

<p>U.S. Department of Energy</p>	<p>Subject: Emergency Management Program Inspection Criteria and Review Approach Document</p> <p>2014 Emergency Management Program Technical Basis and Emergency Preparedness Review</p> 	<p>HS: HSS CRAD 45-60 Rev: 0 Eff. Date: February 13, 2014</p>
<p>Office of Safety and Emergency Management Evaluations</p>	<p>Acting Director, Office of Safety and Emergency Management Evaluations</p> <p>Date: February 13, 2014</p> 	<p>Page 1 of 5</p>
<p>Criteria and Review Approach Document</p>	<p>Lead, Emergency Management</p> <p>Date: February 13, 2014</p>	

1.0 PURPOSE

Within the Office of Health, Safety and Security (HSS), the Office of Enforcement and Oversight, 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. If the criteria are not met, HS-45 will provide the Office of Emergency Management documentation indicating identified negative concerns so they can resolve these with the site. After the site has appropriately resolved the identified concerns, HS-45 will return to the sites to validate the effectiveness of the corrective actions implemented.

The focus of this CRAD is determining whether the site has established the appropriate emergency management program based on the technical considerations and methodologies required by DOE 151.1C,

including the implementation of Fukushima lessons learned for DOE emergency management programs described in OE-1.

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, Office of Safety and Emergency Management Evaluations, at (301) 903-5392.

4.0 CRITERIA AND REVIEW APPROACH

Criteria

The Emergency Management program, including organizational structure and administration, is technically-based, is commensurate with the facility-specific hazards, and is sufficient to provide for effective implementation and control of all hazardous material (HAZMAT) emergency events as required by DOE Order 151.1C and has been updated to incorporate the Fukushima lessons learned described in OE-1.

Review Approach

Activities: The following review activities apply to the emergency planning and preparedness areas and lines of inquiry shown below:

- Review emergency management program plans, documented safety analyses (DSAs), emergency planning hazard surveys, emergency planning hazards assessments (EPHAs), emergency action level (EAL) and emergency planning zone (EPZ) documents, applicable procedures, dispersion modeling programs, and HAZMAT inventory controls and records.
- Perform facility walkdowns and review for HAZMAT identification, form, location, and inventory controls.
- Interview emergency management, facility operations, and technical basis support personnel.
- Determine whether HS-45 identified findings warrant a follow-up review with increases scope and breadth.

Lines of Inquiry:**Technical Planning Basis**

- Do procedures provide clear guidance for developing, documenting, and maintaining the hazards survey and EPHA documents, including identifying roles and responsibilities for review and approval?
- Are hazards surveys completed for all buildings?
- Are the inventories of HAZMAT described in the hazards survey less than or equal to the actual quantity in the facility(ies) that define the bounding events for severe event scenarios?
- Does the hazards survey HAZMAT screening process use the appropriate screening criteria?
- Has the hazards survey been updated to add multi-facility, sitewide events identified through lessons learned from the Fukushima nuclear accident, and has the Operational Emergency Base Program been adjusted accordingly?
- Does each Hazards Survey:
 - Identify the emergency events or conditions to which the specific facility or activity may be exposed (i.e., fires, flood, tornadoes, earthquakes, HAZMAT releases, regulated pollutant or oil spills, safeguards and security events, work place accidents, malevolent acts, mass casualties, wildland fires, and nearby offsite, non-DOE, HAZMAT accidents)?
 - Indicate that natural phenomena events (NPEs) (i.e., wildland fires, flood, tornadoes, earthquakes, wind, and snowstorms that could result in HAZMAT releases) are based on historical or current technical data that affect the facility?
 - Describe the potential health, safety, or environmental impacts?
 - Indicate the need for further analyses of HAZMAT facilities in an EPHA when warranted by the type and quantity of HAZMAT?
 - Identify the planning and preparedness requirements that apply to each type of hazard?
- Do the facility EPHAs contain a current, accurate compilation of HAZMAT inventories or maximum quantities associated with a facility or activity based on reliable and comprehensive methods of HAZMAT identification (e.g., walkdowns, shipping records, and local chemical inventory systems)?
- Are the EPHA material-at-risk quantities consistent with the HAZMAT inventory databases and authorization bases (e.g., DSA and technical safety requirements)?
- Are a spectrum of potential emergency event/condition scenarios postulated and realistically analyzed in the EPHA, including:
 - Applicable initiating events (i.e., fire, explosion, NPEs, malevolent events, accidents, and external events)?
 - Contributing events, accident mechanisms, equipment or system failures, engineered safety system and control failures, source terms, material release chemistry and characteristics, environmental transport and diffusion, exposure considerations, and health effects?
 - Range of event probabilities and consequences, from low probability, high consequence to high probability, low consequence, including beyond design basis NPEs?
 - Events exclusively affecting onsite personnel, as well as those affecting the offsite public?
 - Potential malevolent acts applicable to the facility based on Design Basis Threat guidance, if available?
- Are NPEs used as initiating events in the facility EPHA derived from historical data, technical data, or consistent with events analyzed in the DSA?
- Because of lessons learned from Fukushima, has the DSA beyond design basis event analyses changed and, if so, has the applicable EPHA been revised to be consistent with the DSA change?
- Do NPEs analyzed in the facility EPHA go beyond the events analyzed in the DSA?

- Is the planned emergency response organization (ERO) capability based partly on the bounding events analyzed in the EPHAs?
- Do the facility EPHAs address the potential for simultaneous releases from multiple facilities that could occur on site?
- Do the facility EPHAs analyses consider consequences from multiple offsite and/or onsite hazards that could affect the facility?
- Do the facility EPHAs contain consequence analyses for receptor locations including facility and site boundaries, collocated facilities, critical onsite emergency response facilities, and offsite locations (e.g., schools, hospitals, and prisons)?
- Do the analyses contained in the facility EPHA determine the capabilities needed for the ERO?
- Is an accurate and timely method for tracking changes in operations, processes, or accident analyses that involve HAZMAT (e.g., introduction of new materials, new uses, significant changes in inventories, and modification of material environments) established and maintained for each facility/activity?
- Does the EPHA support development of EALs and formulation and communication of pre-determined protective actions for the spectrum of potential Operational Emergencies?
- Do the EALs include a complete spectrum of Operational Emergencies identified by the EPHA and accurately reflect the EPHA output?
- Do the EALs include protective actions corresponding to each Operational Emergency?
- Do EALs use appropriate/available indicators to identify the loss of a significant release barrier, such as the facility's infrastructure, for plausible events that exceed the design of the barrier?
- Does the EPHA include a determination of the size of the EPZ? Are assumptions, methodologies, models, and evaluation techniques used in the EPHA documented?
- Does the EPZ define an area within which protective actions will provide for substantial reduction in early lethality for all analyzed airborne HAZMAT releases?
- Is the EPZ sufficiently large that the planning efforts within the defined EPZ provide a substantial basis for expansion of response activities beyond the EPZ, if warranted by actual conditions?

Emergency Preparedness

- Does the site document the emergency management program in an emergency plan that also describes the provisions for response to an operational emergency?
- Does the emergency plan address emergency classification, notification, response actions, training and drills, exercises, emergency public information, offsite interface and coordination, and applicable Federal statutes, state and local laws, DOE orders, and implementing regulations and guidance?
- Does the emergency plan describe an entire concept of operations for the emergency response at the facility?
- Are facility Emergency Action Plans in writing, kept in the workplace, and available to employees for review?
- Do the Emergency Action Plans include:
 - Procedures for reporting fire or other emergencies;
 - Procedures for emergency evacuation, including type of evacuation and exit route assignments;
 - Procedures to account for all employees after evacuation; and
 - Procedures to be followed by employees performing rescue or medical duties?
- Do emergency plan implementing procedures (EPIPs) describe how emergency plans must be implemented; and clearly state roles, responsibilities, and requirements associated with program administration, EROs, individual positions, operations, and interfaces?
- Do procedures exist for critical facility emergency response functions?

- Do procedures and job aids for event categorization/classification, notification, and protective action decision-making provide consistent, detailed instructions for use at the facility/site level?
- Are protective actions such as evacuation, sheltering, and personnel accountability clearly identified and capable of being implemented as specified?
- Do notification and communication systems provide accurate, timely notice of off-normal events to response organizations, facility personnel, and co-located site workers and facilities?
- Are mechanisms (including warning systems) available to promptly determine and implement protective actions for responders, facility, and site personnel?
- Has the site considered preparations to initiate "self-help" emergency response activities for severe events that effectively isolate a site from outside response assistance and infrastructure support?
- Are preparations sufficient to activate/initiate a self-help response (e.g., locations of medical and life sustaining supplies), and does equipment staging and inventory controls ensure availability of planned capabilities?
- In case of a severe event, has time-urgent initial response actions been identified that stabilize a hazardous material situation, delay safety degradation, or prevent further damage (e.g., shutdown or "walk-away" strategies)?
- Are time-urgent initial response action for facility operations management and site emergency management clearly assigned so that the organization responsible for taking appropriate actions throughout the event progression is readily understood and is any transfer of responsibility preplanned based on established criteria?
- Has the site adequately planned for the evacuation of the site under severe event conditions?
- Are on shift personnel prepared to make operational and safety decisions when severe events disrupt the normal lines of communication, as described in the site's continuity of operations plan?
- Does the site's emergency drill and exercise program include event scenarios that impact multiple facilities that cause the loss of infrastructure capabilities (e.g., onsite and offsite power, communications, and roadways, and the unavailability of mutual aid)?
- Do drill and exercise scenarios include secondary or compounding severe events occurring during critical stages of the initial response or later remediation efforts?
- Are initial training and periodic drills provided to all workers who may be required to take protective actions (e.g., shelter in place, assembly, and evacuation)?
- Are agreements to provide mutual assistance to or to receive assistance from offsite organizations (e.g., hospitals and fire departments) documented in a formal memorandum of agreement or memorandum of understanding, contain adequate provisions, and maintained current through periodic reviews?
- Are planned response functions to be provided by offsite organizations periodically tested and verified?
- Has the site established connectivity to the National Atmospheric Release Advisory Center capabilities and developed 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?
- Has the site adequately planned for mass casualty situations and conducted exercises to maintain proficiency?