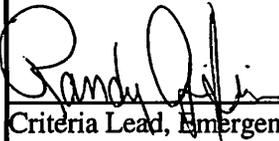


U.S. Department of Energy	Subject: Emergency Management Program Inspection Criteria and Review Approach Document	HS: HSS CRAD 45-61 Rev: 0 Eff. Date: February 13, 2014
	Exercises Program Review and Severe Event Response Evaluation	
	 Acting Director, Office of Safety and Emergency Management Evaluations	
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## 1.0 PURPOSE

Within the Office of Health, Safety and Security (HSS), the Office of Safety and Emergency Management Evaluations' (HS-45) mission is to assess the effectiveness of those emergency management systems and practices used by site/facility organizations in implementing its emergency management program, and to provide clear, concise, and independent evaluations of performance in protecting workers, the public, and the environment from the hazards associated with Department of Energy (DOE)/National Nuclear Security Administration (NNSA) sites, facilities, and activities.

In addition to the general independent oversight requirements and responsibilities specified in DOE Order 227.1, *Independent Oversight Program*, this Criteria and Review Approach Document (CRAD) will be used by HS-45 to perform this review. HS-45 will be using the criteria and lines of inquiry derived from the functional requirements of DOE Order 151.1 C, *Comprehensive Emergency Management System*, and actions described in HSS Operating Experience Level 1, *Improving DOE Capabilities for Mitigating Beyond Design Basis Events* (OE-1). Further, HS-45 will use the lines of inquiry contained herein to determine whether the criteria are met.

The focus of this CRAD is on evaluating the site's preparedness for a response to a severe event. The site's emergency response organizations performance will be evaluated during the response to a severe event in an exercise. The site's exercise program will also be evaluated to determine whether it produces

plausible and realistic severe event exercise scenarios, validates all elements of the emergency management program, effectively evaluates an emergency response, is properly conducted, and provides a means to improve the site's preparedness to respond to operational emergencies. This CRAD is intended to ensure that planning, preparedness, and performance expectations identified in DOE Order 151.1C, *Comprehensive Emergency Management System* are met.

A key to success is the rigor and comprehensiveness of our process; and, as with any process, we continually strive to improve and provide additional value and insight to field operations. Integral to this is our commitment to enhance our program. We continue to make CRADs available for use by DOE line and contractor assessment personnel in developing effective DOE oversight, contractor self-assessment and corrective action processes; the current revision is available at <http://energy.gov/hss/listings/criteria-review-and-approach-documents>.

## **2.0 APPLICABILITY**

This CRAD is approved for use by the Office of Safety and Emergency Management Evaluations.

## **3.0 FEEDBACK**

Comments and suggestions for improvements on these Criteria and Review Approaches can be directed to the Acting Director of the Office of Safety and Emergency Management Evaluations, at (301) 903-5392.

## **4.0 CRITERIA AND REVIEW APPROACH**

The following provides the inspection criteria, activities, and specific lines of inquiry that will be used to conduct this review.

### ***Criteria***

A formal exercise program validates all elements of an emergency management program by initiating a response to simulated, realistic emergency events/conditions in a manner that, as nearly as possible, replicates an integrated emergency response to an actual event. Planning and preparation use an effective, structured approach that includes documentation of specific objectives, scope, time lines, injects, controller instructions, and evaluation criteria for realistic scenarios. Exercises are conducted, controlled, evaluated, and critiqued effectively and reliably and result in lessons-learned, corrective actions, and program improvements for identified program weaknesses. Severe event exercises include events that impact multiple facilities that cause the loss of infrastructure and primary capabilities and introduce secondary or compounding severe events that occur during critical stages of the initial response or during later remediation efforts. The site has adequately prepared for a severe event through planning and training as demonstrated by responders proficiently implementing emergency plans during a severe event exercise scenario.

### ***Review Approach***

***Activities:*** The following review activities apply to the approach used in performing the exercise program review and the severe event exercise evaluation, as necessary, to complete the lines of inquiry shown below. The lines of inquiry to evaluate the exercise program are based on the program's requirements documents and records from previous exercises. The drill program review lines of inquiry evaluate the

site's drill program when the site uses evaluated drills to satisfy DOE exercise requirements. The severe event exercise review lines of inquiry will evaluate the planning and conduct of an exercise, performance of responders to a severe event scenario, and implementation of exercise program requirements for the severe event exercise.

- Review the emergency plan, exercise plans, emergency plan implementing procedures, exercise program, emergency planning hazards assessment(s), emergency action levels, and corrective action protocols, exercise schedules and records, after action reports, corrective action plans, and corrective action closure files.
- Observe exercise planning activities and a severe event exercise.
- Interview emergency management personnel and supporting response personnel.

### ***Lines of Inquiry:***

#### **Exercise Program Review**

- Does the exercise program include validation of all elements of the emergency management program over a 5-year period?
- Do site-level emergency response organization elements and resources participate in at least one exercise annually?
- Does the exercise program include exercises related to responding to beyond design basis events that involve natural phenomena events or other severe events?
- Does the exercise program evaluate shelter-in-place and evacuation protective action demonstrations?
- Does the exercise program include provisions for incorporating objectives in each exercise that are designed to validate revised plans/procedures, implemented corrective actions, and program improvements?
- Does the exercise program include provisions for evaluating all exercises and establish a critique process that includes gathering and documenting observations of participants?
- Does the site use facility-specific exercise evaluation criteria, based on existing plans and procedures, and correlated with the exercise objectives?
- Are offsite response organizations invited to participate in a site-level exercise at least once every 3 years?
- Does the site conduct tabletop exercises with appropriate Federal, state, and local response agencies and organizations that would respond to a site event caused by a severe natural phenomena event?
- Are notifications and communications evaluated during every exercise?
- Does the site/facility demonstrate adherence to notification and reporting requirements in all emergency management exercises?
- Are communications systems with DOE Headquarters, the cognizant field element, and offsite agencies tested at least annually (or as often as needed) to ensure that communications systems are operational?
- For multiple hazardous material facility sites, does the basis for the exercise rotate among facilities?
- Do site exercises periodically include NNSA radiological emergency response assets, such as the Accident Response Group, the Nuclear Emergency Support Team, the Federal Radiological Monitoring and Assessment Center, the Aerial Measuring System, the National Atmospheric Release Advisory Center, the Radiation Emergency Assistance Center/Training Site, and the Radiological Assistance Program?
- Does each facility exercise its emergency response capability annually and include at a least a facility-level evaluation and critique?

- Does exercise planning and preparation use an effective, structured approach that includes documentation of specific objectives, scope, time lines, injects, controller instructions, and evaluation criteria for realistic scenarios?
- Are annual exercise plans approved by the cognizant field element?
- Does the site/facility complete the exercise package and provide it to DOE or NNSA line management and the NNSA Director of Emergency Operations in sufficient time before the conduct of the exercise to allow for review and comments by DOE or NNSA line management and the NNSA Director of Emergency Operations?
- Are after action reports for facility and site exercises completed within 30 working days and submitted to the Cognizant Field Element, the Program Secretarial Officer(s), and the NNSA Director, Office of Emergency Operations?
- Does an after action report document the results of the exercise critique and evaluation?
- Are corrective action plans developed within 30 working days of receipt of the final evaluation report?
- Do correction actions include a verification and validation process, independent of who performed the corrective action?
- Does that process validate that the corrective action has been implemented and is effective in resolving the original finding?
- Are corrective actions addressing revision of procedures or training of personnel completed before the next annual exercise?
- Are failed objectives of an exercise, as determined by a DOE or NNSA organization responsible for the exercise, re-evaluated during a drill or through a selected functional test within a fixed time period after the exercise?

### **Drill Program Review**

- Is there a comprehensive, coordinated, and documented drill program that is an integral part of the emergency management program to ensure that preparedness activities for developing and maintaining program-specific emergency response capabilities are accomplished?
- Does the site provide periodic drills to all workers who may be required to take protective actions (e.g., shelter-in-place; assembly, evacuation)?
- Does the site conduct annual building evacuation drills consistent with Federal regulations local ordinances and National Fire Protection Association standards?
- Are employees designated to assist in a safe and orderly evacuation of other employees?
- Does the site make available emergency-related information on site-specific conditions and hazards to offsite personnel who may be required to participate in response to an emergency at the DOE/NNSA site/facility?
- Do drills provide supervised, “hands-on” training for members of emergency response organizations?
- Are drill plans formally documented and included in an index or matrix?
- Do scheduled drills include scenario-driven events that provide interface practice between the emergency response organization and site medical and security organizations?
- Are drills developed or modified based upon feedback from actual events, exercise evaluations, and self-assessments, or to validate new or revised procedures and equipment modifications?
- Are drills related to responding to beyond design basis events, including natural phenomena events, periodically conducted?

## Severe Event Exercise Review

- Was exercise planning effectively coordinated among onsite and offsite organizations or groups regarding their respective participation and exercise objectives?
- Were limitations or simulations regarding the participation of onsite and offsite organizations identified and appropriately documented?
- Did the scenario reflect current facility-specific hazards, correlate technically with the facility emergency planning hazards assessment, and is technically accurate in terms of operations and radiological, chemical, biological and meteorological data, as applicable?
- Was the scenario consistent with the set of exercise objectives, explicitly supporting an evaluation/validation of each objective?
- Were preparations, including participant briefings, safety provisions, staging of simulation props, positioning of controllers/evaluators, and establishing of initial conditions completed before exercise initiation?
- Were exercise evaluation criteria facility-specific and based on existing plans and procedures?
- Were provisions for safety, security, and public/media interface clearly identified and documented in the exercise plan?
- Were controllers and evaluators provided generic and exercise-specific training?
- Did controller and evaluator training include the exercise plan and safety and security/safeguards provisions?
- Were there provisions for exercise initiation, interruption, and termination?
- Was the exercise conducted, controlled, evaluated, and critiqued safely, effectively, and reliably?
- Did injects/messages contain accurate, unambiguous, and non-prompting information and technical data for the players/responders and provide proper direction for the exercise?
- Was security of the exercise scenario properly managed, and is pre-staging of players and/or prior knowledge of scenario material by players effectively prevented?
- Was the controller organizations adequately staffed and positioned for effective exercise conduct/control?
- Did controllers conduct/control the exercise in accordance with the exercise plan package?
- Did controllers permit free play when free play would not interfere with the scenario?
- Did controllers prevent interference and/or prompting by non-responders?
- Did controllers conduct a post-exercise critique to gather and document observations and solicit feedback from players/responders?
- Was the evaluator organization sufficiently staffed to evaluate performance and key decision-making of the responders in satisfying the exercise objectives?
- Did evaluators display familiarity with responder organizations, functions, procedures, and anticipated responder decisions and response activities?
- Did specific exercise objectives provide the basis for evaluating/validating the performance of response capabilities by each participating organization?
- Were facilities and equipment evaluated with respect to adequacy of functions, habitability, and operability?
- Were procedures evaluated with respect to their use by responders, including adequacy of content?
- Were responders/players evaluated with respect to demonstrated proficiency of their respective responsibilities and functions, communication and coordination with other responders, familiarity and use of procedures and equipment, and overall professional response?
- Did players/responders perform their respective functions, initially and throughout the exercise in a professional manner as if the situation were an actual emergency?
- Did responders demonstrate proficiency in the following tasks when incorporated into the design of the exercise:

- Assess the impacts of severe events by considering damage to multiple hazardous material facilities, command centers, and facilities used to implement protective actions?
- Implement emergency action levels in determining initial protective actions?
- Confirm habitability of the primary or alternate emergency operations center after a severe event involving the airborne release of hazardous materials?
- Establish alternate command centers as operational, if necessary?
- Power essential response equipment from backup power sources?
- Communicate using backup communication systems?
- Analyze consequences using more sophisticated modeling programs and real-time meteorological conditions during ongoing continuous assessment activities?
- Validate offsite monitoring and integration with national radiological response assets?
- Implement severe event planning with state and local governments?
- Plan for events beyond the site's response capabilities and considers a timeframe to be self-sufficient?
- Perform short-term initial recovery and reconstitution activities?
- Was the simulation of activities sufficiently realistic to provide confidence that the activity could have been performed during a real emergency?
- Was a formal critique process conducted by the controller/evaluator organization to determine whether individual exercise objectives were accomplished based on a synthesis of all the observations and information/data gathered during the conduct of the exercise?
- Were corrective action items identified as a result of the critique process incorporated into the emergency management program?
- Was an after action report developed that identifies program weaknesses that result in improvements?
- Were lessons-learned developed, resulting in corrective actions for program improvements?
- Were corrective actions effectively implemented to make program improvements?