Department of Energy
National Nuclear Security Administration
Washington, DC 20585

January 11, 2018

The Honorable Sean Sullivan
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue NW, Suite 700
Washington, DC 20004

Dear Chairman Sullivan:

The Department of Energy (DOE) has completed the actions for Sections 6.1.1.2, "New Assessment Protocol" of the Department's Implementation Plan (IP) for the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2014-1, *Emergency Preparedness and Response.*

On July 20, 2016, the Secretary of Energy issued Revision 1 to the Department's Implementation Plan (IP). The IP identified milestones and deliverables focused in ensuring DOE's commitment to achieving an effective and self-sustaining Emergency Management Enterprise, and, more specifically, improving the integration of its emergency preparedness and response capabilities across its defense nuclear facilities. DOE's Implementation Plan outlined DOE's intent to implement a risk-informed and performance-based approach to improve consistency and oversight of the Emergency Management Program for defense nuclear facilities, as well as complex-wide. This approach is comprised of two primary components: DOE Order 115.1(D), titled Comprehensive Emergency Management System, and a Baseline Emergency Management Criteria and Review Approach Document (CRAD) for defense nuclear facilities. On August 11, 2016, the Deputy Secretary of Energy approved and issued DOE Order 151.1D, which establishes the baseline requirements for DOE sites. The Baseline Emergency Management Criteria and Review Approach Document, enclosed, is the final deliverable identified in the IP.

DOE and NNSA leadership remains committed to further coordination with cognizant line-management and implement necessary best practices and technical assistance to ensure long term and sustainable improvements through its Readiness Assurance Program.

We appreciate the Board's perspective and look forward to continued positive interactions with you and your staff.

If you have any questions, please contact me or Mr. Jose R. Berrios, Director, Office of Plans and Policy at 202-586-9892.

Sincerely,

Charles L. Hopkins III
Associate Administrator and Deputy
Under Secretary for Emergency Operations

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1.0 Introduction

The purpose of the Department of Energy (DOE) Standard, *Emergency Management Program Administration; Criteria Review and Approach Document for Risk-Informed and Performance-Based Assessments,* is to implement a consistent process for assessing DOE facilities' emergency management programs, which includes DOE Core Facilities, Hazardous Material Facilities, and Defense Nuclear Facilities (DNFs). This DOE Standard meets the Secretary's commitment to develop and implement a risk-informed and performance-based emergency management program administration and oversight tool – as outlined in the DOE Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2014-1.

The benefit of a risk-informed and performance-based approach is that it can highlight program areas that are most important for protection of human health and safety and can help direct the efficient and cost-effective targeting of emergency management program resources.

This Standard provides guidance for DOE oversight and field element programs conducting assessments of emergency management enterprise programs. DOE contractors can also use this Standard to perform self-assessments. This Standard provides the Criteria Review and Approach Document (CRAD) components for emergency management for performing assessments. CRAD components are discussed in Section 2.0 and CRAD documents are presented in Section 6.0.

This Standard adopts a two-stage approach for evaluating emergency management programs. First, it incorporates and enhances DOE's traditional approach of evaluating emergency management programs based on compliance with DOE Orders and other requirements with emphasis on DOE O 151.1D, *Comprehensive Emergency Management System.* Second, it goes a step further and separately evaluates the status of emergency management programs in adopting best practices – practices that go beyond simply meeting requirements. The CRAD components developed for this Standard target both program performance with respect to compliance and performance beyond simple compliance.

1.1 Understanding Risk-Informed and Performance-Based

The term "risk-informed," as used in this Standard, refers to the incorporation of expert risk insights to support an emphasis on those emergency management activities and capabilities most critical to the protection of public health and safety. The term "performance-based," as used in this Standard, refers to the effective execution of emergency management program activities to protect human health and safety. Compliance with requirements is not forsaken in a risk-informed and performance-based approach, but is instead treated as the "at a minimum" expectation of performance – a level of performance that meets requirements but may not rise to the level of meeting best practices.

This Standard provides a method for integrating risk-informed and performance-based processes into an assessment tool using emergency management program elements. For evaluations of compliance with regulations, risk and performance are used to determine the level of reporting that should occur upon a failure to meet requirements. For example, a significant failure to meet a requirement that is considered of higher risk should it not be met during an emergency would require the notification and involvement of multiple levels of DOE management – from site management up through the Secretarial level at DOE-Headquarters. In contrast, a slight departure from full compliance involving a requirement that poses a lower risk should it fail during an emergency would only require the prompt notification and involvement of the site-level emergency management program leadership to correct. For evaluations of performance beyond simple compliance, risk and performance are used to help site officials make cost-effective and risk-based decisions on potential emergency management program enhancements. This could involve allocating or re-allocating resources to make program improvements that provide the greatest benefit to cost ratio with respect to protection of health and safety.

Under this Standard, the individuals tasked with performing emergency management program assessments are directed to use risk levels identified in a companion document (currently under development) to evaluate compliance at three potential levels (performance), and then evaluate the degree of best practices implementation (with three possible levels of performance given the criterion under evaluation is compliant). Evaluations of risk and performance will follow the methodology provided in Section 4.0.

1.2 Programmatic and Observational Evaluations

Emergency management assessments may involve programmatic evaluations (covering items like the technical basis, training, plans, and procedures), observation-based[1] evaluations focusing on the quality of job performed by individuals and teams and their demonstrated capabilities during exercises and drills (e.g., incident commanders, field monitoring teams, emergency operations center staff, and joint information center staff), or both. For example, to examine the effectiveness of a set of emergency planning procedures, a site may conduct a limited assessment that only involves a programmatic evaluation that focuses on reviewing a set of emergency planning hazard assessments (EPHAs). Another type of limited assessment, such as one evaluating the effectiveness of a training session or drill, might only involve an observational component. A more comprehensive assessment would typically involve both the programmatic review of emergency management documentation (e.g., an examination of the quality and thoroughness of emergency management policies and procedures) and an observational review that assesses how well personnel perform their duties (e.g., how effectively personnel use existing emergency management policies and procedures to achieve desired levels of performance).

The programmatic and observational evaluations may be conducted as part of a self-assessment by the emergency management program or an independent assessment conducted by the DOE site or DOE-Headquarters organizations. Self- and independent-assessments are also supported by this Standard.

1.3 Structure of the Standard

The Standard is structured as follows:

- Section 1.0 – Introduction
- Section 2.0 – Structure of Elements, Objectives, Criteria, and Lines of Inquiry
- Section 3.0 – Meeting DNFSB Recommendations
- Section 4.0 – Risk-Informed and Performance-Based Methodology
- Section 5.0 – Basic CRAD User's Instructions
- Section 6.0 – Presentation of Review Criteria and Approach
- Appendix A: References

[1] Traditionally, at some DOE sites this observation-based evaluation was referred to a "performance-based evaluation," but that term is no longer used in this CRAD because it may be confused with the term "performance-based assessment" (as defined in Section 1 and used throughout the CRAD).

2.0 Structure of Program Elements, Objectives, Criteria, and Lines of Inquiry

The guidance for developing a CRAD Standard is based on DOE G 226.1-2A, *Federal Line Management Oversight of Department of Energy Nuclear Facilities*. CRAD components for each of the various DOE elements are provided in Section 6.0, and are organized according to DOE O 151.1D elements. The CRAD components of each program element consist of objectives, criteria, lines of inquiry (LOIs), and approach. These components are described in Section 2.1.

While the CRAD components framework is based on DOE O 151.1D, it is critical to understand that the performance of an emergency management program depends upon the effectiveness of supporting programs. Therefore, the CRAD components integrate related regulations, requirements, and industry standards for other programs and agencies into the assessment tool which are expected to be updated as the various documents change (i.e., living tool). Therefore, where applicable, certain criteria and LOIs include direct reference to other orders and/or citations.

Appendix A contains an annotated bibliography that not only provides the references associated with each citation, but also a summary of what the references contain. This is intended to aid the assessor in understanding the relevance of a given citation within a CRAD component.

Program Elements, Objectives, Criteria, Lines of Inquiry, and Approach

PROGRAM ELEMENT(S) – The top-level tier of the organizational structure is the program element. Review criteria are developed for each of the program elements listed in DOE O 151.1D, Attachment 3, Sect 1, paragraph a(7), "A" through "O."

An additional program element, currently labeled as "X" that does not come directly from DOE O 151.1D has been added. The intent of Element X is to capture organizational effectiveness, which shares common aspects within each of the other emergency management program elements. Having a separate organizational effectiveness program element negates the need to present the same review criteria in multiple program elements. These common organizational aspects that should be commonly investigated include issues such as competence, organizational interfaces, safety culture, human factors, and human performance. Table 5.1 in Section 5.0 maps the Element X criteria to where they should be addressed within the DOE O 151.1D program elements.

A. Program Management and Administration Attachment
B. All-Hazards Planning Basis
C. Emergency Response Organization
D. Emergency Operations System
E. Training and Drills
F. Emergency Medical Support
G. Offsite Response Interfaces
H. Emergency Categorization
I. Protective Actions
J. Emergency Facilities and Equipment/Systems
K. Notifications and Communications
L. Emergency Public Information
M. Termination and Recovery
N. Readiness Assurance
O. Consequence Assessment
X. Organizational Effectiveness

OBJECTIVE(S) – Objectives are defined for each DOE O 151.1D program element. These objectives capture high-level requirements from DOE O 151.1D. Several simple rules governed the development of those objectives:

- The objective must be attainable. Emergency management personnel need to be able to successfully demonstrate the objectives.
- The objective must be specific. The objective should focus on the specific performance to be demonstrated, and should be interpreted in the same manner by all users.
- The objective must be measurable. The objective should have observable and measurable indicators.

CRITERIA– Criteria are defined for each objective within a program element. These criteria are statements that capture all the aspects needed to provide confidence that the objective will be met. This includes specific requirements from DOE O 151.1D, plus requirements from related directives or other documents. Criteria are specific to the given objective. The type of facility that applies to each criterion is identified in Section 6.0 with the following options: Core Facility, Hazardous Material (HazMat) Facility, and DNF. This is done because the requirements in DOE O 151.1D differentiates between these three facility types. The requirements in DOE O 151.1D, Attachment 3 apply to all three facility types; whereas the requirements in DOE O 151.1D, Attachment 4 only apply to all DNFs and most HazMat facilities, with a few requirements that only apply to DNFs (but not to non-DNF Hazardous Material Facilities). Those facilities that just contain Core Programs per DOE O 151.1D, Attachment 3 requirements, are not required to comply with DOE O 151.D, Attachment 4 requirements.

LINES OF INQUIRY (LOIs) – LOIs are defined for each criterion within an objective. The LOIs provide a set of questions structured to enable a determination of how well the program is performing with respect to each given criterion. Performance in meeting a given criterion will be based on the collective LOI answers for the given criterion, as covered in Section 4.0.

The compliance-based LOIs are derived from requirements, and each includes a citation to the DOE directive providing the requirement. The best practices LOIs, in contrast, are queries for gauging performance that goes beyond compliance and are derived from industry standards, DOE guidance documents, lessons learned, and engineering judgment. A companion document (currently under development) will provide best practices guidance to aid in measuring performance that goes beyond compliance. Best practices LOIs within the CRADs are identified by LOI numbering followed by "-BP" (e.g., M-01-01-05-BP). Best practices LOIs are in no way all-inclusive and are provided as suggestions/guidance to aid the assessor and as recommendations for line management to improve the effectiveness of their emergency management program.

A companion document PNL-SA-XXXX, *Integrating Lessons Learned from Real Events and Emergency Management Assessment Reports into Criteria Review and Approach Document* provides valuable information related to best practices LOIs. This report details the procedure that was involved in the collecting Lessons Learned from various sources which in turn supported development of the CRAD components. This document is particularly useful in understanding the reasoning behind some of the best practices LOIs. The Lessons Learned document provides direct quotes from the lessons learned that are cited in this document's best practices LOIs.

While some compliance-based and best practices LOIs are couched in terms of "yes" or "no," others are worded more as a query of effectiveness. Regardless of how they are worded, the LOIs are intended to spur critical thinking by the assessor. The method of evaluating the LOIs is guided by the approach sections primarily using the investigative means of interviews, document reviews, and observations.

Individuals performing an official assessment of a site emergency management program should be trained in accordance with DOE O 426.1A, *Federal Technical Capability Program*, and use the guidance

provided in the companion best practices guide (currently under development). Training will help assessors understand how to gauge performance using the LOIs and facilitate consistency and accuracy in their assessments. Use of this Standard for self-assessments does not require formal training.

APPROACH – An approach for conducting the assessment is also included with each program element in Section 6. The approach provides details useful in investigating the LOIs. Approaches include strategic observations that should be conducted, interviews that should be made, and documents that should be reviewed.

3.0 Meeting DNFSB Recommendations

This Standard addresses the recommendations identified in the DOE Implementation Plan for DNFSB Recommendation 2014-1. It incorporates requirements and associated performance criteria from multiple DOE directives and, as appropriate, other agency regulations and industry standards. The outcomes from the assessment process can be used to maximize the safety and health of workers and the public and can aid in determining where best to allocate resources.

In accordance with the Implementation Plan for DNFSB Recommendation 2014-1, the Associate Administrator for Emergency Operations (NA-40) was to develop and implement an emergency management CRAD for DNFs.

Revision 1 of the Implementation Plan calls for the following actions:

- Develop a detailed blueprint for an achievable DOE-wide performance improvement process, including DNFs, designed to strengthen the fundamental attributes that comprise an adequate emergency management program.
- Enhance and complement the DOE's oversight capability and management accountability.
- Improve readiness assurance and emergency response for DNFs and the DOE complex to maintain reasonable assurance of providing adequate protection of public and worker health and safety during an emergency.
- Line managers will also identify actions and best practices to improve overall management performance in the following major areas of concern:
    - ineffective implementation of existing DNF emergency management enterprise requirements due to lack of specificity of expectations;
    - inadequate processes to address lessons learned and needed improvements to site programs; and
    - weaknesses in the DOE verification and validation of readiness due to inconsistent conduct of oversight and enforcement of emergency management preparedness and response requirements.

This Standard helps to implement the above call for action by:

- Being a part of the performance improvement process developed and implemented by DOE.
- Helping DOE improve its oversight capability and reporting process. In particular, the assignment of assessment-uncovered deficiencies to specific DOE site and HQ offices depending on risk and performance will be part of a DOE management accountability improvement program.
- Using the program risk-informed and performance-based assessment program outlined in this Standard to assist sites in identifying potential readiness assurance and emergency response needs, identifying the appropriate level of reporting to DOE decision makers, and supporting the prompt correction of inadequate measures.
- Providing objectives, criteria, and LOIs that specifically address individual requirements and then go beyond simple compliance to support an evaluation of best practices implementation. Best practices LOIs were drawn from lessons learned, DOE guidance documents, other regulatory documents, and engineering judgment. A companion lessons-learned document provides details.

4.0 Risk-Informed and Performance-Based Methodology

This section summarizes the methodology for measuring performance and how risk is integrated into the assessment process.

4.1 Performance Measure Process

For the performance measurement process, the collective answers to the LOIs for a given criterion will provide an indication of how well the emergency management program is performing with respect to the specific aspect covered by that criterion. The collective performance of criteria will then be rolled up to indicate the performance of a given objective, and in turn, the collective performance of objectives will be rolled up to indicate performance of a given program element.

CRAD components are outlined in Section 2.0. Section 6.0 includes CRAD components for each program element and for organizational effectiveness (Element X). The sets of LOIs for each criterion are intended to gauge whether the criterion is compliant with requirements, and also the degree of best practices implementation. The LOIs consist of a set of queries that are investigated via the processes outlined in the approach sections provided for each program element in Section 6.0. Those LOIs that evaluate compliance with a particular DOE requirement have a citation to DOE O 151.1D and/or applicable DOE directive. Those LOIs that are intended to gauge best practices implementation have the designation "-BP" appended to their identification number. Some best practices LOIs also have citations to indicate their source (e.g., DOE G 151.1-3). Best practices LOIs based on engineering judgment do not have citations.

The results of investigating the collective LOI queries for a given criterion will be used to determine a performance measure for a specific criterion. An assessor will gather and document the results of LOI queries. The assessor will then determine a performance measure for the criterion under investigation considering the degree of compliance and/or level of best practices implementation.

As used in this Standard, a "best practice" is a practice or action with redeeming qualities and attributes that would be beneficial for others to demonstrate or implement. Best practices are typically tangible, proven systems, processes, equipment, or programs that have been recognized as having positive attributes or are supportive of continuous improvement efforts associated with a given topical area. However as used in this Standard, best practices can also be intangible, such as superior skills and expertise being demonstrated through consistent excellent outcomes (e.g., thorough, complete, and accurate consequence analyses; continual achievement of prescribed performance measures such as prompt notifications well within time limits; communications that are clear, precise, and well understood).

The concept for noncompliance performance measures are illustrated in Table 4.1.

Table 4.1. Compliance Performance Measures

Example Scale	Compliance Performance Measure
+1 to +3	Displays full compliance (see Table 4.2)
−1	Close to compliance but not meeting every compliance measure
−2	Displays moderate noncompliance
−3	Displays gross noncompliance
Note: *Detailed performance measures are under development pending field testing.*	

As illustrated in Table 4.1, a program that is far out of compliance for a given requirement produces the lowest possible performance measure. The level of oversight scrutiny allocated to a noncompliance will depend on the degree of compliance and the risk significance of the emergency management program aspect that is non-compliant (discussed in Section 4.2). Other considerations involve the performance of other criteria associated with the given objective, as there may be mitigative effects.[2] The assessor is also instructed to flag any noncompliance for inclusion in the organization's corrective actions program. The level of compliance along with the risk significance should provide guidance to the contractor and DOE management regarding required notifications and corrective actions.

The performance measures concept for best practices implementation when a criterion is fully compliant with requirements is illustrated in Table 4.2. While assessments for compliance tend to be unambiguous, assessments for best practices are necessarily more subjective. Therefore, both training and the Best Practices Guide will aid the assessor in evaluating performance that goes beyond compliance.

Table 4.2. Best Practices Implementation Performance Measures

Example Scale	Best Practices Performance Measure (assuming full compliance with requirements}
+3	Display optimal implementation of best practices
+2	Display implementation of some best practices or a general implementation of best practices that exceed requirements
1	Compliant without implementation of best practices
Note: *Best practices performance measures are under development pending field testing.*	

Given compliance, there are three performance indications based on the collective responses to the LOIs for the given criterion as shown in Table 4.2. The risk significance (described in Section 4.2) supports management decisions on whether to allocate resources to improve performance of a program aspect that is compliant but with room for improvements.

Figure 4.1 illustrates the performance measurement logic from LOI to program element. The collective answers to the LOIs for a given criterion will provide an indication of how well the emergency management program is performing with respect to that criterion (Roll Up 1). The collective performance of criteria will then be rolled up to indicate the performance of a given objective (Roll Up 2), and in turn, the collective performance of objectives will be rolled up to indicate performance of a given program element (Roll Up 3).

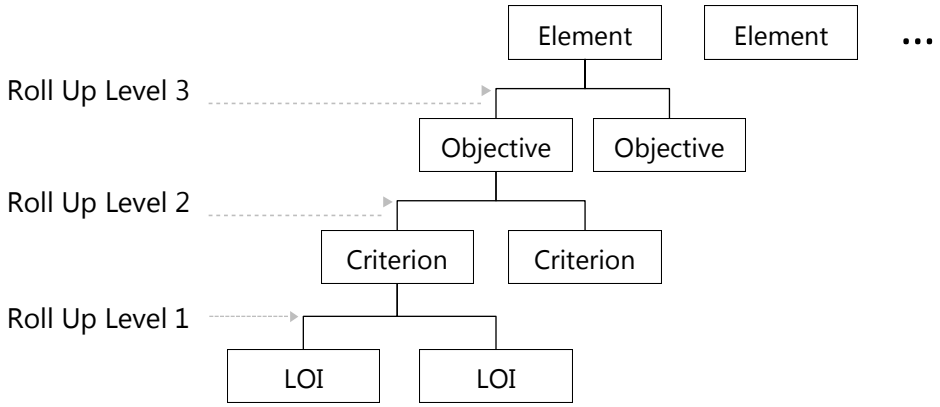


Figure 4.1. Roll Up Logic Flow for LOI, Criteria, and Objective

[2] The specifics on how performance at the objective level will be determined based on the performance of all the criteria associated with the objective is under development and will be finalized based on the result of field testing.

The criteria under a given objective may have different risk levels. The process for rolling up criteria to objective level performance measures is under development pending further field testing.

4.2 Risk Significance Binning Process

The risk significance of criteria will be determined through stakeholder elicitation involving a qualitative evaluation of the potential impact to human health should a significant hazardous material release (baseline event) occur. Risk significance will be assigned to one of the following bins: Low, Medium, High, or Not Applicable. Risk bin values for each of the criteria will be published for use by assessors and DOE site personnel.

The companion document PNL-SA-XXXX, *Integrating Lessons Learned from Real Events and Emergency Management Assessment Reports into Criteria Review and Approach Document* provides a wealth of information on lessons learned in the U.S. and around the world involving emergency management programs. This includes useful information for evaluating the risk significance for various aspects of these programs. The report documents the procedure in collecting lessons learned from various sources. Its information should support the understanding of aspects of emergency management program performance that could pose vulnerabilities during actual events.

In the stakeholder elicitation process for assigning criteria to one of the relative risk bins, the concept of a baseline event was used where the potential health and safety impacts from the event, rather than the event itself, is the focus. The experts will be asked to gauge the risk significance with respect to human health and safety should the baseline event occur. The baseline event results in a worst case, uncontrolled hazardous material release from a facility. For the purpose of risk weighting only, assumptions related to the baseline event include the following:

- The event only affects the given facility and its systems, and no other facility on the site or the surrounding area is adversely impacted.
- A hazardous material release has occurred, is imminent, or has occurred and there is time for actions to occur before the plume will reach the public.[3]
- The airborne release plume is headed towards a population area and the concentration is expected to exceed applicable emergency action levels involving the potential for adverse health and safety beyond the site boundary (i.e., General Emergency). Thus, action is required to protect the public from consequences resulting from exposure to the plume.
- Because facility barriers and controls are assumed to fail in preventing a release, the safety and emergency management program and response actions are all that remain to reduce human health consequences.
- The facility is compliant with all other safety management and security programs.
- The initiating event does not reduce the onsite and offsite emergency, safety management, and security response capabilities.
- All offsite responders are able to respond.

[3] ~~The length of time is left vague, as~~ it will vary across the complex. The concept is that there is a small amount of time to implement the given action before human health might be impacted.

4.3 Integrating Objective Performance and Risk Significance

The performance measurement can be integrated with the risk significance bin via the notional matrix shown in Table 4.3. The risk significance bins run from left to right, while the performance measurements, from top to bottom.

In Table 4.3, the combination of the performance measurement and risk significance is designated by a color-coded guiding action that indicates the level of oversight and corrective actions that is warranted. Orange indicates that the highest level of oversight and corrective actions are warranted. Yellow and blue, respectively, indicate lower gradations in required oversight and corrective actions. Grey is a special category, as it is reserved for noncompliance related to a requirement that clearly has no risk significance in protecting health and safety should a hazardous material release occur (e.g., record retention). Oversight and corrective actions are required, but with less urgency than a compliance issue that can impact human health and safety. Green denotes full compliance with requirements with appropriately reduced reporting and the need for prompt action.

The colors in Table 4.3 represent expected oversight, notification, and corrective actions given the integration of performance measure with risk significance as illustrated in Table 4.4.

Table 4.3. Risk Significance Performance Indicator

	Risk Significance Performance Matrix			
Performance Measurement	**HIGH**	**MEDIUM**	**LOW**	**NA**
+1 to +3	GREEN	GREEN	GREEN	GREEN
−1	YELLOW	BLUE	BLUE	GREY
−2	YELLOW	BLUE	BLUE	GREY
−3	ORANGE	YELLOW	BLUE	
Measurement values 1 to 3 relate to degree of best practices implementation. *Matrix and roll up of criteria to objectives under development pending field testing.*				

Table 4.4. Risk-Informed Performance-Based Response

RESPONSE	**GREEN**	**GREY**	**BLUE**	**YELLOW**	**ORANGE**
Oversight & Technical Assistance	Normal Implementation (DOE O 151.1D, DOE O 226.1B)	Tracking, Extremely Low Priority Company Level Oversite	Tracking, Low Priority	Tracking High Priority Oversight Support Action Compensatory Measures	Immediate Oversite/Support Action Compensatory Measures Operational Experience Report
Notification(s) & Corrective Action/ Validation	None	Contractor EM Manager	FOM CAP V&V:FOM	FOM, PSO, and NA-41 CAP V&V: FOM	FOM, PSO, S-2, and NA-40 CAP V&V: PSO
FOM: Field Office Manager PSO: Program Secretarial Officer NA-40: Office of Emergency Operations NA-41: Office of Plans and Policy CAP: Corrective Action Plan V&V: Verification and Validation					

4.4 Summary Assessments

The results of assessments from multiple sites can be used to support DOE and site resource allocation decisions. Visualization tools can display assessment results from multiple facilities to highlight areas that require the attention of DOE-Headquarters across multiple sites. It can also be used to identify areas that are consistently weak across DOE complex where additional attention or resources from DOE-Headquarters may be warranted.

5.0 Basic CRAD User's Instructions

CRAD components are used as tools during routine assessment processes. CRAD components can be used independently, regardless of the emergency management program elements being assessed, because they have been developed for each program element. CRAD components can be used in several situations, including Federal oversight activity, contractor annual self-assessments, improvement activities, or as a result of corrective actions. Additionally, the outcome of the assessment using the CRAD components can help inform resource allocation decisions for strengthening health and safety resources and culture.

5.1 Applying the Organizational Effectiveness Program Element

In addition to the DOE O 151.1D program elements, an overriding "Element X" has been developed to address organizational effectiveness aspects of site emergency management programs. Organizational effectiveness issues cut across all DOE O 151.1D program elements. That is, in every assessment, regardless of the program element, certain organizational aspects apply that should be evaluated. However, not every criterion developed for organizational effectiveness applies to every other program element. Therefore, Table 5.1 maps the Element X criteria for applicability to the program elements. The approach sections for each program element also provide details on which Element X criteria apply.

5.2 Training/Qualification Requirements

To facilitate consistency and accuracy of line management and independent oversight assessments, the use of the assessment process in this Standard in an official capacity requires that the assessor be qualified. Federal staff must be qualified in accordance with DOE O 426.1A to use CRAD for official oversight purposes; staff not fully qualified may conduct oversight activities with the CRAD. However, results must be concurred upon by a cognizant senior technical safety manager.

5.3 CRAD Use and Navigation

CRAD components are used as tools during routine assessment processes. Because these CRAD components have been developed for each EM program element they can be used independently, regardless of the emergency management program elements being assessed. CRAD components can be used in several situations, including Federal oversight activity, contractor annual self-assessment, improvement activities, or as a result of corrective actions. Additionally, use of the CRADs components can help inform investment decisions for strengthening health and safety resources and culture.

Table 5.1. Map of Organizational Effectiveness Criteria to Other Program Elements

Criteria Number	A Program Administration and Management	B All-Hazards Planning Basis	C Emergency Response Organization	D Emergency Operations System	E Training and Drills	F Emergency Medical Support	G Offsite Response Interfaces	H Emergency Categorization	I Protective Actions	J Emergency Facilities and Equipment/ Systems	K Notifications and Communications	L Emergency Public Information	M Termination and Recovery	N Readiness Assurance	O Consequence Assessment
X.01.01	X		X	X	X						X	X	X	X	
X.01.02		X	X	X	X			X	X		X	X	X	X	X
X.01.03			X	X	X			X	X		X				X
X.01.04		X						X	X						X
X.01.05	X		X					X	X			X	X	X	
X.01.06	X		X					X	X			X	X	X	
X.01.07	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X.01.08						X			X	X	X				X
X.01.09	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X.01.10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Criteria Number	Element X Criteria Statements
X.01.01	In the context of the administrative element being assessed, staff understand their job functions and are proficient at performing them.
X.01.02	In the context of the program element being assessed, staff understand the functions of other key positions they interface with and how they should optimally work together.
X.01.03	In the context of the program element being assessed, staff have the tools they need to perform their job functions effectively and are competent at using them.
X.01.04	In the context of the technical element being assessed, staff are competent at performing their job functions.
X.01.05	Emergency organization managers and staff are committed to, promote, and adhere to a strong and viable safety culture in which the emergency management program can thrive.
X.01.06	Trust, accountability, integrity, and respect, along with frequent and open communication embody the emergency management organization.
X.01.07	A questioning attitude is fostered by the emergency management organization.
X.01.08	In the context of the program element being assessed, human factors needs during an emergency response are accounted for in applicable planning, and equipment, systems, and facility designs (e.g., urgent decision making may occur under stressful conditions and extended emergency conditions).
X.01.09	No problems or issues are identified regarding any area of the emergency management program.
X.01.10	Human performance principles and tools are used to anticipate, prevent, or catch active errors, especially at critical steps, where error-free performance is absolutely necessary.

As described in Section 2.1, the CRAD components in each program element are structured to create a consistent framework for evaluating elements of the DOE O 151.1D emergency management system using a risk-informed, performance-based methodology. Objectives and corresponding criteria were developed for each program element. Criteria were constructed to be specific to an objective. For each criteria, LOIs were created to provide the assessors a clear assessment path to follow. The CRAD components for each program element are numbered as illustrated below (assuming Element A)

A. PROGRAM ELEMENT - DOE O 151.1D, Attachment 3, Sect 1, paragraph a(7), A through O

A.01 OBJECTIVE(S)

A.01.01 CRITERIA

A.01.01.01 (Compliance-based LOI)

A.01.01.02-BP (Best Practice based LOI)

A.01.02 CRITERION

A.01.02.01 (Compliance-based LOI)

A.01.02.02-BP (Best Practice based LOI)

A.01.02.03 (Compliance-based LOI)

A.01.04.02-BP (Best Practice based LOI)

A.01.03 CRITERION

5.4 Definitions and Acronyms

A common set of definitions is critical when using these CRAD components in an assessment. Common understanding of the terminology and concepts used throughout this Standard promotes consistency and reduces the potential for assessor bias. This enhances the credibility of assessment outcomes.

Section 5.4.1 contains the terms and concepts relevant to the CRAD components and the Standard in general, while Section 5.4.2 provides a list of acronyms. If the definition is provided in a source document, e.g. DOE O 151.1D, that definition is indicated initially followed by the reference callout, "(DOE O 151.1D, Att.3)." Additional citations were added if applicable. Blue text indicates words that are defined elsewhere in this definitions list.

5.4.1 Definitions

Term / Concept	Definition / Description
Accident	An unplanned event that has a resulted in or suggests the failure of a safety management system, barriers, or loss of controls; and that potentially threatens health and safety.
Alert	A condition in which an actual or potential substantial degradation in the level of control over hazardous materials exists (DOE O 151.1D, Att.2).
All-Hazards Survey	The identification of all-hazards applicable to the operation of a site/facility/activity; establishes the planning basis for the emergency management program (DOE O 151.1D, Att.3(2)).

Term / Concept	Definition / Description
Baseline Event (DNFs)	A concept used in the risk significance binning process for DNFs with the potential for a General Emergency. An event that results in an airborne radioactive and hazardous material release (including transuranics and mixed fission products) where the plume concentration is expected to exceed the applicable protective action criterion beyond the site boundary.
Best Practices	A best practice (BP) is a practice or action with redeeming qualities and attributes that would be beneficial for others to demonstrate or implement. Best practices are typically tangible, proven systems, processes, equipment, or programs that have been recognized as having positive attributes, possessing complex-wide applicability, and/or are supportive of continuous improvement efforts associated with a given topical area. However, as used in this Standard, best practices can also be intangible, such as superior skills and expertise being demonstrated through consistent excellent outcomes (e.g., thorough, complete, and accurate consequence analyses; continual achievement of prescribed performance measures such as prompt notifications well within time limits; communications that are clear, precise, and well understood).
Common Operating Picture	An overview of an incident that provides consistent incident information, to be used by the incident commander/unified command and any supporting agencies and organizations (DOE O 151.1D, Att.2).
Competent	Having the necessary ability, knowledge, or skill to do something successfully.
Compliance-Based Lines of Inquiry	Queries intended to gauge whether the program is compliant with a particular requirement.
Consequence Assessment	The consequence assessment of an incident is typically a determination of the health impacts expected from an evaluated incident, reported in a predetermined measure (e.g., TED dose or air concentration). It also covers environmental and safety impacts. The DOE O 151.1D scope of the consequence assessment element covers the entire system used to determine the significant impacts from an Operational Emergency (tools; documentation; release determination; dispersion assessment; health, safety, and environmental impacts; Protective Action Recommendations determinations based on impact or air concentration estimates; and, as needed, field team monitoring to confirm plume boundary). The various time frames are considered for consequence assessment: initial time frame (e.g., EAL-based); early time frame ("timely in-depth assessment" DOE G 151.1-3) (e.g., near real-time EOC evaluations early in the event progression and while the release remains active); recovery time frame (e.g., facility condition has stabilized and no new releases are anticipated, a time when more detailed evaluations can take place). The National Atmospheric Release Advisory Center is part of near real-time consequence assessment activities for the mode (i.e., primary, backup, or corroborating) selected by the facility. The probability of the event occurring does not factor into the determination of the impact from the evaluated event.
Core Facility	A facility with minimal hazards as determined from the All-Hazards Survey. The hazards are such that EPHAs are not required. Also referred to as Core Program Facility.
CRAD Components	CRAD components provide detailed guidance for evaluating performance and complement the oversight information for programs and processes. CRAD components are used by DOE line management to evaluate various elements of a program. CRAD components are used to establish the depth and detail of an assessment and to provide clarity and consistent guidance to the assessment team, as well as to the organization being assessed (DOE G 226.1-2A).

Term / Concept	Definition / Description
CRAD Criteria	The specifics by which the performance CRAD objectives are measured, including regulatory and/or site-specific requirements. The sum of the criteria for an objective should provide an adequate basis for determining whether the objective is met (DOE G 226.1-2A).
CRAD Lines of Inquiry (LOIs)	Queries used to evaluate whether a given criterion is compliant with requirements and the level of implementation of best practices.
CRAD Objectives	High-level emergency management requirements primarily from DOE O 151.1D.
Critical Step	A procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment.
Cross-connecting CRAD Components	CRAD components that cover topics that fall within multiple DOE O 151.1D elements.
Defense Nuclear Facility (DNF)	Any of the following DOE facilities: (1) A production facility or utilization facility that is under the control or jurisdiction of the Secretary of Energy and that is operated for national security purposes, but the term does not include a) any facility or activity covered by Executive Order No. 12344, dated February 1, 1982 [42 U.S.C. § 7158 note], pertaining to the Naval nuclear propulsion program; b) any facility or activity involved with the transportation of nuclear explosives or nuclear material; c) any facility that does not conduct atomic energy defense activities; or d) any facility owned by the United States Enrichment Corporation. (2) A nuclear waste storage facility under the control or jurisdiction of the Secretary of Energy, but the term does not include a facility developed pursuant to the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101 et seq.) and licensed by the Nuclear Regulatory Commission (DOE O 151.1D).
Deficiency	An inadequacy in the implementation of an applicable requirement or performance standard that is found during an appraisal. Deficiencies may serve as the basis for one or more findings (DOE O 151.1D, Att.2).
Documented Safety Analysis	A documented analysis of the extent to which a nuclear facility can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety (10 CFR Part 830.3).
Effective	Successful in producing a desired or intended result (DOE O 151.1D, Att.2).
Emergency	Any incident, whether natural or manmade, that could endanger or adversely affect people, property, or the environment, and that requires responsive action beyond normal operations. An "Operational Emergency" is a term used to categorize a specific type of emergency (DOE O 151.1D, Att.2).
Emergency Communication System	A system for the protection of life that conveys the existence of an emergency situation and communicates information necessary to facilitate an appropriate response and action. Emergency communication systems are classified as either one-way or two-way systems (DOE O 151.1D, Att.2).
Emergency Management Plan	A plan that describes the provisions for response to Operational Emergencies and activities for maintaining the emergency management program (DOE G 151.1-3 (2007) Appendix A).

Term / Concept	Definition / Description
Emergency Notification System	A type of emergency communication system that facilitates the real-time, one-way dissemination or broadcast of messages to one or many groups of people at a site/facility/activity. Examples of an emergency notification system include intelligible voice communications, a distributed recipient mass notification system (e.g., text messaging, email, reader-boards, or Reverse 911), and/or common siren systems that are used to alert for tornadoes, tsunamis, and air-raids (DOE O 151.1D, Att.2).
Emergency Operations Center	The physical or identified location at which the coordination of information and resources to support incident management activities normally takes place. An emergency operations center may be a temporary facility, may be located in a more central or permanently established facility, or may be virtual (DOE O 151.1D, Att.2).
Emergency Operations System	A system that provides a means for centralized collection, validation, analysis, and coordination of information related to an emergency (e.g., logistical support). The emergency operations system uses standard operating procedures, checklists, and appropriate plans and tools to initiate, manage, disseminate, and maintain incident information and resources throughout the emergency.
Emergency Planning Hazards Assessment (EPHA)	A quantitative analysis identifying hazards and the potential consequences from unplanned releases of (or loss of control over) hazardous materials, using accepted assessment techniques (DOE O 151.1D, Att.2).
Emergency Planning Zone	A zone identified to facilitate a preplanned strategy for protective actions during a defined emergency (DOE O 151.1D, Att.2).
Emergency Response Organization	A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation (DOE O 151.1D, Att.2).
Establish	To institute by enactment or agreement.
Exercise	An exercise is a scripted, scenario-based instrument to assess, evaluate, and improve performance in prevention, protection, mitigation, response, and recovery capabilities in a risk-free environment. Exercises can be used for testing and validating policies, plans, procedures, training, equipment, and interagency agreements; clarifying and training personnel in roles and responsibilities; improving interagency coordination and communications; improving individual performance; identifying gaps in resources; and identifying opportunities for improvement. An exercise can be discussion-based (e.g., seminars, workshops, tabletop exercise, and games) or operations-based (DOE O 151.1D, Att.2).
Expert Elicitation	Expert elicitation is a formal, highly structured, and well-documented process whereby expert judgments, usually of multiple experts, are obtained (NUREG-1563). Expert judgment consists of information provided by a technical expert in his or her subject matter area of expertise, based on opinion or on a belief based on reasoning. Questions are usually posed to experts because they cannot be answered by other means.
Extended Time	A period longer than the normal or expected time frame.
Finding	Findings are deficiencies that warrant a high level of attention on the part of management. If left uncorrected, findings could adversely affect the DOE mission, the environment, worker safety or health, the public, or national security. Findings define the specific nature of the deficiency, whether it is localized or indicative of a systemic problem, and identify which organization is responsible for corrective actions (DOE O 151.1D, Att.2).

Term / Concept	Definition / Description
General Emergency	A condition in which 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 (DOE O 151.1D, Att.2).
Graded Approach	Graded approach is the application process for administrative controls. It is a process by which the level of analysis, extent of documentation, and degree of rigor of process control are applied commensurate with their significance, importance to safety, life cycle state of a facility or work, or programmatic mission. A graded approach does not allow for a requirement to be waived, but rather allows for varying levels of managerial controls to be applied to provide adequate assurance, commensurate with risk, that a requirement is being met. A graded approach is used in EM processes and procedures that incorporates a risk-based approach to assess and protect against the consequences of hazards (man-made and natural) that may have an adverse impact on national security or the environment, or that may pose significant danger to the health and safety of DOE Federal and contractor employees or the public.
Hazard	A source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation) (10 CFR Part 830.3).
Hazard Categorization	(10 CFR 830, Subpart B, Appendix A) Evaluation of the consequences of unmitigated releases to classify facilities or operations into the following hazard categories: • Hazard Category 1: Has the potential for significant offsite consequences • Hazard Category 2: Has the potential for significant onsite consequences • Hazard Category 3: Has the potential only for significant localized consequences • Below Category 3: Only consequences less severe than those that provide a basis for categorization as a Hazard Category 1, 2, or 3 nuclear facility DOE-STD-1027-92 (1997) provides guidance and radiological threshold values for determining the Hazard Category of a facility. DOE-STD-1027-92 (1997), *Hazard Categorization* and *Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, interpret Hazard Category 1 facilities as Category A reactors and other facilities designated as such by the Program Secretarial Officer (DOE-STD-3009-2014).
Hazardous Material	Any hazardous biological agents and toxins; any radioactive or radiological material that emits ionizing radiation or solid, liquid, or gaseous material that is toxic, explosive, flammable, corrosive; that emits ionizing radiation; or otherwise could adversely affect the health and safety of the public or the workers or harm the environment (DOE O 151.1D, Att.2).
Hazardous Material Facility	For the purposes of DOE O 151.1D, a facility required to establish and maintain an Emergency Management Hazardous Material Program to supplement its Emergency Management Core Program.
Hazardous Material Facility – General Emergency	A facility with a hazardous material inventory that requires the development of an Emergency Planning Hazards Assessment and whose postulated release(s) could impact the public.
Hazardous Material Facility –Site Area Emergency	A facility that contains a hazardous material inventory that requires development of an Emergency Planning Hazards Assessment. However, the inventory is such that none of the postulated releases are expected to reach the public.

Term / Concept	Definition / Description
Human-Caused Incidents	An incident that results from an intentional or unintentional action taken by a person(s) or an adversary, such as a safety mishap or a threatened or actual chemical attack, biological attack, or cyber incident (DOE O 151.1D, Att.3 (2.d)).
Incident	An unexpected occurrence, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes/tropical storms, tornadoes, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response. In contrast to an "event" as defined in the National Incident Management System, an "incident" is an unplanned occurrence (DOE O 151.1D, Att.2).
Incident Command System	Standardized on-scene emergency management construct specifically designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. It is used for all kinds of emergencies and is applicable to small as well as large and complex incidents. An incident command system is intended to organize field-level incident management operations (DOE O 151.1D, Att.2).
Incident Commander	The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The incident commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident scene (DOE O 151.1D, Att.2).
Latent Organizational Condition or Weakness	Undetected deficiencies in organizational processes, equipment, or values that create job-site conditions that either provoke error or degrade the integrity of controls.
Lessons Learned	A "good work practice" or innovative approach that is captured and shared to promote repeat application. A lesson learned may also be an adverse work practice or experience that is captured and shared to avoid recurrence.
Life Safety	The concept that consideration for both the rescuer's and the rescuee's lives are most important in an incident. NFPA 101, *Life Safety Code*, indicates minimum requirements consistent nationally recognized preventive measures to assure a reasonable level of life safety and property protection from the hazards of fire, explosion, or dangerous conditions in new and existing buildings and to provide safety to firefighters and emergency responders during emergency operations.
Maintain	The process of ensuring equipment, system, procedure, and/or facility is kept in a functional state.

Term / Concept	Definition / Description
National Incident Management System	A set of principles that provides a systematic, proactive approach guiding government agencies at all levels, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life or property and harm to the environment (FEMA Comprehensive Preparedness Guide 101, Version 2.0, 2010). It is a systematic, proactive DHS FEMA approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work together seamlessly and manage incidents involving all threats and hazards—regardless of cause, size, location, or complexity—in order to reduce loss of life, property, and harm to the environment. The National Incident Management System is the essential foundation to the National Preparedness System and provides the template for the management of incidents. The concepts provide for a flexible but standardized set of incident management practices with emphasis on common principles, a consistent approach to operational structures and supporting mechanisms, and an integrated approach to resource management.
Natural Phenomena Event	Natural phenomena events are natural phenomena (e.g., earthquakes and tornadoes), involving or affecting the facility or having potential to have serious impacts on health and safety, electrical reliability, the environment, safeguards, and security (DOE O 151.1D, App B). Plausible severe natural phenomena events that may be considered in some beyond design basis event evaluations in DSAs include the following examples: tornado, lightning, severe earthquake, tsunami, hurricane, wildland (and possibly urban) fire, flood, snowstorm, and/or hail that impacts facilities. See also DOE-STD-1020-2012, *Natural Phenomena Hazards Analysis and Design Criteria for DOE Facilities.*
Offsite Response Organizations	Offsite government or commercial groups (i.e., not a DOE contractor for the facility with the emergency) who are part of the authorized emergency response. For anticipated emergencies, most will be identified in the site emergency plan. While offsite response organizations will vary from site to site, the list of offsite emergency response organizations typically will include local and state governments; and organizations with which a site has Memorandum of Agreements (MOAs), Memorandum of Understanding (MOUs), or other agreements (e.g., offsite medical or fire). Federal response resources (e.g., Center for Disease Control and Prevention (CDC), Department of Agriculture, Radiation Emergency Assistance Center/Training Site (REAC/TS), etc.) and offsite first response resources can be considered particular types of offsite response organization.
Operational Emergency	A major unplanned or abnormal incident or condition that involves or affects DOE facilities and activities by causing or having the potential to cause serious health and safety impacts or environmental impacts and requires additional resources to supplement the planned initial response offsite, and/or any accident/incident involving an offsite DOE shipment containing hazardous materials that causes the initial responders to initiate protective actions at locations beyond the immediate/affected area (DOE O 151.1D, Att.2). An emergency can be *categorized* as an Operational Emergency or not categorized. More serious categorized Operational Emergencies are *classified* events, as one of three classifications (Alert, Site Area Emergency, or General Emergency).

Term / Concept	Definition / Description
Opportunity for Improvement	A suggestion offered in independent oversight appraisal reports that may assist cognizant managers in improving programs and operations. While they may identify potential solutions to a finding or deficiency identified in appraisal reports, they may also address other conditions observed during the appraisal process. Opportunities for improvement are provided only as recommendations for line management consideration; they do not require formal resolution by management through a corrective action process (DOE O 151.1D, Att.2).
Optimal	Best or most favorable.
Organizational Effectiveness Element	A cross-cutting element in the Emergency Management Assessment Standard that considers contractor performance measures applicable to a number of other elements (e.g., training and safety culture); and staff competency and performance (e.g., understanding of and proficiency in their job function; understanding interfaces with other job functions; proficient in use of available tools and equipment; effective communication; a questioning attitude; the anticipation, prevention, or capture of active errors that, if left undetected, could cause irreversible harm; and performance under acute or extended stress). In addition, human factors considerations related to carrying out an effective response to an emergency, especially with regard to more severe events, are included (e.g., provisions and hygiene/sanitation for extended response; heat and cold field issues; ability of staff to get to the EOC during off-hours).
Performance Indicators	Parameters measured to reflect the critical success factors of an organization. A lagging indicator is a measure of results or outcomes. A leading indicator is a measure of system conditions or behaviors which provide a forecast of future performance (also known as "metrics") (DOE-HDBK-1028-2009, vol.1).
Performance Measure	A means of conveying how a program is performing based on assessment results. That is, the gauge of the effectiveness of an emergency management program aspect based on the implementation of best practices rather than on whether the aspect is simply compliant with requirements.
Performance-based	A regulatory or review approach for oversight that focuses on the effective execution of emergency management program activities to protect human health and safety.
Proficiency or **proficient**	Demonstrated skill and competency acquired from training and experience (DOE O 151.1D, Att.2).

Term / Concept	Definition / Description
Program Element(s)	The 15 emergency core program components that DOE emergency management programs must address and the Organizational Effectiveness Element (used in this Standard) that crosscut to the other program elements (DOE O 151.1D, Att.3(1.7) and Att.4(1)): A. Program Management and Administration B. All-Hazards Planning Basis C. Emergency Response Organization D. Emergency Operations System E. Training and Drills F. Emergency Medical Support G. Offsite Response Interfaces H. Emergency Categorization I. Protective Actions J. Emergency Facilities and Equipment/Systems K. Notifications and Communications L. Emergency Public Information M. Termination and Recovery N. Readiness Assurance O. Consequence Assessment (X). Organizational Effectiveness
Protective Action Criteria	The level of hazardous material impact that, if observed or predicted, indicates action is needed to prevent or limit exposure of people to the hazard. Protective action criteria are used for both radiological and non-radiological consequence criteria in DOE facility emergency planning and response; for example, building-collapse zone or bomb threat (DOE O 151.1D, Att.2).
Protective Action Guide	A protective action guide (or guideline) (PAG) is the projected dose to an individual, resulting from a radiological incident at which a specific protective action to reduce or avoid that dose is warranted (*EPA PAG Manual*, EPA-400/R-17/001, 2017). A facility will use the PAG Manual to develop site-specific protective action criteria for radioactive emissions. PAGs for other releases (non-radiological) can be non-numerically based.
Protective Action Recommendations	Predetermined actions designed to protect the health and safety of the public that are consequence-based decisions (known as protective actions for the site). DOE sites recommend protective actions to the public and community for Operational Emergencies that have the potential to cause offsite consequences. Protective action recommendations are made promptly to offsite agencies to minimize emergency-related consequences (DOE O 151.1D, Att.2)**.**
Protective Actions	Actions taken to minimize the consequences of emergencies and to protect the health and safety of workers and the public (DOE O 151.1D, Att.2).
Public	Generally, for DOE O 151.1D use, all individuals outside a DOE site boundary.
Quality	The condition achieved when an item, service, or process meets or exceeds the user's requirements and expectations (10 CFR Part 830.3).
Quality Assurance	All the actions that provide confidence that quality is achieved (10 CFR Part 830.3).

Term / Concept	Definition / Description
Quality Assurance Program	The overall program or management system established to assign responsibilities and authorities, define policies and requirements, and provide for the performance and assessment of work (10 CFR Part 830.3).
Reasonable Assurance	The recognition that "adequate protective measures can and will be taken in the event of an emergency." Reasonable assurance is based on complying with regulations and guidance, as well as on response organizations demonstrating that they can effectively implement emergency plans and procedures during periodic evaluated exercises (NRC FAQ: Emergency Preparedness and Response).
Recovery	The phase of activity that follows termination of an emergency. The recovery period begins when emergency response is declared terminated, but recovery planning can proceed before the response is declared terminated. The recovery phase continues until the objectives of the recovery effort have been met (DOE O 151.1D, Att.2).
Risk-Informed	In the context of this Standard, refers to the incorporation of expert risk insights to support an emphasis on those emergency management activities and capabilities most critical to the protection of public health and safety.
Safety Culture	An organization's values and behaviors—modeled by its leaders and internalized by its members—that serve to make safety the overriding priority (DOE-HDBK-1028-2009, vol.1). The principals for a strong nuclear safety culture include: 1. Everyone is personally responsible for nuclear safety. 2. Leaders demonstrate commitment to safety. 3. Trust permeates the organization. 4. Decision making reflects safety first. 5. Nuclear technology is recognized as special and unique. 6. A questioning attitude is cultivated. 7. Organizational learning is embraced. 8. Nuclear safety undergoes constant examination It is an organization's values and behaviors—modeled by its leaders and internalized by its members—that serve to make nuclear safety the overriding priority (see Institute of Nuclear Power Operations - *Principals for a Strong Nuclear Safety Culture*).
Severe Incident	An incident expected to cause major disruptions/damage to site-wide and offsite infrastructure as well as an increased risk to onsite personnel, possibly resulting in injuries and fatalities. Severe incidents could potentially isolate a facility or site from onsite/offsite response assistance and infrastructure support (DOE O 151.1D, Att.2).
Significance Bin	In reference to this Standard, there are four significance bins (High, Medium, Low, and Not Applicable) that signify the importance of an emergency management program aspect in preventing consequences (i.e., radiation dose or chemical exposure) should a hazardous material release occur. The significance bin can then be integrated with performance measures so that the significance of emergency management program aspects become risk-informed.

Term / Concept	Definition / Description
Significant Change	With respect to a significant change that requires an update of the All-Hazards Survey: A significant change describes an approximate 20 percent or more increase in hazardous material source term or health impact. The 20 percent is a general guideline, based on consideration of environmental dispersion uncertainties and the conservative evaluations in the existing Emergency Planning Hazards Assessment. If a new hazardous material is brought to a facility that could cause health impacts beyond the facility boundary, this would be considered a significant change. If the change results in a less-dispersible, lower hazard from inhalation, external, or dermal exposure pathways the facility may choose not to update their All-Hazards Planning Basis, which would err on the side of safety. However, if the facility could reach a General Emergency with the original material and the new form would at most result in a Site Area Emergency, the All-Hazards Survey should be updated if no other General Emergency events are postulated for the facility.
Significant Health and Safety or Environmental Impact	The modifying term "significant," when applied to health, safety, and environmental impacts, are those causing a measurement of risk to exceed a predetermined level or limit. One example of a predetermined, administratively defined level for health impacts is a protective action guideline adopted by a facility. Predetermined levels for emergency preparedness are commonly set at levels lower than those where actual impacts to humans or property would commonly occur, to allow for a certain level of uncertainty in these life- and health-critical decisions. This term is considered synonymous with the "serious health and safety (or environmental) impacts" of DOE O 151.1D.
Site Area Emergency	A condition in which 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 (DOE O 151.1D, Att.2).
Site Boundary	The DOE site boundary is a geographic boundary within which public access is controlled and activities are governed by DOE and its contractors, and not by local authorities. A public road or waterway traversing a DOE site is considered to be within the DOE site boundary if DOE or the site contractor has the capability to control, when necessary, the road or waterway during accident or emergency conditions (DOE-STD-3009-2014).
Subject Matter Expert	A person who is an authority in a particular area or topic. That is, someone with a deep understanding of a particular subject, process, function, technology, machine, material, or type of equipment.
Technological Hazards	Hazards resulting from accidents or the failures of systems and structures, such as hazardous materials releases, or dam failures (DOE O 151.1D, Att.3(2d)). Examples of technological hazards that may be considered in the All-Hazards Planning Basis include airplane crash, dam failure, levee failure, mine and tunnel accident (i.e., safety system failures that could result in a hazardous material release, power failure, train derailment, or a conflagration).
Termination	The declared conclusion of an Operational Emergency (DOE O 151.1D, Att.2).

Term / Concept	Definition / Description
Threat and Hazard Identification Risk Assessment (THIRA)	The THIRA process standardizes the risk analysis process that emergency managers and homeland security professionals use. The THIRA process builds on existing local, State, Tribal, territorial Hazard Identification and Risk Assessments by broadening the threats and hazards considered to include human-caused threats and technological hazards. The THIRA process incorporates the whole community into the planning process partnering to provide increased flexibility to account for community-specific factors and helps communities to understand and map their risks; and to consider their available capabilities. The THIRA includes core capabilities relevant to all five emergency preparedness mission areas; prevention, protection, mitigation, response, recovery. The THIRA is included as part of the All-Hazards Survey process.
Unified Command	A Federal Emergency Management Agency concept where incident commanders from multiple jurisdictions or organizations operate together to form a single command structure. (e.g., fire, rescue, local law enforcement, site/facility). Incident commanders within the unified command make joint decisions and speak as one voice. The National Incident Management System encourages the use of unified command. A simpler command type would be "single command;" a more complex command type would be "area command."
Unreviewed Safety Question	A situation where (1) the probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the Documented Safety Analysis could be increased; (2) the possibility of an accident or malfunction of a different type than any evaluated previously in the Documented Safety Analysis could be created; (3) a margin of safety could be reduced; or (4) the Documented Safety Analysis may not be bounding or may be otherwise inadequate (10 CFR Part 830.3).
Unreviewed Safety Question Process	The mechanism for keeping a safety basis current by reviewing potential Unreviewed Safety Questions, reporting Unreviewed Safety Questions to DOE, and obtaining approval from DOE prior to taking any action that involves an Unreviewed Safety Question (10 CFR Part 830.3).

5.4.2 Acronyms

AEGL	acute exposure guideline levels
AEOC	Alternate Emergency Operations Center
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
BCP	business continuity planning
BP	best practices
CFR	Code of Federal Regulations
CPG	Comprehensive Preparedness Guide
CRD	contractor requirements document
CSE	cognizant system engineer
DHHS	Department of Health and Human Services
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation

DPO	differing professional opinion
DSA	documented safety analysis
EA	enterprise assessments
EAL	emergency action levels
ECP	employee concerns program
EM	emergency management
EOC	emergency operations center
EOP	emergency operations plans
EOS	emergency operations system
EPA	Environmental Protection Agency
EPHA	emergency planning hazards assessment
EPIP	emergency plan implementing procedure
EPR	emergency preparedness and response
EPZ	emergency planning zone
ERAP	emergency readiness assurance plan
ERO	emergency response organization
ERPG	emergency response planning guidelines
ES&H	environment, safety, and health
ETTP	East Tennessee Technology Park
FEMA	Federal Emergency Management Agency
FFIEC	Federal Financial Institutions Examination Council
FSE	full-scale exercise
FTCP	Federal Technical Capability Program
GHS	globally harmonized system
HAZMAT	hazardous materials
HIPAA	Health Information Portability and Accountability (Act)
HMIS	Hazardous Material Information System
HSS	health, safety, and security
IACRNE	Interagency Committee on Radiological and Nuclear Emergencies
IC	incident commander
ICS	incident command system
IEA	Independent Enterprise Assessments
INL	Idaho National Laboratory
IP	implementation plan
ISM	integrated safety management
JIC	joint information center
LANL	Los Alamos National Laboratory
LASO	Los Alamos Site Office

LFO	Livermore Field Office
LLNL	Lawrence Livermore National Laboratory
LOI	lines of inquiry
MOA	memoranda of agreement
MOU	memoranda of understanding
NAS	National Academy of Sciences
NETL	National Energy Technology Laboratory
NFO	Nevada Field Office
NFPA	National Fire Protection Association
NIMS	National Incident Management System
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NPE	natural phenomena event
NPH	natural phenomena hazards
NPO	NNSA Production Office
NPP	nuclear power plant
NRC	U.S. Nuclear Regulatory Commission
NRP	national response plan
OE	Operational Emergency
OFI	opportunities for improvement
OMB	Office of Management and Budget
PA	protective actions
PAC	protective action criteria
PAG	protective action guides
PB	performance baseline
PDSA	preliminary documented safety analysis
PPPO	Portsmouth/Paducah Project Office
PRA	probabilistic risk assessment
QAP	quality assurance program
SD	supplemental directive
SFO	Senior Federal Official
SME	subject matter experts
SPEEDI	System for Prediction of Environmental Emergency Dose Information
SRS	Savannah River Site
SSC	structures, systems, and components
TEEL	temporary emergency exposure limits
TEPCO	Tokyo Electric Power Company
TF	Tritium Facilities

THIRA	threat and hazard identification and risk assessment
TSD	treatment, storage, or disposal facility
U.S.C.	United States Code
VE	value engineering
WIPP	Waste Isolation Pilot Plant

6.0 Presentation of Criteria, Review and Approach Documents

PROGRAM MANAGEMENT & ADMINISTRATION

Program Management and Administration

A viable, integrated, and coordinated Comprehensive Emergency Management System is established, administered, managed and maintained. The system includes an Emergency Management Core Program, All-Hazards Emergency Management Plan, implementing procedures, interface with jurisdictional responders, and document control (distribution, classified information, vital records, agreements, etc.). Emergency management planning is integrated with other applicable programs and associated documents. Senior management identifies an individual with the authority to administer the Emergency Management program (plans, procedures, resources, integration with relevant internal/external organizations, etc.) and also provides resources and operational support for effective and efficient response to events identified in the All-Hazards Survey. In addition, there is evidence that best practices (BPs) are being implemented (DOE O 151.1D, Attachment 3, 1).

A.01.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Authorities and resources are established and maintained for planning, development, implementation and preservation of the Comprehensive Emergency Management System.			DOE O 151.1D, Attachment 3, 1.a.(1) & (2); DOE O 422.1, Attachment 2, Appendix A

A.01.01 LINES OF INQUIRY		
A.01.01.01	Is an individual designated to manage the Emergency Management program?	DOE O 151.1D, Attachment 3, 1.a
A.01.01.02	Does the person responsible for day-to-day operation and maintenance of the Emergency Management program have the necessary authority to carry out their responsibilities?	DOE O 151.1D, Attachment 3, 1.a.(1)
A.01.01.03	Do the Emergency Management procedures effectively outline the authorities, roles, and responsibilities for this designated position?	DOE O 422.1, Attachment 2, Appendix A
A.01.01.04 BP	Is there an organization chart to indicate Emergency Management program personnel and their roles and responsibilities within the organization?	
A.01.01.05	Does the Emergency Management manager have access to management personnel who have authority for site/facility/activity-level resources and operations (i.e., equipment, supplies, facilities, and staff)?	DOE O 151.1D, Attachment 3, 1.a.(2)

A.01.02 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
The emergency manager provides briefings to senior management regarding the Emergency Management program and associated management roles and responsibilities.			DOE O 151.1D, Attachment 3, 1.a.(3)

A.01.02 LINES OF INQUIRY		
A.01.02.01	Does the Emergency Management manager brief senior management on the Emergency Management program?	DOE O 151.1D, Attachment 3, 1.a.(3)
A.01.02.02	Does the Emergency Management manager conduct initial briefings to senior management on their expected roles and responsibilities during an emergency?	DOE O 151.1D, Attachment 3, 1.a.(3)

A.01.02.03	Does the Emergency Management manager conduct additional briefings to senior management when changes occur that modifies their roles and responsibilities?	DOE O 151.1D, Attachment 3, 1.a.(3)
A.01.02.04 BP	Is there evidence that the emergency management briefings provided to senior management are conducted at a frequency commensurate with the All-Hazards Planning Basis and are comprehensive?	

A.01.03 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The emergency manager ensures that the Emergency Management program is integrated with all applicable programs (safety, security, etc.) and plans and procedures are updated as changes are identified.	DOE O 151.1D, Attachment 3, 1.a.(4)

A.01.03 LINES OF INQUIRY

A.01.03.01	Does the Emergency Management manager ensure that Emergency Management planning is integrated with other applicable programs and associated documents (e.g., safety and security)?	DOE O 151.1D, Attachment 3, 1.a.(4))
A.01.03.02	Is there a process in place that has comprehensively identified appropriate programs and associated documents applicable to Emergency Management planning (e.g., Baseline Needs Assessment, Site Security Plan, Cybersecurity Plan, and Continuity of Operations Plan, Documented Safety Analysis, Threat and Hazard Identification and Risk Assessment Guide)?	DOE O 151.1D, Attachment 3, 1.a.(4))
A.01.03.03	Are building emergency plans integrated with the EMERGENCY MANAGEMENT plan?	DOE O 440.1B
A.01.03.04 BP	Are changes to applicable programs and associated documents promptly conveyed to emergency planning staff?	
A.01.03.05 BP	Are changes to emergency planning promptly conveyed to persons responsible for applicable programs and associated documents?	

A.01.04 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The emergency manager oversees development of plans, procedures, offsite agreements, and related Emergency Management documents.	DOE O 151.1D, Attachment 3, 1.a.(5), (6) & (7)

A.01.04 LINES OF INQUIRY

A.01.04.01	Does the manager oversee the development and implementation of the Emergency Management plan?	DOE O 151.1D, Attachment 3, 1.a.(5)
A.01.04.02	Does the Emergency Management plan address all 15 elements of the Core Program and others as applicable?	DOE O 151.1D, Attachment 3, 1.a.(4))

A.01.04.03	Does the manager approve and/or concur on planning documents addressing the program elements?	DOE O 151.1D, Attachment 3, 1.a.(6)
A.01.04.04 BP	Does the emergency manager oversee the development of offsite Memoranda of Understanding (MOUs), Memoranda of Agreement (MOAs), etc.?	
A.01.04.05 BP	Does the emergency manager or their delegate periodically meet with offsite agencies to validate the accuracy of agreements (MOUs, MOAs, etc.)?	

A.01.05 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Requirements from DOE O 151.1D Attachment 4 (Emergency Management Hazardous Material Program), Attachment 5 (*Secure Transportation*), and/or Attachment 6 (*Energy Emergency Response Support*), are included in the Emergency Management program as appropriate.	DOE O 151.1D, Attachment 3, 1.b

A.01.05 LINES OF INQUIRY

A.01.05.01	Is each applicable Attachment to the Order identified and/or ruled out?	DOE O 151.1D, Attachment 3, 1.b
A.01.05.02	Are Attachment 4, Emergency Management Hazardous Material Program, requirements addressed in the Emergency Management program for sites/facilities/activities with hazards that are not screened out by the Hazardous Materials Screening process, if applicable?	DOE O 151.1D, Attachment 3, 1.b.(1)
A.01.05.03	Are Attachment 5, Secure Transportation, requirements addressed in the Emergency Management program for activities performed by the Office of Secure Transportation, if applicable?	DOE O 151.1D, Attachment 3, 1.b.(2)
A.01.05.04	Are Attachment 6, Energy Emergency Response Support, requirements addressed in the Emergency Management program for the Departmental elements supporting national energy emergency response and all-hazards incident national level response, if applicable?	DOE O 151.1D, Attachment 3, 1.b.(3)

A.01.06 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

An all-hazards Emergency Management plan is developed and maintained.	DOE O 151.1D, Attachment 3, 1.c

A.01.06 LINES OF INQUIRY

A.01.06.01	Is an all-hazards Emergency Management plan developed and maintained?	DOE O 151.1D, Attachment 3, 1.c
A.01.06.02	Is the all-hazards Emergency Management plan reviewed annually, updated if necessary, and is the annual review documented?	DOE O 151.1D, Attachment 3, 1.c.(1)

A.01.06.03	Is the Emergency Management plan submitted to the Field Element Manager or appropriate delegate for approval at least every three years?	DOE O 151.1D, Attachment 3, 1.c.1 and 3
A.01.06.04	If applicable, has the all-hazards Emergency Management plan been updated ahead of the mandatory three year update, due to significant changes to hazards and the organization?	DOE O 151.1D, Attachment 3, 1.c.(2)
A.01.06.05 BP	Is a process in place for the prompt notification of significant changes to the Emergency Management program (e.g., changes in hazards resulting in revised Emergency Planning Zones, revisions to organizational structure)?	
A.01.06.06 BP	Are changes in hazardous operations promptly and thoroughly captured into plan changes?	
A.01.06.07 BP	Do subject matter experts and management conduct a review and provide input for Emergency Management plan updates?	

A.01.07 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Procedures that implement the Emergency Management plan are developed and maintained.	DOE O 151.1D, Attachment 3, 1.d, e; DOE 0 440.1B

A.01.07 LINES OF INQUIRY

A.01.07.01	Do procedures effectively describe implementation and maintenance of all aspects of the Emergency Management plan?	DOE O 151.1D, Attachment 3, 1.d
A.01.07.02	Are Emergency Management implementation procedures, or equivalent, developed for each of the 15 elements of the Core Program?	DOE O 151.1D, Attachment 3, 1.a, 7
A.01.07.03	Are Emergency Management implementation procedures, or heir equivalents developed for Defense Nuclear Facilities and/or hazardous materials sites/facilities/activities, if applicable?	DOE O 151.1D, Attachment 3, 1.d; Attachment 4, 1.
A.01.07.04	Are occupant emergency plans and procedures developed and implemented?	DOE O 440.1B, 4, l

A.01.08 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Emergency procedures at the operational level are clearly distinguishable from normal operating procedures	DOE O 422.1, Attachment 2, Appendix A, 2.p.(9)

A.01.08 LINES OF INQUIRY

A.01.08.01	Are operational emergency procedures distinguishable from normal operating procedures?	DOE O 422.1, Attachment 2, Appendix A, 2.p.(9)
A.01.08.02	Are appropriate actions in emergency procedures available for operators to take during an emergency?	DOE O 422.1, Attachment 2, Appendix A, 2.p.(9)d

A.01.08.03	Are management processes for operators to report deficient emergency procedures and initiate changes effective?	DOE O 422.1, Attachment 2, Appendix A, 2.p.(9)b
A.01.08.04	Do the emergency procedures allow the operators to deviate from the normal operating procedures without filing formal procedure changes?	DOE O 422.1, Attachment 2, Appendix A, 2.p.(9)b

A.01.09 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Agreements for the rescue, transport, acceptance, and treatment of potentially contaminated injured personnel, as applicable, are developed and maintained.	DOE O 151.1D, Attachment 3, 1.g

A.01.09 LINES OF INQUIRY

A.01.09.01	Are mutual-aid agreements or their equivalents developed with offsite entities for rescue, transport, acceptance, and treatment of potentially contaminated injured personnel?	DOE O 151.1D, Attachment 3, 1.g
A.01.09.02	Are offsite medical facilities, search and rescue, and life-flight agencies, as appropriate, identified to rescue, transport, accept, and treat potentially contaminated injured personnel?	DOE O 151.1D, Attachment 3, 6.c
A.01.09.03	Are the offsite agencies invited to participate in periodic drills and exercises to test established agreements and capabilities?	DOE O 151.1D, Attachment 3, 5.f
A.01.09.04 BP	Does the Emergency Management manager or delegate periodically meet with offsite agencies to validate the accuracy of agreements (MOUs, MOAs, etc.)?	

A.01.10 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Interoperability, integration, and interface with jurisdictional responders are addressed for severe incidents with regional impacts.	DOE O 151.1D, Attachment 3, 1.h

A.01.10 LINES OF INQUIRY

A.01.10.01	Are jurisdictional responders identified (federal, tribal, state, local, etc.)?	DOE O 151.1D, Attachment 3, 1.h
A.01.10.02	Are agreements developed with each jurisdictional responding entity that ensure interoperability, integrations, and interface with DOE for severe incidents with regional impacts?	DOE O 151.1D, Attachment 3, 1.h
A.01.10.03 BP	Are jurisdictional responders invited to participate in periodic drills and exercises to test established agreements and capabilities?	
A.01.10.04 BP	Have organizations not usually included in emergency planning been considered and a liaison established, as appropriate, depending on the particular emergency scenario (e.g., local business community, colleges and universities, American Red Cross, Federal Executive Board)?	DOE G 151.1-4, Section 2.2

A.01.10 LINES OF INQUIRY

A.01.10.05 BP	In the event that state and local agencies refuse to participate in the planning effort, do facility plans call for providing the information specified in 40 CFR 355, as well as the event categorization and classification?	DOE G 151.1-4, Section 5.3.4

A.01.11 CRITERION

Core Facility | DNF Facility | ✓ HazMat Facility

Emergency Management documents are reviewed for classified and Controlled Unclassified Information.	DOE O 151.1D, Attachment 3, 1.i

A.01.11 LINES OF INQUIRY

A.01.11.01	Do derivative classifiers review the Emergency Management documents, including documentation developed during an Operational Emergency, for classified and Controlled Unclassified Information prior to distribution?	DOE O 151.1D, Attachment 3, 1.i

A.02 – OBJECTIVE

A documents and records quality assurance program is effectively applied to the Emergency Management program. Document control and records management systems are in place. Vital records are identified and available when needed. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 414.1D; DOE O 151.1D, Attachment 3, 1.e, f, j)

A.02.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility

A document control system is in place to control the preparation, review, approval, issuance, use, and revision of Emergency Management documents.	DOE O 151.1D, Attachment 3, 1.e; DOE O 422.1, Attachment 2, Appendix A, 2.p.(6); DOE O 414.1D, Attachment 2, 4

A.02.01 LINES OF INQUIRY

A.02.01.01	Is there a documented document control process in place for creating, reviewing, approving, issuing, using, controlling, and revising Emergency Management documentation (policy, plans, procedures, agreements, event documents, planning basis documents, etc.)?	DOE O 151.1D, Attachment 3, 1.e, f; DOE O 422.1, Attachment 2, Appendix A, 2.p.(6)b
A.02.01.02 BP	Does the document control system identify where documents require coordination between programs (i.e., crosswalk between safety/security/facilities/etc. and Emergency Management)?	
A.02.01.03 BP	Does the document control system have an established process to supply correct and applicable revisions of Emergency Management documents to identified staff and locations (Emergency Operations Center, Joint Information Center, Alternate Emergency Operations Center, state, local, etc.)?	
A.02.01.04 BP	Are the document control processes for the Emergency Management plan and related procedures and documentation effective?	

A.02.02 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility

A records management system consistent with DOE O 414.1D, is in place.	DOE O 414.1D, Attachment 2, 4

A.02.02 LINES OF INQUIRY

A.02.02.01	Is a system for management of documents and records in place, consistent with DOE O 414.1D, Attachment 2, Criterion 4 (e.g., prepare, review, approve, issue, use, revise and maintain documents and specify records)?	DOE O 414.1D, Attachment 2, Criterion 4
A.02.02.02 BP	Are Emergency Management program records compiled in a records management system as described in DOE O 243.1B, *Records Management Program*?	DOE G 414.1-2B, 4.4.3

A.02.03 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Emergency operating vital records are identified and maintained in accordance with 36 CFR Part 1236, Electronic Records Management.			DOE O 151.1D, Attachment 3, 1.j; DOE O 243.1B

A.02.03 LINES OF INQUIRY		
A.02.03.01	Are records essential to the continued functioning or reconstitution of an organization during or after an emergency (vital records) identified and maintained in accordance with 36 CFR Part 1236, Electronic Records Management?	DOE O 151.1D, Attachment 3, 1.j; DOE O 243.1B, 4.c.(1)
A.02.03.02 BP	Is a process in place to quickly obtain vital records during or after an emergency?	DOE G 151.1-3, 1.2
A.02.03.03	Are methods established for maintaining records documenting doses received by individuals for whom monitoring was performed during accidents and emergency conditions?	10 CFR 835.702(a)

A.03 – OBJECTIVE

The performance of Emergency Management Staff involved with program management and administration is optimal per Element X.

A.03.01 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.01 criteria has been assessed			

A.03.01 LINES OF INQUIRY	
A.03.01.01	In the context of the Emergency Management staff functions, have the LOIs associated with criteria X.01.01 been addressed?

A.03.02 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility	
Element X.01.05 criteria has been assessed.				DOE O 414.1D, Attachment 2, 4

A.03.02 LINES OF INQUIRY	
A.03.02.01	In the context of the Emergency Management staff functions, have the LOIs associated with criteria X.01.05 been addressed?

A.03.03 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.06 criteria has been assessed.			

A.03.03 LINES OF INQUIRY	
A.03.03.01	In the context of the Emergency Management staff functions, have the LOIs associated with criteria X.01.06 been addressed?

A.03.04 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.07 criteria has been assessed.			

A.03.04 LINES OF INQUIRY	
A.03.04.01	In the context of the Emergency Management staff functions, have the LOIs associated with criteria X.01.07 been addressed?

A.03.05 CRITERION

Core Facility DNF Facility HazMat Facility

Element X.01.09 criteria has been assessed

A.03.05 LINES OF INQUIRY

A.03.05.01	In the context of the Emergency Management staff functions, have the LOIs associated criteria X.01.09 been addressed?

APPROACH – Program Management

Below are generic considerations for Element A, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase of the review (document review, interview, observation) document findings, clarifications, issues, BPs, etc.

Document/Record Reviews

- Site/facility Emergency Plan(s) (confirm position/individual assigned overall responsibility for Emergency Management program; confirm level of program implementation based on all-hazards planning/Emergency Planning Hazards Assessments (EPHA) outcomes; confirm appropriate program Elements are covered; confirm interface with NIMS; confirm Emergency Readiness Assurance Plan (ERAP) development)
- Other documents (policies, emergency plan implementing procedures, building emergency plans, etc.) indicating duties/responsibilities of the Emergency Management program staff
- Contractual documents (contracts, MOAs, MOUs, mutual aid, etc.) for program related activities, agreements with offsite jurisdictional entities including transport/treatment of contaminated personnel
- Documentation of program reviews, corrective actions, and documents that track findings and corrective actions related to Program Management
- Hazards Survey, EPHA, Threat and Hazard Identification and Risk Assessment (THIRA), etc.
- Document control process (whole system, Quality Assurance requirements, etc.)
- Plans/procedures related to the protection of vital (essential) records
- Plans/procedures related to the protection of classified information or UNCI
- Documentation of classified information reviews (determine whether documents have been properly marked, determine whether appropriate Emergency Management staff have authorization/authority to access classified information)

Interviews

- Person with overall responsibility for managing the Emergency Management program and delegates (integration with other programs, budget and resources) (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10**)
- Facility Emergency Management personnel on sites with multiple facilities (**X.01.01, X.01.02, X.01.03, X.01.06, X.01.07, X.01.09, X.01.10**)
- Person(s) responsible for document control system (vital records, document control program, document recovery (emergency access), classified information, etc.)
- Person(s) responsible (security and/or Emergency Management staff) for classified material information related to Emergency Management activities
- Management staff receiving briefings on the overall Emergency Management program and to their Emergency Management responsibilities (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10**)

Observation

- Pull up vital (essential) records from backup sources

References

- **10 CFR 835.702(a):** *Occupational Radiation Protection; Records*
- **36 CFR Part 1236:** *Management of Vital Records*
- **40 CFR 355:** *Emergency Planning and Notification*
- **CPG201:** *Threat and Hazard Identification and Risk Assessment Guide*
- **DOE G 151.1-3:** *Programmatic Elements - Emergency Management Guide*
- **DOE G 413.3-3A:** *Safeguards and Security for Program and Project Management*
- **DOE G 414.1-2B:** *Quality Assurance Program Guide*
- **DOE G 440.1B:** *Worker Safety and Health Program for DOE (Including the NNSA) Federal and Contractor Employees*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 243.1B:** *Records Management Program*
- **DOE O 414.1D:** *Quality Assurance*
- **DOE O 422.1:** *Conduct of Operations*
- **NIMS Core:** *National Incident Management System*
- **NUREG 7195:** *Risk-Informed and Performance-Based Oversight of Radiological Emergency Response Programs*

ALL HAZARDS PLANNING BASIS

B. ALL-HAZARDS

B.01 – OBJECTIVE

The All-Hazards Survey identifies all operational hazards (including those beyond the Emergency Management Core Program) and establishes the planning basis for the emergency management program. The All-Hazards Planning Survey includes applicable potential health, safety, or environmental impacts and addresses natural, technological, and human-caused hazards (i.e., chemicals, radiological material, hazardous biological agents and toxins, cyber incidents). A Threat and Hazard Identification and Risk Assessment (THIRA) is conducted in accordance with the Department of Homeland Security's Comprehensive Preparedness Guide (CPG) 201, *Threat and Hazard Identification and Risk Assessment Guide*. There is a process in place for the emergency management program to receive timely notification of changes in hazardous material operations or inventories. In addition, there is evidence that best practices (BPs) are being implemented (DOE O 151.1D, Attachment 3, 2).

B.01.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
An All-Hazards Survey is developed by DOE federal and contractor personnel responsible for sites/facilities/activities.			DOE O 151.1D, Attachment 3, 1.a.(1) & (2); DOE O 422.1, Attachment 2, Appendix A

B.01.01 LINES OF INQUIRY		
B.01.01.01	Has an All-Hazards Survey been developed for single or multiple facilities, or for the entire site?	DOE O 151.1D, Attachment 3, 2
B.01.01.02	Does the All-Hazards Survey adequately identify all hazards that are applicable to the operation of each facility?	DOE O 151.1D, Attachment 3, 2
B.01.01.03	Is the All-Hazards Survey document maintained according to DOE O 414.1D requirements? (See Element A, Objective 02)	DOE O 414.1D
B.01.01.04 BP	Is the All-Hazards Survey document reviewed for classified or unclassified controlled information prior to release?	DOE G 151.1-2, Section 1, 1.9
B.01.01.05 BP	Is each facility or activity covered by the All-Hazards Survey identified and a brief description of its operations provided?	DOE G 151.1-2, Section 1, 1.3
B.01.01.06 BP	Have facility walk-downs been performed by emergency management staff and hazards analysts to familiarize themselves first-hand with actual facility systems, processes, practices, equipment and, especially, material inventories?	DOE G 151.1-2, Section 1, 1.3

B.01.02 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
The All-Hazards Survey describes the applicable potential health, safety, and environmental impacts.			DOE O 151.1D, Attachment 3, 2.a;

B.01.02 LINES OF INQUIRY		
B.01.02.01	Are applicable health and safety impacts (i.e., workplace hazards, exposure to harmful situations and substances) and environmental impacts (i.e., waste, oil, and petroleum spill) incorporated in the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.a DOE O 440.1B; DOE P 450.4A

B.01.02 LINES OF INQUIRY

B.01.02.02 BP	Are impacts described in enough detail to establish the planning basis?	DOE G 151.1-2, 1.6
B.01.02.03 BP	Does the All-Hazards Survey include the following: • a general characterization of the facility and its operations (e.g., office building, laboratory, warehouse); • the number of workers normally assigned; • any special designations, such as: nuclear facility, radiological facility, hazardous waste site, Treatment, Storage, or Disposal facility, etc.; and • whether hazardous materials, other than standard office products and cleaning supplies, are used or stored in the facility?	DOE G 151.1-2, Section 1, 1.3

B.01.03 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The All-Hazards Survey identifies the need for additional planning and preparedness that applies to each type of hazard beyond the Emergency Management Core Program requirements and is submitted for approval. The All-Hazards Survey identifies the need for additional planning and preparedness that applies to each type of hazard beyond the Emergency Management Core Program requirements and is submitted for approval.	DOE O 151.1D, Attachment 3, 2.b and 3, 2.c

B.01.03 LINES OF INQUIRY

B.01.03.01	Does the All-Hazards Survey identify the need for development of additional planning and preparedness (e.g., Emergency Planning Hazards Assessments [EPHAs]) beyond the Emergency Management Core Program requirements?	DOE O 151.1D, Attachment 3, 2.b
B.01.03.02	If the screening process identified at least one hazardous material that requires further analysis, is the development of additional planning and preparedness (e.g., EPHAs) addressed in the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.b; DOE G 151.1-2, Section 1, 1.
B.01.03.03 BP	Does the All Hazard Survey address hazards outside the DOE facility and site that could impact the health and safety of onsite personnel or other DOE interests, as appropriate?	DOE G 151.1-2, Section 1, 1.5
B.01.03.04 BP	Does the All Hazard Survey address railroads, highways, and other transportation arteries that pass through or near a DOE facility or site that should be considered as possible locations of hazardous material transportation accidents?	DOE G 151.1-2, Section 1, 1.5
B.01.03.05	Is the All-Hazards Survey approved by the emergency management program director and other senior contractor managers before submittal to Field Element Manager or appropriate Federal Manager?	DOE O 151.1D, Attachment 3, 2.c
B.01.03.06	Is the All-Hazards Survey submitted for approval to the Field Element Manager or appropriate Federal Manager?	DOE O 151.1D, Attachment 3, 2.c

	Core Facility	DNF Facility	HazMat Facility
	✓	✓	✓

The All-Hazards Survey is up to date and significant changes to hazardous materials inventories are promptly addressed.	DOE O 151.1D, Attachment 3, 2.c

B.01.04 CRITERION	LINES OF INQUIRY	
B.01.04.01	Is the All-Hazards Survey updated at least every three (3) years from date of issuance?	DOE O 151.1D, Attachment 3, 2.c
B.01.04.02	Is the All-Hazards Survey updated and submitted when there are significant changes to operations or hazardous material inventories?	DOE O 151.1D, Attachment 3, 2.c
B.01.04.03 BP	Is there a process in place to promptly communicate to the emergency management program significant operational changes (e.g., increases in hazardous materials inventories, new hazards, changes in safety programs, etc.) that may affect emergency planning?	DOE G 151.1-2, Chapter 4
B.01.04.04 BP	Does the process ensure emergency management personnel are notified before any significant changes to hazardous materials inventories occur?	DOE G 151.1-2, Chapter 4
B.01.04.05 BP	Does the process ensure that the All-Hazards Survey is updated and submitted prior to new or increased quantities of hazardous materials being allowed onsite?	
B.01.04.06	Does the process ensure prompt communication to emergency management program personnel of identified positive Unreviewed Safety Questions (as defined in DOE G 424.1-1B) or positive Unreviewed Safety Issue (as defined in DOE O 420.2C)?	DOE O 151.1D, Attachment 3, 2.c
B.01.04.07	Are significant operational changes (program, process, inventory, etc.; not decommissioning) promptly incorporated into the All-Hazard Surveys?	DOE O 151.1D, Attachment 3, 2.c
B.01.04.08 BP	Is monitoring of existing administrative processes and tracking systems (e.g., Integrated Safety Management Systems [ISMS], hazardous material inventory systems, facility authorization basis documentation) used to maintain the All-Hazards Survey?	DOE G 151.1-2, Section 1, 1.8
B.01.04.09 BP	Are periodic walk-downs performed to provide checks on the accuracy of documentation and material inventory databases and to identify additional hazards from byproducts of chemical processes or potential accidental mixing interactions?	DOE G 151.1-2, Section 1, 1.3

	✓	✓	✓
The All-Hazards Survey includes evaluation of natural hazards that result from acts of nature.			DOE O 151.1D, Attachment 3, 2.d;

B.01.05 LINES OF INQUIRY B.01.05 CRITERION		Core Facility	DNF Facility	HazMat Facility
B.01.05.01	Does the All Hazard Survey address all acts of nature applicable to the site, such as avalanche, animal disease outbreak, drought, earthquake, epidemic, flood, hurricane, landslide, pandemic, tornado, tsunami, volcanic eruption, wildfire, wind, and/or winter storm?			DOE O 151.1D, Attachment 3, 2.d.1.a
B.01.05.02 BP	Is the evaluation of natural hazards conducted using available, appropriate, and representative sources of data?			
B.01.05.03 BP	Does the All-Hazards Survey consider "cascade effects," in which the emergency condition can result in plausible disruption of response capabilities? For example, an earthquake could result in fires from downed power lines while rupturing fire mains.			DOE G 151.1-2, Section 1, 1.6

B.01.06 CRITERION		✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
The All-Hazards Survey includes evaluation of technological hazards, which result from accidents or the failures of systems and structures.				DOE O 151.1D, Attachment 3, 2.d
B.01.06 LINES OF INQUIRY				
B.01.06.01	Does the All-Hazards Survey address all technological hazards applicable to the site, such as airplane crash, dam failure, levee failure, mine and tunnel accident, safety system failures that could result in hazardous materials release, power failure, or train derailment?			DOE O 151.1D, Attachment 3, 2.d.1.b
B.01.06.02 BP	Is the evaluation of technological hazards conducted using available, appropriate, and representative sources of data?			

B.01.07 CRITERION		✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
The All-Hazards Survey includes evaluation of human-caused incidents, which result from an intentional or unintentional action, taken by person(s) or an adversary.				DOE O 151.1D, Attachment 3, 2.d; CPG201
B.01.07 LINES OF INQUIRY				
	Does the All-Hazards Survey address all potential human-caused incidents applicable to the site, such as biological attack, chemical attack, and cyber incident?			DOE O 151.1D, Attachment 3, 2.d.1.c
B.01.07.02 BP	Is the evaluation of human-caused incidents conducted using available, appropriate, and representative sources of data?			

B.01.07.03 BP	Does the All-Hazards Survey address hazards outside the DOE facility and site that could impact the health and safety of onsite personnel or other DOE interests, as appropriate?	DOE G 151.1-2, Section 1, 1.5
B.01.07.04 BP	Does the All Hazard Survey address railroads, highways, and other transportation arteries that pass through or near the site due to the potential for transportation accidents?	DOE G 151.1-2, Section 1, 1.5

B.01.08 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

A THIRA is conducted in accordance with the Department of Homeland Security, CPG 201, *Threat and Hazard Identification and Risk Assessment Guide* and included as part of the All-Hazards Survey process.	DOE O 151.1D, Attachment 3, 2.d.2

B.01.08 LINES OF INQUIRY

B.01.08.01	Is a THIRA conducted in accordance with CPG 201 and included as part of the All-Hazards Survey process?	DOE O 151.1D, Attachment 3, 2.d.2; CPG 201
B.01.08.02 BP	Does the THIRA consider defense-in-depth strategies to minimize the quantity of potential releases?	
B.01.08.03	Is the THIRA analysis conducted using the CPG to identify potential hazards, threats, capability targets, and resources?	DOE O 151.1D, Attachment 3, 2.d.2
B.01.08.04	In addition to the "primary" hazards (e.g., radiological, chemical, biological, etc.), does the THIRA analyze consequences from hazardous material over-pressurizations (e.g., >1 psi), radiant heat dose (e.g., second-degree burn), and/or exposures from explosions or fire involving flammable fuel supplies?	DOE O 151.1D, Attachment 3, 2.d.2.a
B.01.08.05	If oil is part of a process containing or collocated with another hazardous material, does the THIRA indicate that it is to be considered in the EPHA as a possible initiator of or contributor to the release of the hazardous material?	DOE O 151.1D, Attachment 3, 2.d.2.a
B.01.08.06	Are large-scale storage inventories of fuel oil and gases analyzed in the THIRA and addressed in emergency management planning?	DOE O 151.1D, Attachment 3, 2.d.2.b
B.01.08.07	Are hazards associated with explosives considered in the THIRA using a graded approach based on explosive Hazard/Division class and consistent with DOE-STD-1212-2012, Explosives Safety?	DOE O 151.1D, Attachment 3, 2.d.2.c
B.01.08.08	Is a summary of the THIRA included in the annual Emergency Readiness Assurance Plans (ERAP) for submission to its Program Secretarial Officer and the Associate Administrator, Office of Emergency Operations?	DOE O 151.1D, Attachment 3, 2.d.2.d
B.01.08.09	Is the THIRA incorporated into the DOE Enterprise Threat and Hazard Risk Profile?	DOE O 151.1D, Attachment 3, 2.d.3

B.01.08.10	Does the THIRA identify reliance on local/regional offsite responders identified and how severe incidents will be handled if those identified response resources are not available?	DOE O 151.1D, Attachment 3, 2.d.4
B.01.08.11 BP	Are THIRA results used to estimate required resources such as the use of community assets and mutual aid, while also considering preparedness activities, including mitigation opportunities?	CPG 201
B.01.08.12 BP	For those facilities having a documented vulnerability analysis, do the identified targets include both hazardous materials and essential parts of the system of barriers, controls, and protection features that keep them in a safe condition?	DOE G 151.1-2, Section 2, 2.4

B.01.09 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The hazardous materials screening process identifies specific hazardous materials (i.e., radiological, biological agent/toxin, chemical, and explosive) and quantities that, if released, could produce impacts consistent with the definition of an Operational Emergency and which require further analysis in an EPHA.	DOE O 151.1D, Attachment 3, 2.e

B.01.09 LINES OF INQUIRY

B.01.09.01	Is a documented screening process used to identify all hazardous materials?	DOE O 151.1D, Attachment 3, 2.e
B.01.09.02	Are onsite hazardous materials identified which, if released, could result in an Operational Emergency and require further analysis in an EPHA?	DOE O 151.1D, Attachment 3, 2.e
B.01.09.03 BP	Do emergency management personnel have access to information included in hazardous material databases (i.e., screening process results, inventories, etc.)?	
B.01.09.04	Does the hazardous materials screening process include identification of all applicable radiological material inventories that are highly dispersible and have high acute toxicity or high radio-toxicity?	DOE O 151.1D, Attachment 3, 2.e.1
B.01.09.05	Does the hazardous materials screening process include identification of all applicable biological agent/toxin material inventories that are highly dispersible and have high acute toxicity or high radio-toxicity?	DOE O 151.1D, Attachment 3, 2.e.1
B.01.09.06	Does the hazardous materials screening process include identification of all of the applicable chemical inventories that are highly dispersible and have high acute toxicity or high radio-toxicity, including chemical hazards associated with explosive materials?	DOE O 151.1D, Attachment 3, 2.e.1
B.01.09.07	Are hazardous materials (e.g., oil, petroleum, propane, etc.) that are not identified as candidates for analysis considered as possible initiators or promoters of a release of other toxic substances?	DOE O 151.1D, Attachment 3, 2.d.2.a

B.01.09.08 BP	Does the All-Hazards Survey identify the sources of inventory information and summarize the hazardous material screening methods and results?	DOE G 151.1-2, Section 1, 1.9
B.01.09.09 BP	Are the sources of information for the hazardous material screening sources verified and validated as being accurate?	
B.01.09.10 BP	Is there evidence that hazardous material subject matter experts (SMEs) are consulted during the screening processes, as needed?	

B.01.10 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Response plans are developed to address smaller-scale incidents and emergencies and collocations of hazards materials containers when a single container by itself would be screened out.	DOE O 151.1D, Attachment 3, 2.e.1; DOE O 151.1D, Attachment 3, 2.e.2

B.01.10 LINES OF INQUIRY

B.01.10.01	If hazardous materials screens out single containers for the site/facility/activity, is a response plan developed that considers small-scale incidents and emergencies?	DOE O 151.1D, Attachment 3, 2.e.1.a
B.01.10.02	If hazardous materials do not screen out single containers for the site/facility/activity, does the All-Hazards Survey indicate that a quantitative analysis is required in an EPHA?	DOE O 151.1D, Attachment 3, 2.e.1.b
B.01.10.03	Does the screening process consider a single hazardous material container that is interconnected with other hazardous material containers?	DOE O 151.1D, Attachment 3, 2.e.2.a
B.01.10.04	Does the screening process consider multiple containers that a credible common event could cause to release of all the containers and may exceed applicable screening thresholds, triggering a credible Operational Emergency?	DOE O 151.1D, Attachment 3, 2.e.2.b

B.01.11 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Hazardous materials are excluded from the All-Hazards Survey based on toxicity levels, dispersibility, quantities, and whether they are generally available to the public in the same quantities. In addition, ordinary products of combustion are excluded.	DOE O 151.1D, Attachment 3, 2.e.3

B.01.11 LINES OF INQUIRY

B.01.11.01	Are materials that are used in the same form, quantity, and concentration as those packaged for distribution and use by the general public screened out?	DOE O 151.1D, Attachment 3, 2.e.3.a
B.01.11.02 BP	Is there a valid process for determining whether hazardous materials are used in the same form, quantity, and concentration as those packaged for distribution and use by the general public?	

B.01.11.03 BP	Do Hazards Survey Reports describe the justification and method for determining what hazardous materials are used in the same form, quantity, and concentration as those packaged for distribution and use by the general public?	
B.01.11.04	Are materials determined and screened that, because of their physical form do not present an airborne exposure hazard?	DOE O 151.1D, Attachment 3, 2.e.3.b
B.01.11.05	Does the basis for excluding material because of their physical form properly consider particle size for solids (i.e., <10 microns) and vapor pressure for liquids (i.e., <10 mmHg at 25°C)?	DOE O 151.1D, Attachment 3, 2.e.3.b
B.01.11.06	If materials with Globally Harmonized System Acute Toxicity Hazard Category of 3, 4, or 5 are approved for site use by the Field Element Manager, are they appropriately screened?	DOE O 151.1D, Attachment 3, 2.e.3.c; DOE O 151.1D, Attachment 3, 2.e.3.d; DOE O 151.1D, Attachment 3, 2.e.3.e
B.01.11.07	Are explosive materials, if applicable, screened through a chemical screening process prior to being excluded from further analysis in an EPHA?	DOE O 151.1D, Attachment 3, 2.e.3.f
B.01.11.08	Are sealed radioactive sources engineered to pass special form testing specified by Department of Transportation (DOT) or the American National Standards Institute, radioactive materials stored in DOT Type B containers with current Certificates of Compliance authorizing the stored materials, and radioactive materials used in exempt, commercially available products appropriately screened?	DOE O 151.1D, Attachment 3, 2.e.3.g
B.01.11.09	Is the process for defining sealed sources in compliance with 10 CFR 835?	10 CFR 835
B.01.11.10	Were simple asphyxiants and cryogenics properly excluded as long as the material cannot impact co-located populations and is analyzed in the THIRA?	DOE O 151.1D, Attachment 3, 2.e.3.h
B.01.11.11	Were fuel oil and gas exclusions appropriately applied?	DOE O 151.1D, Attachment 3, 2.e.3.i

B.01.12 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The All-Hazards Survey identifies radioactive materials that require further analysis in an EPHA.	DOE O 151.1D, Attachment 3, 2.e.4

B.01.12 LINES OF INQUIRY

B.01.12.01	Are radioactive materials identified in the Hazard Survey Report that contribute to a Hazard Category 1, 2, or 3 nuclear facility in quantities greater than the largest Category 3 per DOE- STD-1027_92 value?	DOE O 151.1D, Attachment 3, 2.e.4.a and a.1
B.01.12.02	Are radioactive material inventories for hazard categorization determination per DOE-STD-1027_92, as required by 10 CFR 830?	DOE- STD-1027_92
B.01.12.03 BP	Are radioactive material inventories effectively tracked in real time?	

B.01.13 CRITERION

B.01.12.04	Is the method for determining if the sum of the ratios of radioactive materials quantities in compliance with DOE-STD-1027_92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, and associated documents?	DOE O 151.1D, Attachment 3, 2.e.4.a.1-4; DOE-STD-1027_92
	If applicable, the All-Hazards Survey materials associated with a facility/activity defined as an accelerator per DOE O 420.2C, *Safety of Accelerator Facilities* are screened out appropriately.	DOE O 151.1D, Attachment 3, 2.e.4.b

B.01.13 LINES OF INQUIRY

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

B.01.13.01	Are materials associated with "accelerator facilities," as defined in DOE O 420.2C, screened out if analysis indicates all incidents would be classified as less than an Alert?	DOE O 151.1D, Attachment 3, 2.e.4.b
B.01.13.02 BP	Does the All Hazard Survey analyze consequences with respect to overpressure causing physical damage to the accelerator structure/ facility?	DOE G 420.2-1A

B.01.14 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

	The All-Hazards Survey identifies hazardous biological agents and toxins, including those identified in published lists in Department of Health and Human Services (DHHS) and Department of Agriculture regulations, and requires further analysis in an EPHA.	DOE O 151.1D, Attachment 3, 2.e.5

B.01.14 LINES OF INQUIRY

B.01.14.01	Are all hazardous biological agents and toxins included in the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.e.5
B.01.14.02	Are all federally regulated biological agents and toxins published in DHHS regulations (42 CFR Part 73, *Select Agents and Toxins*) included in the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.e.5.a
B.01.14.03	Are all federally regulated biological agents and toxins published in Department of Agriculture regulations (7 CFR Part 331, *Possession, Use and Transfer of Select Agents and Toxins* and 9 CFR Part 121, *Possession, Use and Transfer of Select Agents and Toxins*) included in the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.e.5.a
B.01.14.04 BP	Are infectious disease threats (i.e., prions) identified by the Centers for Disease Control and Prevention included in the All-Hazards Survey, if applicable?	
B.01.14.05	Does the All-Hazards Survey indicate that further analysis is required in an EPHA for hazardous biological agents and toxins exceeding the minimum specified quantities?	DOE O 151.1D, Attachment 3, 2.e.5.b
B.01.14.06 BP	Is there an effective process for tracking biological agents in real time?	

B.01.15 CRITERION

The All-Hazards Survey identifies all chemicals with known or suspected toxic properties and requires further analysis in an EPHA.	DOE O 151.1D, Attachment 3, 2.e.6

B.01.15 LINES OF INQUIRY

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

B.01.15.01	Are all hazardous chemicals with known or suspected toxic properties identified in the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.e.6.a
B.01.15.02	Are hazardous chemicals appropriately excluded from further analysis in an EPHA?	DOE O 151.1D, Attachment 3, 2.e.6.b
B.01.15.03	Are hazardous chemicals with assigned Health Hazard ratings of 3 or 4, based on National Fire Protection Association (NFPA) 704, identified as requiring further analysis in an EPHA if the quantity of material is greater than that which can be "easily and safely manipulated by one person" per 29 CFR 1910-.1450(b)?	DOE O 151.1D, Attachment 3, 2.e.6.c
B.01.15.04 BP	When NFPA ratings are not available, are appropriate analogous ratings used (Hazardous Material Information System (HMIS))?	
B.01.15.05	Are hazardous chemicals without assigned Health Hazard ratings identified as requiring further analysis in an EPHA if the quantity of material is greater than that which can be "easily and safely manipulated by one person?"	DOE O 151.1D, Attachment 3, 2.e.6.c
B.01.15.06	Are quantities of chemical hazardous materials considered to be "easily and safely manipulated by one person" determined in accordance with provisions of 29 CFR 1910.1450(b)?	DOE O 151.1D, Attachment 3, 2.e.6.c
B.01.15.07 BP	Is the interpretation of the provisions of 29 CFR 1910.1450(b) documented in the Hazards Survey report, and is it a valid interpretation?	
B.01.15.08	Are ordinary products of combustion (e.g., carbon monoxide, hydrogen cyanide, etc.) that are released in fires involving hydrocarbons, building components, wood, plastic, etc., identified as being exempt from further analysis with a combustion event (fire) scenario?	DOE O 151.1D, Attachment 3, 2.e.6.d
B.01.15.09	Are appropriate criteria used to determine whether stored chemical waste exceeds applicable concentration limits?	DOE O 151.1D, Attachment 3, 2.e.7

B.01.17 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

An additional EPHA can be completed based on THIRA and/or professional judgment.	DOE O 151.1D, Attachment 3, 2.f

B.01.17 LINES OF INQUIRY

B.01.17.01	Is additional analysis and planning warranted, based on the THIRA and/or the professional judgment of the person(s) performing or approving the All-Hazards Survey?	DOE O 151.1D, Attachment 3, 2.f
B.01.17.02	Did the Field Element Manager determine and document the need for an additional EPHA to be performed?	DOE O 151.1D, Attachment 3, 2.f

B.02 – OBJECTIVE

An EPHA is prepared and used to define the provisions of the Emergency Management Hazardous Materials Program, ensuring that the program is commensurate with the hazards identified and is implemented using a graded approach. At a minimum, the EPHAs indicate hazards, analyze potential consequences from unplanned releases (including from multiple facilities) at receptor locations of interest, identify distances at which Protective Action Criteria (PAC) may be exceeded, and include a determination of emergency planning zone (EPZ) sizes. A process is in place to inform the emergency management organization of significant changes in operations, processes, facility design, hazardous material inventories, and analyzed scenarios. In addition, there is evidence that best practices (BPs) are being implemented (DOE O 151.1D, Attachment 4, 2).

B.02.01 CRITERION

✗ Core Facility ✓ DNF Facility ✓ HazMat Facility

EPHAs define provisions of the Emergency Management Hazardous Materials Program commensurate with the hazards identified.	DOE O 151.1D, Attachment 4, 2

B.02.01 LINES OF INQUIRY

B.02.01.01	Are EPHAs developed based on the hazards identified in the All-Hazards Survey?	DOE O 151.1D, Attachment 4, 2.a
B.02.01.02	Are EPHAs used to define the provisions of the Emergency Management Hazardous Material Program?	DOE O 151.1D, Attachment 4, 2
B.02.01.03	Has a graded approach been used to define the EPHAs Program commensurate with the hazards identified?	DOE O 151.1D, Attachment 4, 2
B.02.01.04	Is an EPHA developed for facilities with identified federally regulated biological agents and toxins?	DOE O 151.1D, Attachment 4, 2
B.02.01.05	Does the EPHA identify hazards and the potential consequences from unplanned releases of the hazardous materials identified in the All-Hazards Survey?	DOE O 151.1D, Attachment 4, 2.a
B.02.01.06	Are commonly accepted industry techniques or BPs used to determine potential consequences in the EPHA?	DOE O 151.1D, Attachment 4, 2.a
B.02.01.07 BP	Does the EPHA document the results of the screening process for all materials?	DOE G 151.1-2, Section 1, 1.9
B.02.01.08 BP	Does the EPHA adequately document the consequence analysis assumptions?	

	●	✓ ✓
The facility EPHA considers potential impacts to required onsite and offsite receptor locations of interest.	X	DOE O 151.1D, Attachment 4, 2.b

B.02.02 LINES OF INQUIRY

B.02.02.01	Does each EPHA identify appropriate receptor locations of interest including the following: • 30 m (generically, a facility worker) • 100 m (generically, the facility boundary) • Site boundary • Emergency Response facilities • Nearest assembly areas per the site Emergency Plan • Nearest offsite at risk population such as emergency buildings, schools, and hospitals	DOE O 151.1D, Attachment 4, 2.b;
B.02.02.02 BP	Does each EPHA document the meteorological basis for determining impacts to receptor locations of interest?	
B.02.02.03 BP	Can the impacts to the receptor locations of interest be promptly scaled based on real-time meteorological conditions?	

B.02.03 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

The EPHA identifies unique facilities where airborne contaminants require additional consideration because atmospheric models are not applicable (such as underground facilities).	DOE O 151.1D, Attachment 4, 2.c

B.02.03 LINES OF INQUIRY

B.02.03.01	Are special analyses conducted and/or additional considerations made to determine the airborne release of contaminants from unique facilities (such as those underground) in the EPHA?	DOE O 151.1D, Attachment 4, 2.c
B.02.03.02	Are the analyses and/or considerations documented and technically defensible?	DOE O 151.1D, Attachment 4, 2.c
B.02.03.03 BP	If needed, are special dispersion models used for non-standard terrain (e.g., facilities located on plateaus).	

The EPHA identifies and analyzes consequences from release scenarios for applicable facilities.		X		DOE O 151.1D, Attachment 4, 2.d

B.02.04 LINES OF INQUIRY

B.02.04.01	Are consequences analyzed for each release scenario listed in the EPHA?	DOE O 151.1D, Attachment 4, 2.d
B.02.04.02 BP	Is a spectrum of potential events ranging from low-consequence, high-probability events to high-consequence, low-probability events, including those considered to be beyond-design basis, postulated and realistically analyzed?	DOE G 151.1-2, 2.5
B.02.04.03 BP	Is the selection of scenarios consistent with those in safety basis documentation?	
B.02.04.04 BP	Are nuclear safety SMEs consulted with regarding the inclusion of release scenarios and analysis of consequences?	
B.02.04.05 BP	Are consequences analyzed using the appropriate models (e.g., “heavier than air” for chlorine UF6 models that include transformation to HF)?	LL-DrEx-DOE-14, P6-7
B.02.04.06 BP	Are special analyses conducted and/or critical thinking considerations made to determine the airborne release of byproducts (e.g., sulfur hexafluoride when heated at very high temperatures produces the gaseous waste byproduct of fluorine)?	
B.02.04.07	Are consequences for each scenario presented in tabular form?	DOE O 151.1D, Attachment 4, 2.d.1
B.02.04.08	Do the consequence tables include the estimates of potential consequences at all identified receptor locations of interest indicated above?	DOE O 151.1D, Attachment 4, 2.d.1
B.02.04.09 BP	Is the presentation of release parameters and associated receptor impacts clearly presented so that the consequence assessor can readily locate information?	
B.02.04.10	Are consequences computed using both conservative (a DOE site’s 95% worst case or F stability and a wind speed of 1.5 m/s) and average (a DOE site specific average or D stability and a wind speed of 3 m/s) atmospheric dispersion conditions and included in the consequence tables?	DOE O 151.1D, Attachment 4, 2.d.2
B.02.04.11	Do the consequence tables indicate the distances at which the PAC and thresholds of early lethality are exceeded for each analyzed scenario?	DOE O 151.1D, Attachment 4, 2.d.3
B.02.04.12	Are Protective Action Guides, promulgated by the Environmental Protection Agency (EPA) used to determine where the PAC is exceeded for radiological materials?	DOE O 151.1D, Attachment 4, 2.d.3.a

B.02.04.13	Are Acute Exposure Guideline Levels promulgated by the EPA, Emergency Response Planning Guidelines published by the American Industrial Hygiene Association, and Temporary Emergency Exposure Limits developed by DOE used to determine where the PAC 2 levels are exceeded for chemicals?	DOE O 151.1D, Attachment 4, 2.d.3.b
B.02.04.14	Are PAC values considered to be exceeded for biological agents and toxins if the agents or toxins are outside of secondary containment barriers?	DOE O 151.1D, Attachment 4, 2.d.3.c
B.02.04.15 BP	Are the consequence analysis tools (e.g., software, spreadsheet, etc.) used to determine impacts in the EPHA the same ones used at the Emergency Operations Center (EOC) and alternate EOC?	

B.02.05 CRITERION

Core Facility | DNF Facility | HazMat Facility

Depending upon the dispersion model used and other factors, the accuracy of most available models may be inaccurate beyond 25 miles.	DOE O 151.1D, Attachment 4, 2.e

B.02.05 LINES OF INQUIRY

B.02.05.01	Are consequences truncated at 25 miles downwind of the event if the analysis results in PAC distances being greater than 25 miles due to limits of dispersion modeling accuracy?	DOE O 151.1D, Attachment 4, 2.e

B.02.06 CRITERION

Core Facility | DNF Facility | HazMat Facility

Scenarios are analyzed in which the same severe event (earthquakes, tsunami, etc.) triggers hazardous materials releases from multiple facilities and contain information about the impact of simultaneous or sequential hazardous materials releases.	DOE O 151.1D, Attachment 4, 2.f;

B.02.06 LINES OF INQUIRY

B.02.06.01	Are scenarios analyzed for severe events that could trigger hazardous materials releases from multiple facilities at a site?	DOE O 151.1D, Attachment 4, 2.f
B.02.06.02	Does the EPHA or a site-level planning document capture consequence impact of simultaneous or sequential hazardous material releases for the identified receptor locations?	DOE O 151.1D, Attachment 4, 2.f
B.02.06.03	If the EPHA indicates the potential for an Alert, Site Area or General Emergency, are the results of the consequence analyses and the baseline needs analysis used to determine necessary personnel, resources, and equipment for emergency management applications?	DOE O 151.1D, Attachment 4, 2.f; DOE O 420.1C, Attachment 2, Chapter 2; DOE O 420.1C, Attachment 2, Chapter 4; DOE-HDBK-1163-2003
B.02.06.04 BP	Are multi-disciplinary teams identified to develop and/or analyze scenarios for multiple facility events?	DOE-HDBK-1163-2003, 4.1

	●	✓ ✓
An EPHA is not required to be maintained provided the results of the hazardous material screening process and the quantitative analysis determine that incidents evaluated would be classified as less than an Alert-level emergency.	X	DOE O 151.1D, Attachment 4, 2.g

B.02.07 LINES OF INQUIRY

B.02.07.02	Is the decision on whether an EPHA is NOT required based on quantitative analysis that indicated no incidents evaluated would be classified as an Alert level emergency or higher?	DOE O 151.1D, Attachment 4, 2.g

B.02.08 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

An EPHA is not required to be maintained provided the results of the hazardous material screening process and the quantitative analysis determine that incidents evaluated would be classified as less than an Alert-level emergency.		DOE O 151.1D, Attachment 4, 2.h and i

B.02.08 LINES OF INQUIRY

B.02.08.01	Is a determination of the size of the EPZ included in the EPHA?	DOE O 151.1D, Attachment 4, 2.h
B.02.08.02	Is a consolidated/integrated EPZ developed for the site?	DOE O 151.1D, Attachment 4, 2.i
B.02.08.03	Is the consolidated/integrated EPZ submitted to the Field Element Manager or appropriate Federal Manager for approval?	DOE O 151.1D, Attachment 4, 2.i
B.02.08.04 BP	Is the size and shape of the EPZ determined by the spectrum of scenarios, the consequences of the potential releases, health effect parameters, and geopolitical boundaries beyond the site boundary?	DOE G 151.1-3, App. D
B.02.08.05 BP	Does the consolidated/integrated EPZ effectively identify the area within which protective actions will most likely be taken to protect workers or the public from the effects of the majority of airborne hazardous material releases from the facility or site?	DOE G 151.1-3, App. D
B.02.08.06 BP	Does the consolidated/integrated EPZ define the area within which protective actions will provide for substantial reduction in early lethality for all analyzed airborne hazardous material releases?	DOE G 151.1-3, App. D
B.02.08.07 BP	Is the consolidated/integrated EPZ sufficiently large that the planning efforts within the defined EPZ will provide a substantial basis for expansion of response activities beyond the EPZ if warranted by actual conditions?	DOE G 151.1-3, App. D
B.02.08.08 BP	Is the consolidated/integrated EPZ provided to the state, local, and tribal agencies?	
B.02.08.09 BP	Are the state, local, and tribal agencies briefed on the impacts of the consolidated/integrated EPZ to offsite locations within the EPZ?	

	The EPHA documents and discusses assumptions, methodology, models, and evaluation techniques. The EPHA documents functioning and non-functioning control measures and engineered safety systems.	DOE O 151.1D, Attachment 4, 2.j

B.02.09 LINES OF INQUIRY

B.02.09.02	Does each EPHA document functioning and non-functioning control measures and engineered safety systems (e.g., containment systems, fire suppression systems, filters, administrative controls, safeguards and security systems)?	DOE O 151.1D, Attachment 4, 2.j

B.02.10 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

	An accurate and timely method for tracking changes in operations, processes, or accident analyses that involve hazardous materials is established and maintained, and allows sufficient time to review the EPHA and modify emergency management plans and procedures, as necessary.	DOE O 151.1D, Attachment 4, 2.k

B.02.10 LINES OF INQUIRY

B.02.10.01	Is a program in place for the accurate and timely tracking of changes in operations, processes, or accident analyses that involve hazardous materials (i.e., introduction of new materials, significant changes in inventories, or modification of material environments)?	DOE O 151.1D, Attachment 4, 2.k
B.02.10.02 BP	Are emergency management program personnel (i.e., EPHA developers) promptly notified of all changes involving hazardous material?	
B.02.10.03	Are changes provided in sufficient time to review, and revise if necessary, the EPHA (preferably before changes are made involving hazardous material inventories)?	DOE O 151.1D, Attachment 4, 2.k
B.02.10.04	Are changes provided in sufficient time to adjust emergency management plans and procedures, if necessary (preferably before changes are made involving hazardous material inventories)?	DOE O 151.1D, Attachment 4, 2.k

B.02.11 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

	EPHAs integrate the analysis of severe events performed as part of the documented safety analysis into emergency planning.	

B.02.11 LINES OF INQUIRY

DOE O 151.1D, Attachment 4, 2.l

B.02.11.01	Are severe events analyzed in the documented safety analysis (or other safety basis documents) integrated into emergency planning?	DOE O 151.1D, Attachment 4, 2.l

B.02.11.02 BP	Are nuclear safety SMEs consulted in the integration of Documented Safety Analysis (DSA) of severe events into the EPHAs?	
B.02.11.03 BP	Are annual updates (and other revisions) to DSAs reviewed by emergency management staff for updates to severe events?	
B.02.11 04 BP	Are changes in severe events based on DSA revisions promptly integrated into EPHA changes?	

B.02.12 CRITERION

(X) Core Facility (✓) DNF Facility (X) HazMat Facility

Defense Nuclear Facilities include potential events ranging from low-consequence, high-probability events to high- consequence, low-probability events.	DOE O 151.1D, Attachment 4, 2.l

B.02.12 LINES OF INQUIRY

B.02.12.01	Are a range of potential events (including low-consequence, high-probability events to high-consequence, low-probability events) assessed to provide a comprehensive picture of the types of events and range of associated consequences?	DOE O 151.1D, Attachment 4, 2.l

B.02.13 CRITERION

(X) Core Facility (✓) DNF Facility (✓) HazMat Facility

The EPHA integrates severe event guidance consistent with DOE guidance.	DOE O 151.1D, Attachment 4, 2.m

B.02.13 LINES OF INQUIRY

B.02.13.01	Are the following three documents (or updates if they exist) used to provide severe-event guidance in the development of the EPHAs? • DOE Guide 421.1-2, Implementation Guide for Use in Developing DSA to meet Subpart B of 10 CFR 830 • DOE-STD-3009-2014, Preparation of Nonreactor Nuclear Facility DSA • DOE-STD-1189-2008, Integration of Safety into the Design Process	DOE O 151.1D, Attachment 4, 2.m
B.02.13.02 BP	Are nuclear safety SMEs integrated into the process of incorporating severe events into EPHAs?	

	●	✓ ✓

EPHAs are reviewed no less than once every three years, updated as appropriate, and submitted to the Field Element Manager or appropriate Federal Manager.	DOE O 151.1D, Attachments 4, 2.n, o, p, and q

B.02.14 LINES OF INQUIRY

B.02.14.01	Is each EPHA submitted to the Field Element Manager or appropriate Federal Manager for approval?	DOE O 151.1D, Attachments 4, 2.n
B.02.14.02 BP	Is each EPHA checked for approval by the Field Element Manager or appropriate Federal Manager?	
B.02.14.03	Are EPHAs reviewed, and updated if appropriate, no less than once every three years?	DOE O 151.1D, Attachments 4, 2.o
B.02.14.04	Are EPHAs updated prior to significant changes to site, facilities, activities, or hazardous material inventories?	DOE O 151.1D, Attachments 4, 2.o
B.02.14.05	Does a significant change to inventory or facility result in a positive Unreviewed Safety Questions or Unreviewed Safety Issue?	DOE O 151.1D, Attachments 4, 2.o 10 CFR 830; DOE O 420.2C
B.02.14.06	Do positive Unreviewed Safety Questions or Unreviewed Safety Issues that affect an EPHA trigger a change/revision to EPHAs?	DOE O 151.1D, Attachments 4, 2.o 10 CFR 830 DOE O 420.2C
B.02.14.07	If no updates are necessary to the EPHA in the triennial review, is the required notification letter sent to the Field Element Manager or Federal Manager?	DOE O 151.1D, Attachments 4, 2.p
B.02.14.08	Are emergency management personnel permitted to delay changes to the EPHAs to the next scheduled review if those changes result in a reduction of or no change to hazardous materials or consequences?	DOE O 151.1D, Attachments 4, 2.q
B.02.14.09	Are EPHA records and documents maintained according to DOE O 414.1D requirements? (See Element A, Objective 02)	DOE O 414.1D
B.02.14.10 BP	Are EPHAs reviewed for classified or unclassified controlled information prior to release?	DOE G 151.1-2, Section 1, 1.9

B.02.15 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

The Office of Secure Transportation (OST) EPHA is incorporated into the site-level emergency management program as appropriate.	DOE O 151.1D, Attachment 4, 2.r

B.02.15 LINES OF INQUIRY

B.02.15.01	Is the OST EPHA incorporated into the site-level emergency management program, as applicable?	DOE O 151.1D, Attachment 4, 2.r

EPHAs are developed for shipments that do not satisfy governing DOT regulations and specifications for commercial hazardous materials transport.	X	DOE O 151.1D, Attachment 4, 2.s

B.02.16 LINES OF INQUIRY

B.02.16.01	Is an onsite transportation EPHA developed for shipments that do not satisfy governing DOT regulations and specifications for commercial hazardous materials transport?	DOE O 151.1D, Attachment 4, 2.s
B.02.16.02	When a shipment satisfies DOT regulations and specifications, do procedures indicate that an EPHA is not required?	DOE O 151.1D, Attachment 4, 2.s

B.02.17 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

Emergency action levels (EALs) and corresponding protective actions are developed for each identified potential Operational Emergency.		DOE O 151.1D, Attachment 4, 2.t

B.02.17 LINES OF INQUIRY

B.02.17.01	Are site-, facility-, and/or activity-specific EALs developed for the spectrum of potential Operational Emergencies identified by the EPHA?	DOE O 151.1D, Attachment 4, 2.t
B.02.17.02	Do the EALs include appropriate corresponding protective actions?	DOE O 151.1D, Attachment 4, 2.t LL-DrEx-DOE-18, P6a
B.02.17.03 BP	Are EALs clearly worded and executable?	LL-NPEA-DOE-07, P32a
B.02.17.04 BP	Are EAL end-users involved in the development of the EALs to assure understanding of the necessary actions?	

B.02.18 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

The emergency management program is adjusted to be commensurate with hazards that remain after decontamination and decommission actions are completed at each DOE closure site/facility.		DOE O 151.1D, Attachment 4, 2.u

B.02.18 LINES OF INQUIRY

B.02.18.01	Has the emergency management program been adjusted to reflect remaining hazards following completion of decontamination and decommissioning actions?	DOE O 151.1D, Attachment 4, 2.u

B.03 – OBJECTIVE

The performance of staff involved in the All-Hazards Planning Basis is optimal per Element X.

B.03.01 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
EPHAs define provisions of the Emergency Management Hazardous Materials Program commensurate with the hazards identified.			DOE O 151.1D, Attachment 4, 2

B.03.01 LINES OF INQUIRY		
B.02.01.01	Are EPHAs developed based on the hazards identified in the All-Hazards Survey?	DOE O 151.1D, Attachment 4, 2.a

B.03.02 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.04 criterion has been assessed.			

B.03.02 LINES OF INQUIRY		
B.03.02.01	In the context of All-Hazards Planning, have the LOIs associated with criterion X.01.04 been addressed?	

B.03.03 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.07 criterion has been assessed.			

B.03.03 LINES OF INQUIRY		
B.03.03.01	In the context t of All-Hazards Planning, have the LOIs associated with criteria X.01.07 been addressed?	

B.03.04 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.09 criterion has been assessed.			

B.03.04 LINES OF INQUIRY		
B.03.04.01	In the context of All-Hazards Planning, have the LOIs associated with criterion X.01.09 been addressed?	

B.03.05 CRITERION	Core Facility	DNF Facility	✓ HazMat Facility
Element X.01.10 criterion has been assessed.			

B.03.05 LINES OF INQUIRY		
B.03.05.01	In the context of All-Hazards Planning, have the LOIs associated with criterion X.01.10 been addressed?	

APPROACH – All Hazards Planning Basis

Below are generic considerations for Element B, including a crosswalk to Element X Criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, etc.

Document/Record Reviews

- Emergency Plan
- All-Hazards Survey, including update/revision information (updated no less than every three years, when hazardous materials inventories change, etc.)
- Release scenarios used for EPHA development
- EPHAs, including confirmation that models used provide output consistent with the existing documentation
- Consequence analysis output files
- EALs and corresponding protective actions, including confirmation that models used provide output consistent with what is in the existing documentation
- THIRA
- DOE Enterprise Threat and Hazard Risk Profile
- All-Hazards Survey, EPHA, EPZs, EALs, and THIRA development procedures
- Facility inventories, safety documents, and other evidentiary documentation used to create the All-Hazards Survey/THIRA
- ERAP to verify THIRA summary inclusion
- Training documents of staff preparing all-hazards surveys and EPHAs, including qualifications
- All-Hazards Planning Basis self-assessments
- EPHA self-assessments
- Lessons learned related to all-hazards planning

Interviews

- Persons responsible for developing All-Hazards Survey, EPHA, EAL related procedures (**X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10**)
- Persons responsible for development of all-hazards surveys, EPHAs, EALs (preparers) (**X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10**)
- Persons who use the All-Hazards Surveys, EPHAs, and EALs to fulfill their emergency management roles (do they understand the document and how it is used to complete their duties?) (**X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10**)
- Persons assigned as the emergency management leads (**X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10**)
- Persons assigned as DOE Site emergency managers (**X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10**)
- Persons responsible for maintaining systems for the models used for all-hazards planning activities (**X.01.02, X.01.03, X.01.04, X.01.07, X.01.08, X.01.09, X.01.10**)

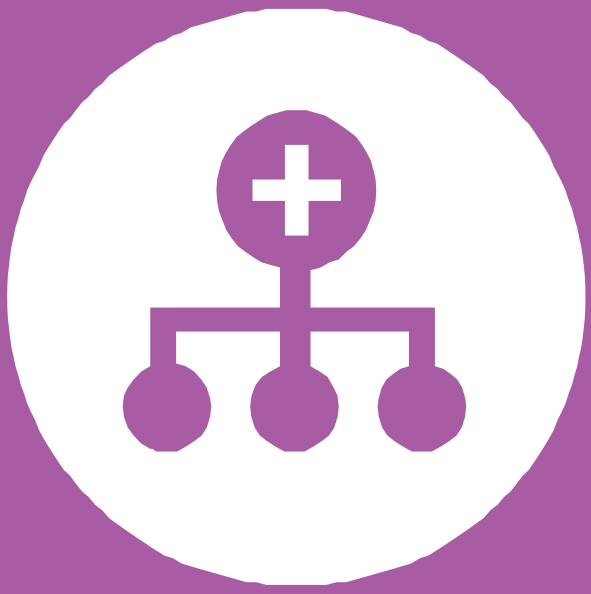
Observation

- Walkthroughs to confirm hazardous material inventories (site, facility, activity) are consistent with All-Hazards Surveys (as defined by DOE O 151.1D)
- Unique topography, non-standard terrain, facility designs potentially impacting meteorological assumptions for nearest receptors, distances, and/or dispersion modeling
- End-user understanding of EALs

References

- **10 CFR 830:** *Nuclear Safety Management*
- **10 CFR 835:** *Occupational Radiation Protection Program*
- **29 CFR 1910.1450(b):** *Occupational Exposure to Hazardous Chemicals in Laboratories*
- **42 CFR Part 73:** *Select Agents and Toxins*
- **7 CFR Part 331:** *Possession, Use and Transfer of Select Agents and Toxins*
- **9 CFR Part 121:** *Possession, Use and Transfer of Select Agents and Toxins*
- **CPG201:** *Threat and Hazard Identification and Risk Assessment Guide*
- **DOE-HDBK-1163-2003:** *Integration of Multiple Hazard Analysis Requirements*
- **DOE-STD-1027-92:** *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23*

- **DOE- STD-1027_92, Chg Notice 1:** *Hazard Categorization and Accident Analysis Techniques for Compliance With Doe Order 5480.23, Nuclear Safety Analysis Reports*
- **DOE-STD-1189-2008:** *Integration of Safety into the Design Process*
- **DOE-STD-1212-2012:** *Explosives Safety*
- **DOE-STD-3009-2014:** *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*
- **DOE G 151.1-2:** *Technical Planning Basis, Emergency Management Guide*
- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 421.1-2:** *Implementation Guide for Use in Developing Documented Safety Analysis to meet Subpart B of 10 CFR 830*
- **DOE G 424.1-1B:** *Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 414.1D:** *Quality Assurance*
- **DOE O 420.1C:** *Facility Safety*
- **DOE O 420.2C:** *Safety of Accelerator Facilities*
- **DOE O 440.1B:** *Worker Safety and Health Program for DOE (Including the National Nuclear Security Administration) Federal and Contractor Employees*
- **DOE P 450.4A:** *Integrated Safety Management Policy*
- **NFPA 704:** *National Fire Protection Association Health Hazard Ratings*



EMERGENCY RESPONSE ORGANIZATION

C. Emergency Response Organization

C.01 – OBJECTIVE

A structured emergency response organization (ERO) is established and maintained with overall responsibility for an emergency response. The ERO includes one position with overall responsibility and authority for all aspects of an emergency response. The ERO contains an adequate number of experienced and trained personnel, including designated alternates, who are available on demand for timely and effective response to emergencies. The ERO and first responder capabilities are effective for the hazards identified in the all-hazards planning basis. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1, Attachment 3, 3)

C.01.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
There is an established and maintained Emergency Response Organization (ERO) that can effectively and promptly respond to emergencies based on the potential hazards.			DOE O 151.1D, Attachment 3, 3.a-b; DOE O 420.1C Attachment 2, Ch.1, 3.b.(2).(g).3; DOE O 426.2, Attachment 1, p.II-9

C.01.01 LINES OF INQUIRY		
C.01.01.01	Is the ERO structured such that it has overall responsibility for initial and ongoing emergency response?	DOE O 151.1D, Attachment 3, 3.a
C.01.01.02	Does the ERO consist of personnel with capabilities and resources based on hazards identified by the all hazards planning basis?	DOE O 151.1D, Attachment 3, 3.b
C.01.01.03	Is a process in place to select ERO members based on their subject matter expertise and the potential hazards?	DOE O 414.1D, Criterion 2; DOE O 426.2, Chapter I
C.01.01.04 BP	Does the ERO adapt to changes in hazards, technologies, requirements, and personnel promptly enough to ensure an adequate response?	
C.01.01.05 BP	Is there an effective process for transferring knowledge between shifts during extended ERO activations (e.g., staggering shifts with overlaps, written briefing prior to leaving)?	
C.01.01.06 BP	Is the ERO integrated effectively into the first responders incident command structure (i.e., medical, fire, hazardous material, and rescue responses)?	DOE G 420.1C, Chapter II. Fire Protection, 3.d.2.d and 3.e.1.a and e; DOE G 440.1-1B, 2.3.9, 8.8.4.7; LL-NPEA-DOE-02, P37-38; LL-NPEA-DOE-03, P33-34; LL-NPEA-DOE-07, P35a; LL-NPEA-DOE-08, P41a; LL-Kat-WH-01; P52-54
C.01.01.07	Is there a process in place that facilitates prompt ERO assembly?	DOE O 422.1, Attachment 2, 2.b and g
C.01.01.08 BP	Is there an effective process for making applicable ERO position changes promptly when hazards change significantly and new capabilities are needed (e.g., large hydrofluoric acid inventory added).	
C.01.01.09 BP	Are the number of ERO positions sufficient for the tasks associated with the response needs given the potential hazards?	

C.01.01.10 BP	Are the specific functions activated in a response tailored to the requirements of the particular emergency?	DOE G 151.1-4, 1.3
C.01.01.11 BP	Do Implementing procedures assign personnel to the various functions required and provide directives and checklists for the performance of those duties?	DOE G 151.1-4, 1.3.2

One position is authorized to control and coordinate all aspects of an emergency response. — DOE O 151.1D, Attachment 3, 3.c

C.01.02 CRITERION

Core Facility | DNF Facility | HazMat Facility

C.01.02 LINES OF INQUIRY

	coordinate all aspects of an emergency response?	
C.01.02.02 BP	Does this position initially perform, or oversee, the following minimum functions: detect or assess, categorize and classify (as necessary) the emergency event or conditions; carry out initial notifications; implement protective actions onsite; issue offsite protective action recommendations; and initiate response by appropriate emergency resources (such as fire, medical, security and HAZMAT personnel)?	DOE G 151.1-4, 1.3.1
C.01.02.03 BP	Do procedures allow for this position be transferred to a more senior official once the ERO is fully staffed?	DOE G 151.1-4, Section 1.3.1
C.01.02.04 BP	Have people with adequate organizational authority and facility understanding been identified to fill this position?	
C.01.02.05 BP	Is this position's interface with the Incident Commander integrated into the emergency response plans and procedures?	DOE G 151.1D, Attachment 3, 4; LL-DrEx-DOE-19, P20a

C.01.03 CRITERION

Core Facility | DNF Facility | HazMat Facility

A primary and a sufficient number of alternates are assigned and trained for each ERO position to reasonably assure coverage during an emergency. — DOE O 151.1D, Attachment 3, 3.d

C.01.03 LINES OF INQUIRY

C.01.03.01	Is there a primary and at least one alternate trained and assigned to each ERO position, excluding first responders in the field?	DOE O 151.1D, Attachment 3, 3.d
C.01.03.02 BP	Is the ERO configuration based on the severity of the emergency (emergency category and classification) and the required functions determined by analysis?	DOE G 151.1-4, 1.3.2

C.01.03 LINES OF INQUIRY

C.01.03.03 BP	Are the Hazards Survey and EPHA documents used as the basis documents for determining required functions?	DOE G 151.1-4, 1.3.2
C.01.03.04 BP	Does the process for activating emergency response organization members reasonably assure initial coverage during an emergency response?	LL-DrEx-DOE-11, P7d; LL-DrEx-DOE-18, P18b
C.01.03.05 BP	Is the activation and convening of multiple ERO positions handled effectively?	LL-Fuku-INPO-01, P18-19
C.01.03.06 BP	Does the process for staffing reasonably assure adequate coverage throughout the duration of an extended emergency (e.g., more than one shift)?	
C.01.03.07 BP	Has a needs analysis been used for determining where elements of the ERO are located and what equipment is required to support staff efforts?	DOE G 151.1-4, 1.3.2

C.01.04 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

First responder capabilities are effective in mitigating emergencies to the level defined by all hazard surveys (baseline needs assessments, hazard surveys, THIRA, etc.) and Type 4 complexity emergency events as defined by the National Incident Management System (NIMS).	DOE O 151.1D, Attachment 3, 3.e

C.01.04 LINES OF INQUIRY

C.01.04.01	Do first responder capabilities include emergency medical, fire, hazard material, and applicable rescue emergencies as derived through the Baseline Needs Assessment, Hazard Survey, and THIRA?	DOE O 151.1D, Attachment 3, 3.e
C.01.04.02	Are first responder capabilities adequate to mitigate type 4 complexity emergency events?	DOE O 151.1D, Attachment 3, 3.e
C.01.04.03 BP	Are first responders able to effectively mitigate events for potential onsite hazards (e.g., do they understand the correct response measures for the potential hazards)?	LL-DrEx-DOE-06, P10-11
C.01.04.04 BP	Is there evidence that first responders are able to promptly respond to emergencies?	LL-DrEx-DOE-06, P10-11
C.01.04.05 BP	Are first responders trained in mitigating Type 4 complexity emergency events as defined by NIMS?	

C.02 – OBJECTIVE

The ERO effectively integrates its activities with external entities such that an event/incident response can be established and controlled in accordance with ICS/NIMS. The ERO can also augment its own response capability should events exceed local resource capabilities. In addition, there is evidence that BPs are being implemented. (DOE O 151.1, Attachment 3, 3)

C.02.01 CRITERION

Core Facility | DNF Facility | HazMat Facility

Established mechanisms are in place for augmenting response capability when events exceed local resource capabilities.	DOE O 151.1D, Attachment 3, 3.f

C.02.01 LINES OF INQUIRY

C.02.01.01	Is a process identified, consistent with NIMS, to promptly obtain sufficient additional resources when local capabilities are exceeded (e.g., lines of authority have been predetermined for making this call, additional resources have been identified ahead of time)?	DOE O 151.1D, Attachment 3, 3.f
C.02.01.02 BP	Are there agreements and established channels of communication in place for promptly obtaining the additional resources that might be needed should local capabilities be exceeded [local, state, federal (NARAC, FRMAC, etc.)]?	
C.02.01.03 BP	Do site-level functions include firefighting, medical response, and environmental monitoring?	DOE G 151.1-4, 1.3
C.02.01.04 BP	Are offsite support services for firefighting or Hazardous Materials (HAZMAT) response also available?	DOE G 151.1-4, 1.3
C.02.01.05 BP	Have offsite response agencies and organizations responsible for augmenting site response resources and State, local, and Tribal agencies responsible for protecting the public and environment within the vicinity of the facility/site been identified, contacted to determine and/or establish authorities, responsibilities, resources, notification procedures, and information necessary in the event of an emergency at a DOE/NNSA facility/site?	DOE G 151.1-4, 2.2
C.02.01.06 BP	Are Hazards Survey and EPHA results used to develop a list of emergency services (e.g., hospitals, fire departments, law enforcement, accident investigation, analytical laboratory services, ambulance services, coroners, materials suppliers, contractors, specialists) which may be needed to respond to potential accident conditions?	DOE G 151.1-4, 2.2
C.02.01.07 BP	Are working level interfaces with offsite organizations clearly defined for the applicable functional areas?	DOE G 151.1-4, 1.3.2

		(DOE O 151.1D, Attachment 3, 3.g; NIMS)
The event/incident scene is established and controlled in accordance with the Incident Command System (ICS) portion of the National Incident Management System (NIMS); **OR** ERO activities are integrated with local and federal agencies and organizations that provide onsite emergency response service in accordance with ICS/NIMS.		

C.02.02 LINES OF INQUIRY		
C.02.02.01	Are ERO activities integrated with local and federal agencies and organizations providing onsite emergency response in accordance with ICS/NIMS? **OR** Has a process been developed to establish and control event scenes in accordance with the ICS portion of NIMS?	DOE O 151.1D, Attachment 3, 3.g
C.02.02.02 BP	Are ERO activities, including event scene control, periodically evaluated for compliance with ICS/NIMS?	
C.02.02.03 BP	Are regular meetings held with offsite officials to discuss areas of concern and changes to emergency response plans and procedures related to onsite emergency response?	DOE G 151.1-4, 2.2
C.02.02.04 BP	Do the facility/site and offsite agencies have similar training programs for communicators to ensure information transfer without questions or delay?	DOE G 151.1-4, 5.3.4
C.02.02.05	Do ERO members have a method of identification consistent with NIMS/ICS (e.g., vest that is to be worn throughout a response)?	DOE O 151.1D, Attachment 3, 3.h

C.03 – OBJECTIVE

The staff that issue protective actions perform optimally, per Element X.

C.03.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.01 criterion has been assessed.			

C.03.01 LINES OF INQUIRY		
C.03.01.01	In the context of the emergency response organization and criterion X.01.01, have the LOIs been addressed?	

C.03.02 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.02 criterion has been assessed.			

C.03.02 LINES OF INQUIRY		
C.03.02.01	In the context of the emergency response organization and criterion X.01.02, have the LOIs been addressed?	

	✓	✓	✓

Element X.01.03 criterion has been assessed.	

C.03.03 LINES OF INQUIRY C.03.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
C.03.03.01	In the context of the emergency response organization and criterion X.01.03, have the LOIs been addressed?		

C.03.04 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility

Element X.01.05 criterion has been assessed.	

C.03.04 LINES OF INQUIRY C.03.05 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
C.03.04.01	In the context of the emergency response organization and criterionX.01.05, have the LOIs been addressed?		

Element X.01.06 criterion has been assessed.	

C.03.05 LINES OF INQUIRY			
C.03.05.01	In the context of the emergency response organization and criterion X.01.06, have the LOIs been addressed?		

C.03.06 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility

Element X.01.07 criterion has been assessed.	

C.03.06 LINES OF INQUIRY			
C.03.06.01	In the context of emergency response organization and criterion X.01.07, have the LOIs been addressed?		

C.03.07 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility

Element X.01.09 criterion has been assessed.	

C.03.07 LINES OF INQUIRY			
C.03.07.01	In the context of the emergency response organization and criterion X.01.09, have the LOIs been addressed?		

	✓	✓	✓

Element X.01.10 criterion has been assessed.	

C.03.08 LINES OF INQUIRY C.03.08 CRITERION		Core Facility	DNF Facility	HazMat Facility
C.03.08.01	In the context of the emergency response organization and criterion X.01.10, have the LOIs been addressed?			

APPROACH – Emergency Response Organization

Below are generic considerations for Element C, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, best practices, etc.

Document/Record Reviews

- Emergency Plan/Procedures that outline the Incident Command Structure (ICS), ERO and individual roles, as well as activation criteria
- Staffing list/rosters (to show depth in each position)
- Hazards Survey/EPHA/THIRA confirming that emergency personnel required for a an emergency response (beyond first responders as defined in 29 CRF 1910.120) are identified as ERO members
- Procedures and/or checklists describing major activation and initial response activities of key ERO members
- Procedure for transferring command and control to another emergency facility
- Procedure for shift change
- Security, procurement, and other interface procedures
- Field emergency plan(s) showing interface between field teams and ERO staff
- Incident Action Plan (IAP), (Does incident command evolve from providing oral direction to the development of a written IAP)
- MOU/MOAs for ICS at the site/facility
- National Response Plan (NRP) and National Incident Management Systems (NIMS) as framework Emergency Plan
- Access identification method/procedure for emergency response staff
- Past exercise documentation
- Corrective actions
- Lessons learned

Interviews

- Person(s) identified as Emergency Manager (EM – not same as IC) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person identified as Incident Commander (IC - not same as EM) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person who establishes interfaces with internal and external agencies and organizations **(X.01.01, X.01.02, X.01.03, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person who authorizes emergency responders to receive exposures in excess of site administrative limits **(X.01.01, X.01.02, X.01.07, X.01.09, X.01.10)**
- Person who makes notifications to family members **(X.01.01, X.01.02, X.01.07, X.01.09, X.01.10)**
- Various other roles in ERO (security, maintenance, fire department, etc.) **(X.01.01, X.01.02, X.01.03, X.01.06, X.01.07, X.01.09, X.01.10)**
- ICS roles in five major areas of NIMS/ICS (Command, Operations, Planning, Logistics, and Administration) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person responsible for logistics (food, supplies, equipment, etc. needed for extended period of operation) **(X.01.01, X.01.02, X.01.03, X.01.06, X.01.07, X.01.09, X.01.10)**

Observation

- Drills and exercises, and how individual ERO positions function and interface with each other and offsite organizations
- Key emergency response facilities
- Incident Command System Command post location (strategically located in a safe area, e.g., upwind, adequate distance) (review past documentation or observe during a drill or exercise)
- Security personnel actions during drill or exercise
- Staging area for arriving asset personnel
- Key emergency response equipment (e.g., computer systems, communications, visual displays, radiation monitors)
- System for activation of ERO personnel

References

- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 414.1D:** *Quality Assurance*
- **DOE O 420.1C:** *Facility Safety*
- **DOE O 422.1:** *Conduct of Operations*
- **DOE O 426.2:** *Personnel Selection, Training, Qualification and Certification Requirements for DOE Nuclear Facilities*
- **DOE 440.1-1B:** *Worker Safety and Health Program for DOE (Including the National Nuclear Security Administration) Federal and Contractor Employees*
- **29 CRF 1910.120:** *Hazardous Waste Operations and Emergency Response*
- **DOE G 420.1C:** *Accelerator Facility Safety Implementation Guide for DOE O 420.2C, Safety of Accelerator Facilities*
- **NIMS Training:** *National Incident Management System, Training Program. FEMA, September 2011*

EMERGENCY OPERATIONS SYSTEM

D. Emergency Operations System

D.01 – OBJECTIVE

An emergency operations system (EOS) provides a means for centralized collection, validation, analysis, and coordination of information related to an emergency (e.g., logistical support). The EOS is a team of people that relieves some of the burdens of responders in the field; they do NOT provide tactical direction. The EOS provides support for on-scene response during an escalating incident and provides a means to secure additional resources. The EOS uses the basic National Incident Management System/Incident Command System (NIMS/ICS) concepts and provides support to the Incident Commander (IC) throughout the event. The EOS can be activated for any declared Operational Emergency or when needed to support the successful management of an incident. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3)

D.01.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
The Emergency Operations System provides sufficient strategic management, operational support, planning/ intelligence, logistics and finance/ administration.			DOE O 151.1D, Attachment 3, 4.a

D.01.01 LINES OF INQUIRY		
D.01.01.01	Is the structure for the EOS documented in the emergency management plan and/or applicable procedures?	DOE O 151.1D, Attachment 3, 4.a
D.01.01.02	Are implementing procedures/processes developed for operational support, planning/intelligence, logistics, and finance/administration to augment the Emergency Management Plan?	DOE O 151.1D, Attachment 3, 4.a
D.01.01.03 BP	Does the Emergency Management Plan enable effective strategic management of the EOS?	LL-Fuku-INPO-01, P15-16; LL-DrEx-DOE-05, P20-21; LL-NPEA-DOE-07, P31c
D.01.01.04 BP	Does the documented operational support procedure/process enable effective support to the EOS and on-scene response?	
D.01.01.05 BP	Does the documented planning/intelligence procedure/process enable gathering and disseminating intelligence regarding on-scene response and provide effective means to complete the task accurately and in a timely manner?	LL-DrEx-DOE-05, P20-21; DrEx-DOE-13, P17a
D.01.01.06 BP	Does the documented logistical support procedure/process used during an incident provide a means of providing requested assistance?	LL-NPEA-DOE-01, P17-18; LL-DrEx-DOE-11, P8e
D.01.01.07 BP	Do logistical support personnel have an accurate and complete list of needed contacts?	
D.01.01.08 BP	Does the financial/administrative support process provide support in procuring additional resources needed for the response?	
D.01.01.09 BP	Do financial and administration support personnel have sufficient authority to enable support (e.g., pay the bills) during an event?	

D.01.02 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Overall support and coordination of a response to an emergency is established and maintained by the Emergency Operations System.			DOE O 151.1D, Attachment 3, 4.b.1

D.01.02 LINES OF INQUIRY

D.01.02.01	Does the EOS provide effective overall support and coordination for response to an emergency?	DOE O 151.1D, Attachment 3, 4.b.1
D.01.02.02 BP	Is the EOS tested and evaluated at a frequency necessary to test EOS personnel proficiency in identified tasks?	LL-DrEx-DOE-12, P19
D.01.02.03	Is the EOS process capable of responding to and supporting an emergency by relieving the burden of site level and internal communications and resource allocation coordination efforts from the event scene?	DOE O 151.1D, Attachment 3, 4

D.01.03 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The Emergency Operations System operates and communicates using a common framework consistent with basic NIMS/ICS concepts.	DOE O 151.1D, Attachment 3, 4.b.2

D.01.03 LINES OF INQUIRY

D.01.03.01	Do EOS personnel use NIMS/ICS terminology and response processes?	DOE O 151.1D, Attachment 3, 4.b.2; DOE O 153.1
D.01.03.02	Do EOS personnel illustrate management unity and appropriate delegations of authority to manage the identified functions?	DOE O 151.1D, Attachment 3, 4.b.2
D.01.03.03	Does the EOS operate through the use of management by objectives?	DOE O 151.1D, Attachment 3, 4.b.2
D.01.03.04	Is the EOS using a manageable span of control framework in accordance with NIMS/ICS?	DOE O 151.1D, Attachment 3, 4.b.2
D.01.03.05 BP	Are decisions, tasks, and objectives communicated so that all responders provide a coordinated effort?	LL-NPEA-DOE-01, P17-18; LL-DrEx-DOE-14, P25; LL-NPEA-DOE-07, P31c

D.01.04 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The EOS is activated for any declared DOE Operational Emergency or may be activated when emergency management and leadership determines it is warranted for a non-declared event.	DOE O 151.1D, Attachment 3, 4.b.3

D.01.04 LINES OF INQUIRY

D.01.04.01	Is the EOS activation process and criteria identified in emergency management plans and procedures?	DOE O 151.1D, Attachment 3, 4.b.3
D.01.04.02 BP	Is the EOS process coordinated to integrate with an EOC if an emergency escalates to become a declared operational emergency?	LL-DrEx-DOE-11, P5
D.01.04.03 BP	Is the EOS capable to respond effectively to support an emergency, a planned event, or significant incident in a scaled and manageable approach?	

D.01.04.04 BP	When the EOS is activated is there a process in place to compile the information gathered during drills, exercises and/or actual events?	
D.01.04.05	Are lessons learned and/or corrective actions identified and documented in After Action Reviews after EOS activations for categorized Operational Emergencies (that are not also classified)?	DOE O 151.1D, Attachment 3, 13.c.1
D.01.04.06	Is a performance review documented in After Action Report after EOS activations for Operational Emergencies (classified as Alert, Site Area, or General)?	DOE O 151.1D, Attachment 3, 13.c.1

D.01.05 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Emergency Operation System staffing and functions are performed as identified in the emergency management plan and the level of activation is based on the severity of the incident.	DOE O 151.1D, Attachment 3, 4.b.4

D.01.05 LINES OF INQUIRY

D.01.05.01	Is the process for determining the level of activation of EOS personnel based on the severity of the incident and support needed?	DOE O 151.1D, Attachment 3, 4.b.4
D.01.05.02	Are the EOS roles and responsibilities identified clearly in the emergency management plan or associated implementing procedure?	DOE O 151.1D, Attachment 3, 4.b.4
D.01.05.03 BP	Are EOS functions demonstrated in drills or exercises at the required frequency identified in the emergency management plan or associated implementing procedure?	
D.01.05.04 BP	Are the EOS members trained to effectively respond as identified in the emergency management plan or associated implementing procedures?	LL-DrEx-DOE-02, P4a

D.01.06 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The EOS provides support to the Incident Commander throughout the event.	DOE O 151.1D, Attachment 3, 4.b.5

D.01.06 LINES OF INQUIRY

D.01.06.01	Is an effective process in place to ensure EOS personnel provide support to the Incident Commander throughout an incident?	DOE O 151.1D, Attachment 3, 4.b.5
D.01.06.02	Does the EOS have the capability to provide support for an extended period based on the All Hazards Survey?	DOE O 151.1D, Attachment 3, 4.b.5

D.01.07 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The Emergency Operation System uses standard operating procedures, checklists, and appropriate plans to initiate, manage, disseminate, and maintain incident information and resources throughout the incident.	DOE O 151.1D, Attachment 3, 4.b.6

D.01.07.01	Are procedures or checklists in place to activate the EOS?	DOE O 151.1D, Attachment 3, 4.b.6.a
D.01.07.02	Are procedures or checklists in place to identify and notify staff, make the EOS operational, and deactivate the EOS?	DOE O 151.1D, Attachment 3, 4.b.6.a
D.01.07.03	Are procedures or checklists in place to establish communications and coordination with the Incident Command?	DOE O 151.1D, Attachment 3, 4.b.6.b
D.01.07.04	Are procedures or checklists in place to adequately obtain and maintain situational awareness among response components and external partners?	DOE O 151.1D, Attachment 3, 4.b.6.c
D.01.07.05	Are procedures or checklists in place to effectively disseminate a Common Operating Picture among response components and external partners?	DOE O 151.1D, Attachment 3, 4.b.6.c
D.01.07.06	Are procedures or checklists in place to develop plans to support operations by defining overall priorities in an integrated manner with Incident Command?	DOE O 151.1D, Attachment 3, 4.b.6.d
D.01.07.07	Are procedures or checklists in place to develop plans to establish operational objectives, personnel accountability, and the Operational Period for ERO staffing shift changes?	DOE O 151.1D, Attachment 3, 4.b.6.d

D.02 – OBJECTIVE

The performance of emergency operations system (EOS) staff is optimal per Element X.

Element X.01.01 criterion has been assessed	

D.02.01 CRITERION

Core Facility ✓ DNF Facility ✓ HazMat Facility ✓

D.02.01 LINES OF INQUIRY

D.02.01.01	In the context of the emergency operations system, have the LOIs associated with criterion X.01.01 been addressed?	

D.02.02 CRITERION

Core Facility ✓ DNF Facility ✓ HazMat Facility ✓

Element X.01.02 criterion has been assessed.	

D.02.02 LINES OF INQUIRY

D.02.02.01	In the context of the emergency operations system, have the LOIs associated with criterion X.01.02 been addressed?	

	✓	✓	✓

Element X.01.03 criterion has been assessed	

D.02.03 LINES OF INQUIRY			
D.02.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
D.02.03.01	In the context of the emergency operations system, have the LOIs associated with criterion X.01.03 been addressed?		

D.02.04 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.07 criterion has been assessed			
D.02.04.01	In the context of the emergency operations system, have the LOIs associated with criterion X.01.07 been addressed?		

D.02.05 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.09 criterion has been assessed.			

D.02.05 LINES OF INQUIRY		
D.02.05.01	In the context of the emergency operations system, have the LOIs associated with criterion X.01.09 been addressed?	

D.02.06 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.10 criterion has been assessed.			

D.02.06 LINES OF INQUIRY		
D.02.06.01	In the context of the emergency operations system, have the LOIs associated with criterion X.01.10 been addressed?	

APPROACH – Emergency Operations System

Below are generic considerations for Element D, including a crosswalk to Element X criteria. Element D applies to the planning and implementation needed to maintain situational awareness and a common operating picture during both minor and major events. Element D covers topics in a wide variety of Elements. Many of these items are reviewed under each particular Element. The goal for this Element D assessment is to cover broad topics related to maintaining a common operating picture, but assess them with consideration to the individual Elements. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, best practices, etc.).

Document/Record Reviews

- Program Administration and Emergency Response Organization components (Elements A, C) – Confirm that emergency management staff appropriately budget for staffing and systems related to maintaining situational awareness and a common operating picture. From event records, determine whether the system aids (and does not severely hinder) the Emergency Director's ability to coordinate event response.
- Training and Drill components (Element E) – Confirm EOC or Emergency Management office person(s) documenting and distributing information related to maintaining the common operating picture during an event are appropriately trained, drilled, and exercised on the systems used, including training on NIMS terminology.
- Emergency Medical Support and Offsite Response Interfaces components (Elements F, G) – Confirm through drill and exercise records that offsite responders are aware of appropriate onsite event details and that offsite-responder-acquired information is appropriately documented and distributed.
- Emergency Categorization/Classification and Protective Actions components (Elements H, I) – Confirm through drill and exercise records that ERO staff are uniformly and appropriately aware of event categorization/classification and protective action recommendations in a timely manner.
- Emergency Facilities and Equipment/Systems components (Element J) – Confirm that the maintenance program for the electronic equipment used to record, present, and distribute information is followed and appropriately tested; confirm through drill and exercise records that all responders receive information in an appropriate form with an appropriate level of detail.
- Notifications and Communications and Public Information components (Elements K, L) – Confirm through drill and exercise records that onsite and offsite potentially impacted individuals are informed of appropriate event details in a timely manner; review any special considerations for special populations.
- Termination and Recovery components (Element M) – Review drill/exercise records to assure that event termination information was distributed to appropriate responders; review drill/exercise records and self-assessments to determine if event records would allow for appropriate recovery of event details.
- Readiness Assurance (Element N) - Lessons learned and corrective actions generated at the site for the emergency operations system.
- All-Hazards Planning Basis and Consequence Assessment components (Elements B,-O) – Review drill/exercise details to assure appropriate hazards surveys and/or EPHA facility-specific consequence assessment information is captured; appropriately redistributed to EOC, IC, and offsite responders in sufficient detail and in a timely manner; and ensure event maps of potential impacts are appropriately included.
- Emergency Plan(s) - Confirm emergency plan reflects currently implemented EOS; central system of emergency information is comprehensive; consider how social media information is captured. Confirm EOS system(s) are scalable to both small and large events.
- Drill and Exercise Reports - Review timeline, message traffic, and response to information queries at the Emergency Operations Center.

Interviews

- Person with overall responsibility for managing the emergency operations system and delegates (understanding of goals associated with the emergency operations system; confirm resources are adequate for core program and for beyond core program, as applicable; planning for future improvements) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.09, X.01.10)**
- Person(s) assigned to staff the Emergency Operations System during drills/exercises/actual events (confirm their understanding of their role and procedures; confirm ability to effectively document information communicated) **(X.01.01, X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Onsite responders (confirm their situational awareness; clarity of information request responses)
- Offsite organizations (confirm their situational awareness; clarity of information request responses)
- Affected facility workers (confirm their situational awareness)

Observations

- Drill, limited performance test, or exercise – ease of use of EOS; staffing sufficient for large events; timely distribution and collection of event information
- Training on EOS – comprehensive for large and small events

References

- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 153.1:** *Departmental Radiological Emergency Response Assets*
- **NIMS:** *National Incident Management System*

TRAINING & DRILLS

E. Training & Drills

E.01 – OBJECTIVE

Comprehensive, coordinated, and documented training and drill programs are established as an integral part of the emergency management program and are maintained to ensure emergency response preparedness and capabilities are accomplished. The documented training program includes a qualification process to ensure specific emergency response capabilities are in place for all the potential hazards. Workers are trained on protective actions that may need to be implemented. Periodic worker drills are conducted on the potential protective actions that may be implemented. The Emergency Response Organization (ERO) is periodically activated and drilled to practice the various functions and interfaces that may be needed during an emergency event. Offsite response agencies are offered orientation and participation in drills and exercises. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 5)

E.01.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
A documented training program is in place to provide workers with information on hazards and the protective actions they are expected to take in accordance with the all-hazards planning basis.			DOE O 151.1D, Attachment 3, 5.a.1

E.01.01 LINES OF INQUIRY		
E.01.01.01	Is the training program formally documented in a plan and/or procedure?	DOE O 151.1D, Attachment 3, 5.a.1
E.01.01.02 BP	Does the training program plan address maintaining training records in a manner that can be audited?	DOE G 151.1-3, Appendix D, 3.2
E.01.01.03 BP	Does the training program plan indicate that a system is in place to track the development and implementation of lessons learned from training and drills?	DOE G 151.1-3, Appendix D, 3.2
E.01.01.04 BP	Does the training program plan include the requirement for all primary and alternate personnel assigned to the facility- and site-level ERO to complete initial training and annual refresher training?	DOE G 151.1-3, Appendix D, 3.2
E.01.01.05 BP	Does the training program plan include the requirement for all primary and alternate personnel assigned to the facility- and site-level ERO to complete refresher training when hazards or procedures change?	LL-DrEx-DOE-06 , P3-4; LL-DrEx-DOE-19, P19b; LL-DrEx-DOE-20, P14b
E.01.01.06 BP	Does the training program plan include the requirement for all primary and alternate personnel assigned to the facility- and site-level ERO to demonstrate proficiency through testing and drills?	LL-NPEA-DOE-01, P12-13
E.01.01.07 BP	Does the training program include position-specific training plans and qualification expectations/requirements?	DOE G 151.1-3, Appendix D, 3.2

	Core Facility	DNF Facility	HazMat Facility
	✓	✓	✓

Workers are trained on hazards and the protective actions they are expected to take in accordance with the all-hazards planning basis.	DOE O 151.1D, Attachment 3, 5

E.01.02 CRITERION	LINES OF INQUIRY	Core Facility	DNF Facility	HazMat Facility
E.01.02.01	Are workers provided with training (e.g., General Employee Training, Awareness Level Training) on hazards and protective actions they may be expected to take during emergency response activities (evacuation, assembly areas, shelter-in-place, accountability, and first aid)?			DOE O 151.1D, Attachment 3, 5.a.1; DOE O 426.2, Chg. 1, Attachment 1, Chapter I
E.01.02.02	Do workers who are likely to witness a hazardous material release receive additional training that includes notifications to proper authorities?			DOE O 151.1D, Attachment 3, 5.a.1
E.01.02.03	Is training provided to workers initially, when changes affect worker actions or responsibilities, and biennially?			DOE O 151.1D, Attachment 3, 5.a.2
E.01.02.04 BP	Are workers precluded from entering hazardous facilities prior to receiving training on hazards and protective actions?			
E.01.02.05	Are training records documented and maintained that indicate that biennial training has occurred for all workers based on their initial training date?			DOE O 151.1D, Attachment 3, 5.a.2
E.01.02.06	If a protective action is performed successfully during a drill, exercise, or actual event, are training records updated to indicate the workers annual training requirement is met for that protective action?			DOE O 151.1D, Attachment 3, 5.a.2
E.01.02.07	Do training and qualification documents and records meet DOE O 414.1D requirements?			DOE O 414.1D
E.01.02.08 BP	Does training, including drills and exercises, aim to achieve team building, consensus building, contingencies examination, problem solving, resources measurement, and interface examination?			DOE G 151.1-3, 2.4; LL-DrEx-DOE-11, P8d
E.01.02.09 BP	Is the training program reviewed and updated periodically, or as required, based on changes in related emergency plans/procedures?			DOE G 151.1-3, Appendix D, 3.2
E.01.02.10 BP	Is a detailed list of training courses and drills provided by the emergency management program developed and maintained?			DOE G 151.1-3, Appendix D, 3.2
E.01.02.11 BP	Do emergency management staff review and approve any training on predetermined protective actions?			

	✓	✓	✓

Visitors with unescorted access are provided information on Protective Actions.	DOE O 151.1D, Attachment 3, 5.a.3

E.01.03 LINES OF INQUIRY				
E.01.03 CRITERION		Core Facility	DNF Facility	HazMat Facility
E.01.03.01	Are visitors who have unescorted access provided information on protective actions (i.e., evacuations, sheltering in place, etc.) during visitor training?			DOE O 151.1D, Attachment 3, 5.a.3
E.01.03.02 BP	Are changes in protective actions promptly reflected in the training information provided to visitors?			DOE O 151.1D, Attachment 3, 5.a.4

E.01.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
	✓	✓	✓

Based on the all-hazards planning basis, the site determines if additional training needs to be provided to workers to address necessary response actions for severe events with regional impacts.

E.01.04 LINES OF INQUIRY		
E.01.04.01	Is training provided to workers to address severe event response actions/strategies should isolation from response assistance and infrastructure support occur, if applicable?	DOE O 151.1D, Attachment 3, 5.a.4
E.01.04.02	Does severe event training consist of self-help strategies, such as first aid and the location of onsite medical and life sustaining supplies, and procedures for all identified protective actions?	DOE O 151.1D, Attachment 3, 5.a.4
E.01.04.03 BP	Is severe event training evaluated for effectiveness during drills or limited performance tests?	
E.01.04.04 BP	Does the General Employee Training include training on the site emergency management program and include protective actions during severe events?	DOE O 151.1D, Attachment 3, 5.a.5

E.01.05 CRITERION

Core Facility | DNF Facility | HazMat Facility

Based on the all-hazards planning basis, the site determines if workers at specific facilities require additional training, such as shutdown/walk-away provisions or other facility-specific actions.

E.01.05 LINES OF INQUIRY

E.01.05.01	Are workers provided training on facility-specific shutdown walk-away processes?	DOE O 151.1D, Attachment 3, 5.a.5
	Are workers provided training on facility-specific steps to take when there are disruptions to critical infrastructure (e.g., power and communications)?	DOE O 151.1D, Attachment 3, 5.a.5

E.01.05.03 BP	Is the need for additional training documented (e.g., in procedures, emergency plan)?	
E.01.05.04 BP	As appropriate, are building/facility managers involved with the development of the facility-specific training in conjunction with emergency management staff?	

E.01.06 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The ERO training and qualification program is established and maintained to support specific emergency response capabilities as determined by the all-hazards planning basis.	DOE O 151.1D, Attachment 3, 5.b

E.01.06 LINES OF INQUIRY

E.01.06.01	Is the ERO training and qualification program formally documented in a plan and/or implementing procedure?	DOE O 151.1D, Attachment 3, 5.b.1
E.01.06.02	Does the ERO training and qualification program establish and maintain specific emergency response capabilities as determined by the all-hazards planning basis?	DOE O 151.1D, Attachment 3, 5.b.1
E.01.06.03	Does documentation of ERO training requirements include the courses, method of instructions, frequency, and intended audience?	DOE O 151.1D, Attachment 3, 5.b.1
E.01.06.04 BP	Is ERO training evaluated for effectiveness as part of the Emergency Management Program Management Schedule?	DOE G 151.1-3, Appendix E, 1.2
E.01.06.05	Are ERO members assessed at least annually (i.e., in drills, limited performance tests, exercises) on their knowledge of the training content and proficiency?	DOE O 151.1D, Attachment 3, 5.b.1
E.01.06.06	Is ERO training provided initially and when there are significant changes to expected emergency response capabilities?	DOE O 151.1D, Attachment 3, 5.b.2
E.01.06.07 BP	Is training revised and provided to the ERO after a significant procedure or process change has occurred within an acceptable period of time?	DOE G 151.1-3, 4.3.2
E.01.06.08	Is ERO refresher training provided annually?	DOE O 151.1D, Attachment 3, 5.b.2
E.01.06.09	Does initial ERO training include the applicable principles of Incident Command System (ICS) 100, Introduction to ICS, and ICS 700, NIMS, An Introduction?	DOE O 151.1D, Attachment 3, 5.b.3.a.1
E.01.06.10	Does initial ERO training include an introduction to specific emergency response concept of operations (as documented in the emergency management plan) as applicable to each position/role?	DOE O 151.1D, Attachment 3, 5.b.3.a.2
E.01.06.11	Does initial ERO training include position-specific roles and responsibilities to include plans, procedures, job aids, and associated equipment and systems?	DOE O 151.1D, Attachment 3, 5.b.3.a.3
E.01.06.12	Does ERO refresher training include lessons learned, BPs, and identified gaps or deficiencies on individual training?	DOE O 151.1D, Attachment 3, 5.b.3.b.1-3

E.01.06.13 BP	Is special team training conducted for functional groups of the ERO, in particular those with technical and management team assignments (e.g. management team, consequence assessment team)?	DOE G 151.1-3, Appendix D, 3.2
E.01.06.14 BP	Do the staff who develop and provide ERO training periodically review lessons learned for training material during initial and refresher training?	

E.01.07 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Offsite Response Agencies are offered orientation on specific conditions and hazards based on the results of the all-hazards planning basis.	DOE O 151.1D, Attachment 3, 5.c

E.01.07 LINES OF INQUIRY

E.01.07.01	Is orientation training offered to offsite emergency responders that are based on the results of the all-hazards planning basis, including familiarization on an annual basis?	DOE O 151.1D, Attachment 3, 5.c
E.01.07.02 BP	Is Offsite Response Agency orientation training documented to indicate that it has been offered at least annually?	
E.01.07.03 BP	Is emergency-related training on facility/site conditions and hazards made available/offered to offsite response organizations that may need to respond onsite?	DOE G 151.1-3, 1.4
E.01.07.04 BP	Are all primary and mutual aid offsite response agencies offered an orientation on hazards from the all-hazards planning basis, including all applicable hospitals and medical care facilities?	
E.01.07.05 BP	Are updates to the orientation offered when there are significant changes to the all-hazards planning basis?	
E.01.07.06 BP	Are offsite response agencies offered site visits or tours to enhance familiarity with the site and its hazards?	
E.01.07.07 BP	Is feedback requested from offsite response agencies on the training and the content of the training to identify areas for improvement?	
E.01.07.08 BP	Is the effectiveness of orientation/training that the site provides for offsite organization personnel reviewed periodically?	DOE G 151.1-3, E.2.3

E.01.08 CRITERION	Core Facility	DNF Facility	HazMat Facility
Worker drills are conducted on a frequency commensurate with the all-hazards planning basis.			DOE O 151.1D, Attachment 3, 5.d

E.01.08 LINES OF INQUIRY		
E.01.08.01	Are building evacuation drills conducted at least annually, or consistently with the frequency in applicable National Fire Protection Association (NFPA) standards and state or local regulations?	DOE O 151.1D, Attachment 3, 5.d.1; 41 CFR 102-74-360
E.01.08.02	Are building evacuation drills conducted after substantial changes are made to a building that change evacuation procedures/ pathways?	DOE O 151.1D, Attachment 3, 5.d.1
E.01.08.03 BP	Do drills provide practical, hands-on training and use realistic situations and scenarios?	DOE G 151.1-3, 1.4
E.01.08.04 BP	Are drills developed or modified to validate new or revised procedures or equipment modifications?	DOE G 151.1-3, Appendix D, 3.2
E.01.08.05 BP	Is the frequency of drills conducted over the past three years appropriate for the potential hazards identified in the all-hazards planning basis?	
E.01.08.06 BP	Are all workers required to participate in drills (i.e., routine exemptions are not common)?	
E.01.08.07 BP	Are exemptions for workers to not participate in drills controlled (i.e., authorized) and are these exemptions appropriate?	
E.01.08.08 BP	Is complete evacuation adequately established during evacuation drills?	
E.01.08.09 BP	Is accountability conducted appropriately during drills?	DOE G 151.1-3, Appendix D, 4.7
E.01.08.10 BP	Are multiple methods of worker notifications tested during drills?	
E.01.08.11 BP	Are all drill participants invited to provide feedback on the drill development and performance?	LL-DrEx-DOE-07, P3b

E.01.09 CRITERION	Core Facility	DNF Facility	HazMat Facility
Worker drills cover protective actions workers may be expected to take.			DOE O 151.1D, Attachment 3, 5.d

E.01.09 LINES OF INQUIRY		
E.01.09.01	Are an adequate number of drills conducted annually to ensure comprehensive coverage of all protective actions workers may be expected to take based upon the results of the all-hazards planning basis?	DOE O 151.1D, Attachment 3, 5.d.2

E.01.09.02	Do drills include facility-specific procedures for safe shutdown/ walk-away provisions and facility-specific response steps to take when there are disruptions to critical infrastructure?	DOE O 151.1D, Attachment 3, 5.d.2
E.01.09.03 BP	Is there evidence that the past drills adequately covered the protective actions workers might be expected to take?	LL-Fuku-IAEA-01, P44a
E.01.09.04 BP	Do drills include criteria to evaluate corrective actions and lessons learned from exercises or previous drills?	

E.01.10 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

ERO drills are conducted where ERO members demonstrate proficiencies at dealing with hazard/threat scenarios commensurate with the all-hazards planning basis, including participation invites to offsite first response agencies.	DOE O 151.1D, Attachment 3, 5.e & f

E.01.10 LINES OF INQUIRY

E.01.10.01	Are ERO drills conducted and documented so that each ERO member participates at least annually (this may be accomplished by participation in a drill, exercise, or actual incident)?	DOE O 151.1D, Attachment 3, 5.e.1
E.01.10.02	Does the emergency management program permit emergency response personnel (e.g., fire, HAZMAT, emergency medical services) that perform essentially the same functions as an ERO on a day-to-day basis, to demonstrate proficiency by virtue of performance at their everyday jobs?	DOE O 151.1D, Attachment 3, 5.e.1
E.01.10.03	Are the improvements and lessons learned captured as a result of ERO drills used to make training and drill program improvements?	DOE O 151.1D, Attachment 3, 5.e.2
E.01.10.04	Are ERO drill scenarios representative of the hazards/threats identified in the all-hazards planning basis?	DOE O 151.1D, Attachment 3, 5.e.3
E.01.10.05 BP	Are alternate formats of drill performance (i.e., tabletop, functional, operational, etc.) permitted, with priority given to field performance with minimal simulations?	
E.01.10.06	Are ERO drills conducted to ensure ERO members demonstrate position-specific capabilities and knowledge?	DOE O 151.1D, Attachment 3, 5.e.3
E.01.10.07 BP	Is drill performance graded or is performance otherwise evaluated?	DOE G 151.1-3, Appendix E, 2.2; LL-DrEx-DOE-05, P21-22; LL-DrEx-DOE-13, P17-18b
E.01.10.08 BP	Is coaching minimized during drill performance and eliminated when establishing proficiency of ERO members?	
E.01.10.09 BP	Are exemptions to ERO drills controlled (i.e., authorized) and are these exemptions appropriate?	
E.01.10.10	Are offsite first response agencies formally invited to participate with relevant ERO drills at least annually?	DOE O 151.1D, Attachment 3, 5.f

E.01.10.11 BP	Are offsite organizations who participated in the drills invited to the post-drill critique?	
E.01.10.12 BP	Are lessons learned gleaned from the drills communicated to the offsite response organizations who participated in the drills?	

E.02 – OBJECTIVE

Emergency Management Hazardous Material programs maintain a training and drill program that contain additional capabilities commensurate with the hazards identified in the emergency planning hazards assessment (EPHA), additional training on Emergency Action Levels (EALs), and emergency categorization and classification training for those ERO staff who perform that function. Hazard specific training is also made available to first responder organizations. Defense Nuclear Facilities conduct drills using a graded approach and the drills and training program considers various drill-related activities. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4, 5).

E.02.01 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

The ERO training is based on EPHA results.	DOE O 151.1D, Attachment 4, 5

E.02.01 LINES OF INQUIRY

E.02.01.01	Does the ERO training consist of self-study, classroom training, or drills?	DOE O 151.1D, Attachment 4, 5.a.1
E.02.01.02	Do appropriate ERO members receive training on EPHAs and EALs?	DOE O 151.1D, Attachment 4, 5.a.2
E.02.01.03	Does ERO training consist of emergency categorization and classification for ERO staff who perform this function?	DOE O 151.1D, Attachment 4, 5.a.3
E.02.01.04 BP	Does the categorization and classification training reflect the information contained in the EALs appropriately?	
E.02.01.05 BP	Are ERO members, involved in a response to hazardous material releases based upon the EPHAs, trained to the EPHA and EALs?	
E.02.01.06 BP	Does training emphasize the need for prompt, accurate, and practical judgments involving event categorization and classification, protective actions, and the urgency of notifications of Operational Emergencies?	DOE G 151.1-3, 2.5.6
E.02.01.07 BP	Are changes to the EPHA and EALs incorporated into training and affected ERO members trained in a timely manner?	
E.02.01.08 BP	Do ERO members in charge of categorization and classification responsibilities receive training on decision-making when information is incomplete or uncertain and when events and conditions are not covered explicitly by EAL procedures?	DOE G 151.1-3, 2.5.6
E.02.01.09 BP	Are identified “assistants” (e.g., Building Emergency Director assistant), who may be utilized during emergencies, trained to prevent unauthorized direction, assuring adequate command and control?	

E.02.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
The ERO hazardous materials drills are developed and conducted based on EPHA results.			DOE O 151.1D, Attachment 4, 5.b

E.02.02 LINES OF INQUIRY		
E.02.02.01	Are drills developed, conducted, and documented for hazardous materials critical tasks or activities?	DOE O 151.1D, Attachment 4, 5.b
E.02.02.02 BP	Do drills provide effective "hands-on" training to support overall hazardous materials training objectives?	DOE G 151.1-3, Appendix D, 3.2
E.02.02.03 BP	Do drills provide opportunities to demonstrate responder proficiency in performed hazardous materials emergency management tasks?	DOE G 151.1-3, Appendix D, 3.2
E.02.02.04 BP	Do hazardous materials drills include planning for scenarios that provide interface between the ERO and site organizations/teams with an emergency response role (e.g., security, consequence assessment teams, medical responders, public affairs)?	DOE G 151.1-3, Appendix D, 3.2
E.02.02.05 BP	Are hazardous materials drills developed or modified based upon feedback and lessons learned from actual events, exercise evaluations, and self-assessments?	DOE G 151.1-3, Appendix D, 3.2
E.02.02.06 BP	Are hazardous materials tabletop training drills or activities held in conjunction with training?	DOE G 151.1-3, 2.6.2
E.02.02.07 BP	Do hazardous materials drills incorporate the capabilities to respond to severe events?	DOE G 151.1-3
E.02.02.08 BP	Are hazardous materials drills an integral part of training and do they have the appropriate level of complexity, focus, and site-specific parameters to identify performance shortfalls and initiate needed improvements?	DOE G 151.1-3, 2.8

E.02.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
First response agencies are offered training on unique hazards, such as equipment, hazardous materials identified in the EPHA, or facility configuration.			DOE O 151.1D, Attachment 4, 5.c

E.02.03 LINES OF INQUIRY		
E.02.03.01	Are unique hazards for the site sufficiently identified to incorporate into hazardous materials training for first response agencies?	DOE O 151.1D, Attachment 4, 5.c
E.02.03.02	Does the hazardous materials training and drills program offer training on unique hazards (e.g., equipment, hazardous materials) identified by the EPHA to primary and mutual aid emergency responders?	DOE O 151.1D, Attachment 4, 5.c
E.02.03.03 BP	Is hazardous materials training for first response agencies updated when hazards change or the EPHA and EALs are updated?	

E.02.04 CRITERION	✗ Core Facility	✓ DNF Facility	✗ HazMat Facility
Defense Nuclear Facilities conduct drills, using a graded approach, involving the Operations staff, Emergency Management staff, onsite Incident Command staff, and Emergency Operations Center (EOC) staff.			DOE O 151.1D, Attachment 4, 5.d

E.02.04 LINES OF INQUIRY		
E.02.04.01	Are drills conducted for Defense Nuclear Facilities?	DOE O 151.1D, Attachment 4, 5.d
E.02.04.02	Are Operations, Emergency Management, onsite Incident Command, and EOC staff involved in drills for the Defense Nuclear Facilities?	DOE O 151.1D, Attachment 4, 5.d
E.02.04.03	Is a graded approach used when conducting drills for Defense Nuclear Facilities?	DOE O 151.1D, Attachment 4, 5.d

E.02.05 CRITERION	✗ Core Facility	✓ DNF Facility	✗ HazMat Facility
The Defense Nuclear Facilities drills and training program considers Operational Emergencies, all-hazards planning basis, and various drill scenarios.			DOE O 151.1D, Attachment 4, 5.d

E.02.05 LINES OF INQUIRY		
E.02.05.01	Do Defense Nuclear Facilities consider appropriate elements of the EOC staff for Operational Emergencies in the development of their drill and training program?	DOE O 151.1D, Attachment 4, 5.d.1
E.02.05.02	Are drill scenarios representative of the hazards/threats identified in the all-hazards planning basis?	DOE O 151.1D, Attachment 4, 5.d.2
E.02.05.03	Do Defense Nuclear Facility annual drills integrate the ERO with conduct of operations drills as initiating events?	DOE O 151.1D, Attachment 4, 5.d.3
E.02.05.04	Is the drill design and content evaluated, include by participants, for continuous improvement regardless of the scope or mechanism?	DOE O 151.1D, Attachment 4, 5.d.4
E.02.05.05	Do Defense Nuclear Facility drills consider shift rotation in the drill development?	DOE O 151.1D, Attachment 4, 5.d.5
E.02.05.06	Do Defense Nuclear Facility drills include unannounced drills?	DOE O 151.1D, Attachment 4, 5.d.5
E.02.05.07	Are Defense Nuclear Facility drills conducted during low staffing periods (off-hours)?	DOE O 151.1D, Attachment 4, 5.d.5
E.02.05.08	Are positions unique to various types of nuclear facilities identified and trained according to DOE O 426.2, Chg. 1, Chapter II requirements?	DOE O 426.2, Chg. 1
E.02.05.09	Does the ERO training program for Defense Nuclear Facilities comply with DOE O 426.2, Chg.1 requirements?	DOE O 426.2, Chg.1

E.02.05.10	Does the Qualification process for ERO staff members at Defense Nuclear Facilities comply with DOE O 426.2, Chg.1 requirements?	DOE O 426.2, Chg.1
E.02.05.11 BP	Do personnel achieve and maintain the required capabilities to perform their work at Defense Nuclear Facilities?	

E.03 – OBJECTIVE

Performance of training and drills is optimal per Element X.

E.03.01 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.01 criterion has been assessed.

E.03.01 LINES OF INQUIRY

E.03.01.01	In the context of Training and Drills, have the lines of inquiry (LOIs) associated with criterion X.01.01 been addressed?

E.03.02 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.02 criterion has been assessed.

E.03.02 LINES OF INQUIRY

E.03.02.01	In the context of Training and Drills, have the LOIs associated with criterion X.01.02 been addressed?

E.03.03 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.03 criterion has been assessed.

E.03.03 LINES OF INQUIRY

E.03.03.01	In the context of Training and Drills, have the LOIs associated with criterion X.01.03 been addressed?

E.03.04 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.07 criterion has been assessed.

E.03.04 LINES OF INQUIRY

E.03.04.01	In the context of Training and Drills, have the LOIs associated with criterion X.01.07 been addressed?

E.03.05 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.09 criterion has been assessed.

E.03.05 LINES OF INQUIRY

E.03.05.01	In the context of Training and Drills, have the LOIs associated with criterion X.01.09 been addressed?

E.03.06 CRITERION

Core Facility DNF Facility HazMat Facility

Element X.01.10 criterion has been assessed.

E.03.06 LINES OF INQUIRY

E.03.06.01	In the context of Training and Drills, have the LOIs associated with criterion X.01.10 been addressed?

APPROACH – Training & Drills

Below are generic considerations for Element E, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, and any other pertinent information.

Document/Record Reviews

- Site/facility Emergency Plan(s) (confirm training coordinator position/individual assigned overall responsibility for emergency management program training; confirm level of training implemented based on all-hazards planning/technical basis; confirm appropriate program Elements are covered)
- Training materials such as Lesson plans, drill plans, training materials and facilities, instructor, and student manuals, and training software (confirm form and content effective; materials related to the protection of classified information or UCNI; confirm participation rates; use of current procedures and tools; consistent with site emergency plan implementing procedures (EPIPs); initial and retrain frequency; training consistent at sites with multiple contractors)
- Contractual documents with offsite training businesses for emergency management (EM) program related activities
- Documentation of program reviews, lessons learned, corrective actions, and documents that track findings and corrective actions related to Training and Drills
- Drill and Exercise records (review items related to effectiveness of prior training; evidence of training for the ERO position held; Drills conducted appropriately by evaluators and controllers)
- Document control process for training materials

Interviews

- Person(s) with overall responsibility for emergency management training program for site workers (effectiveness and management of program, budget and resources) (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.07, X.01.09**)
- Person(s) with overall responsibility for emergency management training program for ERO staff (training materials reflect current implementing procedures and processes) (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09**)
- ERO staff (competently implement procedures that they were trained on)
- Offsite response organization and Incident Command staff who were provided training on site hazards
- Facility workers who may witness a hazardous material, radioactive material, or biotoxin release
- Site workers who take protective actions

Observations

- Training programs (participation, effectiveness, schedule, systems)
- Training facilities and equipment
- Drills

References

- **DOE G 151.1-3**: *Programmatic Elements*
- **DOE G 420.2-1A**: *Accelerator Facility Safety Implementation Guide for DOE O 420.2C, Safety of Accelerator Facilities*
- **DOE O 151.1D**: *Comprehensive Emergency Management System*
- **DOE O 414.1D**: *Quality Assurance*
- **DOE O 426.2, Chg. 1**: *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*
- **NIMS/ICS**: *FEMA National Incident Management System/Incident Command System*

EMERGENCY
MEDICAL SUPPORT

F. Emergency Medical Support

F.01 – OBJECTIVE

Emergency medical treatment and support is planned and coordinated based on potential hazards. This includes planning integration with offsite responders and medical facilities and provisions for sharing patient information. The planning also includes transporting and treating potentially contaminated and injured people. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 6)

F.01.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
Plans for emergency medical response are developed.			DOE O 151.1D, Attachment 3, 6.a

F.01.01 LINES OF INQUIRY		
F.01.01.01	Do the emergency plans and procedures address emergency medical treatment associated with incidents identified in the all hazards planning basis?	DOE O 151.1D, Attachment 3, 6.a
F.01.01.02	Do plans address how the ERO integrates with offsite medical support providers?	DOE O 151.1D, Attachment 3, 6.a
F.01.01.03	Does pre-planning with offsite responder resources address integration of emergency medical support in accordance with applicable NFPA standards (e.g., NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*).	DOE O 151.1D, Attachment 3, 6.a
F.01.01.04	Do the emergency plans and procedures adequately address medical treatment of mass casualty events?	DOE G 151.1-4, 8.3; LL-DrEx-DOE-18, P19a; LL-NPEA-DOE-04, P32c; LL-NPEA-DOE-07, P36a; LL-NPEA-DOE-08, P39c; LL-DrEx-DOE-14, P16-17; LL-DrEx-DOE-23, P11-13; NFPA 1500
F.01.01.05 BP	Do the emergency plans and procedures address medical treatment of onsite responders?	LL-Fuku-IAEA-01, P44c; LL-DrEx-DOE-18, P19a; LL-NPEA-DOE-01, P20
F.01.01.06 BP	Is the onsite physician responsible for delivery of medical services (e.g., Site Medical Director) also responsible for the medical portion of the site Emergency Plan that integrates the site Emergency Plan with the surrounding community emergency/disaster plan?	DOE G 151.1-4, 8.3; 10 CFR 851, Appendix A, Section 8
F.01.01.07 BP	Can medical treatment and support be promptly and effectively implemented?	LL-DrEx-DOE-11, P7c; LL-DrEx-DOE-18, P19a; LL-NPEA-DOE-01, P20
F.01.01.08 BP	Is there a patient tracking system (identification, status of response, status of patient, location)?	LL-DrEx-DOE-02, P5a; LL-DrEx-DOE-04, P23b; LL-DrEx-DOE-08, P7e; LL-DrEx-DOE-11, P7c; LL-DrEx-DOE-14, P16-17; LL-DrEx-DOE-19, P20c
F.01.01.09 BP	Do Emergency Plans address communication links between medical aid, triage teams, fire and rescue units, hospitals, local and state police and the DOE Emergency Operations Center?	DOE G 151.1-4, 8.3.1; DOE G 440.1-4, 4.7

Provisions are in place governing the sharing of patient information between onsite and offsite health care providers during emergencies.		DOE O 151.1D, Attachment 3, 6.b

F.01.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
F.01.02 LINES OF INQUIRY			
F.01.02.01	Are provisions in place to share patient information between onsite and offsite health care providers during emergencies?		DOE O 151.1D, Attachment 3, 6.b
F.01.02.02	Are these provisions consistent with P.L. 104-191 Health Insurance Portability and Accountability Act of 1996, and the Privacy Act, 42 U.S.C. Sec 552a?		DOE O 151.1D, Attachment 3, 6.b
F.01.02.03 BP	Do the procedures involving the sharing of patient information between onsite and offsite care providers exhibit best practices?		
F.01.02.04 BP	Is the potential sharing of patient information between onsite and offsite care providers tested in drills and exercises?		

F.01.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
A process and implementing agreements are in place to treat, transport, and accept personnel who have been contaminated and injured.			DOE O 151.1D, Attachment 3, 6.c; DOE G 151.1-4, 8.3, 8.4.2

F.01.03 LINES OF INQUIRY		
F.01.03.01	Are documented arrangements (e.g., MOUs, MOAs) in place for the process of transport, acceptance and treatment of contaminated and/ or injured personnel?	DOE O 151.1D, Attachment 3, 6.c
F.01.03.02 BP	Are implementing agreements in place for the transport, acceptance and treatment of contaminated, and injured personnel routinely reviewed for adequacy (annually)?	DOE G 151.1-4, 8.4.2; LL-Fuku-IAEA-01, P100b; LL-NPEA-DOE-01, P19a; LL-NPEA-DOE-01, P20; LL-NPEA-DOE-02, P39b; LL-DrEx-DOE-18, P19a; LL-NPEA-DOE-03, P34a; LL-NPEA-DOE-07, P36c; LL-NPEA-DOE-08, P39c; LL-DrEx-DOE-23, P11-13
	Are roles and responsibilities in place for coordinating with offsite medical facilities?	DOE G 151.1-4, 8.4.2; LL-NPEA-DOE-02, P30-31; LL-DrEx-DOE-08, P7e
F.01.03.03 BP	Are provisions in place to provide monitoring and contamination control assistance to medical treatment facilities, if needed?	DOE G 151.1-4, 8.3.2, 1.7.2
F.01.03.04 BP	Does the medical portion of the Emergency Plan identify specific hazardous materials identified by the hazards surveys and EPHAs as well as characteristic health effects so that emergency medical treatment can be preplanned by emergency responders and medical treatment facilities?	DOE G 151.1-4, 8.3.2
F.01.03.05 BP		

F.01.03.06 BP	Is the medical portion of the Emergency Plan, including treatment, transport, and acceptance of contaminated and injured personnel, tested in drills and exercises?	

F.02 – OBJECTIVE

There are no problems or adverse issues associated with emergency medical support, per Element X.

F.02.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
In the context of the emergency medical support Element X.01.07 criterion has been assessed.			DOE O 151.1D, Attachment 3, 6.a

F.02.01 LINES OF INQUIRY		
F.02.01.01	In the context of emergency medical support, have the LOIs associated with criterion X.01.07 been addressed.	

F.02.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
In the context of the emergency medical support Element X.01.08 criterion has been assessed.			

F.02.02 LINES OF INQUIRY		
F.02.02.01	In the context of emergency medical support, have the LOIs associated with criterion X.01.08 been addressed.	

F.02.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
In the context of the emergency medical support Element X.01.09 criterion has been assessed.			

F.02.03 LINES OF INQUIRY		
F.02.03.01	In the context of the emergency response organization, have the LOIs associated with criterion X.01.09 been addressed.	

F.02.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
In the context of the emergency medical support Element X.01.10 criterion has been assessed.			

F.02.04 LINES OF INQUIRY		
F.02.04.01	In the context of the emergency response organization, have the LOIs associated with criterion X.01.10 been addressed.	

APPROACH – Emergency Medical Support

Below are generic considerations for Element F, including a crosswalk to Element X criteria. The assessment can be improved by involving a credentialed medical provider, to provide subject matter expertise and enhance the interface with offsite medical providers. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, etc. However, any comments and recommendations directed solely at a medical facility should not be included in DOE reports unless the facility is owned or operated by the DOE, another federal agency or DOE contractor.

Document/Record Reviews

- Emergency Plan/Procedures that outline coordination of medical responder organizations and individual roles commensurate with hazards, as well as activation criteria, contaminated personnel handling (transport, decontamination), and HIPAA compliance.
- Onsite Emergency Medical Staff list with training, credentials.
- Drills and exercises, procedures and/or checklists of onsite and offsite emergency medical response (e.g., logs, message traffic, memoranda, notifications, and reporting) and any debrief remarks.
- Actual events, procedures and/or checklists describing onsite and offsite emergency medical response (e.g., logs, message traffic, memoranda, notifications, and reporting).
- Access identification method/procedure for emergency response staff.
- Procedure for transferring patients from onsite to offsite medical facilities and associated access identification method/procedure, if appropriate.
- MOU/MOAs for emergency medical transport, acceptance and treatment.
- Field emergency plan(s) showing interface between medical responders and ERO staff.
- Corrective actions related to emergency medical.
- Lessons learned related to site emergency medical.

Interviews

- Person(s) identified as Emergency Manager (EM – not same as IC) **(X.01.01, X.01.02, X.01.07, X.01.09, X.01.10)**
- Person identified as Incident Commander (IC - not same as EM) **(X.01.01, X.01.02, X.01.03, X.01.07, X.01.09, X.01.10)**
- Person who establishes interfaces with onsite and offsite medical response **(X.01.01, X.01.02, X.01.03, X.01.07, X.01.08, X.01.09, X.01.10)**
- Cognizant authorities at onsite and offsite medical facilities (e.g., fire department's Chief of Emergency Medical Services, the local medical treatment facility's Director of Emergency Medicine, Emergency Manager, or Director of Healthcare Administration, etc.) that are included in the site Emergency Plan to assure they understand and are prepared to handle potential site hazards
- ICs role in communicating need for emergency medical support
- Onsite and offsite medical staff for communications system planning is adequate

Observations

- Key onsite emergency medical facilities and vehicles.
- During a drill or exercise, observe conduct and communications of medical responders, including adherence to the Health Insurance Portability and Accountability Act (HIPAA).
- Debrief of medical support portion of drills, exercises, or actual events.

References

- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **P.L. 104-191:** *Health Insurance Portability and Accountability Act of 1996*
- **42 U.S.C. Sec 552a:** *Privacy Act*
- **10 CFR 851:** *Occupational Medicine*
- **NFPA 1500:** *Standard on Fire Department Occupational Safety and Health Program*

OFFSITE RESPONSE INTERFACE

G. Offsite Response Interfaces

G.01 – OBJECTIVE

Interfaces exist with offsite organizations (local, state, tribal, and federal) responsible for emergency response and/or who may supplement emergency response capabilities, commensurate with the all hazards planning basis. Offsite organizations are provided with orientation on the site hazards and invited to participate the training, drills and exercises. A process has been established to address access protocols, communication, and coordination of emergency public information with offsite organizations. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 7; DOE O 151.1D, Attachment 3, 5.c; DOE O 151.1D, Attachment 3, 5.f)

G.01.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
Orientation on the site/facility/activity-specific conditions and hazards has been offered to offsite response agencies.			DOE O 151.1D, Attachment 3, 5.c; DOE O 151.1D, Attachment 3, 7.a

G.01.01 LINES OF INQUIRY		
G.01.01.01	Is orientation offered annually for applicable offsite emergency responders based on all hazards planning basis?	DOE O 151.1D, Attachment 3, 5.c; DOE O 151.1D, Attachment 3, 7.a
G.01.01.02 BP	Is the orientation content and process periodically reviewed for effectiveness?	
G.01.01.03 BP	Is feedback on effectiveness solicited from the offsite response organizations after each orientation is provided?	
G.01.01.04 BP	Is there evidence that feedback is used to improve the orientation content and process?	

G.01.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
Offsite first responders are invited to participate in a relevant drill or exercise annually.			DOE O 151.1D, Attachment 3, 5.f; DOE O 151.1D, Attachment 3, 7.a

G.01.02 LINES OF INQUIRY		
G.01.02.01	Are applicable offsite first responders invited annually to participate in a drill or exercise, in part to become familiar with site hazards?	DOE O 151.1D, Attachment 3, 5.f; DOE O 151.1D, Attachment 3, 7.a
G.01.02.02 BP	Do offsite organizations participate in emergency exercises for criticality scenarios, if applicable?	DOE-STD-1158-2010
G.01.02.03 BP	Do offsite organizations who are required to respond have the emergency response procedures that integrate with the site emergency plan?	DOE-STD-1158-2010
G.01.02.04 BP	Is feedback on drills and exercise effectiveness solicited from the offsite response organizations, as applicable?	
G.01.02.05 BP	Is there evidence that exercise and drill feedback is used to improve the orientation content and process?	

		✓	✓	✓
	Access protocols are established for routine, abnormal, and emergency conditions.			DOE O 151.1D, Attachment 3, 7.b
G.01.03 CRITERION				
G.01.03 LINES OF INQUIRY		**Core Facility**	**DNF Facility**	**HazMat Facility**
G.01.03.01	Have access protocols been established and documented for all conditions (routine, abnormal, and emergency) with offsite first responders?			DOE O 151.1D, Attachment 3, 7.b
G.01.03.02 BP	Are access protocols tested or evaluated in drills?			LL-DrEx-DOE-19, P20d
G.01.04 CRITERION		✓ **Core Facility**	✓ **DNF Facility**	✓ **HazMat Facility**
	Processes are established to coordinate emergency public information during an incident involving response by offsite responders or when incidents may be of interest to the media or the public.			DOE O 151.1D, Attachment 3, 7.c
G.01.04 LINES OF INQUIRY				
G.01.04.01	Are communication channels pre-identified for use during onsite response (e.g. in plans or procedures)?			DOE O 151.1D, Attachment 3, 7.c
G.01.04.02 BP	Are communication interfaces/protocols established for notification points and ongoing communications between EOCs, responders, monitoring teams, and other entities involved in the emergency response?			DOE G. 151.1-4, 2.5
G.01.04.03 BP	Are offsite fire and medical support advised to prepare for a hostile action causing personnel injury?			
G.01.04.04 BP	Do the processes identified for communications allow for communication with offsite responders?			DOE O 470.4B, Appendix A, Section 1, Chapter 2, No. 38
G.01.05 CRITERION		✓ **Core Facility**	✓ **DNF Facility**	✓ **HazMat Facility**
	A process is established for communicating emergency information that may affect or be of interest to the media and the public.			DOE O 151.1D, Attachment 3, 7.d; DOE O 151.1D, Attachment 3, 12.b
G.01.05 LINES OF INQUIRY				
G.01.05.01	Is the process to coordinate emergency public information with offsite responders detailed in a plan?			DOE O 151.1D, Attachment 3, 7.d; DOE O 151.1D, Attachment 3, 12.b
G.01.05.02 BP	Are offsite responders invited to participate in drills or exercises to test coordination of public information activities with offsite response agencies?			

		✓	✓	✓

Interfaces with local, state, tribal and federal organizations are established and maintained commensurate with applicable threats and hazards for the integration of response activities and obtaining of offsite assistance for emergency response.	DOE O 151.1D, Attachment 3, 7

G.01.06 CRITERION G.01.06 LINES OF INQUIRY		Core Facility	DNF Facility	HazMat Facility
G.01.06.01	Is there a process in place for the coordination with responsible offsite response agencies to define roles, responsibilities/ capabilities?			DOE O 151.1D, Attachment 3, 7
G.01.06.02	Is there a process in place for the coordination with responsible offsite response agencies to define key protocols and procedures for offsite assistance?			DOE O 151.1D, Attachment 3, 7
G.01.06.03	Does the process include the planning for severe events?			DOE O 151.1D, Attachment 3, 7
G.01.06.04	Does the process include the planning for threats identified in the all hazards planning basis?			DOE O 151.1D, Attachment 3, 7
G.01.06.05 BP	Are the interfaces periodically evaluated for effectiveness, and potential improvements?			

G.02 – OBJECTIVE

For site/facilities/activities with Emergency Management Hazardous Materials Programs, the interfaces exist with offsite organizations (local, state, tribal, and federal) responsible for emergency response and/or who may supplement emergency response capabilities. Processes are established to coordinate with offsite agencies regarding EPHA results. Coordination with offsite organizations includes protective action recommendations, notification processes, EPHA analyses, and radiological monitoring support. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4, 7)

G.02.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
Sites with Emergency Management Hazardous Materials Programs coordinate with offsite organizations on hazards identified in the EPHA.			DOE O 151.1D, Attachment 4, 7

G.02.01 LINES OF INQUIRY		
G.02.01.01	Are protective action recommendations, based on EPHA results, communicated to offsite agencies?	DOE O 151.1D, Attachment 4, 7a
G.02.01.02 BP	Do offsite agencies receive the EPHAs or a briefing on the potential impacts to offsite locations should a hazardous or radioactive material release occur?	
G.02.01.03 BP	Is there a process in place for validating that offsite agencies understand protective action recommendations and their impacts upon initial notification?	
G.02.01.04 BP	Does the site assist the offsite agencies in understanding how to implement protective actions?	LL-NPEA-DOE-02, P37-38
G.02.01.05	Is the process for notifying offsite agencies of protective action recommendations clearly identified in plans or procedures?	DOE O 151.1D, Attachment 4, 7b
G.02.01.06	Is the EPHA bounding event distance at which PAC is exceeded, and plume arrival time at specific offsite receptor locations, provided to state and county agencies so they can preplan the appropriate level of preparedness and response?	DOE O 151.1D, Attachment 4, 7c
G.02.01.07 BP	Are revisions to the EPHA communicated to the offsite agencies in a timely manner (e.g., within 3 months of revisions)?	LL-DrEx-DOE-11, P7a; LL-DrEx-DOE-12, P18a
G.02.01.08	For sites with potential for General Emergencies involving radiological material releases, has adequate planning been done to provide radiological monitoring support to local and state governments?	DOE O 151.1D, Attachment 4, 7d
G.02.01.09 BP	Are state and local governments aware of the impacts of General Emergencies involving radiological material releases?	LL-NPEA-DOE-07, P34d
G.02.01.10 BP	Is the process for providing offsite radiological monitoring support to offsite agencies described in plans or procedures?	
G.02.01.11 BP	Is the process to obtain additional resources or support (FRMAC, RAP, etc.) for offsite radiological responses described in plans or procedures?	LL-NPEA-DOE-06, P38-39; LL-NPEA-DOE-08, P36a

G.03 – OBJECTIVE

There are no problems or adverse issues associated with offsite response interfaces, per Element X.

G.03.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.07 criterion has been assessed.			

G.03.01 LINES OF INQUIRY		
G.03.01.01	In the context of Offsite Response Interfaces, have the LOIs associated with criterion X.01.07 been addressed?	

G.03.02 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.09 criterion has been assessed.			

G.03.02 LINES OF INQUIRY		
G.03.02.01	In the context of Offsite Response Interfaces, have the LOIs associated with criterion X.01.09 been addressed?	

G.03.03 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.10 criterion has been assessed.			

G.03.03 LINES OF INQUIRY		
G.03.03.01	In the context of Offsite Response Interfaces, have the LOIs associated with criterion X.01.10 been addressed?	

APPROACH – Offsite Response Interfaces

Below are generic considerations for Element G, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. For sites with multiple contractors, consider the effectiveness of the site-wide program integration. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, best practices, etc. Issues of missing, incomplete, or unclear documentation may be resolved in the interview phase.

Document/Record Reviews

- Emergency Plan(s) and emergency implementing procedures
  - Confirm position/individual assigned overall responsibility for initiating and maintaining contact with the offsite organization has the authority to do so
  - Review position description, duties/responsibilities, job aids
  - NIMS/ICS concept integration in plans
  - Confirm NIMS interface staff and procedures
  - Review access identification method/procedure for offsite staff access to onsite for routine, abnormal and emergency conditions, as applicable [offsite medical access is covered under Element F]
  - Review procedures to request assistance from Federal assets (i.e., RAP, FRMAC, AMS, and REAC/TS)
- Training records for ERO staff responsible for interfacing with offsite agencies (schedule and participation)
- Training records for offsite staff at contractor training events/distributions (schedule, invitation, participation)
- MOAs, MOUs, MAAs, etc. with offsite response organizations (review contact information, method of communication) required for DOE Order compliance
- Other documents (MOAs, MOUs, etc) required by other government authorities (e.g., local, state, Tribal)
- Drill/Exercise records of offsite monitoring team documentation and tracking to EOC records correlation; documentation of JIC, other local/state offsite organization communications to EOC
- Documentation of program reviews, site lessons learned, and documents that track findings and corrective actions related to Offsite Response Interfaces
- EPHA, THIRA, etc. (review hazards against Element G complexity)

Interviews

- Person with overall responsibility for managing the emergency management program and delegates (review relationships with offsite organizations [other Federal, Tribal, state, local, private, including medical]; attendance at local and state government emergency planning committee meetings; communication and timeliness of site hazard changes to offsite organizations) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person responsible for communicating protective action recommendation to state/local (confirm protective actions have been shared with state/local)
- Person responsible for establishing and maintaining contact with DOE Headquarters **(X.01.01, X.01.02, X.01.10)**
- Training program coordinator (confirm appropriate onsite staff and offsite organization training)
- Person(s) responsible for interfacing with offsite organizations (review communication, timeliness of site hazard and changes to offsite organizations) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Lead exercise planner (review if offsite organizations have been invited/participated in exercises; testing of access protocols by offsite organizations)
- If possible, have offsite response organization representatives join interviews with contractor staff for input and feedback regarding communications and training **(X.01.02)**
- Contractor public information specialist (review their role related to offsite emergency responder communications, that are distinct from Element L Emergency Public Information)

Observations

- During drill/exercise observe initiating contact, maintaining contact, following procedures, use of job aids, two-way communications
- During drill/exercise observe communication of classification and protective action recommendations and subsequent response by the offsite organization
- Space/equipment in the Emergency Operations Center used for offsite communications, including use of tools such as WebEOC®
- Offsite Interface training sessions for contractor or offsite organizations

References

- **29 CFR 1910.120:** *Occupational Safety and Health Standards, Labor; Hazardous Waste Operations and Emergency Response*
- **40 CFR 355.30:** *Emergency Planning And Notification*
- **ANSI/ANS 8.23 (R2012), Section 5:** *Nuclear Criticality Accident Emergency Planning and Response, Emergency Response Planning*
- **CPG 201 (2013):** *Comprehensive Preparedness Guide 201*
- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 470.4B:** *Safeguards and Security Program*
- **DOE-STD-1158-2010:** *Self-Assessment Standard For DOE Contractor Criticality Safety Programs*
- **NIMS CORE:** *National Incident Management System*

EMERGENCY CATEGORIZATION

H. Emergency Categorization

H.01 – OBJECTIVE

Operational Emergencies (OEs) are declared and categorized in a timely manner when incidents occur that represent a significant degradation in the level of safety resulting in potential health and safety hazards to workers or the public. These OEs remain in effect until the emergency response is terminated. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 8)

H.01.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
OEs are declared when incidents occur that represent a significant degradation in the level of safety resulting in potential health and safety hazards to workers or the public.			DOE O 151.1D, Attachment 3, 8.a

H.01.01 LINES OF INQUIRY		
H.01.01.01	Is a documented process established for declaring OEs?	DOE O 151.1D, Attachment 3, 8.a
H.01.01.02 BP	Have individuals been assigned the role and responsibility for declaring OEs?	
H.01.01.03	Is the documented process for declaring OEs commensurate with the current all-hazards planning basis?	DOE O 151.1D, Attachment 3, 1.e
H.01.01.04 BP	Does the documented process allow for subjective judgments, for example: • Perceptions of the magnitude of the event? • Unique circumstances? • General need for emergency "management" (i.e., multiple skills, additional resources, etc.)? • A sense of what information DOE/NNSA HQ needs promptly in order to interface with other Federal agencies at the highest levels? • The site's political situation and its relationship with its neighbors?	DOE G 151.1-4, 4.4
H.01.01.05 BP	Is the documented process for declaring OEs written clearly to facilitate it being a useful tool (e.g., timely declarations can be made)?	
H.01.01.06 BP	Is the process for declaring an OE drilled at a frequency that enables identified personnel to be proficient in the task?	
H.01.01.07 BP	Is the role for declaring OEs unambiguous?	DOE G 151.1-4, 1.5.2

	Core Facility	DNF Facility	HazMat Facility
	✓	✓	✓

OEs (OEs) are categorized as promptly as possible, but no later than 15 minutes after identification by the predetermined decision maker for the categorization, in accordance with the emergency management plan, but no more than 30 minutes from initial discovery.	DOE O 151.1D, Attachment 3, 8.b,

H.01.02 CRITERION H.01.02 LINES OF INQUIRY		Core Facility	DNF Facility	HazMat Facility
H.01.02.01	Does the process require categorization of an OE as promptly as possible, but no later than 15 minutes after identification by predetermined decision maker(s), and no later than 30 minutes after initial discovery?			DOE O 151.1D, Attachment 3, 8.b
H.01.02.02	Is there evidence that OEs can be declared within 30 minutes after initial discovery?			DOE O 151.1D, Attachment 3, 8.b
H.01.02.03	Is there evidence that OEs can be declared within 15 minutes after identification by predetermined decision maker(s)?			DOE O 151.1D, Attachment 3, 8.b
H.01.02.04 BP	Is the timeliness of declaring OEs evaluated following drills and exercises?			
H.01.02.05	Are identified decision makers trained and drilled on how to categorize OEs?			DOE O 151.1D, Attachment 3, 5.e
H.01.02.06	Do decision makers demonstrate that they can meet the categorization time goal by using the documented process?			DOE O 151.1D, Attachment 3, 8.b
H.01.02.07	Is the process to categorize an OE drilled at an adequate frequency for the predetermined decision maker(s) to be proficient in the task?			DOE O 151.1D, Attachment 3, 5.e; DOE O 151.1D, Attachment 3, 8.a
H.01.02.08 BP	Are staff who may witness an incident (i.e., event discoverer) that could potentially be declared as an OE identified and trained to make prompt notifications to allow the predetermined decision maker to categorize in a timely manner?			
H.01.02.09 BP	Is a categorization process established (and drilled) for a severe incident where multiple categories may apply?			
H.01.02.10 BP	Has the process to categorize a severe event been demonstrated in drills, exercises, or actual events?			
H.01.02.11 BP	Is the decision making process/procedure to categorize a severe event organized in a manner that allows the predetermined decision maker to categorize the incident when initial information is incomplete?			

		✓	✓	✓

The OE declaration process includes Health and Safety incidents or conditions that cause or have potential to cause serious health or safety impacts to workers or members of the public.

DOE O 151.1D, Attachment 3, 8.b.1

H.01.03 CRITERION H.01.03 LINES OF INQUIRY		Core Facility	DNF Facility	HazMat Facility
H.01.03.01	Does the documented process for declaring OEs include Health and Safety events as a specific category?			DOE O 151.1D, Attachment 3, 8.b.1
H.01.03.02	Does the documented OE categorization process include the following types of incidents or conditions as health and safety OEs (if applicable): • The discovery of radioactive or other hazardous material contamination from past DOE operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding protective action criteria (PAC)? • An occurrence (e.g., earthquake, tornado, aircraft crash, fire, or explosion) that causes significant structural damage to DOE facilities, with confirmed or suspected personnel injury or death? • Any mass casualty incident? • A criticality event? • An offsite hazardous material incident not associated with DOE operations that is observed to have, or is predicted to have, an impact onsite such that protective actions are required for DOE workers?			DOE O 151.1D, Attachment 3, 8.b.1
H.01.03.03 BP	Is the process of declaring a Health and Safety OE tested during drills and exercises?			

H.01.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
	✓	✓	✓

The OE declaration process includes incidents or conditions that cause or have potential to cause serious detrimental effects on the environmental damage.

DOE O 151.1D, Attachment 3, 8.b.2

H.01.04 LINES OF INQUIRY		
H.01.04.01	Is a documented process established that clearly outlines the categorization of the discovery of any actual or probable site release of hazardous material or regulated pollutant that would result in a significant offsite environmental consequence (e.g., major offsite wildlife kills, offsite wetland degradation, aquifer contamination at offsite locations, or the need to secure offsite downstream water supply intakes)?	DOE O 151.1D, Attachment 3, 1.d; DOE O 151.1D, Attachment 3, 8.a and 8.b.2
H.01.04.02 BP	Does the categorization process for Environmental Impacts consider the following: Any actual or potential release of hazardous material or regulated pollutant to the environment, in a quantity greater than five times the Reportable Quantity (RQ) specified for such material in 40 CFR 302, that could result in significant offsite consequences, such as major wildlife kills, wetland degradation, aquifer contamination, or the need to secure downstream water supply intakes?	DOE G 151.1-4, 4.4.2

H.01.04.03 BP	Does the categorization process for Release of (or Loss of Control Over) Hazardous Materials consider the following: • The hazardous material is, or is likely to be, released to the environment (i.e., outside of a structure or enclosure)? • The material immediately threatens those who are in close proximity and has the potential for dispersal beyond the immediate vicinity in quantities or concentrations that threaten the health and safety of onsite personnel or the public? • The material has a rate of transport and dispersion in the environment that requires time-urgent response to implement protective actions?	DOE G 151.1-4, 4.4.5
H.01.04.04 BP	Is the process of declaring environmental release events tested during drills and exercises?	
H.01.04.05 BP	Are environmental subject-matter experts (SMEs) involved in developing the process for declaring Safeguards and Security events?	

H.01.05 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

OEs for offsite DOE transportation activities are declared when incidents occur that represent a significant degradation in the level of safety resulting in potential health and safety hazards to workers or the public.	DOE O 151.1D, Attachment 3, 8.a and 8.b.3

H.01.05 LINES OF INQUIRY

H.01.05.01	Is a documented process established that clearly outlines the categorization of the subject area Offsite DOE Transportation Activities?	DOE O 151.1D, Attachment 3, 1.d; DOE O 151.1D, Attachment 3, 8.a and 8.b.3
H.01.05.02 BP	Does the categorization process for Offsite DOE Transportation Events or Conditions consider the following: • Any accident/incident involving an offsite DOE/NNSA shipment containing hazardous materials that causes the initial responders to initiate protective actions at locations beyond the immediate/affected area? • Failures in safety systems threaten the integrity of a nuclear weapon, component, or test device? • A transportation accident resulting in damage to a nuclear explosive, nuclear explosive-like assembly, or Category I/II quantity of Special Nuclear Materials?	DOE G 151.1-4, 4.4.4
H.01.05.03 BP	Is the process of declaring a DOE Transportation events tested during drills and exercises?	
H.01.05.04 BP	Are DOE Transportation SMEs involved in developing the process for declaring Safeguards and Security events?	

H.01.06 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
OEs for Hazardous Biological Agent or Toxin activities are declared when incidents occur that represent a significant degradation in the level of safety resulting in potential health and safety hazards to workers or the public.			DOE O 151.1D, Attachment 3, 8.a and 8.b

H.01.06 LINES OF INQUIRY		
H.01.06.01	Is a documented process established that clearly outlines the categorization of the subject area Hazardous Biological Agents and Toxin activities?	DOE O 151.1D, Attachment 3, 8.b.4
H.01.06.02	Do incidents or conditions involving the release of a hazardous biological agents or toxins [identified in 42 CFR Part 73, Select Agents and Toxins, 7 CFR Part 331, Possession, Use and Transfer of Select Agents and Toxins and 9 CFR Part 121, Possession, Use and Transfer of Select Agents and Toxins] appropriately consider hazards identified at the site/facility?	DOE O 151.1D, Attachment 3, 8.b.4
H.01.06.03	Do OEs for biological agents or toxins include actual or potential release of a hazardous biological agent or toxin outside of the secondary barriers of the biocontainment area?	DOE O 151.1D, Attachment 3, 8.b.4
H.01.06.04 BP	Is the process of declaring a hazardous biological agents or toxins events tested during drills and exercises?	
H.01.06.05 BP	Are hazardous biological agents or toxins SMEs involved in developing the process for declaring Safeguards and Security events?	

H.01.07 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
OEs for safeguards and security incidents are declared when incidents or conditions represent, cause, or have the potential to cause degradation of security or safeguards conditions with actual or potential direct harm to people or the environment.			DOE O 151.1D, Attachment 3, 8.b.5

H.01.07 LINES OF INQUIRY		
H.01.07.01	Does the documented categorization process include Safeguards and Security incidents as a specific category?	DOE O 151.1D, Attachment 3, 8.b.5
H.01.07.02	Does the documented process include the following types of occurrences as Safeguard and Security Operational incidents: (a) Unplanned detonation of an explosive device or a credible threat of detonation resulting from the location of a confirmed or suspected explosive device? (b) An actual terrorist attack, active threat (e.g., armed assault), cyber security incident that impacts critical infrastructure, or sabotage incident involving a DOE site/facility/activity? (c) Kidnapping or taking hostage(s) involving a DOE site/facility/activity?	DOE O 151.1D, Attachment 3, 8.b.5, a, b, and c
H.01.07.03 BP	Is the process of declaring a Safeguards and Security event tested during drills and exercises?	
H.01.07.04 BP	Are Safeguards and Security SMEs involved in developing the process for declaring Safeguards and Security events?	

H.02 – OBJECTIVE

OE status is maintained, downgraded, or terminated appropriately. A formal process is followed for downgrading a categorized OE and for terminating an OE that is a classified event. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 3, 8.c)

H.02.01 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Once categorized, OEs will remain in effect until the emergency response is terminated. If it is determined that the initial emergency categorization is incorrect, it can be re-categorized to reflect the actual event scenario.	DOE O 151.1D, Attachment 3, 8.c

H.02.01 LINES OF INQUIRY

H.02.01.01	Is there an established process that permits a downgrade in the categorization due to incorrect initial categorization?	DOE O 151.1D, Attachment 3, 8.c
H.02.01.02 BP	Is OE categorization downgrading permitted only due to incorrect initial categorization, with OEs formally terminated in all other instances?	DOE G 151.1-4, 6.6.3
H.02.01.03	Is it generally true that for an OE that is a classified event (i.e., Alert, Site Area Emergency, or General Emergency), the status is never downgraded to a categorized event, but is formally terminated? (This differs from event classification revisions, which can result from routine reviews to assure classification is commensurate with response activities).	DOE O 151.1D, Attachment 3, 8.c

H.03 – OBJECTIVE

When Emergency Management Hazardous Material Programs are in place, OEs are classified as an Alert, Site Area Emergency, or General Emergency based on health effects parameters measured or estimated at 30 meters, 100 meters, and the site boundary and compared with the appropriate protective action criterion. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 3, 8; DOE 151.1D, Attachment 4, 8)

H.03.01 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

OEs are classified as an Alert, Site Area Emergency, or General Emergency based on the appropriate PAC.	DOE O 151.1D, Attachment 4, 8.a

H.03.01 LINES OF INQUIRY

H.03.01.01	Are procedures developed and used to classify an OE based on appropriate PACs/PAGs?	DOE O 151.1D, Attachment 4, 8.a
H.03.01.02	Are published Environmental Protection Agency (EPA) Protective Action Guides used for determining criteria for a radioactive material incident?	DOE O 151.1D, Attachment 4, 8.a.1; EPA-400/R-17/001
H.03.01.03	Are PACs selected for determining criteria for chemical releases prioritized in this order: Acute Exposure Guideline Levels [AEGL], Emergency Response Planning Guidelines [ERPG], and lastly Temporary Emergency Exposure Limits [TEEL]?	DOE O 151.1D, Attachment 4, 8.a.2
H.03.01.04	Are immediate protective actions required for any actual or potential release of hazardous biological materials or toxins released outside of the secondary containment barriers?	DOE O 151.1D, Attachment 4, 8.a.3

H.03.02 CRITERION

X Core Facility ✓ DNF Facility ✓ HazMat Facility

When incidents occur that represent a specific threat to workers and the public due to the release or potential release of significant quantities of hazardous materials, the incident is classified as an Alert, Site Area Emergency, or General Emergency.	DOE O 151.1D, Attachment 4, 8.b

H.03.02 LINES OF INQUIRY

H.03.02.01	Do site documents indicate release event classifications at 30 meters, 100 meters, and the site boundary?	DOE O 151.1D, Attachment 4, 8.b
H.03.02.02	Are incidents that meet the criteria of an Alert, Site Area Emergency, or General Emergency classified in a timely manner to aid the rapid communication of critical information and the initiation of appropriate time-urgent emergency response actions?	DOE O 151.1D, Attachment 4, 8.b
H.03.02.03	Are types of incidents that meet the classification criteria based on the distance from the point of release classified as an Alert (30 meters), a Site Area Emergency (100 meters), or General Emergency (at the site boundary), as defined in DOE O 151.1D, documented and maintained in a procedure?	DOE O 151.1D, Attachment 4, 8.b, 1, 2, and 3

H.03.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
Response to each classification level is commensurate with DOE O 151.1D, Attachment 4, 8, c (1), (2), and (3).			DOE O 151.1D, Attachment 4, 8.c.1, 2, and 3

H.03.03 LINES OF INQUIRY		
H.03.03.01	Is a document available that describes recommended response actions to take for each emergency classification level?	DOE O 151.1D, Attachment 4, 8.c
H.03.03.02	Do response actions for an Alert include the use of the core Emergency Operations System if an Emergency Operations Center (EOC) is not established?	DOE O 151.1D, Attachment 4, 8.c.1
H.03.03.03	Do response actions for an Alert include activation of an EOC?	DOE O 151.1D, Attachment 4, 8.c.1
H.03.03.04	Do response actions for a SAE include the notification and assembly of emergency response personnel and equipment to activate response centers and to establish communications, consultation, and liaison with offsite authorities?	DOE O 151.1D, Attachment 4, 8.c.2
H.03.03.05	Do response actions for a General Emergency include the notification, mobilization, and dispatch of all appropriate emergency response personnel and equipment, including appropriate DOE emergency response assets, and liaison with offsite authorities for the recommendation of predetermined public protective actions?	DOE O 151.1D, Attachment 4, 8.c.3
H.03.03.06 BP	To what extent have public protective actions been examined, that if implemented, could unintentionally adversely impact emergency response activities?	

H.03.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
OEs will not be downgraded to a lower significance category unless the original category or classification was incorrect.			DOE O 151.1D, Attachment 3, 8.c

H.03.04 LINES OF INQUIRY		
H.03.04.01	Is there an established process that permits a categorization change due to incorrect initial classification?	DOE O 151.1D, Attachment 3, 8.c
H.03.04.02	Do decision processes require periodic review of categorization to assure it is commensurate with response activities?	DOE O 151.1D, Attachment 3, 8.c
H.03.04.03	Is there an established process to periodically review a classification during an emergency?	DOE O 151.1D, Attachment 3, 8.c
H.03.04.04	Is there an established process that permits a timely classification change due to new information or hazard changes as the event progresses?	DOE O 151.1D, Attachment 3, 8.c
H.03.04.05 BP	Have drills tested the need for categorization/classification changes?	

H.04 – OBJECTIVE

Categorization and Classification of emergencies is optimal per Element X.

H.04.01 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.02 criterion has been assessed.

H.04.01 LINES OF INQUIRY

H.04.01.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.02 been addressed?

H.04.02 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.03 criterion has been assessed.

H.04.02 LINES OF INQUIRY

H.04.02.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.03 been addressed?

H.04.03 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.04 criterion has been assessed.

H.04.03 LINES OF INQUIRY

H.04.03.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.04 been addressed?

H.04.04 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.05 criterion has been assessed.

H.04.04 LINES OF INQUIRY

H.04.04.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.05 been addressed?

H.04.05 CRITERION

Core Facility | DNF Facility | HazMat Facility

Element X.01.06 criterion has been assessed.

H.04.05 LINES OF INQUIRY

H.04.05.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.06 been addressed?

H.04.06 CRITERION

Core Facility DNF Facility HazMat Facility

Element X.01.07 criterion has been assessed.

H.04.06 LINES OF INQUIRY

H.04.06.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.07 been addressed?

H.04.07 CRITERION

Core Facility DNF Facility HazMat Facility

Element X.01.09 criterion has been assessed.

H.04.07 LINES OF INQUIRY

H.04.07.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.09 been addressed?

H.04.08 CRITERION

Core Facility DNF Facility HazMat Facility

Element X.01.10 criterion has been assessed.

H.04.08 LINES OF INQUIRY

H.04.08.01	In the context of the emergency categorization and classification, have the LOIs associated with criterion X.01.10 been addressed?

APPROACH – Emergency Categorization/Classification

Below are generic considerations for Element H, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, best practices, and other information.

Document/Record Reviews

- Emergency Plan(s) and procedures (confirm authority to categorize; review documented process for making category/classification determinations; documented process for activation of EOC; review process for initial notifications; review process for upgrading or downgrading classification; review job aids for ease of use; guidance documents for emergency action levels (EAL) development and approvals)
- Hazards Survey, emergency planning hazards assessments (EPHAs), EALs (current, comprehensive, consistent, accessible, protective action recommendations)
- Training records for operators and managers making initial notification of actual or potential releases
- Drill and exercise reports (confirm proficiency in determining categorization/classification; review timeliness)
- Lessons learned and corrective actions generated at site for categorization/classification

Interviews

- Staff with responsibility for making initial notification of hazardous material release (facility staff) (**X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10**)
- ERO staff responsible for determining categorization and/or classification of events (performance, EAL accessibility) (**X.01.02, X.01.03, X.01.04, X.01.06, X.01.07, X.01.09, X.01.10**)
- Staff responsible for EPHA and EAL development (impact measure corresponds to correct classification, EAL) (**X.01.02, X.01.03, X.01.04, X.01.06, X.01.07, X.01.09, X.01.10**)
- State or local government staff receiving OE notification (communications effectiveness)

Observations

- Decision makers responsible for categorization/classification during a drill/exercise
- Communication of onsite-only event classification and recommended protective actions
- Communication of event classification and recommended protective actions to offsite organizations
- Communication of event recommended protective actions to the Incident Command
- Implementation of protective actions

References

- **7 CFR Part 331**: *Possession, Use and Transfer of Select Agents and Toxins*
- **9 CFR Part 121**: *Possession, Use and Transfer of Select Agents and Toxins*
- **40 CFR 302**: *Designation, Reportable Quantities, and Notification*
- **42 CFR Part 73**: *Select Agents and Toxins*
- **DOE O 151.1D**: *Comprehensive Emergency Management System*
- **DOE G 151.1-3**: *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4**: *Response Elements, Emergency Management Guide*
- **EPA-400/R-17/001**: *EPA PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents*

PROTECTIVE ACTIONS

I. Protective Actions

I.01 – OBJECTIVE

Predetermined protective actions commensurate with the potential threats and hazards are developed, implemented, and maintained to minimize emergency-related consequences and maximize life, safety, and health. A process is in place to promptly issue protective actions and to account for employees. Additional protective actions are developed for severe events during which the facility may be isolated from the infrastructure and/or outside assistance, and evacuation may not be possible. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 9)

I.01.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Predetermined protective actions commensurate with the potential hazards are developed, implemented, and maintained.			DOE O 151.1D, Attachment 3, 9

I.01.01 LINES OF INQUIRY		
I.01.01.01	Are predetermined protective actions developed for the hazards/ threats identified in the all hazards planning basis?	DOE O 151.1D, Attachment 3, 9.a
I.01.01.02	Are predetermined onsite protective actions consistent with the potential hazards/threats based on results of the all hazards planning basis?	DOE O 151.1D, Attachment 3, 9.a
I.01.01.03 BP	Do predetermined onsite protective actions take into consideration the various human factors elements that could be associated with an Operational Emergency (e.g., stress, blackout, time urgency, etc.)?	LL-Fuku-IAEA-01, P99-100; LL-DrEx-DOE-02, P9
I.01.01.04 BP	Can predetermined protective actions be sustained over the period of time they need to be in effect (e.g., logistics associated with long term sheltering such as water, restrooms, food, electricity)?	
I.01.01.05 BP	Does the process include protective action reassessment throughout an emergency and allow for protective action modification as conditions change?	DOE G 151.1-4, 7.1
I.01.01.06 BP	Are contingencies identified when predetermined protective actions cannot be issued or implemented?	
I.01.01.07 BP	Are lessons learned reviewed when developing or revising predetermined protective actions?	
I.01.01.08 BP	Do predetermined protective actions take into consideration any potential harm that could result from implementation of the protective action?	LL-Fuku-IAEA-01, P99-100; LL-DrEx-DOE-15, P5-6
I.01.01.09 BP	Do predetermined protective actions take into consideration the need to coordinate effort between the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) and outside health agencies in the case of an operational emergency (OE) at a biosafety facility?	DOE G 151.1-5, 3.10

I.01.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
A process is in place to issue protective actions.			DOE O 151.1D, Attachment 3, 9.b

I.01.02 LINES OF INQUIRY		
I.01.02.01	Is a documented process in place for issuing predetermined initial protective actions?	DOE O 151.1D, Attachment 3, 9.b
I.01.02.02 BP	Can predetermined protective actions be issued promptly and within established time frames?	
I.01.02.03 BP	Have staff been identified and given appropriate authority to issue and/or update protective actions?	
I.01.02.04 BP	Is the process updated/revised promptly when the All-Hazards Planning Basis indicates a need to change existing predetermined protective actions?	

I.01.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
A procedure is in place to account for employees.			DOE O 151.1D, Attachment 3, 9.c

I.01.03 LINES OF INQUIRY		
I.01.03.01	Is there a procedure for accountability of affected onsite personnel (e.g., employees, visitors, etc.) when protective actions are issued?	DOE O 151.1D, Attachment 3, 9.c
I.01.03.02 BP	Is the employee accountability procedure/process tested during drills or exercises?	
I.01.03.03 BP	Do employees understand their responsibilities involving hosted visitors should protective actions be issued?	
I.01.03.04 BP	Are employee accountability procedure/processes towards hosted visitors tested during drills or exercises?	

I.01.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
Additional predetermined protective actions, such as self- help, are considered for severe incidents when the site/facility/activity is isolated from outside response assistance or the ability to evacuate due to deteriorating conditions.			DOE O 151.1D, Attachment 3, 9.d

I.01.04 LINES OF INQUIRY		
I.01.04.01	Are specific predetermined protective actions developed and/or self-help instructions available should a site/facility/activity become isolated from outside response due to a severe event?	DOE O 151.1D, Attachment 3, 9.d

I.01.04 LINES OF INQUIRY		
I.01.04.02	Are specific predetermined protective actions developed and/or self-help instructions available should employees at a site/facility/ activity become unable to evacuate due to deteriorating conditions as a result of a severe event?	DOE O 151.1D, Attachment 3, 9.d
I.01.04.03 BP	Are predetermined protective actions for severe incidents tested during drills or exercises?	
I.01.04.04 BP	Are specific predetermined protective actions developed and/or self-help instructions available should employees at a site/facility/ activity become unable to evacuate due to deteriorating conditions as a result of a severe event tested during drills or exercises?	
I.01.04.05 BP	Have employees received training regarding protective actions for severe events?	

I.02 – OBJECTIVE

The Emergency Management Hazardous Material Program considers facility-specific protective actions based on emergency planning hazards assessments (EPHAs). It identifies authorities for lifting or adjusting protective actions once taken, maintains personnel exposure records, controls access to contaminated areas, identifies actions to be taken to increase effectiveness of issued protective actions, and verifies that initial immediate protective actions are taken promptly and consistent with the technical planning basis (i.e., EPHA/EALs, etc.). In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4.9)

I.02.01 CRITERION	✓ Core Facility ✓ DNF Facility ✓ HazMat Facility	
	Predetermined onsite protective actions and offsite Protective Action Recommendations (PACs) consistent with the hazard (internal vs. external exposure) and duration of the release (short vs. long) are based upon the results of EPHAs.	DOE O 151.1D, Attachment 4, 9.a

I.02.01 LINES OF INQUIRY		
I.02.01.01	Are the predetermined onsite protective actions consistent with the hazard and duration of the release based on the results of the EPHAs?	DOE O 151.1D, Attachment 4, 9.a
I.02.01.02	Are the predetermined offsite protective action recommendations consistent with the hazard and duration of the release based on the results of the EPHAs?	DOE O 151.1D, Attachment 4, 9.a
I.02.01.03 BP	Do offsite Protective Action Recommendations (PARs) to authorities consider the relative effectiveness of different possible protective actions, considering the material and the release type (e.g., sheltering in place may be as effective as evacuation for a short-duration gaseous release, or for acutely toxic materials in high concentration, sheltering may be the only practical alternative unless evacuation can be completed before plume arrival)?	DOE G 151.1-4, 7.3.5
I.02.01.04 BP	Do predetermined onsite protective actions take into consideration the various human factors elements that could be associated with an Operational Emergency (e.g., stress, blackout, time urgency, etc.)?	LL-Fuku-IAEA-01, P99-100

I.02.01.05 BP	Do predetermined offsite protective actions take into consideration the recommendation to restrict consumption and distribution of possibly contaminated local produce, milk from grazing animals, and drinking water before the monitoring and analysis of samples are carried out?	DOE G 151.1-4, 7.3.10
I.02.01.06 BP	Can protective actions be modified during an event based on onsite and/or offsite field teams or other data?	DOE G 151.1-4, 7.1; NUREG 7195, 5.1; LL-DrEx-DOE-02, P5-6&7; LL-DrEx-DOE-08, P5a; LL-DrEx-DOE-08, P7a; LL-DrEx-DOE-14, P7-9; LL-Fuku-IAEA-01, P99c
I.02.01.07 BP	Are estimated plume arrival times provide to offsite authorities for their consideration in planning offsite protective action implementation?	DOE G 151.1-4, 7.3.5
I.02.01.08 BP	Are offsite protective action recommendations made to the designated, responsible authorities as soon as possible, but within 15 minutes of recognition that a Protective Action Criterion (PAC) has been or will be exceeded offsite, or that a General Emergency has been declared?	DOE G 151.1-4, 7.3.5

I.02.02 CRITERION

Core Facility | DNF Facility | HazMat Facility

Incidents in which combinations of protective actions for varying facilities/activities may be and evaluated.

S OF INQUIRY

	Is there a process for evaluating potential combinations of protective actions for varying facilities/activities?	DOE O 151.1D, Attachment 4, 9.b
I.02.02.02 BP	Can protective actions be implemented individually or in combination to reduce exposures to a wide range of hazardous materials?	DOE O 151.1-4, 7.1
I.02.02.03 BP	Do drills and exercises test and evaluate incidents in which combinations of protective actions are implemented?	DOE O 151.1D, Attachment 4, 9.b

I.02.03 CRITERION

Core Facility | DNF Facility | HazMat Facility

Authorities for the lifting or adjustment of protective actions are identified.

I.02.03 LINES OF INQUIRY

I.02.03.01	Does the emergency management plan and/or procedures identify appropriate personnel with the authority to lift or adjust the protective actions once protective actions have been taken?	DOE O 151.1D, Attachment 4, 9.c
		DOE O 151.1D, Attachment 4, 9.c

I.02.03.02 BP	Are alternate Emergency Response Organization (ERO) personnel identified to amend protective actions should the primary authority not be available?	
I.02.03.03 BP	Do drills and exercises test lifting and adjusting issued protective actions?	

Records are maintained for personnel exposures following a hazardous material release.	DOE O 151.1D, Attachment 4, 9.d

I.02.04 CRITERION

Core Facility | DNF Facility | HazMat Facility

I.02.04 LINES OF INQUIRY

I.02.04.01	Are methods established for controlling, monitoring, and maintaining records of personnel exposures to hazardous materials?	DOE O 151.1D, Attachment 4, 9.d; DOE O 414.1D, 4b

DOE O 151.1D,

I.02.05 CRITERION

Core Facility | DNF Facility | HazMat Facility

Methods are established for controlling access to contaminated areas and for decontaminating personnel or equipment during or following a radioactive and/or other hazardous material release.

I.02.05 LINES OF INQUIRY

I.02.05.01	Are the methods for controlling access to contaminated areas and for decontaminating personnel or equipment during and following an emergency defined in emergency management or radiation protection program documents?	DOE O 151.1D, Attachment 4, 9.e
I.02.05.02 BP	Are radiological control personnel involved in the development of procedures for controlling potentially radiologically contaminated areas, including access controls, and decontaminating personnel during an emergency?	
I.02.05.03 BP	Are personnel with hazardous materials expertise (chemical, biological, etc.) involved in the development of procedures for controlling potentially contaminated areas (other than radiological), including access controls and decontaminating personnel during an emergency?	DOE G 151.1-5, 3

	During sheltering in place, actions that may be taken to increase the effectiveness of protective actions, such as shutdown of heating, ventilation, and air conditioning are identified.	DOE O 151.1D, Attachment 4, 9.f

I.02.06 CRITERION — Core Facility — DNF Facility — HazMat Facility

I.02.06 LINES OF INQUIRY

I.02.06.01	Are building procedures developed to shut down heating, ventilation, and air conditioning during sheltering in place?	DOE O 151.1D, Attachment 4, 9.f
I.02.06.02 BP	Have appropriate building personnel been trained and tested on the shutdown procedure?	
I.02.06.03 BP	If the heating, ventilation, and air conditioning cannot be shut down, is there a procedure in place to increase the effectiveness of sheltering in place to minimize exposure (i.e., taping around doors and windows, towels at bottom of doors, etc.)?	

I.02.07 CRITERION — Core Facility — DNF Facility — HazMat Facility

	Qualified Incident Commanders use standard industry practices for initial immediate protective actions.	DOE O 151.1D, Attachment 4, 9.g

I.02.07 LINES OF INQUIRY

I.02.07.01	For non-hazardous facilities or facilities without an EPHA, are all Incident Commanders qualified at the 29 CFR 1910.120(q)(6)(v) level in order to make initial immediate protective actions?	DOE O 151.1D, Attachment 4, 9.g; 29 CFR 1910.120
I.02.07.02 BP	Is issuance of immediate protective actions by Incident Commanders (ICs) tested by drills and exercises?	
I.02.07.03 BP	Are Incident Commanders trained on the various types of immediate protective actions that may be required based on the hazards identified in the EPHAs?	

I.02.08 CRITERION — Core Facility — DNF Facility — HazMat Facility

	For EPHA facilities, initial immediate protective actions taken by the Incident Commander are to be verified as consistent with the technical planning basis (i.e., EPHA/EALs) within 15 minutes of protective action issuance and implementation.	DOE O 151.1D, Attachment 4, 9.g

I.02.08 LINES OF INQUIRY

I.02.08.01	For EPHA facilities, are the Incident Commander's initial immediate protective actions consistent with the technical planning basis?	DOE O 151.1D, Attachment 4, 9.g
I.02.08.02	Are there requirements to verify that the initial immediate protective actions taken by the Incident Commander are consistent with the EPHA/EALs within 15 minutes of protective action issuance and implementation?	DOE O 151.1D, Attachment 4, 9.g
I.02.08.03 BP	Is the verification of EPHA/EALs within 15 minutes of protective action issuance evaluated during drills and exercises?	
	Is there evidence that this verification process can occur with 15 minutes of issuing protective actions?	
	Do procedures require this verification process?	
I.02.08.06 BP	Are personnel identified who are responsible to perform this verification process during emergencies?	

ECTIVE

The staff that issue protective actions perform optimally, per Element X.

I.03.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.02 criterion has been assessed.			

I.03.01 LINES OF INQUIRY		
I.03.01.01	In the context of protective actions, have the LOIs associated with criterion X.01.02 been addressed?	

I.03.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.03 criterion has been assessed.			

I.03.02 LINES OF INQUIRY		
I.03.02.01	In the context of protective actions, have the LOIs associated with criterion X.01.03 been addressed?	

I.03.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.04 criterion has been assessed.			

I.03.03 LINES OF INQUIRY		
I.03.03.01	In the context of protective actions, have the LOIs associated with criterion X.01.04 been addressed?	

	✓	✓	✓

Element X.01.05 criterion has been assessed.	

I.03.04 LINES OF INQUIRY			
I.03.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
I.03.04.01	In the context of protective actions, have the LOIs associated with criterion X.01.05 been addressed?		

I.03.05 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
	terion has been assessed.		
I.03.05.01	In the context of protective actions, have the LOIs associated with criterion X.01.06 been addressed?		

I.03.05 LINES OF INQUIRY			
I.03.06 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.07 criterion has been assessed.			
I.03.06 LINES OF INQUIRY			
I.03.06.01	In the context of protective actions, have the LOIs associated with criterion X.01.07 been addressed?		
I.03.07 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.08 criterion has been assessed.			
I.03.07 LINES OF INQUIRY			
I.03.07.01	In the context of protective actions, have the LOIs associated with criterion X.01.08 been addressed?		
I.03.08 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
Element X.01.09 criterion has been assessed.			
I.03.08 LINES OF INQUIRY			
I.03.08.01	In the context of protective actions, have the LOIs associated with criterion X.01.09 been addressed?		

		✓	✓	✓

Element X.01.10 criterion has been assessed.	

I.03.09 LINES OF INQUIRY I.03.09 CRITERION		Core Facility	DNF Facility	HazMat Facility
I.03.09.01	In the context of protective actions, have the LOIs associated with criterion X.01.10 been addressed?			

APPROACH – Protective Actions

Below are generic considerations for Element I, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, etc.

Document/Record Reviews

- Site/facility Emergency Plan(s) (confirm level of protective actions required based on all hazards planning/EPHA outcomes; confirm interface with NIMS)
- ERO procedures/job aids (review process to issue onsite protective actions for site workers and onsite and offsite emergency responders, and recommending offsite protective actions to offsite agencies; the process for lifting or modifying protective actions; and coordinating protective actions with site security)
- Other documents (policies, emergency plan implementing procedures, building emergency plans, etc.) to review duties/responsibilities of the emergency management program staff, including affected worker accountability, contamination control, decontamination, evacuation procedures, self-help instructions for severe events
- ERO procedures for determining habitability of EOC, Incident Command, etc.
- Drill and exercise reports to review exercise goals, event timelines, appropriate protective actions and protective action recommendations, and employee accountability; and to determine whether worker and public impacts could have been avoided if more appropriate/different protective actions were implemented
- Documentation of program reviews, corrective actions, and documents that track findings and corrective actions related to Protective Actions
- Hazards Survey, EPHA, THIRA, etc.

Interviews

- Person with overall responsibility for managing the emergency management program and delegates (confirm understanding of requirements for initiating protective actions for categorized and classified emergencies) **(X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.07, X.01.08, X.01.09, X.01.10)**
- Emergency Directors (confirm understanding of procedure for initiating protective actions for classified emergencies) **(X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.07, X.01.08, X.01.09, X.01.10)**
- Facility emergency management personnel responsible for implementation of protective action **(X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.07, X.01.08, X.01.09, X.01.10)**
- Incident commanders (confirm understanding of initial protective actions for Core programs and EPHA facilities) **(X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.07, X.01.08, X.01.09, X.01.10)**
- Facility workers who would take protective actions
- Offsite organizations initiating/implementing offsite protective action recommendations

Observations

- During drill, limited performance test, or exercise – observe process of determining need for protective actions for onsite individuals; observe process of recommending protective actions for the offsite public
- Communication and implementation of protective action – incident command, facility workers, outdoor onsite individuals, local/state agency; recommendations and implementation should be protective of worker and public safety

References

- **29 CFR 1910.120:** *Hazardous Waste Operations and Emergency Response*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **(DOT/ERG):** *Standard Industry Practices*
- **EPA-400/R-17/001:** *PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents (2017 PAG Manual)*
- **(MSDS):** *Standard Industry Practices*
- **NIMS Core:** *National Incident Management System*
- **NUREG 7195:** *Risk-Informed and Performance-Based Oversight of Radiological Emergency Response Programs*

EMERGENCY FACILITIES & EQUIPMENT / SYSTEMS

J. Emergency Facilities & Equipment/Systems

J.01 – OBJECTIVE

Adequate emergency facilities, equipment, and systems are established and maintained commensurate with the potential hazards. Personal Protective Equipment appropriate for the types of potential hazards is available for emergency responders, and there is confidence of adequate functioning during an emergency. Caches of personal protective equipment and other equipment (e.g., stretchers, evacuation chairs, and self-rescuers for underground facilities) needed for first responders are identified in the emergency management plan or other documentation. Communications systems and equipment are in place for issuing notifications, including recommended protective actions, needed to support emergency response organization. Equipment and systems testing provides confidence of adequate functioning during an emergency. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 10; Attachment 4, 11)

J.01.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Appropriate PPE commensurate to the hazards present in the working environment is provided to emergency responders.			DOE O 151.1D, Attachment 3, 10.a.1; 29 CFR 1910.132 through 1910.140; and National Fire Protection Association (NFPA) Standards 1991, 1992, and 1999

J.01.01 LINES OF INQUIRY		
J.01.01.01	Is emergency responder PPE appropriate for hazards present in the working environment	DOE O 151.1D, Attachment 3, 10.a.1
J.01.01.02 BP	Are considerations made, and appropriate PPE identified, for hazards that could be associated with a hazardous material release in the workplace (e.g., HF may not be present at a facility, but is formed in the atmosphere from a UF6 release)?	DOE G 151.1-4, 3; DOE-HDBK-1163-2003, Appendix B; 29 CFR 1910.132 through 1910.140; NFPA Standards 1991, 1992, and 1999
J.01.01.03 BP	Are the types of PPE based on an emergency planning hazards assessment (EPHA) or other systematic hazards analysis/review specific to the location?	DOE G 151.1-4, Section 3.3; 29 CFR 1910.120
J.01.01.04 BP	Does the choice of PPE take into consideration worker hazards such as heat stress; physical and psychological stress; and impaired vision, mobility, and communication?	DOE G 440.1-1B, 6.3.3.4
J.01.01.05	Are emergency responders required to use PPE trained in its use according 29 CFR 1910.132(f)(1) requirements?	29 CFR 1910.132(f)(1)
J.01.01.06 BP	Are PPE requirements documented in the emergency management plan, procedures, and/or associated documents?	

	✓	✓	✓

Caches of specialty equipment that may be required if an emergency occurs are identified in the emergency management plan and/or other documentation.	DOE O 151.1D, Attachment 3, 10.a.2

J.01.02 CRITERION		Core Facility	HazMat Facility	DNF Facility
J.01.02.01	Does the emergency management plan, or other documentation, identify caches of specialty equipment (e.g., PPE, stretchers, evacuation chairs, and self-rescuers for underground facilities) that may be required in an emergency?			DOE O 151.1D, Attachment 3, 10.a.2
J.01.02.02 BP	Does the emergency management plan, or other documentation, identify the locations of equipment caches and list the specialty equipment included?			
J.01.02.03 BP	Are emergency responders trained on the location and use of the specialty equipment?			
J.01.02.04 BP	Do field teams have the necessary, calibrated monitoring equipment available?			LL-NPEA-DOE-01, P5-6; LL-NPEA-DOE-02, P37e; LL-NPEA-DOE-06, P28c
J.01.02.05 BP	Does acquisition and tailoring of emergency facility and equipment include the following considerations? • Estimated duration of hazardous material releases • Potential for successful mitigation • Field measurement or consequence assessment methods that are applicable for the material and release types • Hazardous material events involving security considerations			DOE G 151.1-4, Section 3.3
J.01.02.06 BP	Are emergency facility and equipment needs compared with existing facilities and equipment to eliminate duplication and redundancy?			DOE G 151.1-4, Section 3.3
J.01.02.07 BP	Are additional types of emergency facilities and equipment based on the extent they can help to lessen the onsite and offsite consequences of an incident or accident?			DOE G 151.1-4, Section 3.3
J.01.02.07 BP	Is staged equipment inventoried regularly and its locations identified?			DOE G 151.1-4, Section 3.5.3
J.01.02.09 BP	If plans include provisions for the deployment of joint DOE/state/local monitoring teams, are standardized or compatible monitoring and communication equipment used?			DOE G 151.1-4, Section 3.5.3

J.01.02 CRITERION		Core Facility	HazMat Facility	DNF Facility
	Emergency notifications and communications systems are capable of providing immediate notification and protective actions to affected employees no later than 10 minutes after the protective actions have been identified.			DOE O 151.1D, Attachment 3, 10.b; DOE O 422.1, Attachment 2, Appendix A

J.01.03 LINES OF INQUIRY

J.01.03.01	Is the emergency notification system capable of issuing immediate notifications, but no later than 10 minutes after the protective actions have been identified?	DOE O 151.1D, Attachment 3, 10.b; LL-NPEA-DOE-07, P31a

J.01.03.02	Is the equipment/system tested on at least an annual basis, or more frequently as needed (e.g. post-maintenance testing, communication equipment upgrades)?	DOE O 151.1D, Attachment 3, 10.b; LL-NPEA-DOE-06, P28b
J.01.03.03 BP	Are the following provisions considered in developing the notification system? • Specify the organizations or individuals to receive notifications by job position or title. • Establish a recall system used to make initial notifications and emergency status updates to primary and alternate response staff that includes authentication and acknowledgement indicating success of the contact. • Organizations receiving emergency notifications should have a capability to receive and acknowledge reports on a 24-hour basis. • Notification messages, methods, and procedures should be an established part of annual training offered to affected organizations. • Preplanning should include consideration of special circumstances, such as power outages or other conditions, which could affect notifications. • Periodic verification of all emergency telephone and FAX numbers. • Notification systems should be designed to permit multiple notifications at the same time.	DOE G 151.1-4, Section 5.3.1
J.01.03.04 BP	Is the notification system consistent with the potential hazards of the facility, as determined by a current Hazards Survey and EPHA?	DOE G 151.1-4, Section 5.3.1
J.01.03.05 BP	Are public address or alarm systems in high noise areas considered?	DOE G 151.1-4, Section 5.3.3
J.01.03.06 BP	Do pagers, where used, provide for positive feedback through call-in or other methods to confirm that notification was successful and recall of personnel will be achieved?	DOE G 151.1-4, Section 5.3.3
J.01.03.07 BP	Are systems in place for notification of onsite workers and the public who are present onsite, but outside the immediate vicinity of the affected facility?	DOE G 151.1-4, Section 5.4.1
J.01.03.08 BP	Are emergency communications systems used to report event discoveries (e.g., 911 systems, site-specific emergency numbers) coordinated with notifications systems, tested, and maintained to assure continuous operation?	LL-NPEA-DOE-03, P30e; LL-NPEA-DOE-03, P33c; LLo-NPEA-DOE-04, P32a

Emergency Operations Systems and/or facilities are maintained to support emergency response operations.		DOE O 151.1D, Attachment 3, 10.c

J.01.04 CRITERION		Core Facility	HazMat Facility	DNF Facility
J.01.04.01	Are Emergency Operations Systems and/or facilities in place and maintained to support emergency response operations?			DOE O 151.1D, Attachment 3, 10.c
J.01.04.02 BP	Is backup power supply available to maintain appropriate facility and emergency response operations during an incident?			LL-NPEA-DOE-02, P15-16; LL-NPEA-DOE-03, P33d; LL-NPEA-DOE-03, P31a; LL-NPEA-DOE-03, P30b; LL-NPEA-DOE-03, P30c; LL-NPEA-DOE-03, P31b; LL-DrEx-DOE-06, P3b; LL-DrEx-DOE-23, P6-7
J.01.04.03 BP	Is there a process in place (including service and purchasing contracts, supply chain contacts, etc.) to repair or replace critical response equipment in case there is a failure during an emergency?			
J.01.04.04 BP	Is emergency response communications and notification equipment included in a formal preventive maintenance program?			DOE G 151.1-4, Section 5.4.1; LL-NPEA-DOE-03, P32-33

J.01.05 CRITERION	Core Facility	HazMat Facility	DNF Facility
Communications systems and capabilities are adequate to support emergency response organization (ERO) activities and communications with Headquarters Watch Office.			DOE O 151.1D, Attachment 3, 10.c

J.01.05 LINES OF INQUIRY		
J.01.05.01	Are communications equipment and systems in place to support ERO activities?	DOE O 151.1D, Attachment 3, 10.c
J.01.05.02	Can communications be established and maintained with the Headquarters Watch Office?	DOE O 151.1D, Attachment 3, 10.c
J.01.05.03 BP	Is communication system testing conducted periodically?	
J.01.05.04 BP	Does the communications system consist of a highly reliable primary system with backup equipment identified? Security provisions commensurate with the type of information being transferred. Classification reviews should be preplanned to eliminate delays.	DOE G 151.1-4, Section 5.4.1 DOE G 151.1-4, Section 5.4.1
J.01.05.05 BP	Is the communication system equipment powered by uninterruptible power sources?	DOE G 151.1-4, Section 5.4.1
J.01.05.06 BP	Is periodic routine testing done on the communications system during normal and off-hour periods	DOE G 151.1-4, Section 5.4.1
J.01.05.07 BP	Are the primary communication systems and any backup equipment tested during drills and/or exercises?	DOE G 151.1-4, Section 5.4.1
J.01.05.08 BP	Is the commutations system able to handle voice and data communications, as well as video teleconferencing?	DOE G 151.1-4, Section 5.4.1

J.01.05.09 BP	Have technical specifications, compatibility, reliability, and security of communications and data transfer equipment for use in Emergency Operations Center (EOCs) been considered in selecting communications equipment?	DOE G 151.1-4, Section 5.4.1
J.01.05.10 BP	Has an authentication or verification system (e.g., "Caller-ID," passwords) been established among notification network parties, except for dedicated circuits in secure facilities.	DOE G 151.1-4, Section 5.4.1
J.01.05.11 BP	Does the communication systems have security provisions commensurate with the type of information that could be transferred?	DOE G 151.1-4, Section 5.4.1
J.01.05.12 BP	If applicable, are classification reviews preplanned to eliminate delays?	DOE G 151.1-4, Section 5.4.1
J.01.05.13 BP	Can voice communications during an emergency be recorded?	DOE G 151.1-4, Section 5.4.1

J.02 – OBJECTIVE

Emergency Management Hazardous Materials Programs sites/facilities/activities establish and maintain emergency management facilities and equipment/systems. EOC, Alternate EOCs, and Joint Information Centers (JIC) are established and maintained for Emergency Management Hazardous Materials Programs. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4, 11)

J.02.01 CRITERION

Core Facility ✗ HazMat Facility ✓ DNF Facility ✓

An EOC is designated and maintained for Emergency Management Hazardous Materials Programs.	DOE O 151.1D, Attachment 4, 11.a

J.02.01 LINES OF INQUIRY

J.02.01.01	Are authorized onsite and offsite ERO members allowed 24/7 access to the EOC?	DOE O 151.1D, Attachment 4, 11.a.1
J.02.01.02	Are systems and equipment in place to support EOC activities (e.g., information management, mapping, and secure and non-secure communications)?	DOE O 151.1D, Attachment 4, 11.a.2;
J.02.01.03 BP	Are EOC activation systems tested fully?	LL-NPEA-DOE-03, P33a; LL-DrEx-DOE-19, P20b; LL-NPEA-DOE-09, P28c; LL-NPEA-DOE-09, P28d
J.02.01.04 BP	Does the Emergency Management Plan identify the capabilities and equipment in the EOC?	
J.02.01.05	Is there an information management system that provides a single access point for collection and dissemination of emergency event information?	DOE O 151.1D, Attachment 4, 11.a.3
J.02.01.06	Are status reports provided to the HQ EOC?	DOE O 151.1D, Attachment 4, 11.a.3

J.02.01.07	If occupants rely on HEPA filters for protection from airborne contaminates, are the HEPA filters tested and certified at an approved filter test facility?	DOE O 151.1D, Attachment 4, 11.a.4; LL-NPEA-DOE-01, P5-6
J.02.01.08 LINE	If occupants rely on a filtration system for habitability, does the filtration system remove plausible contaminants?	DOE O 151.1D, Attachment 4, 11.a.5
J.02.01.09 BP	Is the robustness of primary and alternate EOC facilities and systems considered for an extreme site-wide or beyond-design event?	LL-Fuku-IAEA-01, P25-26 ; INPO 11-005, P20-21; INPO 11-005, P23-24; LL-NPEA-DOE-01, P3-4; LL-Kat-FFIEC-01, P5; LL-NPEA-DOE-07, P35b; LL-Kat-FFIEC-01, P10-11
J.02.01.10 BP	Is there agreement for liaisons and corresponding allocation of space in the EOCs onsite and offsite parties?	DOE G 151.1-4, Section 2.5
J.02.01.11 BP	Are communication interfaces/protocols/equipment needs for notification points and ongoing communications established between EOCs, responders, monitoring teams, and other entities involved in the emergency response?	DOE G 151.1-4, Section 2.5
J.02.01.12 BP	Is there a description of operational equipment interfaces between EOCs, including an organization chart depicting points-of-interface among parties?	DOE G 151.1-4, Section 2.5

J.02.02 CRITERION

Core Facility ✓ HazMat Facility ✓ DNF Facility

An Alternate Emergency Operations Center (AEOC) performs key functions of the primary EOC and is physically located outside the emergency planning zone (EPZ), or where it and the primary EOC would not be impacted by the same incident.	DOE O 151.1D, Attachment 4, 11.b; DOE G 151.1-4, 3

J.02.02 LINES OF INQUIRY

J.02.02.01	Has an AEOC been established?	DOE O 151.1D, Attachment 4, 11.b
J.02.02.02	Can key functions of the primary EOC be performed at the AEOC?	DOE O 151.1D, Attachment 4, 11.b
J.02.02.03 BP	Is the AEOC located outside the EPZ or located so that the AEOC and the primary EOC would not be impacted by the same incident, as determined by the results of the EPHAs?	DOE O 151.1D, Attachment 4, 11.b
J.02.02.04 BP	Is monitoring equipment available to confirm the habitability of the AEOC?	DOE G 151.1-4, Section 3.4.2
J.02.02.05 BP	Have accessibility, security, and the ability to provide controlled access and secure communications been considered in selecting the alternate location?	DOE G 151.1-4, Section 3.4.2
J.02.02.06 BP	Do communications and information processing systems for the AEOC meet the same capability, interoperability, and testing specifications as for the primary?	DOE G 151.1-4, Section 3.4.2

J.02.02.07 BP	Are backup communications, such as cellular and/or satellite phones and radios available to maintain command and control?	DOE G 151.1-4, Section 3.4.2
J.02.02.08 BP	Are reference materials, including up-to-date plans, procedures, and maps, available in the AEOC or provisions made to obtain them from other emergency facilities as needed?	DOE G 151.1-4, Section 3.4.2
J.02.02.09 BP	Are transfer and activation procedures prepared, training conducted, and the process validated during exercises and drills for shifting responsibilities from the primary command center to the alternate during an emergency?	DOE G 151.1-4, Section 3.4.2

TERION — Core Facility — HazMat Facility — DNF Facility

	For DOE sites with Defense Nuclear Facilities (DNFs), new EOCs are designed, constructed, and maintained to remain habitable during radiological and hazardous materials releases, withstand natural phenomena incidents, and be capable of sustaining emergency operation for a minimum of 72 hours.	DOE O 151.1D, Attachment 4, 11.c; DOE O 420.1C Chg1; DOE G 151.1-4, 3

J.02.03 LINES OF INQUIRY

J.02.03.01	Are new DNF EOCs able to remain habitable during radiological and hazardous materials releases if located within the EPZ?	DOE O 151.1D, Attachment 4, 11.c.1
J.02.03.02	Are new DNF EOCs designated as Essential Facilities in accordance with the International Building Code (IBC), or an equivalent building code in order to withstand natural phenomena incidents?	DOE O 151.1D, Attachment 4, 11.c.2
J.02.03.03	Can new DNF EOCs sustain operations for a minimum of 72 hours during severe events when site or commercial infrastructure may be disrupted?	DOE O 151.1D, Attachment 4, 11.c.3
J.02.03.04	If exempted from these requirements, did the DNF EOC projects receive Critical Decision 2 (CD-2) (Performance Baseline) approval per DOE O 413.3B Administrative Change 1, Program and Project Management for the Acquisition of Capital Assets?	DOE O 151.1D, Attachment 4, 11.c.4
J.02.03.05 BP	Are existing EOCs able to remain habitable during radiological and hazardous materials releases if located within the EPZ?	
J.02.03.06 BP	Are existing EOCs able to be designated as Essential Facilities in accordance with the IBC, or an equivalent building code?	
J.02.03.07 BP	Can existing DNF EOCs sustain operations for a minimum of 72 hours during severe events when site or commercial infrastructure may be disrupted?	

	A JIC is established outside of the EPZ, staffed, equipped, and maintained to serve as a working location for multiple jurisdictions to gather, process, and disseminate public information during an emergency.	DOE O 151.1D, Attachment 4, 11.d

J.02.04 CRITERION — Core Facility — HazMat Facility — DNF Facility

J.02.04 LINES OF INQUIRY

J.02.04.01	Are provisions in place and documented to establish a JIC during an emergency?	DOE O 151.1D, Attachment 4, 11.d.1
J.02.04.02	Is the JIC available to multiple jurisdictions to gather, process, and disseminate public information during an emergency?	DOE O 151.1D, Attachment 4, 11.d.1
J.02.04.03 BP	Does the consolidated JIC (site, local, State, Tribal, and other Federal officials) present a coordinated response to the public?	DOE G 151.1-4, Section 3.4.3
J.02.04.04	Does JIC equipment and systems support public inquiry, media inquiry, media monitoring, media support services, and management and administrative activities?	DOE O 151.1D, Attachment 4, 11.d.2
J.02.04.05	Is the JIC located outside the largest EPZ projected in the EPHA?	DOE O 151.1D, Attachment 4, 11.d.3
J.02.04.06	Is there a maintenance program/schedule for the JIC equipment and systems?	DOE O 151.1D, Attachment 4, 11.d.2

J.02.05 CRITERION — Core Facility — HazMat Facility — DNF Facility

	Primary and backup communications capabilities are adequate to support EPHA identified incidents, including the secure transmission of classified or controlled unclassified information that is generated, handled, or stored.

J.02.05 LINES OF INQUIRY

J.02.05.01	Are the primary and backup communications capabilities adequate to support incidents identified in the EPHAs?	DOE O 151.1D, Attachment 4, 11.e.1
J.02.05.02 BP	Are the primary and backup communications capabilities maintained; and are they tested for extreme bandwidth use?	LL-NPEA-DOE-01, P10-11; LL-NPEA-DOE-02, P35b: LL-NPEA-DOE-04, P31-32; LL-NPEA-DOE-07, P32c; LL-NPEA-DOE-07, P33a; LL-NPEA-DOE-08, P37b; LL-NPEA-DOE-09, P28b; LL-NPEA-DOE-09, P28c; LL-DrEx-DOE-23, P7-8
J.02.05.03	Is equipment available that is capable of transmitting information in a secured fashion if classified or controlled unclassified information is generated, handled, or stored?	DOE O 151.1D, Attachment 4, 11.e.2
J.02.05.04 BP	Is equipment capable of transmitting information in a secured fashion tested to ensure it can transmit classified or controlled unclassified information?	

J.02.05 LINES OF INQUIRY

J.02.05.05 BP	Do systems with personally identifiable information (e.g., injured personnel records) appropriately communicate and display data?	LL-DrEx-DOE-16, P13

J.02.06 CRITERION

✗ Core Facility | HazMat Facility | DNF Facility

Meteorological monitoring capability provides real-time onsite/local meteorological data and access to meteorological expertise and modeling capability up to and including an EPHA General Emergency category, as appropriate.	DOE O 151.1D, Attachment 4, 11.f

J.02.06 LINES OF INQUIRY

J.02.06.01	Does the meteorological capability provide real-time onsite/local data?	DOE O 151.1D, Attachment 4, 11.f.1
J.02.06.02	Is meteorological expertise available for site consequence assessments?	DOE O 151.1D, Attachment 4, 11.f.1
J.02.06.03	Is there a meteorological modeling capability or access to reliable real-time offsite meteorological data to conduct offsite consequence assessment activities if EPHA results indicate the potential for a General Emergency?	DOE O 151.1D, Attachment 4, 11.f.3
J.02.06.04 BP	Are there a sufficient number of meteorological monitoring locations to discern non-linear patterns of wind dispersion?	
J.02.06.05 BP	Is data from installed instrumentation (e.g., meteorological and source term) critical to command and control (i.e., protective actions, classification, etc.) available to appropriate ERO personnel?	DOE G 151.1-4, Section 3.5.2

J.02.07 CRITERION

✗ Core Facility | ✓ HazMat Facility | ✓ DNF Facility

Onsite meteorological data collection, processing, and availability meets current guidance and standards and is appropriate for the level of incident possible per current guidance and standards	DOE O 151.1D, Attachment 4, 11.f.2; DOE O 458.1, Administrative Change 3; DOE-HDBK-1216-2015

J.02.07 LINES OF INQUIRY

J.02.07.01	Does onsite data collection, processing, and availability of meteorological data meet guidance and standards identified in DOE O 458.1, Administrative Change 3 and DOE-HDBK-1216-2015?	DOE O 151.1D, Attachment 4, 11.f.2
J.02.07.02	Are meteorological modeling capabilities or access to reliable offsite meteorological data appropriate to conduct proper offsite consequence assessment activities for the level of incident identified in the EPHA during a General Emergency (as applicable)?	DOE O 151.1D, Attachment 4, 11.f.3
J.02.07.03 BP	Are processes established to ensure that equipment used for process monitoring and data collection is of the proper type, range, and accuracy?	

J.02.07.04 BP	Is this equipment calibrated according to technical standards and maintained to ensure continuing data quality and process capability?	DOE G 414.1-2B, 4.8
J.02.07.05 BP	Is the level of sophistication required for consequence assessment capabilities, such as meteorological data acquisition, calculation models, accident range instrumentation, data entry, and field monitoring capabilities, determined based on the results of the EPHA?	DOE G 151.1-4, Section 3.5.3

J.03 – OBJECTIVE

Defense Nuclear Facilities have identified onsite emergency response facilities (e.g., primary EOCs, controls rooms, operations centers, medical facilities, fire departments). These facilities have compensatory measures for habitability and survivability that include safe shutdown or walkaway strategies, and define transition of responsibilities between normal, emergency, and recovery operations. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4, 11.g & h)

J.03.01 CRITERION

✗ Core Facility ✗ HazMat Facility ✓ DNF Facility

	Defense Nuclear Facilities (DNFs) identify onsite emergency response facilities.	DOE O 151.1D, Attachment 4, 11.g
J.03.01.01	Does the DNF have onsite EOC?	DOE O 151.1D, Attachment 4, 11.g
	Does the DNF have an onsite control room?	DOE O 151.1D, Attachment 4, 11.g
J.03.01.03	Does the DNF have an onsite medical facility?	DOE O 151.1D, Attachment 4, 11.g
J.03.01.04	Does the DNF have an onsite fire department?	DOE O 151.1D, Attachment 4, 11.g
J.03.01.05 BP	Have other onsite emergency response facilities been identified?	
J.03.01.06 BP	Are identified onsite emergency response facilities habitable or survivable during hazardous events?	

J.03.02 CRITERION

✗ Core Facility ✗ HazMat Facility ✓ DNF Facility

	Compensatory measures and safety functions and features are developed and maintained for identified DNFs.	DOE O 151.1D, Attachment 4, 11.g

J.03.02 LINES OF INQUIRY

J.03.02.01	Are compensatory measures developed for onsite emergency response facilities that are not habitable or survivable during hazardous events?	DOE O 151.1D, Attachment 4, 11.g.1

J.03.02.02	Are safety functions and features tested?	DOE O 151.1D, Attachment 4, 11.g.2
J.03.02.03	Are safety functions and features maintained?	DOE O 151.1D, Attachment 4, 11.g.2
J.03.02.04	Do safety function and feature tests indicate that they function as designed?	DOE O 151.1D, Attachment 4, 11.g.2
J.03.02.05 BP	Are compensatory measures and safety functions and features periodically reviewed, tested, and updated as necessary?	

J.03.03 CRITERION

Core Facility ✗ HazMat Facility ✗ DNF Facility ✓

DNFs develop safe shutdown and walkaway strategies and transition of responsibilities and required actions between normal work activities, incident activities, and recovery operations.	DOE O 151.1D, Attachment 4, 11.h

J.03.03 LINES OF INQUIRY

J.03.03.01	Are safe shutdown or walkaway strategies in place for equipment and facilities during emergencies?	DOE O 151.1D, Attachment 4, 11.h.1
J.03.03.02	Are processes/procedures in place to transition responsibilities and required actions between normal work activities, incident activities, and recovery operations?	DOE O 151.1D, Attachment 4, 11.h.2
J.03.01.03 BP	Are safe shutdown and walkaway strategies and transition of responsibilities and required actions periodically reviewed, tested, and updated as necessary?	

J.04 – OBJECTIVE

Emergency facilities and equipment/systems are performing at optimal levels per Element X.

J.04.01 CRITERION

Core Facility ✓ HazMat Facility ✓ DNF Facility ✓

Element X.01.03 criterion has been assessed.	

J.04.01 LINES OF INQUIRY

J.04.01.01	In the context of Emergency Facilities and Equipment/Systems, have the LOIs associated with criterion X.01.03 been addressed.	

	✓	✓	✓

Element X.01.08 criterion has been assessed.	

J.04.02 CRITERION	Core Facility	HazMat Facility	DNF Facility

J.04.02 LINES OF INQUIRY		
J.04.02.01	In the context of Emergency Facilities and Equipment/Systems, have the LOIs associated with criterion X.01.08 been addressed.	

J.04.03 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility

J.04.03 LINES OF INQUIRY		
J.04.03.01	In the context of emergency facilities and equipment/systems, have the LOIs associated with criterion X.01.09 been addressed.	

J.04.04 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility

Element X.01.10 criterion has been assessed.	

J.04.04 LINES OF INQUIRY		
J.04.04.01	In the context of emergency facilities and equipment/systems, have the LOIs associated with criterion X.01.10 been addressed.	

APPROACH – Emergency Facilities & Equipment/Systems

Below are generic considerations for Element J, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, and other information.

Document/Record Reviews

- Site/facility Emergency Plan(s) (confirm size and location of facilities [primary and alternate] commensurate with needs, communications equipment/systems [public address, sirens, alarm systems, etc.], computer equipment/systems, maintenance plans for facilities, equipment and systems; procedures for equipment use current with equipment installed; testing schedule for equipment)
- Contractual documents for equipment and facility related activities (preventive maintenance for HVAC, alarm systems, etc.)
- Documentation of program reviews, corrective actions, and documents that track findings and corrective actions related to Facilities and Equipment/Systems and equipment performance
- Maintenance/calibration schedule, procedures, and contracts for hazardous material tasks (e.g., PPE, monitoring equipment, habitability system, check sources)
- EPHA (confirm that available PPE equipment, monitoring instruments, personnel monitoring systems, and decontamination equipment are consistent with site needs)
- Drill/exercise records (confirm available maps and facility drawings; situational awareness systems such as WebEOC® records are adequate)

Interviews

- Person with overall responsibility for managing the emergency management program and delegates (integration with other programs, budget and resources)
- Person(s) with overall responsibility for maintaining EOC and AEOC facility **(X.01.02, X.01.03, X.01.04, X.01.05, X.01.06, X.01.09)**
- Person(s) with responsibility for field monitoring team maintenance and testing **(X.01.02, X.01.03, X.01.04, X.01.06, X.01.07, X.01.09)**
- Field team member or ERO staff to confirm adequacy of the equipment/systems with which they work and other installed equipment (HVAC, sanitation, communications, printers, etc.) **(X.01.03, X.01.08)**
- ERO staff member to confirm adequacy of the alternate EOC equipment/systems **(X.01.03, X.01.08)**
- Facility worker to confirm notification system adequacy

Observations

- Facility that serves as the EOC, including the JIC, are adequate, supplied, maintained, and appropriately located to support emergency response
- Communications equipment used by contractor during emergency response is adequate (EOC, alternate EOC, site notifications, offsite communications)
- Meteorological systems or capabilities are adequate, accessible, and tested, and meteorological expertise is available to perform site consequence assessments
- Alternate EOC facility, if needed, is available, appropriately located, and adequately supplied
- Field team equipment, PPE, and other equipment for which the contractor is responsible for, is available and maintained to support site emergency response needs

References

- **29 CFR 1910:** *Occupational Safety and Health Standards 1910.120, 1910.132 through 1910.140*
- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE-HDBK-1216-2015:** *Environmental Radiological Effluent Monitoring and Environmental Surveillance*
- **DOE-HDBK-1163-2003:** *Integration of Multiple Hazards Analysis Requirements and Activities*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 413.3B:** *Program and Project Management for the Acquisition of Capital Assets*
- **DOE O 420.1C:** *Facility Safety*
- **DOE O 422.1:** *Conduct of Operations*
- **DOE O 440.1B:** *Worker Protection Program for DOE (Including the NNSA) Federal Employees*
- **DOE O 458.1:** *Radiation Protection of the Public and the Environment*
- **NFPA Standard 1992:** *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies*
- **NFPA Standard 1999:** *Standard on Protective Clothing and Ensembles for Emergency Medical Operations*
- **NFPA Standard 1991:** *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies and CBRN Terrorism Incidents*

NOTIFICATIONS & COMMUNICATIONS

K. Notifications & Communications

K.01 – OBJECTIVE

The emergency management program provides for prompt, accurate, and effective initial notifications to appropriate employees, onsite emergency response, and appropriate offsite authorities during an operational emergency. Emergency response personnel and response organizations receive prompt initial notification. Affected workers, Field Elements, local, state, and Tribal organizations receive initial notification of declaration of an OEOE within established timeframes. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 11.a)

K.01.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Initial emergency notifications can be provided promptly, accurately, and effectively to affected workers and emergency response personnel, and response organizations.			DOE O 151.1D, Attachment 3, 11.a.1,2,& 3

K.01.01 LINES OF INQUIRY		
K.01.01.01	Can affected workers promptly be notified of protective actions immediately, but no later than 10 minutes after protective actions have been identified?	DOE O 151.1D, Attachment 3, 11.a.3
K.01.01.02	Is the notification to workers process documented in the emergency management plan and related procedures?	DOE O 151.1D, Attachment 3, 11.a.1
K.01.01.03 BP	Are worker notification processes tested frequently enough to ensure reliability?	DOE G 151.1-4, 5
K.01.01.04 BP	Is there more than one way to notify workers of an emergency situation and associated protective actions?	LL-NPEA-DOE-01, P11-12; LL-NPEA-DOE-01, P19-20; LL-NPEA-DOE-07, P31a
K.01.01.05	Can prompt emergency notifications be provided to emergency response personnel and response organizations?	DOE O 151.1D, Attachment 3, 11.a.2
K.01.01.06 BP	Do notification procedures address the circumstances under which the notifications to emergency responders should be made?	DOE G 151.1-3, 6
K.01.01.07 BP	Do notification procedures ensure that emergency response personnel and response organizations are promptly notified of an emergency occurrence?	DOE G 151.1-4, 5
K.01.01.08 BP	Are standardized notification processes in place for workers (public announcement system, building sirens, alarms, etc.)?	DOE G 151.1-4, 5; LL-NPEA-DOE-07, P33b; LL-DrEx-DOE-06, P5-6
K.01.01.09 BP	In the notification system, are critical notifications managed separately from routine or administrative notifications?	DOE G 151.1-4, 5.3.1
K.01.01.10 BP	Are standardized notification processes in place for emergency response personnel (first responders, onsite medical, etc.) to assure prompt communications?	DOE G 151.1-4, 5

K.01.02 CRITERION	Core Facility	HazMat Facility	DNF Facility
Initial emergency notifications can be provided promptly, accurately, and effectively to Field Elements or appropriate Federal Manager, local, state, and Tribal organizations.			DOE O 151.1D, Attachment 3, 11.a.4 & 5

K.01.02 LINES OF INQUIRY		
K.01.02.01	Can Field Elements, local, state, and Tribal organizations receive notification within 30 minutes of declaration or termination of an OE?	DOE O 151.1D, Attachment 3, 11.a.4
K.01.02.02	Should the Emergency Operations System (EOS) be activated for an incident not categorized as an OE, can the Field Element and Headquarters Watch Office receive notification within 30 minutes of the EOS becoming operational?	DOE O 151.1D, Attachment 3, 11.a.5
K.01.02.03	Are requirements to notify the Field Element and Headquarters Watch Office documented in the emergency management plan for EOS activation?	DOE O 151.1D, Attachment 3, 11.a.5
K.01.02.04 BP	Is the requirement to notify DOE, state, local, and Tribal organizations documented in the emergency management plan?	
K.01.02.05 BP	Are notifications to DOE, state, local, and Tribal organizations tested at the required frequency identified in the emergency management plan?	DOE G 151.1-4, 5; LL-NPEA-DOE-08, P38a; LL-NPEA-DOE-08, P38c
K.01.02.06 BP	Are DOE, state, local, and Tribal organizations invited to provide feedback after testing of the notification process (e.g., providing time, date, location, contact point or person, type of emergency, appropriate emergency class and time, event status, and the Protective Action Recommendation)?	DOE G 151.1-4, Section 5.3.4
K.01.02.07 BP	Is there more than one way to notify DOE, state, local, and Tribal organizations?	
K.01.02.08 BP	Are the initial notification messages required to contain enough information that DOE or NNSA headquarters Emergency Management Teams can determine if they need to issue an alert?	DOE G 151.1-4, Section 5.3.4

K.01.03 CRITERION	Core Facility	HazMat Facility	DNF Facility
Local, state, Tribal, and Federal authorities can be notified of classified OEs within 15 minutes of categorization.			DOE O 151.1D, Attachment 4, 12

K.01.03 LINES OF INQUIRY		
K.01.03.01	Can local, state, Tribal, and Federal authorities be notified of classified OEs within 15 minutes of classification of an Alert, Site Area, or General Emergency?	DOE O 151.1D, Attachment 4, 12
K.01.03.02 BP	Do plans and procedures include a process for notification to state, local, Federal, and Tribal agencies of an emergency that is a classified event within 15 minutes?	DOE G 151.1-4, 5; EA-WIPP-FSE-2016-06-21, P3c; LL-DrEx-DOE-05, P18-19
K.01.03.03 BP	Are 15 minute notifications tested during drills or exercises?	DOE G 151.1-4, 5; LL-DrEx-DOE-02, P5c

K.02 – OBJECTIVE

The emergency management program provides for accurate, effective follow-up notifications and ongoing communications to employees, onsite emergency response, and appropriate offsite authorities as appropriate during all phases of an Operational Emergency. Follow-up notifications/communications are made when conditions change and when the OE is terminated. Effective communications are provided throughout an emergency. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 3, 11)

K.02.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Follow-up emergency notifications can be provided promptly when conditions change or when the OE is terminated.			DOE O 151.1D, Attachment 3, 11

K.02.01 LINES OF INQUIRY		
K.02.01.01	Can follow-up emergency notifications be provided promptly when emergency conditions change?	DOE O 151.1D, Attachment 3, 11
K.02.01.02 BP	Are follow-up notification procedures required to address the circumstances under which notifications to emergency responders should be made?	DOE G 151.1-4, 5
K.02.01.03 BP	Is there a process that facilitates prompt follow-up notifications to various emergency response personnel, and other on- and offsite organizations?	DOE G 151.1-4, 5
K.02.01.04 BP	Is there a standardized content and format for follow-up emergency notifications?	DOE G 151.1-4, 5
K.02.01.05	Can follow-up emergency notifications to offsite organizations be made promptly when the OE is terminated?	DOE O 151.1D, Attachment 3, 11.a.4

K.02.02 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Effective communication among response organizations, among on-scene responders, emergency managers, and response facilities, and updates to workers are maintained throughout an emergency.			DOE O 151.1D, Attachment 3, 11.b.1, 2, 4, & 6

K.02.02 LINES OF INQUIRY		
K.02.02.01	Can effective communications among response organizations be maintained throughout an emergency?	DOE O 151.1D, Attachment 3, 11.b.1
K.02.02.02 BP	Does the emergency management plan identify a process for effective ongoing communications among response organizations?	DOE G 151.1-4, 5; LL-DrEx-DOE-06, P7-9; LL-DrEx-DOE-07, P8-10; LL-DrEx-DOE-04, P24; LL-DrEx-DOE-08, P7-8; LL-DrEx-DOE-13, P7; LL-DrEx-DOE-13, P17-18a; LL-DrEx-DOE-16, P12-13; EA-WIPP-FSE-2016-06-21, P3a
K.02.02.03	Are communication methods established among on-scene responders, emergency managers, and response facilities?	DOE O 151.1D, Attachment 3, 11.b.2

K.02.02 LINES OF INQUIRY

K.02.02.04 BP	Does the emergency management plan identify methods for communication among on-scene responders, emergency managers, and response facilities?	DOE G 151.1-4, 5; LL-DrEx-DOE-06, P7-9; LL-DrEx-DOE-04, P24; LL-DrEx-DOE-07, P8-10; LL-DrEx-DOE-08, P7-8; LL-DrEx-DOE-12, P20b; LL-DrEx-DOE-13, P17-18a; LL-DrEx-DOE-16, P12-13; LL-NPEA-DOE-07, P34-35; EA-WIPP-FSE-2016-06-21, P3a
K.02.02.05	Is an effective communication process in place to provide updates to workers during an emergency?	DOE O 151.1D, Attachment 3, 11.b.4
K.02.02.06	Is access to unclassified emergency response information (e.g., notification forms, emergency status updates, plume projections, significant events data, and field monitoring data) available to response facilities, field response elements, and offsite command centers in real time (or in a timely manner)?	DOE O 151.1D, Attachment 3, 11.b.6;
K.02.02.07	Can first responders and field teams effectively communicate with each other during an event?	DOE O 151.1D, Attachment 3, 11.b.6
K.02.02.08	Is an effective communication process in place between first responders (and field teams) with the EOC?	DOE O 151.1D, Attachment 3, 11.b.6
K.02.02.09 BP	Are alternative methods of communicating in place in case the primary system is not functioning?	DOE G 151.1-4, 5.4.1
K.02.02.10 BP	Are processes/procedures in place to handle equipment-related communication problems promptly when identified during an emergency?	DOE G 151.1-3, 6
K.02.02.11	Do the methods and/or systems for communication among response facilities, field response elements, and offsite command centers indicate a common operating picture of the emergency response and shared situational awareness?	DOE O 151.1D, Attachment 3, 11.b.6

K.03 – OBJECTIVE

Objective K.03 – Prompt initial notifications and follow-up communications are made to the Headquarters Watch Office during an emergency. As much information as available at the time is provided verbally and electronically. Information unknown at the time of the initial notification is identified in the reporting process. Classified and Unclassified Controlled Nuclear Information (UCNI) are considered and protected accordingly. Unclassified and classified communication systems are checked periodically. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 3, 11.a.5 and 6 and 11.b.3 and 5)

K.03.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
An emergency notification with as much information as known at the time can be provided to the DOE Headquarters Watch Office both as a phone call and electronically with receipt confirmation.			DOE O 151.1D, Attachment 3, 11.a.5 and 6

K.03.01 LINES OF INQUIRY		
K.03.01.01	Is there a requirement for initial emergency notifications to the DOE Headquarters Watch Office to consist of a phone call providing as much information as is known at the time?	DOE O 151.1D, Attachment 3, 11.a.6
K.03.01.02	Can the notification be provided electronically with receipt confirmation?	DOE O 151.1D, Attachment 3, 11.a.6
K.03.01.03 BP	Is the electronic source (e-mail, fax, etc.) for communicating with DOE Headquarters Watch Office dedicated and tested periodically?	DOE G 151.1-4, 5
K.03.01.04 BP	Is there a backup electronic source for communicating with the DOE Headquarters Watch Office?	DOE G 151.1-4, 5
K.03.01.05 BP	Do emergency plans and procedures reflect the appropriate phone, email, and/or fax number(s) to contact the DOE Headquarters Watch Office?	DOE G 151.1-4, 5
K.03.01.06 BP	Is an EOS/EOC position identified to make the emergency notification to the Headquarters Watch Office?	DOE G 151.1-3, 6; LLo-DrEx-DOE-08, P6
K.03.01.07	If information is not known at the time of the report, is that required to be specified in the report to DOE Headquarters Watch Office?	DOE O 151.1D, Attachment 3, 11.a.6
K.03.01.08 BP	Is there a procedure for use when making the notification to the DOE Headquarters Watch Office?	LL-DrEx-DOE-05, P18-19; LL-DrEx-DOE-02, P5c
K.03.01.09	Is there a checklist for use when making the notification to the DOE Headquarters Watch Office which includes the following required components: • Incident description, • Date and time emergency was discovered or terminated, • Damage and casualties, • Protective actions implemented, • Potential and actual impacts, • Agencies involved, • Level of public/media attention • Contact information	DOE O 151.1D, Attachment 3, 11.a.6

	✓	✓	✓
Ongoing communications are provided to the Headquarters Watch Office.			DOE O 151.1D, Attachment 3, 11.b.3

K.03.02 CRITERION		Core Facility	HazMat Facility	DNF Facility
K.03.02.01	Can updates be provided to Headquarters based on emergency conditions and/or as directed by Headquarters?			DOE O 151.1D, Attachment 3, 11.b.3
K.03.02.02 BP	Do procedures address a process to effectively provide event updates to Headquarters based on emergency conditions, or as directed by Headquarters?			DOE G 151.1-3, 6
K.03.02.03 BP	Do the procedures specify under what conditions Headquarters is updated?			DOE G 151.1-3, 6
K.03.02.04 BP	Is a backup communication method in place for communicating with Headquarters should the primary method become unavailable?			DOE G 151.1-4, 5; INPO 11-005, P23-24

K.03.03 CRITERION	Core Facility	HazMat Facility	DNF Facility
Unclassified and classified communications systems with DOE Headquarters are in place and tested.			DOE O 151.1D, Attachment 3, 11.b.5

K.03.03 LINES OF INQUIRY				
K.03.03.01	Are communication checks initiated annually or more frequently, as necessary, on the unclassified communications systems used for initial notification of the DOE Headquarters Watch Office?			DOE O 151.1D, Attachment 3, 11.b.5
K.03.03.02 BP	Are classified/unclassified considerations preplanned and addressed in training and procedures such that there is no delay in making notifications?			DOE G 151.1-4, 5.3.4

K.04 – OBJECTIVE

The staff that conduct notifications and communications during an event perform optimally, per Element X.

K.04.01 CRITERION	Core Facility	HazMat Facility	DNF Facility
Element X.01.01 criterion has been assessed			

K.04.01 LINES OF INQUIRY				
K.04.01.01	In the context of provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.01 been addressed?			

	✓	✓	✓

Element X.01.02 criterion has been assessed	

K.04.02 LINES OF INQUIRY K.04.02 CRITERION	Core Facility	HazMat Facility	DNF Facility
K.04.02.01	In the context of provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.02 been addressed?		

K.04.03 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.03 criterion has been assessed			

K.04.03 LINES OF INQUIRY		
K.04.03.01	In the context of provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.03 been addressed?	

K.04.04 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.07 criterion has been assessed.			

K.04.04 LINES OF INQUIRY		
K.04.04.01	In the context of Provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.07 been addressed?	

K.04.05 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.08 criterion has been assessed			

K.04.05 LINES OF INQUIRY		
K.04.05.01	In the context of provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.08 been addressed?	

K.04.06 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.09 criterion has been assessed			

K.04.06 LINES OF INQUIRY		
K.04.06.01	In the context of provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.09 been addressed?	

		✓	✓	✓

Element X.01.10 criterion has been assessed	

K.04.07	LINES OF INQUIRY CRITERION	Core Facility	HazMat Facility	DNF Facility
K.04.07.01	In the context of provision of notifications and communication during an emergency, have the LOIs associated with criterion X.01.10 been addressed?			

APPROACH – Notifications & Communications

Below are generic considerations for Element K, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. (Note: While the Emergency Operations System (Element D) is largely responsible for planning and checklists to maintain situational awareness and a common operating picture, Element K is largely responsible for implementation of these plans. During drills and exercises Element K tests the plans of Element D.) At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, etc.

Document/Record Reviews

- Site/facility Emergency Plan(s) (confirm content related to procedures for notifications and communications for an emergency; confirm overall compliance with initial and follow-up notifications and communication goals; review effectiveness of system for tracking flow and chronology of emergency information)
- Drill and exercise reports (review timeline, message injects, message traffic, notifications; effective communication of protective actions taken or recommended, and memoranda; review list of initial notification recipients and list of event termination recipients)
- Reports for actual events (review communication operations, including logs, message traffic, memoranda, notifications, and reporting)
- Memoranda with offsite organizations (confirm notifications and communications coordination effectiveness)
- Training records (confirm satisfactory content, participant list, course feedback)
- Lessons learned and corrective actions generated at the site for notifications and communications.

Interviews

- Person with overall responsibility for managing the emergency management program and delegates (understanding of goals associated with emergency notifications and communications; confirm systems used for communications are adequate for core program and beyond core program notifications) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person(s) assigned to be Emergency Directors during drills/exercises/actual events (confirm their understanding of their role and procedures; confirm ability to effectively document information communicated) **(X.01.01, X.01.02, X.01.03, X.01.06, X.01.07, X.01.08, X.01.09, X.01.10)**
- Exercise planning staff (confirm their understanding of objectives and criteria related to termination and recovery) **(X.01.01, X.01.02, X.01.10)**

Observations

- Drill/exercise – initial notifications are prompt, accurate to workers and emergency response personnel; follow-up notifications are accurate and done in a timely manner when conditions change, classification is upgraded, or emergency terminated.
- Drill/exercise – initial notifications to offsite organizations and DOE/NNSA elements are made promptly and accurately

References

- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*

EMERGENCY
PUBLIC INFORMATION

L. Emergency Public Information

L.01 – OBJECTIVE

During an emergency, accurate, candid, and timely information is provided to workers, the media, and the public. This is accomplished through an established and comprehensive emergency public information program maintained in accordance with the all-hazards planning basis. The information distributed is distributed at a level of detail consistent with the level of potential hazard. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 12; Attachment 4, 13)

L.01.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
An established public information program is being maintained consistent with the all-hazards/technical planning basis.			DOE O 151.1D, Attachment 3, 12.a

L.01.01 LINES OF INQUIRY		
L.01.01.01	Is an emergency public information program and plan in place and maintained that is consistent with the potential site hazards indicated in the all-hazards/technical planning basis?	DOE O 151.1D, Attachment 3, 12.a
L.01.01.02 BP	Are program documents updated promptly upon when the all-hazards/technical planning basis is revised (e.g., within 3 months)?	
L.01.01.03 BP	Are the public information staff specifically trained on the all-hazards/technical planning basis?	
L.01.01.04 BP	Is the knowledge of public information staff on the all-hazards/technical planning basis regularly evaluated to facilitate accurate dissemination of information should an emergency occur?	

L.01.02 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
A comprehensive emergency public information (EPI) program is documented in the emergency management plan or in a separate EPI plan.			DOE O 151.1D, Attachment 3, 12.b

L.01.02 LINES OF INQUIRY		
L.01.02.01	Is a comprehensive emergency public information (EPI) program documented in the emergency management plan or in a separate EPI plan?	DOE O 151.1D, Attachment 3, 12.b
L.01.02.02	Does the emergency management plan or EPI plan identify personnel, resources, and facilities necessary to support EPI activities?	DOE O 151.1D, Attachment 3, 12, b.1
L.01.02.03	Is a location for conducting news briefings/conferences specified in the emergency management plan or EPI plan?	DOE O 151.1D, Attachment 3, 12, b.4
L.01.02.04 BP	Does the emergency management plan or EPI plan address response to public and worker inquiries and also address rumor control?	DOE G 151.1-3, Appendix A, 10.4; LL-Fuku-IAEA-01, P100a;LL-DrEx-DOE-04, P25; LL-DrEx-DOE-05, P21a; EA-WIPP-FSE-2016-06-21, P3d

L.01.02.05	Does EPI planning address the public information media to be used and monitored (such as web sites, social media, news releases, and news briefings)?	DOE O 151.1D, Attachment 3, 12.b.3
L.01.02.06 BP	Does EPI planning stress that information distributed to workers, site personnel, and the public during an Operational Emergency be: • Accurate, candid, understandable, and consistent • Current and timely • Provided to ensure the health and safety of workers and the public • Provided to establish facts, and avoid rumors and speculation • Responsive to public concern and information needs • Consistent with the requirements of the Freedom of Information Act and the Privacy Act?	DOE G 151.1-4, 9.2
L.01.02.07	Does EPI planning have provisions for coordinating information to be released during an emergency (e.g., between the onsite responders and support Emergency Operations System [EOS] or Emergency Operations Center [EOC] staff)?	DOE O 151.1D, Attachment 3, 12.b.2

L.01.03 CRITERION

✓ Core Facility ✓ HazMat Facility ✓ DNF Facility

Provisions are in place for coordinating information with offsite agencies	DOE O 151.1D, Attachment 3, 12.b.6.

L.01.03 LINES OF INQUIRY

L.01.03.01	Does the EPI plan indicate how public information activities are coordinated with offsite response agencies (State, local and Tribal governments), and Federal) emergency response plans?	DOE O 151.1D, Attachment 3, 12.b.6
L.01.03.02 BP	Are identified offsite response agencies; state, local and tribal governments; and Federal organizations documented in a written format to maintain a continuity of coordination practices for the program?	
L.01.03.03	Is a process for coordinating and approving information to be released during an emergency with offsite organizations included in the plan?	DOE O 151.1D, Attachment 3,12.b.6
L.01.03.04 BP	Does the facility/site coordinate with offsite officials to provide information on the availability and capabilities of DOE/NNSA radiological emergency response assets and how to access and utilize these Federal Assets?	DOE G 151.1-4, Section 2.2
L.01.03.05 BP	Are regular facility/site meetings held with offsite officials to discuss areas of concern and changes to emergency response plans and procedures?	DOE G 151.1-4, Section 2.2

L.01.04 CRITERION

✓ Core Facility ✓ HazMat Facility ✓ DNF Facility

The emergency management and/or EPI plan identifies personnel and training and drills required for personnel who interact with the media.	DOE O 151.1D, Attachment 3, 12.b.5

L.01.04.01	Is a Public Information Officer (PIO) role and individual clearly identified in the plan and listed as the entity who will interact with the media during an emergency?	DOE O 151.1D, Attachment 3, 12.b.1
L.01.04.02 BP	Are backup PIOs identified to maintain a continuity of information being released?	DOE G 151.1-3, Appendix A, 10.1
L.01.04.03 BP	Is the public information function and staffing of the Joint Information Center (JIC) included in the plan?	DOE G 151.1-3, Appendix A, 10.2; INPO 11-005, P23-24
L.01.04.04	Are specific drills and the training requirements for personnel who will interact with the media clearly identified?	DOE O 151.1D, Attachment 3, 12.b.5
L.01.04.05 BP	Do Drills and Exercises regularly cover all aspects of public information dissemination?	
L.01.04.06 BP	Are personnel identified to interact with the media current with their training requirements?	DOE O 151.1D, Attachment 3, 12.b.5
L.01.04.07 BP	Is media simulation done during drills and exercises?	
L.01.04.08 BP	Is feedback solicited on the effectiveness of messages (i.e., accuracy, timeliness, clarity) from those receiving public information messages during drills and exercises?	

L.01.05 CRITERION

✓ Core Facility ✓ HazMat Facility ✓ DNF Facility

The emergency management and/or EPI plan includes a process for reviewing information for classified or controlled unclassified information.	DOE O 151.1D, Attachment 3, 12.b.7

L.01.05 LINES OF INQUIRY

L.01.05.01	For situations involving classified or controlled unclassified information, is a process in place for information release drafts to be reviewed prior to release?	DOE O 151.1D, Attachment 3, 12.b.7
L.01.05.02	Is the process for handling classified or controlled unclassified information documented in EPI planning?	DOE O 151.1D, Attachment 3, 12.b
L.01.05.03	Is the process for information being reviewed for classified or controlled unclassified information prior to release drilled at appropriate intervals?	DOE O 151.1D, Attachment 3, 12.b.7
L.01.05.04 BP	Is a review for all emergency-reporting messages for classified information and Unclassified Controlled Nuclear Information (UCNI) addressed in the training program, procedures, and form development so that classification considerations will not delay notification?	DOE G 151.1-4, Section 5.3.4

L.01.06 CRITERION

✓ Core Facility ✓ HazMat Facility ✓ DNF Facility

A process is established to allow for approval by the appropriate Field Element official responsible for EPI review and dissemination of initial news releases or public statements.	DOE O 151.1D, Attachment 3, 12.b.8

L.01.06.01	Is a process established to allow for approval by the appropriate Field Element official (e.g., Field Element public affairs designee) responsible for EPI review and dissemination of initial news releases or public statements?	DOE O 151.1D, Attachment 3, 12.b.8
L.01.06.02 BP	Is the process drilled at appropriate intervals, with required Field Element Manager (FEM) review criteria documented, to indicate the process as being effective?	
L.01.06.03	Is the process documented in EPI planning?	DOE O 151.1D, Attachment 3, 12.b;

L.01.07 CRITERION

✓ Core Facility ✓ HazMat Facility ✓ DNF Facility

A process is established to coordinate with the Headquarters Emergency Operations Center Public Affairs Watch Officer and/or Office of Public Affairs on information released after the initial release. (This includes information released through news releases and social media. The Headquarters Public Affairs Duty Officer or Office of Public Affairs may delegate this to the local level dependent on the incident.)	DOE O 151.1D, Attachment 3, 12.b.9

L.01.07 LINES OF INQUIRY

L.01.07.01	Is a process established to coordinate with the Headquarters Emergency Operations Center Public Affairs Watch Officer and/ or Office of Public Affairs on information released after the initial release? (This includes information released through news releases and social media. The Headquarters Public Affairs Duty Officer or Office of Public Affairs may delegate this to the local level dependent on the incident.)	DOE O 151.1D, Attachment 3, 12.b.9
L.01.07.02	Is the process documented in the plan?	DOE O 151.1D, Attachment 3, 12.b
L.01.07.03 BP	Is the process drilled at appropriate intervals to validate effectiveness?	

L.01.08 CRITERION

✗ Core Facility ✓ HazMat Facility ✓ DNF Facility

Sites with Emergency Management Hazardous Materials Programs maintain appropriate staff to perform EPI activities that include public and media inquiries, and technical expertise related to the emergency.	DOE O 151.1D, Attachment 4, 13

L.01.08 LINES OF INQUIRY

L.01.08.01	Do EPI activities include the ability for public and media inquiries?	DOE O 151.1D, Attachment 4, 13.a

L.01.08.02 BP	Are appropriate staffing levels maintained to promptly respond to public and media inquiries with accurate and candid information regarding the incident?	NUREG/CR-6981, P64
L.01.08.03	Are personnel with technical expertise related to the emergency available during an emergency?	DOE O 151.1D, Attachment 4, 13.b
L.01.08.04 BP	Is a process to obtain personnel with technical expertise related to the incident documented and reviewed on a scheduled basis?	
L.01.08.05 BP	Is the staff's ability to relay technical information included in drills to validate accuracy and effectiveness?	

L.01.09 CRITERION

X Core Facility ✓ HazMat Facility ✓ DNF Facility

Sites with Emergency Management Hazardous Materials Programs include information coordination and direction by the FEM or appropriate Federal Manager public affairs manager or designee.	DOE O 151.1D, Attachment 4, 13.c

L.01.09 LINES OF INQUIRY

L.01.09.01	Is the FEM or appropriate Federal Manager, public affairs manager, or designee responsible for coordination and direction of EPI?	DOE O 151.1D, Attachment 4, 13.c
L.01.09.02 BP	Is a process to coordinate EPI activities with the FEM or appropriate Federal Manager public affairs manager or designee reviewed and updated on a scheduled basis, and included in drills to validate effectiveness?	
L.01.09.03 BP	Is there a designated Public Information staff member/position assigned to maintain contact with the FEM or designee Public Affairs contact?	
L.01.09.04 BP	Is coordination and direction by the FEM or designee tested in drills and exercises?	

L.02 – OBJECTIVE

The staff that communicate with the public during an emergency perform optimally, per Element X.

L.02.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.01 criterion has been assessed.			

L.02.01 LINES OF INQUIRY		
L.02.01.01	In the context of public information provision, have the LOIs associated with criterion X.01.01 been addressed?	

L.02.02 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.02 criterion has been assessed.			

L.02.02 LINES OF INQUIRY		
L.02.02.01	In the context of public information provision, have the LOIs associated with criterion X.01.02 been addressed?	

L.02.03 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.05 criterion has been assessed.			

L.02.03 LINES OF INQUIRY		
L.02.03.01	In the context of r public information provision, have the LOIs associated with criterion X.01.05 been addressed?	

L.02.04 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.06 criterion has been assessed.			

L.02.04 LINES OF INQUIRY		
L.02.04.01	In the context of public information provision, have the LOIs associated with criterion X.01.06 been addressed?	

L.02.05 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.07 criterion has been assessed.			

L.02.05 LINES OF INQUIRY		
L.02.05.01	In the context of public information provision, have the LOIs associated with criterion X.01.07 been addressed?	

L.02.06 CRITERION

Core Facility | HazMat Facility | DNF Facility

Element X.01.09 criterion has been assessed.	

L.02.06 LINES OF INQUIRY

L.02.06.01	In the context of public information provision, have the LOIs associated with criterion X.01.09 been addressed?

L.02.07 CRITERION

Core Facility | HazMat Facility | DNF Facility

Element X.01.10 criterion has been assessed.	

L.02.07 LINES OF INQUIRY

L.02.07.01	In the context of public information provision, have the LOIs associated with criterion X.01.10 been addressed?

APPROACH – Emergency Public Information

Below are generic considerations for Element L, including a crosswalk to Element X criteria. The goal of the site EPI program is to provide accurate, candid, and timely information to the news media and the public during an emergency. This establishes facts and avoid speculation. The EPI program also provides general emergency information to workers prior to an event. Additional documents, interviews, and observations should be considered as appropriate . Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, and other information.

Document/Record Reviews

- Site/facility EPI Program documents to
  - determine if the EPI plan is integrated with the site Emergency Management Program plans or a separate document
  - review position description, duties/responsibilities, and job aids
  - confirm internal and external organizational relationships, 24-hour media contact points, and review schedule
  - determine if deployment of a site public information staff with Federal asset teams who are deployed to offsite areas is considered
  - determine if classified or controlled information handling procedures are adequate
- Training materials provided to workers for emergency response education, prior to any event
- Joint Information Center procedures (method for establishing a media center; acquiring event information; monitoring and evaluating media coverage, public concerns, and information needs; developing and approving distribution of statements)
- Training records for public information staff (schedule and participation)
- MOAs, MOUs, etc. with offsite agencies related to the JIC activation and operation (review contact information, method of communication)
- Other documents related to public awareness (community publications, handouts, advertisements, etc.)
- Drill/Exercise records of news releases with evidence of approval of the initial release; documentation from the JIC; feedback records; technical accuracy of information
- Documentation of program reviews, site lessons learned, and documents that track findings and corrective actions related to the EPI program

Interviews

- Person with overall responsibility for managing the EPI program (review relationships with DOE Field Element, offsite organizations; training; knowledge of public information program procedures; knowledge of site hazards; communication skills) (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10**)
- Person responsible for JIC operations (confirm information shared is accurate and timely and staff clearly and candidly distribute information per procedure) (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10**)
- Person responsible for conducting press conferences/media statements (review communication; training; knowledge of procedures) (**X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10**)
- Local, state, or other Federal agency contacts interfacing with associated public information and awareness activities.

Observations

- During drill/exercise observe public information distribution at the JIC, press conferences to observe if accurate, candid, and timely information is provided to workers, the news media, and the public/social networks to establish fact and avoid misinformation and false speculation
- Site or facility workers to confirm they are informed of emergency plans and planned protective actions prior to any emergency

References

- **DOE G 151.1-3**: *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4**: *Response Elements, Emergency Management Guide*
- **NUREG/CR-6981:** *Assessment of Emergency Response Planning and Implementation for Large Scale*
- **DOE O 151.1D**: *Comprehensive Emergency Management System*

TERMINATION & RECOVERY

M. Termination & Recovery

M.01 – OBJECTIVE

The Emergency Management Program establishes a set of criterion for terminating an Operational Emergency. A set of predetermined criterion for terminating Operational Emergencies is established. The decision to terminate is coordinated with responding organizations and Field Element/Federal Manager as applicable. Organizations, including the DOE Headquarters Watch Office, that have previously been notified of the Operational Emergency receive termination notifications. In addition, there is evidence that best practices (BPs) are being implemented (DOE O 151.1D, Attachment 3, 13; Attachment 4, 14).

M.01.01 CRITERION	✓ Core Facility	✓ DNF Facility	✓ HazMat Facility
A set of predetermined criterion for terminating Operational Emergencies is established.			DOE O 151.1D, Attachment 3, 13.a

M.01.01 LINES OF INQUIRY		
M.01.01.01	Are predetermined procedures/processes in place that include criterion for termination of an Operational Emergency?	DOE O 151.1D, Attachment 3, 13.a.1
M.01.01.02	Do documented termination procedures/processes address when an event can be considered stabilized?	DOE O 151.1D, Attachment 3, 13.a.1
M.01.01.03	Do documented termination procedures/processes include the requirement to not terminate until potential threats to workers, the public, the environment, and national security have been characterized?	DOE O 151.1D, Attachment 3, 13.a.1
M.01.01.04	Does termination occur when conditions no longer meet established emergency categorization criterion and it appears unlikely that conditions with deteriorate?	DOE O 151.1D, Attachment 3, 13.a.1
M.01.01.05 BP	Do the criterion for termination specify that the capabilities of the Emergency Response Organization (ERO) are no longer needed?	DOE G 151.1-4, 10.2
M.01.01.06 BP	Is the documented termination process reviewed and updated periodically?	
M.01.01.07	Is having a draft recovery plan prepared prior to termination included in predetermined criterion?	DOE O 151.1D, 13.b

M.01.02 CRITERION	✗ Core Facility	✓ DNF Facility	✓ HazMat Facility
For Hazardous Materials Facilities, a set of predetermined criterion for terminating Operational Emergencies is established that includes criterion related to emergencies classified as an Alert, Site Area, or General Emergency.			DOE O 151.1D, Attachment 4, 14.a

M.01.02 LINES OF INQUIRY		
M.01.02.01	Is a set of predetermined criterion established for termination of Alert, Site Area, or General Emergencies?	DOE O 151.1D, Attachment 4, 14.a

M.01.02.02	Does the decision to terminate an Alert, Site Area Emergency, or General Emergency include the perceived need for the ERO to remain fully active to monitor and manage the situation?	DOE O 151.1D, Attachment 4, 14.d
M.01.02.03 BP	Does the ERO reduce its support as a result of the decision to terminate?	DOE G 151.1-4, 10.2
M.01.02.04 BP	Is the decision to terminate an Alert, Site Area or General Emergency based on predetermined criterion to be satisfied?	DOE G 151.1-4, 10.2
M.01.02.05	Does the decision to terminate an Operational Emergency not requiring classification (categorized event) include a formal announcement or acknowledgement that the situation is stabilized?	DOE O 151.1D, Attachment 4, 14.d
M.01.02.06 BP	Is the decision to terminate an Operational Emergency based on observables associated with the emergency event or condition?	DOE G 151.1-4, 10.2

M.01.03 CRITERION

Core Facility | DNF Facility | HazMat Facility

The decision to terminate the emergency is coordinated with the responding organizations and the Field Element or appropriate Federal Manager, as applicable.	DOE O 151.1D, Attachment 3, 13.a.2

M.01.03 LINES OF INQUIRY

M.01.03.01	Is a process in place for coordinating the decision to terminate the emergency with responding organizations (e.g., State, Tribal, and local agencies responsible for offsite response) and the Field Element or appropriate Federal Manager?	DOE O 151.1D, Attachment 4, 14.d
M.01.03.02 BP	Does the termination process include coordination with responding organizations for notification of intent to terminate through an advisory that includes • Justification for termination? • Date/time that the termination will be effective? • That the notification will be issued early enough to enable the recipients to discuss the decision and its bases with DOE before it becomes effective?	DOE G 151.1-4, 10.3
M.01.03.03 BP	Has the process for coordinating the termination been demonstrated in drills, exercises, or actual events?	
M.01.03.04 BP	Is a list of responding organizations established for coordination with during an incident?	

M.01.04 CRITERION

Core Facility | DNF Facility | HazMat Facility

Upon termination of the emergency, the Headquarters (HQ) Watch Office and other organizations previously notified are notified.	DOE O 151.1D, Attachment 3, 13.a.3

M.01.04.01	Are processes in place for notifying the Headquarters WatchOffice, and other organizations previously notified, upon termination of the Operational Emergency (categorized and/or classified events)?	DOE O 151.1D, Attachment 3, 13.a.3
M.01.04.02 BP	Has the process for communicating termination of an Operational Emergency to the HQ Watch Office been demonstrated in drills, exercises, or actual events?	

M.02 – OBJECTIVE

The Emergency Management Program has procedures/processes in place to address recovery from Operational Emergencies and resumption of normal operations. A recovery organization that is coordinated with state, local, tribal, and other federal agencies is established as a part of termination activities. A draft recovery plan is developed for restoration to normal operations. Accident investigations are conducted as necessary. In addition, there is evidence that BPs are being implemented (DOE O 151.1D, Attachment 3, 13; DOE O 151.1D, Attachment 4, 14).

M.02.01 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

There is a process/procedure for developing a draft recovery plan that documents the recovery organization that will activate, coordinate, and identify actions necessary for restoration to normal operations, including accident investigation.	DOE O 151.1D, Attachment 3, 13.b

M.02.01 LINES OF INQUIRY

M.02.01.01	Has a documented process been established for the development of a draft recovery plan including specific actions for restoration to normal operations?	DOE O 151.1D, Attachment 3, 13.b
M.02.01.02	Is there a requirement for recovery plans to address communication with state, tribal, local government, and other federal agencies?	DOE O 151.1D, Attachment 3, 13.b.2
M.02.01.03 BP	Do recovery plans address coordination with other organizations?	LL-Kat-WH-01, P61-62; LL-DrEx-DOE-23, P13-14
M.02.01.04	Does the draft recovery plan identify a recovery organization that activates and leads the restoration to normal operations?	DOE O 151.1D, Attachment 3, 13.b
M.02.01.05	When accident investigations are needed, does the recovery plan ensure that accident investigations are conducted according to DOE O 225.1B?	DOE O 151.1D, Attachment 3, 13.b.1;
M.02.01.06 BP	Does the process require that the level of accident assessments and investigations be consistent with the severity of the event?	DOE G 151.1-4, 10.4.4
M.02.01.07 BP	Does the process require that all documentation produced during the emergency response that is potentially useful to accident investigation be collected and organized?	DOE G 151.1-4, 10.4.4
M.02.01.08 BP	Do recovery plan procedures outline the process for collecting and processing all incident- and recovery-related operations documentation for permanent storage as part of the records management program?	DOE G 414.1-2B, 4.4
M.02.01.09 BP	Is a draft recovery plan template available with specific recovery criterion identified to support timely plan development?	

M.02.01.10 BP	Does the draft recovery plan include, as applicable, criterion for protection of workers and the general public from hazardous exposure, exposure guides for recovery personnel, facility accessibility, security considerations, access to protective clothing and equipment, availability of medical assistance, and requirements for establishing the recovery organization?	DOE G 151.1-3, 11

M.02.02 CRITERION

Core Facility — DNF Facility — HazMat Facility

Recovery procedures for Hazardous Material Facilities include dissemination of information to federal, state, tribal, and local organizations regarding the emergency and possible relaxation of public protective actions; planning for decontamination actions; establishment of a recovery organization; development of reporting requirements; and establishment of criterion for resumption of normal operations.	DOE O 151.1D, Attachment 4, 14.c

M.02.02 LINES OF INQUIRY

M.02.02.01	Does the recovery process include communication to federal, state, tribal, and local organizations regarding the emergency and possible relaxation of protective action recommendations?	DOE O 151.1D, Attachment 4, 14c
M.02.02.02	Does the recovery process include plans for decontamination actions?	DOE O 151.1D, Attachment 4, 14.c
M.02.02.03	Does the recovery process include establishment of a recovery organization?	DOE O 151.1D, Attachment 4, 14.c
M.02.02.04 BP	Is there a requirement for recovery plans to identify the following roles as part of the recovery organization: • Recovery Manager to be appointed to coordinate planning and authorize recovery operations? • Offsite liaison for coordinating offsite recovery planning, protecting health and safety of workers and the public, and recommending protective actions to the local, state, and other agencies? • Technical experts for directing post-accident assessment activities? • Public information specialist(s) to deal with inquiries or concerns from employees, the public, and the news media?	DOE G 151.1-4, 10.4.1; LL-Fuku-IAEA-01, P117a; LL-NPEA-DOE-02, P37c; LL-NPEA-DOE-06, P28d
M.02.02.05	Does the recovery process include development of reporting requirements?	DOE O 151.1D, Attachment 4, 14.c
M.02.02.06	Does the recovery plan include criterion for resumption of normal operations?	DOE O 151.1D, Attachment 4, 14.c
M.02.02.07	Is there a requirement to include in recovery plans a means for estimating exposure to hazardous materials, including doses from radioactive materials, and for protecting workers and the general public from exposure during reentry and recovery actions?	DOE O 151.1D, Attachment 4, 14.b
M.02.02.08 BP	Do recovery plans indicate that worker occupational exposure limits are to be complied with per 10 CFR 835.202 or 10 CFR 835.204, or the contractor Radiological Control Manual?	DOE G 151.1-4, 10.4.5
M.02.02.09 BP	Do closure site recovery plans focus on the protection of workers, the public, and the environment and performing Decontamination and Decommissioning activities safely?	DOE G 151.1-1A, 5.4

M.03 – OBJECTIVE

The emergency management program conducts post-incident reporting to identify lessons learned and/or corrective actions from an actual incident or condition. An After-Action Review of the Emergency Operations System (EOS) is developed when the EOS is activated for a categorized (not classified) emergency. An After-Action Report is developed when the EOS is activated for an Operational Emergency (classified as Alert, Site Area, or General Emergency). In addition, there is evidence that BPs are being implemented (DOE O 151.1D, Attachment 3, 13.c).

M.03.01 CRITERION

✓ Core Facility ✓ DNF Facility ✓ HazMat Facility

Post-incident reporting is conducted after actual incidents or conditions occur.	DOE O 151.1D, Attachment 3, 13.c

M.03.01 LINES OF INQUIRY

M.03.01.01	Are lessons learned and/or corrective actions required to be identified and documented in After-Action Reviews after EOS activations for categorized (not classified) Operational Emergencies?	DOE O 151.1D, Attachment 3, 13.c.1
M.03.01.02	Is a performance review required to be documented in an After-Action Report after EOS activations for Operational Emergencies (classified as Alert, Site Area, or General)?	DOE O 151.1D, Attachment 3, 13.c.1
M.03.01.03	Is the After-Action Report for Operational Emergencies required to be submitted to a Field Element Manager or appropriate Federal Manager for further dissemination to the Associate Administrator, Office of Emergency Operations, and Program Secretarial Officer(s)?	DOE O 151.1D, Attachment 3, 13.c.2
M.03.01.04	For an Operational Emergency, is there a process for completing the After-Action Report in conjunction with the Final Occurrence Report in accordance with DOE O 232.2A ?	DOE O 151.1D, Attachment 3, 13.c.2
M.03.01.05 BP	Does the emergency management program require that the Incident Commander or Unified Command assure that after-action reports are completed?	US Department of Homeland Security, National Incident Management System (NIMS), Summary of Major Incident Command System (ICS) Positions
M.03.01.06 BP	Does the post-incident reporting process indicate that after-action reviews/reports are to be used to strengthen future preparedness activities?	NIMS Core, Component 1, B.3.a
M.03.01.07 BP	Are critiques by state, local, federal, or other agencies/organizations required to be requested for inclusion in the after-action reviews/ reports?	NUREG-7195, 4.2.6

M.04 – OBJECTIVE

Termination of an Operational Emergency is optimal per Element X.

M.04.01 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.01 criterion has been assessed			

M.04.01 LINES OF INQUIRY		
M.04.01.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.01 been addressed?	

M.04.02 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.02 criterion has been assessed.			

M.04.02 LINES OF INQUIRY		
M.04.02.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.02 been addressed?	

M.04.03 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.05 criterion has been assessed.			

M.04.03 LINES OF INQUIRY		
M.04.03.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.05 been addressed?	

M.04.04 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.06 criterion has been assessed.			

M.04.04 LINES OF INQUIRY		
M.04.04.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.06 been addressed?	

M.04.05 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.07 criterion has been assessed.			

M.04.05 LINES OF INQUIRY		
M.04.05.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.07 been addressed?	

M.04.06 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.09 criterion has been assessed.			

M.04.06 LINES OF INQUIRY		
M.04.06.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.09 been addressed?	

M.04.07 CRITERION	Core Facility	DNF Facility	HazMat Facility
Element X.01.10 criterion has been assessed.			

M.04.07 LINES OF INQUIRY		
M.04.07.01	In the context of terminating an Operational Emergency, have the LOIs associated with criterion X.01.10 been addressed?	

APPROACH – Termination & Recovery

Below are generic considerations for Element M, including a crosswalk to Element X criterion. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, etc.

Document/Record Reviews

- Emergency Plan(s) and procedures (review content related to emergency termination; review criterion for terminating an Operational Emergency when hazardous material emissions occurred at classified event levels)
- Training records for emergency directors who could make termination declarations (participation, content, schedule)
- Records of actual event termination and recovery (review adequacy of termination documentation and implementation of recovery plans and resource planning; review coordination with offsite agencies)
- Drill and exercise reports (confirm appropriate termination procedures; review recovery plan; review message injects related to termination; memoranda, notifications, and reporting)
- Lessons learned and corrective actions generated at site for termination and recovery

Interviews

- Drill/exercise Emergency Directors to ensure they understand termination procedures **(X.01.02, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Emergency management program manager (assure they understand objectives and criterion related to emergency termination) **(X.01.01, X.01.02, X.01.06, X.01.07, X.01.09, X.01.10)**
- Emergency management program manager (assure they understand objectives and criterion related to recovery planning) **(X.01.01, X.01.02, X.01.06, X.01.07, X.01.09, X.01.10)**
- Training program manager (ensure termination and recovery procedures are appropriately communicated in training) **(X.01.02, X.01.10)**
- Staff responsible for exercise plans (ensure objectives of event termination and recovery training are adequately covered) **(X.01.01, X.01.02, X.01.10)**
- State or local government staff receiving Operational Emergency termination notice (communications effectiveness)

Observations

- Exercise/Drill – termination only after the Operational Emergency criterion was met and termination coordinated with offsite response agencies
- Exercise/Drill – recovery from a terminated Operational Emergency (communications and coordination with offsite organizations, including health and safety considerations for workers and the public)
- Training events related to termination and recovery
- Communication of onsite-only event termination
- Communication of event termination to offsite responders
- Communication of event termination to the Incident Command

References

- **10 CFR 835:** *Occupational Radiation Protection Program*
- **DOE G 151.1-1A:** *Emergency Management Fundamentals and the Operational Emergency Base Program, Emergency Management Guide*
- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 225.1B:** *Accident Investigations*
- **DOE O 232.2A:** *Occurrence Reporting and Processing of Operations Information*
- **DOE O G 414.1-2B:** *Quality Assurance Program Guide*
- **NIMS Core:** *US Department of Homeland Security, National Incident Management System (NIMS), Summary of Major Incident Command System (ICS) Positions*
- **NUREG-7195:** *Risk-Informed and Performance-Based Oversight of Radiological Emergency Response Programs*

READINESS ASSURANCE

N. Readiness Assurance

N.01 – OBJECTIVE

The emergency management program provides for a formal Readiness Assurance Program that establishes a framework and associated mechanisms for assuring that emergency plans, procedures, and resources are sufficiently maintained, exercised, and evaluated. Evaluation results and lessons learned are used to continually improve the ability of the site to plan for and effectively implement an effective response to emergencies. The response achieves a priority for worker and public safety and endeavors to achieve environment and property protection. The Emergency Readiness Assurance Plan includes emergency management program goals and highlights program status. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 3, 14)

N.01.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Self and external assessments are conducted as a part of the emergency management program evaluation process.			DOE O 151.1D, Attachment 3, 14.a

N.01.01 LINES OF INQUIRY		
N.01.01.01	Are annual self-assessments conducted on the emergency management program elements?	DOE O 151.1D, Attachment 3, 14.a.(1)(a); DOE O 414.1D, Criterion 9
N.01.01.02 BP	Is there a self-assessment schedule that shows all program elements will be evaluated in full within a 5-year period?	
N.01.01.03	Do self-assessments evaluate an aspect of each program element on an annual basis, with all elements and associated aspects being completed over a 5-year period?	DOE O 151.1D, Attachment 3, 14.a.(1)(a)
N.01.01.04 BP	Does the assessment documentation describe the requirements, the program elements to be assessed, the assessors, the methods of assessment, and the results of the assessment?	DOE G 414.1-1C, 4.2; LL-DrEx-DOE-22, P14b
N.01.01.05 BP	Are self-assessments conducted by different people over a 5-year period for varying viewpoints and observations?	
N.01.01.06 BP	Are external assessors requested to conduct a self-assessment within a 5-year period as a best practice?	
N.01.01.07 BP	Does the self-assessment process include/result in an indicator of the overall performance of the program?	LL-DrEx-DOE-06, P11-12; LL-DrEx-DOE-20, P13b
N.01.01.08	Are program elements that are validated through exercises, in lieu of an assessment, clearly identified in the evaluation process documentation?	DOE O 151.1D, Attachment 3, 14.a.(1)(a)
N.01.01.09	Are self-assessments based on the complexity of the program?	DOE O 151.1D, Attachment 3, 14.a.(1)(a)
N.01.01.10	Is DOE supported during conduct of external assessments?	DOE O 151.1D, Attachment 3, 14.a.(1)(a)
N.01.01.11 BP	Do assessment outcomes result in changes, as needed, to emergency plans, procedures, emergency response activities, and resources?	

Exercises test and validate emergency plans and procedures.		DOE O 151.1D, Attachment 3, 14.a

N.01.02 CRITERION — LINES OF INQUIRY

Core Facility | HazMat Facility | DNF Facility

N.01.02.01	Are measures are taken to ensure exercises test and validate emergency plans and procedures?	DOE O 151.1D, Attachment 3, 14.a; LL-DrEx-DOE-07, P13-14
N.01.02.02	Are exercise scenarios rotated annually so different hazards and risks identified in the all-hazards planning basis are tested every year?	DOE O 151.1D, Attachment 3, 14.a.(2)(b)
N.01.02.03	Is the exercise program consistent with Homeland Security Exercise and Evaluation Program (HSEEP) criteria and terminology?	DOE O 151.1D, Attachment 3, 14.a.(2)(a)
N.01.02.04 BP	Are exercises conducted and evaluated according to an approved exercise plan and associated documents?	DOE G 151.1-3, 3
N.01.02.05 BP	Do exercise preparations include timely invitations extended to offsite organizations, onsite non-DOE organizations, and DOE Headquarters, as well as plans to evaluate the effectiveness of their participation?	LL-NPEA-DOE-07, P34d; LL-NPEA-DOE-07, P34b; LL-NPEA-DOE-04, P30-31; LL-DrEx-DOE-21, P16a
N.01.02.06 BP	Are first responder agencies invited to participate in exercises?	DOE G 151.1-3, 3.10.1; LL-DrEx-DOE-22, P15-16
N.01.02.07 BP	Are provisions in place to provide for the safety and security of participants while an exercise is ongoing?	DOE G 151.1-3, 3.9; LL-DrEx-DOE-04, P26c
N.01.02.08 BP	Is exercise participation documented?	DOE G 151.1-3, 3.12.2, LL-DrEx-DOE-20, P13d
N.01.02.09 BP	Are onsite and offsite medical emergency response personnel offered the opportunity for participation in exercises?	DOE G 151.1-4, 8.6.2
N.01.02.10 BP	Do exercises include the receipt of patients at offsite facilities, if possible?	DOE G 151.1-4, 8.6.2

N.01.03 CRITERION

Core Facility | HazMat Facility | DNF Facility

Exercises are conducted at least annually.		DOE O 151.1D, Attachment 3, 14.a

N.01.03 LINES OF INQUIRY

N.01.03.01	Are exercises conducted at least annually?	DOE O 151.1D, Attachment 3, 14.a
N.01.03.02	Is the exercise schedule submitted to the Field Element Manager or appropriate Federal Manager as it is created and updated?	DOE O 151.1D, Attachment 3, 14.a.(2)(c)

Exercises plans are developed.		DOE O 151.1D, Attachment 3, 14.a

N.01.04 CRITERION INQUIRY		Core Facility	HazMat Facility	DNF Facility
N.01.04.01	Is an exercise plan prepared and submitted to the Field Element Manager for approval at least 30 days prior to the exercise?			DOE O 151.1D, Attachment 3, 14.a.(2)(d) & (e)
N.01.04.02 BP	Is an exercise plan developed that includes an introduction, scope, participating agencies, logistics, simulations, limitations, technical information, master scenario events list, scenario narrative, message injects, and safety concerns?			DOE G 151.1-3, 3.7.2; LL-DrEx-DOE-10, P20d; LL-DrEx-DOE-14, P19-21; LL-DrEx-DOE-14, P18-19; LLo-DrEx-DOE-16, P15; LL-DrEx-DOE-21, P16b; LL-DrEx-DOE-21, P17b
N.01.04.03 BP	Does each exercise have specific objectives that are fully documented?			DOE G 151.1-3, 4.3.1
N.01.04.04 BP	Does the exercise plan include a rehearsal?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.05 BP	Is exercise planning effectively coordinated among onsite and offsite organizations or groups regarding their respective participation and exercise objectives?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.06 BP	Are any limitations or simulations regarding onsite and offsite participation identified and documented?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.07 BP	Does the exercises plan include: specific exercise objectives, scope, scenario, participants, simulations, time lines, injects (i.e., messages), technical data, safety and security provisions, controller instructions, and evaluation criteria?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.08 BP	Is the exercise plan completed in sufficient time before the conduct of the exercise to allow for review and comments by management and oversight agencies (e.g., DOE or NNSA line management)?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.09 BP	Does the exercise plan contain sufficient information for effective conduct, control, and evaluation of the exercise?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.10 BP	Does the exercise plan clearly address the roles, responsibilities, and interfaces among exercise participants (i.e., players/responders, controllers, evaluators, and observers)?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.11 BP	Does the exercise plan clearly identify the provisions for exercise conduct and control?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.12 BP	Do specific exercise objectives in the exercise plan provide the basis for evaluating/validating the performance of response capabilities by each participating organization?			DOE G 151.1-3, 4.3.1, Appendix C
N.01.04.13 BP	Are exercise scenarios consistent with the set of exercise objectives and are they written to explicitly support an evaluation/validation of each objective?			DOE G 151.1-3, 4.3.1, Appendix C

		✓	✓	✓
	Exercises are evaluated to include findings, issues, and improvement items.			DOE O 151.1D, Attachment 3, 14.a.(2)(f)

N.01.05 CRITERION INQUIRY		Core Facility	HazMat Facility	DNF Facility
N.01.05.01	Is an exercise after-action report prepared upon completion of the exercise that include the results of the evaluation, findings, issues, and areas for improvement?			DOE O 151.1D, Attachment 3, 14.a.(2)(f)
N.01.05.02 BP	Are responders trained on their role before they are subjected to evaluation during an exercise?			LL-DrEx-DOE-14, P18-19
N.01.05.03 BP	Is there a mechanism to obtain participant feedback after an exercise?			DOE G 151.1-3, 3.11.3; LL-DrEx-DOE-19, P19a; LL-DrEx-DOE-14, P10-11; LL-DrEx-DOE-07, P6
N.01.05.04 BP	Is a critique held after the exercise to identify strengths, weaknesses, and opportunities for improvements?			DOE G 151.1-3, 3.11.3
N.01.05.05 BP	Are controller and evaluator handbooks available that describe the controller and evaluator roles and responsibilities?			DOE G 151.1-3, 3.7.3
N.01.05.06 BP	Are controller and evaluator packets provided to controllers and evaluators prior to an exercise?			DOE G 151.1-3, 3.7.3
N.01.05.07 BP	Are evaluation guides developed for use by controllers and evaluators?			DOE G 151.1-3, 3.7.3; LL-DrEx-DOE-16, P15a; LL-DrEx-DOE-22, P16c
N.01.05.08 BP	Do evaluation guides incorporate the critical tasks that should be completed in an exercise?			DOE G 151.1-3, 3.7.3
N.01.05.09 BP	Do evaluation guides provide evaluators with information on what they should expect to see at specific locations or in specific situations?			DOE G 151.1-3, 3.7.3
N.01.05.10 BP	Are controllers and evaluators trained on providing exercise feedback?			DOE G 151.1-3, 3.9.1; LL-DrEx-DOE-16, P15b; LL-DrEx-DOE-21, P16-17; LL-DrEx-DOE-13, P17-18b; LL-DrEx-DOE-19, P18-19
N.01.05.11	Is an exercise after-action report submitted to the Field Element Manager or appropriate Federal Manager within 45 days?			DOE O 151.1D, Attachment 3, 14.a.(2)(f)
N.01.05.12	Are exercise lessons learned developed and incorporated into an established (site-, facility- or activity-wide) lessons learned program?			DOE O 151.1D, Attachment 3, 14.b.(2)(a)
N.01.05.13 BP	Are medical subject matter experts invited to participate in exercises as evaluators?			DOE G 151.1-4, 8.6.2
N.01.05.14 BP	Are corrective actions developed by medical professionals to improve emergency medical support?			DOE G 151.1-4, 8.6.2
N.01.05.15 BP	Are exercise evaluation criteria (facility-, site- or activity-specific) based on existing plans and procedures, and do they correlate with the exercise objectives?			DOE G 151.1-3, Appendix C

		✓	✓	✓

	Emergency Management Hazardous Materials Programs establish and maintain a site-level exercise program that validates its emergency response capability to the hazards identified in emergency planning hazards assessments (EPHAs).	DOE O 151.1D, Attachment 4, 15

N.01.06 CRITERION N.01.06 LINES OF INQUIRY		Core Facility	HazMat Facility	DNF Facility
N.01.06.01	Is a formal exercise program developed based on the hazards identified in EPHAs?			DOE O 151.1D, Attachment 4, 15.a
N.01.06.02	Is a matrix that identifies planned exercises over the next 5 years and elements tested included as a part of the exercise program?			DOE O 151.1D, Attachment 4, 15.a.(2)4, 15.a.(1),(2) and (4)
N.01.06.03	Does the exercise program show that Technical Planning Basis/EPHA scenarios are rotated?			DOE O 151.1D, Attachment 4, 15.a.(2)
N.01.06.04	Are challenging exercise scenarios developed that include high consequences, multiple response elements, and result in offsite effects?			DOE O 151.1D, Attachment 4, 15.b
N.01.06.05	Are radiological hazardous materials scenarios included, if applicable?			DOE O 151.1D, Attachment 4, 15.a.(3)
N.01.06.06	Is a method for determining the appropriate number of exercises, and rotation of exercise scenarios among hazardous material facilities over a 5 year period, in place to ensure demonstration of responder proficiency?			DOE O 151.1D, Attachment 4, 15.a.(4) and (9)
N.01.06.07	Does the exercise program include a process for inviting offsite responding agencies and national assets, (e.g., Centers for Disease Control, Department of Agriculture, etc.) to participate at least every three years?			DOE O 151.1D, Attachment 4, 15.a.(5); DOE O 151.1D, Attachment 4, 15.d
N.01.06.08	When offsite response organizations are invited to participate, is it for different scenarios (not the same facility or type of incident each time) and is it for a full-scale/participation exercise that includes demonstration of protective actions?			DOE O 151.1D, Attachment 4, 15.d
N.01.06.09	Within the last 5-year period, was a severe event scenario (based on EPHAs) exercised that involved a release of hazardous materials at more than one facility/activity and disruption to site infrastructure (e.g., power, telecommunications, roadways, significant delay of mutual aid)?			DOE O 151.1D, Attachment 4, 15.a.(6); DOE O 151.1D, Attachment 4, 15.e
N.01.06.10 BP	Do severe event scenarios include a mass casualty component periodically?			LL-NPEA-DOE-02, P39a; LL-DrEx-DOE-08, P6a; LL-NPEA-DOE-02, P37d; LL-NPEA-DOE-03, P33e
N.01.06.11	Are design control and/or mitigation features in multiple facilities tested periodically?			DOE O 151.1D, Attachment 4, 15.a.(7)
N.01.06.12	Is the integrated emergency response organization (ERO) capability tested and demonstrated through an annual full-scale, site-level exercise that involves site-level ERO elements and resources?			DOE O 151.1D, Attachment 4, 15.a.(8); DOE O 151.1D, Attachment 4, 15.c
N.01.06.13	Are requests for Radiological Emergency Response Assets made to the Director, Office of Nuclear Incident Response, no less than 6 months prior to the exercise?			DOE O 151.1D, Attachment 4, 15.g

	Readiness assurance programs include performance indicators.	DOE O 151.1D, Attachment 3, 14.a.

N.01.07 CRITERION

Core Facility | HazMat Facility | DNF Facility

N.01.07 LINES OF INQUIRY

N.01.07.01	Are performance indicators identified and used to improve emergency management program activities?	DOE O 151.1D, Attachment 3, 14.a.(3)
N.01.07.02 BP	Are performance indicators reassessed and adjusted due to exercise and/or assessment outcomes?	DOE G 151.1-3, 4.8
N.01.07.03 BP	Do performance indicator results identify program weaknesses and strengths?	DOE G 151.1-3, 4.8
N.01.07.04 BP	Are performance indicators for the emergency management program integrated with contractor management or other organizations assurance programs?	DOE G 120.1-5, 4
N.01.07.05 BP	Are performance indicators used in obtaining financial and other program-related resources when results identify areas of weakness (e.g., additional staff to fulfill requirements, funding to procure new or replacement equipment) when applicable?	
N.01.07.06 BP	Have performance indicators been identified for each emergency management program element or specific aspects of selected emergency management activities?	DOE G 151.1-3, 4.8
N.01.07.07 BP	Was DOE G 120.1-5, Guidelines for Performance Measurement, used in the development of emergency management performance indicators?	DOE G 151.1-3, 4.8
N.01.07.08 BP	Is there a “Fix the Process, Not the Blame” attitude taken when performance indicator results are below desired levels?	DOE G 120.1-5, Part 3

N.01.08 CRITERION

Core Facility | HazMat Facility | DNF Facility

	Improvements are identified through corrective action and lessons learned programs.	DOE O 151.1D, Attachment 3, 14.b

N.01.08 LINES OF INQUIRY

N.01.08.01	Is there a documented corrective actions program?	DOE O 151.1D, Attachment 3, 14.b (1)(a)
N.01.08.02 BP	Are corrective actions developed for findings identified during evaluations, assessments, drills, exercises, and actual emergencies?	DOE G 151.1-3, 4.8
N.01.08.03 BP	Do corrective actions identify the expected action, the observed or identified action, the impact of an incorrect action, and the action needed to correct the error or weakness?	DOE G 151.1-3, 4.8
N.01.08.04	Are the corrective actions tracked to completion using a formal tracking system?	DOE O 151.1D, Attachment 3, 14.b(1)(b); DOE G 120.1-5

N.01.08.05	Are corrective actions plans developed for findings within 45 calendar days of the assessment report or after-action report, and do those plans include actions to take, due dates, and assignees?	DOE O 151.1D, Attachment 3, 14.b.(1)(c)
N.01.08.06	Are corrective action plans for findings from federally directed or external assessment submitted for approval to the Field Element Manager or appropriate Federal Manager?	DOE O 151.1D, Attachment 3, 14.b.(1)(d)
N.01.08.07	Are corrective action plans for findings from contractor-initiated assessments provided to the Field Element Manager or appropriate Federal Manager upon request?	DOE O 151.1D, Attachment 3, 14.b.(1)(e)
N.01.08.08 BP	Are corrective actions successfully validated for closure?	DOE G 151.1-3, P5.14; LL-DrEx-DOE-13, P16a; LL-DrEx-DOE-14, P18; LL-DrEx-DOE-19, P19d; LL-DrEx-DOE-20, P12; LL-DrEx-DOE-22, P16c; LL-DrEx-DOE-21, P17c
N.01.08.09 BP	Is a person independent of those who performed the corrective action responsible for verification and validation of the corrective action?	DOE G 151.1-3, P5.14
N.01.08.10 BP	Are corrective actions completed as soon as possible?	DOE G 151.1-3, P5.13
N.01.08.11 BP	Are corrective actions addressing revision of procedures or training of personnel completed before the next annual self-assessment of the program?	DOE G 151.1-3, P5.13
N.01.08.12 BP	Is there a documented lessons learned program?	DOE G 151.1-3, 4.3.2
N.01.08.13	Is there a system for incorporating and/or tracking lessons learned from training, drills, actual responses, and other lessons learned programs?	DOE O 151.1D, Attachment 3, 14.b.(2)(a)
N.01.08.14	Are lessons learned developed and handled according to DOE O 210.2A, DOE Corporate Operating Experience Program, requirements?	DOE O 151.1D, Attachment 3, 14.b.(2)(b); DOE O 210.2A
N.01.08.15	Is there an established process for review and implementation of lessons learned and BPs from the Office of Enterprise Assessments annual lessons learned report?	DOE O 151.1D, Attachment 3, 14.b.(2)(c)
N.01.08.16 BP	Are appropriate lessons learned and best practices from the Office of Enterprise Assessments annual lessons learned report used for emergency management program improvement?	DOE G 151.1-3, 4.3.2

N.01.09 CRITERION

✓ Core Facility ✓ HazMat Facility ✓ DNF Facility

The Emergency Readiness Assurance Plan (ERAP) is developed using the format and content template provided by Program Secretarial Officer to highlight program status and detail future plans.	DOE O 151.1D, Attachment 3, 14.a

N.01.09 LINES OF INQUIRY

N.01.09.01	Are the format and content guidelines provided by the Program Secretarial office used for developing the ERAP?	DOE O 151.1D, Attachment 3, 14.c.(1)

N.01.09.02	Does the ERAP include significant changes occurring in the emergency management program (e.g., all-hazards planning basis, organizations, and exemptions)?	DOE O 151.1D, Attachment 3, 14.c.(1)(a)
N.01.09.03 BP	Is the ERAP used as a planning tool to identify and develop needed resources and improvements?	DOE G 151.1-3, 4.3.3
N.01.09.04	Is a summary of the Threat and Hazard Identification and Risk Assessment (THIRA) included in the ERAP?	DOE O 151.1D, Attachment 3, 14.c.(1)(b)
N.01.09.05	Are evaluation results and the status (e.g., open/unresolved or closes) of associated corrective actions identified in the ERAP?	DOE O 151.1D, Attachment 3, 14.c.(1)(c)
N.01.09.06 BP	Are results of emergency preparedness activities, external evaluations/assessments, self-assessment activities, exercise after-action reports, corresponding corrective action plans, improvements based on the lessons learned program, and summary information about the facility/site or activity emergency management program also included in the ERAP?	DOE G 151.1-3, 4.3.3
N.01.09.07	Does the ERAP describe the goals from the previous fiscal year and the degree to which those goals were accomplished?	DOE O 151.1D, Attachment 3, 14.c.(1)(d)
N.01.09.08	Does the ERAP identify the goals for the upcoming fiscal year?	DOE O 151.1D, Attachment 3, 14.c.(1)(e)
N.01.09.09 BP	When ERAP goals are developed are opportunities for improvement identified in assessments and exercises considered?	DOE G 151.1-3, 4.3.3
N.01.09.10 BP	Is the ERAP reviewed for classified or controlled information prior to submittal?	DOE G 151.1-3, 4.3.3
N.01.09.11	Is the ERAP submitted to the field element manager for approval by October 15 of each year?	DOE O 151.1D, Attachment 3, 14.c.(1)(f); DOE O 151.1D, Attachment 3, 14.c.(2)

N.02 – OBJECTIVE

Defense Nuclear Facilities with Emergency Management Hazardous Material Programs establish and maintain a site-level exercise program that validates that its emergency response capability is commensurate with the hazards identified in EPHAs. Specific participants, scope of evaluations, and Federal asset participation are parts of the exercise program. Formal corrective action plans and causal analyses are conducted for identified findings. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4, 15)

N.02.01 CRITERION

Core Facility: ✗ HazMat Facility: ✗ DNF Facility: ✓

DNF exercises include staff from operations, emergency management, and incident command, and involve Radiological Emergency Response Assets.	DOE O 151.1D, Attachment 4, 15.h and i

N.02.01 LINES OF INQUIRY

N.02.01.01	Are operations, emergency management, and incident command staff involved in annual exercises?	DOE O 151.1D, Attachment 4, 15.h
N.02.01.02	Are elements of the Emergency Operations Center (EOC) staff included for Operational Emergency exercises?	DOE O 151.1D, Attachment 4, 15.h.1
N.02.01.03	Regardless of the scope or mechanism of the exercise, are operations, emergency management, incident command, and EOC staff evaluated for continuous improvement?	DOE O 151.1D, Attachment 4, 15.h.2
N.02.01.04	Is one or more of the Department's Radiological Emergency Response Assets involved in an exercise no less than once every 3 years?	DOE O 151.1D, Attachment 4, 15.i
N.02.01.05	Are requests for Radiological Emergency Response Assets made to the Director, Office of Nuclear Incident Response, no less than 6 months prior to the exercise?	DOE O 151.1D, Attachment 4, 15.i

N.02.02 CRITERION

Core Facility: ✗ HazMat Facility: ✗ DNF Facility: ✓

A formal corrective action plan is developed and approved by the Field Element Manager for identified findings resulting from DNF exercises.	DOE O 151.1D, Attachment 4, 15.j

N.02.02 LINES OF INQUIRY

N.02.02.01	Is a causal analysis used to determine corrective actions for findings identified as a result of noncompliance for life safety?	DOE O 151.1D, Attachment 4, 15.j.(1)
N.02.02.02	Is a formal corrective action plan developed for identified findings?	DOE O 151.1D, Attachment 4, 15.j.(2)
N.02.02.03 BP	Do corrective action plans identify the extent and prevalence of the same or similar problem areas?	DOE G 151.1-3, 4.3.2
N.02.02.04	Is the formal corrective action plan submitted the Field Element Manager for approval and tracking through implementation?	DOE O 151.1D, Attachment 4, 15.j.(2)
N.02.02.05 BP	Are corrective actions submitted to the Field Element Manager also tracked by the contractor?	
N.02.02.06	Is the effectiveness of corrective actions verified and validated by an independent reviewer?	DOE O 151.1D, Attachment 4, 15.j.(3)

N.02.02.07	Are compensatory measures for findings identified until a causal analysis is performed and corrective actions are identified and implemented?	DOE O 151.1D, Attachment 4, 15.j.(4)
N.02.02.08 BP	Do trained causal analysts conduct the causal analysis for the emergency management program?	DOE M 231.1-2, 5.9; DOE-NE-STD-1004-92, 3

N.03 – OBJECTIVE

Readiness Review performance is optimal per Element X.

N.03.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.01 criterion has been assessed.			

N.03.01 LINES OF INQUIRY		
N.03.01.01	In the context of emergency management readiness review processes, have the LOIs associated with criterion X.01.01 been addressed?	

N.03.02 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.02 criterion has been assessed.			

N.03.02 LINES OF INQUIRY		
N.03.02.01	In the context of emergency management readiness review processes, have the LOIs associated with criterion X.01.02 been addressed?	

N.03.03 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.05 criterion has been assessed.			

N.03.03 LINES OF INQUIRY		
N.03.03.01	In the context of emergency management readiness review processes, have the LOIs associated with criterion X.01.05 been addressed?	

N.03.04 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.06 criterion has been assessed.			

N.03.04 LINES OF INQUIRY		
N.03.04.01	In the context of emergency management readiness review processes, have the LOIs associated with criterion X.01.06 been addressed?	

	✓	✓	✓

Element X.01.07 criterion has been assessed.	

N.03.05 LINES OF INQUIRY N.03.05 CRITERION		Core Facility	HazMat Facility	DNF Facility
N.03.05.01	In the context of the emergency response organization, have the LOIs associated with criterion X.01.07 been addressed?			

N.03.06 CRITERION	Core Facility	HazMat Facility	DNF Facility
	✓	✓	✓

Element X.01.09 criterion has been assessed.	

N.03.06 LINES OF INQUIRY		
N.03.06.01	In the context of the emergency response organization, have the LOIs associated with criterion X.01.09 been addressed?	

N.03.07 CRITERION	Core Facility	HazMat Facility	DNF Facility
	✓	✓	✓

Element X.01.10 criterion has been assessed.	

N.03.07 LINES OF INQUIRY		
N.03.07.01	In the context of the emergency response organization, have the LOIs associated with criterion X.01.10 been addressed?	

APPROACH – Readiness Assurance

Below are generic considerations for Element N, including a crosswalk to Element X criteria. Readiness Assurance provides a framework and associated mechanisms for assuring that emergency plans, implementing procedures, and resources are adequate by ensuring that they are sufficiently developed, maintained, exercised, and evaluated. Appropriate and timely improvements are made to the program through planning, resource allocation, training, and evaluations. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, and other information.

Document/Record Reviews

- Site Emergency Readiness Assurance Plan(s) (confirm format and content for ERAP; documentation is based on emergency planning activities; and results of implementation)
- Other documents (policies, emergency plan implementing procedures [EPIPs], etc.) indicating duties, responsibilities, authorities, staffing, documenting performance measures, and self-assessments
- Annual self-assessment reports
- Performance Indicators and program reports (objectives clear, measures and metrics rigorous; results sent to upper DOE management)
- Schedule of exercises and exercise objectives (confirm rotation of goals, events, timing, exercise with Federal resources)
- Exercise plan/package documentation, including Exercise Evaluation Guides (confirm planning and conducting of exercises)
- Controller and evaluator documentation
- Exercise after-action reports (timeliness, evidence of continuous improvement)
- Documentation of program reviews, self-assessments, corrective actions, and documents that analyze and track findings and corrective actions related to Readiness Assurance and corrective action effectiveness (timeline of corrective action plans and implementation/verification; training implemented in response to lessons learned/corrective actions)
- Effectiveness reviews, independent verification and validation reports for corrective actions
- Hazards Survey, EAL, EPHA, THIRA, Exercise scenarios, etc. (confirm ERAP and site lessons learned/corrective action programs are consistent with site hazards)
- Training records for persons conducting causal analysis
- Lessons learned/corrective action program reporting procedure

Interviews

- Person with overall responsibility for readiness assurance program and delegates **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person(s) responsible for developing, documenting, tracking, monitoring performance indicators **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person responsible for the Exercise Plan for the site
- Person responsible for conducting exercises
- Exercise participants (onsite and offsite)
- Person(s) responsible for lessons learned and corrective action programs (capturing and documenting improvements; developing corrective actions; completion of independent verification/validation of corrective action either during an exercise or as part of routine operations with hazardous material/energy/infrastructure; causal analyses) **(X.01.01, X.01.02, X.01.03, X.01.05, X.01.06, X.01.07, X.01.09, X.01.10)**
- Person(s) responsible for classified material information (e.g., exercise planning and conduct, lessons learned, corrective actions, ERAP)

Observations

- Exercise planning
- Conduct of an exercise
- Exercise critique
- Corrective action development process

References

- **DOE G 120.1-5:** *Guidelines for Performance Measurement*
- **DOE G 151.1-3:** *Programmatic Elements, Emergency Management Guide*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE G 414.1-1C:** *Management and Independent Assessments Guide*
- **DOE M 231.1-2:** *Occurrence Reporting and Processing of Operations Information*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 210.2A :** *DOE Corporate Operating Experience Program*
- **DOE O 414.1D:** *Quality Assurance*
- **DOE-NE-STD-1004-92:** *Root Cause Analysis Guidance Document*
- **HSEEP:** *Homeland Security Exercise and Evaluation Program*

CONSEQUENCE ASSESSMENT

O. Consequence Assessment

O.01 – OBJECTIVE

Timely and accurate estimates of onsite and offsite consequences from a hazardous material release can be made during all phases of an emergency. The consequence assessment output incorporates site-specific characteristics including release information and meteorology; and models are appropriate for the types of potential hazardous releases per the All-Hazards Planning Basis/Technical Planning Basis. Emergency response decisions can be promptly tailored to the consequence assessment results. In addition, there is evidence that best practices (BPs) are being implemented. (DOE O 151.1D, Attachment 4, 10.a,b,c,d)

O.01.01 CRITERION	Core Facility	HazMat Facility	DNF Facility
Consequence assessors have the capability to quickly evaluate the onsite and offsite consequences of a hazardous material release throughout the emergency.		DOE O 151.1D, Attachment 4, 10; DOE 153.1, Attachment 2	

O.01.01 LINES OF INQUIRY		
O.01.01.01	Can consequence assessors quickly evaluate the onsite and offsite consequences of a hazardous material release throughout an emergency?	DOE O 151.1D, Attachment 4, 10
O.01.01.02	Are provisions and resources in place to conduct a timely initial assessment with the worst-case source term from the emergency planning hazards assessment (EPHA)?	DOE O 151.1D, Attachment 4, 10.b
O.01.01.03	Are provisions and resources in place to conduct a timely initial assessment using current meteorological conditions and the actual source term based on known incident conditions from observations and indicators?	DOE O 151.1D, Attachment 4, 10.b
O.01.01.04 BP	Are sufficient resources available to support the development of the initial consequences for hazardous material releases that are needed to corroborate or develop Protective Action Recommendations (e.g., within 30–60 minutes of initial emergency action level [EAL] selection)?	DOE G 151.1-4, 6; LL-DrEx-DOE-08, P8b; LLo-DrEx-DOE-13, P18; LL-DrEx-DOE-11, P6a
O.01.01.05	Can consequence assessors update assessments in a continual, timely manner as the event progresses and more information becomes available (e.g., field data, source term)?	DOE O 151.1D, Attachment 4, 10.a
O.01.01.06	Are facility and field indications and measurements provided as required per the Emergency Management Plan?	DOE O 151.1D, Attachment 4, 10.a.2
O.01.01.07 BP	Are up-to-date documents that provide source terms and other information related to postulated events readily available to consequence assessors for use during an emergency response (e.g., EPHAs Fire Hazards Analyses, Documented Safety Analysis and applicable calculations)?	DOE G 151.1-4, 6; DOE O 420.1C, Attachment 2, Chapter II, 3.f.1
O.01.01.08 BP	Are up-to-date documents that provide source terms and other information related to potential events readily available to facility staff for use during an emergency (e.g., Fire Hazards Analyses, Documented Safety Analysis and applicable calculations)?	DOE G 151.1-4, 6; DOE O 420.1C, Attachment 2, Chapter II, 3.f.1

O.01.01.09	Do consequence assessors have information available to guide their assessments of consequences at specific locations (e.g., distances and directions to hospitals, incident command posts)?	DOE G 151.1-4, 6; LL-DrEx-DOE-12, P20
O.01.01.10	Can consequence assessors quickly communicate consequences and plume characteristics in accordance with the site emergency plan (e.g., display projected plume dispersion on regional maps based on real-time, site-specific meteorology; show direction of plume overlaying area map, show potential changes in plume direction where downwind directions change from those at the release site)?	DOE G 151.1-4, 6; LL-DrEx-DOE-06, P6-7; LL-DrEx-DOE-07, P7; LL-DrEx-DOE-08, P8-9; LL-DrEx-DOE-11, P8d; LL-DrEx-DOE-14, P12-13
O.01.01.11	Do consequence assessors have the ability to make timely assessments for protective action decisions when multiple facility releases are involved?	DOE G 151.1-4, 4.6.4; DOE G 151.1-2, 1.9; LL-NPEA-DOE-02, P36

O.01.02 CRITERION

Core Facility ✗ HazMat Facility ✓ DNF Facility ✓

Tools and resources used by consequence assessors generate timely and appropriate products.	

O.01.02 LINES OF INQUIRY

O.01.02.01	Are plume projection products developed as a part of the consequence assessment?	DOE O 151.1D, Attachment 4, 10.e.1
O.01.02.02 BP	Can projection tools be run with new data within 15 minutes of starting the previous model run?	DOE G 151.1-4, 6
O.01.02.03	Are the distances to which protective action criteria (PAC) are exceeded available to aid in protective action decision-making for workers and first responders?	DOE O 151.1D, Attachment 4, 10.e.2
O.01.02.04	Are the distances to which PAC is exceeded available to establish the basis for initial field monitoring activities?	DOE O 151.1D, Attachment 4, 10.e.2
O.01.02.05 BP	Do Emergency Operations Center (EOC) environmental dispersion model job aids facilitate timely evaluations (e.g., by having timely manual or automatic access to “canned” worst-case source terms)?	
O.01.02.06 BP	Can worst-case release scenarios be readily scaled for current conditions (e.g., is there an automatic source term scaling option in some of key models that are used for consequence assessment)?	LL-DrEx-DOE-16, P14-15
O.01.02.07 BP	Within the suite of available consequence assessment tools, is there an ability to model all important potential airborne release pathways and hazardous material releases as identified in the All-Hazards Planning Basis (e.g., the ability to model airborne plumes of radiological materials, hazardous chemicals, heavier than air chemicals [e.g., chlorine], biological toxins).	DOE G 151.1-4, 6
O.01.02.08 BP	Is there an ability to model the bulk release of liquid releases to rivers and other key water bodies if such environment pathways exist for the Site?	DOE G 151.1-4, 6; HIAR-SNL-2011-08-25, P2; LL-DrEx-DOE-11, P8c

	Consequence assessors are capable of performing comparable functions at alternate EOCs as at primary EOCs.	DOE O 151.1D, Attachment 4, 11.b

O.01.03 CRITERION — Core Facility — HazMat Facility — DNF Facility

O.01.03 LINES OF INQUIRY

O.01.03.01	Are consequence assessment capabilities comparable to that of the primary EOC if the primary EOC is not available?	DOE O 151.1D, Attachment 4, 11.b
O.01.03.02 BP	At the alternate EOC, can event and meteorological data be obtained as readily as at the primary EOC)?	
O.01.03.03 BP	At the alternate EOC, is a comparable set of consequence assessment tools available as in the primary EOC?	LL-NPEA-DOE-09, P29a
O.01.03.04 BP	At the alternate EOC, are up-to-date EPHAs and other applicable resource materials readily available to consequence assessors (e.g., so they can obtain distances at which event specific PACs may be exceeded, etc.)?	HIAR-SNL-2011-08-25. P2; LL-DrEx-DOE-02, P11a; LL-NPEA-DOE-02, P36; LL-NPEA-DOE-02, P39c; LL-DrEx-DOE-14, P6-7

O.01.04 CRITERION — Core Facility — HazMat Facility — DNF Facility

	Resources used for consequence assessment, atmospheric dispersion modeling, and field monitoring have had appropriate levels of quality assurance performed in accordance with DOE O 414.1D requirements.	DOE O 414.1D;

O.01.04 LINES OF INQUIRY

O.01.04.01	Are consequence assessment and atmospheric dispersion modeling resources identified and maintained in accordance with the Emergency Readiness Assurance Plan and appropriate quality assurance requirements?	DOE O 151.1D, Attachment 4, 10.e; DOE O 414.1D
O.01.04.02 BP	Are plume dispersion and dose assessment codes installed and maintained for reasonable assurance that they will function accurately during an emergency?	DOE G 151.1-4, 6
O.01.04.03	Have the plume dispersion and dose assessment codes received the appropriate level of safety software quality assurance per DOE O 414.1D?	DOE O 414.1D
O.01.04.04 BP	Does the meteorological and other environmental data receive the appropriate level of quality assurance (e.g., per DOE O 414.1D or a Site Software Quality Assurance plan for emergency management or safety data)?	DOE G 151.1-4, 6; DOE O 414.1D
O.01.04.05 BP	Does the site meteorological monitoring program that provides real- time meteorological data to the EOC follow DOE guidance?	DOE-HDBK-1216-2015
O.01.04.06 BP	Does the meteorological monitoring program comply with ANSI/ ANS-3.11?	ANSI/ANS-3.11 2015
O.01.04.07 BP	Is contractor-maintained field team instrumentation and equipment calibrated and maintained according to applicable DOE O 414.1D requirements to ensure adequate functioning during an event?	DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F; DOE O 414.1D

		Core Facility	HazMat Facility	DNF Facility
		✗	✓	✓

Meteorological monitoring and available data for use during an event is commensurate with the level of site radiological and other hazards materials activities, the site topographical characteristics, and the location/distance to critical receptors.	DOE O 458.1, Attachment 1.2.e.9.c; DOE G 151.1-4, 6

O.01.05	CRITERION LINES OF INQUIRY	Core Facility	HazMat Facility	DNF Facility
O.01.05.01	Are meteorological monitoring capabilities commensurate with the level of site radiological activities, the site topographical characteristics, and the location/distance to critical receptors for non-routine releases?			DOE O 458.1, Attachment 1.2.e.9.c
O.01.05.02 BP	Are the meteorological data updated on a sufficiently frequent basis to capture temporal variations in the wind field in a timely manner?			DOE G 151.1-4, 6
O.01.05.03 BP	Are the consequence assessors able to display spatially varying near-surface wind data from across the site and surrounding areas to assist in analyzing current and evolving wind field patterns?			DOE G 151.1-4, 6; LL-DrEx-DOE-06, P6-7; LL-DrEx-DOE-07, P7; LL-DrEx-DOE-08, P8-9; LL-DrEx-DOE-11, P8d; LL-DrEx-DOE-14, P12-13
O.01.05.04 BP	Can consequence assessors quickly access near real-time data on winds aloft, mixing depth, and atmospheric stability to characterize environmental conditions that may impact estimates of potential consequences?			DOE G 151.1-4, 6; LL-DrEx-DOE-08, P8-9; LL-DrEx-DOE-02, P11a; LL-DrEx-DOE-16, P14-15
O.01.05.05 BP	Are there backup methods in place for obtaining meteorological data if the primary data source or communication channels go down?			DOE G 151.1-4, 6
O.01.05.06 BP	Are there adequate onsite or near-site meteorological data available to characterize the rate of atmospheric mixing (e.g., turbulence intensity or atmospheric stability)?			DOE G 151.1-4, 6
O.01.05.07 BP	Are there adequate measurements of precipitation for estimating the rate of contamination washout and deposition?			DOE G 151.1-4, 6
O.01.05.08 BP	Are dispersion and consequence assessment models used during an event that can incorporate site-specific terrain (topography) part of the suite of consequence assessment tools?			DOE G 151.1-4, 6
O.01.05.09 BP	Are dose dispersion and consequence assessment models used that can incorporate facility and release characterization information (e.g., building dimensions, effluent temperatures and vertical velocities, initial diameter of the plume when entering the environment) part of the suite of EOC consequence assessment tools?			DOE G 151.1-4, 6

	Assessments are conducted continuously for the duration of the emergency as additional information (e.g., field data, source term) becomes available.	DOE O 151.1D, Attachment 4, 10.e.3

O.01.06 CRITERION O.01.06 LINES OF INQUIRY	Core Facility	HazMat Facility	DNF Facility
O.01.06.01	Are assessments conducted for the duration of the emergency as additional information becomes available?		DOE O 151.1D, Attachment 4, 10.e.3
O.01.06.02 BP	Are processes in place to promptly provide consequence assessors with valid event scene conditions and other relevant information to enhance the accuracy of the initial conditions used in consequence assessment modeling (e.g., real-time images of the release facility, timely onsite reports of conditions at the release site)?		DOE G 151.1-4, 6
O.01.06.03 BP	Are field indications and measurements (e.g., dose readings, contaminant concentration measurements) used to adjust source-term, release, and environmental conditions to enable more realistic analyses as the events progress and more information becomes available?		DOE G 151.1-4, 6
O.01.06.04 BP	At the time of the incident, if facility-specific Material at Risk inventories differ significantly from that indicated in planning documents, is there a mechanism for this information to be communicated to the Consequence Assessor?		LL-DrEx-DOE-08, P8b

O.01.07 CRITERION	Core Facility	HazMat Facility	DNF Facility
	Consequence assessment is integrated with emergency classification and protective action decision-making.		DOE O 151.1D, Attachment 4, 10.a.1

O.01.07 LINES OF INQUIRY		
O.01.07.01	Are provisions in place to conduct consequence assessments that are integrated with emergency classification and protective action decision-making?	DOE O 151.1D, Attachment 4, 10.a.1
O.01.07.02 BP	Can consequence assessment results (including distances at which protective actions may be exceeded) be quickly relayed to decision makers for reclassification and protective action decisions?	DOE G 151.1-4, 6; LL- NPEA-DOE-02, P36; LLo-DrEx-DOE-08, P9; LL-DrEx-DOE-08, P8-9; LL-DrEx-DOE-02, P11a; LL-DrEx-DOE-08, P7d; LL-DrEx-DOE-06, P6-7; LL-DrEx-DOE-07, P7, LL- DrEx-DOE-11, P8b
O.01.07.03 BP	During an event, do protective action decision makers periodically review updated consequence assessment results?	DOE G 151.1-4, 6; LL- DrEx-DOE-08, P8-9; LL- DrEx-DOE-02, P11a
O.01.07.04 BP	Is there an effective process in place for consequence assessors to promptly adjust estimates and relay significant results to decision makers when new information on conditions and/or meteorology is obtained?	DOE G 151.1-4, 6; LL- DrEx-DOE-02, P5-6&7; LL-DrEx-DOE-11, P8d; LL-DrEx-DOE-12, P18c

O.01.07.05 BP	Are consequence assessment inputs and outputs reviewed by the consequence assessor for accuracy before communicating results to decision makers?	DOE G 151.1-4, 6; LL-DrEx-DOE-08, P8-9; LL-DrEx-DOE-02, P11a; LL-DrEx-DOE-16, P14-15

O.01.08 CRITERION

Core Facility | HazMat Facility | DNF Facility

National Atmospheric Release Advisory Center (NARAC) is available for use and provided information as appropriate in near real-time for the interaction mode (primary, backup, corroborating) selected.	DOE O 151.1D,

O.01.08 LINES OF INQUIRY

O.01.08.01	Can consequence assessors effectively connect to NARAC?	DOE O 151.1D, Attachment 4, 10.c
O.01.08.02 BP	Is there a dedicated process for accessing and working with NARAC?	
O.01.08.03	Do the consequence assessors have the ability to communicate the meteorological and source term information to NARAC in a timely manner?	DOE O 151.1D, Attachment 4, 10.d
O.01.08.04 BP	Are consequence assessors able to log into NARAC Web, initiate a NARAC model simulation, and receive and analyze NARAC model output?	

O.01.09 CRITERION

Core Facility | HazMat Facility | DNF Facility

Consequence assessments are coordinated with offsite agencies.	DOE O 151.1D Attachment 4, 10.a.3

O.01.09 LINES OF INQUIRY

O.01.09.01	Are provisions in place to conduct consequence assessments that are coordinated with offsite agencies?	DOE O 151.1D, Attachment 4, 10.a.3
O.01.09.02 BP	Is a process in place to effectively coordinate consequence assessment activities and results with applicable offsite agencies?	DOE G 151.1-4, 6; LL-NPEA-DOE-03, P31c, LL-DrEx-DOE-23, P10-11, LL-DrEx-DOE-23, P15-16, LL-DrEx-DOE-11, P8d
O.01.09.03 BP	Is the information produced by the consequence assessment team intended for distribution to offsite entities actually transmitted to them?	DOE G 151.1-4, 6
O.01.09.04 BP	Are results coordinated and reconciled with offsite consequence assessment teams, when applicable?	DOE G 151.1-4, 6
O.01.09.05 BP	Is a procedure in place that includes agreed on units and measurements to be used for relaying consequence assessment information between the site and offsite entities during an emergency?	DOE G 151.1-4, 6

O.02 – OBJECTIVE

Plume boundaries are confirmed, as required per the Emergency Management Plan, using consequence assessment and atmospheric dispersion modeling resources. Field teams have survey capabilities commensurate with potential un-planned releases and they can be readily deployed. Field monitoring equipment is appropriate for the task and calibrated as defined in maintenance documents/procedures. Field teams communicate data/results promptly and accurately. In addition, there is evidence that BPs are being implemented. (DOE O 151.1D, Attachment 4, 10.e.4)

O.02.01 CRITERION

✗ Core Facility ✓ HazMat Facility ✓ DNF Facility

Field teams effectively gather data commensurate with the types of potential hazards as a part of defining plume boundaries.	DOE O 151.1D Attachment 4, 10.e.4

O.02.01 LINES OF INQUIRY

O.02.01.01	Do field monitoring capabilities include performing field monitoring activities to confirm the plume boundaries as required per the Emergency Management Plan?	DOE O 151.1D Attachment 4, 10.e.4
O.02.01.02 BP	Are field team monitoring capabilities commensurate with the hazards as identified in the All-Hazards Planning Basis/Technical Planning Basis/EPHAs (e.g., alpha monitoring capabilities for facilities that contain transuranics, etc.)?	DOE G 151.1-4, Appendix F; LL-DrEx-DOE-19, P21b
O.02.01.03 BP	Is the site field team equipment maintained, stored, and accessible to provide reasonable assurance that it will function and function accurately during an emergency?	DOE G 151.1-4, Appendix F
O.02.01.04 BP	Do the field monitoring team results provide information that is usable by the consequence assessor?	DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F; LL-NPEA-DOE-06, P38-39; LL-DrEx-DOE-19, P21b; LL-NPEA-DOE-08, P39b
O.02.01.05 BP	Are the field monitoring teams deployed after an initial plume projection is determined?	
O.02.01.06 BP	Is field monitoring data reviewed for accuracy before communicating results?	
O.02.01.07 BP	Is a survey plan developed and approved prior to the team being deployed?	DOE G 151.1-4, 1.7.2
O.02.01.08 BP	Are exposure limits set for field teams?	DOE G 151.1-4, 1.7.2
O.02.01.09 BP	Do field teams have appropriate and adequate personal protective equipment (PPE) for the event?	DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F

	Field team programs include planning for emergency environmental sample collection and analysis as appropriate.	DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F

O.02.02 LINES OF INQUIRY

	Core Facility	HazMat Facility	DNF Facility
O.02.02.01 BP	Can field teams be readily directed to a specific site environmental monitoring station or sampling point?		DOE G 151.1-4, Appendix F
O.02.02.02 BP	Are sampling and analysis procedures in place for the type of emergency?		DOE G 151.1-4, 1.7.2
O.02.02.03 BP	Are appropriate and adequate sampling supplies available for the field teams?		DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F
O.02.02.04 BP	Can field teams use the same process/procedure during an emergency that are used for routine environmental sampling activities?		DOE G 151.1-4, Appendix F

O.02.03 CRITERION

Core Facility	HazMat Facility	DNF Facility
	✓	✓

Processes are in place for coordinating the contractor, state, and/or Federal field teams.	DOE G 151.1-4, 6; DOE G 151.1-4, Appendix F

O.02.03 LINES OF INQUIRY

O.02.03.01 BP	Is an effective process in place for transition from the exclusive use of contractor field teams to supplementation with state and/or Federal field teams?	DOE G 151.1-4, 6; DOE G 151.1-4, Appendix F; LL-NPEA-DOE-03, P31c; LL-NPEA-DOE-06, P38-39; LL-NPEA-DOE-08, P36a
O.02.03.02 BP	Are state and/or Federal resources available to support/supplement contractor field teams if needed?	DOE G 151.1-4, 6; DOE G 151.1-4, Appendix F
O.02.03.03 BP	Are procedures in place for a phased response by the Federal Radiological Monitoring and Assessment Center to coordinate the local and Federal field team actions?	DOE G 151.1-4, 6; DOE G 151.1-4, Appendix F; LL-NPEA-DOE-03, P31c; LL-NPEA-DOE-06, P38; LL-NPEA-DOE-08, P36a

O.02.04 CRITERION

Core Facility	HazMat Facility	DNF Facility
	✓	✓

Field teams can effectively communicate with consequence assessors and other emergency response staff during an event.	DOE O 151.1D, Attachment 4, 10.e.3

O.02.04 LINES OF INQUIRY

O.02.04.01	Do field teams provide field data to emergency response staff, including the consequence assessors as soon as it becomes available throughout the emergency?	DOE O 151.1D, Attachment 4, 10.e.3

O.02.04.02 BP	Can consequence assessors query field teams for data readily and directly?	DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F
O.02.04.03 BP	Can field teams provide survey results promptly to consequence assessors and other offsite organizations in accordance with the emergency planning documents?	DOE G 151.1-4, 1.7.2; DOE G 151.1-4, Appendix F
O.02.04.04 BP	Are field teams using appropriate units and measurements when transmitting data?	DOE G 151.1-4, Appendix F
O.02.04.05 BP	Is there a process in place for initial and ongoing field team briefings (such as on facility and meteorological conditions, plume projections, etc.)?	DOE G 151.1-4, 1.7.2
O.02.04.06 BP	Is communication equipment (e.g., radio, cell phone) available to field teams?	DOE G 151.1-4, Appendix F
O.02.04.07 BP	If radios are used, are low-use frequencies used during the emergency?	DOE G 151.1-4, Appendix F

O.03 – OBJECTIVE

Consequence assessors are performing at optimal levels per Element X.

O.03.01 CRITERION

✗ Core Facility ✓ HazMat Facility ✓ DNF Facility

Element X.01.02 criterion has been assessed.	

O.03.01 LINES OF INQUIRY

O.03.01.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.02 been addressed?	

O.03.02 CRITERION

✗ Core Facility ✓ HazMat Facility ✓ DNF Facility

Element X.01.03 criterion has been assessed.	

O.03.02 LINES OF INQUIRY

O.03.02.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.03 been addressed?	

O.03.03 CRITERION

✗ Core Facility ✓ HazMat Facility ✓ DNF Facility

Element X.01.04 Criterion has been assessed.	

O.03.03 LINES OF INQUIRY

O.03.03.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.04 been addressed?	

	✗	✓	✓

Element X.01.07 criterion has been assessed.	

O.03.04 LINES OF INQUIRY O.03.04 CRITERION	Core Facility	HazMat Facility	DNF Facility
O.03.04.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.07 have been addressed?		

O.03.05 CRITERION	✗ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.08 criterion has been assessed.			

O.03.05 LINES OF INQUIRY			
O.03.05.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.08 been addressed?		

O.03.06 CRITERION	✗ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.09 Criterion has been assessed.			

O.03.06 LINES OF INQUIRY			
O.03.06.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.09 been addressed?		

O.03.07 CRITERION	✗ Core Facility	✓ HazMat Facility	✓ DNF Facility
Element X.01.10 criterion has been assessed.			

O.03.07 LINES OF INQUIRY			
O.03.07.01	In the context of consequence assessment, have the LOIs associated with criterion X.01.10 been addressed?		

APPROACH – Consequence Assessment

Below are generic considerations for Element O, including a crosswalk to Element X criteria. Additional documents, interviews, and observations should be considered as appropriate. Items listed below may not be applicable to all sites. At each phase (document review, interview, observation) document findings, clarifications, issues, BPs, and other information.

Document/Record Reviews

- Hazards Survey Reports, including confirmation that models used provide output consistent with what is in the existing documentation.
- EPHAs, including confirmation that models used provide output consistent with what is in the existing documentation.
- EALs, including confirmation that models used provide output consistent with what is in the existing documentation.
- EPHA and EAL development procedures.
- Consequence Assessment roles and responsibilities, and implementing procedures, including field monitoring.
- Information on qualifications of Staff conducting consequence assessments (e.g., Qual Cards).
- Reference materials at the primary and alternate EOCs (conversion factors, PAC, EPHAs, EALSs, material safety data sheets, National Institute for Occupational Safety Health handbooks, DOT Emergency Response Guidebook, and meteorological data).
- Products expected from consequence assessment activities (maps, data sheets, met information, model output, etc.).
- Products expected from contractor field monitoring teams.
- Past drill and exercise documentation, including use of DOE/NNSA emergency response assets (NARAC, AMT, RAP) as applicable.
- Lessons learned from Consequence Assessment at the site and any subsequent corrective actions.
- Software Quality Assurance documentation for the software used for consequence assessments.

Interviews

- Persons responsible for developing primary and alternate EOC consequences assessment related procedures **(X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10).**
- Persons responsible for maintaining systems for the models used for primary and alternate EOC consequence assessment activities **(X.01.02, X.01.03, X.01.04, X.01.07, X.01.08, X.01.09,X.01.10)**
- Persons assigned consequence assessment responsibilities during an emergency **(X.01.02, X.01.03, X.01.04, X.01.07, X.01.08, X.01.09, X.01.10).**
- Persons assigned field monitoring duties during an emergency (including offsite agencies if applicable) **(X.01.02, X.01.03, X.01.04, X.01.07, X.01.08, X.01.09, X.01.10).**
- ERO persons who interface with consequence assessment personnel during an emergency (also include offsite agencies if applicable) **(X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10)**
- Meteorologists who support the Site, if applicable **(X.01.02, X.01.03, X.01.04, X.01.07, X.01.09, X.01.10).**

Observations

- Inspect meteorological facilities and data (real time and historic).
- View consequence assessment activities either in a drill or as a standalone task.
- View contractor field monitoring either in a drill or as a standalone task and, if applicable, interactions with offsite organization field monitoring teams.
- Use of all of the consequence assessment equipment/software.
- Communication with DOE/NNSA emergency response assets (NARAC, AMT, RAP) either in a drill or as standalone task.
- Observe local/state emergency operations center or other offsite activity for information exchange.
- Ensure appropriate suite of models are available for the types of potential hazards.
- Observe consequence assessors running the models.
- Inspect reference documents (e.g., EPHAs) to make sure comprehensive set is available and that they are current.

References

- **ANSI/ANS-3.11 (2015):** *Determining Meteorological Information at Nuclear Facilities (Best Practice)*
- **DOE G 151.1-4:** *Response Elements, Emergency Management Guide*
- **DOE-HDBK-1216-2015:** *Environmental Radiological Effluent Monitoring and Environmental Surveillance*
- **DOE O 151.1D:** *Comprehensive Emergency Management System*
- **DOE O 153.1:** *Departmental Radiological Emergency Response Assets*
- **DOE O 414.1D:** *Quality Assurance*
- **DOE O 420.1C:** *Facility Safety*
- **DOE O 458.1:** *Radiation Protection of the Public and the Environment*

ORGANIZATIONAL EFFECTIVENESS

X. Organizational Effectiveness

X.01 – OBJECTIVE

Emergency management program performance is optimized by staff proficiencies, positive safety culture, and the consideration of human factors. There is reasonable assurance of staff proficiency in the development of emergency plans and implementation of those plans during emergency response. The emergency management program/organization/plan demonstrates a strong commitment to a positive safety culture. In addition, human factors are an important consideration for development and implementation of plans, processes, facilities, systems, and equipment as appropriate.

X.01.01 CRITERION	✓ Core Facility	✓ HazMat Facility	✓ DNF Facility

In the context of the "administrative element" (A,C,D,E,F,G,K,L,M,N) being assessed, staff understand their job functions and are proficient at performing them.	DOE O 426.2, Attachment 1; DOE G 450.4-1C, Attachment 1

X.01.01 LINES OF INQUIRY		
X.01.01.01	Do interviews with staff indicate they understand their job functions?	DOE G 450.4-1C, Attachment 1, 3
X.01.01.02	Do the staff possess the right qualifications to perform their job duties?	DOE G 450.4-1C, Attachment 1, 3
X.01.01.03	Do staff understand their roles and responsibilities?	
X.01.01.04	Are staff roles and responsibilities documented in a comprehensive and clear manner?	
X.01.01.05	Do the emergency management and response staff receive job specific training (initial and refresher) at an adequate frequency based on the All-Hazards Planning basis?	
X.01.01.05	Are staff proficient at performing their job functions (e.g., act on procedures or criteria-based rationale)?	DOE G 450.4-1C, Attachment 1, 3
X.01.01.06	Do training records, observation, and/or other performance measurements (e.g., training attendance, test scores, drill critiques, data and indicators in the issues management system) indicate the staff possess the necessary understanding to optimally carry out their job functions?	
X.01.01.07	Do interviews with staff indicate they are sufficiently familiar with applicable resource materials, requirements, plans, and procedures?	

	✓	✓	✓

In the context of the element being assessed, staff understand the functions of other key positions they interface with and how they should optimally work together.	DOE G 450.4-1C, Attachment 4

X.01.02 CRITERION		Core Facility	HazMat Facility	DNF Facility
X.01.02.01	Do interviews with staff indicate they understand the functions of other emergency organization positions, and how they should interface with them for optimal emergency response performance?			
X.01.02.02	Do drill and exercise performance reviews indicate interface issues?			
X.01.02.03	Do interviews with staff indicate they understand how they should interface with offsite organizations?			
X.01.02.04	Does job-specific training address organizational interfaces?			
X.01.02.05	Does the organization have a well-established process for handling differing professional opinions for technical issues involving environmental, safety, and health technical concerns?			DOE O 442.2

X.01.03 CRITERION

In the context of the element being assessed, staff have the tools they need to perform their job functions effectively and are competent at using them.	DOE O 420.1C, Ch.1.3.b.(2).(f).3; DOE O 433.1B, Attachment 2, 2.b

X.01.03 LINES OF INQUIRY

X.01.03.01	Do interviews with staff indicate they have optimal tools for effectively handling the potential hazards as required for their specific job functions (e.g., dispersion code that includes a dense gas model)?			
X.01.03.02	Do interview and performance measurements indicate the staff are competent at using their tools (e.g., drill critiques, assessments)?			
X.01.03.03	Do the applicable staff receive on-the-job training related to specialized tools, or are they otherwise proven to have expertise (e.g., computer code developer, daily use as part of regular job)?			

	✓	✓	✓

In the context of the "technical element" (B,H,I,J,O) being assessed, staff are competent at performing their job functions.	DOE G 450.4-1C, Attachment 8, Phase I and Phase II

X.01.04 CRITERION X.01.04 LINES OF INQUIRY		Core Facility	HazMat Facility	DNF Facility
X.01.04.01	Do interviews with staff indicate they understand and their job functions and possess adequate competency?			DOE G 450.4-1C, Attachment 8, Phase I and Phase II
X.01.04.02	Do the staff possess the right qualifications to perform their job duties?			DOE G 450.4-1C, Attachment 8, Phase I and Phase II
X.01.04.03	Do the emergency management and response staff receive job specific training (initial and refresher) at an adequate frequency based on the All-Hazards Planning basis?			DOE G 450.4-1C, Attachment 8, Phase I and Phase II
X.01.04.04	Do training records and other performance measurements (e.g., training attendance, test scores, drill critiques, data and indicators in the issues management system) indicate the staff are competent at carrying out their job functions?			
X.01.04.05	Do interviews with staff indicate they are sufficiently familiar with applicable resource materials, requirements, plans, and procedures required to perform their job functions?			DOE G 450.4-1C, Attachment 8, Phase I and Phase II
X.01.04.06	Do staff understand their roles and responsibilities?			DOE G 450.4-1C, Attachment 8, Phase I and Phase II
X.01.04.07	Are staff roles and responsibilities documented in a comprehensive and clear manner?			DOE G 450.4-1C, Attachment 8, Phase I and Phase II

X.01.05 CRITERION	Core Facility	HazMat Facility	DNF Facility
Emergency organization managers and staff are committed to, promote, and adhere to a strong and viable safety culture in which the emergency management program can thrive.	✓	✓	✓

DOE P 450.4A; DOE O 426.2, Attachment 1, Chapter II.6.d; DOE O 450.2		

X.01.05 LINES OF INQUIRY		
X.01.05.01	Do interviews with management indicate they understand the importance of a strong safety culture?	
X.01.05.02	Is there evidence of a strong safety culture being promoted by management (e.g., interviews with management and staff, procedures, policies)?	
X.01.05.03	Do interviews with staff indicate that organizational learning is in place/is promoted?	

X.01.05.04	Are applicable lessons learned created, shared, and discussed?

X.01.06 CRITERION

Core Facility ✓ HazMat Facility ✓ DNF Facility ✓

X.01.06 LINES OF INQUIRY

X.01.06.01	Do interviews with staff indicate that trust permeates the emergency management organization?	
X.01.06.02	Do interviews with staff indicate a non-hostile work environment?	
X.01.06.03	Do interviews with management indicate that staff accountability is an organizational principle?	
X.01.06.04	Do interviews with staff indicate a work environment exists where open communication between management and staff exists?	
X.01.06.05	Do interviews with staff indicate they feel free to discuss technical and organizational issues with management without fear of reprisal or retaliation?	DOE O 442.1A, 1.b; DOE O 442.2
X.01.06.06	Does the organization have policies in place that cover confidentiality of personal information (e.g., personal issues or information communicated to management, medical problems, personnel conflicts)?	

X.01.07 CRITERION

Core Facility ✓ HazMat Facility ✓ DNF Facility ✓

A questioning attitude is fostered by the emergency management organization.

DOE P 450.4A

X.01.07 LINES OF INQUIRY

X.01.07.01	Do interviews with staff indicate they feel comfortable raising questions during training, drills, exercises, and actual emergency events?	
X.01.07.02	Do interviews with staff indicate they are encouraged to raise technical, safety, and/or health concerns without a fear of reprisal or retaliation?	DOE O 442.1A, 1.b; DOE O 442.2
X.01.07.03	Do policies and/or procedures encourage a questioning attitude?	

In the context of the element being assessed, human factors needs during an emergency response are accounted for in applicable planning, and equipment, systems, and facility designs (e.g., urgent decision making may occur under stressful conditions, extended emergency conditions).	

X.01.08 LINES OF INQUIRY

X.01.08.01	Do emergency plans and procedures take into account potential human factors (e.g., extended work schedules during an emergency)?	
X.01.08.02	Are emergency response plans/procedures written using simple and direct language to foster effective actions during an emergency?	
X.01.08.03	Do notification systems perform in a user-friendly manner to support effective performance during stressful conditions?	
X.01.08.04	Is personal protective equipment optimized to account for human factors (e.g. weight, heat stress)?	
X.01.08.05	Are emergency facilities designed and stocked for extended stays (e.g., restroom facilities, water, food, toiletries, coffee)?	
X.01.08.06	Do emergency facilities provide for effective interfaces between the response staff?	

X.01.09 CRITERION

Core Facility HazMat Facility DNF Facility

No problems or issues are identified regarding any area of the emergency management program.	

X.01.09 LINES OF INQUIRY

X.01.09.01	Do staff indicate problems or issues with any area of the emergency management program?	
X.01.09.02	Do staff volunteer opportunities for improvement within any area of the emergency management program?	

X.01.10 LINES OF INQUIRY

X.01.10.01	Managers and workers understand the concept of critical steps* and use human performance tools to eliminate error or reduce the consequence of error.	
X.01.10.02	There is evidence of a process to identify and eliminate latent organizational weaknesses† which can harm key assets, reduce productivity, and adversely affect the effectiveness of the organization (and its key functions) through human error.	
X.01.10.03	Managers reinforce the use of human performance tools and methods to prevent error in key functions and critical steps.	
X.01.10.04	During exercises and emergency response activities, use of Individual, Team, and Management human performance tools are observed.	

* *Critical step:* A procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment.

† *Latent organizational condition or weakness:* Undetected deficiencies in organizational processes, equipment, or values that create job-site conditions that either provoke error or degrade the integrity of controls.

References

- **DOE G 450.4-1C:** *Integrated Safety Management System Guide*
- **DOE-HDBK-1028-2009:** *Human Performance Improvement Handbook*
- **DOE O 420.1C:** *Facility Safety*
- **DOE O 426.2:** *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*
- **DOE O 433.1B:** *Maintenance Management Program for DOE Nuclear Facilities*
- **DOE O 442.1A:** *Department of Energy Employee Concerns Program*
- **DOE O 442.2:** *Differing Professional Opinions for Technical Issues Involving Environmental, Safety, and Health Technical Concerns*
- **DOE O 450.2:** *Integrated Safety Management*
- **DOE P 226.2:** *Policy for Federal Oversight and Contractor Assurance Systems*
- **DOE P 450.4A:** *Integrated Safety Management Policy*

REFERENCES

Doc. No.	Date	Title	Purpose/Objective/Summary	Org.	Link
10 CFR 830	2001 January	*Nuclear Safety Management*, ***CFR***	PURPOSE This part governs the conduct of DOE contractors, DOE personnel, and other persons conducting activities (including providing items and services) that affect, or may affect, the safety of DOE nuclear facilities.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2011-title10-vol4/pdf/CFR-2011-title10-vol4-part830.pdf
10 CFR 835	2011 January	*Occupational Radiation Protection*, ***CFR***	SUMMARY The occupational radiation protection program is governed by the Rule, specified as 10 CFR 835. The requirements given in 10 CFR 835 are matters of law, punishable by civil and criminal penalties. Elements include assessing external and internal doses, workplace monitoring, radiological equipment, and radiation dose reporting. Doses are required to be ALARA (as low as reasonably achievable) and must not exceed the limits given in 10 CFR 835.	GPO	https://www.gpo.gov/fdsys/granule/CFR-2011-title10-vol4/CFR-2011-title10-vol4-part835
10 CFR 835.702(a)	2016 January	*Individual Monitoring Records*, ***CFR***	PURPOSE (a) Except as authorized by § 835.702(b), records shall be maintained to document doses received by all individuals for whom monitoring was conducted and to document doses received during planned special exposures, unplanned doses exceeding the monitoring thresholds of § 835.402, and authorized emergency exposures.	US GPO	https://www.gpo.gov/fdsys/pkg/CFR-2016-title10-vol4/pdf/CFR-2016-title10-vol4-sec835-702.pdf
10 CFR 851	2006 February	*Worker Safety and Health Program, Occupational Medicine*, ***CFR***	PURPOSE 10 C.F.R. 851 outlines the requirements for a worker safety/health program to ensure that DOE contractors and their workers operate a safe workplace. Additionally, 10 C.F.R. 851 establishes procedures for investigating whether a violation of a requirement of this part has occurred, for determining the nature and extent of any such violation, and for imposing an appropriate remedy.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2012-title10-vol4/pdf/CFR-2012-title10-vol4-part851.pdf
29 CFR 1910.120	2002 August	*Occupational Safety and Health Standards, Labor; Hazardous Waste Operations and Emergency Response*, ***CFR***	SUMMARY The main objective of the Occupational Safety and Health Act of 1970 (i.e., "the Act") is to "assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources." (29 U.S.C. 651.) To achieve this objective, the Act authorizes "the development and promulgation of occupational safety and health standards." (29 U.S.C. 651.) Section 6(b)(7) of the Act specifies that "[a]ny standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure." This provision goes on to state that "[t]he Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of title 5, United States Code, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning . . . as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard." (29 U.S.C. 655.) With regard to recordkeeping, the Act specifies that "[e]ach employer shall make, keep and preserve, and make available to the Secretary . . . such records . .	OSHA	https://www.osha.gov/Reduction_Act/1218-0202.html

Doc. No.	Date	Title	Purpose/Objective/Summary	Org.	Link
			. as the Secretary . . . may prescribe by regulation as necessary or appropriate for the enforcement of this Act . . . ." (29 U.S.C. 657.) The Act states further that "[t]he Secretary . . . shall prescribe such rules and regulations as [he/she] may deem necessary to carry out [his/her] responsibilities under this Act, including rules and regulations dealing with the inspection of an employer's establishment." (29 U.S.C. 657.) In addition, Section 126(e) of the "Superfund Amendments and Reauthorization Act of 1986" (SARA) (Public Law 99-499) which became law on October 17, 1986, required the Secretary of Labor, pursuant to Section 6 of the Occupational Safety and Health Act of 1970 (the Act), to promulgate standards for the safety and health protection of employees engaged in hazardous waste operations and emergency response. Section 126(a) of SARA also specified that those standards were to become effective a year after publication. Section 126(b) lists 11 worker protection provisions that the Secretary of Labor had to include in OSHA's final standard. Those provisions require OSHA to address the preparation of various written programs, plans and records; the training of employees; the monitoring of airborne hazards; the conduct of medical surveillance; and the distribution of information to employees. The provisions also require the collection of information from employers engaged in hazardous waste operations and their emergency response to such operations. The final standard covers the provisions mandated in SARA. Therefore, under the authority granted by the SARA and the OSH Act, the Occupational Safety and Health Administration (i.e., "OSHA" or "the Agency") published at 29 CFR 1910.120 a standard for general industry regulating the operation of hazardous waste operations (i.e., "the Standard"). Items 2 and 12 below describe in detail the specific information-collection requirements of the Standard.		
29 CFR 1910.1450(b)	2011 July	*Occupational Exposure to Hazardous Chemicals in Laboratories, **CFR***	SUMMARY (a) Scope and application. (1) This section shall apply to all employers engaged in the laboratory use of hazardous chemicals as defined below. (b) Definitions— Action level means a concentration designated in 29 CFR part 1910 for a specific substance, calculated as an eight (8)-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2010-title29-vol6/pdf/CFR-2010-title29-vol6-sec1910-1450.pdf
40 CFR 302	1985 April	*Designation, Reportable Quantities, and Notification, **CFR***	PURPOSE This regulation designates under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (“the Act”) those substances in the statutes referred to in section 101(14) of the Act, identifies reportable quantities for these substances, and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol28/pdf/CFR-2011-title40-vol28-part302.pdf

Doc. No.	Date	Title	Purpose/Objective/Summary	Org.	Link
40 CFR 355	2016 July	*Emergency Planning and Notification, **CFR***	PURPOSE (a) This part (40 CFR part 355) establishes requirements for a facility to provide information necessary for developing and implementing State and local chemical emergency response plans, and requirements for emergency notification of chemical releases. This part also lists Extremely Hazardous Substances (EHSs) and Threshold Planning Quantities (TPQs) in Appendices A and B, which are used in determining if you are subject to these requirements. (b) This part is written in a special format to make it easier to understand the regulatory requirements. Like other Environmental Protection Agency (EPA) regulations, this part establishes enforceable legal requirements. Information considered non-binding guidance under EPCRA is indicated in this regulation by the word "note" and a smaller typeface. Such notes are provided for information purposes only and are not considered legally binding under this part.	US GPO	https://www.gpo.gov/fdsys/pkg/CFR-2016-title40-vol30/pdf/CFR-2016-title40-vol30-part355.pdf
40 CFR 355.30	2011 July	*Emergency Planning And Notification, **CFR***	SUMMARY What facilities must comply with the emergency release notification requirements of this subpart? You must comply with the emergency release notification requirements in this subpart if both of these two conditions are met: (a) You produce, use, or store a hazardous chemical at your facility; and (b) You release a reportable quantity (RQ) of any EHS or of a hazardous substance as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA Hazardous Substance) at your facility. Certain releases are exempted from these requirements. Exempted releases are listed in § 355.31.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol28/pdf/CFR-2011-title40-vol28-sec355-30.pdf
42 CFR 102 - 74	2005 November	*Facility Management, **CFR***	SUMMARY The real property policies contained in this part apply to Federal agencies, including the GSA's Public Buildings Service (PBS), operating under, or subject to, the authorities of the Administrator of General Services. Executive agencies must manage, operate and maintain Government-owned and leased buildings in a manner that provides for quality space and services consistent with their operational needs and accomplishes overall Government objectives. The management, operation and maintenance of buildings and building systems must— (a) Be cost effective and energy efficient; (b) Be adequate to meet the agencies' missions; (c) Meet nationally recognized standards; and (d) Be at an appropriate level to maintain and preserve the physical plant assets, consistent with available funding.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2011-title41-vol3/pdf/CFR-2011-title41-vol3-part102-id987.pdf

Doc. No.	Date	Title	Purpose/Objective/Summary	Org.	Link
42 CFR Part 73	2016 October	*Select Agents and Toxins,* ***CFR***	PURPOSE This part implements the provisions of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 setting forth the requirements for possession, use, and transfer of select agents and toxins. The biological agents and toxins listed in this part have the potential to pose a severe threat to public health and safety, to animal health, or to animal products. Overlap select agents and toxins are subject to regulation by both CDC and APHIS.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2016-title42-vol1/pdf/CFR-2016-title42-vol1-part73.pdf
5 U.S.C. Sec 552a	2011 January	*Privacy Act,* ***USC***	SUMMARY The purpose of the Privacy Act is to balance the government's need to maintain information about individuals with the rights of individuals to be protected against unwarranted invasions of their privacy stemming from federal agencies' collection, maintenance, use, and disclosure of personal information.	GPO	https://www.gpo.gov/fdsys/pkg/USCODE-2010-title5/pdf/USCODE-2010-title5-partI-chap5-subchapII-sec552a.pdf
7 CFR Part 331	2005 March	*Possession, Use, and Transfer of Select Agents and Toxins,* ***CFR***	PURPOSE This part implements the provisions of the Agricultural Bioterrorism Protection Act of 2002 setting forth the requirements for possession, use, and transfer of select agents and toxins. The biological agents and toxins listed in this part have the potential to pose a severe threat to plant health or plant products.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2013-title7-vol5/pdf/CFR-2013-title7-vol5-part331.pdf
9 CFR Part 121	2005 March	*Possession, Use, and Transfer of Select Agents and Toxins,* ***CFR***	PURPOSE This part implements the provisions of the Agricultural Bioterrorism Protection Act of 2002 setting forth the requirements for possession, use, and transfer of select agents and toxins. The biological agents and toxins listed in this part have the potential to pose a severe threat to public health and safety, to animal health, or to animal products. Overlap select agents and toxins are subject to regulation by both APHIS and CDC.	GPO	https://www.gpo.gov/fdsys/pkg/CFR-2012-title9-vol1/pdf/CFR-2012-title9-vol1-part121.pdf
ANSI/ANS 8.23 (R2012), Section 5	2012 May	*Nuclear Criticality Accident Emergency Planning and Response, Emergency Response Planning*	SUMMARY "R" in the numeric designation signifies that the 2007 standard was reaffirmed (recertified) as an American National Standard in 2012. No changes can be made to a standard during reaffirmation. This standard provides criteria for minimizing risks to personnel during emergency response to a nuclear criticality accident outside reactors. This standard applies to those facilities for which a criticality accident alarm system, as specified in American National Standard Criticality Accident Alarm System, ANSI/ANS-8.3 1997 (R2003), is in use.1 This standard does not apply to nuclear power plant sites or to licensed research reactor facilities, which are addressed by other standards.	ANSI,ANS	http://www.ans.org/store/item-240269/
ANSI/ANS-3.11 (2015)	2015	*Determining Meteorological Information at Nuclear Facilities*	SUMMARY This standard provides criteria for gathering, assembling, processing, storing, and disseminating meteorological information at commercial nuclear electric generating stations, U.S. Department of Energy / National Nuclear Security Administration nuclear facilities, and other national or international nuclear facilities. While well-established monitoring and analysis methods are adequately addressed, this revision provides information on newer systems, both	ANSI/ANS	http://www.ans.org/store/item-240308/

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			hardware and software, and more modern methods to keep up with the state of the science. Meteorological data collected, processed, stored, and disseminated through implementation of this standard are utilized to support the full life cycle (i.e., siting, construction, operation, and decommissioning) of nuclear facilities. The meteorological data are employed in a large number of applications associated with determining environmental impacts, enabling consequence assessments in routine release and design-basis accident evaluations, supporting emergency preparedness and response programs, and other important applications, such as evaluating beyond design-basis events.		
CPG 101, v2	2010 November	*Developing and Maintaining Emergency Operations Plans, Comprehensive Preparedness Guide (CPG) 101, Version 2.0,* ***DOE Guide***	PURPOSE Comprehensive Preparedness Guide (CPG) 101 provides guidelines on developing emergency operations plans (EOP). It promotes a common understanding of the fundamentals of risk-informed planning and decision making to help planners examine a hazard or threat and produce integrated, coordinated, and synchronized plans. The goal of CPG 101 is to make the planning process routine across all phases of emergency management and for all homeland security mission areas. This Guide helps planners at all levels of government in their efforts to develop and maintain viable all-hazards, all-threats EOPs. Accomplished properly, planning provides a methodical way to engage the whole community in thinking through the life cycle of a potential crisis, determining required capabilities, and establishing a framework for roles and responsibilities. It shapes how a community envisions and shares a desired outcome, selects effective ways to achieve it, and communicates expected results. Each jurisdiction's plans must reflect what that community will do to address its specific risks with the unique resources it has or can obtain. Planners achieve unity of purpose through coordination and integration of plans across all levels of government, nongovernmental organizations, the private sector, and individuals and families. This supports the fundamental principle that, in many situations, emergency management and homeland security operations start at the local level and expand to include Federal, state, territorial, tribal, regional, and private sector assets as the affected jurisdiction requires additional resources and capabilities. Plans must, therefore, integrate vertically to ensure a common operational focus. Similarly, horizontal integration ensures that individual department and agency EOPs fit into the jurisdiction's plans, and that each department or agency understands, accepts, and is prepared to execute identified mission assignments. Incorporating vertical and horizontal integration into a shared planning community ensures that the sequence and scope of an operation are synchronized. A shared planning community increases the likelihood of integration and synchronization, makes planning cycles more efficient and effective, and makes plan maintenance easier.	FEMA	http://www.fema.gov/pdf/about/divisions/npd/CPG_101_V2.pdf

Doc. No.	Date	Title	Purpose/Objective/Summary	Org.	Link
CPG 201 (2nd Edition)	2013 August	*Threat and Hazard Identification and Risk Assessment Guide, Comprehensive Preparedness Guide,* ***DOE Guide***	SUMMARY Comprehensive Preparedness Guide (CPG) 201, Second Edition provides communities additional guidance for conducting a Threat and Hazard Identification and Risk Assessment (THIRA). The first edition of this guide (April 2012) presented the basic steps of the THIRA process. Specifically, the first edition described a standard process for identifying community specific threats and hazards and setting capability targets for each core capability identified in the National Preparedness Goal as required in Presidential Policy Directive (PPD) 8: National Preparedness.1 This Second Edition expands the THIRA process to include estimation of resources needed to meet the capability targets. The Second Edition also reflects other changes to the THIRA process based on stakeholder feedback, such as streamlining the number of steps to conduct a THIRA and providing additional examples. Where appropriate, this guide highlights key changes from the First Edition of CPG 201. This Second Edition supersedes the First Edition of CPG 201.	US DHS	https://www.fema.gov/media-library-data/8ca0a9e54dc8b037a55b402b2a269e94/CPG201_htirag_2nd_edition.pdf
CPG 201, Supplement 1	2012 April	*Threat and Hazard Identification and Risk Assessment Guide, Comprehensive Preparedness Guide (CPG) 201, Supplement 1: Toolkit,* ***DOE Guide***	SUMMARY This toolkit provides resources and information, data sources, and templates to support the conduct of a THIRA as described in the first edition of the Comprehensive Preparedness Guide 201: Threat and Hazard Identification and Risk Assessment Guide.	US DHS	https://www.fema.gov/media-library-data/20130726-1831-25045-0138/cpg_201_supp_1_thira_guide_toolkit_final_040312.pdf
DOE G 440.1-4	1997 June	*Contractor Occupational Medical Program Guide for Use with DOE O 440.1,* ***DOE Guide***	SUMMARY This Department of Energy (DOE) Implementation Guide is approved for use by the Office of Environment, Safety, and Health, Office of Health Studies, Office of Occupational Medicine and Medical Surveillance, and is available to all DOE components and their contractors.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0440.1-EGuide-4/@@images/file
DOE G 120.1-5	1996 June	*Guidelines for Performance Measurement,* ***DOE Guide***	Federal agencies, states, businesses, and foreign governments are increasingly relying on performance measurement information to help chart progress in increasingly frugal times. Performance measurement involves determining what to measure, identifying data collection methods, and collecting the data. Evaluation involves assessing progress toward achieving performance expectations, usually to explain the causal relationships that exist between program activities and outcomes. Performance measurement and evaluation are components of performance-based management, the systematic application of information generated by performance plans, measurement, and evaluation to strategic planning and budget formulation.	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0120.1-EGuide-5/@@images/file
DOE G 151.1-2	2007 July	*Technical Planning Basis Emergency Management Guide,* ***DOE Guide***	SUMMARY The Guide assists DOE/NNSA field elements and operating contractors in identifying and analyzing hazards at facilities and sites to provide the technical planning basis for emergency management programs. Supersedes DOE G 151.1-1, Volume 2.	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0151.1-EGuide-2/@@images/file

Doc. No.	Date	Title	Purpose/Objective/Summary	Org.	Link
DOE G 151.1-3	2007 July	*Programmatic Elements Emergency Management Guide*, ***DOE Guide***	SUMMARY The Guide provides acceptable methods of meeting the requirements of DOE O 151.1C for programmatic elements that sustain the emergency management program and maintain the readiness of the program to respond to an emergency. Supersedes DOE G 151.1-1, Volume 5-1, DOE G 151.1-1, Volume 5-2, DOE G 151.1-1, Volume 5-3, DOE G 151.1-1, Volume 5-4, DOE G 151.1-1, Volume 7-1, and DOE G 151.1-1, Volume 7-3.	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0151.1-EGuide-3/@@images/file
DOE G 151.1-4	2007 July	*Response Elements Emergency Management Guide*, ***DOE Guide***	SUMMARY The Guide provides acceptable methods for meeting the requirement of DOE O 151.1C for response elements that respond or contribute to response as needed in an emergency. Supersedes DOE G 151.1-1, Volume 3-1, DOE G 151.1-1, Volume 3-2, DOE G 151.1-1, Volume 3-3, DOE G 151.1-1, Volume 3-4, DOE G 151.1-1, Volume 4-1, DOE G 151.1-1, Volume 4-2, DOE G 151.1-1, Volume 4-3, DOE G 151.1-1, Volume 4-4, DOE G 151.1-1, Volume 4-5, and DOE G 151.1-1, Volume 4-6.	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0151.1-EGuide-4/@@images/file
DOE G 151.1-5	2007 July	*Biosafety Facilities*, ***DOE Guide***	PURPOSE The Guide assists DOE/NNSA field elements and operating contractors in incorporating hazardous biological agents/toxins into emergency management programs, as required by DOE O 151.1C. No cancellation.	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0151.1-EGuide-5/@@images/file
DOE G 413.3-3A Chg 1 (Adm Chg)	2015 October	*Safeguards and Security for Program and Project Management*	SUMMARY This Guide is intended to provide a methodology for implementing the safeguards and security requirements of DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets, dated 11-29-2010. DOE Guides are not requirement documents and should not be construed as requirements. Guides are part of the DOE Directives Program and provide suggested ways of implementing Orders, Manuals, and other regulatory documents.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0413.3-EGuide-03-admchg1/@@images/file
DOE G 414.1-2B Chg 2 (Adm Chg)	2013 May	*Quality Assurance Program Guide*, ***DOE Guide***	SUMMARY This Guide provides information on principles, requirements, and practices used to establish and implement an effective Quality Assurance Program. Admin Chg 2, dated 5-8-13, Admin Chg 1.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0414.1-EGuide-2b-admchg2/@@images/file

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DOE G 420.1C	2012 December	*Accelerator Facility Safety Implementation Guide for DOE O 420.2C, Safety of Accelerator Facilities,* ***DOE Guide***	OBJECTIVE To establish facility and programmatic safety requirements for the Department of Energy (DOE), including the National Nuclear Security Administration (NNSA), for: a. Nuclear safety design criteria; b. Fire protection; c. Criticality safety; d. Natural phenomena hazards (NPH) mitigation; and, e. Cognizant system engineer (CSE) program. Facility safety requirements for explosive, chemical, and industrial hazards are contained in other DOE rules and directives.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0420.1-BOrder-c/@@images/file
DOE G 420.2-1A	2014 August	*Accelerator Facility Safety Implementation Guide for DOE O 420.2C, Safety of Accelerator Facilities,* ***DOE Guide***	PURPOSE The Department of Energy (DOE) Order 420.2C, Safety of Accelerator Facilities, approved by Deputy Secretary of Energy Daniel B. Poneman on July 21, 2011, states the applicability of the Order to all DOE accelerator facilities or modules thereof while unambiguously confirming the fundamental and operative distinctions between accelerator facilities and nuclear facilities. This document is a guide to understanding and meeting the requirements of DOE Order 420.2C, and shares lessons learned based on valuable experience within the community. This Guide is also intended to be a useful resource for managing accelerator facilities. **This Guide does not impose requirements, although it may restate requirements of Order 420.2C or other requirements if the reference or source is adequately cited.** An accelerator safety program may not need to fully implement all sections of this Guide to satisfy the requirements of DOE Order 420.2C. This Guide is not intended as an audit/assessment tool and should not be used as such without prior agreement between the contractor and DOE.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0420.2-EGuide-1a/@@images/file
DOE G 421.1-2	2001 October	*Implementation Guide for Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830,* ***DOE Guide***	PURPOSE This Guide elaborates on the documented safety analysis (DSA) development process and the safe harbor provisions of the Appendix to10 CFR 830 Subpart B. Title 10 Code of Federal Regulations (CFR) Part 830, Subpart B, 'Safety Basis Requirements,' requires the contractor responsible for a Department of Energy (DOE) nuclear facility to analyze the facility, the work to be performed, and the associated hazards and to identify the conditions, safe boundaries, and hazard controls necessary to protect workers, the public, and the environment from adverse consequences. Canceled by DOE G 421.1-2A	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0421.1-EGuide-2/@@images/file
DOE G 421.1-2A	2011 December	*Implementation Guide for Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830,* ***DOE Guide***	SUMMARY Title 10 CFR Part 830, Subpart B, Safety Basis Requirements, requires the contractor responsible for a Department of Energy (DOE) nuclear facility to analyze the facility, the work to be performed, and the associated hazards and to identify the conditions, safe boundaries, and hazard controls necessary to protect workers, the public, and the environment from adverse consequences. Supersedes DOE G 421.1-2 referenced in DOE O 151.1D, Attachment 4, 2.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0421.1-EGuide-02a

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DOE G 424.1-1B Chg 2 (Adm Chg)	2011 April	*Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*, ***DOE Guide***	PURPOSE This Guide, including its attachments, provides information to assist in the implementation of Title 10 Code of Federal Regulations (CFR) Section 830.203, "Unreviewed Safety Question Process," of the Nuclear Safety Management Rules for Category 1, 2, and 3 nuclear facilities owned or operated by the Department of Energy (DOE), including the National Nuclear Security Administration (NNSA). Admin Chg 2, dated 6-12-13, supersedes DOE G 424.1-1B Admin Chg 1.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0424.1-EGuide-1b-Chg2-admchg/@@images/file
DOE G 450.4-1C	2011 September	*Integrated Safety Management System Guide*, ***DOE Guide***	SUMMARY This Guide was developed in support of DOE Policy 450.4A, *Integrated Safety Management Policy*, and DOE Order 450.2, *Integrated Safety Management*. It provides guidance that may be useful to DOE line management organizations for meeting the provisions of that order and to DOE contractors for meeting the provisions of DOE Acquisition Regulations (DEAR), 48 CFR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0450.4-EGuide-1c/@@images/file
DOE M 231.1-2	2003 August	*Occurrence Reporting and Processing of Operations Information*, ***DOE Manuel***	PURPOSE This Manual provides detailed requirements to supplement DOE O 231.1A, Environment, Safety, and Health Reporting, dated 08-19-03. This Manual is approved for use by all DOE Elements and their contractors.	US DOE	https://www.directives.doe.gov/directives-documents/200-series/0231.1-DManual-2/@@images/file
DOE O 151.1D	2016 August	*Comprehensive Emergency Management System*, ***DOE Order***	PURPOSE To provide the Department of Energy, including the National Nuclear Security Administration (NNSA), (herein referred to as DOE or Department) policy for the development, management, and administration of the DOE Emergency Management System. This Order meets the requirements of Executive Orders, Policies, and Directives regarding emergency management; including Homeland Security Presidential Directive (HSPD) 5, which mandates that the Department adopt the National Incident Management System, in support of the National Response Framework. It assigns responsibilities, authorities, and accountabilities to the appropriate levels of Department management, promotes collaboration through consensus based programmatic decision making, and provides policy direction for coordination of these activities within the Department, and with other government and non-government organizations, to ensure efficiency and effectiveness.	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0151.1-BOrder-d/@@images/file
DOE O 153.1	2007 June	*Departmental Radiological Emergency Response Assets*, ***DOE Order***	OBJECTIVE To establish requirements and responsibilities for the Department of Energy's (DOE's) National Nuclear Security Administration (NNSA) national radiological emergency response (RER) assets and capabilities and Nuclear Emergency Support Team (NEST) assets. This Order is not intended to provide details concerning operational procedures nor readiness reporting of NEST assets. It provides the basic structure of the assets and management that collectively comprise the NEST and RER. Operational procedures and reporting requirements are contained in handbooks, manuals, standard operating procedures, policy notes, classification guidance, memoranda of understanding and agreement, field operations guides and other documentation maintained and	US DOE	https://www.directives.doe.gov/directives-documents/100-series/0153.1-BOrder/@@images/file

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			promulgated by the NNSA Office of Emergency Operations and Office of Emergency Response. These procedures follow the structures described in the National Incident Management System (NIMS) and are consistent with the National Response Plan (NRP) and DOE Order 151.1C. The assets described in this Order consist of both the personnel and equipment needed to perform carefully defined missions related to nuclear/radiological emergency response. Other existing statutes, regulations, directives, and standards applicable to emergency response assets also apply for planning, preparedness and response.		
DOE O 210.2A	2011 April	*DOE Corporate Operating Experience Program*, ***DOE Order***	PURPOSE a. To institute a DOE wide program for the management of operating experience complex-wide to prevent adverse operating incidents and facilitate the sharing of good work practices among DOE sites, while enabling tailored local operating experience programs based on the nature of work, hazards, and organizational complexities. Operating experiences can be found in all disciplines. b. To provide the systematic review, identification, collection, screening, evaluation, and dissemination of operating experience from U.S. and foreign government agencies and industry, professional societies, trade associations, national academies, universities, and DOE and its contractors. c. c. To define the DOE Corporate Operating Experience Program so that it can be integrated into major management programs—reinforcing the core functions and guiding principles of DOE's Integrated Safety Management System (ISMS)—and enhance mission accomplishment, quality assurance, safety and reliability.	US DOE	https://www.directives.doe.gov/directives-documents/200-series/0210.2-BOrder-a/@@images/file
DOE O 225.1B	2011 March	*Accident Investigations*, ***DOE Order***	PURPOSE This Order prescribes organizational responsibilities, authorities, and requirements for conducting investigations of certain accidents occurring at DOE sites, facilities, areas, operations, and activities. Supersedes DOE O 225.1A. Cancels DOE G 225.1A-1.	US DOE	https://www.directives.doe.gov/directives-documents/200-series/0225.1-BOrder-b
DOE O 226.1B	2011 April	*Implementation of DOE Oversight Policy*, ***DOE Order***	PURPOSE This Order establishes requirements and provides direction for implementing DOE Policy (P) 226.1B, Department of Energy Oversight Policy, dated 04-25-11.	US DOE	https://www.directives.doe.gov/directives-documents/200-series/0226.1-BOrder-b/@@images/file
DOE O 232.2A	2017 January	*Occurrence Reporting and Processing of Operations Information*, ***DOE Order***	OBJECTIVE To notify DOE personnel, including NNSA personnel, about events that could adversely affect the health and safety of the public or the workers, the environment, DOE missions, or the credibility of the Department. This Order also promotes organizational learning consistent with DOE's Integrated Safety Management System goal of enhancing mission safety and sharing effective practices to support continuous improvement and adaptation to change. Supersedes DOE O 232.2, Chg 1 referenced in DOE O 151.1D, Attachment 3, 13.c.2.	US DOE	https://www.directives.doe.gov/directives-documents/200-series/0232.2-BOrder-A/@@images/file

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DOE O 243.1B, Chg 1 (Adm Chg)	2013 July	*Records Management Program*, ***DOE Order***	PURPOSE To set forth requirements and responsibilities for creating and preserving records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the DOE and to provide information necessary to protect the legal and financial rights of the Government and persons directly affected by DOE activities. See 44 United States Code (U.S.C.) 3101. a. To establish and sustain a central federated enterprise wide methodology for promoting the lifecycle management of records and information content that ensures the authenticity, usability, and integrity of DOE records. To ensure effective privacy protection and control; protection and control of all records and non-records materials in DOE custody; appropriate DOE Federal and contractor employee awareness of responsibilities; the technical capability to manage electronic records; and identification and transfer of permanent records to the National Archives. To ensure all activity is in compliance with the Federal Records Act [Public Law (Pub. L.) 81-574], as amended; the E-Government Act of 2002 and other legislation as referenced in paragraph 7 of this Order. b. To establish and sustain vital records management providing DOE with the information needed to conduct business under other than normal operating conditions and to resume normal business afterward. To enable DOE officials to identify and protect essential records dealing with emergency operations and the legal and financial rights of DOE and persons directly affected by DOE actions (36 Code of Federal Regulations (CFR) 1223.12). c. To preserve records and information for future use and establish a historical account of the Department for succeeding generations.	US DOE	https://www.directives.doe.gov/directives-documents/200-series/0243.1-BOrder-b-admchg1
DOE O 413.3B Chg 1 (Adm Chg)	2015 October	*Program and Project Management for the Acquisition of Capital Assets*, ***DOE Order***	PURPOSE The purpose of this Order is to a) provide the DOE Elements, including the NNSA, with program and project management direction for the acquisition of capital assets with the goal of delivering projects within the original performance baseline, cost and schedule, and fully capable of meeting mission performance, safeguards and security, and environmental, safety, and health requirements unless impacted by a directed change; and b) implement Office of Management and Budget Circulars to include: A-11, Part 7, Capital Programming Guide, which prescribes new requirements and leading practices for project and acquisition management; A-123, Management's Responsibility for Internal Control, which defines management's responsibility for internal control in Federal agencies; and A-131, Value Engineering, which requires that all Federal agencies use Value Engineering as a management tool.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0413.3-BOrder-b-chg1-admchg

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DOE O 414.1D Chg 1 (Adm Chg)	2013 May	*Quality Assurance*, ***DOE Order***	PURPOSE a. To ensure that DOE, including NNSA, products and services meet or exceed customers' requirements and expectations. b. To achieve quality for all work based upon the following principles: (1) All work, as defined in this Order, is conducted through an integrated and effective management system; (2) Management support for planning, organization, resources, direction, and control is essential to quality assurance (QA); (3) Performance and quality improvement require thorough, rigorous assessments and effective corrective actions; (4) All personnel are responsible for achieving and maintaining quality; and (5) Risks and adverse mission impacts associated with work processes are minimized while maximizing reliability and performance of work products. c. To establish additional process-specific quality requirements to be implemented under a Quality Assurance Program (QAP) for the control of suspect/counterfeit items (S/CIs), and nuclear safety software as defined in this Order.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0414.1-BOrder-d-admchg1
DOE O 420.1C, Chg.1 (Pg Chg)	2015 February	*Facility Safety*, ***DOE Order***	OBJECTIVE To establish facility and programmatic safety requirements for the DOE, including the NNSA, for: a. Nuclear safety design criteria; b. Fire protection; c. Criticality safety; d. Natural phenomena hazards (NPH) mitigation; and, e. Cognizant system engineer program. Facility safety requirements for explosive, chemical, and industrial hazards are contained in other DOE rules and directives.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0420.1-BOrder-C-chg1-pgchg
DOE O 420.2C	2011 July	*Safety of Accelerator Facilities*, ***DOE Order***	PURPOSE The Order defines accelerators and establishes accelerator specific safety requirements and approval authorities which, when supplemented by other applicable safety and health requirements, promote safe operations to ensure protection of workers, the public, and the environment. Supersedes DOE O 420.2B, which is referenced in DOE O 151.1D, Attachment 4, 2.m	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0420.2-BOrder-c
DOE O 422.1, Chg 2 (Adm Chg)	2014 December	*Conduct of Operations*, ***DOE Order***	PURPOSE The objective of this Order is to define the requirements for establishing and implementing Conduct of Operations Programs at DOE, including NNSA, facilities and projects. A Conduct of Operations Program consists of formal documentation, practices, and actions implementing disciplined and structured	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0422.1-BOrder-chg2-admchg

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			operations that support mission success and promote worker, public, and environmental protection. The goal is to minimize the likelihood and consequences of human fallibility or technical and organizational system failures. Conduct of Operations is one of the safety management programs recognized in the Nuclear Safety Rule [Title 10 CFR Part 830, Nuclear Safety Management], but it also supports safety and mission success for a wide range of hazardous, complex, or mission-critical operations, and some conduct of operations attributes can enhance even routine operations. It supports the Integrated Safety Management (ISM) System by providing concrete techniques and practices to implement the ISM Core Functions of Develop and Implement Hazard Controls and Perform Work Within Controls. It may be implemented through facility policies, directives, plans, and safety management systems and need not be a stand-alone program. The term "operations" encompasses the work activities of any facility or organization, from building infrastructure, to print shops and computer centers, to scientific research, and to nuclear facilities. While many hazards can be dealt with through engineered solutions, people still have to perform operations, and they can and do make mistakes. The purpose of this Order is to ensure that management systems are designed to anticipate and mitigate the consequences of human fallibility or potential latent conditions and to provide a vital barrier to prevent injury, environmental insult or asset damage, and to promote mission success.		
DOE O 426.1A	2017 January	*Federal Technical Capability Program,* ***DOE Order***	PURPOSE To define requirements and responsibilities for meeting the DOE commitment to recruiting, deploying, developing, and retaining a technically competent workforce that will accomplish DOE missions in a safe and efficient manner through the Federal Technical Capability Program (FTCP). The Department will strive to recruit and hire technically capable people; continuously develop the technical expertise of its existing workforce; and, within the limitations of executive policy and Federal law, retain critical technical capabilities within the Department at all times. The FTCP principles are as follows: a. As described in the Department's ISM Guiding Principles, Federal personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their safety responsibilities; b. Line managers are accountable and have the responsibility, authority, and flexibility to achieve and maintain organizational technical excellence; c. Supporting organizations (personnel, training, contracts, finance, etc.) recognize line managers as customers and effectively support them in achieving and maintaining technical capabilities; and d. d. An integrated corporate approach is required to assure that necessary technical capabilities and resources are available to meet the overall needs of the Department's defense nuclear facility missions.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0426.1-BOrder-a

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DOE O 426.2, Chg 1 (Adm Chg)	2013 July	*Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, ***DOE Order***	PURPOSE To establish selection, training, qualification, and certification requirements for contractor personnel who can impact the safety basis through their involvement in the operation, maintenance, and technical support of Hazard Category 1, 2, and 3 nuclear facilities. The Systematic Approach to Training as defined in the Contractor Requirements Document of this Order is designed to ensure that these personnel have the requisite knowledge, skills and abilities to properly perform work in accordance with the safety basis. The Nuclear Safety Management rule, 10 CFR 830, requires QAPs and Documented Safety Analyses to address training. The training programs established to comply with this Order support those requirements. This Order updates and consolidates DOE training requirements consistent with applicable aspects of current industry standards of ANSI/ANS 3.1-1993, American National Standard, Selection, Qualification and Training of Personnel for Nuclear Power Plants, ANSI/ANS 15.4-2007, American National Standard, Selection and Training of Personnel for Research Reactors, and 10 CFR 55, Operators' Licenses, based on years of DOE experience. Implementation of the requirements of this Order will address 10 CFR 830.122, Criteria 2 – Management/Personnel Training and Qualification.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0426.2-BOrder-chg1-admchg
DOE O 433.1B	2010 April	*Maintenance Management Program for DOE Nuclear Facilities*, ***DOE Order***	PURPOSE The order defines the safety management program required by 10 CFR 830.204(b)(5) for maintenance and the reliable performance of structures, systems and components that are part of the safety basis required by 10 CFR 830.202 at hazard category 1, 2 and 3 DOE nuclear facilities. Admin Chg 1, dated 3-12-2013. Cancels DOE O 433.1A.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0433.1-BOrder-b/@@images/file
DOE O 440.1B, Chg 2 (Adm Chg)	2013 March	*Worker Protection Program for DOE(Including NNSA Federal Employees)* , ***DOE Order***	OBJECTIVE The Order establishes the framework for an effective worker protection program that will reduce or prevent injuries, illnesses, and accidental losses by providing DOE and NNSA Federal workers with a safe and healthful workplace. Supersedes DOE O 440.1B Chg 1.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0440.1-BOrder-b-chg2-AdmChg
DOE O 442.1A	2001 June	*DOE Employee Concerns Program*, ***DOE Order***	OBJECTIVE As a service to all Departmental Elements, the following will be to establish a DOE Employee Concerns Program (ECP) that ensures employee concerns related to such issues as the environment, safety, health, and management of DOE and the NNSA programs and facilities are addressed through— a. prompt identification, reporting, and resolution of employee concerns regarding DOE facilities or operations in a manner that provides the highest degree of safe operations; b. free and open expression of employee concerns that results in an independent, objective evaluation; and	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0442.1-BOrder-A

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			c. supplementation of existing processes with an independent avenue for reporting concerns.		
DOE O 442.2, Chg 1 (Pg Chg)	2016 October	*Differing Professional Opinions for Technical Issues Involving Environmental, Safety, and Health Technical Concerns,* ***DOE Order***	PURPOSE This Order establishes the DOE Differing Professional Opinion (DPO) process for employees to raise technical concerns related to environment, safety, and health (ES&H) which cannot be resolved using routine processes. The DPO process is intended to supplement, not replace, existing processes designed to address concerns. Employees must first seek to resolve concerns with their first line supervisors or use established concern or complaint resolution systems. If these systems have not dealt, or cannot deal, effectively with an ES&H technical concern, the concern may be submitted to the appropriate DPO manager as described in the DPO process (Attachment 2). In addition, ES&H technical concerns submitted to the DOE Employee Concerns Program (ECP) established in DOE O 442.1A, Department of Energy Employee Concerns Program, may be transferred to the DPO process for review and disposition.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0442.2-BOrder-chg1-pgchg
DOE O 450.2, Chg 1 (Min Chg)	2017 January	*Integrated Safety Management,* ***DOE Order***	PURPOSE To ensure that the DOE, including the 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. Throughout this Order, "safety" is used synonymously with ES&H.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0450.2-BOrder-chg1-MinChg
DOE O 450.2X, Chg 1 (Min Chg)	2011 April	*Integrated Safety Management,* ***DOE Order***	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. Throughout this Order, "safety" is used synonymously with environment, safety, and health (ES&H).	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0450.2-BOrder-chg1-MinChg/@@images/file
DOE O 458.1, Chg 3 (Adm Chg)	2013 January	*Radiation Protection of the Public and the Environment,* ***DOE Order***	PURPOSE a. To establish requirements to protect the public and the environment against undue risk from radiation associated with radiological activities conducted under the control of the DOE pursuant to the Atomic Energy Act of 1954, as amended (AEA). b. The objectives of this Order are: (1) To conduct DOE radiological activities so that exposure to members of the public is maintained within the dose limits established in this Order; (2) To control the radiological clearance of DOE real and personal property; (3) To ensure that potential radiation exposures to members of the public are as low as is reasonably achievable;	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0458-1-border-admc3

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			(4) To ensure that DOE sites have the capabilities, consistent with the types of radiological activities conducted, to monitor routine and non-routine radiological releases and to assess the radiation dose to members of the public; and (5) To provide protection of the environment from the effects of radiation and radioactive material.		
DOE O 460.1D	2016 December	*Hazardous Materials Packaging and Transportation Safety,* ***DOE Order***	PURPOSE This Order of the DOE, including the NNSA, establishes safety requirements for the proper packaging and transportation of offsite shipments and onsite transfers of hazardous materials, including radioactive materials.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0460.1-BOrder-D
DOE O 470.4B Chg 2 (Min Chg)	2017 January	*Safeguards and Security Program,* ***DOE Order***	PURPOSE The Order establishes responsibilities and program planning and management requirements for the Safeguards and Security Program. Supersedes DOE O 470.4B Chg 1, which is referenced in DOE O 151.1D,	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0470.4-BOrder-B-Chg2-MinChg
DOE P 450.4A	2011 April	*Integrated Safety Management Policy,* ***DOE Policy***	PURPOSE To establish the Department of Energy's (DOE) expectation for safety,1 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. This Policy cancels and supersedes DOE Policy (P) 411.1, Safety Management Functions, Responsibilities, and Authorities Policy, dated 1-28-97; DOE P 441.1, DOE Radiological Health and Safety Policy, dated 4-26-96; DOE P 450.2A, Identifying, Implementing and Complying with Environment, Safety and Health Requirements, dated 5-15-96; DOE P 450.4, Safety Management System Policy, dated 10-15-96; and DOE P 450.7, Environment, Safety and Health (ESH) Goals, dated 8-2-04.	US DOE	https://www.directives.doe.gov/directives-documents/400-series/0450.4-APolicy-a/@@images/file
DOE-HDBK-1028-2009	2009 June	*Human Performance Improvement Handbook, Volume 2: Human Performance Tools for Individuals, Work Teams, and Management,* ***DOE Handbook***	SUMMARY This good practice handbook provides a set of practical methods and techniques for anticipating, preventing, and catching active human errors; and, more importantly, identifying and mitigating latent errors attributable to organizational factors. As with Volume 1, the practices described are intended to be illustrative, not definitive. They are intended to illustrate how the concepts discussed in Volume 1 have been translated into application and practice in DOE, the commercial nuclear power industry, aviation and similar high hazard endeavors. When used effectively these type tools can improve human performance in the workplace. By reducing errors, organizations are helping to eliminate events. The handbook is intended for managers and those who report to them, who are responsible for implementing performance improvement enhancements. The tools provided are applicable to workers who touch facility equipment, components, or systems and are capable of altering the status or configuration of them. These tools also apply to scientists, engineers, procedure writers, trainers, and other knowledge workers who create and modify the paper plant and who can make errors and mistakes that can enter into the system and later cause	US DOE	https://www.standards.doe.gov/files/doe-hdbk-1028-2009-human-performance-improvement-handbook-volume-2-human-performance-tools-for-individuals-work-teams-and-management

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			events. Thirdly, the handbook provides error-reduction methods supervisors and managers can use in their quest to identify organizational weaknesses or conditions that increase the likelihood or the consequences of error. Reducing error and managing controls —by eliminating latent system weaknesses—is the human performance paradigm for achieving zero significant events (Re + Mc → ØE). An additional intent of this handbook is to establish a common understanding of the standards and conditions for effective application of error detection and prevention methods, hereafter referred to as "tools." The primary references used in the development of individual and work team human performance tools described in this document come from "Good Practice" guides titled Human Performance Tools for Workers, April 2006; and A Tool Kit of Proactive Industry Practices to Prevent Errors and Events, revised March 2005, from the commercial nuclear power industry's Institute for Nuclear Power Operations (INPO). The tools described therein reflect years of user experience among INPO's membership, as well as experience INPO has gained from plant evaluations, assistance visits, operating experience, and benchmarking trips to member utilities in the commercial nuclear power industry to validate the usefulness of these tools. Additionally, experience by the Department of Energy (DOE) contractor organizations in the use of several of these tools over the years is further witness to their value. Numerous references were used in the development of the management tools, including DOE and INPO publications and books and articles on accident reduction associated with human error.		
DOE-HDBK-1046-2016	2016 December	*Temporary Emergency Exposure Limits for Chemicals: Methods and Practice,* ***DOE Handbook***	OBJECTIVE The objective of this document is to present the following information associated with Temporary Emergency Exposure Limits (TEEL) values: • The need for emergency exposure limits in general and for TEEL values in particular is described in Section 2.3. • The methods used by a team of chemists/toxicologists established by DOE Headquarters to derive TEEL values for hazardous chemicals are listed in Section 3. • Details regarding TEEL development administration are provided in Section 4. • Quality assurance and control measures to ensure TEEL values are appropriately derived are described in Section 5.	US DOE	https://sp.eota.energy.gov/EM/Shared%20Documents/DOE-HDBK-1046-2016.pdf
DOE-HDBK-1163-2003	2003 October	*Integration of Multiple Hazard Analysis Requirements and Activities,* ***DOE Handbook***	PURPOSE This Handbook is intended to provide DOE and contractor safety personnel with a resource to support the planning, technical review, or conduct of hazard analysis activities. Clarifications of requirements and discussions of best practices can be used to help improve cost effectiveness, clarify organizational roles and responsibilities, and provide a basis for enhancing the technical quality of hazard analysis activities. The term "hazard" as used in this Handbook is intended to mean a source of danger with the potential to cause illness, injury, or death to a person or damage to a facility or to the environment (without regard to the likelihood or credibility of accident scenarios or consequence mitigation). Hazards may involve	US DOE	https://www.standards.doe.gov/standards-documents/1100/1163-bhdbk-2003/@@images/file

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			radioactive or chemically hazardous materials, energy sources, or other potentially adverse conditions found in the workplace. This Handbook can be applied to a broad set of activities conducted at DOE facilities, including nuclear or non-nuclear related processing, waste management, and laboratory and decommissioning operations. It is not intended to apply to DOE facilities engaged in developing, manufacturing, handling, storing, transporting, processing, or testing of explosives, pyrotechnics and propellants, or assemblies containing these materials. These activities represent a small sector of DOE's current missions and facilities, and are specifically covered by DOE M 440.1-1, DOE Explosives Safety Manual.		
DOE-HDBK-1216-2015	2015 March	*Environmental Radiological Effluent Monitoring and Environmental Surveillance,* ***DOE Handbook***	PURPOSE The purpose of this Handbook is to identify procedures, systems, methods, instruments and practices that may be used to plan and implement radiological effluent monitoring and environmental surveillance that meet the requirements in DOE Order (O) 458.1, Radiation Protection of the Public and the Environment. Effluent monitoring and environmental surveillance activities, like other DOE activities, present risks and hazards that need to be considered in planning the work. The focus of this document is on the sampling, monitoring and analysis activities and although not addressed in detail in this Handbook, appropriate job hazard analyses are necessary to ensure worker safety.	US DOE	http://www.id.energy.gov/eser/DOC/DOE-HDBK-1216-2015v2.pdf
DOE-STD-1004-92	1992 February	*Root Cause Analysis Guidance Document,* ***DOE Standard***	SUMMARY DOE Order 5000.3A, "Occurrence Reporting and Processing of Operations Information," requires the investigation and reporting of occurrences (including the performance of root cause analysis) and the selection, implementation, and follow-up of corrective actions. The level of effort expended should be based on the significance attached to the occurrence. Most off-normal occurrences need only a scaled down effort while most emergency occurrences should be investigated using one or more of the formal analytical models. A discussion of methodologies, instructions, and worksheets in this document guides the analysis of occurrences as specified by DOE Order 5000.3A.	US DOE	https://www.standards.doe.gov/standards-documents/1000/1104-std-1992/@@images/file
DOE-STD-1020-2012	2012 December	*Natural Phenomena Hazards Analysis and Design Criteria for DOE Facilities,* ***DOE Standard***	PURPOSE STD-1020-2012, provides criteria and guidance for the analysis and design of facility structures, systems, and components (SSCs) that are necessary to implement the requirements of DOE Order (O) 420.1C, Facility Safety, and to ensure that the SSCs will be able to effectively perform their intended safety functions under the effects of NPHs. This Standard also provides criteria and guidance for the use of industry building codes and voluntary consensus standards in the NPH analysis and design of SSCs in DOE facilities.	US DOE	https://www.standards.doe.gov/standards-documents/1000/1020-AStd-2012/@@images/file
DOE-STD-1027-92 Chg 1	1997 September	*Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports,* ***DOE Standard***	PURPOSE The purpose of this DOE Standard is to establish guidance for the preparation and review of hazard categorization and accident analyses techniques as required in DOE Order 5480.23, Nuclear Safety Analysis Reports. This new Order requires further guidance to ensure consistency across all nuclear facilities within the DOE complex. This DOE Standard imposes no new requirements on nuclear facilities. Instead, it focuses on (1) the definition of the standard identifying	US DOE	https://www.standards.doe.gov/standards-documents/1000/1027-AStd-1992-cn1/@@images/file

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			nuclear facilities required to have SARs in order to comply with the Order, (2) the SAR implementation plan and schedule, (3) the hazard categorization methodology to be applied to all facilities, and (4) the accident analysis techniques appropriate for the graded approach addressed in the Order. DOE Order 5480.23 and its attached guidance document provide some direction on the use of the graded approach. This report is intended not to supersede that direction, but to supplement and clarify it. Methods other than those suggested in this guide may be considered for applying the graded approach, but they must be justified whenever grading is applied.		
DOE-STD-1158-2010	2010 March	*Self-Assessment Standard for DOE Contractor Criticality Safety Programs*, ***DOE Standard***	PURPOSE The purpose of this document is to provide an assessment guide for review of DOE Contractor criticality safety programs. Assessment of elements as indicated in this Standard will evaluate whether the program meets the requirements of ANSI/ANS-8.19-2005, Administrative Practices for Nuclear Criticality Safety, as well as related ANSI/ANS-8 series standards and some requirements of DOE Order DOE O 420.1b. These standards represent the consensus practices for criticality safety programs. Although titled as a self-assessment standard, it is often used by DOE and external review teams. This standard may be used for evaluating nuclear criticality safety programs for facilities and activities that involve, or potentially involve, nuclides in quantities that are equal to or greater than the single parameter limits for fissionable materials listed in ANSI/ANS-8.1 and 8.15.	US DOE	https://www.standards.doe.gov/standards-documents/1100/1158-astd-2010/@@images/file
DOE-STD-1189-2008	2008 March	*Integration of Safety into the Design Process*, ***DOE Standard***	SUMMARY The Standard provides guidance on a process of integration of Safety-in-Design intended to implement the applicable ISM core functions—define the work, analyze the hazards, establish the controls—necessary to provide protection of the public, workers, and the environment from harmful effects of radiation and other such toxic and hazardous aspects attendant to the work. The Standard is written primarily for the use of the contractor(s) responsible for the design of a new facility. The processes described in the Standard, in addition to facilitating the integration of safety into design by the contractor, result in the development of several documents for input to the federal project team, the Federal Project Director and his Integrated Project Team (IPT).	US DOE	https://www.standards.doe.gov/standards-documents/1100/1189-AStd-2008/@@images/file
DOE-STD-1212-2012	2012 June	*Explosives Safety*, ***DOE Standard***	PURPOSE This Technical Standard contains the safety requirements that were contained in the Department of Energy (DOE) Manual (M) 440.1-1A, DOE Explosives Safety Manual (2006). It provides the basic technical requirements for an explosives safety program necessary for operations involving explosives, explosives assemblies, pyrotechnics and propellants, and assemblies containing these materials. Technical changes in this Standard may differ from the former *DOE Explosives Safety Manual* or site-issued versions of the Manual. However, all of the changes have been proposed, reviewed, deliberated, and recommended by the DOE Explosives Safety Committee and are approved in accordance with DOE's Technical Standard Program requirements. This Technical Standard will	US DOE	https://www.standards.doe.gov/standards-documents/1200/1212-astd-2012/@@images/file

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			serve as the successor document for the DOE Explosives Safety Manual and may be used in accordance with requirements of 10 CFR 851 Appendix A 3.(b).		
DOE-STD-3009-2014	2014 November	*Preparation of Nonreactor Nuclear Facility Documented Safety*, ***DOE Standard***	PURPOSE The goal of this revised Standard is to provide clearer criteria and guidance to support effective and consistent Documented Safety Analyses (DSAs) based upon lessons learned in implementing DOE-STD-3009-94. Individual facilities, sites, and program offices may choose or be directed to apply this revision for upgrading a facility or site DSA, if desired. If a facility, site, or program office chooses to use this DOE-STD-3009 revision for upgrading an existing DSA, then this revision is required by 10 CFR Part 830 to be implemented in its entirety (i.e., all applicable "shall" statements are met) if it is used as the safe harbor. Where DSA upgrades support changes to the identified hazard controls, such changes should be carefully considered to ensure a conservative approach is preserved.	US DOE	https://www.standards.doe.gov/standards-documents/3000/3009-astd-2014/@@images/file
DOE-STD-3009-94, Chg 3	2006 March	*Preparation Guide for U.S. DOE Nonreactor Nuclear Facility Documented Safety*, ***DOE Standard***	SUMMARY This Standard describes a DSA preparation method that is acceptable to the DOE as delineated for those specific facilities listed in Table 2 of Appendix A, "General Statement of Safety Basis Policy," to Subpart B, "Safety Basis Requirements," of 10 CFR 830. It was developed to assist Hazard Category 2 and 3 facilities in preparing SARs that will satisfy the requirements of 10 CFR 830. Hazard Category 1 facilities are typically expected to be Category A reactors for which extensive precedents for SARs already exist. Guidance provided by this Standard is generally applicable to any facility required to document its safety basis in accordance with 10 CFR 830. For new facilities in which conceptual design or construction activities are in progress [i.e., Preliminary Documented Safety Analysis (PDSAs)] elements of this guidance may be more appropriately handled as an integral part of the overall design requirements process (e.g., preliminary design to design criteria). The methodology provided by this Standard focuses more on characterizing facility safety (i.e., back-end approach) with or without well-documented information than on the determination of facility design (i.e., front end approach). Accordingly, contractors for facilities that are documenting conceptual designs for PDSAs should apply the process and format of this Standard to the extent it is judged to be of benefit.	US DOE	https://www.standards.doe.gov/standards-documents/3000/3009-astd-1994-cn3-2006/@@images/file
DOT/ERG	2016	*Quickly Identify Hazardous Materials Emergency Response Guidebook*	SUMMARY PHMSA's 2016 Emergency Response Guidebook provides first responders with a go-to manual to help deal with hazmat transportation accidents during the critical first 30 minutes. DOT's goal is to place an ERG in every public emergency service vehicle nationwide. To date, nearly 14.5 million free copies have been distributed to the emergency response community through state emergency management coordinators. Members of the public may purchase a copy of the ERG through the GPO Bookstore and other commercial suppliers.	NRC, US DOT	https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/ERG2016.pdf

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EA-WIPP-FSE-2016-06-21	2016 June	*Observation of Emergency Management Full-Scale Exercise at WIPP,* ***Drills&Exer***	PURPOSE The U.S. DOE Office of Emergency Management Assessments, within the independent Office of Enterprise Assessments (EA), observed the Carlsbad Field Office (CBFO) and Nuclear Waste Partnership, LLC (NWP) full-scale exercise (FSE) for the WIPP. The FSE is the most complex of the operations-based exercises. NWP designed the FSE to test many aspects of an integrated emergency response and focused on implementing, analyzing, and evaluating plans, policies, and procedures. NWP projected events through a scripted exercise scenario with built-in flexibility, allowing updates to drive activity. CBFO and NWP responded to events in real time, which included a stressful environment closely mirroring a real event. NWP mobilized and deployed first responders and resources to the scene where they conducted their actions, as nearly as possible, as if a real incident had occurred. NWP has been significantly revising the WIPP emergency management program since the shutdown of WIPP operations in February 2014 because of a vehicle fire in the mine and a subsequent, separate radiological material release in the mine caused by an exothermic reaction in a transuranic waste drum. The purpose of the FSE was to demonstrate and evaluate the ability of the CBFO and NWP site-level Emergency Response Organization (ERO) to recognize, respond to, contain, and mitigate an operational emergency within the site boundary. Additionally, the exercise evaluated the effectiveness of programs, plans, and procedures, as well as facility and site support systems during a simulated classifiable emergency event involving transuranic waste. The exercise also allowed the WIPP ERO to interface and integrate response activities with DOE Headquarters and local, state, and Federal agencies that would support response efforts during an actual event. During this assessment, the Office of Emergency Management Assessments reviewed the communications and emergency information flow supporting decision-making processes in the following areas: information between NWP and CBFO; information from WIPP emergency operations center (EOC) to DOE Headquarters; offsite information exchange; and public information. The Senior Federal Official and CBFO representative are the two CBFO positions in the ERO. EA discussed all identified observations with CBFO and NWP on a real-time basis. This EA activity is part of a planned multi-phase review for assessing WIPP's emergency management program elements.	US DOE	https://www.energy.gov/sites/prod/files/2016/08/f33/OAR-EA-WIPP-FSE-2016-06-21.pdf
EPA-400/R-17/001	2017 January	*PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents (2017 PAG Manual),* ***EPA Guide***	SUMMARY The U.S. Environmental Protection Agency (EPA) has developed this Manual to assist public officials in planning for emergency response to radiological incidents. For purposes of this document, a radiological incident is an event or a series of events, deliberate or accidental, leading to the release or potential release into the environment of radioactive materials in sufficient quantity to warrant consideration of protective actions. This Manual provides radiological protection criteria for application to all incidents that would require consideration of protective actions.	EPA	https://www.epa.gov/sites/production/files/2017-01/documents/epa_pag_manual_final_revisions_01-11-2017_cover_disclaimer_8.pdf
FDIC 2008	2008 April	*Lessons Learned from Hurricane Katrina:*	SUMMARY	FDIC	https://www.fdic.gov/regulations/resources/lessons/

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		Preparing Your Institution for a Catastrophic Event, ***Katrina Web Resource***	The Federal Financial Institutions Examination Council (FFIEC) member agencies (regulatory agencies)1 and the Conference of State Bank Supervisors are relaying comments made by financial institutions regarding lessons they learned from the effects of Hurricane Katrina. Financial institutions have responded admirably to the unique challenges raised by successive hurricane seasons with significant storms. Major challenges faced by these institutions included the following: • Communications outages made it difficult to locate missing personnel. • Access to and reliable transportation into restricted areas were not always available. • Lack of electrical power or fuel for generators rendered computer systems inoperable. • Multiple facilities were destroyed outright or sustained significant damage. • Some branches and ATMs were underwater for weeks. • Mail service was interrupted for months in some areas.		
HIAR-SNL-2011-08-25	2011 August	*Office of Enforcement and Oversight's Office of Safety and Emergency Management Evaluations Activity Report for the Sandia National Laboratories Emergency Action Levels and Associated Consequence Analyses,* ***Drills&Exer***	PURPOSE Personnel from the U.S. DOE Office of Health, Safety and Security (HSS), Office of Safety and Emergency Management Evaluations, met with Sandia Site Office and Sandia National Laboratories/New Mexico (SNL/NM) emergency management personnel to review the actions taken to resolve 2009 Independent Oversight findings pertaining to the emergency action levels (EALs) and the associated emergency planning hazards assessment consequence analyses. This review was to validate that SNL has made appropriate revisions to their EALs and that the incident commanders (ICs) can categorize and classify an emergency event in a timely manner using the EALs.	US DOE	https://energy.gov/sites/prod/files/hss/Enforcement%20and%20Oversight/Oversight/docs/reorts/semevals/2011_SNL_EAL_Review_Activity%20Report%20_Aug_22-25_2011.pdf
HSEEP	2013 April	*Homeland Security Exercise and Evaluation Program*	PURPOSE The Homeland Security Exercise and Evaluation Program (HSEEP) provides a set of guiding principles for exercise programs, as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. Exercises are a key component of national preparedness - they provide elected and appointed officials and stakeholders from across the whole community with the opportunity to shape planning, assess and validate capabilities, and address areas for improvement. Through the use of HSEEP, exercise program managers can develop, execute, and evaluate exercises that address the priorities established by an organization's leaders. These priorities are based on the National Preparedness Goal, strategy documents, threat and hazard identification and risk assessment processes, capability assessments, and the results from previous exercises and real-world events. These priorities guide the overall direction of a progressive exercise program, where individual exercises are anchored to a common set of priorities or objectives and build toward an increasing level of complexity over time. Accordingly, these priorities guide the design and development of individual	FEMA, US DHS	https://preptoolkit.fema.gov/documents/1269813/1269861/HSEEP_Revision_Apr13_Final.pdf/65bc7843-1d10-47b7-bc0d-45118a4d21da

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			exercises, as planners identify exercise objectives and align them to core capabilities for evaluation during the exercise. Exercise evaluation assesses the ability to meet exercise objectives and capabilities by documenting strengths, areas for improvement, core capability performance, and corrective actions in an After-Action Report/Improvement Plan (AAR/IP). Through improvement planning, organizations take the corrective actions needed to improve plans, build and sustain capabilities, and maintain readiness. In this way, the use of HSEEP - in line with the National Preparedness Goal and the National Preparedness System - supports efforts across the whole community that improve our national capacity to build, sustain, and deliver core capabilities.		
INPO 11-005	2011 November	*Special Report on the Nuclear Accident at the Fukushima Daiichi Nuclear Power Station,* ***FUKUSHIMA Report***	SUMMARY This report provides a narrative overview and timeline for the earthquake, tsunami, and subsequent nuclear accident at TEPCO Fukushima Daiichi Nuclear Power Station on March 11, 2011. The purpose of this report is to provide an accurate, consolidated source of information regarding the sequence of events that occurred in the first days of the accident. The information contained in this report may be used for determining future U.S. and international industry corrective actions.	INPO	https://www.nrc.gov/docs/ML1134/ML11347A454.pdf
LA-12846-MS	1994 November	*Specific Activities and DOE-STD-1027-92 Hazard Category 2 Thresholds LANL Fact Sheet,* ***Fact Sheet***	SUMMARY Data tables are presented to provide consistency in safety analysis work at the Los Alamos National Laboratory. Included are calculated specific activities and calculated hazard classification Category 2 threshold quantities for radionuclides listed in DOE-STD-1027-92. Some calculated threshold quantities differ from the DOE thresholds. Calculated specific activities are also presented for plutonium material types or mixtures.	LANL	http://permalink.lanl.gov/object/tr?what=info:lanl-repo/lareport/LA-12846-MS
LA-12981-MS	1995 August	*Table of DOE-STD-1027-92 Hazard Category 3 Threshold Quantities for the ICRP-30 List of 757 Radionuclides LANL Fact Sheet,* ***Fact Sheet***	SUMMARY A table of DOE-STD-1027-921 Hazard Category 3 threshold quantities, in units of curies and grams, is presented for the International Commission on Radiological Protection-30 (ICRP- 30) list of 757 radionuclides.2 The specific activity (Ci/gm) used to convert the threshold quantities from curies to grams is also calculated and tabulated. The half-life values used to generate the specific activities are those specified in ICRP-30.	LANL	http://permalink.lanl.gov/object/tr?what=info:lanl-repo/lareport/LA-12981-MS
LL-DrEx-DOE-02	2016 April	*Office of Enterprise Assessments Emergency Management Assessment of the Waste Isolation Pilot Plant,* ***Drills&Exer***	PURPOSE The U.S. DOE independent Office of Enterprise Assessments (EA) assessed emergency management at the Waste Isolation Pilot Plant (WIPP) to evaluate the effectiveness of WIPP's preparedness for responding to classifiable Operational Emergencies (OEs) as established by DOE Order 151.1C, Comprehensive Emergency Management System. During this assessment, EA evaluated the ability of various site response organizations to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate protective actions, establish command and control, and mitigate consequences from the postulated events. In addition, EA assessed WIPP's emergency management program plans and procedures, technical basis, and its training, drill, and exercise programs. Nuclear Waste Partnership, LLC (NWP) is the contractor at WIPP, and the DOE	US DOE	https://energy.gov/sites/prod/files/2016/04/f30/Emergency%20Management%20Assessment%20of%20the%20Waste%20Isolation%20Pilot%20Plant%20-%20April%202016.pdf

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			Carlsbad Field Office (CBFO) provides line oversight of WIPP operations on behalf of the Office of Environmental Management. EA performed this assessment of the WIPP site from October 20 through December 10, 2015. This report discusses the scope, background, methodology, results, and conclusions of the assessment, as well as the deficiencies, findings and opportunities for improvement (OFIs), as those terms are defined in DOE O 227.1A, Independent Oversight Program, identified by the assessment team.		
LL-DrEx-DOE-04	2017 June	*Office of Enterprise Assessments Assessment of the Pantex Plant 2017 Full-Scale Exercise,* ***Drills&Exer***	PURPOSE The U.S. DOE Office of Emergency Management Assessments, within the independent Office of Enterprise Assessments (EA), conducted an assessment of the Pantex Plant 2017 FSE, Chaos-17, from February 7 – March 9, 2017. The purpose of the exercise was to test and validate the effectiveness of the ERO in accordance with the currently published emergency plan and procedures and DOE Order 151.1C, Comprehensive Emergency Management System. Although the current Order revision is 151.1D, DOE has not incorporated 151.1D into the contract at Pantex. Chaos-17 was also intended to validate the complete set of newly developed plans and procedures developed in accordance with the DOE Implementation Plan (IP) responding to the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2015-1, Emergency Preparedness and Response at the Pantex Plant, as well as to validate corrective actions addressing EA findings from the Consolidated Nuclear Security, LLC (CNS) 2014 FSE. However, CNS had not completed some of the documents such as EALs in time for this exercise, and used existing approved documents for the event response in cases where the revised documents were not available. EA performed this assessment at the request of the NNSA Production Office (NPO) and in response to the IP to provide an interim independent assessment of CNS progress and effectiveness in using newly developed plans and procedures.	US DOE	https://energy.gov/sites/prod/files/2017/06/f34/Assessment%20of%20Pantex%20Plant%27s%202017%20Full-Scale%20Exercise.pdf
LL-DrEx-DOE-05	2016 July	*Office of Enterprise Assessments Assessment of the Nevada National Security Site 2016 Full-Scale Exercise DORSET-16,* ***Drills&Exer***	PURPOSE The U.S. Department of Energy (DOE) Office of Emergency Management Assessments, within the independent Office of Enterprise Assessments (EA), conducted an assessment of the preparedness of National Security Technologies, LLC (NSTec), and the National Nuclear Security Administration (NNSA) Nevada Field Office (NFO) emergency response organization (ERO) to respond to a simulated Operational Emergency (OE) in accordance with the site's emergency plans and procedures and DOE Order 151.1C, *Comprehensive Emergency Management System*. EA performed this assessment at the Nevada National Security Site (NNSS) from February 2 to March 10, 2016.	US DOE	https://energy.gov/sites/prod/files/2016/07/f33/Assessment%20of%20the%20NNSS%202016%20Full-Scale%20Exercise%20DORSET-16%20-%20July%202016.pdf
LL-DrEx-DOE-06	2017 June	*Office of Enterprise Assessments Office of Emergency Management Assessments 2016 Best Practices and Lessons Learned,* ***Drills&Exer***	SUMMARY The Office of Emergency Management Assessments, within the Office of Enterprise Assessments (EA), evaluates specific areas of interest related to emergency management capabilities at U.S. DOE facilities. This report provides an overview of the six EA emergency management assessments conducted in 2016, including an analysis of observed conditions as compared to DOE requirements. The report provides best practices, lessons learned, and recommendations to DOE line management for improving the effectiveness of emergency management programs.	US DOE	https://energy.gov/sites/prod/files/2017/06/f34/Office%20of%20Emergency%20Mgmt%20Assessments%202016%20Best%20Practices%20and%20Lessons%20Learned.pdf

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LL-DrEx-DOE-07	2016 May	*Office of Enterprise Assessments Lessons Learned from the 2015 Emergency Management Assessments,* ***Drills&Exer***	SUMMARY The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) oversight program is designed to enhance DOE safety and security programs by providing the Secretary and Deputy Secretary of Energy, Under Secretaries of Energy, other DOE managers, senior contractors, Congress, and other stakeholders with an independent evaluation of the adequacy of DOE policy and requirements and the effectiveness of DOE and contractor line management performance and risk management in safety and security and other critical functions as directed by the Secretary. The DOE independent oversight program is described in and governed by DOE Order 227.1A, Independent Oversight Program, and EA implements the program through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. The Office of Emergency Management Assessments, within EA, evaluates specific areas of interest at DOE facilities. This report is based on EA emergency management assessments conducted in 2015, including an analysis of observed conditions against the requirements in DOE Order 151.1C, Comprehensive Emergency Management System. This report goes beyond compliance reporting to offer lessons learned and recommendations for improving DOE/National Nuclear Security Administration (NNSA) emergency management programs. In consideration of the issues identified through these independent assessments, EA developed nine lessons learned with associated recommendations for line management's consideration for improving program or management effectiveness. This report also identifies two best practices that could help other DOE organizations solve challenging problems.	US DOE	https://sp.eota.energy.gov/EM/Shared%20Documents/Lessons%20Learned%20from%20the%202015%20Emergency%20Management%20Assessments%20-%20May%202016.pdf
LL-DrEx-DOE-08	2015 April	*Office of Enterprise Assessments Review of the Sandia National Laboratories/New Mexico 2014 Site-Level Emergency Management Exercise,* ***Drills&Exer***	SUMMARY The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) evaluated a Sandia National Laboratories/New Mexico (SNL/NM) emergency management exercise that was conducted on September 10, 2014. EA's Office of Emergency Management Assessments conducted the review over the period September 8 to October 2, 2014. EA performed this review to evaluate SNL/NM's preparedness for responding to a hazardous material (HAZMAT) event that exceeded the site's capabilities without the use of mutual aid and to assess compliance with DOE Order 151.1C, *Comprehensive Emergency Management System*. During this review, EA examined the ability of various site emergency response organizations (EROs) to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate protective actions (PAs), establish command and control of the simulated emergency event, and mitigate the event in compliance with DOE requirements. EA also collected many observations and identified some concerns regarding the planning and execution of the exercise, which EA provided to the Sandia Corporation shortly after the exercise was completed. In 2015, EA plans to further review the SNL/NM emergency management exercise program, including those elements, as well as the corrective actions taken to address issues identified during the exercise. EA's review of the SNL/NM annual exercise is the last of four reviews of site exercises that EA performed in 2014; EA also	US DOE	https://energy.gov/sites/prod/files/2015/04/f21/SNL%202014%20Site-Level%20Exercise%20Emeregency%20Management%20Review%20-%20April%202015.pdf

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			plans to publish a lessons-learned report reflecting analysis of results from all of its 2014 emergency management reviews.		
LL-DrEx-DOE-09	2015 January	*Office of Enterprise Assessments Review of the Y-12 National Security Complex 2014 Site-Level Exercise,* ***Drills&Exer***	SUMMARY The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) reviewed a Y-12 National Security Complex (Y-12) emergency management exercise that was conducted on June 18, 2014. The review was conducted by EA's Office of Emergency Management Assessments (EA-33) during the June 17 – July 10, 2014 timeframe. EA-33 performed the review to evaluate Y-12's preparedness for responding to a HAZMAT event and to assess Y-12's compliance with DOE Order 151.1C, Comprehensive Emergency Management System. During this review, EA reviewed the ability of various site response organizations to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate protective actions, establish command and control of the simulated emergency event, and mitigate the event in compliance with DOE requirements. In a related effort, EA is preparing an independent review report of the Y-12 emergency management exercise program that will cover the planning and execution of the exercise and the corrective actions taken to address issues identified during the exercise. EA's review of the Y-12 annual exercise is the second of four reviews of site exercises that EA plans to perform in 2014. EA will publish an annual emergency management lessons learned report reflecting analysis of results from all of the 2014 assessments.	US DOE	https://energy.gov/sites/prod/files/2015/01/f19/Review_of_Y-12_National_Security_Complex_2014_Site-Level_Exercise_%20-_January_2015.pdf
LL-DrEx-DOE-10	2015 November	*Office of Enterprise Assessments Review of the Savannah River Site Emergency Management Exercise Program,* ***Drills&Exer***	PURPOSE The U.S. DOE Office of ES&H Assessments, within the independent Office of Enterprise Assessments (EA), conducted a review of the emergency management exercise program at the Savannah River Site (SRS). This review complements EA's severe event response review performed at SRS in 2014 to allow conclusions based on a more complete evaluation of the SRNS exercise program. The purpose of this EA assessment was to evaluate the exercise program's effectiveness in validating, through tests and demonstrations, all elements of the SRS emergency management program and fostering continuous program improvements. EA performed this review from February 24 to March 12, 2015. This report discusses the scope, background, methodology, results, and conclusions of the review. The review team's findings and OFIs are also included.	US DOE	https://energy.gov/sites/prod/files/2015/11/f27/SRS%20Emergency%20Mangement%20Exercise%20Program%20-%20November%202015.pdf
LL-DrEx-DOE-11	2015 April	*Office of Enterprise Assessments Review of the Pantex Plant 2014 Full Participation Exercise,* ***Drills&Exer***	SUMMARY The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) evaluated the Pantex Plant response to an emergency management exercise that was conducted on August 6, 2014. EA's Office of Emergency Management Assessments (EA-33) conducted the review over the period of August 4 to August 21, 2014. EA performed this review to evaluate the Pantex Plant's preparedness for responding to hazardous material (HAZMAT) events and to assess its compliance with DOE Order 151.1C, *Comprehensive Emergency Management*	US DOE	https://energy.gov/sites/prod/files/2015/04/f21/Pantex%20Plant%202014%20Full%20Participation%20Exercise%20Emergency%20Management%20Review%20-%20April%202015%20%28final%29.pdf

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			System. During this review, EA reviewed the ability of various site response organizations to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate protective actions, perform consequence assessments, establish command and control of the simulated emergency event, mitigate the events, and plan for and initiate recovery operations in compliance with DOE requirements. EA is scheduled to conduct a follow-up review of the Pantex Plant emergency management exercise program in April 2015, which will cover the planning and execution of the exercise as well as the corrective actions taken to address issues identified during the exercise. EA's review of this exercise was the third of four reviews of site exercises that EA performed in 2014. EA plans to publish an annual emergency management lessons learned report reflecting analysis of results from all 2014 reviews conducted at DOE/ National Nuclear Security Administration (NNSA) sites.		
LL-DrEx-DOE-12	2015 January	*Office of Enterprise Assessments Review of the Savannah River Site 2014 Site-Level Exercise,* ***Drills&Exer***	PURPOSE The Office of Emergency Management Assessments (EA-33), within the U.S. DOE, Office of Enterprise Assessments (EA), conducted a review at the SRS from May 12 – June 5, 2014, to evaluate SRS's preparedness for responding to a hazardous material (HazMat) event and to assess SRS's compliance with DOE Order 151.1C, *Comprehensive Emergency Management System*. EA also reviewed the ability of various response organizations to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate protective actions, establish command and control of the simulated emergency event, mitigate the event, and plan for recovery operations to comply with DOE site-level exercise requirements. The initiating event for this exercise involved several severe thunderstorms moving through F-Area with high winds and numerous lightning strikes. This report discusses the scope, exercise scenario and response summary, results, findings, and OFIs. In conjunction with this report, EA will produce an independent review report of the SRS emergency management exercise program. That report will cover the planning and execution of the exercise, and the corrective actions taken to address issues identified during the exercise.	US DOE	https://www.energy.gov/sites/prod/files/2015/02/f19/Enterprise%20Assessments%20Review%2C%20Savannah%20River%20Site%202014%20Site-Level%20Exercise%20-%20January%202015.pdf
LL-DrEx-DOE-13	2016 December	*Office of Enterprise Assessments Assessment of the Lawrence Livermore National Laboratory Emergency Management Program,* ***Drills&Exer***	PURPOSE The U.S. DOE Office of Emergency Management Assessments, within the independent Office of Enterprise Assessments (EA), assessed emergency management at the Lawrence Livermore National Laboratory (LLNL) to evaluate the effectiveness of preparedness for responding to classifiable OEs as established by DOE Order 151.1C, *Comprehensive Emergency Management System*. During this assessment, EA evaluated the ability of various site response organizations to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate protective actions (PAs), establish command and control, and mitigate consequences of the postulated events. In addition, EA followed up on its 2013 report Independent Oversight Review of Preparedness for Severe Natural Phenomena Events at the LLNL, focusing on the status of the six findings contained therein. EA's 2013 report concluded that	US DOE	https://energy.gov/sites/prod/files/2016/12/f34/Assessment%20of%20the%20LLNL%20Emergency%20Management%20Program.pdf

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			the contractor, Lawrence Livermore National Security, LLC (LLNS), needed to better integrate and coordinate planning with local, state, and DOE assets and upgrade the test and maintenance programs of backup power systems for response to a severe natural phenomena event. Once LLNS accomplished this planning, ERO members needed to demonstrate that these plans and procedures were effective in exercises, using scenarios that realistically portrayed the challenges faced from severe events. EA performed the current assessment of the LLNL site from August 29 to September 29, 2016.		
LL-DrEx-DOE-14	2015 April	*Office of Enterprise Assessments Lessons Learned from the 2014 Emergency Management Reviews*, ***Drills&Exer***	SUMMARY The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) reviews specific areas of interest at DOE facilities. During 2014, EA emergency management reviews focused on either evaluating a site's response to a severe event or validating a site's technical planning basis and emergency preparedness for severe events. Since the 2011 tsunami that affected the Fukushima Daiichi nuclear power electrical generating station in Japan, EA reviews have focused on severe event planning. After two years of reviewing sites' planning for severe events, the EA reviews in 2014 evaluated a site's response to a severe event by observing site-level exercises. EA based its reviews on the requirements in DOE Order 151.1C, *Comprehensive Emergency Management System*, and the 2013 Office of Health, Safety and Security Operating Experience Level 1 (OE-1), *Improving Department of Energy Capabilities for Mitigating Beyond Design Basis Events*. EA identified four sites for review that were already planning a severe event scenario for their annual site-level exercise and asked the sites to incorporate EA's focus areas of interest into the exercise. The focus areas included the site's response to a severe event, such as multi-facility event response, mass casualty response, and use of alternate communication and power systems. EA also performed reviews of technical planning basis and emergency preparedness at two sites that have not been subject to a recent EA emergency management evaluation. These reviews focused on validating the technical planning basis for each site by reviewing the respective hazards surveys, emergency planning hazards assessments (EPHAs), emergency planning zones (EPZs), and emergency action levels (EALs), along with the associated emergency preparedness planning. Additionally, these reviews evaluated the site's progress in implementing the guidance provided in OE-1 for severe event planning. During February 2014 the Waste Isolation Pilot Plant experienced two events that demonstrated significant deficiencies in emergency management planning, preparedness and response. Several of the deficiencies had been previously identified during EA predecessor or other assessment activities but not corrected. During December 2014, EA observed the Horizon-14 Exercise to ascertain progress in strengthening its emergency management program. EA observed that although significant progress had been made, much work remains.	US DOE	https://energy.gov/sites/prod/files/2015/04/f22/2015Lessons%20Learned%20from%20the%202014%20Emergency%20Management%20Reviews%20-%20April%202015.pdf
LL-DrEx-DOE-15	2017 April	*Office of Enterprise Assessments Assessment of the Pantex Plant*	PURPOSE The U.S. DOE Office of Office of Emergency Management Assessments, within the independent Office of Enterprise Assessments (EA), conducted an	US DOE	https://energy.gov/sites/prod/files/2017/04/f34/Assessment%20of%20the%20Pantex

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		Emergency Management Program, ***Drills&Exer***	assessment of the emergency management program at the Pantex Plant, focusing on areas identified for improvement in the DOE IP responding to the DNFSB Recommendation 2015-1, *Emergency Preparedness and Response at the Pantex Plant*. EA performed this assessment at the request of the NNSA Production Office (NPO) to provide an interim independent assessment of progress by the site contractor, Consolidated Nuclear Security, LLC (CNS), in completing the IP actions.		%20Plant%20Emergency%20Management%20Program_0.pdf
LL-DrEx-DOE-16	2016 January	*Office of Enterprise Assessments Review of the Los Alamos National Laboratory September 2015 Functional Exercise of Selected Emergency Response Capabilities*, ***Drills&Exer***	PURPOSE The Office of Emergency Management Assessments within the U.S. DOE Office of Enterprise Assessments (EA) reviewed an emergency management exercise at the NNSA Los Alamos National Laboratory (LANL) as part of its periodic oversight activities. EA conducted the review from September 15 to 17, 2015, as an independent evaluation of the site's response to a postulated operational emergency (OE) during a Los Alamos National Security, LLC (LANS) planned exercise and subsequent LANS evaluation activities. EA performed the evaluation to assess LANL's preparedness for responding to a classifiable OE as established by DOE Order 151.1C, *Comprehensive Emergency Management System*. During this evaluation, EA evaluated the ability of various site response organizations to recognize specific hazardous situations, notify appropriate onsite and offsite organizations and agencies, implement appropriate PAs, establish command and control, and mitigate consequences for a postulated severe event. EA also evaluated LANS conduct and evaluation of the exercise.	US DOE	https://energy.gov/sites/prod/files/2016/01/f29/EA%20Review%20of%20LANL%20Sept%202015%20Functional%20Exercies%20of%20Selected%20Emergency%20Response%20Capabilities.pdf
LL-DrEx-DOE-17	2012 April	*Independent Oversight Review of the ERO at the Los Alamos National Laboratory*, ***Drills&Exer***	PURPOSE The Office of Enforcement and Oversight (Independent Oversight) within the Office of Health, Safety and Security (HSS), conducted an independent review of the Los Alamos National Laboratory (LANL) emergency response organization (ERO) program. The purpose of the review was to evaluate the processes for establishing and maintaining an ERO that has overall responsibility for initial and ongoing emergency response and mitigation. The review scope was coordinated with the Los Alamos Site Office (LASO), and was conducted February 7-9, 2012.	US DOE	https://energy.gov/sites/prod/files/hss/Enforcement%20and%20Oversight/Oversight/docs/reports/semevals/2012_LANL_IRR-Emergency_Response_Organization.pdf
LL-DrEx-DOE-18	2014 May	*Independent Oversight Review of the Emergency Management Program Technical Basis and Emergency Preparedness at the National Energy Technology Laboratory*, ***Drills&Exer***	PURPOSE The U.S. DOE Office of Independent Enterprise Assessments (IEA) was established in May 2014 and assumed responsibility for managing the Department's Independent Oversight program from the Department's former Office of HSS. HSS conducted this independent review of the DOE Office of Fossil Energy National Energy Technology Laboratory Pittsburgh site (PGH) and Morgantown site (MGN) emergency preparedness programs prior to the creation of IEA. HSS performed this review to evaluate compliance with DOE Order 151.1C, *Comprehensive Emergency Management System*, with emphasis on the sites' response to a severe natural phenomena event (NPE) as described in HSS Operating Experience Level 1, *Improving DOE Capabilities for Mitigating Beyond Design Basis Events* (OE-1). This report discusses the scope, background, methodology, results, and conclusions of the review.	US DOE	https://energy.gov/sites/prod/files/2014/05/f15/2014_NETL_Review_of_Emerg_Mgmt_at_NETL%2C_May_2014.pdf

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			DOE Order 227.1, *Independent Oversight Program*, establishes the responsibilities and authorities of the Department's Independent Oversight program. The Independent Oversight program comprises one element of DOE's multi-faceted approach to oversight as described in DOE Order 226.1B, *DOE Oversight Policy*. Effective oversight, including independent oversight, of DOE Federal and contractor operations is an integral part of the Department's responsibility as a self-regulating agency to provide assurance of its safety and security posture to its leadership, its workers, and the public. The Independent Oversight program is designed to enhance DOE safety and security programs by providing DOE and contractor managers, Congress, and other stakeholders with an independent evaluation of the adequacy of DOE policy and requirements, and the effectiveness of DOE and contractor line management performance in safety and security and other critical functions as directed by the Secretary.		
LL-DrEx-DOE-19	2015 November	*Office of Enterprise Assessments Review of the Pantex Plant Emergency Management Exercise Program,* ***Drills&Exer***	The U.S. DOE independent Office of Enterprise Assessments (EA) conducted a review of the emergency management exercise program at the NNSA Pantex Plant. This review complements the EA severe event response review performed at the Pantex Plant in 2014 to allow conclusions based on a more complete evaluation of the Consolidated Nuclear Security, LLC (CNS) exercise program. The purpose of this EA review was to evaluate the exercise program's effectiveness in validating, through tests and demonstrations, all elements of the Pantex Plant emergency management program and fostering continuous program improvements. EA performed this review from April 21 to May 21, 2015. As a follow-up to the severe event exercise evaluation EA performed in 2014 and at the request of the NNSA Production Office (NPO), EA performed an evaluation of a full-scale emergency management exercise from August 18 to 20, 2015. This report discusses the scope, background, methodology, results, and conclusions of the two 2015 EA reviews. Details of the August exercise evaluation are provided in Appendix C.	US DOE	https://energy.gov/sites/prod/files/2015/11/f27/EA%20Review%20of%20the%20Pantex%20Plant%20Emergency%20Management%20Exercise%20Program%20-%20November%202015.pdf
LL-DrEx-DOE-20	2015 August	*Office of Enterprise Assessments Review of the Y-12 National Security Complex Emergency Management Exercise Program,* ***Drills&Exer***	PURPOSE The U.S. DOE independent Office of Enterprise Assessments (EA) conducted a review of the emergency management exercise program at NNSA Y-12 National Security Complex (Y-12). This review complements EA's severe event response review performed at Y-12 in 2014 to allow conclusions based on a more complete evaluation of the Consolidated Nuclear Security, LLC (CNS) exercise program. The purpose of this EA assessment was to evaluate the exercise program's effectiveness in validating, through tests and demonstrations, all elements of the Y-12 emergency management program and fostering continuous program improvements. EA performed this review from March 24 to April 9, 2015. This report discusses the scope, background, methodology, results, and conclusions of the review. The review team's findings and OFIs are also included.	US DOE	https://energy.gov/sites/prod/files/2015/09/f26/EA-33%20Review%20of%20the%20Y-12%20Emergency%20Management%20Exercise%20Program.pdf
LL-DrEx-DOE-21	2015 November	*Office of Enterprise Assessments Review of the Sandia National Laboratories/New*	PURPOSE The U.S. DOE independent Office of Enterprise Assessments (EA) conducted a review of the emergency management exercise program at the NNSA Sandia National Laboratories/New Mexico (SNL/NM). This review complements EA's	US DOE	https://energy.gov/sites/prod/files/2015/11/f27/EA-33%20Review%20of%20SNL-NM%20Emergency%20Management%20Exercise%20Program.pdf

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		Mexico Emergency Management Exercise Program, ***Drills&Exer***	severe event response review performed at SNL/NM in 2014 to allow conclusions based on a more complete evaluation of the Sandia Corporation exercise program. The purpose of this EA assessment was to evaluate the exercise program's effectiveness in validating, through tests and demonstrations, all elements of the SNL/NM emergency management program and fostering continuous program improvements. EA performed this review from May 5 to June 4, 2015. This report discusses the scope, background, methodology, results, and conclusions of the review. The review team's findings and OFIs are also included.		
LL-DrEx-DOE-22	2015 July	*Office of Enterprise Assessments Review of the East Tennessee Technology Park Emergency Management Program,* ***Drills&Exer***	PURPOSE The U.S. DOE Office of Enterprise Assessments (EA) conducted a review of the emergency management program at the East Tennessee Technology Park (ETTP). EA conducted this review in accordance with DOE directives, including DOE Order 227.1, *Independent Oversight Program*, which establishes the foundation for the Independent Oversight Inspection Program. The purpose of this EA review was to evaluate the ETTP technical planning basis and implementation of the emergency management program elements for program administration, exercises, and readiness assurance. This review occurred over the period of January 27 to March 11, 2015. This report discusses the background, scope, methodology, results, and conclusions of the review. A summary of the findings and OFIs identified by the review team is also included.	US DOE	https://energy.gov/sites/prod/files/2015/08/f25/EA-33%20Review%20of%20the%20ETTP%20Emergency%20Management%20Program.pdf
LL-DrEx-DOE-23	2013 April	*Independent Oversight Lessons Learned from the 2012 Targeted Reviews of Emergency Preparedness for Severe Natural Phenomena Events at Select Department of Energy/National Nuclear Security Administration Nuclear Facilities,* ***Drills&Exer***	SUMMARY The U.S. DOE Office of Enforcement and Oversight (Independent Oversight), which is within the Office of HSS, occasionally reviews specific areas of interest at DOE nuclear facilities. During calendar year 2012, Independent Oversight, in reference to the tsunami that affected the Fukushima Daiichi nuclear power electrical generating station in Japan, selected DOE preparedness for responding to plausible severe NPEs at DOE, including NNSA sites as a specific area of interest. Independent Oversight considered several severe NPEs that represent beyond design basis events described in DOE/NNSA site documented safety analyses. Although emergency planners at DOE/NNSA facilities traditionally consider that beyond design basis events result in a HAZMAT release from a single facility within their sites, these reviews evaluated the state of preparedness in case of a severe NPE that is capable of damaging multiple facilities, including HAZMAT facilities, command centers, personnel shelters, electrical power sources, and communication systems.	US DOE	https://energy.gov/sites/prod/files/2013/06/f1/Emergency_Management_Lessons_Learned_from_the_2012_Targeted_Reviews.pdf
LL-Fuku-IAEA-01	2015 August	*THE FUKUSHIMA DAIICHI ACCIDENT TECHNICAL VOLUME 3 EMERGENCY PREPAREDNESS AND RESPONSE,* ***FUKUSHIMA Report***	SUMMARY This volume describes the key events and response actions from the onset of the accident at the Fukushima Daiichi nuclear power plant (NPP), operated by the Tokyo Electric Power Company (TEPCO), on 11 March 2011. It also describes the national emergency preparedness and response (EPR) system in place in Japan and the international EPR framework prior to the accident. It is divided into five sections.	IAEA	http://www-pub.iaea.org/MTCD/Publications/PDF/AdditionalVolumes/P1710/Pub1710-TV3-Web.pdf

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			Section 3.1 describes the initial actions taken by Japan in response to the accident, involving: identification of the accident, notification of offsite authorities and activation of the response; mitigating actions taken on site; and initial offsite response. Section 3.2 describes the protective measures taken for personnel in response to the natural disaster, protection of emergency workers, medical management of emergency workers and the voluntary involvement of members of the public in the emergency response. Section 3.3 describes the PAs and other response actions taken by Japan to protect the public. It addresses urgent and early PAs; the use of a dose projection model, the System for Prediction of Environmental Emergency Dose Information, as a basis for decisions on PAs during the accident; environmental monitoring; provision of information to the public and international community; and issues related to international trade and waste management. Section 3.4 describes the transition from the emergency phase to the recovery phase. It also addresses the national analysis of the accident and the emergency response. Section 3.5 describes the response by the IAEA, other international organizations within the Inter-Agency Committee on Radiological and Nuclear Emergencies, the actions of IAEA Member States with regard to PAs recommended to their nationals in Japan and the provision of international assistance. A summary, observations and lessons conclude each section.		
LL-Fuku-NRC-01	2014	*Lessons Learned From the Fukushima Nuclear Accident for improving safety of US Nuclear Plants, **FUKUSHIMA Report***	SUMMARY The U.S. Congress asked the National Academy of Sciences (NAS) to examine the causes of the March 11, 2011, accident at the Fukushima Daiichi nuclear plant and identify lessons learned for the United States. Brief descriptions of key selected findings and recommendations are provided below. **Causes of the Fukushima Daiichi Accident:** The Fukushima Daiichi nuclear accident was initiated by the March 11, 2011, Great East Japan Earthquake and tsunami. Personnel at the plant responded to the accident with courage and resilience; their actions likely reduced its severity and the magnitude of offsite radioactive material releases. However, several factors relating to the management, design, and operation of the plant prevented plant personnel from achieving greater success and contributed to the overall severity of the accident. **Lessons Learned from the Fukushima Daiichi Accident for the United States:** NAS recommends that several actions be taken to improve the resilience of U.S. nuclear plants and enhance U.S. emergency response. These actions are summarized below. • Nuclear plant licensees and their regulators must actively seek out and act on new information about hazards that have the potential to affect nuclear plant safety. • The U.S. nuclear industry and its regulator (the U.S. Nuclear	NAS	https://www.nap.edu/catalog/18294/lessons-learned-from-the-fukushima-nuclear-accident-for-improving-safety-of-us-nuclear-plants

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			Regulatory Commission) should improve specific nuclear plant systems, resources, and training to enable effective responses to severe accidents. • The U.S. nuclear industry and the U.S. Nuclear Regulatory Commission should strengthen their capabilities for assessing risks from events that could challenge the design of nuclear plant structures and components and lead to a loss of critical safety functions. The U.S. Nuclear Regulatory Commission should support industry's efforts to strengthen its capabilities by providing guidance on approaches and by overseeing rigorous peer review. • The U.S. Nuclear Regulatory Commission should further incorporate modern risk concepts into its nuclear safety regulations using these strengthened capabilities. • The U.S. nuclear industry and U.S. EROs should examine and, as needed, revise their emergency response plans, including the balance among PAs, to enable effective responses to severe nuclear accidents. • The U.S. Nuclear Regulatory Commission and the U.S. nuclear power industry must maintain and continuously monitor a strong nuclear safety culture in their safety-related activities and should examine opportunities to increase the transparency of and communication about their efforts to assess and improve nuclear safety.		
LL-Kat-FFIEC-01	2006 February	*Lessons Learned from Hurricane Katrina,* ***KATRINA Report***	SUMMARY The Federal Financial Institutions Examination Council (FFIEC) member agencies (regulatory agencies)1 and the Conference of State Bank Supervisors are relaying comments made by financial institutions regarding lessons they learned from the effects of Hurricane Katrina. Financial institutions have responded admirably to the unique challenges raised by successive hurricane seasons with significant storms. Major challenges faced by these institutions included the following: • Communications outages made it difficult to locate missing personnel. • Access to and reliable transportation into restricted areas were not always available. • Lack of electrical power or fuel for generators rendered computer systems inoperable. • Multiple facilities were destroyed outright or sustained significant damage. • Some branches and ATMs were underwater for weeks. • Mail service was interrupted for months in some areas. Business continuity plans generally worked very well in enabling institutions to meet these challenges and to restore operations swiftly. However, the unprecedented magnitude and duration of the effects of Hurricane Katrina caused major disruptions that exceeded the scope of the disaster recovery and business continuity plans of some financial institutions. Many institutions had to	FFIEC	https://www.ffiec.gov/pdf/katrina_lessons.pdf

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			adjust plans and improvise responses to successfully address unexpected complications. For example, institutions adapted procedures to facilitate cashing checks for non-customers. Overall, institutions prevailed in very difficult circumstances through advance planning and preparation, and by working together. As a result of these efforts, the financial industry was able to assist customers and communities in their time of greatest need. Certain financial institutions affected by Hurricane Katrina and its aftermath have relayed the following experiences or lessons learned that your institution may find helpful in considering its readiness for responding to a catastrophic event. You may want to consider this information when conducting a review of your institution's disaster recovery and business continuity plans. These lessons learned should not be construed as new regulatory requirements, nor do they supplant or modify the guidance provided by the FFIEC in its Business Continuity Planning Booklet.		
LL-Kat-WH-01	2006 February	*The Federal Response to Hurricane Katrina*, ***KATRINA Report***	SUMMARY Hurricane Katrina prompted an extraordinary national response that included all levels of government—Federal, state, and local—the private sector, faith-based and charitable organizations, foreign countries, and individual citizens. People and resources rushed to the Gulf Coast region to aid the emergency response and meet victims' needs. Their actions saved lives and provided critical assistance to Hurricane Katrina survivors. Despite these efforts, the response to Hurricane Katrina fell far short of the seamless, coordinated effort that had been envisioned by President Bush when he ordered the creation of a National Response Plan in February 2003. Yet Katrina creates an opportunity—indeed an imperative—for a national dialogue about true national preparedness, especially as it pertains to catastrophic events. We are not as prepared as we need to be at all levels within the country: Federal, State, local, and individual. Hurricane Katrina obligates us to re-examine how we are organized and resourced to address the full range of catastrophic events—both natural and man-made. The storm and its aftermath provide us with the mandate to design and build such a system. The objective of this Report is to identify and establish a post Katrina roadmap demonstrating how the Federal government can ensure it is better prepared to respond to future natural disaster crises, and lay the groundwork for transforming how this Nation—from every level of government to the private sector to individual citizens and communities—pursues a real and lasting vision of preparedness. To get there will require significant change to the status quo, to include adjustments to policy, structure, and mindset. While the Report notes that disaster preparedness and response to most incidents remains a State and local responsibility, this review did not include an assessment of State and local responses. The President specifically requested that we review the response of the Federal government. Where actions at the State and local level had bearing on Federal decisions or operations, they are included in order to provide full context. We note that although incident response remains a State and local responsibility, we must strengthen Federal support for their efforts and be better prepared for the Federal response to a catastrophic event. Furthermore, we were mindful of how simple and lucid a situation can appear with the clarity of hindsight. And so,	The White House (Townsend, FF)	http://library.stmarytx.edu/acadlib/edocs/katrinawh.pdf

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			judging in retrospect the decisions made and actions taken in the midst of a major disaster, without consideration of that fuller context, would have been a disservice to all. The scope of the review did not focus on recovery operations that continue to this day. Those important efforts are ongoing and require our continued commitment. Instead, the review's emphasis centers on identifying systemic vulnerabilities and gaps in our response and "fixing government."		
LL-NPEA-DOE-01	2014 February	*Independent Oversight Lessons Learned from the 2013 Targeted Reviews of Emergency Preparedness for Severe Natural Phenomena Events at Selected Department of Energy/National Nuclear Security Administration Facilities,* ***NPE Assessments***	SUMMARY The U.S. DOE Office of Enforcement and Oversight (Independent Oversight) within the Office of HSS, occasionally reviews specific areas of interest at DOE facilities. During calendar year 2013, as follow-up to the 2011 earthquake and tsunami that affected the Fukushima Daiichi nuclear power electrical generating station in Japan, Independent Oversight selected preparedness for responding to plausible severe NPEs at DOE and NNSA sites as a specific area of interest. Accordingly, Independent Oversight conducted reviews examining sites' preparedness for severe NPEs, including some NPEs that represented beyond design basis events described in DOE/NNSA site documented safety analyses. Although emergency planners at DOE/NNSA facilities traditionally consider that beyond design basis events result in a HAZMAT release from a single facility within their sites, these Independent Oversight reviews evaluated the state of preparedness in case of a severe NPE that is capable of damaging multiple facilities, including HAZMAT facilities, command centers, personnel shelters, electrical power sources, and communication systems.	US DOE	https://energy.gov/sites/prod/files/2014/03/f14/2014_Lessons_Learned_from_the_2013_Targeted_Reviews_of_Emergency_Preparedness_for_Severe_Natural_Phnomena_Events%2C_Feb._2014.pdf
LL-NPEA-DOE-02	2013 November	*Independent Oversight Review of Preparedness for Severe Natural Phenomena Events at the Portsmouth Gaseous Diffusion Plant,* ***NPE Assessments***	PURPOSE The U.S. DOE Office of Enforcement and Oversight (Independent Oversight), within the Office of Health, Safety, and Security (HSS), conducted an independent review of the preparedness of the DOE Portsmouth/Paducah Project Office, contractors at the DOE Portsmouth Gaseous Diffusion Plant (PORTS), and selected non-leased facilities to respond to a severe NPE. The HSS Office of Safety and Emergency Management Evaluations performed this review to evaluate the site's processes for identifying needed emergency response capabilities and maintaining these capabilities in a state of readiness. This report discusses the scope, background, methodology, results, and conclusions of the review.	US DOE	https://energy.gov/sites/prod/files/2013/11/f4/2013_Portsmouth_Review_of_Preparedness_for%20Severe_Natural_Phenomena_Events_(Nov%202013).pdf
LL-NPEA-DOE-03	2013 September	*Independent Oversight Review of Preparedness for Severe Natural Phenomena Events at the Hanford Site,* ***NPE Assessments***	PURPOSE The U.S. DOE Office of Enforcement and Oversight (Independent Oversight), within the Office of HSS, conducted an independent review of the preparedness of the DOE Richland Operations Office (DOE/RL) and the various Hanford Site contractors to deal with severe NPEs. The HSS Office of Safety and Emergency Management Evaluations performed this review to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in case of a severe NPE. This report discusses the scope, background, methodology, results, and conclusions of the review.	US DOE	https://energy.gov/sites/prod/files/2013/09/f3/Sept_2013_Review_of_Preparedness_for_Severe_Natural_Phenomena_Events_at_the_Hanford_Site_0.pdf
LL-NPEA-DOE-04	2013 April	*Independent Oversight Review of Preparedness for Severe Natural Phenomena Events at the*	PURPOSE The Office of Enforcement and Oversight (Independent Oversight), within the Office of HSS, conducted an independent review of the U.S. DOE Paducah site's preparedness for severe NPEs. The HSS Office of Safety and Emergency	US DOE	https://energy.gov/sites/prod/files/2013/05/f0/April_2013_Review_of_Preparedness_for_Severe_Natural_Phenomena_Events_at_Paducah.pdf

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		Paducah Site, ***NPE Assessments***	Management Evaluations performed this review to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in case of a severe NPE. This report discusses the scope, background, methodology, results, and conclusions of the review, and identifies three findings and several OFIs.		
LL-NPEA-DOE-05	2012 December	*Independent Oversight Review of Site Preparedness for Severe Natural Phenomena Events at the Savannah River Site Tritium Facilities,* ***NPE Assessments***	PURPOSE The Office of Enforcement and Oversight (Independent Oversight), within the Office of HSS, conducted an independent review of preparedness for severe NPEs at the NNSA SRS's Tritium Facilities. The HSS Office of Safety and Emergency Management Evaluations performed this review to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in case of a severe NPE. This report discusses the scope, background, methodology, results, and conclusions of the review and identifies two findings and eight OFIs.	US DOE	https://energy.gov/sites/prod/files/2013/05/f0/Dec_2012_Site_Preparedness_for_Severe_Natural_Phenmena_Events_at%20SRS_Tritium_Facilities.pdf
LL-NPEA-DOE-06	2012 July	*Independent Oversight Review of Site Preparedness for Severe Natural Phenomena Events at the Idaho National Laboratory,* ***NPE Assessments***	PURPOSE The Office of Enforcement and Oversight (Independent Oversight), within the Office of HSS, conducted an independent review of the DOE Idaho National Laboratory preparedness for severe NPEs. The HSS Office of Safety and Emergency Management Evaluations performed this review to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in case of a severe NPE. This report discusses the scope, background, results, and conclusions of the review and identifies one finding and several OFIs.	US DOE	https://energy.gov/sites/prod/files/hss/HS-40/Oversight/docs/reports/semevals/July_2012_INL_Site_Preparedness_for_Severe_Natural_Phenomena_Events_at_INL.pdf
LL-NPEA-DOE-07	2013 July	*Independent Oversight Review of Preparedness for Severe Natural Phenomena Events at the Lawrence Livermore National Laboratory,* ***NPE Assessments***	PURPOSE The Office of Enforcement and Oversight (Independent Oversight), within the Office of HSS, conducted an independent review of the NNSA Livermore Field Office and LLNL Site 200 preparedness for severe NPEs. The HSS Office of Safety and Emergency Management Evaluations performed this review to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in case of a severe NPE. This report discusses the scope, background, methodology, results, and conclusions of the review, and identifies six findings and several OFIs.	US DOE	https://energy.gov/sites/prod/files/2013/08/f2/July_2013_Review_of_Preparedness_for_Severe_Natural_Phenomena_Events_at_LLNL.pdf
LL-NPEA-DOE-08	2012 November	*Independent Oversight Review of Site Preparedness for Severe Natural Phenomena Events at the Waste Isolation Pilot Plant,* ***NPE Assessments***	PURPOSE The Office of Enforcement and Oversight (Independent Oversight), within the Office of HSS, conducted an independent review of the U.S. DOE WIPP preparedness for severe NPEs. The HSS Office of Safety and Emergency Management Evaluations performed this review to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in case of a severe NPE. This report discusses the scope, background, results, and conclusions of the review and identifies two findings and several OFIs.	US DOE	https://energy.gov/sites/prod/files/2013/05/f0/Nov_2012-Review_of_Site_Preparedness_for_Severe_Natural_Phenomena_Events_at_the_Waste_Isolation_Pilot_Plant.pdf
LL-NPEA-DOE-09	2012 February	*Independent Oversight Targeted Review of Site Preparedness for Severe Natural Phenomena*	PURPOSE This report documents the independent targeted review of the Y-12 National Security Complex (Y-12) preparedness for severe NPEs, conducted by the Office of Enforcement and Oversight (Independent Oversight) within the Office	US DOE	https://energy.gov/sites/prod/files/hss/HS-40/Oversight/docs/reports/semevals/Y-12_Targeted_Review_of_Site_Preparedne

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		Events at the Y-12 National Security Complex, ***NPE Assessments***	of HSS. The review was performed by the HSS Office of Safety and Emergency Management Evaluations and was carried out as the pilot for similar reviews at other U.S. DOE sites. The purpose of the targeted review was to evaluate the processes for identifying emergency response capabilities and maintaining them in a state of readiness in the event of a severe NPE. This report discusses the scope, background, results, and conclusions of the review and identifies OFIs.		ss_for_Severe_Natural_Phenomena_Events-February_2012.pdf
LL-TMI-NAE-01	1986	*Hazards: Technology and Fairness,* ***TMI Report***	SUMMARY The Symposium on Hazards: Technology and Fairness, from which this volume is derived, provided an opportunity for members of the academic, regulatory, and industrial communities involved in various aspects of managing technological hazards to discuss subjects of common interest. From these discussions came suggestions for activities that would define and resolve emerging issues in hazard management. Suggestions made by the authors in this volume are presented below. Potentially useful toxicity information on many of the chemicals that are screened each year by corporations could be made more generally available to regulatory agencies. Mechanisms for doing this in a way that also preserves the proprietary nature of the information should be explored. The principle of de minimis may have broad applicability in environmental standard setting and warrants further discussion. This principle states that for naturally occurring insults to the human environment, regulators need concern themselves with exposures due to human activity only when they exceed the natural, background exposure. Discussion of the scientific basis of de minimis, however, must also address the concern that additional manmade exposures, even when smaller than background levels, may produce a total exposure level that exceeds some threshold of resistance. Thus, new or more severe health and environmental effects may result. Reliable and credible scientific and technological institutions could assist both short-and long-term hazard management efforts by immediate and high- quality reporting of events involving technological hazards, such as the Three Mile Island accident and the Bhopal tragedy. Safer design of potentially hazardous facilities and processes would reduce risks to health and the environment and may be more cost-effective and more equitable than other regulatory controls. Such systems have been proposed for nuclear reactors and for chemical-processing plants. Collective scrutiny of the role of inherently safer technologies in hazard management would be useful.	NAE	https://www.ncbi.nlm.nih.gov/books/NBK217579/pdf/Bookshelf_NBK217579.pdf
MSDS	2012	*Standard Industry Practices,* ***OSHA Website***	SUMMARY The Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, requires that the chemical manufacturer, distributor, or importer provide Safety Data Sheets (SDSs) (formerly MSDSs or Material Safety Data Sheets) for each hazardous chemical to downstream users to communicate information on these hazards. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent user-friendly, 16-section format. This brief provides guidance to help workers who	OSHA	https://www.osha.gov/Publications/OSHA3514.html

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			handle hazardous chemicals to become familiar with the format and understand the contents of the SDSs. The SDS includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical. The information contained in the SDS must be in English (although it may be in other languages as well). In addition, OSHA requires that SDS preparers provide specific minimum information as detailed in Appendix D of 29 CFR 1910.1200. The SDS preparers may also include additional information in various section(s). Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., fire fighting). This information should be helpful to those that need to get the information quickly. Sections 9 through 11 and 16 contain other technical and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information, and other information including the date of preparation or last revision. The SDS must also state that no applicable information was found when the preparer does not find relevant information for any required element. The SDS must also contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies.		
NFPA 1500	2017 August	*Standard on Fire Department Occupational Safety, Health, and Wellness Program (2018 Edition),* ***NFPA Standard***	SUMMARY NFPA 1500 specifies the minimum requirements for an occupational safety and health program for fire departments or organizations that provide rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, and other emergency services. This standard shall contain minimum requirements for a fire service–related occupational safety and health program.	NFPA	http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1500
NFPA 704	2016 June	*Identification of the Hazards of Materials for Emergency Response 2017 Edition,* ***NFPA Standard***	SUMMARY This standard presents a simple, readily recognized, and easily understood system of markings (commonly referred to as the "NFPA hazard diamond") that provides an immediate general sense of the hazards of a material and the severity of these hazards as they relate to emergency response.	NFPA	http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=704&access=open&access=open
NIMS CORE	2008 December	*National Incident Management System*	SUMMARY The National Incident Management System (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the	US DHS	https://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf

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			effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand in hand with the National Response Framework (NRF). NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management.		
NIMS Training	2011 September	*National Incident Management System, Training Program. FEMA, September 2011,* ***FEMA Guide***	PURPOSE The NIMS Training Program defines the national NIMS training program as it relates to the NIMS components of Preparedness, Communications and Information Management, Resource Management, and Command and Management. It specifies NIC and stakeholder responsibilities and activities for developing, maintaining, and sustaining NIMS training. The NIMS Training Program outlines responsibilities and activities that are consistent with the National Training Program, as mandated by the Post-Katrina Emergency Management Reform Act of 2006. This program integrates with FEMA training offered through the Emergency Management Institute (EMI) and United States Fire Administration (USFA). The NIMS Training Program defines the process for developing training and personnel qualification requirements for emergency management. Additionally, it outlines NIC and stakeholder responsibilities for implementing the NIMS training program. The NIC's responsibilities include: • Defining the NIMS core curriculum • Providing course descriptions and training guidance • Developing personnel qualification guidelines for stakeholder-issued incident • management credentials • Integrating lessons learned from actual incidents, training, exercises, and best practices, • identifiable across jurisdictional and functional disciplines	FEMA	https://www.fema.gov/pdf/emergency/nims/nims_training_program.pdf
NIMS/ICS	2015 August	*FEMA National Incident Management System/Incident Command System,* ***FEMA Training Website***	SUMMARY The NIMS Training Program lays out a conceptual framework that maintains a systematic process for the development of training courses and personnel qualifications. This process produces trained and qualified emergency management personnel. The framework facilitates the systematic development of these courses and qualifications by translating functional capabilities (defined in NIMS) into positions, core competencies, training, and personnel qualifications. The NIMS Training Program sets a sequence of goals, objectives, and action items for the NIC, which administers NIMS training nationally, and for stakeholders, who run their respective NIMS training and education programs.	FEMA	https://training.fema.gov/nims/
NNSA SD 226.1B	2016 August	*NNSA Site Governance,* ***NNSA Supplemental Directive***	PURPOSE This supplemental directive (SD) establishes the NNSA Site Governance Model as the system that the Federal government and NNSA's contractor partners work within to help assure effective mission performance and operational excellence.	US DOE NNSA	https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/SD%20226.1B%20final%208-12-16.pdf

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			The SD supplements the requirements of DOE Policy (P) 226.1B, Department of Energy Oversight Policy and DOE Order (O) 226.1B, Implementation of DOE Oversight Policy.		
NUREG/ CR-6981	2008 October	*Assessment of Emergency Response Planning and Implementation for Large Scale Evacuations,* ***NUREG***	SUMMARY The Nuclear Regulatory Commission (NRC) intends to use the knowledge gained from recent large-scale emergency response activities as a resource to determine if the emergency planning activities that were available and implemented were effective in managing the response effort. The objective of this study was to determine if there are areas within the NRC and / or FEMA emergency preparedness program that may be enhanced based on lessons learned, and to identify where the program may have already anticipated and addressed elements that may not have been effective in the major evacuations studied. To accomplish this objective, the scope of the project included: • Identifying eleven large-scale evacuations for evaluation • Reviewing the level of planning in place for each evacuation • Assessing the extent to which the planning was implemented in the emergency response • Identifying key factors that affected the implementation and response to evacuations • Comparing the assessment of the evacuations to the NRC and FEMA emergency preparedness program elements • 3 0 Reviewing the 2007 California fires to assess implementation of lessons learned. When available, emergency planning documentation in place at the time of each incident was reviewed to provide a basis in determining the effectiveness of planning and implementation. The evacuations studied included Hurricanes Katrina, Rita, and Wilma in 2005, Hurricane Ivan in 2004, and Hurricane Georges in 1998. The remaining evacuations studied were selected based on a qualitative assessment derived from the process used in NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations" (NRC, 2005a).	NRC	https://www.nrc.gov/docs/ML0829/ML082960499.pdf
NUREG/ CR-7195	2015 May	*Risk-Informed and Performance-Based Oversight of Radiological Emergency Response Programs,* ***NUREG***	This report provides a concept for performance-based oversight of offsite radiological emergency response preparedness in jurisdictions surrounding commercial NPPs. That is, it provides the framework for development of an alternative oversight regimen in which regulators consider inputs and enablers of performance (such as plans and training) only when jurisdictions cannot demonstrate adequate performance. The report proposes an initial set of objective performance indicators for demonstration in drills and exercises. It further proposes differential levels of oversight intervention based on the degree to which the jurisdictions meet or fail to meet performance targets. The report considers whether this performance-based oversight regimen would enable better integration of offsite radiological emergency response preparedness with all-hazards preparedness. Finally, the report briefly considers aspects of implementing the concept, such as potentially required regulatory changes. While the ingestion pathway is important to public health and safety, it is not	NRC	https://www.nrc.gov/docs/ML1513/ML15134A035.pdf

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			considered for regulation in the scope of this report. The report concludes that a performance-based oversight system is feasible and could enhance all-hazards integration along with reasonable assurance. However, implementation of a performance-based oversight regimen likely would require more resources than are currently applied in order to ensure a high level of emergency preparedness.		
NUREG/ CR-7195	2015 May	*Risk-Informed and Performance-Based Oversight of Radiological Emergency Response Programs, **NUREG***	SUMMARY This report provides a concept for performance-based oversight of offsite radiological emergency response preparedness in jurisdictions surrounding commercial nuclear power plants. That is, it provides the framework for development of an alternative oversight regimen in which regulators consider inputs and enablers of performance (such as plans and training) only when jurisdictions cannot demonstrate adequate performance. The report proposes an initial set of objective performance indicators for demonstration in drills and exercises. It further proposes differential levels of oversight intervention based on the degree to which the jurisdictions meet or fail to meet performance targets. The report considers whether this performance-based oversight regimen would enable better integration of offsite radiological emergency response preparedness with all-hazards preparedness. Finally, the report briefly considers aspects of implementing the concept, such as potentially required regulatory changes. While the ingestion pathway is important to public health and safety, it is not considered for regulation in the scope of this report. The report concludes that a performance-based oversight system is feasible and could enhance all-hazards integration along with reasonable assurance. However, implementation of a performance-based oversight regimen likely would require more resources than are currently applied in order to ensure a high level of emergency preparedness.	NRC	https://www.nrc.gov/docs/ML1513/ML15134A035.pdf
NUREG-0585	1979 October	*Lessons Learned Task Force Final Report, **TMI Report***	PURPOSE In its final report reviewing the Three Mile Island accident, the TMI-2 Lessons Learned Task Force has suggested change in several fundamental aspects of basic safety policy for NPPs. Changes in NPP design and operations and in the regulatory process are discussed in terms of general goals. The appendix sets forth specific recommendations for reaching these goals.	NRC	https://www.nrc.gov/docs/ML0614/ML061430367.pdf
NUREG-0654/FEMA-REP-1, Rev.1, Supplement 1	1988 September	*Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants: Criteria for Utility Offsite Planning and Preparedness, Final Report, **NUREG***	PURPOSE The NRC and the Federal Emergency Management Agency (FEMA) have added a supplement to NUREG-0654/FEMA-REP-1, Rev. 1 that provides guidance for the development, review and evaluation of utility offsite radiological emergency response planning and preparedness for those situations in which state and/or local governments1 decline to participate in emergency planning. While this guidance primarily applies to plants that do not have full-power operating licenses, it does have relevance to operating NPPs.	NRC, FEMA	https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0654/r1/s1/
NUREG-0654/FEMA-REP-1,	2011 November	*Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,*	PURPOSE This guidance is provided for use in developing site-specific protective action strategies for implementation during an incident that escalates to a General Emergency at a commercial nuclear power reactor site.	NRC, FEMA	https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0654/r1/s3/

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Rev.1, Supplement 3		*Guidance for Protective Action Strategies*, ***NUREG***			
NUREG-0654/FEMA-REP-1, Rev. 1, Addenda	2002 March	*Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants: Updated Citations (NUREG-0654/FEMA-REP-1, Revision 1, Addenda)* , ***NUREG***	SUMMARY NUREG-0654/FEMA-REP-1, Revision 1, was issued in November 1980 and is the basic emergency planning document used by NPP licensees and state and local governments to develop and maintain radiological emergency plans for NPPs. NRC and FEMA staff use NUREG-0654/FEMA-REP-1, Revision 1, to review licensee and state and local emergency plans, respectively, and to make findings and determinations regarding the adequacy of these plans. Many of the references in NUREG-0654/FEMA-REP-1, Revision 1, are no longer current, however, and have been updated or super-ceded. Therefore, in an effort to enhance the usefulness of the document, the NRC and FEMA are issuing addenda to update the references in NUREG-0654/FEMA-REP-1, Revision 1.	NRC, FEMA	https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0654/r1/addenda/
NUREG-0654/FEMA-REP-1, Rev.1	1980 November	*Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, ***NUREG***	PURPOSE The purpose of this document is to provide a common reference and guidance source for: 1. State and local governments and nuclear facility operators in the development of radiological emergency response plans and preparedness in support of NPPs. 2. FEMA, NRC, and other Federal agency personnel engaged in the review of state, local government and licensee plans and preparedness. 3. The FEMA, the NRC and other Federal agencies in the development of the National Radiological Emergency Preparedness Plan.	NRC, FEMA	https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0654/r1/
NUREG-2122	2013 November	*Glossary of Risk-Related Terms in Support of Risk-Informed Decision making*, ***NUREG***	SUMMARY The final policy statement on the "Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities" expressed the U.S. NRC's belief that the use of probabilistic risk assessment (PRA) technology in NRC regulatory activities should be increased. Since the PRA policy statement, the staff has issued several PRA or risk-informed plans detailing various risk-informed activities. With increased risk-informed activities comes the recognition that regulatory stability and efficiency would be enhanced if the various risk-information activities are implemented consistently and predictably. An essential part of implementation is the use of consistent terminology to ensure a common understanding of information. A common understanding of information provides increased assurance that the analyses being performed are technically adequate to facilitate better risk-informed decision making. A glossary with definitions of risk-informed-related terms is an essential tool for risk-informed activities. A glossary provides clarity on the meaning of many terms. For terms that are context or scope dependent, a single definition may not be appropriate, but a discussion on the use of these terms in different contexts will be helpful.	NRC, BNL, SNL-NM	https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr2122/

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			This NUREG report identifies and defines terms used in risk-informed activities related to commercial NPPs. It provides a single source in which these terms can be found. A major goal of the glossary is to reduce ambiguity in the definition of terms as much as possible, so that a common understanding can be achieved that will facilitate communication on risk-informed activities.		
P.L. 104-191	1996 August	*Health Insurance Portability and Accountability Act of 1996*, ***Public Law***	SUMMARY To amend the Internal Revenue Code of 1986 to improve portability and continuity of health insurance coverage in the group and individual markets, to combat waste, fraud, and abuse in health insurance and health care delivery, to promote the use of medical savings accounts, to improve access to long-term care services and coverage, to simplify the administration of health insurance, and for other purposes.	GPO	https://www.gpo.gov/fdsys/pkg/PLAW-104publ191/pdf/PLAW-104publ191.pdf
Saaty, TL 2008	2008	*Decision Making with the Analytical Hierarchy Process*, ***Journal Article***	SUMMARY Decisions involve many intangibles that need to be traded off. To do that, they have to be measured alongside tangibles whose measurements must also be evaluated as to, how well, they serve the objectives of the decision maker. The Analytic Hierarchy Process (AHP) is a theory of measurement through pairwise comparisons and relies on the judgements of experts to derive priority scales. It is these scales that measure intangibles in relative terms. The comparisons are made using a scale of absolute judgements that represents, how much more, one element dominates another with respect to a given attribute. The judgements may be inconsistent, and how to measure inconsistency and improve the judgements, when possible to obtain better consistency is a concern of the AHP. The derived priority scales are synthesized by multiplying them by the priority of their parent nodes and adding for all such nodes. An illustration is included.	Int. J. of Services Sciences (Saaty, TL)	https://www.colorado.edu/geography/leyk/geog_5113/readings/saaty_2008.pdf

B

APPENDIX

DEVELOPMENT OF OBJECTIVE
RISK SIGNIFICANCE

C

APPENDIX

BEST PRACTICES GUIDE