

Before continuing, you should obtain a copy of all the resources listed for this module. Copies of the Orders are available at <https://www.directives.doe.gov/> or through the course manager. Spend some time reviewing the documents so that you are familiar with the sections each contains. You will need to refer to these documents to complete the examples, practice, and criterion test.

## **SECTION 1, DOE O 450.2, INTEGRATED SAFETY MANAGEMENT**

### **Purpose**

To ensure that the Department of Energy (DOE), including the National Nuclear Security Administration (NNSA), systematically integrates safety into management and work practices at all levels, so that missions are accomplished efficiently while protecting the workers, the public, and the environment.

### **Requirements**

Requirements are as follows:

- DOE line managers must determine the adequacy for approval and frequency of updates to their DOE offices' and their contractors' ISMS description documents.
- DOE line managers must determine the need for, and frequency of, DOE ISM declarations (i.e., the status and effectiveness of ISMS implementation, including planning and execution of work) for facilities and activities based on hazards, risks, and contractor performance history and document their decisions concerning high consequence activities, such as high-hazard nuclear operations.
- DOE line managers responsible for program and site offices' overall ISMS implementation must designate a representative to serve on the ISM Champions Council.
- ISM Champions Council, functioning according to its charter, must support line management in developing and sustaining vital, mature ISMS throughout the Department so that work is reliably accomplished in a safe manner.
- To ensure adequate safety in contractor management of DOE facilities while meeting mission goals, DOE line management must ensure that appropriate requirements are incorporated into contracts, oversee compliance, assess contractor performance against established performance measures, analyze relevant trends, and obtain relevant operational information for use as feedback to improve safety.
- Line management and support organizations, with safety management responsibility, must develop, issue, and maintain, separately or as part of the ISMS description document, an organizational FRA document that

- describes the organization and management structure;
  - identifies the safety management functions applicable to the organization;
  - identifies the organization's functions and authorities that have been transferred to or from another organization or derived from a DOE safety directive or applicable governmental agency regulation;
  - identifies who within the organization has the responsibility and authority to perform those functions;
  - lists the delegated authorities;
  - explains the general process for control and revision of the FRA document and the process used for delegations of authority;
  - is readily accessible to all organizational employees;
  - is approved by the head of the DOE organization that the FRA applies to;
  - is reviewed annually and updated, if needed, to reflect changes to the delegations of authority and changes in responsibilities and authorizations as specified in DOE safety directives, applicable governmental agency regulations, and secretarial memoranda.
- FRA documents for program offices that direct operations at locations where more than one DOE program office have work conducted must contain applicable MOU that define the allocations of safety management functions and responsibilities among the program offices.
  - Following the process described in DOE O 450.2, appendix A, each department's line management organization must develop, issue, and maintain a documented process for delegation of authorities to perform safety management functions consistent with the hazards and complexity of the work. DOE's safety management responsibilities for ensuring adequate protection and safe operations must be met by DOE line management and cannot be delegated to contractors.

## **Responsibilities**

Heads of DOE field elements:

- Develop and maintain an ISMS description document and an organizational FRA for their field element separately or as part of the same document. For NNSA sites, approve and submit the ISMS description to the secretarial officer.
- Monitor the status of ISMS for their contractors' facilities and activities and provide feedback to their contractors to support continuous improvement.
- Support the secretarial office (SO) in determining the need for, and frequency of, field element and field element contractors' ISM declarations.
- Implement the field element management systems to ensure DOE safety requirements and expectations are achieved.
- Establish field element level MOUs, as appropriate, that define implementing methodologies for the procedures agreed-upon by the secretarial officers for governing operations at a location where multiple program offices conduct work. Incorporate the MOUs into organizational FRA documents, as appropriate.

Chief Health, Safety and Security (HSS) Officer:

- Serves as the senior manager of the office of primary interest for DOE safety directives in support of line management.
- Develops and maintains a guidance document for implementation of ISMS by DOE line management and DOE contractors.
- Defines the delegation of authorities and specifies the responsibilities that are assigned to specific HSS offices in an FRA document.
- Maintains an FRA website and an FRA database in support of departmental elements with safety management responsibility.

ISM Champion Council:

- Assists DOE line management in developing, implementing, and maintaining effective ISMS.
- Serves as the primary forum for assisting DOE line managers in the development of Department-wide strategies for improving safety culture.
- Informs the Secretary and Deputy Secretary on the status of overall ISM implementation within the Department, as necessary.

## **DELEGATIONS OF AUTHORITY TO PERFORM SAFETY MANAGEMENT FUNCTIONS**

### **General Requirements**

When not prohibited by law or by the Secretary, DOE officials may delegate authority to perform their assigned safety management functions.

- Delegations of authority for safety functions, other than those related to nuclear facilities described in DOE O 450.2, appendix A, may be made to either a position or a person.
- Delegating officials remain fully accountable for the outcome of any actions taken that are associated with the delegated function(s) during the time that the delegation of authority is in effect.
- Delegating officials create and maintain documentation of such delegations that include descriptions of the circumstances under which the delegated authorities take effect, any limitations to the authorities delegated, and the time period that the delegations are valid.
- A copy of the delegation of authority must be provided to the delegate.
- Unless otherwise stated, delegations of authority must remain in effect until they are modified, rescinded, or they expire.
- Delegating officials may modify or rescind in writing the delegation at any time.
- A copy of the rescission or modification must be provided to the delegate who previously had the delegated authority so that the delegate is aware of the rescission and can document the revised delegation in the appropriate FRA document.
- Delegation of program office authority to individual in field element offices must not preclude the program offices from issuing requirements, expectations, and guidance affecting that authority or from participating in associated interactions with the operating or management contractor.
- Delegations of authority must be reviewed periodically (at least every two years).

- If the authority to perform a function listed in a DOE office's FRA document is delegated to another office, the office receiving the delegation must be allowed to review and comment on that aspect of the associated FRA document and have its comments satisfactorily resolved. Both organizations must update their FRA documents to reflect the delegation.

### **Nuclear Facility Safety Delegation Requirements**

Delegation of nuclear safety authorities and self-assessment of this delegation process must comply with the process criteria and attributes specified in DOE O 450.2, appendix A.

Process criteria:

- Delegations must only be made to individuals who possess the necessary qualifications, experience, and expertise.
  - Approval of documented safety analyses, technical safety requirements, and unreviewed safety question procedures required according to 10 CFR 830, subpart B, "Safety Basis Requirements," must not be further delegated below the most senior-level program officers or deputy at a field element office unless concurrence is obtained from the applicable central technical authority (CTA).
  - Minimum expectations in terms of individual requirements for the most senior-level program officer at a field element office and his/her deputy must include 1) senior technical safety manager qualifications consistent with DOE O 426.1, *Federal Technical Capability*, and 2) successful completion of the one-week *Nuclear Executive Leadership Training* course.
  - The senior-level program officers at headquarters that are expected to fulfill the responsibilities listed in DOE O 450.2, appendix A, paragraph 2.(1)(a) are expected to have the same qualifications as listed in DOE O 450.2, appendix A, paragraph 2.(1)(b).
- Delegations must only be made where the candidate's organization possesses, or has access to, sufficient staff with the necessary qualifications, experience, and expertise to support the candidate for the authorities being delegated.
- Delegation must only be made where the candidate's organization has the proper framework of processes and procedures, as well as adequate resources and funding, to implement the delegated authorities.
- In those rare cases where delegation must be made prior to the candidate fully satisfying the established criteria, compensatory measures must be established.
- There are field elements supporting more than one program office at a single site; therefore, to be consistent with line management responsibility for safety, the assistant managers for environmental management or equivalent position at field elements may be delegated safety authorities. These delegations must be made with the approval of the lead program field element manager.

Process attributes for nuclear safety delegations:

- Delegating officials must establish a documented process or procedure to ensure that delegations are made carefully and accurately, consistent with the process criteria and attributes defined in DOE O 450.2, appendix A.
- Delegating officials must establish their minimum expectations in terms of individual and organizational capabilities and capabilities for the various delegations.
- Delegating officials must document their review of these criteria for every delegation made.
- Delegations must only be made to individuals, not to positions. The delegations must clearly identify the extent to which further delegations are allowed, consistent with this criterion.
- Delegation processes should consider the judgment of at least two senior managers.
- Delegation processes must address delegations of authority to subordinate headquarters personnel.
- Compensatory measures related to this process must receive concurrence from the applicable CTA prior to delegation of authority.
- Periodic reviews must be documented with the same criteria and rigor as the original delegations. Using the results of the delegation review, the reviewing officials must recommend to the applicable delegating officials whether to confirm, revise, or rescind the delegations or to institute compensatory measures or corrective actions as needed.
- The CTA support staff must annually review the delegation process to evaluate whether it is adequate and functioning properly and to identify any concerns to the CTA, who will notify the under secretary and the SO and recommend action as appropriate.

An under secretary or SO with safety responsibilities related to nuclear facilities must periodically review (at intervals no greater than two years) assigned safety responsibilities and delegated safety authorities and verify that the necessary capability and capacity to perform the responsibilities and authorities still exist. Safety responsibilities are documented in the FRA documents developed and approved by the under secretaries and SOs. Unless otherwise prohibited, the authority to take the necessary actions to fulfill the safety functions documented in any under secretary's and SO's FRA documents may be delegated to either subordinate field or headquarters personnel.

Self-assessments:

- SOs must establish a documented process or procedure to ensure that self-assessments are conducted consistent with the criteria defined in DOE O 450.2, appendix A.
- A documented comprehensive self-assessment must be performed periodically (at intervals no greater than two years) based on the criteria presented in DOE O 450.2, appendix A.
- If the necessary capability or capacity to carry out assigned safety responsibilities or delegated safety authorities is found lacking, compensatory measures, corrective actions, or rescissions must be approved by the under secretary or SO and instituted as necessary.
- Self-assessments must be performed by qualified, experienced personnel.



- The CTA support staff must independently review the self-assessments for associated offices and identify any concerns to the CTA, who will notify the under secretary and SO and recommend actions as appropriate.

The following criteria must be used in assessing individual and organizational capabilities or capacities to execute assigned safety responsibilities or delegated safety authorities:

- Individuals possess the necessary qualifications, experience, and expertise to carry out their responsibilities.
- Organizations have the proper framework of processes and procedures to implement the assigned responsibilities.
- Organizations have adequate resources, including sufficient staff and funding to carry out the assigned responsibilities.
- All assigned safety responsibilities or delegated safety authorities have been identified.
- Each assigned safety responsibility or delegated safety authority has been reviewed and documented.

**Note: You do not have to do example 1 on the following page, but it is a good time to check your skill and knowledge of the information covered. You may do example 1 or go to section 2.**

**EXAMPLE 1**

Using the familiar level of this module and the resources, answer the following questions.

1. What is the purpose of DOE O 450.2?
2. What is the requirement of the integrated safety management Champions Council?
3. What is the purpose of a memoranda of understanding (MOU)?

4. When are officials permitted to delegate their assigned safety management functions?

5. How often must delegations of authority be reviewed?

**Note: When you are finished, compare your answers to those contained in the example 1 self-check. When you are satisfied with your answers, go to section 2.**

**EXAMPLE 1 SELF-CHECK**

1. What is the purpose of DOE O 450.2?  
To ensure that DOE, including NNSA, systematically integrates safety into management and work practices at all levels, so that missions are accomplished efficiently while protecting the workers, the public, and the environment.
2. What is the requirement of the integrated safety management Champions Council?  
The integrated safety management (ISM) Champions Council must support line management in developing and sustaining vital, mature ISMS throughout the Department so that work is reliably accomplished in a safe manner.
3. What is the purpose of a memoranda of understanding (MOU)?  
An MOU defines the allocation of safety management functions and responsibilities among the program offices.
4. When are officials permitted to delegate their assigned safety management functions?  
When not prohibited by law or by the Secretary, DOE officials may delegate authority to perform their assigned safety management functions.
5. How often must delegations of authority be reviewed?  
Delegations of authority must be reviewed periodically (at least every two years).

## **SECTION 2, DOE P 450.4A, INTEGRATED SAFETY MANAGEMENT POLICY**

### **Purpose**

To establish the DOE's expectation for safety, including ISM that will enable the Department's mission goals to be accomplished efficiently while ensuring safe operations at all departmental facilities and activities.

### **Policy**

It is the Department's policy that work be conducted safely and efficiently and in a manner that ensures protection of workers, the public, and the environment. To achieve this policy, effective safety requirements and goals are established; applicable national and international consensus standards are adopted; and where necessary to address unique conditions, additional standards are developed and effectively implemented. Implementing ISM requirements for Federal organizations is established through directives, and for contractor organizations through contract clauses.

The Department's ultimate safety goal is zero accidents, work-related injuries and illnesses, regulatory violations, and reportable environmental releases. The Department expects that for all activities and phases in the life cycle of missions (design, construction, research and development, operations, and decommissioning and decontamination), appropriate mechanisms are in place to ensure that exposures to workers, the public, and the environment to radiological and nonradiological hazards are maintained below regulatory limits. DOE expects that deliberate efforts are taken to keep exposures to radiation as low as reasonably achievable.

The Department will implement ISMS to systematically integrate safety into management and work practices at all levels in the planning and execution of work. All organizations will develop, maintain, and implement ISMS for their operations and work practices, based upon the ISM guiding principles and core functions, as outlined in DOE P 450.4A, pages 2 and 3. To improve effectiveness and efficiency, organizations are expected to tailor their safety management system to the hazards and risks associated with the work activities supporting the mission including using established mechanisms to tailor requirements. Decisions impacting safety are made by technically qualified managers with knowledge of the operations and after consideration of hazards, risks, and performance history. To complement these systems and mechanisms, the Department expects all organizations to embrace a strong safety culture where safe performance of work and involvement of workers in all aspects of work performance are core values that are deeply, strongly, and consistently held by managers and workers. The Department encourages a questioning attitude by all employees and a work environment that fosters such attitude.

The ultimate responsibility and accountability for ensuring adequate protection of the workers, the public, and the environment from the operation of DOE facilities rests with DOE line management. The Department will meet this responsibility by

- establishing functions and clear lines of responsibilities, authorities, and appropriate accountabilities;
- measuring safety management performance, with special emphasis on work related to high consequence activities by evaluating incident reports; using environment, safety, and health performance measures; and assessing performance;
- holding itself and its contractors accountable at all organizational levels for safety performance through codified safety regulations, contract clauses, DOE directives, and the use of contractual and regulatory enforcement tools.

**Note: You do not have to do example 2 on the following page, but it is a good time to check your skill and knowledge of the information covered. You may do the example 2 or go directly to the practice.**







## **EXAMPLE 2 SELF-CHECK**

1. What is the purpose of DOE P 450.4A?  
To establish the DOE's expectation for safety, including integrated safety management that will enable the Department's mission goals to be accomplished efficiently while ensuring safe operations at all departmental facilities and activities.
2. What is DOE's safety policy?  
It is DOE's policy that work be conducted safely and efficiently and in a manner that ensures protection of workers, the public, and the environment.
3. How will DOE achieve its safety policy?  
To achieve this policy, effective safety requirements and goals are established; applicable national and international consensus standards are adopted; and where necessary to address unique conditions, additional standards are developed and effectively implemented.
4. What are the two documents that are the basis for the DOE integrated safety management system?  
All organizations will develop, maintain, and implement integrated safety management systems based upon the integrated safety management guiding principles and core functions.
5. What are the three ways DOE will meet its ultimate responsibility for ensuring adequate protection for the workers, the public, and the environment?  
The Department will meet its ultimate responsibility by
  - establishing functions and clear lines of responsibilities, authorities, and appropriate accountabilities;
  - measuring safety management performance, with special emphasis on work related to high performance measures; and assessing performance;
  - holding itself and its contractors accountable at all organizational levels for safety performance through codified safety regulations, contract clauses, DOE directives, and the use of contractual and regulatory enforcement tools.





