

DOE O 151.1C
Frequently Asked
Questions (FAQs)

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Program Element: Emergency Response Organization (ERO)
Approved: 10/01/07

1. MEMBERS OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)

QUESTION: Is anyone who responds to an emergency from command and control levels down to the firefighter part of the Emergency Response Organization (ERO)?

ANSWER: *ALL* personnel who may be needed to perform duties, beyond those specified by 29 CFR 1910.120 for the first responder awareness level, during a response to any of a broad range of emergencies defined in the Hazards Survey or EPHA are members of the ERO. (Cf. DOE G 151.1-4, Section 1.3)

To focus on additional aspects of ERO membership, general characteristics of the organizational structure of positions and functions associated with ERO members are described in the Emergency Management Guide (EMG), DOE G 151.1-4, Chapter 1, as follows:

- a. The organizational structure of the ERO is based on the results of the facility/site or activity Hazards Surveys and Emergency Planning Hazards Assessment (EPHA), the relationships between the site and facility response capabilities, and the relationships between the onsite and offsite emergency response organizations.
- b. Characteristics of the spectrum of scenarios that constitute the technical planning basis for a facility determine the functions that will be required to respond to emergency events. Specific functions activated in a response will depend on the requirements of the particular emergency.
- c. The distribution of the emergency functions among facility-levels and site-levels is determined primarily by the locations of response facilities and organizations that provide response assets. For a specific site or facility, some emergency response functions can best be organized and performed at the facility-level, while others may be better served by a site-wide organization.
 - Facility-level functions may include control of process operations and implementation of local protective actions (e.g., building evacuations or sheltering, or ventilation manipulation).
 - Functions that are more likely to be common for a site-level include firefighting, medical response, and environmental monitoring.
 - Some response functions, such as firefighting or Hazardous Materials (HAZMAT) response, may be performed utilizing offsite support services.
- d. In general, the ERO component formed to manage the response actions during emergencies is the Emergency Management Team (EMT). At each DOE/NNSA response tier (e.g., facility, Field element, Headquarters), the EMT provides for overall management, direction, and control of the emergency response and normally operates from a command center or Emergency Operations Center (EOC).

Program Element: Emergency Response Organization (ERO)
Exercises, Training, and Drills
Approved: 10/01/07

2. ANNUAL REQUIREMENTS FOR ERO MEMBERS

QUESTION: Is an individual's participation in an annual exercise required to qualify for participation in the ERO? Keeping all members (response teams) of the ERO 'qualified' is fiscally and operationally impossible on an annual basis if the requirement is for all ERO members to be exercised annually. It would mean that we need to have many exercises, which test response to different hazards, every year.

ANSWER: Annual participation in an exercise is not required by DOE O 151.1C for an individual to 'qualify' for the ERO. Many facility-level/site-level exercises would be required to include all ERO teams/members, both primary and alternate. 'Qualifications' for ERO participation are not addressed in DOE O 151.1C. Rather, the Order requires that ERO personnel demonstrate proficiency in their ERO position.

The Order requirement related to each member of the ERO is found in Paragraph 4.a. (1):

“Both initial training and annual refresher training must be provided for the instruction of and demonstration of proficiency by all personnel (i.e., primary and alternate) comprising the emergency response organization.”

An annual demonstration of proficiency by all personnel (i.e., primary and alternate) comprising the ERO, especially those who perform functions on the ERO that are not necessarily associated with their usual duties, such as, consequence assessment team members and EOC positions, can be accomplished through actual emergency response, the annual facility- or site-level exercises, some forms of discussion-based exercises, periodic evaluated drills, or Limited Scope Performance Tests (LSPTs) [Cf. DOE G 151.1-3, Section 4.3.1].

Emergency response personnel (e.g., fire, HAZMAT, emergency medical services) that perform essentially the same functions on an ERO as they do on a day-to-day basis, demonstrate proficiency doing their everyday jobs. This may also include skilled positions such as health physicists, radiation control technicians, radiation field monitoring teams, and industrial hygienists.

Program Element: Exercises; Protective Actions and Reentry
Approved: 01/14/11

**3. APPLICABILITY OF DOE O 151.1C REQUIREMENT FOR ANNUAL
BUILDING EVACUATION DRILLS**

QUESTION: Does the DOE O 151.1C requirement for annual exercises for building evacuation apply only to those facilities required to meet regulatory requirements as identified in Chapter III, 4.b (1) or does it apply to ALL facilities regardless of applicability of regulations, size, occupancy, location, etc.? Or are all occupied facilities required to conduct an evacuation/fire drill annually?

ANSWER: According to DOE Order 151.1C, at a minimum, each DOE/NNSA facility must conduct evacuation/fire drills consistent with Federal regulations, local ordinances, or National Fire Protection Association Standards. These required drills must be conducted at least annually. Specifically, DOE O 151.1C, Chapter III, 4. b (1) requires that:

“At a minimum, each site/facility must conduct building evacuation exercises consistent with Federal regulations [e.g., (41 CFR 102-74-360)], local ordinances, or National Fire Protection Association Standards. Exercises must be conducted at least annually to ensure that employees are able to safely evacuate their work area.”

If a specific regulation, ordinance, or standard is applicable to facilities at a DOE/NNSA site, then the conduct of the drills, including occupancy and utilization criteria for determining the need for the drill, will be effectively determined by that regulation, ordinance, or standard. However, the frequency of these mandatory drills is expected to comply with the requirement of DOE O 151.1C to conduct drills “at least annually.”

If facilities at a DOE/NNSA site are under no specific regulation, ordinance, or standard addressing building evacuation/fire drills, then the Authority Having Jurisdiction, as defined in DOE O 420.1B, *Facility Safety*, may establish local requirements for the conduct of evacuation drills “at least annually” based on accepted standards and best practices.

Program Element: Program Administration
Approved: 06/09/06

4. APPROVAL AND DISTRIBUTION OF EMERGENCY DOCUMENTS

QUESTION: Are there new requirements for approval of site/facility emergency management documents in DOE O 151.1C? Why do we have to send copies of approved documents to the Headquarters?

ANSWER: There are new and restated requirements in DOE O 151.1C, *Comprehensive Emergency Management System* (11-02-05) concerning Cognizant Field Element approval of emergency management documents [e.g., technical planning basis (Hazards Surveys, EPHAs, and EPZs), emergency plans]. The requirements address recommendations by the Department of Energy's Office of the Inspector General (OIG)¹ that key emergency management documents be coordinated with DOE. The following requirements for **Cognizant Field Element Manager** approval of emergency management documents can be found in DOE O 151.1C:

- 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);
- Approve and submit approved Emergency Planning Zones to the Director, Office of Emergency Operations, and the Program Secretarial Officer(s);
- Review and approve Emergency Readiness Assurance Plans (ERAPs) that cover facilities under their supervision;
- Review and approve EPHAs and Hazards Surveys and forward the approved EPHAs and/or Hazards Surveys to the Program Secretarial Officer(s) and the Director, Office of Emergency Operations; and
- Approve site exercise packages prior to an exercise.

Each of these requirements for approval of key emergency management documents at the local, DOE line management level includes providing the approved documents to both the Program Secretarial Officer(s) and to the Office of Emergency Operations. This provides the Program Office with information needed to execute its responsibilities under DOE oversight policy in DOE P 226.1, *Department of Energy Oversight Policy* (6-10-05) and to influence improvements in areas that the Office of Independent Oversight routinely finds lacking during its inspections. Copies provided to the Office of Emergency Operations allow us to monitor conformity and look for complex-wide patterns and/or common problems in performing emergency management functions that we can address through improved policy, requirements, guidance, and training. The technical planning basis documents and emergency plans provide the HQ EMT access to facility/site hazards information and response plans during an emergency response.

¹ DOE/IG-0594, Inspection Report. Emergency Medical Coordination Memorandum of Agreement at Brookhaven National Laboratory (March 2003); Recommendation 4.

Program Element: Hazards Survey/Hazards Assessment (Technical Planning Basis)
Approved: 06/09/06

5. BEYOND DESIGN BASIS MALEVOLENT EVENTS

QUESTION: When considering the spectrum of events to be included in an EPHA, sites must consider the "full spectrum"; including events considered to be beyond-design-basis. Is it intended that a site include malevolent events that are beyond the Design Basis Threat (DBT)? Specifically, is it the intent to include a 9/11-type event (e.g., impact of large airplane with subsequent fire) as a bounding extreme malevolent act, even though this may exceed capabilities of the DBT?

ANSWER: Emergency planning analysts should only include malevolent events that are within the DBT; no event should be postulated and analyzed that exceeds the threat and capabilities contained within the current Departmental DBT policy as it is interpreted locally and applied to the subject facility.

**Program Element: Categorization and Classification; Hazards Survey/Hazards Assessment
(Technical Planning Basis)
Approved: 12/15/08**

**6. CLASSIFICATION OF ONSITE DOE TRANSPORTATION OPERATIONAL
EMERGENCIES**

QUESTION: According to DOE O 151.1C, some onsite shipments or between-facility transfers of hazardous materials do not require a Hazards Survey/ Emergency Planning Hazards Assessment (EPHA) because they satisfy governing DOT regulations and specifications for commercial hazardous materials transport. In the event of an accident, protective actions would be implemented using the DOT Emergency Response Guidebook (ERG), but is it the intent of the Order that an onsite accident involving these DOT compliant shipments also be classified?

ANSWER: DOE 151.1C (2005) provides an option to exclude certain onsite shipments from the Order requirement to develop a Technical Planning Basis using Hazards Surveys (HSs) and Emergency Planning Hazards Assessments (EPHAs), if the shipments satisfy governing DOT regulations and specifications for commercial hazardous materials transport. The following excerpts from DOE O 151.1C, Para 3.a. (6) and Attachment 2, *Contractors Requirements Document*, Para 3.b. (1) g. address onsite transport:

“An EPHA must be developed for shipments that do not satisfy governing DOT regulations and specifications for commercial hazardous materials transport. However, if a shipment satisfies DOT regulations and specifications, then an EPHA is not required.”

The Emergency Management Guide (EMG), DOE G 151.1-2, Appendix D, p. D-1 provides further clarification:

“Non-DOE (commercial) shipments of hazardous materials to, from, or across the site are governed by DOT regulations and specifications for commercial hazardous materials transport and do not require a Hazard Survey or Hazards Assessment. Also exempt from the Hazards Survey/Hazards Assessment requirements is inter-facility transport of hazardous materials, which complies with all DOT regulations and specifications applicable to the movement of those same materials over public transportation arteries. Protective actions (i.e., applicable “Initial Isolation” and “Protective Action” distances) for emergencies involving these shipments on DOE/NNSA sites should be determined by information in the DOT ERG, using the substance ID number and Guide number. Analysis requirements for DOE or NNSA shipments moving on or off the site will also depend on the governing DOT regulations and specifications.”

Neither the Order nor the EMG provides explicit direction related to the classification of accidents involving DOT compliant onsite shipments.

It is the intent of the Order that all accidents involving hazardous materials in transport on a DOE site be classified and protective actions implemented, as appropriate. As indicated in DOE G 151.1-2, Appendix D, *Onsite Transportation Analysis*, Section D.1, p. D-1: "Planning and preparedness for transportation-related hazardous material emergencies on DOE or NNSA sites should be an integral part of the site comprehensive emergency management program. Successful integration requires that

the approach to hazard identification, analysis, and the application of the results be consistent with the process used for fixed-facility EPHAs." Therefore, although no EPHA is produced for DOT compliant shipments, the ERG provides substitute analysis results that can be applied to the development of classification and protective action criteria to ensure a consistent and seamless integration of planning and preparedness activities for ALL onsite hazardous material release Operational Emergencies (OEs). Emergency planners should note that materials shipped onsite fall under the full requirements of the Operational Emergency Hazardous Material Program at the shipping and receiving facilities. Hence, *successful integration* suggests that a site response for transportation accidents analyzed in the ERG (and supporting docs) should be consistent (i.e., classification and initial protective actions) with its response to emergency events that are specifically analyzed in EPHAs.

**Program Element: Categorization and Classification; Hazards Survey/Hazards Assessment
(Technical Planning Basis)
Approved: 04/02/09
Rev.1**

**7. CLASSIFICATION OF A SPILL FROM A COMMERCIAL HAZARDOUS
MATERIAL SHIPMENT ON A DOE/NNSA SITE**

QUESTION: According to DOE G 151.1-2, Appendix D, p. D-1: “Non-DOE (commercial) shipments of hazardous material to, from, or across the site are governed by Department of Transportation (DOT) regulations for commercial hazardous materials transport and do not require a Hazards Survey or Emergency Planning Hazards Assessment (EPHA).” If protective actions are taken in accordance with the DOT Emergency Response Guidebook (ERG) for an onsite spill from a commercial shipment, must that event be classified?

ANSWER: Under DOE O 151.1C, Chapter V, paragraph 2a (2), any spill from a commercial shipment on public highways near a DOE/NNSA site would be an Operational Emergency that does not require classification:

“An offsite hazardous material event not associated with DOE/NNSA operations that is observed to have or is predicted to have an impact on a DOE/NNSA site, such that protective actions are required for onsite DOE/NNSA workers.”

This Operational Emergency (OE) definition can be extended to commercial (i.e., non-DOE) shipments arriving onsite, departing from or traversing the site and a spill would not require classification.

However, it is the intent of the Order that all accidents involving hazardous materials in transport on a DOE site be classified and protective actions implemented, as appropriate. As indicated in DOE G 151.1-2, Appendix D, *Onsite Transportation Analysis*, Section D.1:

"Planning and preparedness for transportation-related hazardous material emergencies on DOE or NNSA sites should be an integral part of the site comprehensive emergency management program. Successful integration requires that the approach to hazard identification, analysis, and the application of the results be consistent with the process used for fixed-facility EPHAs."

Therefore, although no EPHA is produced for DOT compliant commercial shipments, the DOT Emergency Response Guidebook (ERG) provides substitute analysis results that can be applied to the development of classification and protective action criteria to ensure a consistent and seamless integration of planning and preparedness activities for ALL onsite hazardous material release Operational Emergencies (OEs). ***Successful integration*** suggests that a site response for transportation accidents analyzed in the ERG (and supporting docs) should be consistent (i.e., classification and initial protective actions) with its response to emergency events that are specifically analyzed in EPHAs. Hence, a decision to classify these events ensures a consistent and seamless integration of planning, preparedness, and response activities.

Program Element: Hazards Survey/Hazards Assessment (Technical Planning Basis);
Program Administration
Approved: 08/08/08

8. DOE-OWNED LEASED FACILITIES

QUESTION: DOE O 151.1C, paragraph 4.a. (15) requires that arrangements with lessees must effectively integrate the activities of a DOE-owned leased facility into the DOE/NNSA site-wide emergency management program. What is a DOE-owned leased facility, and does this paragraph apply to a facility operated by a DOE contractor?

ANSWER: A facility within a DOE/NNSA site may be leased to others for non-DOE work. These *DOE-owned leased facilities* present unique difficulties for the site emergency management program in protecting onsite worker health and safety and establishing consistent interfaces with offsite Emergency Response Organizations (EROs) during an emergency affecting or involving the leased facilities. To ensure an effective emergency response, arrangements with the tenants must integrate the activities of the leased facility into the DOE/NNSA site-wide emergency management program. DOE O 151.1C, 4.a. (15) addresses specific requirements that must be included in arrangements with these facilities:

“(15) To ensure protection of onsite worker health and safety and ensure consistent interfaces with offsite Emergency Response Organizations (EROs) during an emergency involving or affecting a leased facility owned by DOE/NNSA, arrangements with lessees must effectively integrate the activities of a leased facility into the DOE/NNSA site-wide emergency management program. These arrangements also pertain to Nuclear Regulatory Commission licensed facilities and must include:

- (a) a description of how each of the lessee’s emergency management program elements are integrated into the site-wide program; and
- (b) a requirement that the tenant’s hazardous material inventories be reported to the site emergency management organization annually.

The tenant must also report prior to significant changes to the facility or to hazardous material inventories. For example, significant changes are those changes, which would result in an unreviewed safety question for nuclear facilities, as defined in 10 CFR 830, or in an unreviewed safety issue for accelerator facilities, as defined in DOE O 420.2B.”

These requirements are **not** directed toward offsite facilities leased by a DOE/NNSA contractor for DOE-work.

Program Element: Categorization and Classification; Protective Actions and Reentry
Approved: 03/25/08

9. EALs AND PLANNED INITIAL PROTECTIVE ACTIONS

QUESTION: DOE O 151.1C, Chapter IV, paragraph 3b(3)(b), contains the following requirement: "Site/facility-specific Emergency Action Levels must be developed for the spectrum of potential Operational Emergencies identified by the EPHA and must include protective actions corresponding to each Emergency Action Level (EAL)." Does this requirement mean that protective actions must be included explicitly in the EAL statement?

ANSWER: In retrospect, a better statement of the Order requirement would have been: Site/facility-specific Emergency Action Levels (EALs) must be developed for the spectrum of potential Operational Emergencies identified by the EPHA and there must be planned initial onsite Protective Actions (PAs) and offsite Protective Action Recommendations (PARs), as appropriate, associated with each EAL.

Both EALs and planned initial protective actions, PAs and PARs, are intended to speed the decision-making process so that actions to protect workers and the public are taken as quickly as possible. While EALs and protective actions are developed using the results of different steps in the EPHA process, it is strongly recommended that EALs statements and the planned initial protective actions eventually be integrated in the same emergency procedure. For example, initial protective actions could be added to a categorization/classification procedure that uses a table to present emergency indicators and emergency categorization/classification. If not included explicitly in the EAL statement, then the associated protective actions must be readily and *reliably* accessible within a minimum time frame (i.e., sufficient time to satisfy the Order requirement to categorize/classify within 15 minutes of emergency recognition).

Program Element: Categorization and Classification

Approved: 09/08/08

Rev. 1

**10. ROLE OF THE EMERGENCY RESPONSE GUIDEBOOK (ERG) IN
CATEGORIZING OFFSITE TRANSPORTATION OPERATIONAL
EMERGENCIES**

QUESTION: In planning for an offsite shipment of radioactive waste, we are reviewing DOE O 151.1C to determine its applicability in the event of a vehicle accident/incident. In using the definition for an Operational Emergency included in Chapter V and Attachment 2, Contractor Requirements Document (CRD), 11.a(2)(d)1, what is the “immediate/affected area” and what would cause first responders to initiate protective actions at locations beyond the “immediate/affected area”?

ANSWER: DOE O 151.1C defines Operational Emergencies (OEs), which are major abnormal events or conditions that require the response of the DOE emergency management system. Chapter V and Attachment 2 (CRD), 11 a. (2) (d) of the Order contain OEs related to various types of accidents or conditions involving offsite transportation emergencies. The first definition is related to any event that involves the offsite transport of hazardous materials, such as described in the question, as follows:

“(d) Offsite DOE Transportation Activities. The following events or conditions represent an actual or potential release of hazardous materials from a DOE/NNSA shipment.

1 Any accident/incident involving an offsite DOE/NNSA shipment containing hazardous materials that causes the initial responders to initiate protective actions at locations beyond the immediate/affected area.”

The second and third OEs involve accidents/incidents specifically related to Special Nuclear Material (SNM) and nuclear weapons or their components.

The Department of Transportation (DOT) *Emergency Response Guidebook (ERG)*, 2008, provides general guidance for first responders upon arrival on the scene of a transportation accident/incident. First, the on-scene responders will “isolate” the surrounding area in all directions by establishing an Initial Isolation Zone. All persons in this Isolation Zone will be directed to move, in a crosswind direction, away from the spill to the Initial Isolation Distance specified in the ERG for the hazardous material at risk. This distance defines a circle (Initial Isolation Zone) within which persons may be exposed to dangerous concentrations upwind of the source and life-threatening concentrations downwind of the source. The situation will then be assessed to determine the need to extend protective actions beyond the Initial Isolation Zone in order to protect the emergency responders and the public from harmful exposure to the hazard. If a decision is made to extend protective actions, then a Protective Action Zone is established in the downwind direction to an initial Protective Action Distance specified in the ERG.

The following discussion is based on guidance contained in DOE G 151.1-4, Section 4.4.4 related to the categorization of Operational Emergencies. Initial on-scene response to any accident/incident involving offsite transportation of DOE/NNSA-owned hazardous materials will be carried out by State and local emergency services groups (e.g., police, fire, and HAZMAT) responsible for the

accident locale. If local responders determine that protective actions are necessary beyond the immediate/affected event scene the event is to be categorized as an OE by the DOE/NNSA entity responsible for the shipment (usually the shipper).

Generally, only two indicators from the scene are needed to support an OE declaration:

- On-scene responders (the responsible local authorities) have implemented either evacuation or shelter as protective actions in response to the accident/incident; and
- The area within which protective actions have been implemented extends more than about 100 meters in any direction from the vehicle or spill location.

The “about 100 m” distance was chosen to define the “immediate/affected area” based on use of a similar distance to define the lower bound of the Site Area Emergency class for fixed facilities, which corresponds to hazardous material impacts outside the immediate vicinity of the release. Establishment by local responders of either an Initial Isolation Zone or a Protective Action Zone that extends beyond about 100 m from the vehicle or spill location suggests an event with hazardous material impacts of about the same magnitude.

The decision to categorize an event will be based on the specific information from the event scene that is available to the DOE entity responsible for categorization. If the actual distance to which protective actions are being implemented is known, then the 100 m criterion can be applied. If it is known that a Protective Action Zone has been established in accordance with the ERG, it should be assumed that the 100 m criterion has been or may be exceeded. In summary, the DOE entity responsible for categorization should declare an OE if:

- It is confirmed that on-scene responders have established an Initial Isolation Zone that extends beyond about 100 m from the vehicle or spill location; or
- A Protective Action Zone has been established in the downwind direction as specified in the ERG.

Program Element: Emergency Response Organization (ERO); Exercises
Approved: 10/01/07

11. ERO MEMBER PARTICIPATION IN ANNUAL SITE-LEVEL EXERCISES

QUESTION: DOE O 151.1C [Chapter IV, 4.b. (1) (b)] states that site-level Emergency Response Organization (ERO) elements and resources must participate in a minimum of one exercise annually. Does this mean that all members of the ERO are required to participate in a site exercise annually?

ANSWER: DOE O 151.1C, Chapter IV, Paragraph 4. b. (1) (b) and CRD, Attachment 2, contain the following exercise requirement for site-level ERO elements and resources:

“Site-level emergency response organization elements and resources must participate in a minimum of one exercise annually. This site exercise must be designed to test and demonstrate the site's integrated emergency response capability. For multiple facility sites, the basis for the exercise must be rotated among facilities.”

This requirement is not intended to imply that *all* teams/members (i.e., primaries and alternates) of each site-level element and resource must participate in an annual site exercise. Generally, an annual site exercise will involve *at least* one team/member for each site-level function or activity required for the response. This also includes *at least* one team/member for each facility-level function or activity required for the response to the specific facility that is the *basis* for the exercise (for a multiple-facility site). Multiple site exercises are not required to ensure that all ERO personnel, including primaries and alternates, participate in a site exercise annually. However, each facility/site should establish a goal of providing all teams/members with the opportunity for participation in an annual site-level exercise on a rotating basis.

In summary, the annual site-level exercise is a test of the *integrated response* of various components/elements of the ERO. The performance in the exercise is not primarily focused on the individual skills of each function/activity, but on the ability of site-level ERO elements to accomplish their individual tasks in concert with different functions/ activities as part of the total response.

Program Element: Categorization and Classification; Emergency Response Organization (ERO); Program Administration
Approved: 07/10/07

12. ESTABLISH PRE-AUTHORIZATION CRITERIA FOR INITIAL DECISION MAKING

QUESTION: What is intended by the requirement in DOE O 151.1C, Chapter I, Section 9e that the Cognizant Field Element Manager “(e)nsure development of appropriate emergency plan implementing procedures for timely and accurate emergency classification, notification, and reporting of emergency events for facilities under their cognizance. Establish preauthorization criteria when possible.”

ANSWER: Emergency classification, notification, and reporting are intended to initiate actions to prevent or limit adverse health and safety impacts to workers and the public. The timeliness of the initiation of these actions is aided by pre-authorizing an on-duty manager (contractor or Federal employee) to perform emergency classification, notification, and reporting as well as initiating onsite protective actions and offsite protective action recommendations without waiting for a designated authority who may not be immediately available.

When possible, Emergency Plan Implementing Procedures (EPIPs) should incorporate clear, unambiguous decision criteria for categorizing/classifying Operational Emergencies (OEs) and for performing appropriate initial notifications and reporting. These *pre-authorization criteria* enable on-duty operators and managers, who are well-trained in using the criteria and implementing the decision-making process, to make time-critical decisions promptly, accurately, and confidently.

For OEs that are classified as an Alert, Site Area Emergency or General Emergency, these pre-authorization criteria are known as Emergency Action Levels (EALs). Requirements and guidance regarding EALs are long-standing. For those OEs that are only categorized, DOE G 151.1-4, Chapter 4, states:

“Although it is not intended that facilities develop detailed and quantitative categorization criteria for each type of OE described in the Order, some planning and preparation will be needed to ensure that events meeting the Order descriptions are promptly recognized and categorized. For some types of OEs, facilities and sites may choose to develop facility- /site-specific criteria to aid in decision-making. For others, the guidance presented in this chapter may be useful in interpreting observed conditions directly against the Order descriptions.”

The definitions of various OEs presented in the Order and the consideration of site- /facility-specific conditions will determine whether a specific OE lends itself to establishing specific pre-authorization criteria. Whether criteria are established, or interpretation of the OE definition is required, on-duty managers must be adequately trained to make prompt, accurate decisions.

Program Element: Readiness Assurance
Approved: 08/08/08

13. ROLES OF EVALUATION CRITERIA IN ANNUAL SELF-ASSESSMENTS

QUESTION: DOE Order 151.1C and its Contractor Requirements Document (CRD) require that contractors at all DOE/NNSA facilities conduct an annual self-assessment of their emergency management programs. What is the role of the evaluation criteria from DOE G 151.1-3, Appendix D, in conducting these self-assessments?

ANSWER: DOE/NNSA contractors must conduct an annual self-assessment of their emergency management programs. DOE O 151.1C, Attachment 2, Contractors Requirements Document, 7.a.(1) addresses the role of the evaluation criteria in these annual self-assessments as follows:

“(1) Self-assessments. The contractor must conduct an annual self-assessment of their emergency management programs. Program and exercise evaluations (including appraisals and assessments) must be based on specific standards and criteria, issued by the Director, Office of Emergency Operations.”

The specific standards and criteria refer to those issued by the Director, Office of Emergency Operations and published in DOE G 151.1-3, Appendix D. The intent of the Order is that every DOE emergency management program be self-assessed by the contractor using the evaluation criteria from Appendix D. The evaluation criteria should be used both to judge anticipated performance based on reviews of plans and procedures, interviews with response staff, etc., during program evaluations and to select task-oriented objectives for self-assessing (self-evaluating) performance during exercises.

Although it is intended that all Program Elements be self-assessed annually, the scope of the annual self-assessment of each element does not necessarily include all aspects of the associated programmatic or response tasks as detailed in the evaluation criteria given in Appendix D. (The intended scope of these self-assessments is addressed in a related FAQ – Annual Self-Assessment Requirement.) A comprehensive readiness assurance program, which satisfies the Order requirement, may cover all program-specific evaluation criteria of the emergency management program over a number of years. Using this standard set of evaluation criteria forms the basis for a cohesive and convincing judgment of “*readiness*” based on the processes and results of the **COORDINATED** self-assessment component of the readiness assurance program.

Program Element: Exercises
Approved: 03/04/08

14. FACILITY DEFINITION AND FACILITY-LEVEL EXERCISES

QUESTION: How is “facility” defined in the context of the annual facility-level ERO exercise requirement?

ANSWER: DOE O 151.1C Contractor Requirements Document (CRD) contains the following requirement for an annual exercise of each facility emergency response capability [i.e., *facility-level* Emergency Response Organization (ERO) capability]:

Each DOE/NNSA facility subject to this CRD paragraph must exercise its emergency response capability annually and include at least facility-level evaluation and critique. Evaluations of annual facility exercises by Departmental entities (e.g., Cognizant Field Element, Program Secretarial Officer or Headquarters Office of Security and Safety Performance Assurance) must be performed periodically so that each facility has an external Departmental evaluation at least every three years. [DOE O 151.1C, Attachment 2, 6.b(1)]

Facility is not specifically defined in DOE O 151.1C. However, in the Order and the Emergency Management Guide (EMG), the term *facility* is used in two distinct ways. First, a facility boundary is defined for classification purposes. Second, *facility* response capability represents the ERO components that respond to an emergency at a specific facility or group of facilities; the *site-level* ERO provides site-wide capabilities to respond to any facility or group of facilities on a site. As used in the Order and EMG regarding the exercise requirements, facility response capability or facility-level Emergency Response Organization (ERO) capability represents the level of the ERO that responds to an emergency at a facility or group of facilities. Essentially, facility-level implies the lowest level of the response organization whose responsibilities include response to an emergency at a specific facility or group of facilities. For example, *facility response capabilities* may include control of process operations, response activities of local facility health physicists, radiation control or HAZMAT response personnel, and implementation of local protective actions (e.g., building evacuations or sheltering, ventilation manipulation). These responsibilities are in contrast to a site-level ERO that provides site-wide capabilities to respond to any facility or group of facilities on a site.

Program Element: Emergency Public Information (EPI)
Approved: 02/07/08

15. TIME REQUIREMENT FOR INITIAL PRESS RELEASE

QUESTION: How long does a DOE/NNSA site/facility have before notifying the public and the media of an emergency?

ANSWER: DOE O 151.1C requires: “Each DOE/NNSA site/facility must provide accurate, candid, and timely information about emergencies to workers and the public” (Section 4. a [21]); and, “Accurate, candid, and timely information must be provided to workers, the news media, and the public during an emergency to establish facts and avoid speculation” (CRD, paragraph 16, 1st sentence). DOE G 151.1-4 (Chapter 9, Section 9.5.2) provides guidance regarding what constitutes “timely information” stating: “While the DOE Order does not stipulate that news releases and other associated notifications or news conferences occur in a specific time frame, DOE/NNSA should adhere to the standards of other Federal agencies and private industry by releasing information within one (1) hour of the declaration of the event.”

Considering that information concerning the emergency event is included in notifications provided to state and local officials within 15-30 minutes, news media are likely to know about the event shortly thereafter and will be interested in obtaining information as soon as possible. In some situations, local officials may use the news media to communicate the need for protective actions for the general public. DOE/NNSA site emergency public information organizations need to be proactive in media relations in an emergency to maintain credibility concerning the emergency response and associated protective actions, and to discourage rumors and speculation about the event. Prompt, accurate, and concise media releases will allow the news media to focus on the event and the facts. The site emergency public information organization needs to communicate quickly that an emergency response is underway, describe the nature of that emergency (to the extent known), indicate that offsite agencies have been notified as required, and state that details are being gathered to keep the media and public informed. In doing so, the site identifies itself as the source of emergency information and demonstrates commitment to keeping the public informed.

Understandably, a site emergency public information organization may have difficulty in obtaining significant details about an emergency to communicate to the news media in the first hour. DOE G 151.1-4, Chapter 9, Section 9.5.2, recognizes this and recommends using “fill-in-the-blank,” pre-formatted news releases to accomplish the initial news release. Because information that has been provided to offsite agencies via emergency notification forms should be considered as having been approved, these pre-formatted news releases can draw information directly from the emergency notifications that have already been completed. In addition, model pre-formatted press releases are available for reference from the EMI SIG Emergency Public Information Subcommittee website (<http://orise.ornl.gov/emi/epi/resources.htm>).

Program Element: Categorization and Classification; Emergency Response Organization (ERO)**Approved: 06/09/06****16. ONSITE CATEGORIZATION/CLASSIFICATION DECISION MAKER AND INTEGRATION WITH NIMS**

QUESTION: Does DOE O 151.1C require that an emergency categorization/ classification decision-maker remain onsite on a 24-hour/7-day per week basis? How does emergency categorization/classification decision-making integrate with the National Incident Management System (NIMS)?

ANSWER: The requirements for prompt decision-making and notification are based on the need to make decisions quickly so that appropriate protective actions can be put in place to mitigate the impact of an event on workers or the public. DOE O 151.1 (1995) contained a requirement for the — (e)stablishment of criteria for determining quickly if an event is an Operational Emergency. This same requirement appears in DOE O 151.1C (2005) with an additional requirement that an — “event must be categorized as an Operational Emergency as promptly as possible, but no later than 15 minutes after event recognition/identification/ discovery.”

None of the above requirements specifically state that the decision maker must be available onsite 24/7. However, it is clear that the decision-making capability must be available 24/7 to ensure that a prompt categorization is accomplished. Some sites use an on-call duty officer system. In these situations, the decision-making criteria typically have been written in sufficient detail that the on-call duty officer can make the event categorization/classification decision immediately, without having to travel to the site, given that relevant and sufficient information is available from the incident scene. This requires that a means of communication be promptly and effectively established between the duty officer and the first responders at the event scene. After establishing this link, the first responders must transmit information needed for categorizing/classifying the event to the duty officer.

Many sites have chosen to place the initial decision-making responsibility in a trusted position that is already staffed on a 24/7 basis, such as a shift superintendent, a fire department officer, or security force officer. In effect, this person assumes the role of a duty officer and is often trained to serve as the initial Incident Commander (IC), in either the NIMS Incident Command System (ICS) or the ICS used by the surrounding local jurisdictions. Generally, this dual role should only be implemented if it can be demonstrated that the categorization/classification decision-making process and the response tasks of the initial IC at the event location do not interfere, causing substantial adverse effect on the performance of one or the other.

For an established NIMS ICS at the event location, the overall responsibility for providing information to the event categorization/classification authority may be logically placed within the Planning Section of the NIMS ICS structure. This section of the ICS is responsible for collecting, evaluating, and disseminating tactical information pertaining to the incident. This tactical information provides the data for categorization/ classification decision-making.

Program Element: Program Administration
Approved: 06/09/06

17. ORDER INTO CONTRACTS AND IMPLEMENTATION SCHEDULE

QUESTION: Should we delay beginning to implement DOE O 151.1C until after the revisions to the Emergency Management Guide (DOE G 151.1-1 series) are issued? When should the newly revised Order be added to contracts? When should implementation plans for compliance with the revised Order be developed? When should the implementation plan be submitted?

ANSWER: Actions to begin implementing DOE O 151.1C should not be delayed awaiting the publication of the revisions to the DOE G 151.1-1 series Guides. Some of the changed requirements in DOE O 151.1C, such as the change in the frequency of the required review of EPHAs from each year to every three years, are to the advantage of site/facility programs and will likely be implemented rapidly.

Adding the revised Order to contracts generally follows the following process. Once the Order is approved, the Cognizant Field Element promptly notifies their contracting officer of the need to add the revised Order to the appropriate contracts. The contracting officer then initiates action under the terms of clause 970.5204-2(b) of the Department of Energy Acquisition Regulations (DEAR), by notifying the contractor of the government's intent to unilaterally modify the contract and add the revised Order to the "List of Applicable Directives (List B)." This notification gives the contractor the opportunity to assess the effect of compliance on contract cost and funding, technical performance, and schedule. Within 30 days after receipt of the contracting officer's notice, the contractor must advise the contracting officer in writing of the potential impact. After consideration of this information and any other information available, the contracting officer notifies the contractor that List B is being revised at least 30 days prior to the effective date of the List B revision.

According to the Order, an implementation plan is required if full compliance with DOE O 151.1C will not be achieved by 11-2-06. The implementation plan must be submitted to the Cognizant Field Element by 10-1-06. Under the terms of DEAR clause 970.5204-2(b), most of the information needed for the implementation plan for coming into full compliance must be developed within 30 days of the contracting officer notifying the contractor of the intent to modify List B. By using the information submitted to the contracting officer, the implementation plan for coming into full compliance, if not achieved by 11-2-06, could be developed and submitted to the Cognizant Field Element well before 10-1-06.

The intent of the implementation plan requirements in DOE O 151.1C, paragraph 6b, is to have the necessary implementation plans accompany the annual Emergency Readiness Assurance Plan (ERAP) submission [*Note: There is an inadvertent one-day difference between the due date listed in paragraph 6b (October 1st) and the ERAP submission date in Chapter X (and CRD section 7c) of September 30th*]. After the contractor submits the ERAP and any necessary implementation plan to the Cognizant Field Element, the Emergency Management Program Administrator in the Cognizant Field Element then takes this information for all the contractors under its supervision, along with information regarding the implementation schedule for any parts of the Cognizant Field Element program that will not be in full compliance by 11-02-06, and submits an overall implementation plan and a consolidated ERAP to the Program Secretarial Officer(s) and the Director, Office of Emergency Operations, by November 30th.

**Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis);
Protective Actions and Reentry
Approved: 06/09/06**

18. PROTECTIVE ACTION RECOMMENDATIONS (PARs) OUTSIDE THE EPZ

QUESTION: My site has several events with severe consequences that were not included in the spectrum of scenarios that determined the EPZ size. These scenarios project consequences in areas outside the EPZ. Are we required to have Protective Action Recommendations (PARs) for the areas outside the EPZ?

ANSWER: Current DRAFT guidance (EMG, Vol. II Section 3.2) states that, “The designation of an EPZ and the related detailed planning and preparedness activities are not intended to ensure complete protection of all persons who might be affected by the largest conceivable hazardous material release under the most severe meteorological conditions. The EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents states, ‘It is not appropriate to use the maximum distance where a PAG might be exceeded as the basis for establishing the boundary of the EPZ for a facility.’” [Note: Refers to the analyzed scenario with the maximum distance to PAG.] This is reflected in the methodology for developing the size of the EPZ described in the DRAFT EMG (Vol. II Section 3). The integrated facility EPZ, which is based on the spectrum of potential radioactive and chemical hazardous material releases, should be of sufficient size that:

1. a. Protective actions are not likely to be required beyond the EPZ for most analyzed events (excluding those that are — “beyond design basis” natural phenomena events or which result from extreme malevolent acts)
2. b. Measures taken within the EPZ would provide for substantial reduction in early lethality for all analyzed events (excluding those which result from extreme malevolent acts)

Thus, extreme malevolent acts are excluded from general criteria that form the basis for the determination of the size of the EPZ. In addition, “beyond design basis” natural phenomena events are not considered when evaluating the application of the first criterion a, given above, which generally bounds the outer limit of the candidate EPZ in the methodology.

Hence, while all scenarios must be identified in the EPHA, not all scenarios must serve as the basis for special planning and be taken into consideration in determining the size of the EPZ. However, this does not mean that there should be no planning for those scenarios that are not the basis of the EPZ determination. An analyzed event with onsite and offsite impact should have a corresponding EAL with a predetermined Protective Action (PA)/Protective Action Recommendation (PAR) included in the facility EAL set. 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, if necessary.

The specific requirement for protective actions is contained in DOE O 151.1C, Attachment 2, Section 11.b (2): “Site/facility-specific Emergency Action Levels (EALs) must be developed for the spectrum of potential Operational Emergencies identified by the EPHA and must include protective actions corresponding to each EAL.” This requirement is supported by the DRAFT guidance in Volume II, Appendix E, specifically focused on the extreme malevolent event. “Sites and facilities

are not expected to include these extreme malevolent events in the technical planning basis or in determining the Emergency Planning Zone (EPZ). However, recognizing that 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. In addition, as is the case for all events included in the EAL set, initial onsite Protective Actions (PAs) and offsite Protective Action Recommendations (PARs) should be developed for these analyzed extreme malevolent events.”

Program Element: Program Administration
Approved: 06/09/06

19. REVIEW OF REVISED GUIDES

QUESTION: How are the updates of the Emergency Management Guide (EMG) coordinated? Who is included in the reviews of the updates?

ANSWER: After an update to the EMG (DOE G 151.1-1, *Emergency Management Guide*) has been drafted, it undergoes an informal review. It is transmitted electronically by the Office of Emergency Operations to emergency management points of contact at Headquarters and field locations, as well as to contractors at DOE/NNSA sites. The informal review focuses on major comments (not grammar/punctuation or minor word changes). During the informal review, all constructive comments are considered.

After changes are made to accommodate comments made during the informal review, the EMG is submitted to the Headquarters Office of Management Communications to be placed into RevCom for formal review. Before the document is posted in RevCom, the Office of Management Communications sends the draft to technical editors for review.

After the technical edit and resulting changes, the EMG is placed into RevCom for the formal review. The formal review follows the directives system hierarchy, outlined in DOE O 251.1A, *Directives System* (1/30/98) and DOE M 251.1-1A, *Directives System Manual* (1/30/98), where each line management level passes on comments from the lower levels. Labs, sites, facilities, contractors, Field Offices, and Headquarters offices all have the opportunity to comment on Directives during the formal review.

DOE O 251.1A and DOE M 251.1-1A define a different formal review process for guides than is used for Orders and Manuals. Because guides are not mandatory, the formal review process provides for simultaneous use and coordination. Comments should not be designated “major” or “suggested;” they should simply be labeled as “comments.” Comments supplied are considered advisory in nature.

Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis)**Approved: 06/09/06****20. SCREENING CHEMICAL MIXTURES**

QUESTION: A laboratory has a 10-gallon container of 30% hydrochloric acid that feeds a larger neutralization tank. Can the acid be screened out based on the fact that it's less than 5 gallons of HCl? If the lab were to start with a 5-gallon container instead, and dilute it in the larger vessel, they'd have more than 5 gallons of solution again. Would they then screen it back in because the 5-gallon threshold has been exceeded? If they dilute it enough, it will eventually drop below the vapor pressure threshold. The basic question is the following: When dealing with a mixture, does the "easily and safely manipulated by one person" quantity make sense only if it's based upon the amount of hazardous material in the mixture?

ANSWER: Generally, this question deals with two basic issues. The first issue involves the basis for the "easily and safely manipulated by one person" threshold quantity. The second issue addresses the health hazard rating for materials "as found." The additional comment added at the end of the discussion specifically addresses the special example presented above.

Issue 1: Basis for the "easily and safely manipulated by one person" threshold quantity.

The Order requires further analysis in an Emergency Planning Hazards Assessment (EPHA) for hazardous materials with Health Hazard rating of 3 or 4 in quantities greater than a quantity "easily and safely manipulated by one person." The reasoning behind that choice of words to describe what is, in effect, the lower threshold of emergency management concern is consistent with the following:

1. Quantities of the size described in the question have long been handled and used throughout DOE and in industry, business and educational institutions and there is no strong evidence that such quantities have caused or are causing significant harm to people outside the immediate workplaces where they are stored or used. In short, there appeared to be no compelling need for hazard-specific planning and preparedness to protect people outside the workplace from the effects of releases involving small (end-user-scale) quantities.
2. Operations involving small quantities of hazardous chemicals are subject to DOE- and OSHA-mandated workplace hazard controls and safety programs. Those controls and programs are specifically created to protect the health and safety of the worker who performs operations with hazardous chemicals, as well as other people in the same workplace. Setting the minimum screening quantities at the amount "easily and safely manipulated by one person" was seen as a way of limiting the degree to which emergency management programs would overlap (and perhaps conflict) with the workplace safety program controls that are generally considered to be quite effective (as evidenced by the fact that DOE's occupational injury and fatality rates are consistently well below those for comparable labor categories in industry and commerce).
3. For small quantities of hazardous materials, the emergency management "toolbox" approach of hazard-specific analysis, planning and preparedness measures simply doesn't add much value. As the material quantity and the potentially affected area get smaller and smaller, the benefits of hazard-specific analysis, planning and preparedness measures also become

smaller. At some point, hazard-specific analysis, planning and preparedness measures simply do not produce any improvement in our ability to protect human health and safety, beyond what is provided by general chemical safety controls, worker training, and standard HazMat response practices.

4. Summary: A quantitative measure of hazard at distance was not part of the rationale for setting the minimum screening threshold. Any adjustment of quantities of toxic materials during the screening process to account for concentrations less than 100% would suggest otherwise and would not be consistent with the reasoning used to set the minimum quantities. Some diluents, carriers, or adjuvants may actually change the release potential or alter the toxicity of a substance of concern, and those effects should be examined quantitatively (see issue 2 below). The Order intended that the toxic effects of materials not eliminated from further consideration by the screening process be examined quantitatively to determine the need for hazard-specific planning. The EPHA is the appropriate vehicle for that quantitative examination.

Issue 2: Health hazard rating for materials “as found.”

Toxic chemicals in mixtures or solutions should be subjected to the screening process in the quantities, concentrations and forms that they are used and/or stored in a facility. One step in the screening process is to determine if the material is sufficiently hazardous to human health to warrant consideration in emergency planning. For mixtures or solutions containing toxic chemicals, the true health hazard rating may be different from that of any of the individual constituents. Whenever possible, a health hazard rating developed for the specific concentration and form of the material that exists in the facility should be used in screening, rather than the ratings for any individual component(s).

Additional Comment: The specific example given in the question might be a true laboratory scale operation and the 10 gallons are probably within the "reasonable" range for site-specific interpretations of the Order intent. The rationale presented above is focused primarily on materials in containers “as delivered”. There may be rare exceptions, but it really doesn't make a lot of sense to screen out 5 gallons of a concentrated material and then require it to be screened back in because it is diluted for use. Consider the following approach when the diluted material has a Health Hazard rating of 3 or 4 (or is not determined) and the quantity only nominally exceeds the screening threshold:

1. Screen it in, regardless of concentration/dilution; and
2. Perform a simplified “EPHA” analysis that demonstrates quantitatively, using a simple comparison of the volumes (and corresponding puddle sizes) and the respective vapor pressures, that the diluted substance represents an airborne source no greater than would result from a quantity of the concentrated material that could be screened out using the “easily and safely manipulated by one person” threshold. This simplified approach would be reasonable if evaporation is the only plausible release mechanism, but would not be appropriate if, for example, the diluted solution is pumped at high enough pressure to present the potential for a spray release.
3. Although some documentation of this simple treatment will be necessary, a full EPHA analysis is not required. If the facility in question has other materials requiring EPHA

analysis that could potentially result in Operational Emergencies (OEs) requiring classification, the simplified analysis/comparison can be included in the EPHA document. However, if a formal EPHA for the facility is not required, then the results may be incorporated directly into the Hazards Survey or documented in some other form, such as an annex to the Hazards Survey.

Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis)
Approved: 03/19/09

**21. SCREENING HAZARDOUS MATERIALS NOT CURRENTLY AT FACILITIES,
BUT LISTED IN A SAFETY BASIS DOCUMENT**

QUESTION: DOE O 151.1C indicates that a hazardous material screening process must identify specific hazardous materials and quantities in a facility that, if released, could produce impacts consistent with the definition of an Operational Emergency. The potential release of these materials to the environment requires further analysis in an Emergency Planning Hazards Assessment (EPHA). What is the screening requirement (or intent) of DOE O 151.1C for a hazardous material that is not currently stored at a facility, but that is identified in facility safety basis documentation (e.g., SAR/DSA) on a list of radiological and non-radiological hazardous material inventories that may be present in facilities identified at the site? Does DOE O 151.1C intend that all hazardous materials analyzed in the safety basis document be screened as soon as practical or only when the materials are to be brought into the facility for use or storage?

ANSWER: According to DOE O 151.1C Chapter III, 3.b and Attachment 2, 2.b, a facility Hazards Survey should be reviewed and updated, as necessary:

“Hazards surveys must be updated every three years, and prior to significant changes to the site/facility or to hazardous material inventories. For example, significant changes are those changes which would result in an unreviewed safety question for nuclear facilities, as defined in 10 CFR 830, or in an unreviewed safety issue for accelerator facilities, as defined in DOE O 420.2B. Changes that result in a reduction of hazards with no adverse effect on safety or emergency preparedness or response may be included in the next scheduled review and update.”

It is the intent of the Order and guidance that a new substance (or a larger quantity of a substance already screened) should be screened prior to its actual introduction into the facility.

Materials that are addressed in the safety basis, but not currently used or stored in the facility, need not be screened if there are administrative controls or other methods to ensure that they are subject to screening before actually being introduced into the facility.

The intent of the Order and guidance can also be met by screening the entire list of materials and quantities that are “authorized” under the facility safety basis. Under this approach, the inventory limits and other controls derived from the safety basis analysis can help ensure that facility operations are also within the emergency management Technical Planning Basis.

Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis)
Approved: 07/10/07

22. SCREENING SPENT NUCLEAR FUEL (SNF)

QUESTION: Can Spent Nuclear Fuel (SNF) in dry storage casks be excluded from the emergency management technical planning basis by applying non-dispersibility arguments in the hazardous materials screening process? Some casks used for this purpose were constructed specifically for the static storage function, whereas others were originally designed as Type B shipping containers, but the package certification is not being maintained current.

ANSWER: Consistent with limitations specified in the safety analysis, spent nuclear fuel in dry cask storage may be excluded based on non-dispersibility if it has been demonstrated, in the authorization basis safety analysis or elsewhere (e.g., in analyses performed by the cask manufacturer), that the cask would not be breached by an operational accident, handling mishap, human error, age or use-related material failure. This exclusion applies to casks originally designed as Type B shipping containers even if the package certification is not being maintained current.

Effects of malevolent acts, external events and extreme natural phenomena need not be considered when determining whether or not a cask would fail. However, if a malevolent act against the dry storage casks has been examined in a Safeguards and Security Vulnerability Analysis (VA) and quantitative estimates of radiological consequences have been made, the emergency management program should reflect the results of the VA [by inclusion of appropriate Emergency Action Levels (EALs) and planned protective actions] even though the malevolent act is not analyzed in an EPHA.

The basis for this position is detailed below:

1. The Order explicitly provides for the exclusion of certain materials from consideration based on non-dispersibility, including radioactive materials characterized as follows:
 - Sealed sources that meet “special form” criteria
 - Stored in DOT Type B shipping containers with overpack, if Certificates of Compliance are current and the materials stored are authorized by the Certificate
 - Solid form for which there is no plausible dispersal mechanism

According to the Emergency Management Guide (EMG), “plausible” dispersal mechanisms and processes are those that might apply to the material under its normal conditions of storage and/or use (e.g., operational accidents, handling mishaps, human error, age or use-related material failures). Catastrophic or extremely energetic initiating events (e.g., aircraft crashes) are not to be considered “plausible” mechanisms for release of otherwise non-dispersible solids.

2. In general, radioactive material in Type B containers (with overpack) can be screened out only if the Certificates of Compliance are maintained current. However, for casks dedicated to static storage of SNF, maintenance of the Certificates of Compliance is less important to the overall safety of the stored material than for Type B containers in general because:

- Most SNF is inherently less dispersible than other radioactive materials that might be transported and stored in Type B containers, and

Any Type B container suitable for SNF storage will typically be much more massive and structurally robust than a Type B container designed for transport of materials that are not significant sources of gamma radiation.

Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis)**Approved: 07/10/07****23. SCREENING THRESHOLDS AND CONSEQUENCE-AT-DISTANCE**

QUESTION: What role should a quantitative measure of consequence-at-distance play in establishing the “locally determined” minimum quantity thresholds needed to implement the DOE O 151.1C hazardous materials screening requirement for chemicals?

ANSWER: It is not recommended that consequence-at-distance be part of the rationale for setting locally-determined minimum screening thresholds for chemicals. Consequence-at-distance was not explicitly considered when selecting the minimum threshold values recommended in the EMG and its use tends to produce results that are contrary to several planning principles embodied in the Order (see following discussion). The EPHA is the appropriate venue for quantitative analysis of potential release consequences and those analyses should represent the actual material properties, storage/use conditions and postulated initiators, not the simplified and unrealistic depiction that results from use of arbitrary values for release fractions, dispersion coefficients and other parameters.

When setting local minimum screening thresholds, it is important to keep in mind the ultimate purpose of screening as stated in the Order (DOE O 151.1C, Chapter III, 3.b):

“A Hazardous Material Screening Process must identify specific hazardous materials and quantities that, if released, *could produce impacts consistent with the definition of an Operational Emergency* (emphasis added). The potential release of these materials to the environment requires further analysis in an EPHA.”

The Order indicates that a hazardous chemical *may* be eliminated as a candidate for analyses if it is stored and used only in quantities that can be “easily and safely manipulated by one person.” The revised EMG recommends specific values that meet the Order intent. In general, a liquid quantity of about 5 gallons, the corresponding weight of solid material (about 40 pounds), or 10 pounds for compressed gases is about the maximum that can be safely handled by one person. As detailed below, there are several reasons why sites *should* exclude quantities smaller than these from further consideration.

- Use of locally determined values consistent with the “easily and safely manipulated by one person” definition will exclude from further consideration small quantities of most hazardous chemicals that, in practice, have little or no potential to cause impacts consistent with the full definition of Operational Emergency.
- Quantities consistent with the “easily and safely manipulated by one person” definition have long been handled and used throughout DOE, industry, commerce and educational institutions and there is no compelling evidence that such quantities have caused or are causing significant harm to people other than those directly involved with use or handling of the material. Hazard-specific planning and preparedness does not appear to be needed to protect people outside the workplace from the effects of these releases.
- Operations involving small quantities of hazardous chemicals are subject to DOE- and OSHA-mandated workplace hazard controls and safety programs. Those controls and programs are specifically created to protect the health and safety of the worker who performs operations with

hazardous chemicals, as well as other people in the same workplace. Setting the minimum screening quantities at the amount “easily and safely manipulated by one person” limits the degree to which hazardous material emergency management programs overlap (and perhaps conflict) with the workplace safety program controls. Those controls are generally very effective, as evidenced by the fact that DOE occupational injury and fatality rates are consistently well below those for comparable labor categories in industry and commerce.

- As the material quantity and potentially affected area get smaller and smaller, the benefits of hazard-specific quantitative analysis and associated planning and preparedness measures also decrease. At some point, hazard-specific planning produces no improvement in the ability to protect human health and safety beyond what is provided by general chemical safety controls, worker training, and standard HAZMAT response practices.

It must also be recognized that screening in a substance for analysis does not mean that it necessarily becomes part of the facility’s technical planning basis. If, during the EPHA analysis, the calculated consequences indicate that its release will not exceed the minimum consequence threshold for classification as an Operational Emergency (i.e., Alert) that quantity/inventory of that chemical may be excluded from the emergency management technical planning basis. In addition, some materials for which the consequences are shown to nominally exceed the Alert classification threshold may also be excluded from the emergency management technical planning basis if it is determined that the type and magnitude of the response needed to deal with the event would not be consistent with the Order definition of an Operational Emergency.

Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis)
Approved: 06/09/06

24. SECURITY VULNERABILITY ASSESSMENTS AND EPHAs

QUESTION: From DOE O 151.1C: “Radioactive materials that may be excluded from further analysis in an EPHA include: sealed radioactive sources; materials in solid form for which there is no plausible dispersal mechanism; materials stored in DOT Type B shipping containers.” However, bounding analyses performed in Vulnerability Analyses (VAs) may assume this material is at risk, without regard to postulated conditions (e.g., Type B containers.) In DOE emergency management, on the other hand, it is expected that this inventory would be identified in the Hazards Survey, and then explicitly excluded from consideration as a Material-at-Risk (MAR); no subsequent quantitative analysis would be performed on this inventory in an EPHA. To summarize, if material is excluded from a facility's inventory in the HS, is it necessary to postulate any release of that excluded material because a bounding analysis (i.e., without regard to the Type B containers) has been performed for a security VA?

ANSWER: If an extreme malevolent event, which assumes the materials are removed from the Type B containers and dispersed, is postulated and analyzed in a facility VA, then recognition indicators and protective actions should be developed for the event using emergency planning parameters and assumptions. Additional but less severe malevolent event release scenarios that may also have been analyzed in the facility VA should be included in the technical planning basis, either as separate analysis cases or by comparison with other cases already analyzed.

Program Element: Hazards Surveys/Hazards Assessments (Technical Planning Basis)
Approved: 11/24/08

25. SELECTION OF ARF, ARR, OF RF VALUES FOR EPHA ANALYSES

QUESTION: Under what conditions is it appropriate to use Airborne Release Fraction (ARF)/Airborne Release Rate (ARR), or Respirable Fraction (RF) values other than the bounding values from DOE-HDBK-3010² in Emergency Planning Hazards Assessment (EPHA) analyses?

ANSWER: Although the Emergency Management Guide (EMG), DOE G 151.1-2 (page 2-18) indicates that “...*bounding ARFs, RFs, and ARRs listed in the DOE-HDBK-3010 are normally most appropriate for use in hazards assessments,*” the overall analysis approach that is encouraged throughout that section of the EMG is more “realistic” than bounding. DOE-HDBK-3010, Section 1.1, *Purpose of the Handbook*, clearly acknowledges a variety of possible applications of the handbook and states that “...*these data and the analyses...contained herein need to be critically evaluated for applicability in each situation in which they are used.*”

Because of the uncertainty in how an accident might progress or because no other choice is obvious, it is understandable that the EPHA analyst will make conservative (bounding) choices of some assumptions and parameter values to be used in the consequence calculations. Where possible, the analyst is expected to select the source term parameter values that most accurately represent the actual materials and release phenomena being modeled in the analysis. For example, if supporting information in Appendix A of DOE-HDBK-3010 indicates the bounding ARF/ARR and/or RF values are based on experiments that were not a particularly good representation of the specific material and/or release phenomenon being analyzed in the EPHA, parameter values more appropriate for the material and scenario may be selected based on local (site) experience, data published in the open literature, or the results of other experiments described in the handbook and its appendices. If, as is often the case, a large degree of uncertainty exists in how the accident processes being modeled for the EPHA compare to the experimental processes that yielded the source term parameter values, use of the bounding values is - preferred.

Use of ARF/ARR and RF median values from the handbook instead of bounding values in EPHA analyses may be justified on the basis of experimental data (as discussed above) or on the analyst’s assessment of conservatism already embodied in the modeling of a particular scenario. If the values selected for Material-At-Risk (MAR), Damage Ratio (DR), and/or Leak Path Factor (LPF) are judged to have produced a strong conservative bias (i.e., toward overestimation of the consequences), use of the median ARF/ARR and/or RF values instead of bounding values may be justified to minimize further exaggeration of the consequences. Whether using bounding or median values as provided in the Handbook, or, alternatively, selecting values based on local (site) experience, data published in the open literature, or the results of other experiments described in the handbook and its appendices, the rationale for the choice of ARF/ARR or RF values should be documented in the EPHA.

² DOE-HDBK-3010-94 Chg 1, Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities, March 2000

Program Element: Exercises
Approved: 03/04/08

26. SITE DEFINITION AND FACILITY-LEVEL EXERCISES

QUESTION: Is it acceptable for a site to define the entire site as a “facility” in order to meet the Order requirement for an annual facility-level ERO exercise?

ANSWER: DOE O 151.1C Contractor Requirements Document (CRD) contains the following requirement for an annual exercise of each facility emergency response capability [i.e., *facility-level* Emergency Response Organization (ERO) capability]:

Each DOE/NNSA facility subject to this CRD paragraph must exercise its emergency response capability annually and include at least facility-level evaluation and critique. Evaluations of annual facility exercises by Departmental entities (e.g., Cognizant Field Element, Program Secretarial Officer or Headquarters Office of Security and Safety Performance Assurance) must be performed periodically so that each facility has an external Departmental evaluation at least every three years. [DOE O 151.1C, Attachment 2, 6.b (1)].

It would not be acceptable to define an entire site as a facility simply to meet the Order requirement for annual facility-level ERO exercises. The basic question is: Are there facility-specific response capabilities on site? Essentially, facility-level implies the lowest level of the response organization whose responsibilities include response to an emergency at a specific facility or (small) group of facilities. For example, *facility response capabilities* may include control of process operations, response activities of local facility health physicists, radiation control or HAZMAT response personnel, and implementation of local protective actions (e.g., building evacuations or sheltering, ventilation manipulation). If those capabilities exist, then they must be exercised every year.

If there are no facility response capabilities, then an annual site-wide exercise will suffice to satisfy the Order requirement; not because the site has been labeled as a “facility,” but because there are ***NO*** facility-specific response capabilities on the site, only site-wide response capabilities.

Program Element: Categorization and Classification; Notifications and Communications
Approved: 08/08/08

27. TIME REQUIREMENT FOR FOLLOW-UP EMERGENCY NOTIFICATIONS

QUESTION: Does the 15 or 30 minute time requirement apply to *follow-up emergency notifications* that must be made when conditions change (e.g., protective actions are modified), when the emergency classification level is upgraded, or when the emergency is terminated?

ANSWER: The 15 or 30 minute requirement to notify Tribal, State and local officials, the Cognizant Field Element Emergency Operation Center, and Headquarters Operations Center applies to the *initial* emergency notification of the declaration of an Operational Emergency (OE). Subsequent to the *initial* notification, *follow-up emergency notifications* must be made when conditions change (e.g., protective actions are modified), when the emergency classification level is upgraded, or when the emergency is terminated. Chapter VIII of the Order does not specifically mention follow-up notifications; however, the CRD, DOE O 151.1C, Attachment 2, 12, contains the following requirement:

“Accurate and timely follow-up notifications must be made when conditions change, when the emergency classification level (as an Alert, Site Area Emergency, General Emergency) is upgraded, or when the emergency is terminated. Continuous, effective and accurate communication among response components and/or organizations must be reliably maintained throughout an Operational Emergency.”

No time requirement is specifically prescribed in either the main body of DOE O 151.1C or the CRD for follow-up notifications except that they are accurate and timely and are required when conditions change, when the classification is upgraded or when the emergency is terminated. DOE G 151.1-4, Section 5.2 provides a characterization of timely in the context of an emergency notification system:

“For the purposes of this Guide, ‘timely’ means fast enough for response activities to be effective in protecting worker and public health and safety.”

**Program Element: Consequence Assessment; Hazards Survey/Hazards Assessment
(Technical Planning Basis); Protective Actions and Reentry
Approved: 07/10/07**

28. UF₆ PROTECTIVE ACTION CRITERION (PAC)

QUESTION: When released to the atmosphere, uranium hexafluoride (UF₆) reacts with water vapor and undergoes hydrolysis producing hydrogen fluoride (HF) and uranyl fluoride (UO₂F₂). What Protective Action Criterion (PAC) and Threshold for Early Lethality (TEL) value(s) should be used when analyzing UF₆ releases for Emergency Planning Hazards Assessments (EPHAs)?

ANSWER: The plume resulting from a release of UF₆ to the atmosphere will be a mixture of UF₆, UO₂F₂ and HF in proportions that vary, depending on the rate of hydrolysis and distance from the release point.

According to supporting documentation, the development of the AEGL values for UF₆ considered the following:

- 1) Inhaled UF₆ produces biological damage through its hydrolysis products (UO₂F₂ and HF);
- 2) Inhaled UF₆ is quickly hydrolyzed in the airways and lungs; and
- 3) The dominant biological effect that is the basis for the AEGL-2 value (kidney damage) is attributed to the intake of the soluble uranium compound UO₂F₂.

Since no AEGL values are currently available for UO₂F₂ and because of the disparity between the TEEL-2 value for UO₂F₂ and the AEGL-2 value for UF₆,³ the AEGL-2 and -3 values for UF₆ should take precedence in estimating health impacts from UF₆ and UO₂F₂. This preference for AEGL values over TEEL values reflects a greater level of confidence associated with AEGLs, which are developed through a rigorous, peer-reviewed assessment of basic toxicological data. In contrast, TEELs are meant to be conservative default values developed primarily using other exposure limits, with some consideration of selected toxicological data. TEELs are intended for use when no AEGL or ERPG is available for a substance. With respect to exposures to the other hydrolysis component HF, since the hydrolysis products can be considered to act independently (i.e., they affect different target organs), using the UF₆ AEGL-2 and AEGL-3 as PAC and TEL values will be conservative with regard to HF exposure at concentrations near the PAC and TEL values.

Based on the information presented above, the transformation of UF₆ to its hydrolysis products during transport is not a major consideration for emergency planning and response purposes, since the health effect from inhaling a given concentration of UF₆ gas is expected to be the same as for inhalation of the equivalent concentrations of the two hydrolysis products. If, for example, an atmospheric transport model calculates the plume concentrations of either the two hydrolysis products or total “soluble uranium,” those results should be converted to an equivalent UF₆

³ *Proposed Department of Energy Protective Action Criteria for Uranium Hexafluoride*, American Nuclear Society (ANS) International Joint Topical Meeting on Emergency Preparedness and Response and Robotic and Remote Systems (February 11-16, 2006).

concentration, which should then be compared to the UF₆ AEGL-2 and -3 values to make planning and response decisions. The technical basis for this recommended approach is described in the paper entitled *Proposed Department of Energy Protective Action Criteria for Uranium Hexafluoride* published in the proceedings of the American Nuclear Society (ANS) International Joint Topical Meeting on Emergency Preparedness and Response and Robotic and Remote Systems (February 11-16, 2006).

Program Element: Hazards Survey/Hazards Assessment (Technical Planning Basis)**Approved: 07/10/07****29. USING CHEMICAL MIXTURE METHODOLOGY (CMM) IN SCREENING AND EPHAs**

QUESTION: What is the role of the SCAPA-approved Chemical Mixture Methodology in the hazardous material screening process of the Hazards Survey?

ANSWER: The Chemical Mixture Methodology (CMM) plays no explicit role in the hazardous materials screening process of the Hazards Survey. In general, the screening process is applied on a single container basis. The intent of the Order (as reflected in the EMG, DOE G 151.1-2, Appendix A, Section A.3.1) is to screen out *individual containers* with capacities less than quantities that can be “easily and safely manipulated by one person”. Hence, individual containers that are being used, and small numbers of such containers kept in ready storage within or very near an end-user facility, may be screened out. However, larger numbers of such containers (capacity totaling greater than about 5-10 times the applicable “laboratory scale” threshold) in warehouses or other storage locations should be examined more closely before screening them out.

QUESTION: What is the purpose of the SCAPA-approved Chemical Mixture Methodology recommended for use in the EMG?

ANSWER: The mixture methodology is an analysis tool which can be used to estimate health impacts as the result of an atmospheric release of a chemical mixture or the concurrent release of different toxic materials. As such, it may be appropriate for use in the consequence analyses performed as part of an Emergency Planning Hazards Assessment (EPHA). The EMG, DOE G 151.1-2, Appendix F, Section F.4 states:

“For chemical mixtures and concurrent releases of different substances, consequences should be assessed using the Mixture Methodology “Hazard Index” approach recommended by the SCAPA Chemical Mixtures Working Group (Craig, et al, 1999).”

The SCAPA-approved Chemical Mixtures Methodology (CMM) was developed to address several shortcomings of the simple methods commonly used to estimate health effects of mixtures. One such method involves adding the exposures from all the chemicals in a mixture using a sum-of-the-fractions approach, regardless of the target organs involved. Because different chemicals may affect different target organs, that method tends to be overly conservative. Another common method treats the effects of different chemicals in a mixture as if they are independent. That approach has the potential to be non-conservative because different chemicals may, in fact, affect the same organ and their impacts should therefore be treated as additive rather than as independent. The CMM assigns the effect of each chemical in a mixture to a particular target organ. The effects of the different chemicals on each target organ are then summed to produce a health impact estimate that is more realistic than the first approach described above (sum- of-the-fractions) and generally more conservative than the second (treating all exposures independently).

It should be noted that the CMM makes no provision for synergistic effects (effects that are more than additive) or antagonistic effects (effects that are less than additive). It is also assumed that there

are no target-organ interactions (i.e., each target-organ effect is independent of other target-organ effects).

Other descriptions, limitations, and assumptions of the CMM are on the SCAPA website at <http://orise.ornl.gov/emi/scapa/chem-mxt-wg.htm> and <http://orise.ornl.gov/emi/scapa/hcn-table.htm>, particularly in the published journal article.

QUESTION: The EMG states that the SCAPA-approved Chemical Mixtures Methodology is to be used to assess the consequences of “...*chemical mixtures and concurrent releases of different substances...*” and that concurrent releases should only be analyzed if “...*a plausible scenario exists by which quantities of different substances, each exceeding a laboratory scale threshold discussed in Appendix A, could be released from the same location at the same time.*” What kinds of scenarios should be considered “plausible” in this context?

ANSWER: As noted above, a distinction is made in the Emergency Planning Hazards Assessment (EPHA) guidance between mixtures and concurrent releases of dissimilar materials. As used in this context, in a *mixture* the dissimilar hazardous materials are in a mixture prior to an initiating event, whereas in *concurrent releases* the event causes separate containers of different materials to be breached at approximately the same time and place. Use of the Chemical Mixtures Methodology (CMM) for a mixture of two or more different toxic materials that can be released from a single container is clearly endorsed in the EMG. However, when addressing concurrent releases from different containers, the guidance recommends the use of the CMM only if a plausible scenario can be identified by the analyst.

Thus, the key to the use of the CMM for concurrent releases is the identification of a plausible scenario that leads to the materials being mixed at the time of release or after becoming airborne. Because the word “plausible” lends itself to a range of interpretations, the following statements are provided to clarify the intent of the EMG regarding “plausible” concurrent releases:

- As used in the EMG, the term “plausible” was intended to convey the idea that the concurrent release scenario should be quite obvious to the analyst, even to the extent of being the most likely outcome if a particular initiating event occurs. The *clear and present* nature of the concurrent release hazard is to be contrasted with lower degrees of likelihood suggested by the terms “hypothetical,” “theoretical,” or “potential.”
- A concurrent release *should* be considered “plausible” if the release of one substance means it is more likely than not that the other(s) will be released.
- It was intended that the specific mechanism or cause of a concurrent release be recognizable to the analyst from the conditions under which the different materials are stored and/or used in normal day-to-day operations.
- Mere physical proximity of containers or other barriers does not necessarily mean that a “plausible” release scenario exists and needs to be analyzed.
- It was **NOT** intended that the possibility of catastrophic or extremely destructive initiating events be used as rationale for designating as “plausible” the release of multiple substances in an affected structure, zone or location. The guidance specifically states (EMG, DOE G 151.1-2,

Section 2.6.2 and Appendix F, Section F.4), “*Concurrent releases* of dissimilar substances that, because of separation by distance or physical barriers, could result only from *extreme* malevolent acts or *catastrophic* events (such as major fires, airplane crashes, severe natural phenomena impacts, and building collapse) need not be analyzed.”

The intent of the EMG regarding concurrent release scenarios that should be considered “plausible” is illustrated with the following three examples.

Example 1: A non-catastrophic earthquake of a certain magnitude is predicted to cause physical displacement between portions of a structure that would break a pipe carrying toxic gas “A”. A second pipe carrying toxic gas “B” occupies the same pipe chase and is designed to the same standards of strength and seismic support. For that particular seismic initiating event, failure of the “B” pipe should be considered at least as likely as failure of the “A” pipe and a concurrent release should be analyzed.

Example 2: Industrial chemicals are stored in drums on 4-high warehouse racks. Collapse of a rack due to structural failure or handling mishap could cause drums to fall to the floor. If such a storage rack collapse is predicted to spill the contents of one or more drums, it should be considered more likely than not that the same number of drum(s) of a different material stored on the same rack will also fail (i.e., the same damage ratio would apply).

Example 3: Storage tanks of toxic liquids “Y” and “Z” are located in the chemical storage building of an operating facility. Tanker trucks periodically refill the storage tanks through connections at a transfer manifold located outside the building. One identified spill release scenario is initiated by a delivery truck striking the manifold, breaking the fill piping and spilling the contents of a tank on the ground outside the building. If the physical configuration of the transfer manifold and its protective features (curbs, bollards, etc.) is such that the postulated truck mishap would just as likely break both the “Y” and “Z” fill piping, the spill of one liquid should be considered at least as likely as for the other and a concurrent release should be analyzed.

The intent of the EMG regarding concurrent release scenarios that should not be considered “plausible” is illustrated by the following examples.

Example 4: The storage annex of a laboratory building routinely holds the working inventory of supplies and consumables, including several toxic chemicals in 55-gallon drums. “Structure fire” and “explosion” are among the postulated generic types of initiating events. Release of multiple chemicals stored in the building as a result of fire or explosion is not a “plausible” concurrent release scenario, as intended by the EMG.

Example 5: Several drums containing toxic liquid “M” are stored and used in one part of a research and development building. Cylinders containing toxic gas “N” are stored and used in a different wing of the same building. These materials are received from their respective vendor delivery trucks at a single loading dock and then transported within the building to their separate storage/use locations. If the deliveries happen to occur at about the same time, there are no physical or administrative controls to prevent the materials from both being present in the vicinity of the loading dock for a short period of time. In this case, the possible presence of both materials at the same time in the loading dock area is incidental to their normal use and storage

within the facility. Release of both chemicals by a fire or other destructive initiators is not a “plausible” concurrent release scenario, as intended by the EMG.

Program Element: Readiness Assurance**30. FAQ 151C-001: Are “Departmental entities” required to conduct an independent assessment for every EPHA facility on a site every 3 years**

QUESTION: DOE O 151.1C, Chapter IV, Section 4, Paragraph b.(1)(a) states, in part, “Evaluations of annual facility exercises by [Departmental entities] must be performed periodically so that each facility has an external Departmental evaluation at least every three years.”

ANSWER: Federal line-management organizations are required to review exercises and self-assessments that occur at the sites they oversee. This ensures operational awareness of the line management organization but may not adequately verify the contractor’s stated/self-assessed capabilities and performance. Therefore, in addition to these reviews, federal line management organizations are required to have a readiness assurance program that includes an evaluation by a federal element of emergency response capabilities for the site emergency response organization (ERO) and, if applicable, each facility-specific ERO at the site. The purpose of the “external Departmental evaluation” as stated in DOE O 151.1C is to periodically verify the effectiveness of the site exercise program as implemented/self-assessed by the contractor, as well as the emergency response capability of each ERO at a site.

This evaluation can be conducted by any DOE element with line-management or oversight responsibility for the site. The site is responsible for ensuring the annual exercise is rotated among facilities and scenarios to demonstrate the capability to respond to all hazards identified within the Emergency Planning Hazards Assessment(s). For single-facility sites, one evaluation by a DOE element is required at least every three years of the site response capability, specifically through evaluation of an annual site exercise and self-assessments. For multiple facility sites that have one ERO (i.e., as defined by the site contractor), one evaluation by a DOE element is required at least every three years of the site response capability, specifically through evaluation of an annual site exercise and self-assessments. For multiple facility sites that have more than one ERO, one evaluation by a DOE element is required at least every three years of each ERO (e.g., site and each facility-level ERO), specifically through evaluation of annual site and facility exercises and self-assessments.

Program Element: Exercises**31. FAQ 151C-002: What exercise documentation has to be approved by the Cognizant Field Element and submitted to the Headquarters?**

QUESTION: What exercise documentation has to be approved by the Cognizant Field Element and submitted to the Headquarters?

ANSWER: DOE O 151.1C, Comprehensive Emergency Management System (11-0205), contains two new requirements concerning pre- and post-emergency response exercise documentation. First, the Order requires the Cognizant Field Element to submit the approved exercise package to the Program Secretarial Officer(s), and the Director, Office of Emergency Operations for information, preferably 30 days prior to the conduct of the exercise. In addition to stabilizing the objectives, scenario, and injects well in advance of conducting the exercise, providing this package to the Program Secretarial Officer (and the post-exercise documentation discussed in the next paragraph) assists them in carrying out their oversight responsibilities under DOE P 226.1, Department of Energy Oversight Policy (6-10-05).⁴ With the pre-exercise package, the Office of Emergency Operations can monitor the adequacy and completeness of pre-exercise documentation and look for complex-wide patterns and/or common problems that can be addressed through improved policy, requirements, guidance, and training.

Second, the Order requires the completion of evaluation reports for facility and site exercises within 30-working days and submission to the Cognizant Field Element, the Program Secretarial Officer(s), and the Director, Office of Emergency Operations. This requirement addresses initiatives promulgated by the Department of Homeland Security (DHS) through its Exercise Evaluation Program (Volume II, Exercise Evaluation and Improvement) regarding After-Action Reports (AARs), and partially addresses recommendations by the Department of Energy's Office of the Inspector General (OIG) [Note: DOE/IG-0657, Audit Report. The Department's Continuity Planning and Emergency Preparedness; Recommendation 3]⁵ to better identify, document, and fix exercise deficiencies throughout the Department. Providing these reports to the Office of Emergency Operations allows us to monitor conformity with DHS and/or Homeland Security Presidential Directive initiatives and DOE/OIG recommendations and look for complex-wide patterns and/or common problems in performing emergency management functions that we can address through improved policy, requirements, guidance, and training. Additionally, lessons learned from emergency response exercises must be included in the DOE/NNSA Corporate Lessons Learned Program. These pre- and post- exercise documents should be submitted on a CD for electronic storage but may be submitted on hard copy.

⁴ DOE P 226.1 *Department of Energy Oversight Policy* (06-10-05)

⁵ [Audit Report: IG-0657 | Department of Energy](#)

Program Element: Emergency Response Organization (ERO); Exercises**32. FAQ 151C-003: Does the Order require that an annual exercise be conducted for each facility (or group of facilities) that requires an EPHA?**

QUESTION: Does the Order require that an annual exercise be conducted for each facility (or group of facilities) that requires an EPHA?

ANSWER: DOE O 151.1C Contractor Requirements Document (CRD) contains the following requirement for an annual exercise of each facility emergency response capability [i.e., facility-level Emergency Response Organization (ERO) capability]:

“Each DOE/NNSA facility subject to this CRD paragraph must exercise its emergency response capability annually and include at least facility-level evaluation and critique. Evaluations of annual facility exercises by Departmental entities (e.g., Cognizant Field Element, Program Secretarial Officer or Headquarters Office of Security and Safety Performance Assurance) must be performed periodically so that each facility has an external Departmental evaluation at least every three years. [DOE O 151.1C, Attachment 2, 6.b (1)]”

Every DOE/NNSA Operational Emergency Base Program facility and Hazardous Material Program facility on a site is required by the CRD to exercise its response capability annually. This requirement can be satisfied by facilities in a number of ways:

- A Base Program facility can exercise emergency response capabilities annually as specified in the Order [DOE O 151.1C, Attachment 2, 6.a. (1)] or can satisfy their requirement by responding to an Operational Emergency (OE) as a collocated facility (e.g., receiving notifications and implementing protective actions).
- In contrast, an exercise of facility-level ERO capabilities at a Hazardous Materials Program facility can involve a more substantial response than the Base Program facility, because the facility can be the source of hazardous material OEs as analyzed in its EPHA.

The facility-level requirement in the CRD is focused on exercising the ERO associated with the facility (or group of collocated facilities that share the response organization) and its response to its own OEs. If a group of collocated facilities in an identified area on a site has a single response organization, then an exercise of the facility-level ERO capabilities at the area includes all of those facilities. This implies, of course, that all of the group facilities participate (e.g., at a minimum to implement necessary protective actions); the annual requirement is satisfied for the group facilities.

The facility exercise is not intended to be comparable to the annual site exercise in scope or in resources required for planning or conduct. The facility-level exercise need only involve those ERO capabilities that are specific to the facility; site-wide response can be simulated. Facility level exercises can be accomplished with an exercise package that contains only the essential elements that are required to actually conduct the exercise. The facility exercise can alternatively be referred to as an evaluated drill to more accurately characterize its limited impact.

Program Element: Program Administration and Management**33. FAQ 151C-004: Does DOE O 151.1C require the facility/site contractor to review emergency plans and procedures annually?**

QUESTION: Does DOE O 151.1C require the facility/site contractor to review emergency plans and procedures annually?

ANSWER: DOE O 151.1C, Chapter I, 9.q. states that Cognizant Field Element Managers:

“Ensure that emergency plans and procedures are prepared, reviewed annually, and updated, as necessary, for all facilities under their purview and are integrated within the overall Cognizant Field Element emergency preparedness program.”

There is no parallel statement in the Contractors Requirement Document (CRD) that explicitly requires the Contractor to review their emergency plans and procedures annually in order for the Cognizant Field Element Manager to ensure that it's being done to meet requirement 9.q. This was an oversight on the part of NA-41 in developing and correlating the Order and CRD requirements. There should have been a statement similar to Chapter I, Section 9.q, in the CRD. Attachment 2, paragraph 7 (CRD) states that

“The emergency management Readiness Assurance Program must establish a framework and associated mechanisms for assuring that emergency plans, implementing procedures, and resources are adequate by ensuring that they are sufficiently maintained, exercised, and evaluated (including assessment and appraisal)”

[emphasis added] CRD subparagraph 7.a. (1) further requires that

“The contractor must conduct an annual self-assessment of their emergency management programs.”

Taken together, these sentences imply that the emergency plan and implementing procedures should be reviewed each year. Further, because the emergency management program is documented in the emergency plan and implementing procedures, an annual self-assessment of the program would be without merit if it did not include a review of the emergency plan and implementing procedures. Although there is no explicit requirement for an annual review of emergency plans and procedures in the CRD, the requirement of Chapter I, 9.q, strongly implies that a corresponding annual review of the Emergency Plan and procedures by the contractor was an intended requirement of the CRD.

**Program Element: Hazards Survey/Hazards Assessment (All-Hazards Planning Basis);
Program Administration and Management**

34. FAQ 151C-005: What does the “annual inventory” requirement in 151.1C Paragraph 4.a(15)(b) mean? What constitutes a “significant change” in the inventory of DOE-Owned Leased Facilities?

QUESTION: DOE O 151.1C, paragraph 4.a. (15) (b) requires that, for DOE-owned leased facilities, "the tenant's hazardous material inventories be reported to the site emergency management organization annually." In addition, the "tenant must also report prior to significant changes to the facility or to hazardous material inventories." What does the “annual inventory” requirement in this paragraph mean? What constitutes a “significant change” in the facility inventory?

ANSWER: A facility within a DOE/NNSA site must report prior to significant changes to the facility or to hazardous material inventories. For example, significant changes are those changes, which would result in an unreviewed safety question for nuclear facilities, as defined in 10 CFR 830, or in an un-reviewed safety issue for accelerator facilities, as defined in DOE O 420.2B.

The annual hazardous materials inventory represents a minimum obligation on the part of the leased facility for effectively integrating its activities into the DOE/NNSA site-wide emergency management program. This inventory ensures that site emergency planners have the basic information necessary to plan and respond to an emergency event involving the leased facility. The inventory for a DOE-leased facility should be as detailed and comprehensive as the input required for the Hazards Survey process for an onsite DOE facility. In addition to the annual inventory, the Order requires that the tenant also report prior to significant changes to the facility or to hazardous material inventories. Reporting significant changes in inventories ensures that hazardous material information provided by the leased facility to the site program remains current.

The Order provides a may be leased to others for non-DOE work [Cf., FAQ – DOE Owned Leased Facilities]. Because these DOE-owned leased facilities present unique difficulties for the site emergency management program, DOE O 151.1C, 4.a. (15) addresses specific requirements related to the hazardous material inventory that must be included in arrangements with these facilities, including: “(b) a requirement that the tenant's hazardous material inventories be reported to the site emergency management organization annually.”

Example of “significant change” in facility or inventory is one which results in an un-reviewed safety question (USQ) for nuclear facilities, as defined in 10 CFR 830, or in an un-reviewed safety issue (USI) for accelerator facilities, as defined in DOE O 420.2B. According to 10 CFR 830, a USQ for a nuclear facility means a situation where:

- 1) The probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analysis could be increased;
- 2) The possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analysis could be created;
- 3) A margin of safety could be reduced; or
- 4) The documented safety analysis may not be bounding or may be otherwise inadequate.

As defined in DOE O 420.2B, a USI exists if a proposed change, modification or experiment will either:

- 1) Significantly increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety from that evaluated previously by safety analysis; or,
- 2) Introduce an accident or malfunction of a different type than any evaluated previously by safety analysis that could result in significant consequences.

Conditions similar to these USQ and USI situations generally characterize “significant changes” to a facility or to a hazardous material inventory. A practical interpretation of the first situation can result from a change in inventory that may cause an increase in consequences for an analyzed scenario or an addition of potential OEs to the technical planning basis for the emergency management program. The Hazards Survey screening process as applied to DOE facilities identifies inventory materials that have the potential for causing Operational Emergencies (OEs). If a material is screened-in by the process, then further analysis in an Emergency Planning Hazards Assessment (EPHA) is required.

Using this criterion, if a previously nonexistent or screened-out material is added to the leased facility inventory and the resulting quantity of that material would be screened-in following the Hazards Survey screening process (i.e., require further analysis in an EPHA), then the added material represents a “significant change” in the inventory. On the other hand, if the material has previously been screened-in for analysis, then an increase in quantity will result in an increase in consequences, which could result in a change in the classification of the potential OE. Any change in quantity could be considered a reportable “significant change” in inventory. However, a rigorous adherence to this approach could result in numerous EPHA re-analyses because of frequent variations in material usage at the facility.

An alternative and reasonable approach for defining a “significant change” in quantity is to establish, by agreement with the lessee, maximum quantities of each material used, which are not to be exceeded without notifying the site emergency management organization. In this case, a “significant change” in inventory will be administratively defined as exceeding the established maximum quantities. These maximum quantities would be used as planning quantities in analyses for the facility EPHA.

Program Element: Readiness Assurance; Exercise; Program Administration and Management

35. FAQ 151C-006: Does the Order require that ALL of the emergency management Program Elements be self-assessed each year, or can the assessments be spread out over a number of years and still satisfy the Order requirement?

QUESTION: DOE Order 151.1C and its Contractor Requirements Document (CRD) require that contractors at all DOE/NNSA facilities conduct an annual self-assessment (self-evaluation) of their emergency management programs. Does the Order require that ALL of the emergency management Program Elements be self-assessed each year, or can the assessments be spread out over a number of years and still satisfy the Order requirement? What role do exercises play in satisfying the self-assessment requirement?

ANSWER: DOE/NNSA contractors must conduct an annual self-assessment of their emergency management programs. This requirement is stated in DOE O 151.1C, Chapter X, 2. a.(1):

“(1) DOE/NNSA facilities and DOE/NNSA contractor-operated facilities must conduct an annual self-assessment of their emergency management programs. Self-assessment results must be documented in the ERAP submitted to the Cognizant Field Element.”

The Contractors Requirements Document (CRD) contains a similar requirement in DOE O 151.1C, Attachment 2, 7.a.(1):

“The contractor at all DOE/NNSA facilities must implement a readiness assurance program consisting of evaluations, improvements and ERAPs. a. Evaluations (1) Self-assessments. The contractor must conduct an annual self-assessment of their emergency management programs. Program and exercise evaluations (including appraisals and assessments) must be based on specific standards and criteria, issued by the Director, Office of Emergency Operations. Self-assessment results must be documented in the ERAP submitted to the Cognizant Field Element.”

The intent of the Order is that ALL Program Elements of a DOE emergency management program be self-assessed by the contractor annually. The fifteen DOE Program Elements are discussed in the CRD: Technical Planning Basis [including Hazards Surveys and Emergency Planning Hazards Assessments (EPHAs)]; Program Administration; Training and Drills, Exercises; Readiness Assurance; Emergency Response Organization (ERO); Offsite Response Interfaces; Emergency Facilities and Equipment; Categorization and Classification; Notifications and Communications; Consequence Assessment; Protective Actions and Reentry; Emergency Medical Support; Emergency Public Information; and Termination and Recovery.

For evaluation efficiency and effectiveness, a site may choose to divide the elements further using a number of program element self-assessments greater than fifteen. Although it is intended that all Program Elements be self-assessed annually, the scope of the annual self-assessment of each element does not necessarily include all aspects of the associated programmatic or response tasks, as detailed in the evaluation criteria given in DOE G 151.1-3, Appendix D. A comprehensive readiness assurance program, which satisfies the Order requirement, may cover all aspects (e.g., all program-

specific evaluation criteria) of the emergency management program over a number of years, up to, but not exceeding the Order requirement for a formal exercise program “to validate all elements of an emergency management program over a 5-year period.” (DOE O 151.1C, Attachment 2, CRD, para. 6, p.9).

The scope of the annual self-assessments and the program-specific time frame chosen will depend on facility/site characteristics, the spectrum of hazards, program and ERO size, etc. Finally, the self-assessment requirement is not focused exclusively on program evaluations; exercise evaluations can and should be part of the self-assessment component of the total readiness assurance program for the facility/site. The excerpt from the CRD given above explicitly mentions both program and exercise evaluations in discussing self-assessments. In addition, the Emergency Management Guide (EMG), DOE G 151.1-3, Chapter 4, Section 4.7, page 4-41, states:

“A self-assessment can be viewed as an evaluation (program or exercise) of an emergency management program performed and/or sponsored by the organization itself or by some level of the management of the organization responsible for evaluating the emergency management program.”

Specifically, exercise evaluations provide response performance assessments which are complimentary to the more comprehensive, but not actual performance oriented, evaluations of response plans and procedures during program evaluations. (Cf., DOE G 151.1-3, Chapter 4).

**Program Element: Emergency Categorization; Protective Actions; Hazards Survey/
Hazards Assessment**

36. FAQ 151C-007: Could the DOT Emergency Response Guidebook (ERG) Guide Number 111 provide a reasonable basis for response?

QUESTION: Could the DOT Emergency Response Guidebook (ERG) Guide Number 111 (Mixed Load/Unidentified Cargo) provide a reasonable basis for initial response to actual or potential release events involving unknown hazardous materials being unearthed during burial site remediation?

ANSWER: Following the process outlined in DOE O 151.1C, hazards in burial sites need to be identified and characterized to the extent possible, subjected to the screening process, and, if necessary, analyzed in an EPHA to provide the technical basis for emergency response. However, if an actual or potential release (dispersal) of an unknown (unidentified) hazard occurs at the site during burial remediation activities (i.e., without benefit of identification and characterization through the Order process), then there will be no hazard-specific response tool to immediately determine classification and protective actions.

In many respects, an actual or potential dispersal event involving unknown waste at a burial site would be similar to a transportation accident involving an unknown and possibly hazardous cargo. A set of initial response measures generally regarded as adequate for the transportation case (i.e., ERG #111) could therefore serve as a reasonable starting point for immediate response to release events involving unknown hazards at a burial site. The recommendations of ERG #111 can provide Emergency Action Levels (EALs) for emergency classification and be used to initiate protective actions (following the approach discussed in the response to the FAQ -Classification of Onsite Transportation Accidents) for unidentified hazards until the hazard can be characterized and the need for EPHA analysis determined.

Other specific ERG Guides may apply for types of materials that are expected to be unearthed in specific burial grounds (for example, #161 for low level radioactive material). However, if both the type and the likely form and quantity (e.g., container size and radionuclide inventory) of material in a burial ground can be determined, then hazard-specific EPHA calculations should be performed prior to unearthing activities to produce appropriate EALs and initial protective actions. It is essential that a fixed timeframe be established for conducting the screening and analysis, and/or an activity milestone (external to DOE O 151.1C requirements) be designated that places limits on the applicability of the ERG-based response practices. For example, if material is placed in a container for transport to a treatment or disposal facility, the transition from the burial site's ERG-based response practices to a planning/ preparedness program under a Site Transportation EPHA or other fixed-facility EPHA should be clearly defined. The goal is to achieve compliance with DOE O 151.1C requirements as soon as practicable, using the ERG based approach only until the Hazards Survey and EPHA requirements for the material are met and EALs and initial protective actions are developed, or the material otherwise comes under the coverage of an existing facility- or activity-specific EPHA.

**Program Element: Hazards Survey/Hazards Assessment (All-Hazards Planning Basis);
Consequence Assessment**

37. FAQ 151C-008: What are the DOE O 151.1C requirements related to NARAC for my site?

QUESTION: The National Atmospheric Release Advisory Center (NARAC) provides airborne dispersion modeling tools for consequence assessment at DOE/NNSA sites and facilities. What are the DOE O 151.1C requirements related to NARAC for my site and how does my site obtain the required access and connectivity to NARAC?

ANSWER: The National Atmospheric Release Advisory Center (NARAC) provides airborne dispersion modeling tools for consequence assessment at DOE/NNSA sites and facilities (see <http://narac.llnl.gov>). If your site has the potential for a General Emergency or a Site Area Emergency due to an atmospheric release of a hazardous material, you must have access to NARAC under DOE Order 151.1C (Section IV.3.b.5 and Attachment 2, Section 13):

“If the facility has the potential for an Operational Emergency classified as a General Emergency, the facility/site must have connectivity to NARAC capabilities and procedures to use the NARAC capability effectively as part of near real-time consequence assessment activities for the mode (primary, backup, corroborating) selected by the facility.

If the facility has the potential for an Operational Emergency classified as a Site Area Emergency, the facility/site must have procedures in place to activate or request NARAC capabilities and must be able to use those capabilities as part of near real-time consequence assessment activities.

All DOE/NNSA facilities/sites that have access to NARAC or have procedures in place to activate or request NARAC capabilities must ensure that facility/site meteorological data and information on source terms for actual or potential releases of hazardous materials to the atmosphere are available or can be made available to NARAC in a timely manner to facilitate near real-time computations.”

In order to establish the required access and connectivity, a site should submit answers to the following questions via email to narac@llnl.gov:

- 1) Does your site have Emergency Planning Hazard Assessments (EPHAs) that indicate the potential for a General Emergency or a Site Area Emergency due to an atmospheric release of a hazardous material? If so, send copies of these EPHAs to NARAC.
- 2) Is your site goal to use NARAC as (a) the primary source of airborne consequence assessment information, (b) the backup to a primary source of consequence assessment information, (c) the primary source for consequence assessment at distances beyond the scope of local consequence assessment capability, or (d) as a source for corroborating or confirming consequence assessment information?
- 3) Do you have facility/site meteorological tower data continuously available and accessible by LLNL/NARAC computer systems?

- 4) Do you have onsite geographic data (e.g., roads, buildings) available in an electronic format?

After submitting responses to these four questions, NARAC will discuss access and connectivity options that specifically meet your needs. The level of usage and connectivity provided by NARAC will be determined based on the following factors: DOE Order 151.1C requirements; the site's EPHAs; the site's goal for use of NARAC; and available NARAC resources.

**Program Element: Hazards Survey/Hazards Assessment (All-Hazards Planning Basis);
Consequence Assessment**

38. FAQ 151C-009: What levels of access and associated services does NARAC provide to DOE/NNSA users?

QUESTION: The National Atmospheric Release Advisory Center (NARAC) provides airborne dispersion modeling tools for consequence assessment at DOE/NNSA sites and facilities. What levels of access and associated services does NARAC provide to DOE/NNSA users?

ANSWER: The National Atmospheric Release Advisory Center (NARAC) provides airborne dispersion modeling tools for consequence assessment at DOE/NNSA sites and facilities. If your site has the potential for a General Emergency or a Site Area Emergency due to an atmospheric release of a hazardous material, you must have access to NARAC under DOE Order 151.1C (Section IV.3.b.5 and Attachment 2, Section 13). Depending on the appropriate level of NARAC support that is required, several levels of NARAC access and service are available. For information on establishing this level, see the FAQ, DOE O 151.1C NARAC Access and Connectivity Requirements for DOE/NNSA Sites. Examples of different types of NARAC access and associated levels of services are listed below.

1. A basic level of access can be established through written procedures on how to contact and activate NARAC. NARAC can provide documents on activation protocols and the emergency information needed by NARAC for use in the site emergency management procedures.
2. If needed, a higher level of access and connectivity is available through some or all of the following: Site map data maintained at NARAC for display with NARAC plume model results, if map data are provided in a standard electronic format, such as in a Geographical Information System (GIS). NARAC near-real-time access to site meteorological data, if these data are accessible via the Internet. Periodic testing to verify communication and NARAC access to site data. NARAC Web user accounts for accessing NARAC products and services. This higher level of access and connectivity can be supported by NARAC through: Web-based or classroom training on NARAC products, tools and services NARAC support of site emergency preparedness drills and exercises.

Quotas will be established for the number of NARAC user accounts, model runs, drills and exercises supported, based on the availability of NARAC resources. Additional information on NARAC can be found at <http://narac.llnl.gov>.

**Program Element: Hazards Survey/Hazards Assessment (All-Hazards Planning Basis);
Consequence Assessment**

39. FAQ 151C-010: Should NARAC plume modeling tools be used for Documented Safety Analyses (DSAs), Hazards Surveys (HSs), or Emergency Planning Hazard Assessments (EPHAs)?

QUESTION: The National Atmospheric Release Advisory Center (NARAC) provides airborne dispersion modeling tools for consequence assessment at DOE/NNSA sites and facilities. Should NARAC plume modeling tools be used for Documented Safety Analyses (DSAs), Hazards Surveys (HSs), or Emergency Planning Hazard Assessments (EPHAs)?

ANSWER: The National Atmospheric Release Advisory Center (NARAC) provides airborne dispersion modeling tools for consequence assessment at DOE/NNSA sites and facilities during an emergency response. However, the NARAC tools should not be routinely used for safety and emergency planning applications such as Documented Safety Analyses (DSAs) or Emergency Planning Hazard Assessments (EPHAs). Models in the DOE Safety Software Central Registry toolbox (<http://hss.energy.gov/nuclearsafety/qa/sqa/>) are commonly used to establish the safety basis for DOE facilities and their operation. DOE G 151.1-2, Section 2.6.2, discusses the selection of consequence assessment and dispersion models that should be used to support development of the EPHA. The Hazard Survey does not contain consequence calculations and therefore, no dispersion modeling capability is needed.

Program Element: Hazards Survey/Hazards Assessment; Protective Actions; Consequence Assessment

40. FAQ 151C-011: What are the requirements for emergency actions taken as a result of unescorted public access areas?

QUESTION: For purposes of emergency classification of Operational Emergencies and implementation of protective actions, DOE G 151.1-2, Appendix C provides the following guidance related to areas on a DOE site, such as public highways or visitor centers, where the public can gain unescorted access: “If the general public can gain unescorted access to areas of the DOE site, such as public highways or visitor centers, those 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.” Is this guidance intended to imply that the evacuation and access control are guaranteed through positive verification such as area sweeps or checks?

ANSWER: First note that the statements referred to in DOE G 151.1-2, Appendix C, (and all other guides) are guidance; DOE O 151.1C contains no specific requirements regarding emergency actions to be taken as a result of unescorted access via public highways or visitor centers. The guidance from Appendix C is best understood in context as it was presented in the Guide, namely, as an “adjustment” to the definition of site boundary to achieve consistency with the intent of the Order.

From DOE G 151.1-2, Appendix C:

“C.3 Definition of Site Boundaries. In general, the perimeter enclosing the area where DOE has the responsibility for implementing protective actions will be the site boundary.

DOE facilities occupied by vendors or contractors with which agreements have been reached regarding emergency notification and protective action responsibilities should be considered ‘onsite’ for purposes of analysis and event classification.

However, there are several possible situations that could require adjustments to achieve overall consistency with the intent of DOE Orders and with sound emergency management principles. If the general public can gain unescorted access to areas of the DOE site, such as public highways or visitor centers, those 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. Any non-DOE facility or activity located within a DOE site may be considered as ‘offsite’ for purposes of emergency class definition. The potential effect on the non-DOE facility of a hazardous material emergency originating at a DOE facility may necessitate the type of coordinated response characteristic of a General Emergency.”

The reasoning reflected in this discussion supports the intent of the Order, namely, equal treatment (in terms of classification and protective actions) of “offsite” public and “onsite” public based on sound emergency management principles. In other words, if “onsite,” unescorted public are not subject to the same site protective actions as are onsite workers, then they should be dealt with in a similar manner to the “offsite” public. If a site follows the guidance and suggests that evacuation and access control of these publicly assessable areas can be accomplished (within a one hour or a site-specific timeframe), it is not intended that these actions are guaranteed through a positive verification process such as area sweeps or checks following closure of these publicly assessable areas. A sweep

of the area immediately upon closure could potentially put other responders at risk because they may have to traverse the plume. Following standard fire response practice, all areas should be swept eventually. However, this does not mean that sweeps or checks will occur immediately. After the hazard has passed, it is expected that there will be sweeps when responders can perform the activities safely. Thus, it is not expected that a site will perform sweeps or checks when the hazard is still a threat to responders. This is consistent with the implementation of protective actions for onsite workers, which does not imply confirmation of the accomplishment of either shelter-in-place or evacuation before the hazard has passed.

Program Element: Hazards Survey/Hazards Assessment (All-Hazard Planning Basis)**41. FAQ 151C-012: Is there a safety equivalency for onsite transfer of hazardous materials that do not fully comply with DOT regulations?**

QUESTION: DOE O 151.1C, requires that an Emergency Planning Hazards Assessment (EPHA) address onsite transportation of hazardous materials “... for shipments that do not satisfy governing DOT regulations and specifications for commercial hazardous materials transport. However, if a shipment satisfies DOT regulations and specifications, then an EPHA is not required.” If the onsite shipments do not fully comply with DOT regulations, but do fully comply with safety requirements for the proper transportation & packaging (T&P) of Department of Energy (DOE)/National Nuclear Security Administration (NNSA) onsite transfers of hazardous materials, which establish safety equivalency to DOT regulations, can those shipments be considered DOT compliant (i.e., satisfy DOT regulations and specifications) from an emergency management standpoint?

ANSWER: The Transportation Safety Document (TSD) methodology for establishing DOT equivalent safety for onsite transfers of hazardous materials that do not fully comply with DOT regulations and specifications for offsite shipments is based on a graded approach that ensures that a level of safety is maintained that should result in minimal acceptance of risk above the risks accepted in the context of existing DOT Hazardous Materials Regulations (HMR). In the context of emergency management, the quality and integrity of packaging is not the major factor in determining DOT compliance because the package is assumed to have been breached under accident conditions. The rationale for not requiring an EPHA for DOT compliant onsite transfers is based on the condition that the DOT Emergency Response Guidebook (ERG) can be used to determine protective actions for emergencies, just as it is for offsite shipments. Therefore, compliance with DOT communications and control measures (including placarding) implemented according to the HMR, not the packaging requirements, enables first responders to effectively use the ERG for protective actions.

For DOT equivalent safety shipments, the communications and control measures that are implemented for each of the categories of packaging will determine whether the ERG can be used effectively by first responders and consequently whether an EPHA is required. Those measures will allow the function of the EPHA in providing the technical basis for developing EALs and initial protective actions to be served by the DOT ERG in the same manner as for offsite transportation releases.

In summary, it is the intent of DOE O 151.1C that the Order criterion for not requiring an EPHA for onsite hazardous materials transfers, namely, DOT compliant (i.e., “...satisfies DOT regulations and specifications...”), will be met if the communications and control measures that enable the use of the ERG offsite are implemented for onsite transfers.

Program Element: Consequence Assessment; Protective Actions**42. FAQ 151C-013: Can DOE/NNSA sites still use the current version of EPA 400 in their emergency plans?**

QUESTION: DOE O 151.1C requires that the Protective Action Guides (PAGs) promulgated by the EPA (EPA 400-R-92-001 or “EPA 400”) be used as the Protective Action Criteria (PACs) for radioactive material releases. However, in 2007, an amendment to 10 CFR 835, OCCUPATIONAL RADIATION PROTECTION, was issued that required a change (by 7/8/2010) in the measure used for reporting occupational doses from Total Effective Dose Equivalent (TEDE) to Total Effective Dose (TED). TEDE is calculated using International Commission on Radiation Protection (ICRP) 26/30 methodologies and certain tissue weighting factors to arrive at the whole-body dose. TED is calculated using ICRP 60/68 methodologies and uses different radiation weighting factors and tissue weighting factors. Although the current EPA 400 PAGs are based on ICRP 26/30 guidance, which uses TEDE as the dose measure to be compared with the PAGs, an ongoing (~ 10 year) effort to revise EPA 400 is expected to incorporate the TED and ICRP 60/68 methodology. Until a revised document is formally issued, however, can DOE/NNSA sites still use the current version of EPA 400 in their emergency plans?

ANSWER: DOE O 151.1C requires that the Protective Action Guides (PAGs) promulgated by the EPA be used as the Protective Action Criterion (PAC) for radioactive material releases. The DOE Emergency Management Guide (EMG), DOE G 151.1-2, Appendix F, which also addresses this requirement, was issued in the same time frame as a 10 CFR 835, OCCUPATIONAL RADIATION PROTECTION, amendment that required a change (by 7/8/2010) in the measure used for reporting occupational doses from Total Effective Dose Equivalent (TEDE) to Total Effective Dose (TED). TEDE is calculated using ICRP 26/30 methodologies and certain tissue weighting factors to arrive at the whole-body dose. TED is calculated using ICRP 60/68 methodologies and uses different radiation weighting factors and tissue weighting factors (ICRP 60/68 has not only changed the values for certain organs, but also added some organs to the list not on the ICRP 26/30 list).

In addition, the 2007 amendment to 10 CFR 835, uses dose conversion coefficients based on an occupational exposure scenario of a worker inhaling 5-micron activity median aerodynamic diameter (AMAD) size particles. Offsite environmental and emergency management models typically use a 1-micron AMAD particle size. The terminology was changed from TEDE to TED in 10 CFR 835 to make DOE regulations compatible with the guidance from ICRP 60/68. The changes specifically address assessing occupational doses to workers and the public inside controlled areas. EPA has started using the ICRP 60/68 dose terminology in its recent publications and it is expected that, when the revision of the EPA 400 PAG document is complete, it will include the ICRP 60/68 terminology as well. The EPA 400 PAGs and dose projections conducted in support of emergency management applications are not used to assess occupational doses, but instead are used when determining event classification and protective actions in emergency situations. The current EPA 400 PAGs are based on ICRP 26/30 guidance, which uses TEDE as the dose measure to be compared with the PAGs.

DOE sites and facilities can still use EPA 400 as it currently exists in their emergency plans until the revised document is issued formally. The compelling factor for determining whether a site uses the

ICRP 60/68 dose model prior to the release of the revised EPA PAG manual should be compatibility with the consequence assessment model results produced by offsite response authorities and not simply compatibility with occupational radiation reporting requirements according to 10 CFR 835. Although a common model for all functional requirements that involve dose estimates is a desirable choice for a site, the emergency management Order requires that consequence assessments must be “...coordinated with Federal, State, local, and Tribal organizations.” Coordination is most effective and efficient when consequence calculations are performed using the same assumptions and dose models. Therefore, DOE sites and facilities can still use the current version of EPA 400 in their emergency plans to ensure compatibility of dose estimates with calculations performed by offsite authorities.

Program Element: All-Hazard Planning Basis; Hazards Survey/Assessment; Consequence Assessment

43. FAQ 151C-014: Can TRU standard statistical approach for determining the MAR also be applied to the analyses of scenarios in the Emergency Planning Hazards Assessment (EPHA)?

QUESTION: The DOE Standard, DOE-STD-5506-2007, Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities, recommends a statistical approach for estimating the bounding limits on the Material-At-Risk (MAR) for various Documented Safety Analysis (DSA) accident scenarios associated with TRU waste operations. Can this statistical approach for determining the MAR also be applied to the analyses of scenarios in the Emergency Planning Hazards Assessment (EPHA)?

ANSWER: Material-at-Risk (MAR) is the amount of material available to be acted on by a given physical stress. For a given scenario, the MAR will be based on factors such as the type and magnitude of the initiating event, the spatial distribution of the inventory, and administrative controls. Section 2.6.1 of DOE Emergency Management Guide (EMG), DOE G 151.1-2 provides an example of how the MAR can vary depending on the scenario. Although the analysis of multiple containers involved in an accident scenario is not directly addressed in the guidance, the discussion implies that the MAR should be based on a maximum quantity for each container (e.g., the maximum quantity allowed by administrative controls, the physical capacity of the container, or the licensed maximum container contents). While that approach may be quite reasonable for chemicals in standard commercial packages (e.g., 150-pound chlorine cylinders) or well-characterized uniform radiological packages (e.g., in accordance with limits established in the WIPP waste acceptance criteria), the safety (DSA) community has recognized that it tends to be extremely conservative for events involving a random subset of TRU waste containers for which the container contents vary widely around a mean value, are incompletely characterized, and are unconstrained by either physical capacity or administrative limits.

The overall analysis approach that is encouraged throughout the EMG, DOE G 151.1-2 and explicitly emphasized in a recent Frequently Asked Question (FAQ) is intended to produce “more realistic than bounding” estimates of consequences of hazardous material release scenarios. Subject to the exception detailed below, the basic statistical MAR approach specified in the Standard is an acceptable means for limiting conservatism in accident consequence estimates for TRU waste facility Emergency Planning Hazards Assessments (EPHAs) and achieving results that are consistent with the “more realistic than bounding” principle. It is important to emphasize that the application of the approach in EPHAs must acknowledge the specific conditions specified in the Standard that ensure that the statistical assumptions of the analysis are maintained.

Exception: In general, DOE emergency management guidance suggests that DSA methodology for accident scenario and source term formulation is generally acceptable for use in EPHAs. However, the analyses in these sources should be used with caution because the assumptions and methodology applicable to their intended purposes may not be fully compatible with emergency management planning needs.

A specific example of such an incompatibility is related to the multi-container MAR estimates for an inventory of containers not fully characterized. The use of the MAR values given in the Standard in accident consequence calculations involving these inventories can produce counter-intuitive results and pose obvious problems for emergency planning and response. It would be very difficult for the planner to rationalize having a lower classification and smaller protective action distance for a multiple container scenario than for a comparable release event (e.g., spill, fire) involving a single container. The DOE standard, DOE-STD-5506-2007 methodology achieves a “reasonably bounding approach” by following the general algorithm that scenarios involving small numbers of containers will be conservatively estimated, while scenarios involving larger numbers of containers will not be unnecessarily conservative.

For accidents involving a fully characterized population of waste containers, Table 4.3.2-1 of the Standard specifies a single-container MAR equal to the contents of the single maximum loaded container. For multiple-container accident scenarios, Table 4.3.2-1 specifies a MAR equal to the contents of the maximum container plus some combination of containers with the 99th percentile value, the 95th percentile value, and the mean value quantities of TRU material from the total array of containers being evaluated. For events involving containers that are not fully characterized, Table 4.3.2-1 specifies a single-container MAR equal to the contents of the maximum container plus an additional 20%. The MARs for multiple-container accident scenarios are equal to the contents of the maximum container plus the contents of other containers selected using the statistical distribution of container contents for the particular site.

For the SRS, ORNL, and LLNL site-specific data provided in Appendix A, the MAR consistently increases as the number of containers involved in the scenario increases. However, for the RL, INL, and LANL data, the single container MAR (i.e., the maximum container plus 20%) is larger than the MAR for the 2-container and other multiple-container events.

For example, for two of the sites it takes up to 16 containers to exceed the single-container MAR. With a slight modification to the algorithm, MARs can be developed that provide a sound basis for planning and response to accidents involving multiple containers.

For example, the MAR approach for containers that are not fully characterized might be modified by adding an additional 20% to the maximum container contents each time the maximum container is specified as part of a multiple-container MAR.

Thus, the single-container MAR will be equal to the maximum container plus 20%; the two-container MAR would be equal to the maximum container plus 20% plus one container at the 95% upper tolerance limit for the 99th percentile, and so forth (cf. Table 4.3.2-1). This modification results in a consistent increase in the MAR as the number of containers involved in the scenario increases.

Program Element: Exercises; Readiness Assurance; Program Administration & Management

44. FAQ 151C-015: Is a simple rotation-in-turn scheme among all the facilities sufficient to satisfy exercise requirement?

QUESTION: On multiple-facility sites, the basis for the annual site exercise must be rotated among Hazardous Materials Program facilities. Is a simple rotation-in-turn scheme among all the facilities sufficient to satisfy the DOE O 151.1C site-level exercise requirement?

ANSWER: DOE O 151.1C exercise requirements for DOE/NNSA Hazardous Materials Program facilities are summarized below:

- 1) A formal exercise program must be established to validate all facility- and site-level elements of the emergency management program over a five-year period.

DOE O 151.1C, Attachment 2, p. 10, 6: A formal exercise program must validate all elements of an emergency management program over a 5-year period. The exercise program must validate facility and site-level emergency management program elements by initiating response to simulated, realistic emergency events/conditions in a manner that, as nearly as possible, replicates an integrated emergency response to an actual event.

DOE O 151.1C, Attachment 2, p. 10, 6.b: The contractor at DOE/NNSA Operational Emergency Hazardous Material Program facilities must also establish a formal exercise program to validate all elements of the emergency management program over a 5-year period.

- 2) Each facility must exercise its facility-level emergency response capability annually.

DOE O 151.1C, Attachment 2, p. 10, 6.b (1): Each DOE/NNSA facility subject to this CRD paragraph must exercise its emergency response capability annually and include at least facility-level evaluation and critique. Evaluations of annual facility exercises by Departmental entities (e.g., Cognizant Field Element, Program Secretarial Officer or Headquarters Office of Security and Safety Performance Assurance) must be performed periodically so that each facility has an external Departmental evaluation at least every three years.

- 3) Each facility must participate in the rotation schedule for the annual site-level exercise:

DOE O 151.1C, Attachment 2, p. 10, 6.b (2): Site-level emergency response organization elements and resources must participate in a minimum of one exercise annually. This site exercise must be designed to test and demonstrate the site's integrated emergency response capability. For multiple-facility sites, the basis for the exercise must be rotated among facilities.

The annual facility-level exercise and participation in the rotation schedule for the site exercise generally satisfy all exercise requirements for DOE/NNSA Hazardous Materials Program facilities and sites, as long as all of the components of facility- and site-level response capabilities are validated over a 5-year period. However, in the situation where site-level response components or elements may only respond to certain facilities, participation in the site exercise rotation may not allow validation during a 5-year period.

As an example of this situation, consider a site that has ten facilities with chemical hazards only and one facility with radioactive material hazards. Assuming there are site-level response components that only respond to a radioactive release, participation in the site exercise rotation schedule alone would not allow validation of these site-level components within a 5- year period.

One way to satisfy the 5-year requirement in this case would be to ensure that the radioactive material facility is the focus of the site exercise at least every 5 years rather than participation in turn with the other ten facilities. Alternatively, every five years the facility-level exercise for the radioactive material facility would involve the participation of those site-level components or elements that respond to radioactive releases. To limit the scope of this facility-level exercise, other site-level components may be simulated or participate using a discussion-based exercise.

Program Element: Program Administration & Management**45. FAQ 151C-016: What are the requirements to pre-designate the On Scene Coordinator when DOE/NNSA is the lead agency for Federal responses?**

QUESTION: DOE O 151.1C, Chapter I, paragraph 9i(1) requires the Cognizant Field Element, where applicable, to pre-designate the On Scene Coordinator when DOE/NNSA is the lead agency for Federal responses under the National Contingency Plan or its replacement. Is this requirement applicable to all Field Elements?

ANSWER: The full title of the National Contingency Plan (NCP) is the National Oil and Hazardous Substances Pollution Contingency Plan. This plan is published in Title 40 Code of Federal Regulations (CFR) Part 300.

The NCP defines the On-scene coordinator (OSC) as the federal official pre-designated to coordinate and direct responses to the spill of oil or release of hazardous substances. The Federal agency responsible for providing the OSC differs depending on whether there has been an oil spill or the release of other hazardous substances. The NCP defines the Responsible Party as the owner or operator of the facility where the spill or release occurred. When there is an oil spill or release of a hazardous substance, the Responsible Party is expected to respond and mitigate the spill or release. The OSC works with/oversees the Responsible Party in a unified command arrangement to ensure that the spill or release is mitigated and cleaned-up. The OSC does have the authority to take over direction of the response and clean-up.

Because the vast majority of DOE sites/facilities are government-owned/contractor-operated (GOCOs), the contractor will initially act as the Responsible Party and DOE will initially act as the OSC. This leads to the DOE O 151.1C responsibility for the Cognizant Field Element Manager to pre-designate OSCs. If the event is a release of a hazardous substance, the contractor remains the Responsible Party; 40 CFR 300.120(c) gives DOE the authority to act as the OSC for all releases of hazardous substances.

If the event is an oil spill, however, 40 CFR 300.120(a) gives OSC authority to either the EPA or the Coast Guard, depending on the location of the spill. Once EPA or the Coast Guard assumes the OSC role, DOE shifts to act as the Responsible Party, with DOE contractors remaining under the direction of DOE. The NCP contains no floor for a release or spill. There are documented events where EPA or the Coast Guard has designated an OSC to oversee the mitigation and remediation of an oil spill of 5 gallons or less.

In the case of hazardous material releases, DOE already has extensive requirements (e.g., DOE O 435.1, DOE O 450.1A, DOE O 458.1) and resulting programs to address mitigation and remediation. While these programs have the contractor (Responsible Party) taking action under the supervision of DOE (OSC), there is no need to formally designate an OSC for the majority of occurrences within the complex. The existing programs accomplish mitigation and remediation.

The intent of this Cognizant Field Element Manager responsibility was to have OSCs formally designated for events that would be declared an Operational Emergency in accordance with the criteria in DOE O 151.1C, Chapter V, paragraph 2b(1). Thus, if the Hazards Survey for a

site indicates the potential for an Operational Emergency meeting the criteria in Chapter V, paragraph 2b(1), then the Cognizant Field Element Manager should pre-designate an On Scene Coordinator(s). Should such an Operational Emergency occur, the On Scene Coordinator's immediate responsibility will be to respond to inquiries. The On Scene Coordinator would take on a greater operational role if the release were large enough that mitigation and remediation actions would exceed the capability of the site and the local and State response assets. Such a situation would then require assistance from other Federal agencies. Under the authority in 40 CFR 300.120, the OSC provides direction to the other Federal agency assets to integrate them into the ongoing emergency response at the site.

**Program Element: Hazards Survey/Assessment (All-Hazards Planning Basis);
Consequence Assessment; Protective Actions**

46. FAQ 151C-017: The PAC Revision 27 database contains many newly revised TEEL values. Do we immediately have to change our technical planning base documentation by using these new values and re-analyzing all scenarios?

QUESTION: The PAC Revision 27 database contains many newly revised TEEL values. Do we immediately have to change our technical planning base documentation by using these new values and reanalyzing all scenarios?

ANSWER: PAC Revision 27 is the result of a substantial change in the methodology for developing Temporary Emergency Exposure Limits (TEELs). The changes were based on recommendations from an Outside Review Committee. These changes include:

- TEELs based on toxicity exposure data were consistently time-scaled to 1-hour exposures using a National Academy of Sciences methodology.
- TEEL-0 values are no longer published.
- The factors used to derive a particular TEEL level from other TEEL data were updated, along with the adjustment factors used to align TEELs with Acute Exposure Guideline Limits (AEGLs) and Emergency Response Planning Guidelines (ERPGs).
- The hierarchy for sources of data was changed.
- An update of the database to use a limited set of species, as well as a limited number of routes of exposure, is underway.

Although Revision 27 contains 3,387 chemicals, one less chemical than Revision 26 (4 chemicals were added; 5 were deleted or consolidated), one or more TEEL values have changed for approximately eighty percent of the chemicals in the PAC data set. A change of this magnitude has not occurred since the inception of the TEEL Development Program. A substantial effort will be required to update technical planning base documentation.

Therefore, for technical planning base documentation, integrate the data from PAC Revision 27 during the normal update cycle [i.e., once every three years per DOE O 151.1C, Chapter IV, paragraph 3a (3) and CRD, 3.b. (1)(d)] or according to a schedule otherwise approved by the Cognizant Field Element manager.

In the event of an emergency, use the data in PAC Revision 27 immediately during the Timely Initial Assessment and Continuous Ongoing Assessment phases of Consequence Assessment (DOE G 151.1-4, Chapter 6) and in establishing adjustments to planned protective actions and protective action recommendations.

Program Element: Hazards Survey/Assessment (All-Hazards Planning Basis)**47. FAQ 151C-018: Is it acceptable to use NNSA supplemental guidance on DOE-STD-1027 for screening radioactive materials?**

QUESTION: Is it acceptable to use the values and methodology for Hazard Category 3 threshold quantities presented in the NNSA Supplemental Guidance, NA-1 SD G 1027, “Guidance on Using Release Fraction and Modern Dosimetric Information Consistently with DOE STD 1027-92 . . .” in the emergency management hazardous material screening process for radiological materials as an alternative to the Category 3 values given in Attachment 1, Table A.1 of DOE-STD- 1027-92, as required by DOE Order 151.1C? Many sites, both NNSA and non-NNSA, are converting to these numbers for safety analyses and there can be efficiencies gained by intra-site consistency.

ANSWER: The NNSA Supplemental Guidance, NA-1 SD G 1027,⁶ provides a consistent approach and facilitates the use of updated dosimetry and release fractions in establishing the hazard category for a nuclear facility, as required in 10 C.F.R. 830, Subpart B, Nuclear Safety Management, Safety Basis Requirements, Section 202 (b)(3).⁷ DOE O 151.1C requires that a hazardous material screening process identify all hazardous materials in a facility/activity that require further analysis. Specifically, radioactive hazardous materials that require further analysis in an Emergency Planning Hazards Assessment (EPHA) include the “. . . radioactive materials listed in DOE-STD-1027-92⁸ in quantities greater than the Category 3 values given in Attachment 1, Table A.1., of that Standard.”

Utilizing the Category 3 thresholds for both purposes has the effect of correlating the classification of Category 1, 2, and 3 with the need for an EPHA. The substitution of the Hazard Category 3 threshold quantities presented in the Supplemental Guidance for the Category 3 values referenced in DOE O 151.1C for hazardous materials screening is acceptable for all organizations included in NA-1 SD G 1027, paragraph 3, under the conditions specified. Except for the specified exclusions (Naval Reactors Program and activities regulated by an NRC license), the document defines the Applicability/Scope of the guidance as follows:

All NNSA personnel and to all NNSA nuclear facilities as defined in 10 C.F.R. 830 that will be operating after January 1, 2016. Non-NNSA organizations may use this guidance at the discretion of the responsible Secretarial Officer.

Contractors may use this guidance if authorized by the responsible safety basis approval authority.

The Category 3 threshold values from NNSA Supplemental Guidance, NA-1 SD G 1027, are acceptable for emergency management screening purposes if the Applicability/Scope of the guidance is satisfied.

⁶ NNSA Supplemental Guidance, NA-1 SD G 1027

⁷ 10 C.F.R. 830, Subpart B, Nuclear Safety Management, Safety Basis Requirements, Section 202 (b)(3)

⁸ DOE-STD-1027-92

Program Element: Readiness Assurance**48. FAQ 151C-019: Does an issues management system meeting the requirements of DOE O 414.1D satisfy the corrective action requirements in DOE O 151.1C?**

QUESTION: Does an issues management system meeting the requirements of DOE O 414.1D satisfy the corrective action requirements in DOE O 151.1C?

ANSWER: The requirements in DOE O 151.1C, in Chapter X and in the CRD, Section 7b, state that the requirements in DOE O 151.1C supplement those in DOE O 414.1A. In other words, DOE O 151.1C has more specific requirements about corrective actions than those contained in DOE O 414.1A.

While DOE O 414.1A has now been superseded by DOE O 414.1D, the situation remains the same. DOE O 151.1C contains more specific requirements that supplement those in DOE O 414.1D. The more detailed, supplemental requirements for corrective actions were included in DOE O 151.1C in response to findings from the DOE Inspector General (DOE/IG-0657).

DOE O 414.1D does not provide a great deal of specificity regarding corrective action processes. The CRD requires contractors to develop a Quality Assurance Plan that implements the criteria in Attachment 2 to the Order. The criterion in Attachment 2 that address corrective actions is “Criterion 9— Assessment/Management Assessment. Ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.”

The Order defines “validation” and “verification” in terms of a system or component or in relation to safety software. DOE G 414.1-1B was written for use with 10 CFR 830 and the predecessor version of the Order, DOE O 414.1C. Section 4.7.8 (page 26) of this Guide does say: “Managers should verify that corrective actions are likely to fully address the identified deficiency and when actions are completed, validate that the actions have corrected the deficiency.” [This is the only reference to validate and verify in this Guide. At the time, there was an entire separate Guide, DOE G 414.1-5, which addressed the corrective action process. It has been rescinded by DOE G 414.1-2B.]

DOE G 414.1-2B discusses corrective actions as part of Quality Improvement (Management/Criterion 3). Section 4.3.2 states that an effectively planned and implemented Quality Assurance Plan uses feedback to improve, corrects problems that occur and measures the effectiveness of corrective actions. Verification and validation are discussed in terms of verification/validation of design and V&V of software used for calibrating measuring and testing equipment.

There are similar discussions about feedback and continuous improvement and corrective actions in DOE P 450.4A and DOE G 450.4-1C, which discuss the Integrated Safety Management System, and DOE O 226.1B, which discusses implementation of the DOE Oversight Policy. The more detailed requirements in DOE O 151.1C were not meant to force establishment of a separate corrective action system from the one required by DOE O 414.1D (or DOE P 450.4A or DOE O 226.1B). However, because there are no specific requirements in DOE O 414.1D regarding the timeliness of corrective action plans, the timeliness of corrective actions, or ensuring that the problem was actually corrected, requirements supplemental to DOE O 414.1D were deemed necessary.

**Program Element: Program Administration and Management; Hazards
Survey/Assessment**

**49. FAQ 151C-020: What are requirements for the contractor to submit Emergency
Management documents to the Cognizant Field Element for approval?**

QUESTION: DOE O 151.1C, Chapter I, requires the Cognizant Field Element Manager to approve site/facility emergency management documents. Why does the CRD omit a requirement for the contractor to submit these documents to the Cognizant Field Element for approval?

ANSWER: As noted in the FAQ, “APPROVAL AND DISTRIBUTION OF EMERGENCY DOCUMENTS,” dated 6/9/06, DOE O 151.1C, Comprehensive Emergency Management System (11-02-05) requires Cognizant Field Element approval of emergency management documents [e.g., technical planning basis (Hazards Surveys, EPHAs, and EPZs), emergency plans]. The requirements address recommendations by the Department of Energy's Office of the Inspector General (OIG)¹ that key emergency management documents be coordinated with DOE. The requirement to submit the documents to the Cognizant Field Element was inadvertently left out of the CRD. This omission will be corrected in the future revision of DOE O 151.1C. Until the omission is corrected, the Cognizant Field Element Manager can use their authority as the contracting official to require submission of the site/facility emergency management documents.

Program Element: Program Administration and Management**50. FAQ 151C-021: What are requirements to pre-designate the Senior Energy Official?**

QUESTION: DOE O 151.1C, Chapter I, paragraph 9i(3), requires the Cognizant Field Element, where applicable, to pre-designate the Senior Energy Official to coordinate Departmental activities under appropriate Federal plans. Is this responsibility applicable to all Field Elements?

ANSWER: When DOE O 151.1C was published on 11-2-05, no other DOE Directive addressed the requirement to pre-designate or otherwise appoint the senior DOE official to carry-out Departmental responsibilities under appropriate Federal plans. After the publication of DOE O 151.1C, the title Senior Energy Official began to be used exclusively for the Federal employee who provides leadership at the event scene for DOE radiological response assets. DOE's responsibilities for support in nuclear/radiological emergencies are addressed in DOE O 153.1, DEPARTMENTAL RADIOLOGICAL EMERGENCY RESPONSE ASSETS, which was published on 6-27-2007. [cf. FAQ – Pre-designation of Senior Federal Official].

Under the appropriate Federal plans, the responsibility for leading DOE's response to energy infrastructure events rests with the Assistant Secretary for Electricity Delivery and Energy Reliability (OE-1). OE-1 does not find it necessary for Field Element Managers to pre-designate employees to lead teams to carry out DOE's responsibilities in non-nuclear/non-radiological emergencies.

The requirement/responsibility in DOE O 151.1C, Chapter I, paragraph 9i(3) is no longer necessary. It will be omitted in the upcoming revision of DOE O 151.1C.