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

DOE O 151.1C

COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM

NATIONAL NUCLEAR SECURITY ADMINISTRATION
SERVICE CENTER

Change No: 3
DOE O 151.1C
Level: Familiar
Date: 12/1/08

DOE O 151.1C
COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM
FAMILIAR LEVEL

OBJECTIVES

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

1. List the objectives of DOE O 151.1C, Comprehensive Emergency Management System (EMS);
2. Describe the responsibilities assigned to the following positions or groups for implementation and management of the EMS:
   - Cognizant/field element managers
   - Site/facility managers
3. State the purpose of a hazard survey;
4. List three phases of the planning process that should be addressed in an operational emergency base program;
5. Explain the emergency event classification system;
6. Define the term "operational emergency";
7. Describe the three classifications of emergency events;
8. State the notificaton requirements for reporting emergency events;
9. Discuss the four requirements related to consequence assessments as described in DOE O 151.1C; and
10. Describe the foundation stones of DOE's emergency management.

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.

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RESOURCES

DOE O 151.1C, Comprehensive Emergency Management System, 11/2/05.

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DOE O 151.1C
Level: Familiar
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INTRODUCTION

The familiar level of this module is designed to summarize the basic information in DOE O 151.1C, *Comprehensive Emergency Management System.* This module is divided into two sections. in the first section, we will discuss the objectives and responsibilities of DOE O 151.1C, *Comprehensive Emergency Management System*. In the second section, we will discuss the requirements included in chapters III through XI in the Order. The information provided will meet the relevant requirements in the following DOE Functional Area Qualification Standards:

- DOE-STD-1177-2004, Emergency Management
- DOE-STD-1151-2002, Facility Representative
- DOE-STD-1137-2007, Fire Protection Engineering
- DOE-STD-1138-2007, Industrial Hygiene
- DOE-STD-1150-2002, Quality Assurance
- DOE-STD-1174-2003, Radiation Protection
- DOE-STD-1171-2003, Safeguards and Security
- DOE-STD-1175-2006, Senior Technical Safety Manager
- DOE-STD-1179-2004, Technical Trainer
- DOE-STD-1155-2002, Transportation and Traffic Management

Completion of this module also meets certain requirements associated with the DOE Facility Representative (FR) Program and the DOE Intern Program. The information contained in this module addresses specific requirements and as such does not include the entire text of the source document. Before continuing, you should obtain a copy of the Order and its accompanying manuals. Copies of the DOE Directives are available at http://www.directives.doe.gov/ or through the course manager.

Change No: 3
DOE O 151.1C
Level: Familiar
Date: 12/1/08

SECTION 1, OBJECTIVES AND RESPONSIBILITIES

OBJECTIVES

- To establish policy and to assign and describe roles and responsibilities for the DOE EMS. The EMS provides the framework for development, coordination, control, and direction of all emergency planning, preparedness, readiness assurance, response, and recovery actions. The EMS applies to DOE and to the National Nuclear Security Administration (NNSA).
- To establish requirements for comprehensive planning, preparedness, response, and recovery activities of emergency management programs for DOE/NNSA or for organizations requiring DOE assistance.
- To describe an approach to effectively integrate planning, preparedness, response, and recovery activities for a comprehensive, all-emergency management concept.
- To integrate public information and emergency planning to provide accurate, candid, and timely information to site workers and the public during all emergencies.
- To promote more efficient use of resources through greater flexibility in addressing emergency management needs consistent with the changing missions of the Department and its facilities.
- To ensure that the DOE EMS is ready to respond promptly, efficiently, and effectively to any emergency involving DOE/NNSA facilities, activities, or operations, or requiring DOE assistance.
- To integrate various requirements promulgated by other agencies into the Department's EMS.
- To eliminate duplication of emergency management effort within the Department.

RESPONSIBILITIES

In this section, we will discuss the major responsibilities associated with DOE O 151.1C. A complete list of responsibilities is available in chapter I of the Order.

Cognizant/Field Element Managers

- Implement emergency management policy and requirements and maintain programs and systems consistent with policy and requirements..
- Establish and maintain an effective, integrated emergency management program.
- In coordination with the Director, Office of Emergency Operations, and the Program Secretarial Officers, support a readiness assurance program, consisting of evaluations, improvements, and ERAPs. Ensure appropriate measures of the effectiveness of contractor site/facility emergency management programs are incorporated in contractual arrangements.
- Coordinate with the Program Secretarial Officer(s) to ensure resources are available to implement DOE O 151.1C for facilities and activities under their cognizance.
- Ensure development of appropriate emergency plan implementing procedures for timely and accurate emergency classification, notification, and reporting of emergency events for facilities under their cognizance. Establish preauthorization criteria when possible.
- Ensure emergency public information planning is integrated with the development and maintenance of emergency plans.
- Ensure effective communication systems and protocols are coordinated and maintained with the Headquarters Operations Center regarding emergencies involving or affecting facilities or materials under DOE/NNSA jurisdiction or requiring DOE/NNSA assistance.
- Review and approve emergency readiness assurance plans (ERAPs) that cover facilities under their supervision; prepare the cognizant field element annual ERAP; submit it to the Program Secretarial Officer and the Director, Office of Emergency Operations, for inclusion in the annual report on the status of the Emergency Management System.
- Participate in the development and implementation of mutual assistance agreements with state, tribal, and local authorities.
- Ensure that Emergency Planning Hazards Assessments (EPHAs) and hazards surveys for emergency planning purposes are adequately performed and documented. Ensure EPHAs and hazards surveys are updated every three years, and prior to significant changes to the site/facility or to hazardous material inventories. Review and approve EPHAs and hazards surveys and forward the

approved EPHAs and/or hazards surveys to the Program Secretarial Officer(s) and the Director, Office of Emergency Operations.

- Ensure cognizant field element personnel and contractors participate in a continuing emergency preparedness program of training, drills, and exercises.
- Conduct assessments of facility emergency management programs at least once every three years and review contractor self-assessment programs annually to ensure compliance with DOE directives and policy; provide the results/conclusions to the Program Secretarial Officer(s) and the Director, Office of Emergency Operations.
- During an emergency, conduct appropriate and necessary emergency actions.
- Implement corrective actions lessons learned from actual emergency responses and based on findings from evaluations, assessments, and appraisals.
- Establish and maintain an Emergency Operations Center (EOC) to respond to emergency events if not collocated with the contractor's command center. To maintain continuous operations, an alternate facility must be available to replace the EOC.
- Ensure that emergency plans and procedures are prepared, reviewed annually, and updated, as necessary, for all facilities under their purview and are integrated within the overall cognizant field element emergency preparedness program.
- Assign senior representatives to the Emergency Management Advisory Committee.
- Comply with the requirements of the DOE 5530-series Orders or their replacements, which establish requirements for the radiological emergency response assets programs.
- Integrate applicable policies and requirements, including those promulgated by other Federal agencies (e.g., stockpiling stable iodine for possible distribution as a radiological protective prophylaxis) and interagency emergency plans into appropriate DOE/NNSA emergency plans.
- Notify contracting officers of affected contracts to incorporate the CRD of this Order into those contracts.
- Effectively integrate the activities of a leased facility and Nuclear Regulatory Commission licensed facilities into the DOE/NNSA sitewide emergency management program, and ensure that lease arrangements include: a description of how each of the lessee's emergency management program elements is integrated

into the sitewide program and a requirement that tenant hazardous material inventories are reported to the site emergency management organization annually or when inventories change.

- Approve site exercise packages prior to the exercise.

Site/Facility Manager

- Develop, implement, maintain, and update, as necessary, an emergency management program, commensurate with the facility-specific hazards and consistent with Departmental directives and standards of performance.
- Prepare and maintain emergency plans, procedures, and technical resource capabilities that address emergency classification, notification, reporting, response actions, training and drills, exercises, emergency public information, outreach and coordination, accident investigation, and applicable Federal statutes, state and local laws, DOE Orders, and implementing regulations and guidance.
- Prepare and submit the following to the cognizant field element manager for approval: hazards surveys and EPHAs, documentation to establish emergency planning zones, emergency plans, and ERAPs.
- Direct and/or support appropriate emergency response actions within the area under their control and at the scene of the emergency.
- Participate in the development of mutual assistance agreements with state, tribal, and local authorities.
- Ensure the effectiveness of a continuing emergency preparedness program.
- Establish and maintain an internal assessment program to ensure the readiness of emergency response capabilities, including developing and conducting a selfassessment program, as well as establishing systems and measures to monitor and evaluate line performance.

Note: You do not have to do example 1 on the following pages, 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, complete the following exercises.

1. State in your words what DOE hopes to achieve by implementing DOE O 151.1C.

2. List the responsibilities of the Emergency Management Advisory Committee.

3. What position is responsible to establish and maintain an effective, integrated emergency management program?

4. What position is responsible to ensure the effectiveness of a continuing emergency preparedness program.

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. State in your words what DOE/NNSA hopes to achieve by implementing DOE O 151.1C.
    - To establish policy and to assign and describe roles and responsibilities for the DOE EMS. The EMS provides the framework for development, coordination, control, and direction of all emergency planning, preparedness, readiness assurance, response, and recovery actions. The EMS applies to DOE and to NNSA.
    - To establish requirements for comprehensive planning, preparedness, response, and recovery activities of emergency management programs for DOE/NNSA or for organizations requiring DOE assistance.
    - To describe an approach to effectively integrate planning, preparedness, response, and recovery activities for a comprehensive, all-emergency management concept.
    - To integrate public information and emergency planning to provide accurate, candid, and timely information to site workers and the public during all emergencies.
    - To promote more efficient use of resources through greater flexibility in addressing emergency management needs consistent with the changing missions of the Department and its facilities.
    - To ensure that the DOE EMS is ready to respond promptly, efficiently, and effectively to any emergency involving DOE or NNSA facilities, activities, or operations, or requiring DOE assistance.
    - To integrate various requirements promulgated by other agencies into the Department's EMS.
    - To eliminate duplication of emergency management effort within the Department.

2. List the responsibilities of the Emergency Management Advisory Committee. Provide support to the Director, Office of Emergency Operations, in identifying and resolving department-wide emergency management issues.

3. What position is responsible to establish and maintain an effective, integrated emergency management program?
   Field element manager.

4. What position is responsible to ensure the effectiveness of a continuing emergency preparedness program.
   Site manager.

SECTION 2, REQUIREMENTS

This section presents a summary of the requirements in chapters III through XI.

CHAPTER III, OPERATIONAL EMERGENCY BASE PROGRAM

Each DOE/NNSA site/facility must have an Operational Emergency Base Program that provides the framework for response to serious events involving health and safety, the environment, safeguards, and security. These events are not unique to DOE/NNSA operations. Any event involving the release of oil is within the scope of the Operational Emergency Base Program.

Planning Phase

Hazards Survey. A hazards survey must be used to identify the conditions to be addressed by the comprehensive emergency management program. Much of the hazards survey should already have been done in the course of meeting other DOE and Federal agency requirements.

A Hazardous Material Screening Process must identify specific hazardous materials and quantities that, if released, could produce impacts consistent with the definition of an operational emergency. The potential release of these materials to the environment requires further analysis in an emergency planning hazards assessment (EPHA). The release of hazardous materials less than the quantities listed below does not require quantitative analysis in an EPHA.

Existing Plans. Existing plans, such as catastrophic earthquake plans or mass casualty plans detailing compliance with Federal, state, and local standards, may be incorporated directly into the Operational Emergency Base Program or invoked by reference.

Planning Requirements. The Operational Emergency Base Program must provide for integrated planning to meet the response requirements identified in the hazards survey. At a minimum, the Operational Emergency Base Program must address the following:

- Emergency response organization
- Offsite response interfaces

- Emergency categorization
- Communications
- Protection actions
- Medical support
- Public information
- Emergency facilities and equipment
- Program administration

Emergency Response Organization. This organization must be established and maintained for each site/facility with overall responsibility for the initial and ongoing response to and mitigation of an emergency. Control at the event/incident scene must be consistent with the National Incident Management System's Incident Command System, which integrates local agencies and organizations that provide onsite response services.

Offsite Response Interfaces. Offsite response interfaces have the same requirements as for the Operational Emergency Base Program although additional offsite organizations may be involved.

Consequence Assessment. Provisions must be established to adequately assess the potential or actual onsite and offsite consequences of an emergency.

Consequence assessments must

- be timely throughout the emergency;
- be integrated with the event classification and protective action process;
- incorporate monitoring of specific indicators and field measurements; and
- be coordinated with Federal, state, local, and tribal organizations.

Protective Actions. Protective actions must be predetermined for onsite personnel and the public and must include

- methods for controlling, monitoring, and maintaining records of personnel exposures to hazardous materials;
- procedures to implement the separate protective actions of evacuation and sheltering of employees; and
- methods for controlling access to contaminated areas and for decontaminating personnel or equipment exiting the area;

- actions that may be taken to increase the effectiveness of protective actions;
- methods for providing timely recommendations to appropriate state, tribal, or local authorities of protective actions, such as sheltering, evacuation, relocation, and food control; and
- specific protective action criteria, based on the base order, for use in protective action decision making.

Emergency Facilities and Equipment. Facilities and equipment adequate to support emergency response must be available and maintained as follows:

- A facility must be available for use as a command center.
- Provisions must be established for use of an alternate location if the primary command center is not available.
- Adequate personal protective equipment and other equipment and supplies must be available and operable to meet the needs determined by the results of the Emergency Planning Hazards Assessment.

Preparedness Phase

Training and Drills.

- Initial training and periodic drills must be provided to all workers who may be required to take protective actions. This training is required when they are employed, when their expected actions change, or when the emergency plan changes.
- Refresher training must be provided annually to certified operators and supervisors and those workers who are likely to witness a hazardous material release and who are required to notify proper authorities of the release.
- Emergency-related information and training on site-specific conditions and hazards must be made available to offsite personnel who may be required to participate in response to an emergency at the DOE/NNSA site/facility.

Exercises.

- At a minimum, each site/facility must conduct building evacuation exercises consistent with Federal regulations, local ordinances, or National Fire Protection

Association Standards. Exercises must be conducted at least annually to ensure that employees are able to safely evacuate their work area.

- For each site or facility, as applicable, the organization responsible for communications with DOE Headquarters, the cognizant field element, and offsite agencies must test communications systems at least annually or as often as needed to ensure that communications systems are operational.

Response Phase

Response.

- Each site/facility must conduct activities to resolve the emergency situation.
- Reentry planning must include contingency planning to ensure the safety of reentry personnel, such as planning for the rescue of reentry teams. All individuals involved in reentry must receive a hazards/safety briefing prior to emergency response activities consistent with Federal, state, and local laws and regulations.
- Events exceeding the threshold levels for operational emergencies as detailed in chapter V of DOE O 151.1C require notification in accordance with chapter VIII.

Termination and Recovery.

Termination must be coordinated with state, tribal, and local agencies and organizations responsible for offsite emergency response and notification. Recovery must include establishment of criteria for resumption of normal operations. Recovery must also include investigation of the root cause(s) of the emergency and corrective action(s) to prevent recurrence in accordance with Departmental requirements.

CHAPTER IV, OPERATIONAL EMERGENCY HAZARDOUS MATERIAL PROGRAM

The Operational Emergency Hazardous Material Program adds to the Operational Emergency Base Program. If required based on the findings of the hazards survey, DOE/NNSA sites/facilities and activities must establish and maintain a quantitative EPHA. The EPHA must be used to define the provisions of the Operational Emergency Hazardous Material Program, ensuring that the program is commensurate with the hazards identified. The EPHA provides the basis for establishing a graded approach that will meet the program requirements outlined in chapter IV of DOE O 151.1C.

Emergency Planning Hazards Assessment

The release of or loss of control of hazardous materials must be quantitatively analyzed in an EPHA.

An accurate and timely method for tracking changes in operations processes, or accident analyses that involve hazardous materials must be established and maintained for each facility/activity. The method must allow sufficient time for emergency management personnel to review the EPHA and modify plans and procedures, as necessary.

The EPHA must be reviewed at least every three years and updated prior to significant changes to the site/facility or hazardous material inventories. Changes that result in a reduction of hazards with no adverse effect on safety or emergency preparedness and response may be included in the next scheduled review and update.

The EPHA must include a determination of the size of the Emergency Planning Zone (EPZ). The EPZ is the geographic area surrounding the site/facility for which special planning and preparedness actions are taken or need to be taken to reduce or minimize the impact to onsite personnel and public health and safety in the event of an operational emergency involving hazardous materials. Assumptions, methodology, models, and evaluation techniques used in the EPHA must be documented.

CHAPTER V, OPERATIONAL EMERGENCY EVENTS AND CONDITIONS

Operational emergencies are major unplanned or abnormal events or conditions that: involve or affect DOE/NNSA facilities and activities by causing or having the potential to cause serious health and safety or environmental impacts; require resources from outside the immediate/affected area or local event scene to supplement the initial response; and, require time-urgent notifications to initiate response activities at locations beyond the event scene.

Incidents that can be controlled by employees or maintenance personnel in the immediate/affected facility or area are not operational emergencies. Incidents that do not pose a significant hazard to safety, health, and/or the environment and that do not require a time-urgent response are not operational emergencies.

Events That Do Not Require Classification

An operational emergency must be declared when events occur that represent a significant degradation in the level of safety at a site/facility and that require time-urgent response efforts from outside the site/facility. These events do not require classification. Some examples of such events include the following;

- The discovery of radioactive or other hazardous material contamination from past DOE/NNSA operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding protective action criteria.
- Any release of greater than 1,000 gallons (24 barrels) of oil to inland waters; greater than 10,000 gallons (238 barrels) of oil to coastal waters; or a quantity of oil that could result in significant off-site consequences.
- An actual terrorist attack or sabotage event involving a DOE/NNSA site/facility or operation.
- A transportation accident results in damage to a nuclear explosive, nuclear explosive-like assembly, or category I/II quantity of special nuclear materials.
- Any actual or potential release of a hazardous biological agent or toxinoutside of the secondary barriers of the biocontainment area.

Events Requiring Classification

Operational emergencies must be classified as either an alert, site area emergency, or general emergency, in order of increasing severity, when events occur that represent a specific threat to workers and the public due to the release or potential release of significant quantities of hazardous materials from DOE/NNSA facilities/activities/operations, as described below. Classification aids in the rapid communication of critical information and the initiation of appropriate time-urgent emergency response actions.

Alert. An alert must be declared when events are predicted, are in progress, or have occurred that result in one or more of the following.

- An actual or potential substantial degradation in the level of control over hazardous materials.

- The radiation dose from any release to the environment of radioactive material or a concentration in air of other hazardous material is expected to exceed either—
  - a site-specific criterion corresponding to 10 percent of the applicable protective action at or beyond the facility boundary, or
  - the applicable protective action at or beyond 30 meters from the point of release to the environment.
- It is not expected that the applicable protective action criterion will be exceeded at or beyond the facility boundary.

- An actual or potential substantial degradation in the level of safety or security of a nuclear weapon, component, or test device that would not pose an immediate threat to workers or the public.
- An actual or potential substantial degradation in the level of safety or security of a facility or process that could, with further degradation, produce a site area emergency or general emergency.

Site Area Emergency. A site area emergency must be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations:

- An actual or potential major failure of functions necessary for the protection of workers or the public. The radiation dose from any release of radioactive material or concentration in air from any release of other hazardous material is expected to exceed the applicable protective action criterion at or beyond the facility boundary. The protective action criterion is not expected to be exceeded at or beyond the site boundary.
- An actual or potential threat to the integrity of a nuclear weapon, component, or test device that may adversely impact the health and safety of workers in the immediate area, but not the public.
- An actual or potential major degradation in the level of safety or security of a
- facility or process that could, with further degradation, produce a general emergency.

General Emergency. A general emergency must be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations:

- Actual or imminent catastrophic reduction of facility safety or security systems with potential for the release of large quantities of hazardous materials to the environment. The radiation dose from any release of radioactive material or a concentration in air from any release of other hazardous material is expected to exceed the applicable protective action criterion at or beyond the site boundary.
- Actual or likely catastrophic failures in safety or security systems threatening the integrity of a nuclear weapon, component, or test device that may adversely impact the health and safety of workers and the public.

CHAPTER VI, EMERGENCY MANAGEMENT PROGRAM

The energy emergency program must ensure that the Department is capable of providing analysis and recommendations on mitigating potential energy supply crises, economic impacts, widespread energy distribution interruptions, and/or energy infrastructure recovery advice. The program recognizes that resources and expertise within the Department may be requested to support an energy emergency response. The program also recognizes that DOE assistance may be required in support of a Presidentially-declared emergency invoking the Stafford Act, as amended, and implemented through the National Response Plan.

CHAPTER VII, EMERGENCY ASSISTANCE PROGRAM

The Emergency Assistance Program includes all activities whereby Departmental resources, emergency response assets, personnel, and/or facilities are deployed in support of Federal interagency plans; international agreements; Presidential direction; and state, local, or tribal agreements of mutual aid.

CHAPTER VIII, COMMUNICATIONS REQUIREMENTS

Requirements in this chapter of DOE O 151.1C pertaining to notification and reporting apply to operational emergencies, energy emergencies, and emergency assistance. This chapter emphasizes operational emergencies because of the criticality of timely notification and reporting during such emergencies. Communications requirements for emergencies do not supplant other required notifications and reporting delineated under other legislation, implementing regulations, and DOE Orders.

Initial Emergency Notifications

For operational emergencies, initial emergency notifications must be made to workers, emergency response personnel, and organizations, including DOE/NNSA elements and other local, state, tribal, and Federal organizations.

The Manager/Administrator of each DOE-/NNSA- or contractor-operated site/facility must

- notify state and local officials and the Cognizant Field Element Emergency Operation Center and Headquarters Operations Center within 15 minutes and all other organizations within 30 minutes of the declaration of an alert, site area emergency, or general emergency;
- notify the Cognizant Field Element Emergency Operation Center and Headquarters Operations Center within 30 minutes of the declaration of an operational emergency not requiring classification; and
- notify local, state, and tribal organizations within 30 minutes or as established in mutual agreements for declaration of an operational emergency not requiring classification.

CHAPTER IX, PUBLIC AFFAIRS POLICY AND PLANNING REQUIREMENTS

The Department must provide accurate, candid, and timely information, consistent with requirements of the Freedom of Information Act and the Privacy Act, to site workers and the public during all emergencies, so as to establish facts and avoid speculation.

The Director, Headquarters Office of Public Affairs, in coordination with the NNSA Assistant Administrator for Public Affairs, must prepare an Emergency Public Information Plan. This plan must:

- identify the personnel, resources, and facilities necessary to support the Headquarters Emergency Manager and provide emergency public information to the national media, the White House Situation Room, the Department of Homeland Security, National Homeland Security Operations Center, and Congress; and
- specify the coordination procedures between public information efforts at the Headquarters and those conducted at the cognizant field element and site/facility level, as well as with state, local, and tribal governments, and other Federal agencies, as appropriate.

Copies of the Headquarters Emergency Public Information Plan must be provided to the

Cognizant Field Element Managers; the Program Secretarial Officers; and the Director, Office of Emergency Operations.

CHAPTER X, READINESS ASSURANCE

A readiness assurance program provides assurances that emergency plans, implementing procedures, and resources are adequate and sufficiently maintained, exercised, and evaluated, and that improvements are made in response to identified needs. Each DOE/NNSA emergency management program must implement a readiness assurance program consisting of the following components:

- Evaluations
- Improvements
- Emergency readiness assurance plans

CHAPTER XI, PROGRAM ADMINISTRATION

Each cognizant field element manager, and each manager/administrator of a DOE-, NNSA- and/or DOE/NNSA contractor-operated site/facility subject DOE O 151.1C must designate an individual to administer emergency management. This individual must develop and maintain the emergency plan, develop the emergency readiness assurance plan and annual updates, develop and conduct training and exercise programs, coordinate assessment activities, develop related documentation, and coordinate emergency resources.

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 example 2 or go directly to the practice.

EXAMPLE 2

1. What are the three phases of an operational emergency base program?

2. What is the purpose of a hazards survey?

3. Define the term “Emergency Planning Zone.”

EXAMPLE 2 SELF-CHECK

1. What are the three phases of an operational emergency base program?
   The three phases of an operational emergency base program are planning, preparedness, and response.

2. What is the purpose of a hazard survey?
   A hazards survey must be used to identify the conditions to be addressed by the comprehensive emergency management program.

3. Define the term "Emergency Planning Zone."
   The emergency planning zone is the geographic area surrounding the site/facility for which special planning and preparedness actions are taken or need to be taken to reduce or minimize the impact to onsite personnel and public health and safety in the event of an operational emergency involving hazardous materials.

PRACTICE

This practice is required if your proficiency is to be verified at the familiar level. If you are to be qualified at the familiar level, the practice will prepare you for the criterion test. You will need to refer to the resources to answer the questions in the practice correctly. The practice and criterion test will also challenge additional analytical skills that you have acquired in other formal and on-the-job training.

1. List four responsibilities of the site/facility manager.

2. What is the basic function of the emergency response organization?

3. List the three classifications for operational emergencies.

4. What is the purpose of a hazardous material screening process?

5. What is the frequency in which site/facility must conduct building evacuation exercises?

6. What DOE position is responsible to approve site exercise packages prior to the exercise?

7. Which of the following requires event classification?
   a. An actual or potential substantial degradation in the level of control over hazardous materials.
   b. Any release of greater than 1,000 gallons (24 barrels) of oil to inland waters; greater than 10,000 gallons (238 barrels) of oil to coastal waters; or a quantity of oil that could result in significant off-site consequences.
   c. An actual terrorist attack or sabotage event involving a DOE/NNSA site/facility or operation.
   d. A transportation accident results in damage to a nuclear explosive, nuclear explosive-like assembly, or category I/II quantity of special nuclear materials.

8. What are two requirements of an emergency public information plan?

9. What are the three components of a readiness assurance program?

10. Define the term “operational emergency.

Change No: 3
DOE O 151.1C
Level: General
Date: 12/1/08

DOE O 151.1C
COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM
GENERAL LEVEL

OBJECTIVES

Given the familiar level of this module, a scenario, and an analysis, you will be able to

1. List the key elements you would look for in the contractor's action plan to correct the situation described in the scenario; and
2. State which requirements, sections, or elements of DOE O 151.1C apply to the situation described in the scenario.

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

DOE Orders Self-Study Program, DOE O 151.1C, Comprehensive Emergency Management System, Familiar level, 12/1/08.
DOE O 151.1C, *Comprehensive Emergency Management System*, 11/2/05.

Change No: 3
DOE O 151.1C
Level: General
Date: 12/1/08

INTRODUCTION

The familiar level of this module introduced DOE O 151.1C, *Comprehensive Emergency Management System*. Several responsibilities and requirements from DOE O 151.1C were discussed. In the general level of this module, students are asked to apply the information contained in the familiar level, and the Order to a series of questions related to the Order. Students are also presented with a scenario that depicts a work situation related to the Order. The example scenario includes a situation, the actions taken to remedy the situation, and the requirements related to the situation. Students will be asked to review the contractor's actions and decide if they are correct. Students will also be asked to decide if the correct requirements were cited in each situation. Please refer to the Order to make your analysis and answer the questions.

Note: You do not have to do the example 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 or go on to the practice.

EXAMPLE SCENARIO

On October 8, 2007, fire department personnel responded to an alarm and discovered that a transformer was on fire. An electrician also responded to the alarm and used a disconnect switch to de-energize the transformer. While he was de-energizing the transformer, he noticed the firefighter cutting the transformer compartment door lock with bolt cutters and directed him to stop. Investigators determined that because the electrical condition of the transformer was unknown the potential existed for the compartment and the lock to be energized. Failure to understand the potential danger exposed the firefighter to an electrical hazard that could have resulted in an injury or fatality.

Investigators believe that the firefighter cut the lock with intent of accessing and removing the transformer fuses. However, they determined that removing the fuses inside the compartment would not have de-energized the transformer. The investigation revealed that the firefighter did not have any electrical training or sufficient knowledge of the transformer design to attempt to de-energize the transformer. The facility manager held a critique. Critique members determined that cutting the compartment lock potentially exposed the firefighter to 13.8 kilovolts because he accessed equipment that could have been energized. They also determined that the line side of the compartment fuses was energized to 13.8 kilovolts. Finally, the critique members noted that the last time the site conducted any kind of an emergency response drill was July 8, 2004. The facility manager developed the following corrective actions:

- Develop a procedure for de-energizing a transformer in case of an emergency.
- Develop and present a training program to the firefighters that explains what their responsibilities are in case of an electrical fire. The training will emphasize that firefighters do not have responsibility for de-energizing transformers.

Take some time to review the example scenario and the actions the contractor took to correct the situation. Then decide if the contractor's actions were complete and correct. Finally, identify the requirements, sections, or elements of DOE O 151.1C that apply to this scenario. Write your answer below and then compare your answer to the one contained in the example self-check.

EXAMPLE SELF-CHECK

Your answer does not have to match the following exactly. You may have added more corrective actions or cited other requirements from the Order that apply. To be considered correct your answer must include at least the following.

The corrective actions the contractor took are acceptable. Two additional actions should be considered:

- The facility manager should review the emergency plans to ensure that they include provisions that clearly integrate the activities of the firefighters and the electricians.
- Schedule and conduct an emergency response drill.

The requirements from DOE O 151.1C that apply to this situation include the following:

- The cognizant field element manager is responsible for establishing and maintaining an effective, integrated emergency management program. (Chapter 1, page I-4)
- Initial training and periodic drills must be provided to all workers who may be required to take protective actions. (Chapter 3, page III-6)

PRACTICE

This practice is required if your proficiency is to be verified at the general level. If you are to be qualified at the general level, the practice will prepare you for the criterion test. You will need to refer to the Order to answer the questions in the practice correctly. The practice and criterion test will also challenge additional analytical skills that you have acquired in other formal and on-the-job training.

Please review the following scenario and answer the questions that follow.

SCENARIO

On July 17, 2006, a vacuum cleaner caught fire while being used to clean up titanium powders in a glove box. The laboratory technician cleaning the glove box immediately stopped the vacuum and carried it outside the building. The technician used a fire extinguisher to extinguish the smoldering fire. The vacuum cleaner, valued at $3,000, was a total loss. The laboratory hazard assessment was reviewed on May 3, 2004. However, it had not been updated to include titanium powder. Therefore, the laboratory workers did not understand the hazards associated with this combustible metal.

An investigation revealed that laboratory personnel were experimenting with titanium metal powder while researching the production of solid products from a powder form. Investigators determined that the authorization basis for use of this material had not been updated because titanium metal powder had never been used at the facility. Investigators believe that static produced during vacuuming may have ignited the titanium powders in the vacuum cleaner bag. The vacuum cleaner was neither grounded nor explosive resistant. Investigators estimated the amount of powder vacuumed from the glove box was a quarter of a cup.

Corrective actions taken by the contractor:

- The technical department manager immediately prohibited laboratory use of titanium until further notice.
- The experimental procedure was revised.

Requirements stated in this module that are related to this scenario include the following:

- None. This incident is related to fire protection.

Answer the following questions and then bring the completed practice to the course manager for review.

1. Was the situation handled correctly? If not, what should have been done?

2. Was the list of requirements, sections, and elements complete and correct? If not, state the correct or omitted requirements.

Note: The course manager will check your practice and verify your success at the general level. When you have successfully completed this practice, the course manager will give you the criterion test.