

DOE O 151.1D Frequently Asked Questions (FAQs)

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Program Element 1: Program Administration & Management
Effective: 3/21/2018

FAQ 1711284935: Annual self-assessments for all program elements requirement

QUESTION: Does a combination of programmatic self-assessments AND performance-based validation through exercises meet the intent of DOE O 151.1D to conduct annual self-assessments for all program elements?

ANSWER: Yes, a combination of programmatic self-assessments and performance-based validation through exercises DOES meet the intent of DOE O 151.1D to conduct annual self-assessments for all program elements.

DOE Order 151.1D addresses this question in Attachment 3, section 14, Readiness Assurance, stating, “The Readiness Assurance Program serves to ensure the readiness and effectiveness of an emergency management program on a programmatic and performance level while promoting a culture of continuous improvement. The Readiness Assurance Program consists of evaluations, improvements, and the Emergency Readiness Assurance Plan.” This section continues in paragraph a., by stating “Evaluations consist of assessments, exercises, and performance indicators.

Paragraph 14 a.(1) requires DOE sites/facilities/activities to conduct “assessments to ensure that emergency plans, procedures, emergency response activities, and resources are adequate and sufficiently maintained.” The Order continues in paragraph 14a.(1)(a), by requiring DOE sites/facilities/activities to “conduct self-assessments annually.” Self-assessments must, “address all program elements; however, the scope of each program element assessment does not have to include all aspects of the associated programmatic or response tasks each year. This determination must be based upon the complexity of the program and ensure that all program elements are fully assessed and/or validated through exercises over a five-year period.”

According to the definitions listed in DOE O 151.1D, an Assessment is a “review, evaluation, inspection, test, check, surveillance, or audit to determine and document whether items, processes, systems, or services meet specified requirements and perform effectively.” 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.” It further states, “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.”

In summary, Attachment 3, Paragraph 14, clearly states that the Readiness Assurance Program “ensure(s) the readiness and effectiveness of an emergency management program on a programmatic and performance level....” Paragraph 14a.(1)(a) also requires that self-assessments “ensure that all program elements are fully assessed and/or validated through exercises over a five-year period.”

REFERENCES:

DOE O 151.1D, Attachment 3, Section 14, a.(1)

Program Element 1: Program Administration & Management
Effective: 5/16/2017

FAQ 1610293905: Is the intent of DOE O 151.1D, sections 1(c) and 1(d) for the Cognizant Field Element Manager to approve implementing plans and procedures?

QUESTION: It is my understanding, as federal oversight, that we cannot tell the contractor how to do their jobs, we oversee and enforce the requirements outlined in the laws and DOE orders. Based on this understanding, it is my belief that federal oversight should not be approving the contractors' documents or plans that implement those orders. How they implement the requirements is their decision, however, we need to ensure they have procedures/documents in place that describe how the EM program is implemented and maintained.

DOE O 151.1C, Chapter I, describes the responsibilities for the Cognizant Field Element Manager. It states:

9.c.(1) - (1) Approve site Emergency Plans, including annual updates, and submit approved site Emergency Plans to the Director, Office of Emergency Operations and the Program Secretarial Officer(s).

and,

9.e. – e. Ensure development of appropriate emergency plan implementing procedures for timely and accurate emergency classification, notification, and reporting of emergency events for facilities under their cognizance. Establish pre-authorization criteria when possible.

I understand this to mean the Cognizant Field Element Manager approves the site Emergency Plans, but he is not required to approve the implementing documents/plans, only to ensure they are developed, and they implement the requirements.

Since DOE O 151.1C is still in the contract, we are following it at both sites. Once 151.1D has been added to the contract, we will begin to follow it. In Attachment 3, Emergency Management Core Program, it has similar language.

1.c Develop and maintain an all-hazards emergency management plan. The emergency management plan must be –

- (1) reviewed and documented annually, and updated, if appropriate, and approved no less than every three years;
- (2) updated if there are significant changes to the program plan (i.e., changes to organization structure, Emergency Planning Zones, etc.); and
- (3) submitted to the Field Element Manager or appropriate Federal Manager for approval.

1.d Develop and maintain procedures that describe how the emergency management plan must be implemented and maintained.

I interpret this language to have the same meaning as the language in 151.1C. The Cognizant Field Element Manager has the responsibility to approve the emergency management plans, but not the implementing documents/procedures.

ANSWER: No, since the government owns the sites/facilities/activities, the Field Element Manager or applicable Federal Manager is responsible for reviewing and approving the contractor’s basis documents, plans and analysis, which the contractor then uses to develop implementation processes and procedures. This is an essential part of the federal oversight continuum and mitigates the potential of an “error” or “omission” carried forward from basis documents into procedures that could adversely affect health and safety.

REFERENCES:

In accordance with DOE Order 151.1D, Appendix A, Section 10, Field Element Managers are responsible, in part, for review and approval of: emergency management plans, All-Hazards Surveys, Emergency Planning Hazards Assessments, Emergency Planning Zones, annual exercise plans, Corrective Action Plans for external findings, and annual Emergency Readiness Assurance Plans.

DOE Order 151.1D, Attachment 3, Section 1, Paragraph c., states, in part, “[DOE federal and contractor managers responsible for DOE sites/facilities/activities must—] ... Develop and maintain an all-hazards emergency management plan. The emergency management plan must be—... submitted to the Field Element Manager or appropriate Federal Manager for approval.”

Program Element 1: Program Administration & Management
Effective: 5/16/2017

FAQ 1703064610: Field Element Manager

QUESTION: The phrase 'Field Element Manager or appropriate Field Manager' is used to indicate to whom a contractor action should be addressed. Nowhere in the Order is "Federal Manager" defined, or responsibilities stated. Where or who is the "Federal Manager?"

ANSWER: This general term is used to include circumstances in which the site/facility does not have a federal line-manager designated specifically as a “Field Element Manager” (i.e., the site/facility reports directly to the Program Secretarial Office, which takes on the additional responsibilities of the Field Element Manager). Specifically, “Federal Manager” as used in DOE Order 151.1D, is the lowest-level federal line-manager position, within the line-management chain for the specific site/facility, that has the delegated authority to exercise the action.

As another example, in DOE Order 225.1B, Section 5, Responsibilities, the equivalent term for “Federal Manager”, as used in DOE Order 151.1D, is “Heads of Field Elements/Heads of Contracting Activities”.

REFERENCES:

DOE Order 151.1D, Appendix A, Responsibilities, Sections 9, and 10.

DOE Order 151.1D, Attachment 3, Section 1, Paragraph c., states, in part, “[DOE federal and contractor managers responsible for DOE sites/facilities/activities must—]... Develop and maintain an all-hazards emergency management plan. The emergency management plan must be—... submitted to the Field Element Manager or appropriate Federal Manager for approval.”

Program Element 2: All-Hazards Planning Basis
Effective: 12/2/2016

FAQ 151D-001.1 What is the purpose of DOE SITE THIRA?

QUESTION: What is the purpose of DOE SITE THIRA?

ANSWER: The purpose of the DOE Site THIRA is to provide a strategic-level view of identified threats and hazards impacting the site and anticipated capabilities necessary to address these threats and hazards. The DOE Site THIRA outcome and deliverable is for informational use only and is not intended to be used to support site-level baseline capabilities or resources. Requirements for performing an All-Hazards Survey, including conducting a Site THIRA, are described in Attachment 3, Section 2 of DOE O 151.1D. Information provided through Site THIRAs will serve as the baseline for NA-41 (HQ) development of the Department's comprehensive, Enterprise-wide threat and risk assessment that supports Presidential Policy Directive 8 (PPD-8) and the National Preparedness System in accordance with its guiding principles of a risk informed culture and risk informed decision making. The DOE Enterprise THIRA will create a common operating picture to inform strategic planning for DOE leadership and enable them to formulate strategic level direction and priorities. Information provided through Site THIRAs will serve as the baseline for NA-41 (HQ) development of the Department's comprehensive, Enterprise-wide threat and risk assessment that supports Presidential Policy Directive 8 (PPD-8) and the National Preparedness System in accordance with its guiding principles of a risk informed culture and risk informed decision making. The DOE Enterprise THIRA will create a common operating picture to inform strategic planning for DOE leadership and enable them to formulate strategic level direction and priorities.

REFERENCES:

DOE O151.1D

**Program Element 2: All-Hazards Planning Basis
Effective: 12/2/2016**

FAQ 151D-001.2 What is the relationship between the Site THIRA and All-Hazards Survey

QUESTION: What is the relationship between the Site THIRA and All-Hazards Survey as currently written in the All-Hazards Planning Basis section of DOE Order 151.1D (Attachment 3, Section 2)? Is the intent of the requirement for the Site THIRA to be within, in place of, or separate from, the All-Hazards Survey?

ANSWER: The Site THIRA is intended to be a separate, stand-alone document, conducted on a site-wide basis, which characterizes a limited set of events that would stress the internal capabilities of the site, i.e., most likely, worst-case events. The All-Hazards Survey is intended to provide a comprehensive evaluation of hazards applicable to individual facilities/activities and includes hazardous material screening.

REFERENCES:

DOE O151.1D, Attachment 3, Section 2.d.(2)
DHS Comprehensive Preparedness Guide (CPG) 201

Program Element 2: All-Hazards Planning Basis
Effective: 12/2/2016

FAQ 151D-001.3 Does CPG 201 have to be strictly followed when developing the Site THIRA

QUESTION: Attachment 3, Section 2.d.(2) requires conducting a (Site) THIRA in accordance with DHS Comprehensive Preparedness Guide (CPG) 201. How is CPG 201 applied when developing a THIRA for a DOE site? Does CPG 201 have to be strictly followed when developing the Site THIRA?

ANSWER: CPG 201 provides guidance for developing a THIRA that is flexible and scalable. CPG 201, therefore, is suitable for all sites/facilities/activities. The intent of the Order requirement is to allow flexibility in how the guidance in CPG 201 is applied to each site, while still maintaining a common framework and a consistent approach for identifying and assessing risks and associated impacts. For example, only those THIRA core capabilities addressed in CPG 201 that are applicable to the site and to each event analyzed, need to be addressed.

REFERENCES:

DOE O151.1D, Attachment 3, Section 2.d.(2)
DHS Comprehensive Preparedness Guide (CPG) 201

Program Element 2: All-Hazards Planning Basis
Effective: 3/19/2018

FAQ 1802214706: Can the Hazards Survey retain the 3-year update cycle if project/facility changes do not affect the conclusions of the Hazards Survey?

QUESTION: If there is a "significant" project/facility change, but it does not affect the conclusions of the Hazards Survey (HS), can the Hazards Survey follow the provisions of the 3-year cycle update vs. an immediate update? Example: The HS concludes facility X requires an EPHA because the hazardous material exceeds threshold limit values. EPHA is prepared for facility x. Facility x receives additional hazardous materials of similar type. EPHA is updated to address additional hazardous material. No impact to HS since HS already concluded an EPHA was required for facility x due to the amount of hazardous material exceeding screening threshold values.”

ANSWER: Yes, a Hazards Survey (HS) may follow the provisions of the 3-year review cycle when “significant” changes at a facility or project do not alter the conclusion of the HS such as:

- a) increasing the quantity of an already identified hazardous material listed in the HS when an Emergency Planning Hazards Assessment (EPHA) is already in place to address the hazardous material; and
- b) decreasing the quantity or eliminating the quantity of a listed hazardous material from a facility or project, but other hazardous materials remain that would still require an existing EPHA to be maintained.

DOE O 151.1D, Attachment 3 states significant changes may include new hazardous materials operations, recognition of hazards not previously identified, and changes that would result in a positive Un-reviewed Safety Question for nuclear facilities, as defined in 10 CFR Part 830, Nuclear Facility Safety Management or in a positive Un-reviewed Safety Issue for accelerator facilities, as defined in DOE O 420.2C, Safety of Accelerator Facilities. Examples of a significant change that requires immediate update of the existing HS could be adding new hazardous materials to inventory that exceed the screening threshold quantity that were not identified in the existing HS or using existing hazardous materials identified in the HS that exceed the screening threshold quantity in a new operation or at locations where an EPHA is not already in place.

If an EPHA already exists, the emphasis is placed on immediately updating the EPHA to address the hazard vs. immediately updating the Hazards Survey which would be administrative at this point. The Hazards Survey could come later since an EPHA already exists; the priority should be on the EPHA.

REFERENCES:

DOE O151.1D, Attachment 3 Section 2.c
DOE O151.1D, Attachment 4, Section 2.k.

Program Element 2: All-Hazards Planning Basis
Effective: 9/10/2018

FAQ 1806052627: Clarification of need for an additional EPHA based on THIRA

QUESTION: DOE O 151.1D, Attachment 3, paragraph 2.f requires the Field Element Manager to determine and document if an additional EPHA will be performed if additional analysis and planning is warranted based on the THIRA and professional judgement of the person(s) performing or approving the All-Hazards Surveys. There is no guidance provided on how to determine the circumstances that would warrant an additional EPHA based on this requirement.

ANSWER: FEMA Comprehensive Preparedness Guide (CPG) 201, Third Edition provides the complete guidance for conducting a Threat Hazard Identification and Risk Assessment (THIRA). Specific guidance on how to conduct a THIRA for DOE sites and facilities is provided in the PowerPoint presentation located on the Enterprise Data Management System SharePoint site hyperlink provided <https://sp.eota.energy.gov/sites/EDMS/SitePages/Home.aspx>

The THIRA may or may not reveal scenario hazard gaps in the existing EPHA. If, based on the professional judgement of Field Element Manager, scenario hazard gaps are revealed they are to be added to an existing EPHA or detailed in a new EPHA. If, no scenario hazard gaps are revealed, there is no further action required by the Field Element Manager (FEM) than the conduct of the THIRA.

REFERENCES:

DOE O 151.1D, Attachment 3, Section 2 All Hazard Survey, Paragraph f.

General Duty. If, based on the THIRA and the professional judgment of the person(s) performing or approving the All-Hazards Survey, it is determined that additional analysis and planning is warranted, the FEM will determine and document if an additional EPHA will be performed.

FEMA Comprehensive Preparedness Guide (CPG) 201, Third Edition, May 2018

Program Element 2: All-Hazards Planning Basis
Effective: 9/10/2018

FAQ 1806052944: Clarification of requirement for short descriptive names in EPHA

QUESTION: DOE O 151.1D, Attachment 4, Paragraph 2.d requires that analyzed scenarios be identified using short descriptive names and include certain information. Site EPHAs currently have a descriptive name for each scenario, but the other information required by paragraph 2.d. is typically found in other parts of the EPHA. It is unclear whether having the additional information in the other parts of an EPHA is acceptable?

ANSWER: It is the intent of O 151.1D, Attachment 4, Paragraph 2.d, to list identified analyzed scenarios using short descriptive names in the form of a table in the EPHA so the information is located and referenced in one location in the event of an emergency. The majority of sites and facilities have viewed the requirement and interpret the words “tabulated consequences” of analyzed scenarios to be listed in a table. Each year the Office of Emergency Operations sends out the template for ERAP submission and provides as an example of compliant acceptable reporting of the analyzed scenarios at a site in table format.

DOE G 151.1-2 Section 2.7.5 states that if the EPHA is incorporated by reference to other documented analyses, descriptions, explanations, or justifications, that the EPHA document should contain all results necessary for directly meeting the emergency management program planning requirements, as would be presented in a standalone version. The simplest and most acceptable way to meet the “standalone” requirement is to provide the information in a single document in the EPHA in a table. There is no prohibition on information in the EPHA being repeated in other sections of the same document or listed in several other documents however incorrectly referencing documents where emergency management information required by the EPHA can be found would result in an instance of non-compliance for each incorrectly referenced document. Separating information for the analyzed scenarios could result in confusion and misinterpretation and is not recommended.

REFERENCES:

DOE O 151.1D, Attachment 4, Paragraph 2.d
DOE G 151.1-2, Section 2.7.5

Program Element 2: All-Hazards Planning Basis
Effective: 9/12/2018

FAQ 1806052739: Clarification of off-site receptor locations

QUESTION: DOE O 151.1D, Attachment 4, paragraph 2.b requires EPHAs to identify receptor locations of interest for each facility, specifically 30 meters from the release location, 100 meters from the release location, the Site boundary, Emergency Response Facilities, nearest assembly areas as identified in the Emergency Plan, and nearest offsite at-risk populations such as emergency buildings, schools, and hospitals.

No guidance is provided for determination of several of these receptor locations. Examples include: for emergency response facilities, is the intent to identify ERFs within the affected facility? Assuming “assembly areas” is synonymous with “Rally Points”, is the intent to identify every Rally Point for the affected facility? Given that there are no schools, hospitals, or offsite emergency facilities within the Emergency Planning Zone (EPZ), does the requirement still apply? Additionally, what distance is used as the limit for determination of the “nearest” offsite population?

ANSWER: The intent of DOE O 151.1D is to require the alignment of the site Emergency Planning Hazards Assessment (EPHA), Emergency Plan and Emergency Implementation Procedures with the emergency response organization elements and receptor locations such as assembly areas, personnel, primary and alternate emergency facilities, assembly areas, site boundaries, the defined emergency planning zone and isolation zones to effectively respond to an emergency.

All emergency response facilities and receptor locations within the site emergency planning zone (EPZ) should be identified and outlined in the site EPHA.

Assembly areas as defined by DOE O 151.1D and DOE G 151.1-4 are directed relocation points for workers or members of the public to avoid a hazard during an emergency. If “Rally Points” as outlined by the site Emergency Plan serve a similar function as the assembly areas, the terms are synonymous.

The maximum distance for the site emergency planning zone (EPZ) is a 10-mile radius. If the nearest distances to offsite receptors such as emergency buildings, schools and hospitals are beyond the 10-mile EPZ they should still be included in the site emergency plan to provide protective action recommendations to state and local decision makers to protect members of the public. The site Emergency Plan should include these critical offsite receptor locations so that field teams may be deployed to confirm or modify the protective action recommendations that were provided to the offsite designated responsible authorities.

REFERENCES:

DOE O 151.1D, Attachment 4, Paragraph 2.b.

Program Element 2: All-Hazards Planning Basis
Effective: 9/10/2018

FAQ 1806052839: Clarification on consideration for atmospheric contaminants and underground facilities

QUESTION: DOE O 151.1D, Attachment 4, paragraph 2.c requires that EPHAs give additional consideration for airborne contaminants, particularly those from underground facilities, since atmospheric dispersion models may not provide a valid result. It is not clear what limits exist that could invalidate the results from the current suite of dispersion models, nor is it clear exactly what additional consideration should be given to underground facilities.

ANSWER: The special atmospheric considerations for underground facilities maybe are found in the report titled “Atmospheric Dispersion Modeling of the February 2014 Waste Isolation Pilot Plant (WIPP) Release.” The report states:

The additional considerations for underground facilities such as WIPP are atmospheric release data: postulated radionuclides, release amounts, release rates (constant or variable); release assumptions: longitude and latitude of the release locations, vent release heights (above ground level), radii of the release stacks, exhaust air temperatures, estimated particle sizes, particle deposition velocities; on site meteorological data and consequence model information: real time site weather data, site consequence model name, assumptions used, distances to which results are expected to be accurate and how the site model compares and differs from the NARAC atmospheric model.

Those factors that could invalidate the results are directly linked to the dispersion model used and the assumptions built into the model. It is the recommendation of the Office of Emergency Operations that prior to using any site dispersion model that it be submitted for peer review to the Consequence Assessment Modeling Working Group under the Subcommittee for Technical Analysis and Response Support for Consequence Assessment and Protective Actions known as STARS – SCAPA link provided <https://sp.eota.energy.gov/content.aspx/scapa>. The group can provide expert guidance on whether the dispersion model proposed for use can provide reliable results based on the site hazards, terrain, meteorological conditions and critical distances or recommend a more appropriate dispersion model for the site.

REFERENCES:

DOE O 151.1D, Attachment 4, paragraph 2.c

Atmospheric Dispersion Modeling of the February 2014 Waste Isolation Pilot Plant (WIPP) Release

2. ALL-HAZARDS PLANNING BASIS/TECHNICAL PLANNING BASIS. An Emergency Planning Hazards Assessment (EPHA) must be prepared and used to define the provisions of the Emergency Management Hazardous Materials Program, ensuring that the program is commensurate with the hazards identified. The EPHA provides the basis for establishing a graded approach that will meet the program requirements outlined in this Attachment. DOE sites/facilities/activities with federally regulated biological agents and toxins require and EPHA, however, quantitative analysis is not required. The EPHA must address the following items.

c. Some facilities, such as underground facilities, require additional consideration of how airborne contaminants may be released, since an atmospheric dispersion model would not provide a valid result.

Program Element 2: All-Hazards Planning Basis
Effective: 9/14/2018

FAQ 1807305710: Clarification on “safely manipulated by one person” and the applicability of chemical screening quantities Referenced in DOE G 151.1-2.

QUESTION: The language in DOE O 151.1C (Attachment 2, CRD 2.b.(2).(b).3) and DOE 151.1D (Attachment 3, CRD 2.e.(6)(c)) related to chemical screening quantities is unchanged: “Chemical hazardous materials that require further analysis in an EPHA include chemicals with an assigned Health Hazard rating of 3 or 4, based on National Fire Protection Association (NFPA) 704, in quantities greater than a quantity that can be “easily and safely manipulated by one person [see 29 CFR 1910.1450(b)]. Quantities of chemical hazardous materials considered to be “easily and safely manipulated by one person” can be locally determined in accordance with the provisions of 29 CFR 1910.1450(b).” Are the screening quantities listed in DOE G 151.1-2 still considered “consistent with the intent of the Order?” “Hence, it is consistent with the intent of the Order to screen out individual containers with capacities less than approximately 5 gallons (19 L) for liquids, 40 pounds (18 kg) for solids, or 10 pounds (4.5 kg) for compressed gases”? [DOE G 151.1-2, Section A.3.1].

ANSWER: It was the intent of DOE O 151.1D to state that unit quantities (individual containers) of hazardous materials up to and equal to those “easily and safely manipulated by one person” (i.e. “laboratory scale” quantities) should not be analyzed quantitatively in an EPHA. DOE O 151.1D states hazardous materials in quantities “smaller than” but the true intent of this statement when the policy was developed for those stated quantities to serve as maximum quantities. It was never the intent of O 151.1D to exempt from EPHA analysis less than and equal to 4.99 gallons of liquid but require EPHA analysis for 5.0 gallons; exempt from EPHA analysis less than and equal to 39.99 pounds of solids but require EPHA analysis for 40 pounds; and finally to exempt from EPHA analysis less than and equal to 9.99 pounds of compressed gas but require EPHA analysis for 10 pounds. In providing this interpretation, the opportunity is taken too clearly and unequivocally state what has long been practiced as it relates to this requirement that 5 gallons of liquids, 40 pounds of solids or 10 pounds of compressed gases are maximum quantities that are exempt for EPHA analyses.

It was always the intent of DOE G 151.1-2, A-7 to state the maximum quantities of hazardous materials that should be exempted from EPHA analyses. The use of the word “maximum” in the text and “maximum” being underlined for emphasis affirms that clear intent. The end of the passage incorrectly states “...it is consistent with the intent of the Order to screen out individual containers with capacities less than approximately 5 gallons (19 L) for liquids, 40 pounds (18 kg) for solids, or 10 pounds (4.5 kg) for compressed gases.” Similarly to the interpretation for DOE O 151.1D, it was not the intent of DOE G 151.1-2 to exempt from EPHA analysis less than and equal to 4.99 gallons of liquid but require EPHA analysis for 5.0 gallons; exempt from EPHA analysis less than and equal to 39.99 pounds of solids but require EPHA analysis for 40 pounds; and finally to exempt from EPHA analysis less than and equal to 9.99 pounds of compressed gas but require EPHA analysis for 10 pounds. The maximum quantities of hazardous materials exempt from EPHA analyses are 5 gallons of liquids, 40 pounds of solids or 10 pounds of compressed gases are maximum quantities that are exempt for EPHA analyses.

The Occupational Safety and Health regulations define laboratory scale as hazardous substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person. DOE has opted to specify values for solids, liquids and gases which are “safely manipulated by one person” as less than the Revised National Institute of Occupational Safety and Health (NIOSH) quantity of 51 pounds.

Finally, the intended requirement of DOE O 151.1D and recommendation of DOE G 151.1-2 was to exempt from further analysis of an EPHA those chemical hazardous materials of Health Hazard Ratings of 3 and 4, based on the National Fire Protection Association (NFPA) 704 in individual containers that could be “safely be manipulated by one person” in quantities less than or equal to 5 gallons (19L) for liquids, less than or equal to 40 pounds (18kg) for solids, or less than or equal to 10 pounds (4.5 kg) for compressed gases are the intended requirements of O 151.1D. These values should be executed in emergency management programs as maximum values.

REFERENCES:

DOE G 151.1-2, A-7

Quantity. Hazardous materials should be eliminated as candidates for analyses if the materials are stored and used only in small quantities. From the definitions in 29 CFR 1910.1450, Occupational exposure to hazardous chemicals in laboratories, “laboratory scale” means work with substances in which the containers, used for reactions, transfers, and other handling of substances are designed to be “easily and safely manipulated by one person.” The Order allows sites to determine values appropriate to the activities and operations at their facilities, but still satisfying the provisions expressed in the CFR. In general, about 5 gallons (19 L) of liquid or the corresponding weight of solid material (about 40 pounds [18 kg]) is the maximum that can be safely handled by one person. For compressed gases, cylinders with a full gross weight of 40 pounds (18 kg) will typically contain 10 pounds (4.5 kg) or less of most common toxic gases. Hence, it is consistent with the intent of the Order to screen out individual containers with capacities less than approximately 5 gallons (19 L) for liquids, 40 pounds (18 kg) for solids, or 10 pounds (4.5 kg) for compressed gases.

DOE O 151.1D, Attachment 3, 2(e.)(6)(c)

(c) Chemical hazardous materials that require further analysis in an EPHA include chemicals with an assigned Health Hazard rating of 3 or 4 based on National Fire Protection Association (NFPA) 704 in quantities greater than a quantity that can be “easily and safely manipulated by one person” [see 29 CFR 1910.1450(b)]. Chemicals without an assigned Health Hazard rating require further analysis in an EPHA if the quantity is greater than a quantity that can be “easily and safely manipulated by one person.” Quantities of chemical hazardous materials considered to be “easily and safely manipulated by one person” can be locally determined in accordance with the provisions of 29 CFR 1910.1450(b).

29 CFR 1910.1450(b) Occupational exposure to hazardous chemicals in laboratories

“Laboratory scale “means work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and easily and safely manipulated by one person. “Laboratory scale” excludes those workplaces whose function is to produce commercial quantities of materials.

Occupational Safety and Health Act of 1970, Section 5(a)(1) General Duty Clause

Employers are required to provide their employees with a place of employment that is “free from recognized hazards that are causing or are likely to cause death or serious physical harm.”

Program Element 2: All-Hazards Planning Basis
Effective: 9/25/2018

FAQ 1806053044: Clarification on requirement to analyze releases from multiple facilities

QUESTION: DOE O 151.1D, Attachment 4, Paragraph 2.f. requires EPHAs to include analyzed scenarios where the same severe event triggers hazardous material releases from multiple facilities. Similar to Attachment 3, paragraph 2.d.4, no guidance is provided relative to the level of severity to be analyzed. No guidance is provided on how to define “multiple”. A variety of possible interpretations are possible including, but not limited to: All facilities on site All facilities within a certain radius All facilities with connected processes No guidance is provided on the extent of analysis Should the worst-case accident for each facility in a combination be analyzed or should the analysis consider ALL possible combinations of accidents? No guidance is provided on how to estimate consequences when the hazards are different, i.e. if a combination includes a radiological hazard and a chemical hazard.

ANSWER: When operating a Hazardous Material Program, the identification of the dominant hazards on the site and severity of the consequences for the emergency classification (i.e. General Emergency (GE), Site Area Emergency (SAE) or Alert must be listed in a potential table of Operational Emergencies in the EPHA. This table must contain the majority of the most severe potential hazardous material releases. Chemical mixtures and concurrent releases from multiple facilities for plausible site scenarios may be examined using the Subcommittee on Consequence Assessment and Protective Actions (SCAPA) Chemical Mixture Methodology Workbook which provides step by step instructions for use. The sites are responsible for identifying and preparing to respond to the worst-case scenarios listed in their EPHA(s) for a single facility or multiple facilities that could be relevant during a cascading event.

REFERENCES:

DOE O 151.1D, Attachment 4, Paragraph 2.f

Analyze scenarios where the same severe event triggers hazardous materials releases from multiple facilities and contain information about the impact of simultaneous or sequential hazardous materials releases from identified receptors above. This can be documented in the EPHA or a site level supplemental planning document. If the EPHA indicates the potential for an Alert, Site Area Emergency, or General Emergency, use the results of the analysis to determine the necessary personnel, resources, and equipment for the Emergency Management Hazardous Materials Program (taking into account approved baseline needs determined through implementation of DOE O 420.1C, Change 1, Facility Safety).

Program Element 2: All-Hazards Planning Basis
Effective: 3/5/2019

FAQ 1903050240: Model Accuracy Beyond 25 Miles

QUESTION:

- 1) What is the technical basis for the statement “...the accuracy of most available models may be inaccurate beyond 25 miles”?
- 2) What is meant by the terms “report” and “may be reported for information”? and,
- 3) This statement potentially places limits the requirement for the Department to ensure that “...appropriate response measures are taken to protect the worker, the public, the environment, and national security” as required by DOE order. Is that the intent?

ANSWER:

- 1) What is the technical basis for the statement “...the accuracy of most available models may be inaccurate beyond 25 miles”?

NA-41 agrees that the statement in the DOE O 151.1D, Attachment 4, 2.e is misleading when it states, “Depending upon the dispersion model used and other factors, the accuracy of most available models may be inaccurate beyond 25 miles” and should be clarified to say “The accuracy of a dispersion model is highly dependent on the transport model and coded assumptions. For the purpose of the EPHA, if results go beyond 25 miles, identify the corresponding model used for the analysis.”

The accuracy or uncertainty of dispersion models should not be quantified by a single value to be applied to all models and all modeling situations. Dispersion models vary in their capabilities and inherent uncertainties and the scenarios they simulate vary over a range of hazardous situations and atmospheric conditions; therefore, it is misleading to use a single downwind distance to reflect model confidence or uncertainty.

As an example of the range of dispersion model capabilities, the Gaussian class of models is intended for limited downwind distances and time periods due to its use of steady-state conditions. Accurate determination of when these Gaussian models become uncertain depends on whether scenario characteristics invalidate the steady-state assumption; variable weather conditions, in space or time, and the presence of varying terrain. More complex models, such as 3-d models, are suited for changing conditions associated with either longer downwind distances and time periods and normally account for terrain variability. While both Gaussian-based and 3-d models have an inherent uncertainty that increases with downwind distance, their respective uncertainties are specific to their differing methodologies leading to the validity of using 3-d models over larger distances and longer time scales.

Estimates based on the assumptions from Gaussian dispersion models are overly conservative. As you increase the distance from the source the accuracy of the model decreases but should be sufficient in bounding the health and safety impacts for a site as required by an EPHA. The distance of 25 miles is believed to be arbitrary and could easily be stated as 10, 30, and 50 miles, etc.

- 2) What is meant by the term “report” and “may be reported for information”?

The term “report” and “may be reported” referenced in DOE O 151.1D refers to reporting data in the EPHA and/or the EALs. When discussing the 25-mile limit, DOE O 151.1D refers to cases in which PACs are exceeded beyond 25 miles.

3) This statement potentially places limit the requirement for the Department to ensure that “...appropriate response measures are taken to protect the worker, the public, the environment, and national security” as required by DOE order. Is that the intent?

DOE O 151.1D states that the EPHA does not have to provide data beyond 25 miles downwind of the source. It was never the intent of the DOE O 151.1D to state that results at and beyond 25 miles are not significant especially to the surrounding offsite community. Depending on the size of the site, the distance to the site boundary might be at or beyond 25 miles. The next iteration of DOE O 151.1x should state “...If critical distances are at or beyond the 25 miles, report the true distances and assure that the transport model used is validated and peer reviewed for accuracy at those distances. Results generated with a simple, straight-line plume models should not be suitable to report distances at or beyond 25 miles due to inaccuracies resulting in over-conservatism that will be compounded by the increasing distance. Distances at or beyond 25 miles may require more sophisticated dispersion models.”

REFERENCES:

DOE O151.1D

Program Element 2: All-Hazards Planning Basis
Effective: 4/3/2019

FAQ 1902253155: Elimination of a chemical based on partial vapor pressure

QUESTION: DOE O 151.1D (Attachment 3, Section 2.e.(3) (b)) states that a liquid chemical can be eliminated from consideration if the partial vapor pressure is less than 10 mmHg at 25°C. If the operating temperature is >25°C does the 10 mmHg at 25°C exclusion still apply or should it be less than 10 mmHg at the operating temperature?

ANSWER: DOE Guide 151.1-2, Technical Planning Basis, Appendix A, A-6 Dispersibility

The EPA established a vapor pressure cut-off value of 10 millimeters (mm) of mercury (40 CFR 68.115) for chemicals to be listed. However, experience indicates that some substances with lower vapor pressures may represent a significant airborne source if the potential spill volume is sufficiently large. Accordingly, a value of 10 mm of mercury is recommended as the cut-off value for EPHA purposes. Substances with vapor pressures below this value pose little potential for air releases due to an accidental spill. Although focused on the liquid spill scenario, a vapor pressure below 10 mmHg at about 25°C can be used as a general criterion for excluding liquids from EPHA analysis.

EPA 550B99009 Risk Management Program Guidance for Offsite Consequence Analysis

Mixtures containing regulated toxic substances do not have to be considered if the concentration of the regulated substance in the mixture is below one percent by weight or if you can demonstrate that the partial vapor pressure of the regulated substances in the mixture is below 10 millimeters of mercury (mm Hg).

Regulated substances present as by-products or impurities would need to be considered if they are present in concentrations of one percent or greater in quantities above their thresholds, and their partial vapor pressures are 10 mm Hg or higher.

40 CFR 68.115: (1) If a regulated substance is present in a mixture and the concentration of the substance is below one percent by weight of the mixture, the amount of the substance in the mixture need not be considered when determining whether more than a threshold quantity is present at the stationary source. Except for oleum, toluene 2,4-diisocyanate, toluene 2,6-diisocyanate, and toluene diisocyanate (unspecified isomer), if the concentration of the regulated substance in the mixture is one percent or greater by weight, but the owner or operator can demonstrate that the partial pressure of the regulated substance in the mixture (solution) under handling or storage conditions in any portion of the process is less than 10 millimeters of mercury (mm Hg), the amount of the substance in the mixture in that portion of the process need not be considered when determining whether more than a threshold quantity is present at the stationary source. The owner or operator shall document this partial pressure measurement or estimate.

REFERENCES:

DOE O151.1D

EPA 550B99009 Risk Management Program Guidance for Offsite Consequence Analysis

DOE Guide 151.1-2, Technical Planning Basis Appendix A, A-6 Dispersibility

40 CFR 68.115 Threshold determination.

Program Element 2: All-Hazards Planning Basis
Effective: 4/3/2019

FAQ 1902275234: Exclusion of 6M Shipping Package Type B Container

QUESTION: The 6M shipping package has been decertified as a Type B container. Both DOE Order 151.1D and DOE 151.1C states that radioactive material in Type B containers (with over pack) can be screened out if the certificates of compliance are maintained current. However, a DOE Order 151.1C “Frequently Asked Questions” went on to state “the exclusion of Type B containers applies to containers originally designed as Type B shipping packages even if the container certification is not being maintained current” as is the case for the 6M container. Is this still applicable to DOE O 151.1D such that 6M shipping packages can be considered Type B containers?”?

ANSWER: The Office of Emergency Operations Policy, after thorough review and consultation, interprets that the intent of these exclusions is for compliant containers, and that approvals for non-compliant and non-certified DOE and NNSA containers/packaging must be authorized via the appropriate authority for their continued use. In this response, we have identified some of the requirements needed in order to gain approval to use non-certified packaging for onsite storage, transfer, and transport as well as for offsite transportation. While the submission did not include the configuration or intended use of the container used in your question, it is the responsibility of the site to identify all other applicable regulations related to the hazardous material and packages in question.

(DOE-STD-1026-2016)

While the DOT Specification 6M Type B container had been the workhorse for more than 20 years, this container specification was terminated for shipment of radioactive material on 30 September 2008.

(DOE O 461.2)

DOE-issued Transportation Safety Document (TSD) Safety Evaluation Reports (SER) are required for non-certified DOE/NNSA packages. For a non-compliant package, a detailed analysis of the package in which the performance envelope of the package is clearly established is required (Annex 2, p. 2-5). Non-NNSA approved Type A (F) or Type B packaging procedures shall be approved by the appropriate authority.

The TSD establishes the approved safety envelope for packaging and transfer operations for materials of national security interest. The TSD, when approved by a SER, satisfies the requirements of Attachment 3 of this Order and/or 10 CFR Part 830, Appendix A to Subpart B, Section F. The SER presents the results of the DOE review team and provides the framework for approval of the TSD giving the contractor authority to transfer these materials.

(DOE O 461.1)

An OTD is required for fissile or Type B quantities of MNSI, where the package will not meet the requirements of 10 CFR Part 71.

In addition to the TSD SER for offsite shipments, an Offsite Transportation Direction (OTD) is required for fissile or Type B quantities of MNSI, where the package will not meet the requirements of 10 CFR Part 71. Prior to developing the Transportation System Risk Assessment (TSRA), contractors must submit a request for approval to proceed to their respective NNSA

program office. Contractors must submit their OTD application through their respective NNSA program office. The application must be submitted to the NNSA CO at least nine months prior to the shipping need date. Prior to first use, contractors must become an Authorized User.

Contractors must submit a written request to the NNSA CO through the Field Organization Manager for review and approval. The request must be supported by site specific operating procedures. Authorized Users must maintain and use current copies of the TSRA and OTD.

DEFINITIONS:

(DOE O 461.2)

Compliant Transfers: Onsite transfers for which both the package and transporter are in accordance with the relevant DOT regulations of 49 CFR Parts 171-180, 49 CFR Parts 350-399, NRC regulations of 10 CFR Part 71, NRC and DOE issued Certificates of Compliance (CoCs) and/or NNSA Offsite Transportation Certificates (OTCs) or CoCs. (Attachment 2, p. 1).

Non-compliant Transfers: Onsite transfers that do not meet the definition of “compliant transfers”

Compliant Packages: Packages that meet the relevant Department of Transportation (DOT) regulations of 49 CFR Parts 171-180 and Nuclear Regulatory Commission (NRC) regulations of 10 CFR Part 71, NRC and DOE Certificates of Compliance (CoCs), and/or NNSA Offsite Transportation Certificates (OTCs) or CoCs.

Non-compliant Packages: Packages that do not meet the definition of “compliant packages”

REFERENCES:

DOE O 151.1D, Comprehensive Emergency Management System, Attachment 4, 2.e

DOE O 461.1C, Packaging and Transportation for Offsite Shipment of Materials of National Security Interest Attachment 1

DOE O 461.2, Onsite Packaging and Transfer of Materials of National Security Interest

DOE-STD-1026-2016, NNSA Package Certification Engineer Qualification Standard

10 CFR Part 830, Nuclear Safety Management

Program Element 2: All-Hazards Planning Basis
Effective: 12/2/2019

FAQ 1911123504: Clarification on Complex-Wide EPZ Sizing Instructions

QUESTION: Are the proposed EPZ instructions in the draft Emergency Management Guide intended to no longer allow for exclusions in the EPZ sizing calculations? If some analyzed scenarios continue to be excluded, how will this be integrated with DOE Order 470.3C, site security risk assessments, and Department of Homeland Security Bomb Threat Stand-off Card?

Specifically, should sites apply, at a minimum, the consequences from bomb explosions of sizes from 20 pounds up to 200 pounds in its EPZ calculations?

If extreme scenarios continue to be excluded from EPZ calculations, what will the definition of an extreme fire or extreme bomb be?

REFERENCES:

- (A) DOE Order 151.1D, Comprehensive Emergency Management System, 8/11/2016
- (B) DOE Emergency Management Guide 151-2, Technical Planning Basis, 7/11/07
- (C) DOE Order 470.3C (U) Design Basis Threat, 11/23/2016
- (D) Department of Homeland Security Bomb Threat Stand-off Card Background

BACKGROUND:

DOE Order 151.1D Comprehensive Emergency Management System, (reference A) requires emergency planning hazards analysis (EPHA) to include a determination of the size of the emergency planning zone (EPZ) but provides no instructions on how to establish its size.

An appropriately sized EPZ is significant for DOE in the placement of emergency response facilities and highly significant for emergency planning by offsite entities for releases at DOE sites that affect the public. With one exception, the EPZ sizing instructions are sufficiently detailed in the non-mandatory DOE Emergency Management Guide 151-2, Technical Planning Basis (reference B EMG). The exception being the definition of an “extreme malevolent act”.

A draft revision of the EMG has recently circulated for review and comment for an update to align with DOE Order 151.1D. A significant change from the existing EMG proposed in the draft revision is the sizing of the EPZ. Namely, the exclusion of extreme malevolent event and catastrophic event calculations from EPZ sizing is no longer going to be allowed. This has a significant effect on material-at-risk quantities and dispersion distances of hazardous materials because a larger bomb blast or larger fire could encompass more material, and the associated thermodynamics has a stronger motive force of dispersion.

Historically, one of the complicating issues in the exclusion of extreme malevolent events from the EPZ calculation is an imprecise definition of the term to apply and that the term is not used in related DOE requirements. DOE Order 470.3C (U) Design Basis Threat, (reference C) requires a security risk assessment to establish protection measures for Protection Level (PL)-5 and PL-6 facilities. PL-5 and PL-6 facilities are facilities with significant hazardous material sabotage targets with off-site and on-site consequences, respectively. PL-5 and PL-6 have associated saboteur capabilities in its assessment process.

Saboteur capabilities are effectively postulated threat scenarios that can also be applied in EPHA analysis. Some of these scenarios, particularly insider threats, cannot be cost effectively eliminated and the mitigating strategy relies on the emergency management program. Importantly, DOE O 470.3C does not use the term “extreme malevolent events”; it identifies baseline capacities in the range of 20 pounds of explosives on an individual and up to 200 pounds of explosives in a vehicle. As baseline capabilities, bombs of these sizes are not easily correlated as “extreme”. Historically, DOE sites have applied the Department of Homeland Security Bomb Threat Stand-off Card (reference D), or similar card, as a technical basis for establishing malevolent act scenarios in EPHAs. This method establishes a set of progressively larger bomb effects, from a 5-pound pipe bomb up to a 60,000 semi-trailer bomb. Within the set of scenarios, sites have documented a rationale to establish what constitutes an extreme malevolent act for the site-specific conditions regarding onsite hazardous materials and existing security measures. Those identified as extreme malevolent acts were excluded from the EPZ sizing calculation.

DISCUSSION:

The sizing of an EPZ is a function of the type and quantity of hazardous material acted upon by a force and its dispersion mechanism. The larger the force, the larger quantity acted upon, up to 100 percent of the available quantity in a defined area, room, building, or onsite. When thermodynamic effects are applied, which are also a function of the size of the energy source, the further the dispersion of hazardous material. So, an intentionally placed bomb or set fire can easily exceed the consequences from an operational explosion, such as a battery explosion, or a fire fueled by a leaking forklift fuel tank. The only instructions for establishing a site EPZ are provided in a non-mandatory guide. The guide advocates the use of EPHA calculations that establishes a minimum size, based on potential lethal airborne concentrations of a particular hazard, and as far away as where protective action criteria may be exceeded, but not to exceed ten miles. The final sizing is between these two calculated distances, as agreed upon by the local offsite authorities. The guide also allows for the exclusion of some analyzed scenarios, such as extreme malevolent acts and catastrophic incidents, when establishing the technical basis for an EPZ. This guide is currently undergoing revision, and the draft revision no longer allows for excluding any EPHA analyzed incidents from the EPZ. Adherence to these instructions in the draft revision will increase EPZ sizing throughout the DOE complex. If the final revision to the EMG retains exclusions to the EPZ sizing calculations, then these exclusions should be well defined and consistent DOE Order 470.3C requirements and the site’s approved risk acceptance to ensure adequate planning is in place for PL-5 and PL-6 facilities.

The approach rationale is in alignment with the Merriam-Webster definition of malevolent as:

MALEVOLENT

- 1: having, showing, or arising from intense often vicious ill will, spite, or hatred
- 2: productive of harm or evil

QUESTION: If some analyzed scenarios continue to be excluded, how will this be integrated with DOE Order 470.3C, site security risk assessments, and Department of Homeland Security Bomb Threat Stand-off Card?

According to DOE G 151.1 1-2 E.3 , as it relates to EPZ’s, the intent for planning for extreme malevolent events was not for sites and facilities to include in the technical planning basis or in determining the EPZ but rather that recognizing such events may require response measures that exceed site and EPZ planning and could require the involvement of multi-jurisdictional and even State and Federal response authorities,

these events should be part of the site-wide EAL set to ensure prompt recognition. The key to response for scenarios whose consequences extend beyond the EPZ is that planning efforts within the EPZ provide a substantial basis for expansion of response efforts beyond the EPZ.

QUESTION: Specifically, should sites apply, at a minimum, the consequences from bomb explosions of sizes from 20 pounds up to 200 pounds in its EPZ calculations?

Sites must continue to comply with the requirements of the DBT, when identifying threats for planning purposes via their security risk assessments (SRA); however, as stated above these calculations are for planning purposes and the intent of DOE O 151.1D and supporting guides do not expect for these calculations to be included in the technical planning basis for determining EPZ's. The calculations for the DBT help to identify performance metrics needed to meet compliance-based protection requirements and the implementation of approved protection strategies.

QUESTION: If extreme scenarios continue to be excluded from EPZ calculations, what will the definition of an extreme fire or extreme bomb be?

It appears that there was an attempt to tie "extreme" malevolent scenarios with other event scenarios. The designation of "extreme" added to scenarios would have to be identified by each site/facility/activity to define what would be extreme or catastrophic specific to their location if attaching the connotation to fire or other events not previously defined.

ANSWERS:

Are the proposed EPZ instructions in the draft Emergency Management Guide intended to no longer allow for exclusions in the EPZ sizing calculations?

The intent of the order and guide has not changed as it relates to extreme malevolent events and will remain as exclusions for EPZ sizing calculations. The exclusion language will be added back into the new consolidated guide with an updated definition for extreme malevolent events as follows:

Extreme malevolent events are events within the constraints of the DBT that result in consequences that exceed the largest release from other initiators and are associated with deliberate criminal acts.

Additionally, in an effort to improve efficiency, the DOE G 151.1-2 states:

Where the source term and subsequent dispersal of a potential malevolent event compare closely to other analyzed scenarios, additional quantitative analysis of the malevolent event is not necessary.

DEFINITION:

Due to the lack of an official definition of extreme malevolent events, NA-41 defines the term within the context of catastrophic events that can be further categorized as man-made deliberate criminal acts. The DOE O 470.4B, Safeguards and Security Program, requires planning for protection from malevolent acts.

REFERENCES:

DOE G 151.1-2 Technical Planning Basis Appendix E. Malevolent Events

DOE O 470.3C (U) Design Basis Threat (DBT)

Program Element 2: All-Hazards Planning Basis
Effective: 8/17/2020

FAQ 2008041557: Questions on EPHA Review, Portsmouth Facility

QUESTION:

- 1) Is it permissible to reduce the material-at-risk quantity in a single container by calculations using computer programs that are not in the DOE Central Registry and are based on 1996 assumptions?
 - a. The first unresolved issue is the analysis of 14-ton solid UF₆ cylinders engulfed in fires.
- 2) Should unconfined fuel pool spills be analyzed based on dimensions of a MAR container or the size of a fuel pool held together by surface tension?
- 3) What fuel depth should be assumed for unconfined spills for use in fire dispersion models?
- 4) Should EPICode dispersion concentration results be reduced by a factor of 15 for a surrogate release quantity over 1 minute to arrive at a time-weighted average?
- 5) If the answer to Question 4 is yes, is there an expectation that responders have a plume plot for use by the ERO?
- 6) Is it permissible to have an unanalyzed UF₆ cylinder in inventory when the authorization basis permits operational activities that may affect its release?

ANSWER:

- 1) No; it is not permissible to reduce the material-at-risk (M-A-R) quantity in a single container by calculations using computer programs that are not in the DOE Central Registry and are based on 1996 assumptions.

There is licensed, maximum capacity for a container for storing hazardous material, and the size of the container is not allowed to be changed unless approved by the licensing Institution. The container (cylinder) is the administrative, standardized feature used to store hazardous materials (M-A-R) and it is not allowed to be modified or reduced without certification by the licensing Institution. Thus, the physical or administrative features that maintain the hazardous material in a safe condition should be maintained as indicated by the licensed maximum capacity of a given container.

Specifically, cylinders designed to store UF₆ need to meet fabrication standards set by the licensing Institution (e.g., ANSI N14.1). Therefore, it is not permissible to change or reduce the size of the licensed container unless otherwise authorized by the appropriate licensing authority.

- a. The first unresolved issue is the analysis of 14-ton solid UF₆ cylinders engulfed in fires. EPHA scenarios under discussion are 30-minute or 2-hour fuel pool fires engulfing solid cylinders containing UF₆. The fuel is either diesel from a straddle carrier or flatbed truck or jet fuel from a large or small airplane.

The PORTS methodology for determining a UF₆ source term differs from DOE prescribed methods, in a non-conservative way. PORTS source term determination differs from the method described in the DOE emergency management guide. This effectively changes the source term from 28,000 lbs, using the EMG method to 8,000 lbs, using the PORTS method.

The EMG method emphasizes bounding conservative approaches over accuracy. In addition, it is noted in FAQ 190305131 Rev 1 that use of modeling tools approved in the DOE emergency management Central Registry “toolbox” is not mandatory but if not used then “DOE sites should determine that the quality assurance level meets the DOE Safety Software Quality Assurance

requirements of the DOE 414.1D”, given the source term was derived from POEF-FBP-001, Basis for Interim Operation of Former Uranium Enrichment Facilities, this suggests that the PORTS site has “historically” accepted the use of the 1996 DAC-EA-710660-A003, Rev 1, Accident Simulations using 6FIRE and SUBLIME software.

The EPHA makes claims that it is not likely that 28,000 lbs is a realistic release in the scenario. Since this has been accepted since 1996, we could assume that running the same simulation in a currently approved “toolbox” software validates the assumptions made in the vehicle fire fuel scenario. If validated, it could then be accepted without significantly revising the EPHA. The simulation could then be added as an addendum to this EPHA to provide justification and acceptance rather than use “this is how we have always done it.”

Moreover, the EPHA refers to the BIO for the 8000-lb “puff” release as a conservative bounding quantity– but does not provide justification or a description on how it was determined. The BIO method of establishing an 8000-lb source term is based on the collective release of a large puff release, upon rupture of a cylinder from hydraulic pressure, and the ensuing continuing release during the remaining fire duration. The 8000-lb puff release does adequately serve as a surrogate quantity based on the calculation in this case. Also, the 1475 F calculations conclude a breach occurs at 23.9 minutes (releasing 6016 lbs instantaneously), followed by 924 lbs for the remaining 6.1 minutes of the fire. An additional 2670 lbs releases after the fire is out without forced cool down. That totals to a release of 9610 lbs over approximately 4 hours.

In addition, based on experience in the industry, analysis of 14-ton solid UF₆ cylinders engulfed in fires indicates that the metal would only ignites at temperature above 500 degrees Celsius requiring large amount of fuel while heat loss is being vigorously prevented. Moreover, burning of solid Uranium for a minimum of 3 hours at a temperature above 800 degrees Celsius, indicates that no detectible airborne is collectible in air samples at distance less than 100 meters from burn point; also, only fractions of residual oxide are generated and detectable with dimension less than 10 µm AED, predominantly U₃O₈. Furthermore, burning of solid UF₆ to a molten state indicates that uranium airborne particles would be generated in the range of 1.1E-4 and 3.6E for Airborne Release Fractions (ARF) and Respirable Fraction (RF) respectively.

- 2) Yes, unconfined fuel pool spills should be analyzed based on dimensions of a MAR container or the size of a fuel pool held together by surface tension.

Experience has shown that the primary two factors governing the spread of a fuel, and the equilibrium spill depth reached are the surface tension of the liquid and the surface characteristics of the substrate. However, given that the surface tensions of most fuels are relatively similar; this parameter is generally not as influential when considering the characteristics of a spill.

The more dominant variable to consider is the surface topography which can have a substantial impact on the spread and equilibrium spill depth, both of which play an important role in predicting the fire hazard resulting from the spill. Also, the properties of a liquid, specifically surface tension and viscosity, as well as the interfacial relationship between the liquid and substrate (i.e., contact angle) can be used to gauge the rate of spread and equilibrium depth of a spill. Therefore, the size of a fuel pool held together by surface tension should be analyzed based on dimensions of a MAR container (area, depth, and others).

- 3) Fuel depths of 0.72 mm with a standard deviation of 0.34 mm should be assumed for unconfined spills for use in fire dispersion models. This value is consistent with the values currently recommended in the literature for minimum liquid spill depth. Besides fire diameter, the burning rate of a fuel has been shown to be dependent upon several factors including fuel quantity, substrate, the roughness and uniformity of a substrate, ignition delay, and others.

Also, experience has shown that a pool radius of a fueled fire hardly reaches a steady-state, and it is likely to grow up to a maximum of 16 m, depending on the amount of the generating fuel. However, DOE guidance does not prescribe how to determine heat emission rates and fire radii as inputs to the approved emergency management dispersion modeling programs.

The PORTS EPHA results are based on assumptions that result in low consequences caused by using input parameters that loft UF6 high into the atmosphere. The heat emission rates are established by burning all the fuel that could be available from a full fuel tank and confining it to a small area around cylinder(s). These are the principal inputs to calculate lofting, mitigating ground level exposures.

As an example, the calculations for a large airplane crash concluded that they do not result in a classifiable emergency because of lofting. Lofting input parameters are an 11.3 m fire radius for a heat emission rate based on 48,445 gallons of aviation fuel burning over 2 hours. The bounding scenario involves a source term of 562,887 lbs of UF6 and concludes that it is insufficient to trigger a classifiable emergency due to lofting.

In addition, PORTS fire radii for vehicle scenarios are based on the dimensions of cylinders for these unconfined fuel spills. That increases the heat flux at the cylinder(s) location, concentrated in a small area, and the dispersion modeling program calculates the dispersion similar to a stack release. An actual unconfined spill will lower the heat flux because the fuel pool spreads out, dampening the lofting and increasing the consequences at ground level.

Also, Aircraft fire radii are not provided as a basis in the EPHA. Fire radii are based on fuel pool radii. A fuel spill over a larger area can result in higher consequences due to its effect on more cylinders (a higher MAR quantity) and a lower heat flux (less lofting, so less dilution at ground level) while have a mitigating effect because the fire duration is shorter.

The worst case is likely to be a fire radius that supports a depth that can breach more than one cylinder for the volumes of fuel analyzed. The 1475 DAC concludes that the breach occurs at 23.9 minutes after the fire starts.

- 4) No, the EPICode dispersion concentration results should not be reduced by a factor of 15 for a surrogate quantity release over 1 minute to arrive at a time-weighted average.

Discussions with NARAC concluded that dividing EPICode results by 15 to achieve a 15-minute time weighted average is not appropriate because it is not truly a “peak” dispersion result, although labeled as one. NARAC planned to discuss removal of the time-weighted average description from the EMG when using NARAC endorsed modeling programs.

While the results do not change significantly for the 8,000-lbs source term, it may be a problem for increased source terms. It will also be an issue to contend with during a response because the real-time modeling results could be as much as 15 times higher than what the EPHA/EAL concludes, and the plume plots generated by EPICode will be of no use and only add to the confusion. Hence, this method has not been observed elsewhere in the DOE complex. The multitude of available modeling

tools will have different results, but sites should select one and use the model output in conducting its response.

Also, it is recommended that at least two sets of dispersion conditions be considered in computing consequence versus distance for the source term: (a) Conservative Conditions with a wind speed of 1 m/sec (measured at a height of 10 meters) and (b) Average Conditions with wind speed of 4.5 m/sec.

Overall, the amount of pollutant ultimately released to the environment, the rate of release, and mitigation features, controls or structures may influence the location or elevation. The important factors to be considered are mitigation of the source (as by filtration, or scrubbing, fallout) reduction of the release rate (as by holdup in a structure), and enhanced dispersion.

- 6) It is not permissible to have an unanalyzed UF6 cylinder in inventory when the authorization basis permits operational activities may affect its release.

One of the issues is a PORTS thin-walled cylinder in its inventory that is not currently analyzed in the EPHA. There are currently no plans to liquefy and transfer its contents to a thick-wall cylinder. Approach could be acceptable if the Authorization Agreement specifically prohibited use of the cylinder without additional analysis in the EPHA. Given that the material is in solid form, the implications of thin vs. thick is less relevant with regard to overall container stress.

The operational activities referred to in the question require the cylinder to be placed in an overpack for transporting onsite. These cylinders could then potentially be placed in overpack for all operational activities to include storage, as long as the cumulative hold up activities are tracked. The use of overpacks in all activities could possibly eliminate the need to further analyze the cylinder(s) and would provide additional insulation during the release timeline of the vehicle fuel fire scenarios, thus reducing the potential for a release.

On the other hand, the requirement for a UF6 cylinder to be kept in inventory is that it must be inspected, tested, and analyzed as well as certified in accordance with the licensing Institution requirements. Other requirements include provisions for ensuring impact resistance of the cylinder shell and heads in case of a transportation accident in a cold climate. The licensing standard specifies that the weld procedures for the cylinder be qualified for the grade of steel used for these types of cylinders.

CONCLUSION:

- Paramount to acceptance of the 8,000-lb source term is the acceptance of the computer programs used in 1996 for emergency management purposes. Additional things to consider are the conditions of the cylinders assumed in the 1996 analysis and what they may become in future decades. The 1996 calculations assumed them to be “like new”.
- The use of overpacks in all activities/storage could possibly eliminate the need to further analyze the cylinder. However, the requirement for a UF6 cylinder to be kept in inventory is that it must be inspected, tested, and analyzed as well as certified in accordance with the licensing Institution requirements.
- The result of the experiment by several scientists indicates that burning solid Uranium (UF6) for over 3 hours at a temperature above 800 degrees Celsius, produce no detectible airborne collectible at distance less than 100 meters from burn point; also, only fractions of residual oxide are generated and detectable with dimension less than 10 μm AED, predominantly U3O8.

- Also, burning of solid UF₆ to a molten state indicates that uranium airborne particles would be generated in the range of 1.1E-4 and 3.6E for Airborne Release Fractions (ARF) and Respirable Fraction (RF) respectively.
- If the analysis adopts unconfined fuel-spill methodologies, the depth of the fuel pools are not sufficient to sustain a 30-minute fire for the vehicle fuel fire scenarios.
- Fuel depths of 0.72 mm with a standard deviation of 0.34 mm should be assumed for unconfined spills for use in fire dispersion models. This value is consistent with the values currently recommended in the literature for minimum liquid spill.
- The EPICode dispersion concentration results should not be reduced by a factor of 15 for a surrogate quantity release over 1 minute to arrive at a time-weighted average when considering a source term over 8,000 lbs.
- The real-time modeling results could be as much as 15 times higher than what the EPHA/EAL concludes, and the plume plots generated by EPICode will be of no use and only add to the confusion.
- For scenarios PORTS determined to be not classifiable by EPHA analysis but have consequences in the BIO analysis, PORTS proposes discretionary EALs – Alerts, SAEs and GEs - but these will not have pre-determined protective actions or protective action recommendations to go with them that are supported by EPHA results. PORTS attributed the differences between the EPHA and BIO results to be thermal lofting.
- Based on these analyses, it can be concluded that the EPHA report used some unconventional practices to assess the facility hazardous materials and the resulting emergency management program. Furthermore, in the light of the issues discussed herein, it appears that the EPHA report for the facility needs to be amended to address the recommendations.

Program Element 2: All-Hazards Planning Basis
Effective: 5/3/2021

FAQ 2105030001: Using GHS to exclude hazardous materials

QUESTION: Should NA-41 cancel FAQ-007 and allow laboratories, plants, facilities, and sites to exclude hazardous material from further analysis in Emergency Planning Hazard Assessments (EPHAs) using the Global Harmonization Standard (GHS) thresholds?

ANSWER: Bottom line up front – Yes, NA-41 cancels FAQ-151D-007 immediately. Yes, laboratories, plants, facilities, or sites may use GHS to exclude hazardous materials from further analysis in EPHAs.

BACKGROUND:

In the early 1990s, the Department of Energy (DOE) expanded its emergency management programs from radiological hazards to address the potential impact of radiological and non-radiological materials on the safety of the workers and the general public. In that expansion, DOE focused on implementing protective actions with civilian authorities to avoid irreversible health effects. Originally, DOE analyzed hazardous materials in an EPHA if sites, laboratories, or activities possessed hazardous material exceeding regulatory thresholds.

In the early 2000s, DOE changed its approach in providing adequate protection to the workers, the public, and the environment because the regulations did not contain quantities for all hazardous materials. DOE found that in agencies' notifications of public rulemaking establishing list-based quantities, the agencies acknowledged their focus was on those materials that posed the most significant risks, rather than all hazardous materials. The agencies further acknowledged that the quantities were not absolute levels above which the chemicals were dangerous and below which they pose no threat at all.

At the time of publication of DOE O 151.1C in 2005, the Occupational Safety and Health Administration (OSHA) had not included the Global Harmonization Standard (GHS) within 29 CFR 1910.1200. Therefore, DOE adopted the National Fire Protection Association (NFPA) Standard 704 thresholds between reversible and irreversible health effects.

By the time DOE began the development of the DOE O 151.1C revision in 2015, OSHA included the GHS as part of 29 CFR 1910.1200. DOE considered a shift from NFPA 704 to GHS in the drafting of DOE O 151.1D. Ultimately, an Emergency Management Issues Special Interest Group (EMI SIG) working group, made up of personnel across the complex directly involved in development of quantitative analyses of hazardous materials, recommended retention of the NFPA 704 screening approach. The recommendation noted that dropping the NFPA 704 screening approach would have resulted in the reworking of all existing EPHAs. When published, DOE O 151.1D retained the NFPA 704 screening approach. However, the GHS exclusions addressed in DOE O 151.1D, Attachment 3, paragraph 2e(3)(c)-(e) were retained.

Emergency management personnel from across the complex asked NA-41 to determine the appropriateness of the retention of the exclusions in DOE O 151.1D, Attachment 3, paragraph 2e(3)(c)-(e). In 2017, the NA-41 Director issued FAQ-151D-007.

As a result of inquiries made in 2020 and 2021, NA-41 reexamined the exclusions. While both NFPA 704 and GHS differentiate between irreversible and reversible health effects, different approaches are used. NFPA 704 focuses on acute exposures over short time periods to fire and emergency responders; OSHA focuses on occupational exposures and on exposures from materials in transit over somewhat

longer time periods. These different approaches result in misalignment in the boundaries between irreversible and reversible health effects.

CONCLUSION:

NA-41 concludes that either approach to be acceptable in screening hazardous materials to exclude certain hazardous materials that do not cause irreversible health effects from further analysis in an EPHA.

Therefore, the NA-41 Director cancels the FAQ 151D-007 effective immediately.

Director's Interim Guidance:

If a facility wishes to use the exclusions in DOE O 151.1D, Attachment 3, paragraph 2e(3)(c)-(e), it should use GHS to screen and analyze hazardous materials in its screening process and cannot use NFPA 704. The facility should not mix GHS and NFPA 704 analytical approaches in its EPHA process.

Programs seeking to shift from NFPA 704 to use GHS should note that 29 CFR 1910.1200 does not consistently define the same categories across all hazards with respect to reversible health effects. Where reversible health effects for acute inhalation toxicity are in Categories 3 and 4, reversible health effects may be considered Category 2 for other routes of exposure or types of hazards. Since DOE O 151.1D states that the Field Element Manager must approve the use of GHS, the facility should clearly state the routes of exposure and the health effect categories in any documentation for the Field Element Manager to approve the use of GHS.

REFERENCES:

DOE O 151.1D, Attachment 3, paragraph 2e(3)(c)-(e)

NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response

29 CFR 1910.1200, Hazard Communication

FAQ 151D-007, Are the exclusions listed in sub-paragraphs c, d, and e of the Globally Harmonized System (GHS) applicable to DOE/NNSA Emergency Management programs?

Program Element 2: All-Hazards Planning Basis
Effective: 1/5/2022

FAQ 2201055543: Does DOE O 151.1D require an EPHA specific for all onsite transportation incidents?

QUESTION: All our EPHAs analyze transportation incidents internal and external of the facility/activity requiring further quantitative assessment. In practice, events involving the transportation of hazardous materials to or from EPHA facilities onsite are analyzed in the EPHA of the facility/activity that the materials are associated with. For all other onsite transportation events, the Emergency Response Guidebook, supplemented by site procedures, is used for protective action guidance and event categorization and classification. Does DOE O 151.1D require that we have an EPHA specific for all transportation incidents (a Transportation EPHA) or is the approach outlined above consistent with the intent of the Order?

ANSWER: This question was previously addressed in FAQ 081215, dated 12/15/2018, regarding DOE O 151.1C, Chapter III, Para 3.a. (6) and Attachment 2, Contractor Requirements Document, Para 3.b. (1)g.

In the response to that FAQ, DOE 151.1C allows exclusion of certain onsite shipments from the requirement to develop a Technical Planning Basis using Hazards Surveys and Emergency Planning Hazards Assessments (EPHAs) if the shipment satisfies governing Department of Transportation (DOT) regulations and specifications for commercial hazardous materials transport.

The same requirement from DOE O 151.1C appears in DOE O 151.1D, Attachment 4, paragraph 2.s. Thus, the intent of both Orders regarding this requirement is the same. Transportation activities can be addressed in individual facility EPHAs. For shipments that do not require an EPHA for onsite hazardous materials transfers, namely DOT-compliant shipments, the requirement will be met if the communications and control measures that enable the use of the ERG offsite are implemented for onsite transfers.

REFERENCES:

DOE O 151.1D, Chapter III, Para 3.a.(6)

DOE O 151.1D, Attachment 2, Contractors Requirements Document, Para 3.b. (1) g

DOE O 151.1D, Attachment 4, paragraph 2.s.

FAQ 081215, dated 12/15/2018

Program Element 2: All-Hazards Planning Basis
Effective: 10/7/2022

FAQ 2209273533: Is a projected dose of 1 rem to be used as the DOE radiological protective action criteria?

QUESTION: DOE Order 151.1D requires that Protective Action Guides (PAGs) promulgated by the Environmental Protection Agency (EPA) must be used as the protective action criteria for radioactive material. DOE G 151.1-1B, Comprehensive Emergency Management System Guide provides clarification regarding the intent of DOE O 151.1D requirements and states the terms PAG and EPA Protective Action Guides used in the Order should be interpreted as a projected dose equivalent of 1 rem. PAGs are promulgated in EPA 400, PAG Manual: Protective Action Guides (PAGs) and Planning Guidance for the PAC. The projected dose value for initiating protective actions (evacuation or sheltering) during the early phase of an emergency, specified in Table 2.1 of EPA-400, is 1 to 5 rem; however, EPA-400 states that protective actions should begin at 1 rem and should consist of whichever actions (evacuation or sheltering) result in the lowest exposure for the majority of the population. EPA 400 provides additional guidance related to the PAG and implementation of protective actions. EPA 400 states that sheltering-in-place may be preferred for special populations (e.g., those who are not readily mobile) as a protective action at projected doses of up to 5 rem (50 mSv) and sheltering-in-place may be justified at projected doses up to 5 rem (50 mSv) for the general population (and up to 10 rem (100 mSv) for special populations) when environmental, physical, or weather hazards impede evacuation. In summary, the DOE Comprehensive Emergency Management System Guide interprets the term PAG used in DOE Order 151.1D as a projected dose equivalent of 1 rem. In addition, the EPA PAG Manual states that during an emergency, protective actions should begin at 1 rem unless dealing with a special population or when environmental, physical, or weather hazards impede evacuation.

ANSWER: The Protective Action Criteria (PAC) in DOE O 151.1D is derived from the EPA 400 Protective Action Guideline and must be used. Table 2-1 in EPA 400 states that protective actions should be initiated at 1 rem with exceptions based on whether a special population is involved or when evacuation is impeded. The intent of the Order is that protective actions begin at 1 rem with a decision-making process to determine if a special circumstance, as outlined in EPA 400, is present.

REFERENCES:

DOE O 151.1D, Attachment 4, para 2.d.(3).(a)

EPA 400 Table 2-1

Program Element 2: All-Hazards Planning Basis
Effective: 1/26/2023

**FAQ 2107134355: Clarification on airborne exposure hazard and dispersibility exclusion
for gases adsorbed onto solid porous materials (adsorbents) within a cylinder**

QUESTION: Does a gas adsorbed onto a solid porous material (adsorbent) within a cylinder meet the dispersibility exclusion criteria outlined in DOE Order 151.1D Attachment 3, CRD 2.e.(3)(b)?

ANSWER: No, the exclusion in DOE O 151.1D, Attachment 3, 2.e.(3)(b) does not apply to gases adsorbed onto a solid porous material within cylinders. As currently analyzed, the inclusion would constitute a change in policy, which cannot be executed under the FAQ process.

The Office of Emergency Management Policy considered the requirements in DOE O 151.1D, the guidance in the Technical Planning Basis section and Appendix A in DOE G 151.1-1B, and the requestor's responses to the questions and comments. Based on the information, site should analyze adsorbed gases based on their potential to produce impacts consistent with the definition of an Operational Emergency at their facility. They should apply the notion that the emergency management program should be commensurate to the hazards that the planners could reasonably foresee to occur at the facility.

Further, the Office concludes that since an adsorbed gas could be under pressure within a system while in use (after leaving storage), a plausible event could create an uncontrolled or unplanned release of the gas from the system. Given the large number of processes and uses of gases and the potential for an uncontrolled or unplanned release of a toxic gas during a process, the Office of Emergency Management Policy determined that a categorical exclusion is not appropriate for adsorbed gases onto a solid within a cylinder. Full methodology available; email the Office of Emergency Management Policy at NA-41FED@hq.doe.gov and reference the FAQ number.

REFERENCES:

DOE O 151.1D, Chg1 (minChg) Comprehensive Emergency Management System

DOE G 151.1-1B, Comprehensive Emergency Management System Guide

DOE O 251.1D AdmChg1, Departmental Directives Program

NFPA 55, Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks Code, 2020

NFPA 318, Standard for the Protection of Semiconductor Fabrication Facilities, 2022

DOE-HDBK-1163-2020, Integration of Hazard Analyses

DOE-HDBK-1100-2004, Chemical Process Hazards Analysis (Reaffirmed 2022)

DOE-STD-1027-2018, chg Notice 1, Hazard Categorization of DOE Nuclear Facilities

Program Element 3: Emergency Response Organization
Effective: 10/13/2022

FAQ 2209123400: Annual requirements for Emergency Response Organization (ERO) members

QUESTION: Does FAQ# 20071001 Annual Requirements for ERO Members from 151.1C apply to 151.1D Attachment 3 Section 5 Step b.1?

DOE Order 151.1D Attachment 3 Section 5 Step b.1 states “Develop a training and qualification program to establish and maintain specific emergency response capabilities as determined by all hazards planning basis. Document the training requirements to include the courses, methods of instructions, frequency, and intended audience. Assess ERO member’s proficiency at least annually”. Does the answer to FAQ #20071001 Annual Requirements for ERO Members from 151.1C apply to 151.D as well? Specifically, the portion of the answers that says, “Rather, the Order requires the ERO personnel demonstrate proficiency in their ERO position”.

ANSWER: The answer to FAQ #20071001 from DOE Order 151.1C does not apply to the Annual Requirements in DOE Order 151.1D. However, all Emergency Response Organizations are required to assess their ERO members proficiency for each position by participating in initial training and refresher training at least annually. The ERO members assigned to multiple positions are required to take training for each position they are assigned.

REFERENCES:

Reference DOE Order 151.1D, Pages 11-12/Attachment 3/ Paragraphs 1-3

Program Element 3: Emergency Response Organization
Effective: 10/28/2020

FAQ 2010015339: ERO Proficiency Expectations and Extensions

QUESTION: Qualification and Certification Requirements for DOE Nuclear Facilities, allows an extension of qualification or certification to be granted to persons on a case-by-case basis in order to support operational and mission commitments.

1. Is it acceptable to apply the extension allowance from DOE O 426.2 to the ERO member proficiency requirement stated in DOE O 151.1D?

Additionally, DOE O 151.1D, Attachment 4, section 15.[e] requires that EPHA facilities with facility-level EROs evaluate facility-level emergency response capability and proficiency annually by initiating response to simulated, realistic emergency situations/conditions in a manner that, as nearly as possible, replicates an integrated emergency response to an actual event.

2. Does this establish an expectation that proficiency be assessed beyond that of individual ERO members as specified in Attachment 3?

ANSWER:

1. No, DOE O 426.2 establishes selection, training, qualification and certification requirements to perform their general job functions at a nuclear facility and does not specifically address any collateral duties assigned to personnel such as ERO members. DOE O 151.1D Attachment 3 5.b provides training standards for members of the ERO. These requirements are expected to be accomplished through refresher training no less than annually.

The question presents the need for further clarification of training requirements in future DOE O 151.1X versions in order to avoid potential conflicts between other DOE Orders. The conflict does not present a risk to life or safety and does not require an immediate change.

2. Yes, as does DOE O 151.D Attachment 3 Section 14. The paragraphs under this section describe the holistic approach to sufficiently maintaining, exercising, and evaluating all plans and procedures and resources associated with the facilities Emergency Management Core Program.

REFERENCES:

DOE O 426.2

DOE O 151.1D Attachment 2 Definitions

DOE O 151.1D Attachment 3 5.b

DOE O 151.D Attachment 3 Section 14

Program Element 3: Emergency Response Organization
Effective: 10/28/2020

FAQ 1904292147: Annual ERO Exercise/Proficiency Requirement

QUESTION: DOE O 151.1D, Comprehensive Emergency Management System, Attach. 4, para. 15.e. states that "EPHA facilities with facility-level EROs must evaluate facility-level emergency response capability and proficiency annually by initiating response to simulated, realistic emergency situations/conditions in a manner that, as nearly as possible, replicates an integrated emergency response to an actual event." Los Alamos National Laboratory (LANL) maintains high-hazard and nuclear facility-level EROs and a site level-ERO for field and EOC response for the entire Laboratory site. The site-level ERO has overall responsibility for the initial and ongoing response to and the mitigation of an onsite emergency. There are currently 21 EPHA facilities, 10 of which are Defense Nuclear Facilities (DNFs), at LANL. In order to meet the specific requirements for DOE Order 151.1D, LANL would have to conduct 21 evaluated exercises each year. This requirement reduces LANL's ability to focus on preparedness activities (e.g. training, drills, etc.) and the effective resolution of corrective actions resulting from the evaluated exercises. Because LANL maintains one site-level ERO that has overall responsibility for incident response, would one exercise for each EPHA facility over 5 years to include the facility-level ERO, along with 4 drills per EPHA facility annually, meet the intent of the Order requirement?

ANSWER: The Office of Emergency Operations Policy's position is that the intent of the DOE O 151.1D is not to overwhelm your resources but rather to ensure that response capabilities exist which are commensurate with the applicable hazards identified by the site/facility/activity (SFA). The requirement in Attachment 4, para. 15.e addresses to the requirement of the SFA's EROs to effectively demonstrate their ability to respond to the hazards that have been identified in their respective EPHAs.

While the requirement in DOE O 151.1D Attachment 4 section 15 para. e, states "EPHA facilities with facility-level EROs must evaluate facility-level emergency response capability and proficiency annually by initiating response to simulated, realistic emergency situations/conditions in a manner that, as nearly as possible, replicates an integrated emergency response to an actual event", sites are not required to have an exercise for each facility within a site unless multiple EROs have been identified and designated for a particular activity or area based on inherent authorities or Program Secretarial Office (PSO) direction. In essence, if multiple level EROs "reside" within a site, each ERO must be exercised annually to ensure proficiency in executing emergency response. A single site-level ERO, such as the case in LANL, is NOT required to conduct an annual exercise for each designated EPHA facility. ERO's that respond to more than one facility are required to demonstrate proficiency by rotating exercise scenarios among hazardous material facilities over a five-year period (DOE O 151.1D Attachment 4, para.15.a Readiness Assurance).

In order to meet the intent of the order, a non-DNF would need to conduct an annual exercise; a DNF would need to conduct an annual exercise per of O 151.1D attachment 4, paragraph 15.h and a triennial exercise with the Department's Radiological Emergency Response Assets per paragraph 15.i; and LANL would need to conduct one annual exercise integrated with a facility response per paragraph 15.c. Per the guidance in G 151.1-3, section 3.5 paragraph b, the annual exercise may be rotate among the facilities. However, notice that there is no time requirement associated with completing a full rotation among the various facilities onsite, so imposing a 5-year requirement would meet the intent of the order and guidance, but may not be necessary.

REFERENCES: DOE O 151.1D

Program Element 3: Emergency Response Organization
Effective: 12/2/2016

FAQ 151D-001.4: Is the intent of this order requirement to permit these supporting positions to be filled by either Federal or contractor personnel?

QUESTION: DOE O 151.1D, Appendix A, Section 10.s, states: "Identify a senior official who serves as an emergency manager with decision-making authority and responsibilities. This individual must be supported by personnel with communications, technical, liaison, and public affairs expertise." Is the intent of this order requirement to permit these supporting positions to be filled by either Federal or contractor personnel?

ANSWER: Yes, supporting personnel may be Federal or contractor personnel. The DOE O 151.1D requirement imposes no restriction on the identity- Federal or contractor- of the positions supporting the senior official who is serving the role of emergency manager. This is true whether the emergency manager role is performed by a Federal or a contractor employee.

REFERENCES:

DOE O 151.1D, Appendix A, Section 10.s,

Program Element 5: Training and Drills
Effective: 6/10/2022

FAQ 2108105035: Facility Annual Exercise Requirements for Core Facilities

QUESTION: The facility in question at one time was originally in the hazardous material program. After updating their EPHA the consequence calculations did not meet the Alert criteria, so they dropped to the core program. We have a site that has multiple large facilities on the site. Some of the facilities fall under the core program while others are under the hazardous material program. DOE Order 151.1D, Attachment 3 states, "DOE sites/facilities/activities must conduct an annual site-level exercise to test and validate emergency plans and procedures." Was the intent of this statement that all facilities on the site conduct an annual exercise or just the hazardous material facilities? I read this as all facilities must conduct some sort of an annual exercise even though the facilities hazards do not meet a hazardous material program.

ANSWER: All sites, facilities, and activities (SFA) under DOE O 151.1D, Emergency Management Core Program, Attachment 3, Section 5 (e)(1) are required to conduct and document drills so that each ERO member participates at least annually. If an SFA no longer meets the requirements in the Hazardous Materials Emergency Management Program, the SFA is still required to implement the requirements under the Emergency Management Core Program.

REFERENCES:

DOE O 151.1D Attachment 3, 5(e)(1)

DOE O 151.1D Attachment 3, 2(e)

Program Element 6: Emergency Medical Support
Effective: 1/29/2020

FAQ 1908282601: Clarification on Applicable NFPA Standards

QUESTION: DOE Order 151.1D, Attachment 3, Emergency Medical Support, states: Pre-planning with off-site responder resources must address how they integrate emergency medical support in accordance with applicable NFPA standards (e.g. NFPA 1500, Standard on Fire Department Occupational Safety and Health Program).

What is the expectation and how do other sites document the pre-planning portion? Our current site mutual aid agreements do not include references to this standard.

ANSWER: The intent of the DOE Order 151.1D, Attachment 3, Section 6 Emergency Medical Support para (a) is to ensure that the site and local emergency off-site responders are in line with applicable occupational requirements for emergency first responders to ensure response to identified hazards can be performed safely. Therefore, the expectation and intent are for the sites, facilities, or activities (SFAs) to pre-plan in advance emergency medical support and assistance with off-site responders for hazards and incidents identified in the all-hazard planning basis (e.g., mass casualty situations, treatment of onsite responders). This planning phase also ensures that first responders and follow-on medical support have been trained to respond and medically triage/treat the patients safely and efficiently.

The DOE G 151.1-4 Response Elements, Chapter 2 "Offsite Response Interfaces" provides guidance for the pre-planning, establishment, and maintenance of off-site interfaces and development of support agreements as well as documentation recommendations. The NFPA standard identified in this case is merely an example of a standard that may be utilized to meet training and occupational safety requirements; however, the requirement may differ from location to location. Mutual aid agreements are not required to reference any specific NFPA Standard; however, the SFAs should document that the Emergency Medical Support has been made aware of the hazards and have been trained to provide the appropriate response as discussed in the "Interface Information and Issues to Address" section of the Response Elements guide.

REFERENCES:

DOE Order 151.1D, Comprehensive Emergency Management System Attachment 3, Section 6
Emergency Medical Support para (a)

DOE G 151.1-4, Response Elements, Chapter 2 Offsite Response Interfaces

Program Element 7: Offsite Response Interfaces
Effective: 6/19/2022

FAQ 2205171630: Validation of emergency management capability

QUESTION:

1. How does DOE O 151.1D define a site's emergency response capability?
2. What constitutes a validation of a site's emergency response capability?
3. Is there an intended periodicity in which a site should validate its emergency response capability?
4. Are sites accountable for validating offsite agencies, with which the site interfaces under formal agreements (e.g., hospitals), that support a site's emergency response? If so, how should validation occur, as sites do not have authority over these offsite agencies?

ANSWER:

Question #1 - DOE O 151.1D defines a site's emergency response capability as one that establishes an effective first responder capability to mitigate all hazard emergencies including emergency medical, fire, hazard material, and applicable rescue emergencies as derived through the Baseline Needs Assessment, Hazard Survey, and THIRA.

Question #2 - The validation of a site's emergency response capability is by the Sites/facilities/agency (SFA) ability of managing the first operating period of emergency events of Type 4 complexity as defined by the National Incident Command System.

Question #3 – Yes, DOE SFA must conduct assessments to ensure that emergency plans, procedures, emergency response activities, and resources are adequate and sufficiently maintained. These self-assessments are to be conducted annually.

Questions #4 – No, SFA are not responsible for validating offsite agencies that support a site's emergency response. The SFA is responsible for establishing and maintaining interfaces with local, state, tribal, and federal organizations responsible for emergency response or who may be used to supplement response capabilities based on threats/hazards identified in the All-Hazards Planning Basis to include planning for severe events. This can be accomplished with Offsite Response Agency Orientation and formal invitations to participate in relevant drills or exercises on an annual basis

REFERENCES:

DOE O 151.1D Attachment 3 Par 3 e

DOE O 151.1D Attachment 3 Par 14 a (1) (a)

DOE O 151.1D Attachment 3 Par 7

DOE O 151.1D Attachment 3 Par 5 c

DOE O 151.1D Attachment 3 Par 5 f

National Incident Management System, Incident Complexity Guide, June 2021

Program Element 7: Offsite Response Interfaces
Effective: 5/24/2022

FAQ 2203172110: Classification of invitation versus expectation of exercise participation by offsite response interfaces

QUESTION: For offsite response interfaces relating to MOU/MAA with Fire Departments and Emergency Medical Services, what is the expectation of DOE O 151.1D, Attachment 4, Paragraph 15? For example, if a site invites an offsite fire department to participate in an exercise and they choose not to, does that meet the requirement, or does the fire department have to participate for the site to meet the requirement?

ANSWER: The DOE O 151.1D, Attachment 4, paragraph 15.a.(5) requires that offsite response activities be invited to participate in exercises; (9) discusses integration with local, State, and Federal agencies.

Attachment 3, paragraphs 5.c and 5.f also addresses this question:

Attachment 3 paragraph 5.c directs sites to offer orientation on the site/facility/activity-specific conditions and hazards based on the results of all hazards planning basis, including familiarization, on an annual basis for any emergency responders.

Attachment 3 paragraph 5.f formally invites applicable offsite first responders (e.g., primary first response agencies) to participate in a relevant drill or exercise at least annually.

There is nothing in the Order requiring offsite response organizations under an MOU/MAA to participate in an exercise because NNSA and DOE cannot mandate this requirement. Exercising with the site is at the discretion of the offsite emergency response agency.

REFERENCES:

DOE O 151.1D, Attachment 3, paragraph 5.c

DOE O 151.1D, Attachment 3, paragraph 5.f

DOEO151.1D, Attachment4, paragraph 15.a.(5)

Program Element 7: Offsite Response Interfaces
Effective: 10/12/2018

FAQ 1806052459: Clarification of reliance on offsite responders

QUESTION: DOE O 151.1D, Attachment 3, paragraph 2.d.(4) requires that, for “severe events”, the All-Hazard Survey must “consider the reliance on local/regional offsite responders and how the site/facility/activity will handle severe incidents if these response resources are not available.” The term “Severe Incident” is loosely defined in the Order as “An incident expected to cause major disruptions/damage to site-wide and offsite infrastructure, as well as increased risk to onsite personnel, possibly resulting in injuries and fatalities. These incidents could potentially isolate a facility or site from onsite/offsite response assistance and infrastructure support.” No limits are placed on the severity of the event. No guidance is provided on the level of reliance on offsite responders that must be considered. For severe events, it is likely that the surrounding communities will be equally (or more) affected by the initiating event, resulting in offsite responders being totally unavailable. No guidance is provided on the level of detail or method of presentation in the All-Hazards Survey to describe this consideration.

ANSWER: Each site, having conducted a Hazards Survey, must document in the site’s Emergency Plan which emergency services they rely on off-site agencies and organizations could potentially augment on-site response efforts during a severe event (i.e. hospitals, ambulance service, fire departments, law enforcement, American Red Cross, etc.) The potential reliance on off-site responders during a severe event is limited to those outlined in the Emergency Plan. Each site must maintain current written agreements detailing the extent of off-site assistance (i.e. Memorandums of Agreements (MOAs), Memorandum of Understandings (MOUs), Mutual Aid Agreements (MAAs), etc.) and practices during a site exercises.

Paragraph 2.d.4 of Attachment 3 is intended to prompt site and facility emergency management personnel to consider the possibility that the site or facility becomes isolated from outside assistance, and then given that, what emergency preparedness steps they would take in response. In order to comply with this requirement, there is no need to postulate the details of the severe incident. It is assumed that as a result of a severe incident, whatever it may be, the site or facility becomes isolated from off-site assistance. The requirement of this paragraph stresses the importance of the site or facility ERO performing a “walk-through,” at a minimum, of what steps they would take as a result of being isolated and determining what actions could be taken to prepare in advance for a situation in which they are isolated from outside assistance. Lessons learned from the 2011 Fukushima nuclear accident reinforced the importance of having emergency back-up power.

Because a severe event could potentially isolate a facility or site, preventing off-site response assistance and infrastructure support, DOE sites and facilities must be capable of maintaining emergency operations during a severe event at existing facilities for 72 hours without reliance on off-site responders. Existing DOE site and facilities must be capable of maintaining of providing auxiliary power in the event of electrical transmission interruption for 72 full hours at maximum load. FEMA and the Nuclear Regulatory Commission require all newly constructed emergency operations centers be capable of maintaining operations for a minimum of 72 hours during severe events and this requirement has been adopted as an industry best practice.

Each DOE site or facility should plan their reliance of offsite responder assistance according to their site-specific emergency response plan and the information displayed in the above chart for guidance. DOE sites should take into consideration how to incorporate offsite responders beyond local/regional

responders into their emergency plan as part of preparing for the possibility of severe events. In the case of a severe event that is likely to affect the surrounding communities equally (or more) by the initiating event, sites must prepare for their local/regional offsite responders to be unavailable. In situations where local/regional offsite responders are overwhelmed and not readily available sites must be able to supplement their normal response resources with other available tribal, state, or federal organizations that can provide emergency response assistance.

REFERENCES:

DOE G 151.1-4, Section 2.4 Support Agreements

DOE O 151.1D, Attachment 3, Paragraph 2.d.4

DOE O 151.1D Attachment 3, Paragraph 7

DOE O 151.1D, Attachment 4, Section 11, Paragraph c, 1-4

NFPA 110

NRC Severe Event guidance 19.1.2.1.13 Highly Reliable DC Power Supply With 72-Hour Station Blackout Coping Capability

Program Element 8: Emergency Categorization
Effective: 6/8/2022

FAQ 2205311914: Missing Table 3-1

QUESTION: Attachment 3 Page 14(8)(b)(1)(b) reads "or incidents in table 3-1". There is no table 3-1 in the Order; what does this reference?

ANSWER: There is no corresponding table in the Order, nor in any previous version of the Order. A review of FAQ#1708040814 dated 11/28/2017 addresses this question. Disregard the reference to Table 3-1.

Program Element 8: Emergency Categorization
Effective: 6/17/2019

FAQ 1904094847: Re-categorization when original was incorrect

QUESTION: Section 8. Emergency Categorization, subsection c states: Emergencies, once categorized, must not be downgraded to a lower significance category unless the original categorization was incorrect. Does this mean an OE can be re-categorized up or down? An event cannot be classified and then change the category from an OERC to OENRC; correct? To further clarify, under no circumstances can an Alert/SAE/GE be changed to an OENRC; correct?

ANSWER: Categorization as an Operational Emergency is used to identify incidents that are severe enough in nature having the potential to cause serious health and safety, environmental impacts, and will require coordination beyond the local or immediate event scene to supplement the initial response. Incidents that can be controlled by employees or maintenance personnel in the immediate/affected facility or area are not categorized as Operational Emergencies.

In a given potential operational emergency, categorization is meant to identify different types of event scenarios (e.g., Health and Safety, Environmental, Offsite Transportation, Hazardous biological agents or toxins, Safeguards and security) so Sites/Facilities/Activities' response organizations can respond accordingly based off of the results found in Hazards Surveys or EPHAs which are used to develop Emergency Action Levels (EALs). When events occur, Emergency Management staff must be able to utilize unambiguous decision criteria to determine if parameters for the correct categorization and classification have been met in order to issue initial protective actions. In the second phase of consequence management, the Timely Initial Assessment (TIA) is used to support and confirm if the initial pre-planned decisions were accurate. If it is determined during the TIA, that the original recommendations were not sufficiently protective, then modifications of the initial protective actions should be made.

The emergency classification cannot be downgraded, to avoid significant health and safety impacts caused by the overestimates, until termination of an incident. An Operational Emergency can be upgraded in a given scenario where the classification can remain commensurate with response activities.

According to Department of Energy (DOE) G 151.1-4, (Response Elements, Emergency Management Guide) an OERC event requires a designation as either Alert/SAE/GE "if they involve a potential or actual release of radiological or non-radiological hazardous materials" (DOE G 151.1-4 Appendix A, A.1). When the circumstances' condition does meet the established emergency categorization or classification criteria, and the Emergency Response Organization is no longer needed to manage the event then the threshold for termination has been met (DOE G 151.1-4, Section 10.3.1). The OERC classification designation response efforts should be terminated, and the recovery activities should begin.

REFERENCES:

DOE O 151.1D Attachment 3 Section 8.c Page 16

DOE G 151.1-4 Section 4.2 General Approach Page 4-2

DOE G 151.1-4 Section 6.6.3

DOE G 151.1-1A Section 1.7 Early Recognition of Operational Emergencies Page 1-10

Program Element 8: Emergency Categorization
Effective: 11/28/2017

FAQ 1708040814: Regarding Emergency Categorization

QUESTION: What is Table 3-1 referenced in O151.1D Attachment 3, 8, b(1), b? and where is the information that should appear in Table 3-1 found?

ANSWER: Table 3-1 referred to in Attachment 3, 8, b(1)b., was to be an example of type of incidents that may be classified as Operational Emergencies. Table 3-1 is referenced but does not appear in Attachment 3 of the final Order. When DOE O151.1D was being developed there were a number of items that in the draft that were provided as examples to facilitate the implementation of the Order.

The information that would have been provided in Table 3-1 is included in Threat and Hazard Identification and Risk Assessment Guide, Comprehensive Preparedness Guide, 201, Second Edition, August 2013, U.S. Department of Homeland Security. The table is provided in the attachment

REFERENCES:

Threat and Hazard Identification and Risk Assessment Guide, Comprehensive Preparedness Guide, 201, Second Edition, August 2013, U.S. Department of Homeland Security.

Program Element 8: Emergency Categorization
Effective: 5/16/2017

FAQ 1610293919: Can the information used to identify a Health and Safety Operational Emergency in accordance with the previous revision of the Order still be used as an indicator under DOE Order 151.1D?

QUESTION: In DOE Order 151.1D, Attachment 3, Section 8.b.(1), the criterion under Health and Safety that previously read “Any facility evacuation in response to an actual occurrence that requires time-urgent response by specialist personnel, such as hazardous material responders or mutual aid groups not normally assigned to the affected facility” has been removed. Is a facility evacuation with time-urgent response from outside personnel still an appropriate indication since it seems to be consistent with the overall description of an Operational Emergency presented in Attachment 3, Section 8.a. (i.e., “represent a significant degradation in the level of safety at a site/facility resulting in potential health and safety hazards to worker or the public”)? Or was that criterion removed from the Order on purpose and DOE no longer wishes us to call these types of events an Operational Emergency? The more specific criterion is much easier to implement and clearer for the decision makers to identify in a crisis situation.

BACKGROUND: This criterion is a key part of our Health and Safety Emergency Action Level (EAL) for generic facility-level events under DOE Order 151.1C. Without this in the Order, does that mean that only “An occurrence (e.g., earthquake, tornado, aircraft crash, fire, explosion) that causes significant structural damage to DOE facilities, with confirmed or suspected personnel injury or death” should be in our EAL (the other criteria are covered separately in other EALs). So, instead of having an Operational Emergency for a large facility fire that caused the evacuation of 100+ people and required offsite mutual aid response to assist with the response, it would only be an Operational Emergency if the building crumbled and people were injured? Unless the intent was to intentionally limit the scope of what is considered an Operational Emergency, it seems reasonable to allow the indicators to remain unchanged.

ANSWER: It is incumbent upon the site/facility to determine if the previously implemented indicators remain applicable. As discussed in FAQ 151D-003, DOE Order 151.1D, Attachment 3, Section 8, Paragraph a, is unclear and may be interpreted in a way that erroneously limits the circumstances in which an Operational Emergency must be declared. For the purpose of determining the circumstances in which an Operational Emergency must be declared, refer to the definition of Operational Emergency in Attachment 2, and the examples in Attachment 3, Section 8, Paragraph b.

REFERENCES:

DOE Order 151.1D, Attachment 2, Definitions.

DOE Order 151.1D, Attachment 3, Section 8.

DOE Order 232.2A, Occurrence Reporting and Processing of Operations Information

Program Element 8: Emergency Categorization
Effective: 5/16/2017

FAQ 1610293844: Can the quantitative values provided in the previous revision of the Order be used as an indicator for an Environment Operational Emergency in accordance with DOE Order 151.1D?

QUESTION: In DOE Order 151.1D, Attachment 3, Section 8.b.(2), the criterion under Environment was revised to delete the quantitative information (i.e., 5 times RQ or 1,000/10,000 gallons of oil). Now the criterion only discusses “significant offsite consequences, such as major wildlife kills, wetland degradation, aquifer contamination, or the need to secure downstream water supply intakes.” Can the previous quantitative values still be used to represent amounts of material that could cause “significant offsite consequences?” It’s not clear if the change was made to be more or less inclusive and if leaving these values in the Emergency Action Level (EAL) would still be appropriate. Having greater specificity in the indicators makes the EALS simpler to use by the decision makers in limited-time, high-stress situations.

ANSWER: In some cases, as determined by site-specific “all-hazards” survey, the quantitative values may be appropriate to maintain. This section of DOE O 151.1D was revised to make it more inclusive of credible events in which the quantitative values previously provided are not the lower limit that can cause an impact to health, safety or the environment.

As an example, the omission of the quantitative information was to ensure all credible circumstances and potential impacts at each site are considered because “5 times RQ [for non-oil hazardous materials] or 1000/10,000 gallons of oil” are not generically applicable lower limits for expected health and safety consequences or environmental damage. Therefore, sites should base their Emergency Action Levels, and the determination of an Operational Emergency, on the site-specific “all-hazards” approach, which identifies and analyzes credible events and potential consequences.

Specifically, in accordance with 40 CFR 300.5, size classes of [oil] discharges [such as 1000/10000 gallons of oil] are provided as guidance to the EPA or USCG On Scene Coordinator, and serve as the criteria for the actions delineated in subpart D. They are not meant to imply associated degrees of hazard to the public health or welfare of the United States, nor are they a measure of environmental injury. Any oil discharge that poses a substantial threat to public health or welfare of the United States or the environment or results in significant public concern shall be classified as a major discharge regardless of quantitative measures.

REFERENCES:

DOE Order 151.1D, Attachment 3, Section 8, Emergency Categorization, paragraph b (2).

Title 40 Code of Federal Regulations, Part 300, National Oil and Hazardous Substances Pollution Contingency Plan.

Program Element 8: Emergency Categorization
Effective: 5/16/2017

FAQ 1610293856: Inconsistency in the definition of Operational Emergency

QUESTION: There appears to be an inconsistency in the definition of Operational Emergency between Attachment 2, Definitions, and Attachment 3, Section 8, Emergency Categorization; is there an error in the definition of Operational Emergency in Attachment 2 of 151.1D?

ANSWER: DOE Order 151.1D, Attachment 3, Section 8, Paragraph a, is unclear and may be interpreted in a way that erroneously limits the circumstances in which an Operational Emergency must be declared. For the purpose of determining the circumstances in which an Operational Emergency must be declared, refer to the definition of Operational Emergency in Attachment 2, and the examples in Attachment 3, Section 8, Paragraph b.

REFERENCES:

DOE Order 151.1D, Attachment 2, Definitions.

DOE Order 151.1D, Attachment 3, Section 8, Emergency Categorization, paragraphs a, and b.

DOE Order 232.2A, Occurrence Reporting and Processing of Operations Information.

Program Element 9: Protective Actions
Effective: 3/4/2020

FAQ 2002262103: Protective Action Recommendations (PARS) to the public

QUESTION: Should a site promulgate protective action recommendations (PARs) to the public in news releases, tweets, etc.? DOE O 151.1D defines protective action recommendation as "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 off-site consequences. Protective action recommendations are made promptly to off-site agencies in order to minimize emergency-related consequences." (Attachment 2, Page 6). The last sentence in the definition is key. PARs are recommendations to civil authorities, who have the authority and responsibility to modify the PARs accordingly. Providing or communicating directly to the public recommended actions supersedes the actual actions the civil authorities may decide to implement.

ANSWER: No, the Sites, Facilities, and Activities (SFAs) should not promulgate protective action recommendations (PARs) to public in news releases, tweets, etc. While the SFAs are responsible for creating and disseminating both protective actions (PAs) onsite and protective action recommendations (PARs) offsite, the SFA's authority ends at their respective boundaries; therefore, it is the responsibility of the Civil Authorities to provide the PARs to the public. It is also the responsibility of the SFAs to ensure that timely dissemination of information to local authorities is exercised and validated regularly. The discussion on the coordination of the release of protective actions and protective action recommendations is located within the DOE G 151.1-4, Response Elements. The intent of the order for providing PARs is based upon close coordination with outside stakeholders as stated in the following references:

DOE G 151.1-4 Response Elements Protective Actions and Reentry Section 7.2 General Approach p. 7-2

At DOE/NNSA facility/sites and activities, protective actions include measures taken to prevent or minimize potential health and safety impacts on workers, responders, or the public from the release of hazardous materials. Protective Actions (PAs) will be applicable to the workers and public onsite, while Protective Action Recommendations (PARs) apply to the public outside the site boundary. The DOE/NNSA site has the authority to implement PAs onsite to protect workers and other onsite populations, while only local authorities can enforce the implementation of PARs to protect the offsite public.

DOE G 151.1-4 Response Elements Section 7.3.5 Offsite Protection Action Recommendations (PARs) p. 7-12

Emergency plans for DOE/NNSA sites and facilities should provide for the health and safety of the offsite public through coordinated planning with State and local government authorities. Facility and site plans should provide for timely notification accompanied by recommendations to Tribal, State, or local authorities regarding protective actions for the general public during the plume passage phase and for the ingestion pathway.

Program Element 9: Protective Actions
Effective: 10/9/2019

FAQ 1908204000: 10-minute Protective Actions (PA) Notification

QUESTION: Is the 10-minute PA notification requirement in DOE O 151.1D Attachment 3 Emergency Management Core Program, para 11 Notifications and communication, section (3) met when the notification is transmitted to the affected employees or when it is received by the affected employees?

ANSWER: The intent of the DOE O 151.1D Attachment 3 Emergency Management Core Program, para 11 Notifications and communication, section (3) is to ensure that notification has been sent out to the affected employees within the ten-minute timeframe requirement. The accountability receipt of this notification is an unrealistic metric of performance. Therefore, the requirement is met when the notification is transmitted to the affected employees.

It should also be noted that according to DOE O 151.1D Attachment 3 Emergency Management Core Program, para 10, the notification system must be able to provide emergency communication to all affected employees within 10 minutes.

b. Communications Equipment. DOE site/facility/activity must have an emergency notification system capable of providing immediate notification and protective actions to affected employees but no later than 10 minutes after the protective actions have been identified in accordance with the emergency management plan and related procedures. Communications equipment must be tested annually, or more frequently as necessary for the notification system (e.g. post-maintenance testing, communication equipment upgrades, etc.).

REFERENCES:

DOE O 151.1D Attachment 3 Emergency Management Core Program, para 11 Notifications and Communication, section a (3)

DOE O 151.1D Attachment 3 Emergency Management Core Program, para 10 Emergency Facilities and Equipment/Systems section (b)

Program Element 9: Protective Actions
Effective: 5/16/2019

FAQ 1903051315: EA 33 Protective Action Recommendations and Consequence Assessment Models

QUESTION: Questions: 1. Which models are appropriate for use to: a. Pre-determine protective actions and protective action recommendations? b. Confirm initial immediate protective actions? c. Perform consequence assessment and adjust protective actions and protective action recommendations? 2. What quality assurance requirements would be associated with each of the consequence assessment models (and activities) for 1.a, 1.b, and 1.c above? 3. What pre-conditions, if any, are associated with each of the consequence assessment models (and activities) for 1.a, 1.b, and 1.c above?

ANSWER: 1. Which models are appropriate for use to:

a. Pre-determine protective actions and protective action recommendations?

Consequence Assessment Models (CAM) like HotSpot and EPIcode are recommended by the Subcommittee on Technical Analysis and Response Support (STARS) for use in developing predetermined protective actions because they are based on 95% worst-case meteorology at the release facility and do not need to take into account spatial and temporal variations in winds that cannot be predicted during the development of EPHAs and EALs.

The purpose of the STARS is to enhance the ability of the DOE Emergency Management and Response community in identifying and understanding the potential hazards posed by radiological, chemical, and biological materials.

b. Confirm initial immediate protective actions?

Consequence Assessment Models like HotSpot and EPIcode are recommended by STARS for use in confirming initial protective actions at distances close to the release site (3-5 km) when that area does not involve complex terrain or winds are not variable in direction or speed. STARS recommends using the latest version of HotSpot and EPIcode which can be found at <https://narac.llnl.gov/tools/hotspot-epicode> with links to the most current version of each tool. As of 5 April 2019, the most current version of HotSpot is version 3.0 and EPIcode (located on the EMISIG website) is version 8.1.

For further distances downwind, in complex terrain environments, or when winds are changing -- STARS recommends using a more sophisticated site “workhorse model” to confirm initial protective actions (such as CAMs like APGEMS, CAPARS, HYRad, Puff Plume, NARAC, etc.). These “workhorse models” have historically been found in the STARS toolbox, are acceptable if they have been evaluated against the DOE Safety Software Quality Assurance (SSQA) requirements of DOE O 414.1D, Quality Assurance and the software guidance in DOE G 414.1-4, Safety Software Guide, Appendix B emergency response purposes, and meet a number of needs for consequence assessment modeling.

c. Perform consequence assessment and adjust protective actions and protective action recommendations?

Same answer as for “confirming initial protective actions”, though workhorse models are also used for close distances and when winds are fairly constant. Typically, a Central Registry code like HotSpot and EPIcode will be run in parallel with a workhorse model to provide a quality assurance check (to ensure the models are providing results that are similar when conditions allow a direct comparison of results).

2. What quality assurance requirements would be associated with each of the consequence assessment models (and activities) for 1.a, 1.b, and 1.c above?

Again, the Central Registry* examines the SQA of a given version of a model (and only that one version) in great detail but does not evaluate technical quality for specific applications. The STARS CAM toolbox examines the SQA program in place for the development and maintenance of models so that it automatically accepts new versions from approved programs. STARS also emphasizes the need to evaluate both software and technical quality before choosing a model to apply.

*It must be noted that the use of the Central Registry toolbox codes is not mandatory. If other toolbox code versions are used, DOE sites should determine that the quality assurance level meets the DOE Safety Software Quality Assurance (SSQA) requirements of the DOE O 414.1D, Quality Assurance and the safety software guidance in DOE G 414.1-4, Safety Software Guide, Appendix B, Procedure for Adding or Revising Software to or Deleting Software from the DOE Safety Software Central Registry and accepted as toolbox codes.

3. What pre-conditions, if any, are associated with each of the consequence assessment models (and activities) for 1.a, 1.b, and 1.c above?

DOE G 151.1-2 Technical Planning Basis, 2.6.2 Consequence Calculations p. 2-18

After all identified combinations of Material at Risk (MAR), failure mode(s), initiator(s), and release condition(s) have been considered and the associated source terms recorded, the consequences of each release scenario/case, for which a source term has been estimated, should then be calculated and recorded.

Other considerations such as meteorological data and hazardous material quantities as determined by the Hazard Analysis are discussed in detail within the Consequence Calculations section of the Technical Planning Basis.

REFERENCES:

DOE O 151.1D, Comprehensive Emergency Management System, Attachment 3, Section 9 and Attachment 4, Section 9

DOE G 151.1-2 Technical Planning Basis, 2.6.2 Consequence Calculations

DOE G 151.1-3, Programmatic Elements, Appendix D

NA-41 FAQ Using NARAC For Safety and Emergency Planning Applications

Program Element 9: Protective Actions
Effective: 3/5/2019

FAQ 1903055053: EA 33 Keyhole Concept and Initial Protective Actions

QUESTION: Would NA-41 support EA in encouraging sites to follow the best practices outline in the discussion section above for implementation of DOE Order 151.1D protective action requirements?

Additionally, will NA-41 also address the following in an FAQ: Is the keyhole concept acceptable for pre-determined protective actions? What is the appropriate exposure threshold for determining the isolation zone radius? What are appropriate protective actions for both workers and responders within the isolation zone?

ANSWER: NA-41 guidance strongly cautions against using current meteorological information to define initial protective action: DOE G 151.1-4, Section 7.3.7 Development of EAL-Specific Pre-Planned Initial Protective Actions

“To assure the most rapid and effective implementation of protective actions following an emergency declaration, a predetermined set of initial protective actions should be associated with each facility/site or activity-specific EAL”

“In general, the use of real-time meteorological conditions as a factor in determining initial event classification (and initial protective actions) is not encouraged. Doing so requires a sophisticated understanding of the local atmospheric transport/dispersion environment, accurate information on current meteorological conditions, and a high degree of confidence in the forecast. It also complicates, and potentially lengthens, the decision processes. The need for reliable real-time weather information and on-call meteorological expertise, together with the added complexity of the decision process, make such an approach unsuitable for reaching timely, conservative and anticipatory classification (and protective action) decisions as required by DOE emergency management policy.”

It must be noted that the key words used here are “most rapid” which allows for initial immediate protective actions to take place while other information and output from models can be assessed, verified, and distributed. While a conservative approach, the 360-degree initial protective action distance provides sufficient protections for the health and safety of the workers and the public (DOE G 151.1-4, Section 6.5). Therefore, the Keyhole Concept is not acceptable for immediate/initial protective actions but would be acceptable for follow on actions once baselines have been established. As more data is made available, distribution of updated protection action recommendations should be made where practical to reduce/eliminate criteria that may no longer be needed. The term initial isolation zone is an ERG term for use in the transportation of dangerous goods/hazardous materials. The DOE O 151.1D states that Incident Commanders “may use” standard industry practices for initial immediate protective actions; however, for EPHA facilities must verify that these actions are consistent with the technical planning basis (i.e. EPHA/EALs) for the facility within 15 minutes of protection action issuance and implementation. Protective Actions identified in the EPHA that are specific to each analyzed condition and EAL. (DOE G 151.1-2, Section 5.2).

REFERENCES:

DOE O 151.1D Attachment 4, Section 9. Protective Actions paragraph g.

DOE G 151.1-2

Program Element 9: Protective Actions
Effective: 9/10/2018

FAQ 1806251838: Discretionary General Emergency EALs

QUESTION: During a recent EA-33 evaluation, a question was raised about the use of a site-specific discretionary General Emergency EAL that is used for catastrophic events, especially events that result in multiple emergency declarations. The discretionary EAL is based on guidance found in the EMGs for DOE O 151.1C. The attached describes the basis for the discretionary EAL and asks two questions.

ANSWER: This is not a question seeking interpretation of the stated requirements in DOE O 151.1D but a declarative statement informing that two questions are to be asked resulting from the Office of Enterprise Assessments EA-33 review. The questions to be asked are not part of this request but are asked and will be answered individually as questions in the Enterprise Data Management System SharePoint site under separate identifying numbers. No further action is to be taken, and this request is closed.

Program Element 10: Emergency Facilities & Equipment
Effective: 8/4/2020

FAQ 2007162109: Habitability systems for new EOCs

QUESTION: DOE Order 151.1D, Comprehensive Emergency Management System Attachment 4, Section 11 Emergency Facilities and Equipment/Systems presents requirements applicable to new EOC construction. Paragraph c.(1) states: If the EOC is located within the EPZ, it (EOC) must be able to remain habitable during a radiological and hazardous material release. Is the intent of DOE O 151.1D to require a HEGA (high efficiency gas absorber) filtration system for hazardous material releases? If the EOC can be shown to be able to remain habitable during hazardous material releases through means such as termination of outside ventilation and sheltering for the duration of the release, would the intent of the requirement be met? This would be applicable in cases where EPA results show that potential hazardous material releases would be of limited duration and occupants would be adequately protected by termination of outside ventilation.

ANSWER: The intent of the requirement as stated in DOE O 151.1D Attachment 4, Section 11, c (1), is to ensure that new EOCs are habitable to the listed requirements. FAQ #1708040456-1 lists the interpreted definition for habitability in new EOCs at DOE Sites with Defense Nuclear Facilities. How a site determines to meet this requirement is their own determination. In this scenario, if the site demonstrates that the EOC in the EPZ can be habitable, regardless of the use of a HEGA filtration system, then it would meet the intent of this specific requirement.

REFERENCES:

FAQ #1708040456-1

DOE O 151.1D Attachment 4, Section 11, c (1)

Program Element 10: Emergency Facilities & Equipment
Effective: 1/30/2020

FAQ 1910213642: DOE Activity on an Open College Campus with Potential HAZMAT Materials

QUESTION: Appendix C of DOE G 151.1-2 describes Facility and Site Boundary Guidelines that are to be employed to comply with DOE Order 151.1. As stated in Appendix C (Section C.1), Implicit in the DOE Order emergency class definitions and discussion is the assumption that DOE facilities are located within larger tracts (sites) over which DOE has access control authority.

There is a logical progression in severity from events that affect the facility but not the larger site (Alert), to those that affect the site outside the facility but not offsite areas (Site Area Emergency), to those that affect offsite areas (General Emergency).

Could clarification be made regarding a situation where DOE work is being conducted for an open college campus; that is, a DOE activity is being conducted in select laboratories within an open college campus where DOE has no ownership and no access control to areas of research?

Should the DOE site, consistent with Section 2.2 of DOE G 151.1-2, treat these locations as accessible to the general public, and therefore these buildings should be considered site boundary receptors?

ANSWER: Could clarification be made regarding a situation where DOE work is being conducted for an open college campus; that is, a DOE activity is being conducted in select laboratories within an open college campus where DOE has no ownership and no access control to areas of research?

As it relates to this question, the NA-41 Office of Emergency Operations Policy does not have the authority to issue blanket direction for DOE collaborations with college campuses. These type of clarifications of responsibilities are usually identified within the respective contracts and/or memorandums of agreements/understandings (MOU's/MOA's).

Should the DOE site, consistent with Section 2.2 of DOE G 151.1-2, treat these locations as accessible to the general public, and therefore these buildings should be considered site boundary receptors?

If the Site/Facility/Activity (SFA) is located in an area where the general public can gain unescorted access, these areas should be considered as "offsite" for purposes of emergency class definition, unless it is ensured that those areas can be evacuated and access control established within about one (1) hour of any emergency declaration as recommended by the DOE G 151.1-2 Technical Planning Basis Appendix C. Facility and Site Boundary Guidelines, Section C.3 Definition of Site Boundaries (p. C-2).

REFERENCES:

DOE G 151.1-2 Technical Planning Basis Appendix C. Facility and Site Boundary Guidelines, Section C.3 Definition of Site Boundaries (p. C-2)

Program Element 10: Emergency Facilities & Equipment
Effective: 1/30/2020

FAQ 1910290018: Clarification on Emergency Facility Requirements

QUESTION: DOE Order 151.1D under Emergency Facilities and Equipment Systems, states "the EOC must": (1) certify HEPA filters at an approved test facility, if occupants rely on HEPA filters for protection from airborne contaminants; and (2) ensure that the system removes the types of plausible contaminants, if occupants rely on a filtration system for habitability." The questions: What is the intent of the wording, "if occupants rely on ..."? So, if the primary EOC is on-site and within the EPZ, is the EOC required to have a HEPA and/or filtration systems (dependent upon the hazard) or can they just activate the alternate EOC? Therefore, they would not be dependent upon the filtration system for habitability. What is the intent of the wording, "if occupants rely on ..."?

ANSWER: The intent of "if occupants rely on" is if the occupants of the Emergency Operation Center (EOC) need the HEPA filters to protect themselves from airborne contaminants then it must be installed. So, if the primary EOC is on-site and within the EPZ, is the EOC required to have a HEPA and/or filtration systems (dependent upon the hazard) or can they just activate the alternate EOC? Therefore, they would not be dependent upon the filtration system for habitability.

In reference to your question regarding HEPA filters within the EOC, according to DOE O 151.1 D Attachment 4 Section 11 a. EOC must have HEPA filters if the EPHA identify a need for protection against airborne contaminants within the Emergency Planning Zone (EPZ). However, if the EOC / AEOC are outside of the EPZ and is clear of the hazards identified within their EPHA then EOC / AEOC does not required HEPA filters. If the AEOC location is within EPZ range of the hazards identified in the EPHA that required HEPA filters, then these filters must be installed in the AEOC. As it relates to the inquiry requirements of an AEOC; once the AEOC becomes the primary EOC then the site doesn't have to build another AEOC, they can simply create a memorandum of agreement / understanding with the local external authorities to use their EOC to run operations should they need to go to an alternate location. DOE O 151.1D Attachment 4 Section 11 b. states: Any physical AEOC must be located so both it and the primary EOC are not impacted by the same incident as determined by the results of the EPHAs. AEOC must be located outside the EPZ or located so both it and the primary are not impacted by the same incident (i.e., upwind from the prevailing wind direction).

REFERENCES:

DOE O 151.1 D Attachment 4 Section 11

Program Element 10: Emergency Facilities & Equipment
Effective: 3/20/2018

FAQ 1708040456: What qualifies as “habitable” during radiological and hazardous material releases for new emergency operations facilities?

QUESTION: What qualifies as “habitable” during radiological and hazardous material releases for new emergency operations facilities?

ANSWER: The definition of habitable is a space in a building for responders that provides the infrastructure needed to respond effectively to an operational emergency and is free of conditions that endanger the health and safety of the occupants. Essential infrastructure can include, but is not limited to, emergency electrical power systems, lighting, ventilation systems, communication systems, and other building systems essential to ensure a safe and healthy environment (e.g., breathing air free of contaminants, safe drinking water – may be bottled).

REFERENCES:

International Building Code Council

Office of Infrastructure and Facilities Management

DOE Order 420.1C, Chg 2, Facility Safety (has been recently updated from Chg 1)

DOE O 413.3B Administrative Change 1, Program and Project Management for the Acquisition of Capital Assets

DOE Order 151.1D, Attachment 4, Section 11, Paragraph c., 1-4

Program Element 10: Emergency Facilities & Equipment
Effective: 11/28/2017

FAQ 1708040456-1: In DOE O 151.1D, Attachment 4, 11, c. - What qualifies as “habitable” during radiological and hazardous material releases for new emergency operations facilities?

QUESTION: In DOE O 151.1D, Attachment 4, 11, c. - What qualifies as “habitable” during radiological and hazardous material releases for new emergency operations facilities?

ANSWER: The definition of habitable is a space in a building for responders that provides the infrastructure needed to respond effectively to an operational emergency and is free of conditions that endanger the health and safety of the occupants. Essential infrastructure can include, but is not limited to, emergency electrical power systems, lighting, ventilation systems, communication systems, and other building systems essential to ensure a safe and healthy environment (e.g., breathing air free of contaminants, safe drinking water – may be bottled).

Program Element 10: Emergency Facilities & Equipment
Effective: 11/28/2017

FAQ 1708040456-2: DOE O 151.1D, Attachment 4, 11, c. - What are the specific requirements that must be reached for new emergency operations centers (EOCs)?

QUESTION: DOE O 151.1D, Attachment 4, 11, c. - What are the specific requirements that must be reached for new emergency operations centers (EOCs)?

ANSWER: The specific requirements that must be reached for new NNSA emergency operations centers at defense nuclear facilities to be deemed habitable are providing auxiliary power for sufficient lighting, ventilation, communication and occupancy for a minimum of 72 hours following a severe event that interrupts commercial power allowing response organization personnel to conduct emergency operations. This requirement is applicable only for newly built EOCs at defense nuclear facilities. Power, communication and lighting must be sufficient to complete the assigned tasks in the EOC. Ventilation must be sufficient to filter radiological or chemical particulates from indoor air supplying the EOC. It was the intent DOE O151.1D Working Group to have ventilation systems capable of filtering radiological or chemical particulates not just those particulates that are “radiological and chemical” as stated in DOE O151.1D, Attachment 4, Section 11, Paragraph c., 1. Occupancy standards as established by the local fire codes must be adhered in the new EOC.

Program Element 10: Emergency Facilities & Equipment
Effective: 11/28/2017

FAQ 1708040456-3: DOE O 151.1D, Attachment 4, 11, c. - What standards are meant by “capable of sustaining emergency operations for a minimum of 72 hours during severe events?”

QUESTION: DOE O 151.1D, Attachment 4, 11, c. - What standards are meant by “capable of sustaining emergency operations for a minimum of 72 hours during severe events?”

ANSWER: There must be sufficient fuel to provide for auxiliary power to generators in new EOCs at defense nuclear facilities for 72 hours when commercial power has been interrupted.

Program Element 10: Emergency Facilities & Equipment
Effective: 11/28/2017

FAQ 1708040456-4: In DOE O 151.1D, Attachment 4, 11, c., can these standards be circumvented if an AEOC (alternate emergency operations center) can be backfilled to relieve those that are caught in an emergency event?

QUESTION: In DOE O 151.1D, Attachment 4, 11, c., can these standards be circumvented if an AEOC (alternate emergency operations center) can be backfilled to relieve those that are caught in an emergency event?

ANSWER: No, requirements for a new EOC can't be met by "backfilling" or using resources from another nearby facility (AEOC, etc.). Each new EOC at a defense nuclear facility must meet the established requirements stated in DOE Order 151.1D, in Attachment 4, Section 11, Paragraph c, 1-4 in place at the time of construction.

REFERENCES:

International Building Code Council

Office of Infrastructure and Facilities Management

DOE Order 420.1C, Chg 2, Facility Safety (has been recently updated from Chg 1)

DOE O 413.3B Administrative Change 1, Program and Project Management for the Acquisition of Capital Assets

DOE Order 151.1D, Attachment 4, Section 11, Paragraph c, 1-4

Program Element 11: Notifications and Communications
Effective: 8/15/2019

FAQ 1907255312: Protective Actions (PA) Notification process

QUESTION:

- a) Specifically, was the 10-minute notification requirement met in the example below?
- b) In general, what action(s) must be completed for the 10-minute notification process to be considered complete?

DISCUSSION:

Reference 1) states the site must develop pre-determined protective actions for classified emergencies. Reference 2) states the site must have a process to issue protective actions. Reference 3) addresses communication system capabilities for issuing on-site protective actions. Reference 4) states a DOE site is to provide immediate notification and protective actions to affected employees no later than 10 minutes after the protective actions have been identified in accordance with the emergency management plan and related procedures.

Two sites associated with this question define in the EALs pre-determined protective actions as evacuate a 360-degree initial isolation zone (IZ) and shelter-in-place a downwind protective action zone (PAZ) (outside the IZ) associated with each building specific emergency action level scenario to classify and emergency. This information is then used to define the specific buildings to implement specific PAs.

During a recent exercise, responders were immediately provided an IZ radius, wind direction and speed and adapted their response accordingly. Site emergency management procedures state that after identifying the pre-determined PAs in the appropriate EAL, the site duty officer developed a list of buildings within each of the zones, then announce the PAs to workers via individual building public address systems, hand-held radios, and building emergency notification systems.

Activity	Time	Elapsed Time from Categorization
Pre-determined PAs identified	8:15	-----
Specific buildings requiring PAs ID'ed	8:20	5 minutes
PA notifications initiated	8:20	5 minutes
PA notifications completed	8:28	13 minutes

It is indeterminate whether the start time for the 10-minute notification requirement occurred when the pre-determined PAs in the EAL are identified or when the list of affected buildings are determined by the duty officer. Also, it is unspecified in the Order whether the stop time occurs when PA notifications are initiated or when completed.

ANSWER:

- a. Specifically, was the 10-minute notification requirement met in the example?

Based on the scenario given in your question, the ten (10) minute notification process has been met.

In DOE O 151.1D Attachment 3 Emergency Management Core Program, para 11 Notifications and Communication, section a (3), states:

3) DOE site/facility/activity will provide immediate notification and protective actions to affected employees no later than 10 minutes after the protective actions have been identified in accordance with the emergency management plan and related procedures.

In this scenario the start time for the notification process (8:20 am) began when the list of affected buildings (where the affected employees are located) were determined by the site duty officer in accordance with the site emergency management procedures.

b. In general, what action(s) must be completed for the 10-minute notification process to be considered complete?

The completion of the notification process for protection actions should be defined within local procedures for each DOE Site/ Facility/ Activity as identified by the DOE O 151.1D Attachment 3 Emergency Management Core Program, para 10 Emergency Facilities and Equipment/Systems, section (b) states:

b. Communications Equipment. DOE site/facility/activity must have an emergency notification system capable of providing immediate notification and protective actions to affected employees but no later than 10 minutes after the protective actions have been identified in accordance with the emergency management plan and related procedures. Communications equipment must be tested annually, or more frequently as necessary for the notification system (e.g. post-maintenance testing, communication equipment upgrades, etc.).

REFERENCES:

DOE O 151.1D Attachment 3 Emergency Management Core Program, para 11 Notifications and Communication, section a (3)

DOE O 151.1D Attachment 3 Emergency Management Core Program, para 10 Emergency Facilities and Equipment/Systems section (b)

Program Element 11: Notifications and Communications
Effective: 8/14/2019

FAQ 1907254130: 15 Minute Notification process (EAL)

QUESTION: Specifically, was the 15-minute notification requirement met in the example below?

Generally, what notification action(s) must be accomplished, and in what order, for the 15-minute HQ Watch Office requirement to be met?

Does the use of the word “and” in references (2) and (3) require that both a phone call and electronic notification be made before the notification requirement is met?

DISCUSSION:

Once an operational emergency has been classified, the Order requires local, state, Tribal, and federal authorities be notified within 15-minutes of categorization. This 15-minute requirement starts with the categorization of the event. There are four possible notification actions that could signify completion of the 15-minute HQ Watch Office notification requirement:

- 1) Initial phone call notification begins
- 2) Initial phone call notification completed
- 3) Electronic notification initiated
- 4) Receipt of electronic notification

Reference (1) states to notify local, state, Tribal, and federal authorities of classified Operational Emergencies within 15 minutes of categorization. Reference (2) states the emergency notification to the Headquarters Watch Office must consist of a phone call and be provided electronically with receipt confirmation. This statement is reinforced by similar statements in references (3) and (4).

Example: during a recent exercise assessment, the following notification actions were observed:

Action	Time	Elapsed Time from Categorization
Event categorization/classification	8:15	-----
Initial phone call notification started	8:28	13 minutes
Phone call notification completed	8:39	24 minutes
Electronic notification sent (via fax)	8:49	34 minutes (approx.)
Electronic receipt received	8:51	36 minutes

The following references highlight the specific areas of concern that led to this FAQ being submitted.

ANSWER:

- 1) Specifically, was the 15-minute notification requirement met in the example?

In the scenario that was presented in your question, yes, the requirement was met because within 15 minutes, the site started the HQ Watch Office notification at 8:28, 13 minutes elapsed from the event

categorization/classification. The initiation of the notification process within fifteen (15) minutes is in accordance with DOE O 151.1D Attachment 4 Section 12 which states,

“NOTIFICATIONS AND COMMUNICATIONS. Notify local, state, Tribal, and federal authorities of classified Operational Emergencies within 15 minutes of categorization.”

Also, note that “federal authorities” is not explicitly stating the Headquarters Watch Office, and its use potentially conflicts with the requirements as cited in DOE O 151.1D, Attachment 3, paragraph 11a(4), which states,

“Notify the Field Element or appropriate Federal Manager, Headquarters Watch Office, and state, local, and Tribal organizations within 30 minutes of declaration or termination of an Operational Emergency.”

The 15-minute notification to federal authorities for a categorization/classification of an operational emergency may be the discriminator and this warrants further analysis for a future revision to DOE O 151.1D. In either case, the scenario above complies with the most limiting interpretation of meeting a 15-minute notification to federal authorities and would also comply with the requirement in DOE O 151.1D, Attachment 3, paragraph 11a(4) for the declaration of an operational emergency.

2) Generally, what notification action(s) must be accomplished, and in what order, for the 15-minute HQ Watch Office requirement to be met?

The completion of notification actions should be defined within local procedures for each DOE Site/ Facility/ Activity as cited in DOE O 151.1D (j) Notifications and Communications (2).

“Each facility and activity must establish procedures for prompt initial notification of other Operational Emergencies to workers, emergency response personnel, and response organizations, including, as appropriate, other DOE elements and other Federal, tribal, State, and local organizations.”

In your scenario example you describe four (4) actions, therefore when these activities are complete then the external notification process is considered done, the order of completion is not as important as getting all the actions completed on time.

3) Does the use of the word “and” in references (2) and (3) require that both a phone call and electronic notification be made before the notification requirement is met?

Yes, this notification requirement is met when Site/ Facility/ Activity provides both telephonic and electronic notification to the HQ Watch Office and they (Site/ Facility/ Activity) received a receipt of confirmation from the HQ Watch Office as cited in DOE G 151.1-4 5.3.2. External Notification Requirements which states:

“Initial emergency notifications require time-urgent reporting to DOE/NNSA Headquarters Operations Center. Emergency notifications to the Headquarters Operations Center should consist of a phone call providing as much information as is known at the time. The same information is also provided by e-mail or a fax either immediately before or following the phone call.”

Receiving detailed information is vital to the Headquarters Emergency Operations Center mission as stated in DOE O 151.1D Section 4 Requirements (a) General (3) which states:

“...Accordingly, the Headquarters Emergency Operations Center will receive, coordinate, validate, and disseminate emergency information to headquarters elements, Program Offices, and Program Office emergency points of contact, Field Elements, the White House Situation Room, other...”

Electronic notification is any means by which the information can be timely provided to Headquarters Watch Office. The completion of both components is required for documentation, validation and situational awareness purposes. Email notifications should be sent to the Office of Emergency Management via the use of ofdoehqeoc@oem.doe.gov.

REFERENCES:

DOE Order 151.1D, Attachment 4, Emergency Management Hazardous Materials Program 12

DOE Order 151.1D Attachment 3, Emergency Management Core Program 11. NOTIFICATIONS AND COMMUNICATIONS. (a) (4) and (a) (6)

DOE G 151.1-4 5.2

DOE G 151.1-4 5.3.2 External Notification Requirements

DOE O 151.1D (j) Notifications and Communications (2)

FAQ 1827040000

Program Element 11: Notifications and Communications
Effective: 5/30/2019

FAQ 1903144704: Emergency Notifications to the DOE HQ Watch Office

QUESTION: DOE Order 151.1D, Attachment 3, Emergency Management Core Program, Section 11, Notifications and Communications, a. Notifications (6) states: “Emergency Notification to the Headquarters Watch Office must consist of a phone call providing as much information as is known at the time and be provided with electronic receipt confirmation. If information is unknown at the time of the report, specify so in the report.” Sandia National Laboratories/New Mexico seeks an interpretation of responsibility for this action in terms of who must report this emergency notification to DOE Headquarters Watch Office. Is the contractor responsible for providing this notification or is it the responsibility of the Field Office since the notification is being provided to another federal organization?

ANSWER: The Office of Emergency Operations Policy focuses this response interpretation on the importance of the prompt and accurate notifications that are essential to mitigate consequences needed to protect the health and safety of the public. The DOE O 151.1D Attachment 3, Notifications and Communications requires for Emergency Notifications to be made to the Headquarters Watch office by the site/facility/activity (SFA) IAW established Line Management Authorities for the specific SFA. Such authority can be bestowed on a Federal Employee or Contractor M&O as determined by the Responsible authority. The Primary focus of this requirement is for prompt notification of event/incident and verification of situational awareness by DOE/NNSA Headquarters Senior Leadership. This requirement does not preclude the authorized individual or responsible agent from simultaneous notification, nor SFA specific sequential notification as established by Emergency Standing Operating Procedures.

The DOE G 151.1-4 Response Elements Chapter 5. Notifications and Communications Section 5.2 states, “All aspects of notification should be carefully preplanned, documented, tested under a variety of adverse conditions, and implemented through approved notification procedures, reliable primary and back communications equipment, and formal training programs.”

The intent of DOE O 151.1D is to have an individual who is closest to the site/facility/activity where an operational emergency is occurring, or potential substantial degradation of events for an operational emergency to occur; to provide the DOE HQ EOC with initial notifications.

The primary focus of the Office of Emergency Operations Policy is that the call is made as required by the DOE O 151.1D Attachment 3, Emergency Management Core Program, Section 11, Notifications and Communications and leaving the SFA’s with the flexibility to identify how each will best meet this requirement.

REFERENCES:

DOE G 151.1-4 Response Elements Chapter 5. Notifications and Communications Section 5.2

Program Element 11: Notifications and Communications
Effective: 4/24/2018

FAQ 1827040000-1: Does a call from an automated telephone communication system satisfy the site's requirement of a HQ notification call?

QUESTION: Does a call from an automated telephone communication system satisfy the site's requirement of a HQ notification call specified in 151.1D? The content of the call directs the Watch Office to review the email and fax communications from the site for additional information.

ANSWER: No, the automated call to the HQ Watch Office from the site directing it to review electronic mail and fax communications for additional information did not meet the requirements stated in O 151.1D, Attachment 3, Section 11 Notifications and Communications, a (6) and G 151.1-4 Response Elements, Section 5.3.2 Notifications.

The requirements outlined in O151.1D, Attachment 3, Section 11 a(6) always intended the initial notification to result in a human caller from the impacted site to report the emergency details to a HQ Watch Officer. This initial telephone call provided the HQ Watch Officer the opportunity to ask clarifying questions that might not be immediately apparent on the Offsite Notification form and raise the priority of events at the impacted site(s) by the HQ Watch Officers to EOC personnel.

Requiring HQ Watch Officers to monitor electronic mailboxes and receive confirmatory faxes to get the initial information detailing the events of an emergency at a site is not in keeping with the industry standard definition of "time urgent" emergency notification outlined in DOE G 151.1-4, Section 5.3.2. The reliance on HQ Watch Officers to check electronic mailboxes and faxes to obtain critical emergency information presents real problems resulting in misunderstanding key details when tracking multiple events.

REFERENCES:

O151.1D, Attachment 3, Section 11, a(6)

DOE G 151.1-4, Response Elements, Section 5.3.2 Notifications

X Site EM-FORM-6/SOP 32 Offsite Emergency Notification dated 3.14.18

X Site Situation Report 2 dated 3/14/18/1212

X Site Situation Report 3 and final dated 3/14/18/1423

Program Element 11: Notifications and Communications
Effective: 4/24/2018

FAQ 1827040000-2: Do the attached written communications provided to the Watch Office meet the requirements of O151.1D?

QUESTION: Do the attached written communications provided to the Watch Office meet the requirements of DOE O 151.1D?

ANSWER: No, all three of the communications from X Site to the DOE HQ Watch Office did not meet the requirements for notification outlined in DOE O151.1D. The initial notification did not meet the reporting requirements because it lacked the detail outlined in (b) – (g). The notifications in Situation Report 2 and Situation Report 3 and Final did meet the reporting requirements to the HQ Watch Office.

REFERENCES:

O151.1D, Attachment 3, Section 11, a(6)

DOE G 151.1-4, Response Elements, Section 5.3.2 Notifications

X Site EM-FORM-6/SOP 32 Offsite Emergency Notification dated 3.14.18

X Site Situation Report 2 dated 3/14/18/1212

X Site Situation Report 3 and final dated 3/14/181423

Program Element 12: Emergency Public Information
Effective: 9/25/2018

FAQ 1809193639: Level of Media Attention

QUESTION: How is a determination made on the level of media attention given to an incident when making the initial notification?

ANSWER: The determination on level of media attention is quantified by the television, newspaper or social media platforms that have requested or reported information on the status of the emergency at the site. The level of media attention is recorded on the Emergency Notification Form that captures the site operational picture for the event when notifying the HQ Watch Office.

To address the unique challenges of communicating and monitoring emergency information in a social media driven society, the Emergency Management Issues – Special Interest Group (EMI SIG) Emergency Public Information subcommittee has developed some tools which are accessed by the following hyperlink <https://sp.eota.energy.gov/sites/EDMS/EMISIG/EPISC/SitePages/episc.aspx>.

REFERENCES:

DOE O 151.1D, Attachment 3, Section 12, Emergency Public Information

Program Element 14: Readiness Assurance
Effective: 1/5/2022

FAQ 2112071032: Requirement for verification and validation of emergency management corrective actions

QUESTION:

1. a. Was the omission of the requirement for verification and validation of emergency management corrective actions an inadvertent oversight in Attachment 3 and 4 readiness assurance sections, and,
1. b. is the intent of the Order to perform effectiveness reviews and conduct verification and validation of corrective actions for core programs, hazardous material programs, and DNFs?
2. a. If the DNF is located on a hazardous materials program site and the facility relies on the site-level emergency response to meet DOE requirements, including the emergency operations center, communications and notifications, and the supporting emergency response organizations (i.e., fire department, medical department, 24/7 emergency communications), does the DNF requirements for conducting effectiveness reviews that have verification and validation processes for corrective actions that address findings from exercises, actual responses, and external assessments apply to the site-level program elements or do they only apply to a corrective actions at the DNF?
2. b. Also, if an emergency management issue is identified at a non-DNF but in common with and affecting the DNF because of the common emergency management program, does the site have to follow the verification and validations requirements of a DNF?

ANSWER:

1. a. There was no inadvertent oversight. Verification and validation of corrective actions for Core Facilities (Attachment 3) and Hazardous Material Facilities other than Defense Nuclear Facilities (DNFs) (Attachment 4) was not included since verification and validation was not a recommended approach in DOE G 414.1-5, Corrective Action Program Guide.
1. b. No, the Order does require Emergency Management Core Programs (Attach. 3 Pg.14 b (2)) to use a formal tracking system to track completion of corrective actions. Emergency Management Hazardous Materials Programs are also required to meet the requirement in Attachment 3 to formally track corrective actions. This does not include a requirement to conduct verification and validation of corrective actions. Defense Nuclear Facilities (DNF) do have an added requirement in Attachment 4 (Pg.15 j (3)) to evaluate the effectiveness of corrective actions through verification and validations conducted by an independent reviewer. This applies only to DNFs.
2. a. No, they only apply to the corrective actions at the DNF. There is a reasonable expectation that the Hazardous Material Program site and the DNF would share information on correction actions found during exercises.
2. b. No, DOE O 151.1D does not require an Emergency Management Program to use verification and validation requirements even when they have common issues with a DNF. Only DNFs are required to evaluate the effectiveness of corrective actions through verification and validations conducted by an independent reviewer.

REFERENCES: DOE O151.1D

Program Element 14: Readiness Assurance
Effective: 2/2/2021

FAQ 2102010357: How do M&Os and Field Offices apply the Secretary of Energy's Extension of Suspension and Exercise of Enforcement Discretion for Certain Safety and Security Requirements

QUESTION: How do M&Os and Field Offices apply the Secretary of Energy's Extension of Suspension and Exercise of Enforcement Discretion for Certain Safety and Security Requirements and Requirements During the Ongoing COVID-19 Pandemic memorandum to emergency management programs?

Based on a phone call with a M&O, Kenneth Thomas (NA41) submitted this FAQ to provide the enterprise guidance on how to implement provisions from the Memo to emergency management programs.

ANSWER: Since Emergency Management is a safety management program under Integrated Safety Management, it has been determined that the suspension of requirements and enforcement authority granted for safety and security programs in the Secretary's memorandum, Extension of Suspension and Exercise of Enforcement Discretion for Certain Safety and Security Requirements and Requirements During the Ongoing COVID-19 Pandemic, dated October 27, 2020, (Attachment 1) also apply to emergency management requirements contained in DOE O 151.1D, Comprehensive Emergency Management System.

Each laboratory or site wishing to suspend specific emergency management requirements must identify and document each requirement for an activity that could not be performed due to the pandemic and the date on which the activity was to be performed. The laboratories and sites should consider whether the performance of the activity could or would have violated the Center for Disease Control and Prevention COVID 19 Guidelines (<https://www.cdc.gov/coronavirus/2019-ncov/index.html>). The requirements identified in Attachment 1 (attached) are examples of potential activities that could be considered.

Each laboratory and site should determine which activities could not be performed and the corresponding requirements in DOE O 151.1D that require suspending. These must be approved by the Field Element or through use of the exemption process in DOE O 251.1D, Appendix E.

Each laboratory and site wishing to suspend specific emergency management requirements should annotate that these are temporary exemptions and will remain applicable until a given site achieves a "Phase 3 – Return to Work" status. Once Phase 3 has been achieved, the requirements within DOE O 151.1D will return to force at that site, with a reasonable amount of time provided for the site to return to compliance.

Upon the laboratory or site achieving Phase 3, the laboratory or site will need to schedule and conduct the activities to confirm the site's compliance with the requirements within DOE O 151.1D by evaluating its performance. If the activity is successfully demonstrated, no further demonstrations are required.

REFERENCES:

DOE O 151.1D, Comprehensive Emergency Management System

DOE O 251.1D, Department Directives Program

S-1 Memorandum, Extension of Suspension and Exercise of Enforcement Discretion for Certain Safety and Security Requirements and Requirements During the Ongoing COVID-19 Pandemic, dated October 27, 2020

Program Element 14: Readiness Assurance
Effective: 10/28/2020

FAQ 2009305602: Request for clarification of the intent of a site-level exercise

QUESTION: DOE O 151.1D, Attachment 4, Section 15c requires that hazardous material program sites, facilities, and activities conduct the annual site-level exercise as a full-scale exercise involving site-level emergency response organization elements and resources. The scenario for this exercise is to be taken from the spectrum of Operational Emergencies identified in the Emergency Planning Hazards Assessment (EPHA) and is to include demonstration of protective actions.

Is it the intent of this requirement that the annual site-level exercise requires every person at the site take protective actions or is it acceptable to conduct an exercise that involves site-level elements and resources but only requires a portion of the site [population] to take protective actions?

For example, would an exercise using a scenario from the EPHA that results in a Site Area Emergency declaration, activation of the site-level emergency response organization and resources, and implementation of protective actions for the affected site population meet the intent of the requirement? As described, this scenario would not require every person on site to take protective actions but would implement the appropriate protective actions for the affected site population identified in the EPHA and corresponding Emergency Action Levels.

ANSWER: Annual site-level exercises neither require nor imply that all personnel must react or respond to the incident or emergency. Requirements in DOE O 151.1D, Attachment 4, Section 9a, outline that Emergency Management Hazardous Material Programs identify both onsite and offsite protective actions consistent with the hazard, based upon Emergency Planning Hazards Analysis results. The key concept is actions taken are based on the hazard; only those affected populations take protective actions.

REFERENCES:

DOE O 151.1D Attachment 4 Section 9.a (Protective Actions)

DOE O 151.1D Attachment 4 Section 15.c

Program Element 14: Readiness Assurance
Effective: 12/2/2016

FAQ 151D-001.5: Are emergency management program evaluations still required and, if so, what is the periodicity?

QUESTION: DOE O 151.1D does not appear to contain a specific requirement for the Cognizant Field Element to perform emergency management program evaluations on a required periodicity. The previous version of the order, DOE O 151.1C, stated that the Cognizant Field Element “must evaluate the emergency management program at each site/facility under its supervision. Each site/facility must be evaluated at least once every three years.” [Chapter X, Readiness Assurance, Section 2.a.(3)] Are emergency management program evaluations still required and, if so, what is the periodicity?

ANSWER: A formal “emergency management evaluation” is no longer required every three years. However, the associated requirements throughout DOE O 151.1D, taken together, ensure that adequate readiness assurance is maintained. This is accomplished primarily through the site/facility/activity emergency management plan, which must be approved every three years.

Overall, the Field Element Manager is responsible for ensuring that adequate readiness assurance is maintained at their sites, facilities, and activities, in much the same way as the previous order, DOE O 151.1C. DOE O 151.1D requirements depend upon use of emergency management evaluations, improvements, and ERAPs to assure emergency plans and procedures are adequate, similar to DOE O 151.1C. Sections of DOE O 151.1D that address evaluating the adequacy of the emergency management program, including periodicity, include:

Appendix A, Section 10, FIELD ELEMENT MANAGERS, paragraph 10.b.:

Review and approve site, facility, and activity emergency management plans, including updates.

Appendix A, Section 10, FIELD ELEMENT MANAGERS, paragraph 10.f.(1):

Assess the Field Element emergency management program annually and document the results of the self-assessment in the Field Element portion of the Emergency Readiness Assurance Plan (ERAP).

Attachment 3, Section 1c.(1) PROGRAM ADMINISTRATION AND MANAGEMENT:

DOE federal and contractor managers responsible for DOE sites/facilities/activities must—
Develop and maintain an all-hazards emergency management plan. The emergency management plan must be –

(1) reviewed and documented annually, and updated, if appropriate, and approved no less than every three years.

Attachment 3, Section 14, READINESS ASSURANCE, paragraph 14.a.(1):

The Readiness Assurance Program consists of evaluations, improvements, and the Emergency Readiness Assurance Plan.

a. Evaluations consist of assessments, exercises, and performance indicators.

(1) Assessments. DOE sites/facilities/activities must conduct assessments to ensure that emergency plans, procedures, emergency response activities, and resources are adequate and sufficiently maintained.

REFERENCES:

DOE O 151.1D Readiness Assurance

Program Element 14: Readiness Assurance
Effective: 9/23/2021

FAQ 2109230844: Can the latest edition of CPG201, third edition, be used to complete the THIRA

QUESTION: The site Program Manager received a number of questions about Threat and Hazard Identification and Risk Analysis (THIRA) and what version of the Comprehensive Preparedness Guide (CPG) 201, Threat and Hazard Identification and Risk Analysis (THIRA) and Stakeholder Preparedness Review Guide, should be used to develop a THIRA for a Department of Energy (DOE) site as required by DOE Order 151.1D, Comprehensive Emergency Management System. All of the guidance, tools, and the DIRT were developed based on the second edition of CPG 201, which is also referenced in the main body of DOE Order 151.1D, Section 8.w. Evidently in the third edition of the CPG 201, published in May 2018 and after DOE O 151.1D, FEMA modified the process, so it's not a simple transition from one to the other. It was determined to continue to use the second edition, published in August 2013 and before DOE O 151.1D, since none of the DOE tools have been updated and the DOE O 151.1D doesn't specify in the requirement which edition to use. Further, the second edition of CPG 201 is included in the reference section. Is this correct?

ANSWER: The continued use of CPG 201, Second Edition, complies with the requirements within DOE O 151.1D because it is directly referenced within DOE O 151.1D the References Section, paragraph 8.w. and that the specific edition is not further referenced within Attachment 3 to DOE O 151.1D, paragraph 2.d(2). Since the specific reference is made to the second edition and the requirement in Attachment 3 is vague to the edition, the requirement is for the Second Edition to be used. The sites, facilities, laboratories, and activities (further referred to as the "organization") have an option of using either the third or second edition of CPG 201, unless the line management of the organization instructs them to do otherwise.

For those organizations who have used CPG 201, Third Edition, to complete an update to their existing THIRA developed using the CPG 201, Second Edition, those THIRAs are acceptable and meet the requirements.

For those organizations who are unsure which edition is most appropriate for their organization to use, they should use a risk-informed and graded-approach decision-making process to make their determination.

For those organizations who have yet to complete a THIRA, NA-41 encourages the organization to use the third edition or the most current version at the time of conducting the THIRA. NA-41 prefers that organizations use the most current edition of CPG 201 but does not intend to change the requirement at this time.

Program Element 15: Consequence Assessment
Effective: 9/20/2018

FAQ 1806053151: Clarification on requirement to integrate severe event guidance from other DOE Guides

QUESTION: DOE O 151.1D, Attachment 4, paragraph 2.m requires integration of severe event guidance consistent with DOE Guide 421.1-2, DOE STD-3009-2014, and DOE-STD-1198-2008. None of the cited references provide any clear severe event guidance, nor indication of how to include severe events in accident analysis

ANSWER: Several of the documents cited in this FAQ question as reference for integration of severe event emergency management guidance are not valid DOE STDs, incorrectly cited or have been superseded by another document. DOE G 421.1-2 is superseded by DOE G 421.1-2A Implementation Guide for Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830. DOE STD 1198-2008 is not a valid DOE document and has been transposed. The correct citation noted in DOE O 151.1D is DOE STD 1189-2008 which has been superseded by DOE STD 1189-2016, Integration of Safety into the Design Process which specifies the requirements and responsibilities that contractors must adhere in the project management, engineering/design and safety analysis of newly constructed facilities but has no application to severe event emergency management at existing facilities.

The relevant documents for integration of severe event emergency management are DOE O 151.1D, Attachment 4, Paragraphs 2.f. and 2.m., DOE G 151.1-2, DOE G 421.1-2A, DOE STD 3009-2014 and OE-1 Beyond Design Basis Events (BDBE) which require the site to have an existing EPHA with the full range of severe events addressed in it consistent the Documented Safety Analyses (DSA). FAQs only interpret the requirements of the OE-1, DOE O 151.1D, DOE G 151.1-1A, DOE G 151.1-2, DOE G 151.1-3, and DOE G 151.1-4 and are not intended to interpret the requirements of other program offices or provide implementing procedures for sites due to their complexity, hazards, and unique operations.

REFERENCES:

Operating Experience Level 1 (OEL1) issued by the Office of Health, Safety, and Security.

DOE O 151.1D, Attachment 4, Paragraph 2.f

DOE O 151.1D, Attachment 4, Paragraph 2.m

DOE G 151.1-2 Technical Planning Basis Guide

DOE O 151.1D, Attachment 4, Paragraph 2.f

DOE G 421.1-2A, Implementation Guide for Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830

DOE STD-3009-2014 section 3.2.1, pgs. 13-15

Program Element 15: Consequence Assessment
Effective: 6/2/2008

FAQ 20080602: Chemical Mixture Methodology (CMM) in Emergency Response

QUESTION: Can the SCAPA-approved Chemical Mixture Methodology (CMM) be used in emergency response as well as for emergency planning?

ANSWER: If the CMM is used in emergency planning, it should be available for use in response as well. If the actual event involves both a chemical mixture source and a type of scenario (such as a gas release, liquid spill or spray) that were analyzed as part of the planning basis, it may be possible to estimate the impacts of the actual event by scaling the results of the EPHA analysis to adjust for differences in dispersion conditions, release rate, release location or other factors. It may be possible to do this fairly quickly so that the results could be available for response decision making during the earliest phases of the response.

However, if the actual event involves a mixture or release type that has not been previously analyzed, the mixture must first be characterized and the concentration of each component at location(s) of interest must be measured or calculated. The concentrations at each location are then entered into the CMM Excel file to determine if a Protective Action Criterion (PAC) is exceeded and those results can be used directly to make or refine response decisions. Although the CMM Excel file generates results almost instantaneously, the more time-consuming task of characterizing the mixture and determining the concentration of each chemical at locations of interest means that the CMM will generally be used only in the later phases of response, after the requirements for rapid initial event classification and protective action decisions have been met.