



December 2014

EMERGENCY PREPAREDNESS

Opportunities Exist to Strengthen Interagency Assessments and Accountability for Closing Capability Gaps

Revised December 9, 2015, to correct a formatting error on page 28.

GAO Highlights

Highlights of [GAO-15-20](#), a report to congressional requesters

Why GAO Did This Study

No-notice catastrophic disasters pose one of the greatest challenges to national emergency preparedness. ESFs are federal interagency coordinating structures that group capabilities into functional areas most frequently needed in a national response. GAO was asked to review federal preparedness to respond to no-notice catastrophic disasters, such as IND attacks and major earthquakes. This report assesses the extent to which opportunities exist to enhance (1) assessment of ESF preparedness and (2) management oversight of the closure of federal capability gaps identified in selected exercises, real-world incidents, and other assessments. GAO reviewed relevant laws, directives, strategies, and plans; analyzed recommended corrective actions from national-level exercises and other interagency assessments; reviewed documents and interviewed officials from five federal departments key to disaster response (Defense, Energy, Health and Human Services, Homeland Security, and Justice); and compared current processes against internal control standards and leading program management practices.

What GAO Recommends

GAO recommends that FEMA—in collaboration with other federal agencies—(1) issue supplemental guidance to ESF coordinators detailing minimum standards for activities and product deliverables necessary to demonstrate ESF preparedness, (2) regularly report on the status of corrective actions identified through prior national-level exercises and real-world disasters, and (3) develop and issue detailed program management information to better enable management oversight of the *DHS IND Strategy's* recommended actions. DHS concurred with the recommendations and identified related actions the department is taking to address them.

View [GAO-15-20](#). For more information, contact Chris P. Currie at (404) 679-1875 or curriec@gao.gov.

December 2014

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Opportunities Exist to Strengthen Interagency Assessments and Accountability for Closing Capability Gaps

What GAO Found

The departments that coordinate federal emergency support functions (ESF), in preparation for national disaster response, carry out their responsibilities in various ways, but the Secretary of Homeland Security's ability to assess ESF preparedness could be enhanced. ESF coordinators conduct a range of coordination, planning, and capability assessment activities. All 10 ESF coordinators across the five departments in GAO's review reported coordinating with stakeholders and developing at least one ESF planning document. However, the ESF Leadership Group and the group's chair, the Federal Emergency Management Agency (FEMA)—a component of the Department of Homeland Security (DHS)—have not worked with other federal departments to issue supplemental guidance detailing expectations for the minimum standards for activities and product deliverables necessary to demonstrate ESF preparedness. In the absence of such guidance, GAO found that ESF coordinators are inconsistently carrying out their emergency response preparedness activities. DHS and FEMA have responsibility for assessing federal emergency preparedness. Issuing supplemental guidance detailing expectations for ESF coordinators would better enable DHS and FEMA to assess the status of ESF response preparedness.

Federal departments have identified emergency response capability gaps through national-level exercises, real-world incidents, and other assessments, but opportunities exist to help close the gaps by enhancing management oversight in two areas:

- First, federal departments are responsible for implementing their own recommended corrective actions from national-level exercises and real-world disasters, such as Hurricane Sandy, but the status of federal interagency implementation of these actions is not comprehensively collected by or reported to DHS or FEMA. As a result, DHS's and FEMA's ability to assess and report on the nation's overall preparedness is hampered.
- Second, FEMA leads interagency efforts to identify and propose actions to address capability gaps in the nation's preparedness to respond to improvised nuclear device (IND) attacks, but its implementation plan lacks key program management details. Specifically, FEMA's March 2012 *IND Implementation Plan* proposed over 300 recommended actions to help close gaps identified in the April 2010 *DHS IND Strategy*. The September 2013 annual revision to the plan contained summary information on the status of some of the recommended actions, but did not contain detailed program management information—such as specific timeframes, milestones, and estimated resources required to close any given capability gap—which is needed to better enable ongoing management oversight of gap closure efforts.

Regular reporting on the status of corrective actions identified in national-level exercises and real-world major disasters, as well as detailed program management information for management oversight of the status of recommended actions in the *IND Implementation Plan*, would enhance interagency accountability for closing identified capability gaps and better enable DHS and FEMA to assess the status of federal interagency preparedness efforts.

Contents

Letter		1
	Background	5
	ESF Coordinators Conduct Their Oversight Responsibilities in Various Ways, but Opportunities Exist to Strengthen the Assessment of ESF Preparedness	13
	Federal Departments Identified Corrective Actions to Address Capability Gaps, but Management Oversight of Implementation Status Could Be Improved	21
	Conclusions	38
	Recommendations for Executive Action	39
	Agency Comments and Our Evaluation	40
Appendix I	Objectives, Scope, and Methodology	43
Appendix II	Examples of Coordination Activities, Planning Documents, and Capability Assessments Identified by <i>National Response Framework</i> (NRF) Emergency Support Function (ESF) Coordinators	51
Appendix III	Corrective Actions Not Yet Closed for National Level Exercises 2010 and 2011, as of November 2014	60
Appendix IV	Corrective Actions Developed after Hurricane Sandy Not Yet Closed, as of November 2014	63
Appendix V	Improvised Nuclear Device (IND) Program Interagency Working Groups' Activities and Projects	69
Appendix VI	Comments from the Department of Homeland Security	74

Appendix VII	GAO Contact and Staff Acknowledgments	77
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Related GAO Products		78
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Tables

Table 1: List of Emergency Support Functions (ESF) and their Assigned Coordinators	8
Table 2: Status of Corrective Actions from National-Level Exercises (NLE) 2010 and 2011 for the Five Departments, as of November 2014	23
Table 3: Status of Corrective Actions from Hurricane Sandy for Five Departments, as of November 2014	30
Table 4: Improvised Nuclear Device (IND) Interagency Working Group Focus Areas and Assigned Capability Gaps as Described in the <i>IND Implementation Plan</i>	34
Table 5: Departments and Key Components in GAO's Review	44
Table 6: List of Emergency Support Functions (ESF) and their Assigned Coordinators	47
Table 7: Corrective Actions Not Yet Closed from National Level Exercise 2010, as of November 2014	61
Table 8: Corrective Actions Not Yet Closed from National Level Exercise 2011, as of November 2014	62
Table 9: Corrective Actions Developed after Hurricane Sandy Not Yet Closed, as of November 2014	63
Table 10: Summary of Capability Gaps and Recommended Actions Pursued as identified in the September 2013 <i>IND Implementation Plan</i>	70

Figure

Figure 1: Number of Emergency Support Function (ESF) Coordinators Conducting Selected Activities to Oversee ESF Preparedness	14
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Abbreviations

CAPS	Corrective Action Program System
DHS	Department of Homeland Security
DOD	Department of Defense
DOE	Department of Energy
DOJ	Department of Justice
ESF	emergency support function
FEMA	Federal Emergency Management Agency
HHS	Department of Health and Human Services
IND	improvised nuclear device
NLE	national level exercise
NRF	<i>National Response Framework</i>

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December 4, 2014

Congressional Requesters:

No-notice catastrophic disasters pose one of the greatest challenges to national emergency preparedness, whether caused by manmade attacks or natural events. For example, nuclear detonation from a successful improvised nuclear device (IND) attack in a U.S. city would cause enormous loss of life and property and severe damage to an affected area's economic viability.¹ Similarly, natural disasters such as a major earthquake can occur with little to no advanced warning and also potentially cause massive loss of life and property. For example, federal emergency response planning estimates on the consequences of a catastrophic earthquake along known fault lines in the central United States include impacts to multiple states and more specifically project over 75,000 casualties (injured and fatalities), more than 380,000 displaced from their homes and communities, at least 330,000 buildings moderately or severely damaged, and direct economic losses surpassing \$200 billion.²

The *National Response Framework* (NRF) states that the Secretary of Homeland Security is to ensure that overall federal preparedness actions are unified, complete, and synchronized to prevent unfilled gaps or seams in the federal government's efforts to respond to all hazards. Such hazards include IND attacks and catastrophic earthquakes.³ Further, the NRF identifies 14 emergency support functions (ESF) that serve as the federal government's primary coordinating structure for building, sustaining, and delivering response capabilities. The ESFs are organized

¹The White House, *National Security Strategy* (Washington, D.C.: May 2010).

²Mid-America Earthquake Center, *Impact of Earthquakes on the Central USA* (Urbana, Ill: September 2008).

³DHS, *National Response Framework* (Washington, D.C.: May 2013). One Government Performance and Results Act performance metric for the Federal Emergency Management Agency's (FEMA) Response Directorate is the goal of achieving a unified, complete, and synchronized federal response to emergencies. FEMA established for this goal a target of executing 100 percent of needed response actions to stabilize an incident—including no-notice catastrophic disasters—within 72 hours. These actions are defined as those functions that must be initiated immediately in order to ensure the best outcomes for survivors.

by specific functional areas for the most frequently needed capabilities during an emergency—including communications, medical services, and search and rescue—and are designed to coordinate the provision of related assets and services by federal departments and agencies.

To assess preparedness to respond to no-notice catastrophic disasters, the *National Preparedness System* calls for federal departments and agencies to identify potential capability gaps, such as through exercises and real-world incidents, and to develop corrective actions to help close these gaps.⁴ The National Exercise Program—an interagency program managed by the Federal Emergency Management Agency (FEMA), a component of the Department of Homeland Security (DHS)—serves as a means of assessing interagency preparedness and identifying corrective actions through national-level exercises (NLE).⁵ Similarly, federal departments and agencies also identify corrective actions following responses to real-world incidents, such as the federal response to Hurricane Sandy in October 2012. Finally, federal departments and agencies may identify capability gaps by conducting capability gap analyses, which compare the capabilities needed for an effective response (i.e., capability requirements) against those available.

Congressional requesters asked us to review federal preparedness to respond to no-notice catastrophic disasters. This report assesses the extent to which opportunities exist to strengthen

⁴The White House released *Presidential Policy Directive 8 on National Preparedness* in March 2011. It directed the Secretary of Homeland Security to design a national preparedness system to address the threats posing the greatest risk to the security of the nation and issue various policy and planning documents designed to enhance national preparedness. In November 2011, the Department of Homeland Security (DHS) published the *National Preparedness System*, which describes activities for developing emergency preparedness capabilities, and has worked through FEMA to implement the system. The White House, *Presidential Policy Directive 8 on National Preparedness* (Washington, D.C.: Mar. 30, 2011). DHS, *National Preparedness System* (Washington, D.C.: November 2011). Corrective actions are the concrete, actionable steps assigned to responsible entities that are intended to resolve gaps and shortcomings experienced during exercises and real-world incidents. Federal departments and agencies use varying terminology—e.g., recommended actions, recommended courses of action, etc.—to describe the actions developed to address such gaps. For the purposes of this report, we refer to such actions collectively as corrective actions.

⁵The Post-Katrina Emergency Management Reform Act of 2006 requires FEMA to carry out a national exercise program and conduct periodic national exercises. 6 U.S.C. § 748(b). In 2014, FEMA began labeling what had previously been termed “national-level exercises” as “capstone exercises.”

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1. the assessment of ESF preparedness, and
 2. management oversight of the status of implementation of federal capability gaps identified in national-level exercises, real-world incidents, and other gap assessments.

For the purposes of this report, we selected two no-notice catastrophic scenarios and five federal departments for our review. IND attacks and major earthquakes represent one man-made scenario and one naturally occurring scenario, respectively, and are among the scenarios the federal government uses to plan for no-notice catastrophic incidents. We selected the five federal departments—the Departments of Defense (DOD), Energy (DOE), Health and Human Services (HHS), DHS, and Justice (DOJ)—because, among other things, they represent federal entities with significant responsibilities for responding to IND attacks and major earthquakes and each department coordinates 1 or more of the 14 ESFs. To address our report objectives, we reviewed relevant laws and presidential directives, all-hazards and incident-specific interagency strategies and plans, as well as relevant assessments of federal preparedness. We also interviewed department and agency officials on their roles and responsibilities for emergency response, coordination of ESF preparedness, and management oversight of the status of implementation of corrective actions to close capability gaps identified in national-level exercises, real-world incidents, and other gap assessments.

In addition, to identify the extent to which opportunities, if any, exist to enhance the assessment of ESF preparedness, we gathered and analyzed information on the 10 ESFs that were coordinated by one of the five departments in our review.⁶ We compared current federal efforts to monitor ESF preparedness against, among others, requirements in the Post-Katrina Emergency Management Reform Act of 2006 (Post-Katrina Act) and *Standards for Internal Control in the Federal Government*, as well as best practices we have previously identified for interagency

⁶The following ESFs are included in our review because they are coordinated by one of the five departments: DOD—Public Works and Engineering; DOE—Energy; HHS—Public Health and Medical Services; DHS—Communications; Information and Planning; Mass Care, Emergency Assistance, Temporary Housing, and Human Services; Logistics; Search and Rescue; and External Affairs; and DOJ—Public Safety and Security. For more information on the ESFs and their coordinators, including those coordinated by departments outside the scope of our review, see app. I.

coordination.⁷ To identify potential opportunities to enhance the management oversight of the status of implementation of corrective actions to close federal response capability gaps, we gathered and analyzed after-action reports from two relevant national-level exercises, one real-world incident, and other relevant assessments.⁸ To determine the status of corrective actions from NLE 2010, NLE 2011, and Hurricane Sandy, we reviewed interagency and departmental documents that identified and provided status updates on corrective actions for these events. To assess the reliability of this information, we gathered information from agency officials knowledgeable about how corrective actions from NLEs and real-world incidents are tracked within their respective departments or agencies.⁹ To identify other scenario-specific capability gap assessments conducted on federal emergency response to IND attacks and major earthquakes, we interviewed agency officials to determine the extent to which such assessments had been conducted. We identified one relevant interagency assessment—the April 2010 *DHS Strategy for Improving the National Response and Recovery from an IND Attack (DHS IND Strategy)*.¹⁰ We reviewed the March 2012 and September 2013 iterations of the *IND Response and Recovery Capability-Based Implementation Plan (IND Implementation Plan)*, which

⁷We compared efforts to assess ESF preparedness to, among other things, requirements in the Post-Katrina Act on assessing federal preparedness to respond to disasters and federal internal control standards for monitoring the execution of management's intent. GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: Nov. 1, 1999); *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, [GAO-06-15](#) (Washington, D.C.: Oct. 21, 2005); *Catastrophic Disasters: Enhanced Leadership, Capabilities, and Accountability Controls Will Improve the Effectiveness of the Nation's Preparedness, Response, and Recovery System*, [GAO-06-618](#) (Washington, D.C.: Sept. 6, 2006).

⁸We selected NLE 2010 and NLE 2011 for our review because these two NLEs assessed federal preparedness to respond to an IND attack and a major earthquake, respectively—the only NLEs to do so since establishment of the National Exercise Program in 2007. We selected the federal response to Hurricane Sandy in 2012 for review because the incident represented the most recent, large-scale real-world disaster and involved all five departments within our scope. While Hurricane Sandy was a disaster with advanced notice (unlike the two scenarios in our review), we believe that it provides valuable insights and lessons learned to improve federal response efforts to all kinds of catastrophic incidents.

⁹We did not independently verify the accuracy of the status of corrective actions as reported to us by agency officials. However, we determined the information to be sufficiently reliable for the purpose of describing the reported status of corrective actions from the two NLEs and Hurricane Sandy at the five departments in our review.

¹⁰We determined at the time of our review, and agency officials confirmed, that a federal capability gap assessment similar to the *DHS IND Strategy* had not been conducted for federal response to major earthquakes.

describe recommended actions to address IND response capability gaps identified in the *DHS IND Strategy*, as well as the status of efforts to close those gaps.¹¹ We compared current federal management oversight of efforts to monitor and track the closure of capability gaps identified through NLE 2010, NLE 2011, the response to Hurricane Sandy, and the *DHS IND Strategy* against, among others, requirements in the Post-Katrina Act and leading practices for internal control and program management, specifically *Standards for Internal Control in the Federal Government* and *The Standard for Program Management*.¹²

Additional detail on the scope and methodology of our review is contained in appendix I.

We conducted this performance audit from September 2013 to December 2014 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

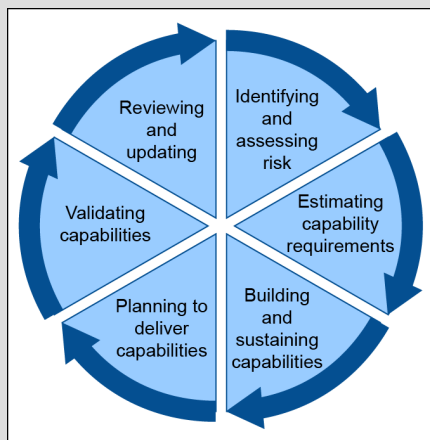
¹¹We did not independently verify the accuracy of the status of recommended actions as reported to us by agency officials. However, we determined the information we gathered to be sufficiently reliable for the purpose of describing the status of implementation of recommended actions.

¹²We compared efforts to monitor and track the closure of identified capability gaps against, among other things, requirements in the Post-Katrina Act on assessing federal preparedness to respond to disasters, federal internal control standards for monitoring the execution of management's intent, and program management standards for overseeing the implementation of complex efforts. [GAO/AIMD-00-21.3.1](#). Project Management Institute, *The Standard for Program Management*, third edition (Newton Square, Pa.: 2013).

Roles of the Secretary of Homeland Security and Administrator of FEMA

National Preparedness Goal and System

Presidential Policy Directive 8 directed the Secretary of Homeland Security to develop a national preparedness goal and design a national preparedness system to address the greatest risks to the nation. The *National Preparedness Goal*, issued in September 2011, defines the core capabilities necessary for emergency response to specific types of incidents, including acts of terrorism and natural disasters. The *National Preparedness System* was issued in November 2011 and is intended to guide activities to achieve the national preparedness goal. Specifically, it provides guidance on the planning, organization, equipment, training, and exercises needed to develop and maintain domestic emergency response capabilities. The figure below shows the system's feedback cycle.



Source: GAO analysis of Department of Homeland Security documents (text and graphic). | GAO-15-20

DHS and FEMA, in coordination with other federal departments and agencies, are responsible for assessing federal emergency preparedness. *Homeland Security Presidential Directive 5 on Management of Domestic Incidents* identifies the Secretary of Homeland Security as the principal federal official for domestic incident management.¹³ *Presidential Policy Directive 8 on National Preparedness* assigned to the Secretary of Homeland Security responsibility for coordinating preparedness efforts among federal executive branch departments and agencies.¹⁴ According to the NRF, the Secretary is to ensure that overall federal preparedness actions are unified, complete, and synchronized to prevent unfilled gaps or seams in the federal government's efforts.¹⁵ Following the federal response to Hurricane Katrina in 2005, Congress passed the Post-Katrina Act in October 2006.¹⁶ The act enhanced FEMA's responsibilities and its autonomy within DHS, required FEMA to establish a national preparedness system, and assigned FEMA responsibility for assessing the nation's overall preparedness. The Post-Katrina Act also identifies the Administrator of FEMA as the principal adviser to the President and the Secretary of Homeland Security regarding emergency management.¹⁷ The FEMA Administrator's duties include preparation for, protection against, response to, and recovery from all hazards, including IND attacks and major earthquakes.

¹³The White House, *Homeland Security Presidential Directive 5 on Management of Domestic Incidents* (Washington, D.C.: Feb. 28, 2003).

¹⁴*Presidential Policy Directive 8 on National Preparedness* updated and replaced the former *Homeland Security Presidential Directive 8* on the same topic, which identified the same responsibility for the Secretary of Homeland Security. The White House, *Presidential Policy Directive 8 on National Preparedness* (Washington, D.C.: Mar. 30, 2011).

¹⁵The NRF notes that guidance contained in the NRF is not intended to alter or impede the ability of any federal government department or agency to carry out its authorities or meet its responsibilities under applicable laws, executive orders, and directives

¹⁶The Post-Katrina Act was enacted as Title VI of the Department of Homeland Security Appropriations Act, 2007, Pub. L. No. 109-295, 120 Stat. 1355 (2006).

¹⁷6 U.S.C. § 313(c)(4).

National Response Framework and Emergency Support Functions

The NRF is a guide to how the nation responds to disasters and emergencies of all types and describes the principles, roles and responsibilities, and coordinating structures for delivering the core capabilities required to save lives, protect property and the environment, stabilize communities, and meet basic human needs following an incident. The NRF includes various annexes, including those on ESFs, the federal government's primary coordinating structure for building, sustaining, and delivering response core capabilities.¹⁸ The ESF annexes are organized by specific functional areas most frequently needed in a national response and designed to bring together the capabilities of various federal departments and agencies. Each ESF comprises a federal department or agency that has been designated as the ESF coordinator, along with a number of primary and support agencies.¹⁹ Table 1 lists the 14 ESFs and their assigned coordinators.²⁰

¹⁸The NRF incident-specific annexes include the Catastrophic Incident and Nuclear/Radiological Incident Annexes. An incident-specific annex has not been developed for response to major earthquakes. Each ESF supports at least 1 of the 14 response core capabilities that are defined by the *National Preparedness Goal* as the capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred. The *National Preparedness Goal* also assigns qualitative capability targets, or expected levels of performance, to each core capability. The response core capabilities are planning, public information and warning, operational coordination, critical transportation, environmental response/health and safety, fatality management services, infrastructure systems, mass care services, mass search and rescue operations, on-scene security and protection, operational communications, public and private services and resources, public health and medical services, and situational assessment.

¹⁹According to the NRF, ESF primary agencies have significant authorities, roles, resources, and capabilities for a particular function within an ESF, and ESF support agencies have specific capabilities or resources that support primary agencies in executing the mission of the ESF.

²⁰The NRF lists 15 ESFs. One ESF—Long-Term Community Recovery (ESF #14)—was superseded by issuance of the September 2011 *National Disaster Recovery Framework*. As a result, for the purposes of this report, we refer to the 14 ESFs that remain active.

Table 1: List of Emergency Support Functions (ESF) and their Assigned Coordinators

ESF	ESF coordinator
Transportation (ESF #1)	Department of Transportation
Communications (ESF #2)	Department of Homeland Security (DHS)/National Communications System
Public Works and Engineering (ESF #3)	Department of Defense/U.S. Army Corps of Engineers
Firefighting (ESF #4)	Department of Agriculture/U.S. Forest Service and DHS/Federal Emergency Management Agency (FEMA)/U.S. Fire Administration
Information and Planning (ESF #5)	DHS/FEMA
Mass Care, Emergency Assistance, Temporary Housing, and Human Services (ESF #6) ^a	DHS/FEMA
Logistics (ESF #7)	General Services Administration and DHS/FEMA
Public Health and Medical Services (ESF #8)	Department of Health and Human Services
Search and Rescue (ESF #9)	DHS/FEMA
Oil and Hazardous Materials Response (ESF #10)	Environmental Protection Agency
Agriculture and Natural Resources (ESF #11)	Department of Agriculture
Energy (ESF #12)	Department of Energy
Public Safety and Security (ESF #13)	Department of Justice/Bureau of Alcohol, Tobacco, Firearms and Explosives
Long-Term Community Recovery (ESF #14)	Not applicable—superseded by the <i>National Disaster Recovery Framework</i>

Source: GAO analysis of the *National Response Framework*. | GAO-15-20

^aIn this report, we refer to ESF #6 as the Mass Care ESF.

ESF coordinators are responsible, per the NRF, for overseeing the preparedness activities of their ESF and coordinating with the ESFs' primary and support agencies. The NRF describes four broad responsibilities for ESF coordinators:

- maintaining contact with ESF primary and support agencies through conference calls, meetings, training activities, and exercises;
- coordinating efforts with corresponding private sector, nongovernmental organization, and federal partners;
- ensuring the ESF is engaged in appropriate planning and preparedness activities; and

-
- monitoring the ESF's progress in meeting the targets of the core capabilities it supports.

For example, DHS and its agencies—such as FEMA—have responsibility for coordinating 7 of the 14 ESFs. FEMA also chairs the ESF Leadership Group, which is composed of the federal departments and agencies that are designated as ESF coordinators. The ESF Leadership Group exists to coordinate responsibilities, resolve interagency operational and preparedness issues, and provide planning guidance and oversight for developing interagency response plans and activities.²¹

²¹The ESF Leadership Group also comprises the federal departments and agencies that coordinate other NRF annexes, including the incident-specific annexes. According to the ESF Leadership Group's charter, the group's responsibilities include identifying operational preparedness and planning priorities to be addressed, developing and maintaining federal interagency operational plans, and providing planning assistance and oversight through all phases of interagency response planning.

Capability Assessment through National-Level Exercises, Real-World Incidents, and Other Gap Analyses

National-Level Exercise (NLE) 2010

NLE 2010 was a 2-day exercise conducted in May 2010 that concentrated on response and recovery from an improvised nuclear device attack in the United States. In the exercise's scenario, a terrorist group developed and detonated a 4.5-kiloton device in a midwestern U.S. city. In the exercise, the detonation resulted in the destruction of hundreds of heavy structures and homes, 65,000 people killed, 21,000 injured, and highly radioactive fallout.



Source: GAO analysis of Federal Emergency Management Agency documents (text and photo). | GAO-15-20

The National Exercise Program serves to assess interagency preparedness and identify corrective actions needed to close gaps in required emergency response capabilities.²² FEMA's National Exercise Division manages the design and execution of NLEs, including the development of interagency after-action reports and the related improvement plans that identify specific corrective actions. Participating federal departments and agencies are to track the status of implementation of their assigned corrective actions following NLEs.²³ Starting in calendar year 2013, the National Exercise Program established a biennial exercise cycle for NLEs.²⁴ The first NLE under this new cycle occurred in March 2014 and FEMA officials stated that they are beginning to plan for the next NLE, which is to occur in calendar 2016.²⁵

²²The Post-Katrina Act requires FEMA to carry out a national exercise program and conduct periodic national exercises. 6 U.S.C. § 748(b).

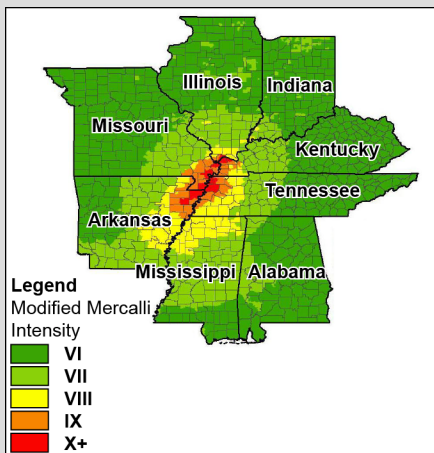
²³Intradepartmental after-action reports may also be developed by specific offices or components within a given federal department. Generally, the related improvement plans and corrective actions from such reports are designed to address tactical or operational issues within the given department. FEMA, *National Exercise Program Implementation Plan* (Washington, D.C.: June 12, 2012).

²⁴Under an earlier iteration of the National Exercise Program Base Plan, NLEs were to occur annually. In 2014, FEMA began labeling what had previously been termed "national-level exercises" as "capstone exercises."

²⁵In March 2014, FEMA conducted an NLE (now termed "capstone exercise") based on a catastrophic Alaska earthquake scenario. However, because FEMA's evaluation of this exercise was ongoing at the time of our review, and corrective actions had not yet been issued, this exercise was not included within the scope of this review.

National Level Exercise (NLE) 2011

NLE 2011 was a 4-day exercise conducted in May 2011 that concentrated on response to a catastrophic earthquake. The NLE 2011 scenario involved a magnitude 7.7 earthquake in the New Madrid Seismic Zone, which is a major fault line impacting eight states in the southern and midwestern United States. In the exercise, the earthquake and aftershocks resulted in thousands of casualties and major damage and destruction throughout the central United States.



Note: The Modified Mercalli Intensity Scale measures the effect of an earthquake on the earth's surface, and is measured from I to XII, with XII being the most intense. For example, for an earthquake with a Modified Mercalli Intensity of IX (orange in the figure above), some buildings may have shifted off of their foundations and others would have considerable damage, including partial collapses, fallen chimneys, broken windows, and overturned furniture

Source: GAO analysis of Federal Emergency Management Agency and U.S. Geological Survey documents (text and graphic). | GAO-15-20

In addition, interagency and intradepartmental after-action reports developed in the wake of major disasters, such as Hurricane Sandy in October 2012, also provide a means of assessing federal preparedness and identifying corrective actions needed to close capability gaps. For example, the National Security Council convened the Sandy After-Action Review Team in December 2012.²⁶ The team was charged with identifying challenges experienced during the federal response to Hurricane Sandy that required cross-agency attention and development of related corrective actions.

²⁶The National Security Council is the President's principal forum for considering national security and foreign policy matters with his senior national security advisers and cabinet officials, and the National Security Council Staff are the staff that assist the council. The council is chaired by the President and its regular attendees and advisers (both statutory and nonstatutory) include the Vice President; the Secretaries of State, Treasury, and Defense; the Chairman of the Joint Chiefs of Staff; the Director of National Intelligence; and the Assistant to the President for National Security Affairs. The heads of other executive departments and agencies are invited to attend meetings of the council when appropriate.

Hurricane Sandy

Hurricane Sandy was the second-largest Atlantic Ocean storm to hit the United States on record (after Hurricane Katrina in 2005), affecting the East Coast from Florida to Maine, and states as far west as the Great Lakes. Making landfall as a post-tropical cyclone in southern New Jersey on October 29, 2012, the hurricane severely affected the densely populated New York and New Jersey areas with heavy rains, strong winds, and record storm surges. The storm's effects were extensive, leaving more than 8.5 million customers without power, causing severe flooding, and contributing to acute fuel shortages in parts of New York and New Jersey. The storm damaged or destroyed hundreds of thousands of homes, caused tens of billions of dollars in damage, and claimed the lives of at least 162 people domestically.



Source: GAO analysis of National Security Council documents, White House (photo). | GAO-15-20. Damage of New Jersey's barrier beaches.

In December 2008, the Deputy Secretary of Homeland Security assigned FEMA as the departmental lead for coordinating and improving federal capabilities associated with responding to and recovering from a terrorist IND attack. The *DHS IND Strategy* was issued in April 2010 and describes capabilities needed to respond to and recover from an IND incident and identified national gaps in these capabilities. The March 2012 and September 2013 iterations of the *IND Implementation Plan* described recommended actions to address IND response capability gaps identified in the *DHS IND Strategy*, and the 2013 iteration also included the status of efforts to close those gaps.

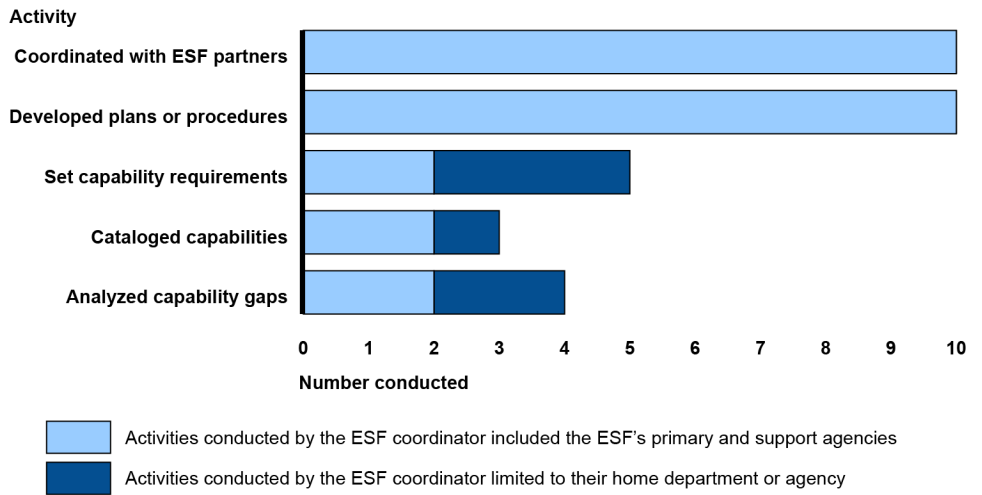
ESF Coordinators Conduct Their Oversight Responsibilities in Various Ways, but Opportunities Exist to Strengthen the Assessment of ESF Preparedness

ESF coordinators have taken various approaches to carry out their responsibilities under the NRF to oversee the preparedness activities of their assigned ESFs. However, opportunities exist to strengthen the assessment of ESF preparedness as FEMA—in coordination with other federal departments and agencies through the ESF Leadership Group—has not yet issued supplemental guidance to ESF coordinators detailing minimum standards for activities and product deliverables to demonstrate their ESFs’ overall emergency response preparedness. In addition to the ESF coordinator’s oversight responsibilities as defined in the NRF, the NRF also states that all ESFs are to support the planning core capability that, in part, entails establishing capability requirements, cataloging current capabilities, and conducting capability gap analyses. This core capability definition helps to identify the types of activities that ESF coordinators may pursue to engage—per the NRF—in appropriate planning and preparedness activities for their ESF. Planning helps to explain how federal departments and agencies are to provide the right resources at the right time—through, for example, ESFs—to support local, state, tribal, territorial, and insular area government response operations.

We found that ESF coordinators conduct a variety of coordination, planning, and capability assessment activities to oversee the preparedness of their ESFs based on each coordinator’s interpretation of what is appropriate. Information provided to us by the 10 ESF coordinators on their range of activities is summarized in figure 1 and below.²⁷

²⁷We requested information on coordination, planning, and capability assessment activities from 10 of the 14 ESF coordinators because the assigned coordinator for each of the 10 is one of the federal departments within the scope of our review (DOD, DOE, HHS, DHS, and DOJ). We did not assess the quality or the sufficiency of the activities reported. For more information on the 14 ESF coordinators, see app. I, table 6.

Figure 1: Number of Emergency Support Function (ESF) Coordinators Conducting Selected Activities to Oversee ESF Preparedness



Source: GAO analysis of information provided by ESF coordinators. | GAO-15-20SU

- Coordination.** All 10 ESF coordinators identified at least one nonemergency activity through which they coordinate with their ESFs' primary and support agencies. These coordination activities included conference calls, in-person meetings, trainings, and exercises, among others, and varied in how frequently they occur. For additional details on the 10 ESFs' coordination activities, see appendix II.
- Planning.** All 10 ESF coordinators identified at least one planning document—in addition to the information contained in the NRF's ESF annexes—that they had developed for their ESFs to further define the roles, responsibilities, policies, and procedures for their ESFs' coordination and execution. The coordinators cited various types of planning documents, including concepts of operations, operational plans, standard operating procedures, and manuals. For additional details on the 10 ESFs' planning documents, see appendix II.
- Capabilities.** ESF coordinators provided varied responses regarding whether they had established capability requirements for their ESFs, cataloged currently available ESF capabilities, or conducted capability gap analyses of currently available capabilities against capability requirements for their ESFs. For additional details on the 10 ESFs' capability requirements, catalogs, and gap analyses, see appendix II.

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- *Established capability requirements.*
 - Five of the 10 ESF coordinators identified quantified capability requirements for their ESFs.
 - Three of these 5 coordinators identified capability requirements that were limited in scope to their department or agency and did not include requirements for the ESF's primary and support agencies. For example, the Public Safety and Security coordinator (DOJ) established a baseline staffing requirement that each DOJ law enforcement component is to be ready to provide, if requested, to support the ESF's operations.
 - In contrast, 2 of the 5 ESF coordinators identified capability requirements that applied to both the coordinator's department or agency and the ESF's primary and support agencies. For example, the Mass Care coordinator (DHS/FEMA) established sheltering and feeding requirements that apply both to DHS (including FEMA) and to the ESF's primary and support agencies.²⁸
 - The remaining 5 of the 10 coordinators did not identify having established quantified capability requirements for their ESFs. For example, the Energy coordinator (DOE) stated that the department did not have the authority to establish such requirements, as the ESF's support agencies instead develop their own capability requirements based upon their individual missions and statutory authorities.
 - *Cataloged available capabilities.*
 - Three of the 10 ESF coordinators reported having developed a catalog or listing of quantified currently available capabilities for executing their assigned ESFs, and the Public Health and Medical Services coordinator (HHS) told us that such a catalog or listing was in development.

²⁸The Mass Care ESF developed guidance that includes planning factors for its primary and support agencies to determine what types of capabilities will be required to execute the ESF's mission after an incident—for example, what percentage of the population will seek emergency shelter inside the affected geographic area. This guidance identifies an ESF primary or support agency as a "service provider" to deliver the required capability; for example, DOD's Defense Logistics Agency is responsible for providing tents, camping kits, equipment, and supplies.

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- Two of the 3 coordinators who cataloged available capabilities—Mass Care (DHS/FEMA) and Logistics (DHS/FEMA)—quantified capabilities for their own department or agency as well as for other primary and support agencies for their ESFs.
 - The third coordinator, Public Works and Engineering (DOD), only cataloged DOD capabilities.
 - The remaining 7 of the 10 ESF coordinators did not identify a catalog or listing of quantified currently available capabilities for their ESFs. For example, the Search and Rescue coordinator (DHS/FEMA) stated that the unique nature of search and rescue operations made it impossible to catalog capabilities currently available to execute the ESF’s mission.
 - *Conducted capability gap analyses.*
 - Four of the 10 ESF coordinators identified assessments that analyzed the gap between the ESF’s currently available capabilities and those that the ESF coordinator had identified as required.
 - Two of the 4 coordinators conducted capability gap analyses that also included their ESFs’ primary and support agencies. For example, the Mass Care coordinator (DHS/FEMA) assessed in April 2014 whether the ESF’s primary and support agencies’ available resources were sufficient to be considered “mission ready.”
 - In contrast, 2 of the 4 coordinators that reported having conducted capability gap analyses—Public Works and Engineering (DOD) and Public Safety and Security (DOJ)—limited their assessments to whether there were gaps in resources specific to the coordinator’s agency.
 - The remaining 6 of the 10 ESF coordinators did not identify assessments conducted to analyze capability gaps for executing their assigned ESFs, but the coordinators for Information and Planning (DHS/FEMA) and Public Health and Medical Services (HHS) said that efforts to identify capability gaps were in progress.

The importance of assessing the preparedness of ESFs to provide emergency response in advance of responding to a real-world disaster was underscored by lessons learned from the federal response to Hurricane Sandy. The National Security Council's Hurricane Sandy after-action report highlighted challenges in ESF preparedness to respond to the incident despite considerable warning time before the hurricane made landfall—advance notice that will not exist in the event of a no-notice catastrophic disaster.²⁹ The federal response revealed that not all ESFs operated effectively and that similar challenges could be experienced by ESFs during future disasters. One specific challenge cited by the report was that some ESF coordinators had adopted an intradepartmental approach to response operations rather than an integrated, interdepartmental approach that included all of the ESF's departments and agencies, as prescribed by the NRF. As a result, not all ESF coordinators were able to fully draw upon or understand the capabilities and associated authorities of other departments and agencies, a fact that diminished the federal government's unity of effort during the response. For example:

- During the Hurricane Sandy federal response, the Energy coordinator (DOE) experienced significant challenges in attempting to coordinate response capabilities among its ESF's primary and support agencies. According to FEMA officials, the problems experienced by the Energy ESF were due, in part, to a lack of communication and collaboration between the ESF coordinator and the ESF's other agencies. The officials stated that had the ESF coordinator more effectively coordinated with the ESF primary and support agencies in advance of the hurricane, it would have been able to rely on a range of sources to help reestablish power to affected communities; however, the coordinator initially relied only on DOE capabilities, and these limited capabilities were quickly overwhelmed by the incident. These challenges with the execution of the Energy ESF led the President to establish an ad hoc Energy Restoration Task Force as a temporary work-around to coordinate efforts to restore power and address fuel

²⁹National Security Council, *The Federal Response to Hurricane Sandy After-Action Report* (Washington, D.C.: June 1, 2013).

shortages.³⁰ According to DOE officials, DOE has taken actions to address challenges it experienced during Hurricane Sandy. For example, DOE established a permanent DOE Energy Restoration Team that includes private sector stakeholders who may be quickly contacted before, during, and after an event to assess the status of private sector current conditions and requirements for restoration of energy infrastructure.

- On the basis of a request from the Public Safety and Security coordinator (DOJ) to support operations, eight agencies provided federal law enforcement officers to help secure critical assets, guard fuel convoys, and perform other protective duties during the Hurricane Sandy federal response.³¹ However, according to the after-action report, these agencies decided independently whether or not to respond to the ESF coordinator's request, how many officers they would supply to support each mission, and how quickly and for how long the officers would deploy. This agency-centric approach to responding to requests for assistance caused uncertainty and delays in meeting operational requirements. The report concluded that ESFs should make better use of ESF primary and support agencies' capabilities, which includes clearly understanding their capabilities, authorities, and limitations.

The after-action report also called for the ESF Leadership Group to undertake a scenario-based capability analysis in order to identify current capabilities to meet ESF missions as well as related capability shortfalls.³²

³⁰The National Security Council's Hurricane Sandy after-action report recommended the following corrective action: "As a pilot, the Energy ESF, working with DHS, the National Business Emergency Operations Center, and relevant government and sector coordinating councils, should develop a comprehensive, systematic way to track and identify issues involving fuel processing and delivery. An interim solution should be operational by June 1, 2013." According to DOE officials, the development of this pilot was ongoing as of August 2014 and its implementation would rely on the involvement of both public and private sector organizations.

³¹According to the NRF, the Public Safety and Security ESF is responsible for coordinating the integration of public safety and security capabilities and resources to support the full range of incident management activities. Functions include but are not limited to facility and resource security; security planning and technical resource assistance; public safety and security support; and support to access, traffic, and crowd control.

³²The National Security Council's Hurricane Sandy after-action report recommended the following corrective action: "The ESF Leadership Group should undertake a scenario-based capability analysis in order to identify current capabilities to meet ESF missions as well as shortfalls. The ESFs should develop solutions and short-term work-arounds to address identified shortfalls, working in concert with non-Federal partners. The ESF Leadership Group should submit the analysis and short-term solutions to the National Security Staff by August 15, 2013."

In response, in July 2013 the ESF Leadership Group asked each ESF to conduct a hurricane scenario-based capability analysis to identify any gaps in its ability to deliver the core capabilities described in each ESF's annex to the NRF. Nine of the 10 ESF coordinators within the scope of our review produced capability gap analyses that were qualitative in nature.³³

Federal departments and agencies that serve as ESF coordinators oversee their ESFs' preparedness activities in various ways, as stated earlier, in part because the ESF Leadership Group and the group's chair, FEMA, have not issued guidance—supplemental to the NRF—to coordinators detailing with greater specificity the minimum standards for activities and product deliverables to demonstrate their ESFs' overall response preparedness.³⁴ Apart from general descriptions of ESF coordinator responsibilities, the NRF does not include additional guidance or direction on how coordinators are to carry out their responsibilities. For example, the NRF does not provide guidance on (1) what amount or quality of contact between ESF coordinators and ESF primary and support agencies is necessary to demonstrate that sufficient coordination is ongoing; (2) what constitutes appropriate planning and preparedness activities, or what plans should be developed and activities engaged in to demonstrate that sufficient planning and activity has been completed or is underway; and (3) how ESF coordinators are to support the planning response core capability—which, in part, entails determining capability requirements for their ESFs, cataloging current capabilities, and conducting capability gap analyses—to demonstrate that the given ESF is

³³The coordinator for the 10th ESF, Search and Rescue, produced a capability gap analysis that compared quantified capability requirements against currently available capabilities.

³⁴Minimum standards for coordination activities could include establishing guidance that ESF coordinators hold a given number of ESF-specific conferences, trainings, or exercises for the ESFs' primary and support agencies within a given fiscal year. Minimum standards for product deliverables could include establishing guidance that ESF coordinators develop operational plans or standard operating procedures for their ESFs, as well as quantify the ESFs' capability requirements and catalog currently available capabilities against said requirements.

sufficiently prepared. Detailed guidance has also not been provided in other documents implementing the *National Preparedness System*.³⁵

FEMA officials told us that such guidance would be helpful to clarify what activities and product deliverables, at a minimum, ESF coordinators should engage in and develop to demonstrate effective ESF coordination. Further, FEMA officials told us that they prefer that ESF-specific expectations on minimum activities and product deliverables be established, as such expectations would in turn better enable FEMA to assess the status of ESF preparedness by comparing ESF coordinator activities against established expectations. For example, one potential ESF minimum activity expectation cited by FEMA officials could be whether the ESF coordinator held at least an annual ESF coordination conference for the ESF's primary and support agencies in order establish and strengthen communication among the given ESF's partners. FEMA officials stated that they have not yet issued supplemental guidance to ESF coordinators because they have not been required to do so and because they do not believe FEMA has the statutory authority to direct other departments or agencies to implement such guidance once issued.

However, responsibility for assessing federal emergency response preparedness—including for the ESFs under the NRF—is delegated by law and presidential directive to the Secretary of Homeland Security and the Administrator of FEMA. We recognize that FEMA's authority is generally to coordinate, guide, and support—rather than direct—other departments and agencies in conducting the national preparedness activities delegated to them through the NRF, and that collaboration between FEMA and other departments and agencies is an essential element of these efforts. However, FEMA's charge to lead national preparedness activities and assess the nation's overall preparedness, as outlined in the Post-Katrina Act, provides it with the opportunity to work with other federal departments and agencies through the ESF Leadership Group to provide more detailed guidance to ESF coordinators than has been provided to date. Such additional guidance, setting expectations for

³⁵The NRF includes 14 ESF annexes that contain general descriptions of actions to be taken by the ESFs' primary and support agencies to execute the given annex's described emergency support function. However, the ESF annexes do not provide any additional guidance to ESF coordinators on how they are to carry out their coordinator responsibilities. FEMA issued the Response Federal Interagency Operational Plan for the NRF in July 2014; according to FEMA officials, it includes information directing each ESF to deliver services, supplies, and resources during the different phases of response. However, while the document identifies specific tasks ESFs are to take, this document does not provide any additional guidance on how all ESF coordinators are to execute their responsibilities to oversee ESF preparedness.

coordinators on minimum standards for activities and product deliverables to demonstrate their ESFs' preparedness, would better enable the Secretary and the Administrator to assess ESF preparedness by comparing actual ESF coordinator activities and deliverables produced against established expectations. We have previously reported that interagency coordination can be enhanced by clearly defining roles and responsibilities—such as minimum expectations for ESF coordinators—and that clearly defining and communicating expectations for leadership roles and responsibilities in advance of catastrophic disasters is essential to better ensuring effective emergency response when such disasters occur.³⁶ Existing guidance to ESF coordinators on their ESF oversight role identifies broad responsibilities, but does not establish minimal expectations for coordination activities and product deliverables. More specific expectations would provide a basis for the Secretary's and Administrator's assessment of current ESF preparedness that does not currently exist.

Federal Departments Identified Corrective Actions to Address Capability Gaps, but Management Oversight of Implementation Status Could Be Improved

³⁶GAO-06-15 and GAO-06-618. See also GAO, *Homeland Defense: DOD Needs to Take Actions to Enhance Interagency Coordination for Its Homeland Defense and Civil Support Missions*, GAO-10-364 (Washington D.C.: Mar. 30, 2010).

Federal Departments Monitor the Implementation of Corrective Actions from National-Level Exercises to Address Capability Gaps, but Could Benefit from Comprehensive Status Reporting

National-Level Exercise 2010 Corrective Action Example

Department: Defense (DOD)

Capability gap: The issue of National Guard troops being federalized and defederalized resulted in extensive senior leader debate and consultation during the exercise.

Corrective action: Convene a roundtable discussion with key interagency stakeholders to inform senior leaders regarding the employment, command and control, and unity of effort for the deployment of National Guard forces in this situation.

Status: Closed

Action taken: DOD officials reported that the department led a series of working sessions from June 2011 to July 2013 to examine this issue, and as a result, issued a formal DOD instruction in July 2013 on the use of the National Guard for defense support to civilian authorities for natural and manmade disasters.



Source: GAO analysis of Federal Emergency Management Agency and DOD documents, DOD (photo). | GAO-15-20

The federal departments that participated in NLEs monitor the status of their corrective actions; however they do not report this information to DHS or FEMA, nor does DHS or FEMA comprehensively collect this information from the departments. As a result, DHS and FEMA cannot provide a comprehensive picture of the status of national preparedness in its reporting, as called for by *Presidential Policy Directive 8*.

NLE 2010 assessed federal preparedness to respond to an IND attack, and FEMA's interagency after-action report identified 121 corrective actions, 104 of which were directed to one of the five departments in our review.³⁷ NLE 2011 assessed federal preparedness to respond to a major earthquake, among other things, and FEMA's interagency after-action report highlighted areas for improvement—such as the need to increase familiarization with earthquake response plans at the state, regional, and national levels—for federal departments and agencies to develop their own corrective actions in their own after-action reports. The five departments in our review identified 75 actions that they had planned to take to address the capability gaps identified in the interagency after-action report. As of November 2014, nearly all of the corrective actions from NLEs 2010 and 2011 have been closed to date, as shown in table 2.³⁸

³⁷The 17 remaining corrective actions were assigned to the following federal entities that were outside the scope of this review: 2 to the Small Business Administration, 1 to the Occupational Health and Safety Administration, 3 to the Department of Agriculture, 1 to the Department of Housing and Urban Development, and 10 to the White House.

³⁸The Post-Katrina Act requires FEMA to establish a program to conduct remedial action tracking and long-term trend analyses. See 6 U.S.C. § 750. Our report will generally refer to “corrective action tracking” rather than “remedial action tracking,” as used in the statute. For the purposes of this report, a closed corrective action includes actions that have been implemented, actions that were overtaken by other events and as a result were no longer applicable, and actions the department declined to implement for other reasons. Data fields in the Corrective Action Program System (CAPS) in which corrective action officers are to describe why an action was being closed did not consistently contain detailed enough information for GAO to determine if the action was closed because action had been taken or for another reason. For information on the corrective actions from NLE 2010 and NLE 2011 that remain open at each department, as well as the departments' plans to address these actions, see app. III.

National-Level Exercise 2010 Corrective Action Example

Department: Homeland Security (DHS)

Capability gap: Exercise participants noted that fire departments across the country, unlike law enforcement agencies, had no common method of communication with one another.

Corrective action: Examine methods to connect fire departments, a vital first responder group.

Status: Open

Plans to address: According to DHS, the Office of Emergency Communications continues to reach out and engage state and local stakeholders to ensure interoperable emergency communications are addressed in the DHS National Emergency Communications Plan. This effort helps to improve communications and integration of local police and fire departments in response to natural and manmade disasters.



Source: GAO analysis of Federal Emergency Management Agency (FEMA) and DHS documents, FEMA (photo). | GAO-15-20

Table 2: Status of Corrective Actions from National-Level Exercises (NLE) 2010 and 2011 for the Five Departments, as of November 2014

Department	Number of closed corrective actions/total		Method of monitoring the implementation of corrective actions from NLEs
	NLE 2010	NLE 2011	
Defense (DOD)	2/4	27/29	According to DOD officials, the department monitors the status of corrective actions from NLEs in the DOD Joint Lessons Learned Information System. ^a DOD's system does not interface with the Federal Emergency Management Agency's (FEMA) Corrective Action Program System (CAPS) and DOD officials stated that they do not use CAPS to monitor or provide information updates on the status of these corrective actions. ^b
Energy (DOE)	No corrective actions	8/8	According to DOE officials, the department does not monitor the status of corrective actions from NLEs in a DOE data system. Instead, corrective actions assigned to DOE are monitored in an ad hoc manner by senior DOE staff responsible for overseeing DOE's emergency response activities. DOE officials stated that they do not use CAPS to monitor or provide information updates on the status of these corrective actions. ^c
Health and Human Services (HHS)	3/3	22/22	According to HHS officials, the department monitors the status of corrective actions from NLEs using an internal-to-HHS Internet-based data management system that is updated by an HHS corrective action working group. HHS also updated the status of the corrective actions assigned to the department in CAPS for NLE 2010 on an ongoing and as-needed basis until these 3 corrective actions were closed. ^d
Homeland Security (DHS)	90/94	14/14	According to FEMA officials, the agency monitors the status of corrective actions from NLEs for DHS and its components in CAPS. FEMA officials send quarterly emails to corrective action officers at DHS components to remind them to update the status of their component's assigned corrective actions in CAPS.

National-Level Exercise 2011 Corrective Action Example

Department: Health and Human Services (HHS)

Capability gap: While exercise participants recognized the importance of understanding the benefits of social media outlets outside of the traditional television and radio community during a disaster, HHS lacked a policy or procedure on how to utilize information gained through social media.

Corrective action: Continue to foster the awareness of social media capabilities but develop HHS standards, policies, and procedures for their use.

Status: Closed

Action taken: According to HHS officials, the department developed standard operating procedures specifically on the use of social media and will reevaluate in the future to ensure that the procedures remain relevant to evolving social media



Source: GAO analysis of Federal Emergency Management Agency (FEMA) and Department of Homeland Security documents, FEMA (photo). | GAO-15-20

Justice (DOJ)	3/3	2/2	<p>According to DOJ officials, the department does not monitor the status of corrective actions from NLEs in a DOJ system. Instead, the department monitors the status of these corrective actions for DOJ and its components through DOJ's Emergency Preparedness Committee, which meets on a monthly basis and assigns corrective actions to DOJ components following NLEs.</p> <p>DOJ officials stated that they do not use CAPS to monitor or provide information updates on the status of these corrective actions.</p>
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Source: GAO analysis of information provided by DOD, DOE, DOJ, DHS, and HHS. | GAO-15-20

^aAccording to DOD officials, DOD's Joint Lessons Learned Information System is a knowledge management system and the department's centralized repository for capturing data for development and institutionalization of DOD lessons learned. The system is used to collect observations and best practices identified during exercises, real-world disasters, as well as daily operations. The system's process entails recording observations, vetting these observations to identify associated issues, then evaluating and verifying resolutions to the identified issues. Upon resolution, these issues are officially designated as DOD lessons learned. DOD officials stated that the system is accessible and shared among some of DOD's federal interagency partners, including DHS, FEMA, and HHS.

^bCAPS is the database that DHS and FEMA use to monitor the status of their corrective actions from NLEs. According to FEMA officials, other departments and agencies may also use the system to monitor the status of their corrective actions.

^cWithin DOE, the National Nuclear Security Administration's Office of Emergency Response formally tracks lessons learned from radiological emergency responses and exercises. According to DOE officials, observations and findings are rolled up into lessons learned from which corrective actions are developed. These corrective actions are prioritized and funded according to their importance. Regularly scheduled meetings track the progress of these corrective actions.

^dHHS did not update the status of its corrective actions for NLE 2011 in CAPS, as it had done for NLE 2010, because FEMA did not catalog corrective actions for NLE 2011 in CAPS for departments outside of DHS.

To enhance FEMA's ability to assess the extent to which corrective actions have been implemented and describe strengths and weaknesses in the nation's preparedness capabilities, we recommended in April 2009 that FEMA either (1) revise the National Exercise Program to require the use of FEMA's Corrective Action Program System (CAPS), the database that DHS and FEMA use to monitor the status of their corrective actions from NLEs, or (2) require that federal agencies submit a report to FEMA on the status of their corrective actions resulting from such exercises.³⁹ In June 2012, FEMA issued an updated implementation plan for the National Exercise Program that states that all federal-level corrective actions developed from NLEs are to be tracked through CAPS from identification through implementation. According to FEMA officials, the agency assists in this process by initially inputting the corrective actions into CAPS following an NLE. However, as shown in table 2, we found that, other than DHS, only HHS updated the status of its assigned corrective actions in CAPS, and FEMA officials noted that the agency does not have authority to compel other departments and agencies to update the status of their corrective actions in the system. Officials from DOD, DOE, and DOJ told us they do not use CAPS because they instead prefer to use their own internal corrective action monitoring systems or processes. Thus, while FEMA took actions to enhance its ability to monitor corrective actions in CAPS, other federal departments that participate in NLEs do not report this information to DHS or FEMA. As a result, FEMA has not yet been able to assess the extent to which NLE corrective actions have been implemented across the federal government and, ultimately, describe strengths and weaknesses in the nation's preparedness capabilities.

³⁹In April 2009, we reported that although the Post-Katrina Act did not give FEMA the authority to compel other federal entities to comply with the objectives of the National Exercise Program, the act placed responsibility for implementing the National Exercise Program on FEMA, in coordination with other appropriate federal entities. Further, we reported that it was incumbent on FEMA to coordinate with other federal entities to better ensure that FEMA obtains the information it needs to meet its statutory responsibility to track corrective actions. However, the implementation plan for the National Exercise Program at that time did not require federal departments and agencies to report corrective action information to FEMA. See GAO, *National Preparedness: FEMA Has Made Progress, but Needs to Complete and Integrate Planning, Exercise, and Assessment Efforts*, [GAO-09-369](#) (Washington, D.C.: Apr. 30, 2009).

National-Level Exercise 2011 Corrective Action Example

Department: Defense (DOD)

Capability gap: During the exercise, DOD officials noted the need to have a mapping product capable of providing the commander with a picture of significant interagency activities, but noted that agency partners did not use a standard common operating picture product.

Corrective action: Develop a tool to reside on the Non-Classified Internet Protocol Router network portal for use by all battle cells and directorates to allow internal and external data sharing with interagency partners, the private sector, and nongovernmental organizations.

Status: Open

Plans to address: According to DOD officials, this action developed into two issues—information sharing via the Situational Awareness Geospatial Enterprise (SAGE) and operationalizing SAGE information for assessments and decisions—both of which are being addressed by a relevant working group.



Source: GAO analysis of DOD documents (text and photo). | GAO-15-20

FEMA could more comprehensively report on the nation's overall preparedness if it had information on the status of implementation of corrective actions identified through the NLEs. Specifically, in March 2011, the White House issued *Presidential Policy Directive 8 on National Preparedness*, which called for FEMA to lead the development of a comprehensive approach to assessing national preparedness as well as to develop an annual national preparedness report.⁴⁰ To develop the annual *National Preparedness Report*, FEMA contacts other federal departments and agencies requesting information on, among other things, strengths and areas for improvement identified following exercises over the prior year, which may include both NLEs as well as exercises conducted internally at a given department or agency.⁴¹ However, the agency does not request information on the status of corrective actions to be implemented by other federal departments and agencies arising from such exercises because, according to FEMA officials, the *National Preparedness Report* is written for a national audience and contains limited detail on any given federal department or agency. In response to FEMA's request for information when preparing the March 2014 *National Preparedness Report*, FEMA officials stated that other federal departments and agencies provided anecdotal examples of ongoing efforts and accomplishments achieved to improve national preparedness. However, *Presidential Policy Directive 8* calls for the *National Preparedness Report* to describe the progress made toward meeting the *National Preparedness Goal*.⁴² Anecdotal examples provided by other federal departments and agencies, while illustrative, do not provide a comprehensive description of the progress made in closing capability gaps identified through prior NLEs. The status of implementation of corrective actions to close these known gaps is an integral component in describing the overall status of national preparedness.

⁴⁰The Post-Katrina Act also required FEMA to develop a comprehensive assessment system and annual federal preparedness reports. 6 U.S.C. §§ 749, 752.

⁴¹According to the March 2014 *National Preparedness Report*, FEMA collected and reviewed over 1,000 data and information sources from federal, state, local, tribal, territorial, private sector, and nongovernmental entities, among others, to develop the report. For example, the report used the results of a self-assessment process that states and territories completed in 2013, including Threat and Hazard Identification Risk Assessment and State Preparedness Report submissions that states and territories are required to complete in order to receive preparedness grant funding.

⁴²The *National Preparedness Goal*, called for by *Presidential Policy Directive 8* and issued in September 2011, defines the core capabilities necessary for emergency response to specific types of incidents, including acts of terrorism and natural disasters.

According to FEMA officials, the National Security Council is responsible for monitoring the overall implementation of corrective actions across the federal interagency. Specifically, the council is responsible for overseeing the progress of corrective action implementation from NLEs for all federal departments and agencies to ensure priority issues are assigned and completed within a specific timeframe.⁴³ FEMA officials stated that the council occasionally tasks relevant departments and agencies with providing an update on the status of their corrective actions from NLEs. On such occasions, FEMA provided this information for DHS and its components, while other federal departments and agencies provided the status of their corrective actions directly to the council.⁴⁴

According to FEMA officials, the agency does not request information on the status of corrective actions from NLEs for other departments from the National Security Council because it does not have the responsibility to do so.⁴⁵ However, in order to have a comprehensive picture of the progress made toward meeting the National Preparedness Goal, the Secretary of Homeland Security—through FEMA—would benefit from comprehensive and up-to-date information on the extent to which capability gaps identified through NLEs have been addressed. While the departments in our review reported that nearly all of the outstanding corrective actions from NLE 2010 and NLE 2011 have been closed as of August 2014, FEMA plans to conduct future NLEs on a biennial and ongoing basis and information on the implementation of corrective actions identified through these future exercises will be important to providing a more complete picture of the nation's preparedness. Thus, collecting information on the status of corrective actions from NLEs across the federal government would better position the Secretary of Homeland

⁴³FEMA, *National Exercise Program Base Plan* (Washington, D.C.: March 18, 2011).

⁴⁴According to FEMA officials, updates on the status of corrective actions provided to the council by other federal departments and agencies are subsequently forwarded to FEMA by the council for FEMA's situational awareness.

⁴⁵While FEMA does not monitor the status of NLE corrective action implementation beyond DHS and its components, FEMA officials noted that the agency seeks to increase interagency awareness of open NLE corrective actions by providing monthly updates to the interagency National Exercise Program Exercise Implementation Committee, which includes senior representatives from federal departments and agencies, on the status of corrective actions from prior NLEs as displayed in CAPS. However, because we found that the other federal departments and agencies within the scope of our review generally do not use CAPS, this information is not comprehensive or up to date. According to FEMA officials, FEMA reminds other departments and agencies at the monthly committee meeting of their responsibility to update the status of their assigned corrective actions in CAPS. FEMA officials stated that they also offer the departments and agencies the option to provide status updates through other means, such as email.

Security—through FEMA— to comprehensively describe the status of national preparedness in its annual reporting.

Departments Monitor the Implementation of Corrective Actions from Real-World Incidents, but DHS Could Benefit from Comprehensive Status Reporting

Following real-world emergency incidents, such as the federal response to Hurricane Sandy in October 2012, federal departments and agencies at times develop after-action reports that identify corrective actions to address observed federal capability gaps and subsequently monitor the status of their corrective actions; however they do not report to FEMA or DHS on the status of these actions, nor does DHS or FEMA collect this information from the departments. As a result, DHS and FEMA cannot provide a comprehensive picture of the status of national preparedness in its reporting, as called for by *Presidential Policy Directive 8*.

Hurricane Sandy Corrective Action Example

Department: Justice (DOJ)

Capability gap: The regional law enforcement coordinators and field coordinators of the Public Safety and Security emergency support function (ESF) deployed to the field during Hurricane Sandy did not have the supplies necessary to perform their mission

Corrective action: Develop a deployment kit to be sent with regional law enforcement coordinators and field coordinators during all Public Safety and Security ESF deployments.

Status: Closed

Action taken: Standardized deployment gear and clothing were provided to all deployable Public Safety and Security ESF personnel. Further, each region was provided a "deployment kit," and extra deployment kits are maintained at the Public Safety and Security ESF headquarters.



Source: GAO analysis of DOJ documents, Federal Emergency Management Agency (photo). | GAO-15-20

The five departments we reviewed all identified capability gaps and developed associated corrective actions following the federal government's response to Hurricane Sandy, and they are each monitoring the status of their assigned actions through their own internal systems or processes. As shown in table 3, more than half (63 out of 102) of the corrective actions identified by the five departments or their components based on their response to Hurricane Sandy have been closed as of November 2014.⁴⁶ In addition, as shown in table 3, DOD, DOE, DOJ, and HHS used the same processes to monitor the status of corrective actions they developed in response to Hurricane Sandy as they did for the corrective actions they developed in response to prior NLEs, as previously discussed. In contrast, FEMA uses a different process, monitoring the status of its corrective actions through an intra-agency working group and an internal-to-FEMA data-sharing repository.⁴⁷ None of the five departments used CAPS to monitor corrective actions from Hurricane Sandy or otherwise report this information to DHS or FEMA, nor did FEMA request or receive information from the other departments on their status.

⁴⁶For information on the corrective actions from Hurricane Sandy that remain open at each department, as well as their plans to address these actions, see app. IV.

⁴⁷In April 2009, we recommended that FEMA develop procedures for including lessons learned from real-world incidents in CAPS. This recommendation focused on corrective actions identified internally at FEMA. FEMA issued a management directive on the Lessons Learned/Continuous Improvement Program in February 2013. According to the directive, all corrective actions identified for assignment and tracking based on lessons learned (including from real-world incidents) that are beyond the capability of a given FEMA component to resolve or that are of significant interest to FEMA management are to be presented to the FEMA Continuous Improvement Working Group and should be submitted for inclusion in CAPS. The issuance of this directive met the intent of our recommendation. See [GAO-09-369](#). While the management directive encourages FEMA's components to use CAPS, they may use other processes as necessary. For corrective actions from Hurricane Sandy, FEMA reported using an internal-to-FEMA data-sharing repository to monitor their status.

Table 3: Status of Corrective Actions from Hurricane Sandy for Five Departments, as of November 2014

Department and relevant component	Number of closed corrective actions/total	Method of monitoring the implementation of corrective actions from Hurricane Sandy
Defense (DOD) <ul style="list-style-type: none"> Northern Command (NORTHCOM)^a 	8/10	According to DOD officials, the department monitors the status of corrective actions from real-world incidents in the DOD Joint Lessons Learned Information System. DOD's system does not interface with FEMA's Corrective Action Program System (CAPS) and DOD officials stated that they do not use CAPS to monitor or provide information updates on the status of these corrective actions. ^b
Energy (DOE) <ul style="list-style-type: none"> Office of Electricity Delivery and Energy Reliability^c 	7/9	According to DOE officials, the department does not monitor the status of corrective actions from real-world incidents in a formal DOE data system. Instead, corrective actions assigned to DOE are monitored in an ad hoc manner by senior DOE staff responsible for overseeing DOE's emergency response activities. DOE officials stated that they do not use CAPS to monitor or provide information updates on the status of these corrective actions.
Health and Human Services (HHS)	22/44	According to HHS officials, the department monitors the status of corrective actions from real-world incidents using an internal-to-HHS Internet-based data management system that is updated by an HHS corrective action working group. However, HHS does not update or otherwise use CAPS to monitor the status its corrective actions from real-world incidents, in part because FEMA does not catalog corrective actions in CAPS for other departments for real-world incidents as it does for national-level exercises.
Homeland Security (DHS) <ul style="list-style-type: none"> Federal Emergency Management Agency (FEMA) 	5/14	According to FEMA officials, FEMA monitors the status of corrective actions from Hurricane Sandy through its Continuous Improvement Working Group and an internal-to-FEMA data-sharing repository. Unlike with corrective actions from NLEs, FEMA does not require that corrective actions from real-world incidents are tracked in CAPS. While FEMA's offices are encouraged to use CAPS, they may use other processes as necessary.
Justice (DOJ) <ul style="list-style-type: none"> Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)^d 	21/25	According to DOJ officials, the department does not monitor the status of corrective actions from real-world incidents in a formal DOJ system. Instead, the department monitors the status of these corrective actions for DOJ and its components through DOJ's Emergency Preparedness Committee, which meets on a monthly basis and assigns corrective actions to DOJ components following NLEs. DOJ officials stated that they do not use CAPS to monitor or provide information updates on the status of these corrective actions.

Source: GAO analysis of information provided by DOD, DOE, DOJ, DHS, and HHS. | GAO-15-20

Hurricane Sandy Corrective Action Example

Department: Energy (DOE)

Capability gap: Situational awareness of fuel supplies was inadequate and better communication of power restoration timeframes was needed.

Corrective action: Leverage technology to improve response and communications, including working with public and private sector responders to identify effective communication and response technologies, as well as processes and opportunities for technology solutions to improve information sharing.

Status: Closed

Plans to address: According to DOE, the department is addressing this action through a visualization and modeling platform that will allow DOE staff to geospatially map energy assets and systems and tie together a variety of data sources into one platform.



Source: GAO analysis of DOE documents (text and photo). | GAO-15-20

Source: GAO analysis of information provided by DOD, DOE, DOJ, DHS, and HHS. | GAO-15-20

^aNORTHCOM is the DOD component primarily responsible for defense support to civilian authorities in the continental United States and Alaska, among other areas.

^bCAPS is the database that DHS and FEMA use to monitor the status of their corrective actions from NLEs. According to FEMA officials, other departments and agencies may also use the system to monitor the status of their corrective actions.

^cDOE's Office of Electricity Delivery and Energy Reliability is the coordinator of the ESF on Energy, which provided situational assessments of the electricity, oil, and natural gas sectors, among other kinds of support, to assist with the response to Hurricane Sandy.

^dATF is the coordinator of the ESF on Public Safety and Security, which coordinated the deployment of federal law enforcement officers, among other kinds of support to assist with the response to Hurricane Sandy.

In addition to the after-action reports developed by each department following Hurricane Sandy, the National Security Council's Hurricane Sandy after-action report recommended 17 corrective actions, most of which were assigned to the council, FEMA, or the ESF Leadership Group. However, FEMA officials stated that these corrective actions were not formally assigned by the National Security Council to FEMA or others for implementation and closure. FEMA officials stated that although they are not officially monitoring the status of these actions, the agency meets regularly with ESF coordinators to discuss issues identified in the report, among other things, as the chair of the ESF Leadership Group.

In addition to requesting information related to strengths and areas for improvement identified following exercises for development of the *National Preparedness Report*, FEMA also requests information for the report on strengths and areas for improvement identified following the federal response to recent real-world incidents over the prior year. According to FEMA officials, in response to this request, other federal departments and agencies provided anecdotal examples of ongoing efforts and accomplishments to improve national preparedness, including examples of progress made to address areas for improvement identified during Hurricane Sandy. However, as with NLEs and other exercises, FEMA does not request information from other departments and agencies on the status of their corrective actions identified following real-world incidents because, according to FEMA officials, the *National Preparedness Report* is written for a national audience and contains limited detail on any given federal department or agency. *Presidential Policy Directive 8* calls for the *National Preparedness Report* to describe the progress made toward meeting the National Preparedness Goal. Anecdotal examples provided by other federal departments and agencies, while illustrative, do not provide a comprehensive description of the

progress made in closing capability gaps identified through prior real-world disasters. The status of implementation of corrective actions to close these known gaps is an integral component in describing the overall status of national preparedness.

As discussed, FEMA is not aware of the full range of information on capability gaps identified by other federal departments and agencies during this and other real-world incidents. According to FEMA officials, the agency does not collect information on the status of corrective actions from other departments because it does not have the responsibility to do so. However, in order to have a comprehensive picture of the progress made toward meeting the National Preparedness Goal, the Secretary of Homeland Security—through FEMA—would benefit from comprehensive and up-to-date information on the extent to which capability gaps identified through real-world disasters have been addressed. While the implementation of corrective actions is the responsibility of the departments and agencies to which those actions are assigned, information on the status of corrective actions identified through real-world disasters is important for providing a more complete picture of the nation's preparedness. Thus, collecting information on the status of these corrective actions across the federal government would better position the Secretary of Homeland Security—through FEMA—to comprehensively describe the status of national preparedness in its annual reporting.

FEMA Developed a Plan to Address IND Response Capability Gaps, but the Agency Could Benefit from Adopting Leading Practices for Program Management

Improvised Nuclear Device (IND) Capability Gap and Corrective Action Example

Working group: Medical and Public Health

Capability gap: There is a need for greater access to U.S. Food and Drug Administration-approved medical countermeasures for treating radiation effects in the wake of an IND detonation. Medical countermeasures include vaccines, drugs, and diagnostics to treat medical conditions such as radiation poisoning that can occur in the wake of an IND detonation.

Corrective action: Pursue research and development of new and predeploying existing countermeasures for such treatment.

Progress: The September 2013 *IND Implementation Plan* reported that completion of this action will take 5 to 10 years.



Source: GAO analysis of Federal Emergency Management Agency documents, U.S. Food and Drug Administration (graphic). | GAO-15-20

FEMA issued the *IND Implementation Plan* in March 2012 to document proposed corrective actions to address IND response capability gaps for federal emergency response identified in the April 2010 *DHS IND Strategy*. However, the plan does not capture key program management information—including, among other things, estimates of completion dates, interim timeframes and milestones, and funding and resource requirements—which hinders management’s ability to monitor the status of the identified corrective actions.⁴⁸ Specifically, five interagency working groups composed of subject matter experts from federal departments and agencies as well as stakeholders from state and local emergency management organizations, academic institutions, and research centers identified over 300 proposed corrective actions in the *IND Implementation Plan* needed to close the 136 capability gaps identified in the *DHS IND Strategy*.⁴⁹ DHS designated FEMA’s Response Directorate’s Chemical, Biological, Radiological, Nuclear, and High Explosives Office to lead monitoring the status of efforts to close capability gaps identified in the *DHS IND Strategy* and coordinating the five interagency working groups that are responsible for closing the identified gaps. Table 4 describes the focus areas for each of the working groups as well as the number of capability gaps identified in the *DHS IND Strategy* for which the working groups were assigned lead responsibility.

⁴⁸DHS, *DHS Strategy for Improving the National Response and Recovery from an IND Attack* (Washington, D.C.: April 2010); FEMA, *Improvised Nuclear Device Response and Recovery Capability-Based Implementation Plan* (Washington, D.C.: March 2012).

⁴⁹The *DHS IND Strategy* aligns the 136 identified capability gaps to seven overarching objectives that must be achieved in order to effectively respond to and recover from an IND attack: (1) manage the response, (2) characterize the incident, (3) mass evacuation and in-place protection, (4) medical triage, (5) provide casualty and evacuee care, (6) stabilize and control impacted area, and (7) perform site recovery and restore essential functions.

Improvised Nuclear Device (IND) Capability Gap and Corrective Action Example

Working group: Response

Capability gap: Emergency shelters proximate to an IND detonation may not open following the incident because of public perceptions about the potential dangers posed by low levels of radioactive contamination.

Corrective action: Develop a white paper for Federal Emergency Management Agency (FEMA) officials that addresses, among other things, challenges related to decontaminating people and animals in need of shelter.

Progress: The September 2013 *IND Implementation Plan* reported that this action was 75 percent complete.



Source: GAO analysis of FEMA documents (text and photo). | GAO-15-20

Table 4: Improvised Nuclear Device (IND) Interagency Working Group Focus Areas and Assigned Capability Gaps as Described in the *IND Implementation Plan*

Working group	Description
Response	<ul style="list-style-type: none"> Focuses on gaps related to incident response and command capabilities required to effectively respond to an IND detonation from the first few minutes after the blast to approximately a month after the incident. Assigned lead responsibility for 61 of 136 identified capability gaps.
Recovery	<ul style="list-style-type: none"> Focuses on capability gaps related to post-IND detonation cleanup and decontamination of affected areas. Assigned lead responsibility for 18 of 136 identified capability gaps.
Medical and Public Health	<ul style="list-style-type: none"> Focuses on gaps related to medical response capabilities required to effectively respond to post-IND detonation, including medical triage, treatment, training for first responders and healthcare providers, patient tracking, clinical laboratory surge, and emergency responder and evacuee safety. Assigned lead responsibility for 52 of 136 identified capability gaps.
Communications and Public Messaging	<ul style="list-style-type: none"> Focuses on capability gaps related to disseminating public information and communications post-IND detonation for both emergency responders and the public, and provides related support to the other working groups as needed. Assigned lead responsibility for 5 of 136 identified capability gaps.
Scientific Support	<ul style="list-style-type: none"> Provides scientific and technical input for the activities of all the working groups. Assigned lead responsibility for none of the 136 identified capability gaps.

Source: GAO analysis of Federal Emergency Management Agency documents. | GAO-15-20

Improvised Nuclear Device (IND) Capability Gap and Corrective Action Example

Working group: Recovery

Capability gap: Recovery personnel must be able to minimize radioactive waste volume and reduce the public's radiation exposure to scientifically defensible and safe levels.

Corrective action: Develop technologies for containment of the radiological or nuclear contaminants as well as guidance on how they should be applied to various urban areas, including critical infrastructure.

Progress: The September 2013 *IND Implementation Plan* reported that this was a high-priority capability gap for which there was no currently identified program or project.



Source: GAO analysis of Federal Emergency Management Agency documents, Department of Homeland Security (photo). | GAO-15-20

In September 2013, FEMA issued its first annual update to the *IND Implementation Plan* to describe progress made to address the highest-priority capability gaps previously identified in the *DHS IND Strategy*.⁵⁰ Specifically, the updated *IND Implementation Plan* identified ongoing actions of the working groups to close 14 of the 136 capability gaps identified in the *DHS IND Strategy*, noting that few, if any, gaps had been completely closed.⁵¹ Further, the plan also identified an additional 31 high-priority capability gaps with associated corrective actions that had not yet been initiated. Finally, the plan also noted that the interagency working groups were to review all 136 previously identified capability gaps and corresponding corrective actions—removing existing or adding new gaps and associated actions as necessary—prior to issuance of the next iteration of the annual update to the *IND Implementation Plan* in 2015.

Our analysis of the September 2013 *IND Implementation Plan* found that the plan provided only general information on ongoing activities to address previously identified capability gaps. It did not identify detailed program management information. For example, for the 14 prioritized capability gaps with ongoing activities described in the plan, the plan did not describe specific estimated target completion dates nor interim timeframes and milestones toward completion, but instead described projects in terms of their relative degree of completion (e.g., 25 percent complete), general estimated timeframes (e.g., 5 to 10 years to

⁵⁰FEMA, *Improvised Nuclear Device Response and Recovery Capability-Based Implementation Plan, Revision 1* (Washington, D.C.: September 2013). According to FEMA officials, each working group determined which gaps it would prioritize for closure, drawing from the subset of capability gaps assigned to the given working group in the March 2012 version of the *IND Implementation Plan*.

⁵¹At the time of the September 2013 update to the *IND Implementation Plan*, the Recovery Working Group reported that it was in the process of conducting a needs assessment to determine what activities to take to address the assigned actions, and the group did not identify any ongoing activities to address capability gaps. For additional details on the five interagency working groups' ongoing activities to address the 14 identified capability gaps with projects underway as of September 2013, see app. V. While few gaps have been completely closed, FEMA officials noted that the agency has taken a number of actions to improve the federal response to an IND attack since October 2013. For example, according to FEMA officials these actions include, but are not limited to, conducting IND attack exercises in two cities, developing regional IND response plans, and developing an appendix to the Response Federal Interagency Operational Plan on responding to nuclear and radiological incidents and attacks, including an IND attack, which is expected to be completed by the end of calendar year 2014.

Improvised Nuclear Device (IND) Capability Gap and Corrective Action Example

Working group: Communications and Public Messaging

Capability gap: Public communications systems exist but are inadequate for large-scope incidents, such as an IND detonation. Local information sources need to establish initial communications with, among, and between the affected population and response forces, government, and media.

Corrective action: Develop a public communications strategy to provide awareness of safety and security actions in the vicinity of the blast area and in the overall federally declared disaster area.

Progress: The September 2013 *IND Implementation Plan* reported that this action was ongoing, but did not provide a specific date the action was to be completed.



Source: GAO analysis of FEMA documents (text and photo). | GAO-15-20

complete), or as being ongoing without additional detail.⁵² Further, with regard to funding, none of the activities for the 14 gaps identified specific funding or resource requirements to complete these activities.⁵³ As a result, the *IND Implementation Plan* as written does not enable DHS and FEMA management to know, among other things, when a given capability gap will be closed or what interim milestones should exist on its way to closure, what detailed actions are necessary by which federal actors and in what sequence, or how much it will cost to close the given gap.

The *IND Implementation Plan* contains limited information on the five working groups' ongoing activities, in part because FEMA has not requested the information. According to FEMA officials, detailed program management information is maintained by the interagency working groups and the relevant departments or agencies funding the activities of a given working group. FEMA officials stated during the course of our review that, as of August 2014, they had initiated the process of developing a multiyear program management plan for executing the *IND Implementation Plan*. The program management plan will supersede the existing *IND Implementation Plan* and be updated on a quarterly basis, according to FEMA officials. However, the officials stated that they were in the early stages of developing this new program management plan and were unable to identify specific elements that the plan will contain when finalized, including whether it would include estimated completion dates, interim timeframes and milestones, and estimates of funding and resource requirements.⁵⁴

⁵²For the 14 capability gaps described in the plan, their status of completion was variably and inconsistently reported. Specifically, activities for 5 of the gaps were described in terms of their relative degree of completion (e.g., 25 to 75 percent complete); activities for 2 of the gaps were described in terms of their general estimated timeframe for completion (i.e., 1 to 5 and 5 to 10 years to complete, respectively); activities for 6 of the gaps were described as ongoing without additional detail; and activities for 1 of the gaps did not provide information on the status of completion because FEMA was reevaluating whether the corrective actions were within its scope of responsibilities. For more details, see app.V.

⁵³For the 14 capability gaps described in the plan, activities for 11 of the gaps were reported as being funded by FEMA and 3 of the gaps were reported as being jointly funded by DOD and HHS, but funding requirements were not specified.

⁵⁴FEMA officials stated that the program management plan under development at the time of our review was in the early stages of drafting and was therefore not available for us to review. According to FEMA officials as of August 2014, the draft program management plan was scheduled to be completed by the end of calendar year 2014 and was intended to cover *IND Implementation Plan* activities through fiscal year 2018.

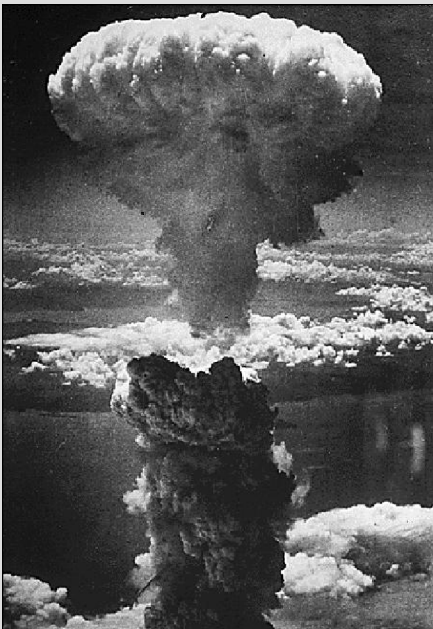
Improvised Nuclear Device (IND) Capability Gap and Corrective Action Example

Working group: Scientific Support

Capability gap: The current plume modeling capability uses input assumptions derived from empirical data from two surface detonations in a nonurban environment, which may lead to uncertain results when dealing with an IND detonation in an urban environment.

Corrective action: Improve model input assumptions for an urban environment to account for, among other things, fireball temperature in an urban environment and particle size distribution for asphalt, concrete, and other urban materials.

Progress: The September 2013 *IND Implementation Plan* reported that this was a high priority capability gap for which there was no currently identified program or project.



Source: GAO analysis of Federal Emergency Management Agency documents, Department of Energy (photo). | GAO-15-20

As a leading practice to better enable management oversight for monitoring the implementation of a specific program and its related projects, *The Standard for Program Management* calls for the development of detailed program management information that should include, among other things, estimated completion dates, interim timeframes and milestones, and estimates of funding and resource requirements to accomplish the program's intended ends.⁵⁵ Such program management information is designed to assist management in assessing the status of efforts related to the program and its associated projects, identifying potential funding or resource shortfalls, and ensuring that resources are properly allocated based on management's priorities. Without such information, the *IND Implementation Plan* as currently written cannot on its own provide reasonable assurance to the Secretary of Homeland Security that FEMA's efforts to coordinate implementation of the *DHS IND Strategy* will be achieved in an effective or efficient manner. Although FEMA officials stated that they plan to develop a multiyear program management plan in the future for implementation of the *DHS IND Strategy*, such an effort was in the preliminary stages of development at the time of our review and officials were unable to describe the extent to which the intended plan may include detailed program management information. Including such information would better enable FEMA management to assess the extent of progress made toward executing the *DHS IND Strategy* against estimated completion dates, interim timeframes and milestones, and funding and resources requirements. Developing and regularly updating detailed program management plan information for execution of the *DHS IND Strategy* would better enable officials in FEMA's Chemical, Biological, Radiological, Nuclear, and High Explosives Office and by extension, the Secretary of Homeland Security to perform necessary management oversight for monitoring implementation of the corrective actions to close the 136 identified IND response capability gaps.

⁵⁵The Project Management Institute, *The Standard for Program Management*, third edition.

Conclusions

No-notice catastrophic disasters, including IND attacks and major earthquakes, have the potential to cause enormous loss of life and property. National emergency preparedness activities, including the effective coordination of ESFs under the NRF and closure of capability gaps identified through national-level exercises, real-world disasters, and other assessments are means to better ensure the strength and resiliency of the United States in the face of such threats. Given the Secretary of Homeland Security's assigned responsibility to ensure that overall federal preparedness actions are unified, complete, and synchronized to prevent unfilled gaps or seams in the federal government's efforts to respond to all hazards, it is essential that the Secretary have accurate and up-to-date information on the readiness of interagency efforts—including through ESFs—to respond to major disasters, and knowledge that identified capability gaps are being addressed and closed in a timely manner. However, the Secretary cannot fulfill this responsibility without the collaborative interagency efforts of the other federal departments and agencies that share responsibilities under the NRF to assess their capabilities and close gaps. While the federal government has made significant progress in implementing elements of the national preparedness system, opportunities continue to exist to enhance interagency assessment and accountability efforts to close identified capability gaps. Establishing supplemental guidance to define minimum standards of performance for ESF coordination will better enable the Secretary to know that the coordinators have engaged in an appropriate level of planning and preparedness activities to provide reasonable assurance that any given ESF is ready to respond. Regular and comprehensive reporting to the Secretary on the status of implementation of corrective actions designed to address capability gaps previously identified through national-level exercises and major real-world disasters will better enable the Secretary to know that lessons were learned and corrective actions implemented in timely manner by responsible federal departments and agencies. Finally, ensuring that robust program management information has been developed for executing the closure of capability gaps identified in the *DHS IND Strategy* will better enable the Secretary to know that such gaps are being addressed effectively and efficiently. These modest process and procedural improvements will serve to better ensure that the Secretary is able to establish and build the unified, complete, and synchronized national preparedness system that is envisioned by national preparedness policy and doctrine.

Recommendations for Executive Action

To enhance DHS's and FEMA's ability to assess ESF preparedness, we recommend that the Secretary of Homeland Security direct the Administrator of FEMA—in coordination and collaboration with other federal departments and agencies through the ESF Leadership Group—to issue supplemental guidance to ESF coordinators that details minimum standards for activities and product deliverables necessary to demonstrate ESF preparedness. This guidance should include minimum expectations on how ESF coordinators are to demonstrate (1) that coordination with ESF primary and support agencies is sufficient, (2) that planning and preparedness activities are appropriate, and (3) whether required capabilities are available to effectively and efficiently respond to a disaster.

To enhance the Secretary of Homeland Security's ability to assess national preparedness and provide management oversight of federal interagency efforts to close previously identified capability gaps, we recommend that the Secretary of Homeland Security direct the Administrator of FEMA—in coordination and collaboration with the National Security Council Staff and other federal departments and agencies—to collect information on and regularly report to the Secretary the status of federal interagency implementation of corrective actions identified (1) through prior national-level exercises and (2) following real-world incidents, specifically major disasters.

To better enable the Secretary of Homeland Security to ensure that capability gaps identified in the *DHS IND Strategy* are addressed in an effective and efficient manner, we recommend that the Secretary of Homeland Security direct the Administrator of FEMA—in coordination and collaboration with other federal departments and agencies—to develop detailed program management information, consistent with leading practices discussed in this report, for federal interagency closure of the capability gaps identified in the *DHS IND Strategy*. This information should include, among other things, detailed estimates of completion dates for initiated activities, interim timeframes and milestones for monitoring and tracking progress, and necessary funding and resource requirements.

Agency Comments and Our Evaluation

We provided a draft of this report to DHS, DOD, DOE, DOJ, HHS, and the National Security Council Staff for their review and comment. DHS provided written comments, which are reproduced in appendix VI. DOD, DOE, DOJ, HHS, and the National Security Staff did not provide written comments. In its comments, DHS concurred with our three recommendations for the department and described actions under way or planned to address them by June 30, 2015. In its overall comments, DHS stated that FEMA recognizes the need to continue to improve national capabilities to respond to disasters, including through implementation of the recommendations raised in this report. DHS, DOD, DOE, DOJ, and HHS also provided technical comments, which we incorporated as appropriate.

With regard to our first recommendation, for FEMA to issue supplemental guidance to ESF coordinators that details minimum standards for activities and product deliverables necessary to demonstrate ESF preparedness, DHS concurred. DHS stated that FEMA—in coordination and collaboration with other federal departments and agencies through the ESF Leadership Group—will issue the recommended supplemental guidance to ESF coordinators to enhance interagency coordination. DHS provided an estimated completion date of June 30, 2015 for issuance of the supplemental guidance. This action, if fully implemented, should address the intent of the recommendation.

With regard to our second recommendation, for FEMA to collect information on and regularly report to the Secretary of Homeland Security the status of federal interagency implementation of corrective actions identified (1) through prior national-level exercises and (2) following real-world incidents, specifically major disasters, DHS concurred. DHS stated that FEMA recognizes the need to better position the Secretary to comprehensively monitor the status of national preparedness through regular reporting on the implementation of outstanding corrective actions across the federal interagency. In response to technical comments received from FEMA regarding their concern that the original wording of our draft recommendation could potentially have been perceived to imply that FEMA had the statutory authority to compel other federal departments and agencies to provide such information, we modified the recommendation's phrasing. Our revision was designed to make clear that such information collection is a shared responsibility between FEMA and other departments and agencies and that coordination and collaboration among all stakeholders is required to achieve the recommendation's intent. DHS provided an estimated completion date of June 30, 2015 for issuance of the initial corrective action status report to the Secretary of Homeland Security, a report that is to be issued quarterly

thereafter. This action, if fully implemented, should address the intent of the recommendation.

With regard to our third recommendation, for FEMA to develop detailed program management information—consistent with leading practices discussed in this report—for federal interagency closure of the capability gaps identified in the *DHS IND Strategy*, DHS concurred. DHS stated that FEMA has begun developing a detailed program management information system for tracking the closure of capability gaps identified in the *DHS IND Strategy*. This system is to include detailed estimates of completion dates for initiated activities, interim timeframes and milestones for monitoring progress, and identification of necessary funding and resource requirements. DHS also noted that while FEMA is unable to compel other federal departments or agencies to participate in such efforts or provide FEMA with requested information, FEMA will continue to coordinate and collaborate with other involved federal entities in order to monitor closure of the capability gaps identified in the *DHS IND Strategy*. DHS provided an estimated completion date of April 30, 2015 for finalization of the detailed program management information system. This action, if fully implemented, should address the intent of the recommendation.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Secretaries of Homeland Security, Defense, Energy, Health and Human Services, and the Attorney General of the United States. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (404) 679-1875 or at CurrieC@gao.gov. Contact points for our Office of Congressional Relations and Office of Public Affairs can be found on the last page of this report. Other major contributors to this report are listed in appendix VII.



Chris P. Currie
Director
Homeland Security and Justice

List of Requesters

The Honorable Thomas R. Carper
Chairman

The Honorable Tom Coburn, M.D.
Ranking Member
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Mark Begich
Chairman
Subcommittee on Emergency Management, Intergovernmental Relations,
and the District of Columbia
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Michael T. McCaul
Chairman
Committee on Homeland Security
House of Representatives

The Honorable Robert P. Casey, Jr.
United States Senate

The Honorable Susan M. Collins
United States Senate

Appendix I: Objectives, Scope, and Methodology

Objectives

GAO was asked to review federal preparedness to respond to no-notice catastrophic incidents. This report assesses the extent to which opportunities exist, if any, to enhance

1. the assessment of *National Response Framework* (NRF) emergency support function (ESF) preparedness, and
2. management oversight of the status of implementation of federal capability gaps identified in national-level exercises, real-world incidents, and other gap assessments.

Scope

Incident type: Because there are many types of no-notice catastrophic incidents to which the federal government would respond, we selected two scenarios for the scope of our review: one scenario that is man-made—improvised nuclear device (IND) attacks—and one scenario that is naturally occurring—major earthquakes. We selected these scenarios because they represent the two key scenarios the Federal Emergency Management Agency (FEMA) uses to plan for no-notice catastrophic incidents.¹ This review does not address the efforts of federal agencies to ensure their own organization’s continuity of operations, which includes planning to ensure that that essential government services are not interrupted during and after emergencies.²

Departments and components: Our review covered five federal departments—the Departments of Defense (DOD), Energy (DOE), Health and Human Services (HHS), Homeland Security (DHS), and Justice (DOJ). We selected these departments because they represent the key federal departments with responsibilities for responding to IND attacks and major earthquakes as described in the *National Response Framework* and its annexes. Further, these departments also served as coordinators for 1 or more of the 14 ESFs and participated in national-

¹For the purposes of planning for catastrophic incidents, such as when developing the Federal Interagency Operational Plan for Response, FEMA officials stated that they use three major types of disasters to develop planning factors. Two of these events—an IND attack and a major earthquake—are no-notice, while the third—a Category 5 hurricane—is an event with notice. All three events are based on scenarios described in the April 2005 *National Planning Scenarios*, which were created for use in national, federal, state, and local preparedness activities.

²For a prior GAO report on this topic, see *Continuity of Operations: Selected Agencies Tested Various Capabilities during 2006 Governmentwide Exercise*, [GAO-08-185](#) (Nov. 19, 2007).

level exercises (NLE) and other interagency capability gap assessments in the scope of our review.³ Within these five departments, we collected documentation and interviewed officials from various components that departmental officials identified as playing a key role at the department for responding to IND attacks and major earthquakes. These key components are summarized in table 5.

Table 5: Departments and Key Components in GAO’s Review

Department	Components in GAO’s review	Summary of role for responding to improvised nuclear device (IND) attacks and major earthquakes
Defense (DOD)	U.S. Northern Command (NORTHCOM)	NORTHCOM was established in October 2002 to provide command and control of DOD’s homeland defense efforts and to coordinate defense support of civil authorities in the continental United States and Alaska.
	U.S. Army Corps of Engineers (USACE)	USACE is assigned as the coordinating agency for emergency support function (ESF) on Public Works and Engineering, which the corps does by coordinating federal public works and engineering-related support and providing technical assistance, engineering expertise, and construction management.
Energy (DOE)	Office of Electricity Delivery and Energy Reliability (OE)	OE leads DOE’s efforts to ensure a resilient, reliable, and flexible electricity system. OE accomplishes this mission through research, partnerships, modeling, and emergency preparedness. OE is the coordinating agency for the ESF on Energy.
	National Nuclear Security Administration (NNSA)	NNSA would lead the early federal interagency response to characterize the nature and dispersal of radioactive material in the event of an IND attack.
Health and Human Services (HHS)	Office of the Assistant Secretary for Preparedness and Response (ASPR)	ASPR serves as the lead HHS office responsible for all federal public health and medical response to public health emergencies and incidents covered by the <i>National Response Framework</i> . According to agency officials, responsibility for coordinating the ESF on Public Health and Medical Services has been delegated by HHS to ASPR.
	Centers for Disease Control and Prevention (CDC)	According to CDC officials, in the event of a major disaster, CDC would play a key role in deploying response teams and assets from the Strategic National Stockpile. The stockpile has large quantities of medicine and medical supplies if local supplies run out, including medical countermeasures to treat radiation sickness.

³There was originally a 15th ESF on long-term community recovery, which was superseded by the issuance of the *National Disaster Recovery Framework* in September 2011.

Appendix I: Objectives, Scope, and Methodology

Homeland Security (DHS)	Federal Emergency Management Agency (FEMA)	FEMA has responsibility to reduce the loss of life and property and protect the nation from all hazards, including IND attacks and major earthquakes. FEMA has a leadership role to coordinate the overall federal response to these attacks in close coordination with many other federal agencies and departments. FEMA is the coordinator for five ESFs. ^a
	National Protection and Programs Directorate (NPPD)	NPPD leads the national effort to protect and enhance the resilience of the nation’s physical and cyber infrastructure. Further, the Office of Cybersecurity and Communications within NPPD is the coordinator for the ESF on Communications.
Justice (DOJ)	Federal Bureau of Investigation (FBI)	The FBI is the lead federal investigative entity for acts of terrorism, including IND attacks. According to FBI officials, while FBI officials may be present on scene following an IND attack, their activities would be focused on investigating the attack. ^b
	Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)	ATF is a federal law enforcement agency responsible for investigating federal laws related to firearms, explosives, arson, alcohol, and tobacco. Under the <i>National Response Framework</i> , ATF is the coordinator for the ESF on Public Safety and Security.

Source: GAO analysis of DOD, DOE, HHS, DHS, and DOJ documents. | GAO-15-20

^aFEMA is the coordinator for five of the ESFs: Firefighting (coordinated jointly with the Department of Agriculture’s U.S. Forest Service); Information and Planning; Mass Care, Emergency Assistance, Temporary Housing, and Human Services; Logistics (coordinated jointly with the General Services Administration); and Search and Rescue.

^bFBI officials also noted that the FBI does not have consequence management responsibilities under the *National Preparedness Goal’s* response mission area, but the agency does have responsibilities within the prevention mission area. The FBI leads and coordinates on-scene law enforcement and associated investigative and intelligence activities related to potential imminent terrorist threats, according to officials.

Methodology

We reviewed relevant laws and presidential directives, such as the Homeland Security Act of 2002, the Post-Katrina Emergency Management Reform Act of 2006 (Post-Katrina Act), and *Presidential Policy Directive 8 on National Preparedness*. We also reviewed relevant all-hazards and incident-specific interagency strategies and plans, including: the NRF and its annexes on ESFs, catastrophic incidents, and nuclear incidents; the Response Federal Interagency Operational Plan that supports the NRF; and the *DHS Strategy for Improving the National Response and Recovery from an IND Attack (DHS IND Strategy)*. We also reviewed relevant assessments of federal preparedness, including the 2013 and 2014 *National Preparedness Reports* and the October 2013

*Emergency Support Function Report.*⁴ Further, we interviewed department and component officials on their responsibilities for responding to IND attacks and major earthquakes, as well as FEMA officials on their agency's management oversight of ESFs and the closure of federal capability gaps identified in national-level exercises, real-world incidents, and other gap assessments.

To identify opportunities to enhance the assessment of ESF preparedness, we gathered information and documentation from agency officials for the 10 ESFs that were coordinated by one of the departments in our review. The 10 ESFs within the scope of our review are identified in table 6. Specifically, we gathered information and supporting documentation from these ESFs on the coordination, planning, and capability assessment activities they are conducting to oversee the preparedness of their ESFs. We requested information on these types of activities because such activities are consistent with the NRF's description of ESF coordinator responsibilities and the *National Preparedness Goal's* description of the planning response core capability. We also compared FEMA's current efforts to assess the activities of the ESF coordinators against descriptions of roles and responsibilities in the NRF and requirements in the Post-Katrina Act, as well as against standards in *Standards for Internal Control in the Federal Government* and leading practices for federal interagency coordination and collaboration we have identified in our prior work.⁵

⁴For example, see Department of Homeland Security, *National Preparedness Report* (Washington, D.C.: Mar. 30, 2014). See also FEMA, *Emergency Support Function: Fiscal Year 2008 Report to Congress* (Washington, D.C.: Oct. 24, 2013). According to this report, the document was compiled pursuant to a requirement in the Joint Explanatory Statement and Senate Report 110-84 that accompany the FY 2008 DHS Appropriations Act (P.L. 110-161).

⁵GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: Nov. 1, 1999); *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, [GAO-06-15](#) (Washington, D.C.: Oct. 21, 2005); and *Catastrophic Disasters: Enhanced Leadership, Capabilities, and Accountability Controls Will Improve the Effectiveness of the Nation's Preparedness, Response, and Recovery System*, [GAO-06-618](#) (Washington, D.C.: Sep. 6, 2006).

Table 6: List of Emergency Support Functions (ESF) and their Assigned Coordinators

ESF	ESF coordinator(s)	Reviewed by GAO
Transportation (ESF #1)	<ul style="list-style-type: none"> Department of Transportation 	
Communications (ESF #2)	<ul style="list-style-type: none"> Department of Homeland Security (DHS)/National Protection and Programs Directorate/Cybersecurity and Communications 	X
Public Works and Engineering (ESF #3)	<ul style="list-style-type: none"> Department of Defense/U.S. Army Corps of Engineers 	X
Firefighting (ESF #4)	<ul style="list-style-type: none"> Department of Agriculture/U.S. Forest Service DHS/Federal Emergency Management Agency (FEMA)/U.S. Fire Administration^a 	
Information and Planning (ESF #5)	<ul style="list-style-type: none"> DHS/FEMA 	X
Mass Care, Emergency Assistance, Temporary Housing, and Human Services (ESF #6)	<ul style="list-style-type: none"> DHS/FEMA 	X
Logistics (ESF #7)	<ul style="list-style-type: none"> General Services Administration DHS/FEMA 	X
Public Health and Medical Services (ESF #8)	<ul style="list-style-type: none"> Department of Health and Human Services 	X
Search and Rescue (ESF #9)	<ul style="list-style-type: none"> DHS/FEMA 	X
Oil and Hazardous Materials Response (ESF #10)	<ul style="list-style-type: none"> Environmental Protection Agency 	
Agriculture and Natural Resources (ESF #11)	<ul style="list-style-type: none"> Department of Agriculture 	
Energy (ESF #12)	<ul style="list-style-type: none"> Department of Energy 	X
Public Safety and Security (ESF #13)	<ul style="list-style-type: none"> Department of Justice/Bureau of Alcohol, Tobacco, Firearms, and Explosives 	X
Long-Term Community Recovery (ESF #14)	<ul style="list-style-type: none"> Not applicable—superseded by the <i>National Disaster Recovery Framework</i> 	
External Affairs (ESF #15)	<ul style="list-style-type: none"> DHS 	X

Source: GAO analysis of the *National Response Framework*. | GAO-15-20

^aThe Firefighting ESF is jointly coordinated by the Department of Agriculture's Forest Service and FEMA's Fire Administration. However, FEMA officials stated that FEMA's role is limited to coordinating with state, territorial, tribal, and insular agencies and local fire departments specifically to expand their firefighting capacity; in contrast, the Forest Service coordinates with all stakeholders—including federal departments and agencies—on issues related to all aspects of fire response activities and represents ESF #4 on the ESF Leadership Group. Therefore, because the Department of Agriculture was not within the scope of our review, the Firefighting ESF was likewise not selected for review.

To identify opportunities to enhance management oversight of the closure of federal capability gaps, we identified and reviewed reports related to relevant national-level exercises, real-world incidents, and other assessments based on the scope of our review. For NLEs, we selected NLE 2010 and NLE 2011 for review because these exercises represent the only two NLEs conducted since the development of the National Exercise Program in 2007 that assessed federal preparedness to respond to an IND attack or a major earthquake.⁶ NLE 2010 was a 2-day operations-based exercise conducted in May 2010 that concentrated on response and recovery from an IND attack in the United States. NLE 2011 was a 4-day functional exercise conducted in May 2011 that concentrated on response to a major earthquake in the New Madrid Seismic Zone—a major fault line impacting eight states in the southern and midwestern United States. For real-world incidents, we selected the federal response to Hurricane Sandy in autumn 2012 for review because the incident represented the most recent large-scale disaster that involved all five departments within the scope of our review.⁷ While Hurricane Sandy was a disaster with advance notice (unlike IND attacks or earthquakes), we believe that it provides valuable insights and lessons learned to improve federal response to other major disasters, including catastrophic incidents.

To determine the status of corrective actions from NLE 2010, NLE 2011, and Hurricane Sandy, we reviewed interagency and departmental after-action reports, improvement plans, and other documents that identified and provided status updates on corrective actions for the five

⁶In March 2014, FEMA conducted an NLE (now replaced by the term “capstone exercise”) on a simulated catastrophic earthquake in Alaska. However, because evaluation of this exercise to identify needed corrective actions was ongoing at the time of our review, we did not include this exercise within the scope of our review. According to FEMA officials, an after-action report on the exercise is expected to be published in autumn 2014.

⁷We also considered the March 2011 earthquake and resulting tsunami and partial nuclear meltdown in Fukushima, Japan as another potential real-world incident that identified federal capability gaps. However, on the basis of our review of relevant after-action reports and interviews with agency officials, we determined that the gaps identified from this incident were largely focused on areas outside the scope of this review, such as nuclear power plant safety.

departments in our review.⁸ To assess the reliability of this information, we interviewed and gathered information from agency officials knowledgeable about how information on the status of corrective actions from NLEs and real-world incidents is tracked within their department or component. Further, where applicable, we reviewed documentation and procedures related to databases that store information on the status of corrective actions at the departments in our review, such as the Corrective Action Program System (CAPS) database—in which FEMA catalogs and tracks the status of corrective actions from NLEs for DHS—and DOD's Joint Lesson Learned Information System. Although we did not independently verify the accuracy of the recorded status of implementation of corrective actions, we found the information we gathered reliable for the purpose of describing the status of corrective actions from NLEs and real-world incidents as reported by the five departments in our review.⁹

To identify other capability gap assessments relevant to federal response to IND attacks and major earthquakes, we interviewed officials from the five departments within the scope of our review to gather information on the extent to which such assessments had been conducted. Through this effort, we identified one capability gap assessment for responding to IND attacks. Specifically, we reviewed the April 2010 *DHS IND Strategy*, which identifies qualitative capability gaps for responding to an IND

⁸While the interagency after-action report for NLE 2010 identified corrective actions for all departments and agencies that participated in the exercise, the interagency after-action report for NLE 2011 highlighted areas for improvement and each department and agency that participated in the exercise was to develop its own corrective actions. Therefore, we identified corrective actions from NLE 2011 by obtaining from the departments in our review copies of departmental after-action reports and other documentation that identified these actions.

⁹A closed corrective action includes actions that have been implemented, actions that are no longer applicable, and actions the department declined to implement for other reasons. For example, one of the corrective actions from NLE 2010 was for FEMA to prepare a matrix to determine the benefits, risks, and consequences of changing the Homeland Security Advisory System level following an IND detonation in a major metropolitan area. The action became obsolete after the National Terrorism Advisory System replaced the Homeland Security Advisory System. While FEMA officials provided some examples of corrective actions being closed in the manner described above, data fields in CAPS in which correction action officers are to describe why an action was closed did not consistently contain detailed enough information for GAO to determine if the action was closed because action was taken or for another reason.

attack.¹⁰ We also reviewed the March 2012 and September 2013 iterations of the *IND Response and Recovery Capability-Based Implementation Plan (IND Implementation Plan)*, which describe corrective actions to address IND response capability gaps identified in the *DHS IND Strategy*, as well as the status of progress made to close the identified gaps. To assess the reliability of information on progress made to address IND capability gaps as reported in the *IND Implementation Plan*, we interviewed and gathered information from officials in FEMA's Chemical, Biological, Radiological, Nuclear, and Explosives Office who are responsible for management oversight of efforts to close these gaps and coordinating the five interagency working groups that help develop and implement the corrective actions. Although we did not independently verify the accuracy of the recorded status of implementation of the actions, we found the information we gathered reliable for the purpose of describing the progress made toward addressing the identified capability gaps.

Finally, we compared FEMA's current management oversight efforts related to closure of capability gaps identified in NLEs, real-world incidents, and other gap assessments against descriptions of roles and responsibilities in the NRF and requirements in the Post-Katrina Act, as well as against leading practices for internal control and program management, specifically *Standards for Internal Control in the Federal Government* and *The Standard for Program Management*.¹¹

We conducted this performance audit from September 2013 to December 2014 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

¹⁰Officials at the five departments within the scope of our review did not identify any gap assessments, similar to the *DHS IND Strategy*, that had been conducted relevant to federal response to major earthquakes.

¹¹[GAO/AIMD-00-21.3.1](#) and Project Management Institute, *The Standard for Program Management*, third edition (Newton Square, Pa.: 2013).

Appendix II: Examples of Coordination Activities, Planning Documents, and Capability Assessments Identified by *National Response Framework* (NRF) Emergency Support Function (ESF) Coordinators

ESF coordinators within the scope of this review provided GAO the following examples, among others, on

- their coordination activities with their ESF primary and support agencies,
- planning documents they have developed for the coordination and execution of their ESF's mission, and
- assessments of currently available ESF resources against ESF capability requirements to identify related capability gaps.¹

ESF #2 Communications—Department of Homeland Security (DHS)/National Communication System

Coordination Activities:

- weekly conference calls
- annual exercise

Planning Documents:

- concept of operations describing the ESF's mission, key concepts, organization and staffing, roles, and operations and support concepts²

¹The NRF is a guide to how the nation responds to disasters and emergencies of all types and describes the principles, roles and responsibilities, and coordinating structures for delivering the core capabilities required to save lives, protect property and the environment, restore communities, and meet basic human needs following an incident. The framework includes various annexes, including on ESFs, the federal government's primary coordinating structure for building, sustaining, and delivering response core capabilities. Organized by specific functional areas most frequently needed in a national response, ESFs are designed to bring together the capabilities of various federal departments and agencies.

²Department of Homeland Security, *Emergency Support Function #2 Communications: Concept of Operations* (Washington, D.C.: Feb. 29, 2012).

Capabilities Assessments:

- capability requirements not developed for ESF #2
- catalog of currently available capabilities not developed
- capability gap analyses include an analysis of likely communications shortfalls during an improvised nuclear device (IND) attack or major earthquake, but this analysis does not analyze gaps between available capabilities and required capabilities before an incident

**ESF #3 Public Works and Engineering—Department of Defense
(DOD)/U.S. Army Corps of Engineers**

Coordination Activities:

- annual seminars
- workshops following major disasters or other incidents to identify lessons learned

Planning Documents:

- operational orders and plans for all-hazards incidents
- operational plans for specific earthquake scenarios
- standard operating procedures for response teams³

Capability Assessments:

- quantified ESF #3 capability requirements specific to the U.S. Army Corps of Engineers

³For example, U.S. Army Corps of Engineers, *Operation Order 2014-11, U.S. Army Corps of Engineers Response to All Hazards Events* (Washington, D.C.: May 30, 2014); *Pacific Ocean Division Operation Order 13-02, All Hazards Regional Readiness and Contingency Response Operations Plan* (Fort Shafter, Hawaii: Jan. 10, 2014); *Operations Plan 2010-70, U.S. Army Corps of Engineers Response to a Catastrophic Earthquake in the New Madrid Seismic Zone* (Washington, D.C.: Dec. 21, 2010); *Operations Plan 2014-16, U.S. Army Corps of Engineers Response to an Earthquake in the Cascadia Subduction Zone* (Washington, D.C.: Feb. 26, 2014); and *U.S. Army Corps of Engineers Planning and Response Team: Infrastructure Assessment Standard Operating Procedures* (Washington, D.C.: Mar. 2012).

Appendix II: Examples of Coordination Activities, Planning Documents, and Capability Assessments Identified by National Response Framework (NRF) Emergency Support Function (ESF) Coordinators

- quantified available capabilities—such as the number and type of emergency response teams—specific to the U.S. Army Corps of Engineers
- capability gaps identified and prioritized for closure, through workshops identified above, specific to the U.S. Army Corps of Engineers

ESF #5 Information and Planning—DHS/Federal Emergency Management Agency (FEMA)

Coordination Activities:

- drill, working group meeting, and other exercises

Planning Documents:

- FEMA national and regional incident support manuals, which describe how FEMA national and regional staff—through the National Response Coordinating Center and Regional Response Coordinating Centers—support FEMA incident operations⁴

Capability Assessments:

- qualitative capability requirements identified by reference to relevant core capabilities required by the National Preparedness Goal⁵
- qualitative available capabilities cataloged as outlined in the ESF #5 annex to the NRF⁶
- capability gap analysis for ESF #5 under development, according to FEMA officials

⁴Federal Emergency Management Agency, *National Incident Support Manual*, Change 1 (Washington, D.C.: January 2013); *Regional Incident Support Manual* (Washington D.C.: January 2013).

⁵Department of Homeland Security, *National Preparedness Goal*, first edition (Washington, D.C.: September 2011).

⁶Department of Homeland Security, *National Response Framework, Emergency Support Function #5 Information and Planning Annex* (Washington D.C.: May 2013).

ESF #6 Mass Care, Emergency Assistance, Temporary Housing, Human Services—DHS/FEMA

Coordination Activities:

- conference calls
- webinars and training courses for mass care and emergency assistance practitioners
- annual mass care exercise
- national conferences

Planning Documents:

- appendix to the NRF’s Response Federal Interagency Operational Plan describing the delivery of mass care services such as hydration, feeding, and sheltering, as well as support for reunifying families⁷

Capability Assessments:

- established quantified capability requirements, such as sheltering and feeding requirements, for primary and support agencies⁸
- identified primary and support agencies’ available capabilities related to, for example, providing sheltering, feeding, and other services
- in April 2014, assessed whether these currently available capabilities were sufficient to be considered “mission ready”

ESF #7 Logistics—DHS/FEMA

Coordination Activities:

- biweekly conference calls

⁷Department of Homeland Security, *Response Federal Interagency Operational Plan* (Washington, D.C.: July 2014).

⁸ESF #6 developed guidance that includes planning factors for its primary and support agencies to determine what types of capabilities—for example, what percentage of the population will seek emergency shelter inside an affected geographic area—are required to execute the ESF #6 mission after an incident. This guidance identifies an ESF #6 “service provider” to deliver each required capability; for example, DOD’s Defense Logistics Agency is responsible for providing tents, camping kits, equipment, and supplies.

Appendix II: Examples of Coordination Activities, Planning Documents, and Capability Assessments Identified by National Response Framework (NRF) Emergency Support Function (ESF) Coordinators

- annual summit with ESF partners
- training course on logistics for interagency partners

Planning Documents:

- operations manual to describe how FEMA and its partners are to provide logistics support during domestic emergencies⁹

Capability Assessments:

- identified qualitative capability requirements in an annex to the NRF's Response Federal Interagency Operational Plan
- quantified certain available capabilities at ESF primary and support agencies—such as meals and water—in the 10 FEMA regions
- capability gap assessment specific to ESF #7 not yet performed

ESF #8 Public Health and Medical Services—Department of Health and Human Services

Coordination Activities:

- does not conduct ESF-specific preparedness coordination because of a lack of funding, according to HHS officials
- does coordinate with its ESF primary and support agencies during FEMA- and state-sponsored preparedness activities

Planning Documents:

- draft plan for all-hazards response
- draft annexes for IND attacks and earthquake response
- concepts of operations for medical response teams¹⁰

⁹Federal Emergency Management Agency, *Logistics Management Operations Manual* (Washington, D.C.: March 2013).

¹⁰For example, Department of Health and Human Services, *National Disaster Medical System—Disaster Mortuary Operational Response Team Concept of Operations* (Washington, D.C.: May 2012); *National Veterinary Response Team Concept of Operations* (Washington D.C.: November 2011).

Capability Assessments:

- quantified ESF #8-specific capability requirements for primary and support agencies for responding to certain incidents—such as an earthquake in the New Madrid Seismic Zone and a hurricane in the Gulf of Mexico
- catalog of currently available capabilities under development
- assessment of capability gaps under development

ESF #9 Search and Rescue—DHS/FEMA

Coordination Activities:

- nonemergency coordination takes place formally through the National Search and Rescue Committee, which meets three or four times annually¹¹

Planning Documents:

- concept of operations for the national urban search and rescue system
- field operations guide for the national urban search and rescue system¹²

Capability Assessments:

- capability requirements specific to DHS/FEMA for responding to an earthquake in the New Madrid Seismic Zone
- catalog of national search and rescue capabilities not yet developed

¹¹The National Search and Rescue Committee was established in 1973 as a standing interagency group to oversee the United States National Search and Rescue Plan and to act as a coordinating forum for national search and rescue matters. The committee serves as the primary coordinating forum within the federal government for the conduct and support of civil search and rescue operations covered by the National Search and Rescue Plan and for matters relating to national civil search and rescue policies and positions.

¹²Federal Emergency Management Agency, *Response Concept of Operations Annex to the National Urban Search and Rescue Response System Operations Manual* (Washington, D.C.: April 2012); *National Urban Search and Rescue Response System Field Operations Guide* (Washington, D.C.: September 2003).

- capability gap analysis for national search and rescue capabilities not yet developed

ESF #12 Energy—Department of Energy

Coordination Activities:

- meetings of several energy councils, including the Energy Government Coordinating Council, which includes stakeholders from all levels of government—federal, state, local, tribal, and territorial—that are involved with the energy sector

Planning Documents:

- operational plan for emergency response activities related to energy disruption
- operations guide for emergency response activities related to energy disruption¹³

Capability Assessments:

- the coordinator stated that it did not have the authority to establish capability requirements for ESF #12 primary and support agencies
- ESF #12 support agencies develop their own capability requirements based upon their individual missions and statutory authorities, according to the coordinator
- qualitative listing of available capabilities for all-hazards response listed in the ESF #12 annex to the NRF¹⁴
- individual primary and support agencies catalog their own capabilities, according to the coordinator
- the coordinator stated that it did not have the authority to conduct a capability gap analysis for ESF #12 other than for the Department of

¹³Department of Energy, *Infrastructure Security and Energy Restoration Emergency Response Organization Plan*, Version 7 (Washington, D.C.: Dec. 6, 2010); *Infrastructure Security and Energy Restoration Emergency Response Organization Operations Guide* (Washington, D.C.: October 2012).

¹⁴Department of Homeland Security, *National Response Framework, Emergency Support Function #12 Energy Annex* (Washington, D.C.: May 2013).

Energy, and no capability gap assessments have been performed to date

ESF #13 Public Safety and Security–Department of Justice (DOJ)/Bureau of Alcohol, Tobacco, Firearms and Explosives

Coordination Activities:

- semiannual meetings are held with representatives from over 80 federal law enforcement departments and agencies
- regular outreach meetings are conducted with individual law enforcement and emergency management partners

Planning Documents:

- concept of operations¹⁵

Capability Assessments:

- baseline staffing requirement established for components of DOJ
- catalog of capabilities not established
- capability gap assessment conducted specifically for DOJ for ESF #13 role

ESF #15 External Affairs–DHS

Coordination Activities:

- conference calls prior to hurricane season and other events
- tabletop exercises

Planning Documents:

- standard operating procedures¹⁶

¹⁵Department of Justice, *Emergency Support Function #13 National Concept of Operations Plan* (Washington, D.C.: May 30, 2013).

Capability Assessments:

- qualitative required actions and staffing outlined in ESF #15 planning document
- qualitative descriptions of available capabilities identified in prescribed mission assignments¹⁷
- tabletop exercise used to assess ESF #15 capability gaps

¹⁶Department of Homeland Security, *Emergency Support Function #15: Standard Operating Procedures* (Washington, D.C.: Aug. 30, 2013).

¹⁷Prescribed mission assignments are draft work orders—established in advance of a disaster and then modified to meet the needs of a specific incident—issued by FEMA to another federal agency to request disaster response support.

Appendix III: Corrective Actions Not Yet Closed for National Level Exercises 2010 and 2011, as of November 2014

This appendix provides additional information on corrective actions developed in response to National Level Exercise (NLE) 2010 and NLE 2011, which tested the nation's ability to respond to an improvised nuclear device (IND) attack and a major earthquake, respectively. The Federal Emergency Management Agency's (FEMA) interagency after-action report for NLE 2010 identified 104 corrective actions for the Departments of Defense, Energy, Health and Human Services, Homeland Security, and Justice. According to information provided by officials from these departments, 98 of 104 corrective actions have been closed as of November 2014.¹ For NLE 2011, FEMA's interagency after-action report highlighted areas for improvement—such as the need to increase familiarization with earthquake response plans at the state, regional, and national levels—for federal departments and agencies to develop their own corrective actions in their own after-action reports. The five departments in our review identified 75 actions that they had planned to take to address the capability gaps identified in the interagency after-action report. According to information provided by officials from these departments, as of November 2014, 73 of 75 corrective actions have been closed. The corrective actions that remain open from NLE 2010 and NLE 2011, and departmental comments on efforts being taken to address these actions, are described in tables 7 and 8.

¹For the purposes of this report, closed corrective actions include actions that have been implemented, actions that were overtaken by other events and as a result were no longer applicable, and actions the department declined to implement for other reasons. For example, one of the corrective actions from NLE 2010 was for FEMA to prepare a matrix to determine the benefits, risks, and consequences of raising and lowering the Homeland Security Advisory System level following an improvised nuclear device attack in a major metropolitan area. However, the action became obsolete after the National Terrorism Advisory System replaced the Homeland Security Advisory System level, and thus the action was closed in the Corrective Action Program System (CAPS) by FEMA officials. While FEMA officials provided limited examples of corrective actions being closed in the manner described above, CAPS data fields did not consistently contain detailed enough information for GAO to determine whether a given corrective action was closed because the action had been implemented or whether it was closed for other reasons.

Appendix III: Corrective Actions Not Yet Closed for National Level Exercises 2010 and 2011, as of November 2014

Table 7: Corrective Actions Not Yet Closed from National Level Exercise 2010, as of November 2014

Department	Open corrective action	Departmental comments
Department of Defense (DOD)	Review and refine plans and protocols for federalizing a state's National Guard and returning it to the state's command and control under the interim Federal Interagency Improvised Nuclear Device Concept of Operations Plan ^a	According to DOD officials, there is no formal interagency mechanism to address this action and the department has not acted on the issue to date.
DOD	Establish and maintain programs to familiarize national leaders and response planners with tailored defense support for civil authorities military capabilities and the unique circumstances that would require their urgent deployment and response	According to DOD officials, there is no formal interagency mechanism to address this action and the department has not acted on this issue to date.
Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA)	Develop and improve appropriate plans and protocols to ensure timely access to U.S. and state courts during a catastrophic incident	According to FEMA officials, the scale and complexity of this corrective action resulted in the issue being elevated from FEMA's Response and Recovery Directorate to FEMA's Continuous Improvement Working Group for consideration. ^b The group assigned the corrective action to FEMA's Office of the Chief Counsel, which was reviewing related requirements for implementation of the action at the time of our review.
DHS FEMA	Identify the relevant federal and state permitting and approval authorities necessary in a postcatastrophic incident restoration scenario and coordinate with those authorities to develop plans to expeditiously address permitting requirements for infrastructure restoration in accordance with applicable statutes and regulations	According to FEMA officials, the scale and complexity of this corrective action resulted in the issue being elevated from FEMA's Response and Recovery Directorate to FEMA's Continuous Improvement Working Group for consideration. The group assigned the corrective action to FEMA's Office of the Chief Counsel, which was reviewing related requirements for implementation of the action at the time of our review.
DHS National Protection Programs Directorate (NPPD)	Examine methods to enhance interoperable communications with fire departments	According to DHS officials, NPPD's Office of Emergency Communications continues to engage state and local stakeholders to ensure interoperable emergency communications are addressed through the DHS National Emergency Communications Plan.
DHS Office of Policy	Determine ways to encourage design measures for resiliency in postincident construction and repairs	According to DHS officials, the department completed a related resiliency pilot project and was drafting the associated after-action report, as of September 2014. Upon completing this after action report, the officials stated that they intended to close the action.

Source: GAO analysis of DOD and DHS documents. | GAO-15-20

Notes: The list of not yet closed corrective actions does not include those actions assigned to the White House or to federal departments outside of the scope of our review. Departments use varying terminology to describe the actions designed to address issues identified through national-level exercises. For example, DHS and FEMA refer to these actions as corrective actions, while DOD refers to these actions as recommendations. For the purposes of this report, we refer such actions collectively as corrective actions.

^aThe interim Improvised Nuclear Device Concept of Operations Plan was a plan developed in response to *Homeland Security Presidential Directive-8, Annex I*.

^bFEMA's Lessons Learned/Continuous Improvement Program identifies issues or capability gaps from training, exercises, real-world events, readiness assessments, or steady-state operations and resolves these issues through the implementation of corrective actions. Those actions that are beyond the resolution capability of FEMA components or are of significant interest to FEMA

Appendix III: Corrective Actions Not Yet Closed for National Level Exercises 2010 and 2011, as of November 2014

leadership are elevated to FEMA's Continuous Improvement Working Group, which is responsible for developing, assigning, and tracking such actions across the agency.

Table 8: Corrective Actions Not Yet Closed from National Level Exercise 2011, as of November 2014

Department	Open corrective action	Departmental comments
Department of Defense (DOD)	Develop a common operating picture tool to reside on the nonclassified Internet network portal	This action has evolved into two related efforts—information sharing via the Situational Awareness Geospatial Enterprise ^a and operationalizing it for conducting assessments and providing decision support, both of which are being reviewed by DOD's Corrective Action Program Working Group.
DOD	Establish a collaboration forum of interagency partners	This issue is being reviewed by the U.S. Northern Command to determine an approach for resolution.

Source: GAO analysis of DOD and HHS documents. | GAO-15-20

Notes: Departments use varying terminology to describe the actions designed to address issues identified through national-level exercises. For example, DHS and the Federal Emergency Management Agency refer to these actions as corrective actions, while DOD refers to these actions as recommendations. For the purposes of this report, we refer to such actions collectively as corrective actions.

^aThe Situational Awareness Geospatial Enterprise system is a technological tool that provides the U.S. Northern Command and other DOD components with rapid, easy access to detailed physical infrastructure data for a given geographical area.

Appendix IV: Corrective Actions Developed after Hurricane Sandy Not Yet Closed, as of November 2014

Following the federal response to Hurricane Sandy in autumn 2012, the Departments of Defense, Energy, Health and Human Services, Homeland Security, and Justice developed intradepartmental after-action reports that identified capability gaps and associated corrective actions. According to information provided by officials from these departments, 102 corrective actions were developed across the five departments, and 63 of the 102 actions have been closed as of November 2014.¹ The remaining open corrective actions, and efforts being taken to address these actions, are described in table 9.

Table 9: Corrective Actions Developed after Hurricane Sandy Not Yet Closed, as of November 2014

Department	Corrective action	Departmental comments
Department of Defense (DOD) Northern Command (NORTHCOM)	Better utilize the role of the U.S. Marine Corps Service Emergency Preparedness Liaison Officer	According to DOD officials, a subject matter expert has addressed this issue and is awaiting a “confirming event” before the action will be considered closed. ^a
DOD NORTHCOM	Improve access to Reserve Component forces	According to DOD officials, a subject matter expert has addressed this issue, and is awaiting a “confirming event” a before the action will be considered closed.
Department of Energy (DOE) ^b	Leverage technology to improve response and communications.	According to DOE officials, the department is addressing this action through the use of Environment for Analysis of Geo-Located Energy Information, a system that allows DOE staff to geospatially map energy assets and systems and tie together a variety of data sources into one visualization platform.

¹Corrective actions are the concrete, actionable steps assigned to responsible entities that are intended to resolve gaps and shortcomings experienced during exercises and real-world incidents. Federal departments and agencies use varying terminology—e.g., recommended actions, recommended courses of action, etc.—to describe the actions developed to address such gaps. For the purposes of this report, we refer to such actions collectively as corrective actions.

**Appendix IV: Corrective Actions Developed
after Hurricane Sandy Not Yet Closed, as of
November 2014**

DOE	Develop a better understanding of how DOE can use the Defense Production Act, including to obtain critical supplies, and determine what advantages and disadvantages exist for energy sector partners when the act is used.	According to DOE officials, the department last used the act for an energy-related emergency during the Clinton administration, although the act has been discussed with energy sector entities more recently. Other agencies, including DOD and the Federal Emergency Management Agency (FEMA), routinely use the act as part of their standard operating procedures and in fulfillment of their mission but it is an authority that can be perceived as controversial. Its use for an energy emergency by DOE's Office of Electricity Delivery and Energy Reliability requires concurrence by the DOE General Counsel and in some circumstances the Secretary of Commerce. As part of the effort to address this action, DOE held an in-depth training session on the act in July 2014 for sector and interagency partners.
Department of Health and Human Services (HHS)	Establish a policy on the approved uses of mobile devices/phones during a deployment	According to HHS officials, the department is developing new and assessing the applicability of existing guidance.
HHS	Establish a policy on the use of all forms of social media	According to HHS officials, the department is developing new and assessing the applicability of existing guidance.
HHS	Improve the integration of planning and response activities	According to HHS officials, the department is conducting a strategic review of existing planning functions as well as response requirements.
HHS	Review the requirements and procedures for convening the Disaster Leadership Group	According to HHS officials, the department is reviewing standard operating procedures.
HHS	Create a single national health and medical common operating picture system	According to HHS officials, the department is reviewing standard operating procedures, terminology, and existing guidelines.
HHS	Establish a comprehensive list of pertinent participants for all coordinating meetings	According to HHS officials, the department is reviewing policies and standard operating procedures.
HHS	Establish a training program to ensure personnel are aware of roles and responsibilities within the Incident Command System c	According to HHS officials, the department is standardizing trainings, terminology, and guidance.
HHS	Establish a fixed mobilization location to support deployment and ensure all personnel are familiar with policies	According to HHS officials, the department is reviewing the existing concept of operations and supporting policies.
HHS	Develop consistent procedures to support accountability of resources for response and recovery personal	According to HHS officials, the department is developing policies and guidance.
HHS	Standardize systems to support staff deployment including travel, billing, and deployment	According to HHS officials, the department is reviewing terminology, procedures, and current systems.
HHS	Establish a consistent format for reporting information to senior departmental leadership	According to HHS officials, the department is establishing a template for reports and briefings.
HHS	Enhance trainings to support greater familiarity with communication capabilities	According to HHS officials, trainings are ongoing.

**Appendix IV: Corrective Actions Developed
after Hurricane Sandy Not Yet Closed, as of
November 2014**

HHS	Investigate alternative methods and procedures to capture patients within the Electronic Medical Record system	According to HHS officials, the department is reviewing the current system, capabilities, standard operating procedures, and alternative data collection methods.
HHS	Establish an Electronic Medical Records system training program for staff, including hands-on practice and instruction	According to HHS officials, trainings are ongoing.
HHS	Define “patient encounter” and ensure consistency across missions and disasters	According to HHS officials, the department is revising terminology and standard operating procedures.
HHS	Ensure responders suffering from severe mental health issues in theater receive priority care	According to HHS officials, the department is revising standard operating procedures, position descriptions, and supporting medical screening policies and procedures.
HHS	Develop procedures to support predeploying teams when possible (e.g. before hurricanes make landfall, major snowstorms, etc.)	According to HHS officials, the department is reviewing and revising the standard operating procedures.
HHS	Develop a memorandum of understanding with the Office of the Inspector General, and Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) to resolve gaps in force protection	According to HHS officials, discussions are ongoing with the Office of the Inspector General, ATF, and the HHS Office of the Assistant Secretary for Preparedness and Response.
HHS	Establish procedures to ensure adequate transportation, transfer, and care of patients is provided	According to HHS officials, trainings are ongoing.
HHS	Develop operational policies to formalize positions with the Emergency Management Group to ensure the Incident Response Command Team is positioned to issue decisions based on ground truth	According to HHS officials, the department is finalizing a document that will identify formal Emergency Management Group positions and the roles, responsibilities, and authorities for each.
HHS	Utilize the mobilization processing concept of operations to ensure team members have essential tools before deployment	According to HHS officials, the mobilization processing document is in the final stages of approval for implementation. However, HHS officials noted that mobilization processing has been successfully utilized for events and responses since Hurricane Sandy.
HHS	Enhance coordination and communication to support deployed officers for the Division of Commissioned Corps Personnel and Readiness	According to HHS officials, the Office of the Assistant Secretary for Preparedness and Response does not have the ability to monitor Commissioned Corps Personnel and Readiness actions as the division does not participate in the Corrective Actions Program Working Group and is part of the Office of the Assistant Secretary for Health.
Department of Homeland Security (DHS) FEMA	Ensure continuity of operations	According to FEMA officials, the agency is developing and exercising flexible, scalable, and tiered continuity of operations plans. The FEMA headquarters continuity of operations plan was signed on January 12, 2014 and the national-level exercise of 2014 was conducted as planned.
DHS FEMA	Meet survivors’ needs during initial interactions	According to FEMA officials, the agency is updating policies regarding its Individual Assistance program.

**Appendix IV: Corrective Actions Developed
after Hurricane Sandy Not Yet Closed, as of
November 2014**

DHS FEMA	Coordinate among states, localities, and tribes	According to FEMA officials, the agency is expanding its capacity to coordinate with tribal nations. FEMA established the Tribal Integration Group, which will ensure that the agency meets requirements to regularly consult with and consider tribal governments in program and policy development.
DHS FEMA	Refine the mission assignment process	According to FEMA officials, the agency is refining the mission assignment process to ensure the ability to task federal agencies effectively for recovery-related missions. FEMA solicited input widely from across program areas, leadership, and FEMA regions, as well as the Recovery Support Functions Leadership Group. FEMA is reviewing updated mission assignment forms and guidance to address tasking needs of other federal agencies.
DHS FEMA	Reduce the complexity of the Public Assistance program	According to FEMA officials, the agency is updating policies and procedures regarding its public assistance program. FEMA has also released guidance for two public assistance pilot programs authorized by the Sandy Recovery Improvement Act of 2013, which are currently underway. ^d
DHS FEMA	Integrate federal senior leader coordination and communications into response and recovery operations, and coordinate emergency support functions and recovery support functions to support disaster response	According to FEMA officials, the agency is evaluating the option of appointing liaisons to senior federal officials to facilitate greater coordination and communication during Level 1 incidents. FEMA is also reviewing doctrine and policy and developing possible courses of action and milestones. ^e
DHS FEMA	Mobilize the FEMA workforce for disaster response	According to FEMA officials, the agency is clarifying and automating procedures for deploying permanent full-time and Cadre of On-Call Response/Recovery Employment personnel. FEMA Administrator Craig Fugate signed the deployment guidance and directive on January 29, 2014.
DHS FEMA	Use planning and analysis to drive operational decision making	According to FEMA officials, the agency is conducting mission analysis of future planning to determine desired capabilities and a plan to achieve those capabilities. FEMA has applied draft Future Planning Standard Operating Procedures to project impacts of recent events including the threat of avian influenza A (H7N9), pandemic influenza, Middle East respiratory syndrome coronavirus (MERS CoV), all potential tropical cyclones during the 2013 season, and Colorado flooding.
DHS FEMA	Implement incident management structures	According to FEMA officials, the agency is developing recommendations regarding forward deployment of FEMA senior officials and their relationship with Federal Coordinating Officials and the National Response Coordination Center. FEMA is also reviewing doctrine and policy and developing courses of action and milestones.

**Appendix IV: Corrective Actions Developed
after Hurricane Sandy Not Yet Closed, as of
November 2014**

Department of Justice (DOJ) Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)	Improve the functionality of the Public Safety and Security Emergency Support Function (ESF) National Coordination Center.	According to DOJ officials, the Public Safety and Security ESF is attempting to accelerate the building of the center, is working with federal law enforcement partners to increase staffing of the center during ESF activations, adopted the Law Enforcement Online Virtual Command Center to increase the center management of information during ESF activations, and revised the National Operations and Coordination Standard Operating Procedures Annex to incorporate best practices identified during the Hurricane Sandy activation. DOJ officials stated that building of the National Coordination Center is to commence in December 2014 with an anticipated completion date of April 2015.
DOJ ATF	Investigate the feasibility of deploying a group of Public Safety and Security ESF resources to a forward staging area with supporting elements from a single prescribed mission assignment, and then assigning specific missions.	According to DOJ officials, this corrective action will be fulfilled through the completion of a related corrective action to improve the overall functionality of the National Coordination Center. DOJ officials stated that the referenced prescribed mission assignment was developed and approved by FEMA in August 2013.
DOJ ATF	Examine the feasibility of developing an independent logistical capability that will be able to meet the needs of any Public Safety and Security ESF deployment.	According to DOJ officials, a logistical working group formed to address Public Safety and Security ESF deployment logistics determined that the ESF should develop its own deployment logistics capability consisting of a deployment logistics officer and a full-time deployment logistics contractor. These personnel are in place and exploring options related to logistical support.
DOJ ATF	Adequately staff the National Coordination Center and provide liaison personnel to the FEMA National Response and Coordination Center.	According to DOJ officials, the Public Safety and Security ESF is working with federal law enforcement partners to enhance staffing at the National Coordination Center when the ESF is activated, which will enable the national coordinator to assign permanent ESF staff to FEMA's National Response and Coordination Center.

Source: GAO analysis of DOD, DOE, HHS, DHS, and DOJ documents. | GAO-15-20

^aAccording to DOD officials, "confirming event" is any event or exercise during which DOD officials are able to demonstrate the steps taken to address the corrective action and verify that the action has been closed.

^bThere were 25 corrective actions in the DOE intradepartmental Hurricane Sandy after-action report developed by DOE's Office of Electricity Delivery and Energy Reliability. However, DOE officials stated that, based upon feedback provided by interagency participants, 16 of these actions were assigned to entities other than DOE for resolution, such as states or private sector stakeholders, and therefore DOE is not tracking the status of implementation for these 16 actions. Because DOE was not assigned responsibility for implementing these corrective actions, these 16 actions were not included in this report.

^cAccording to HHS, the Incident Command System provides guidance for how to organize assets to respond to an incident and processes to manage the response through its successive stages. The core concepts of the Incident Command System are common terminology, integrated communications, modular organization, unified command structure, a manageable span of control for supervisory-level personnel, consolidated action plans, comprehensive resource management, and predesignated facilities where expected critical incident-related functions will occur.

^dSee Pub. L. No. 113-2, 127 Stat. 39.

**Appendix IV: Corrective Actions Developed
after Hurricane Sandy Not Yet Closed, as of
November 2014**

^eFEMA defines Level 1 incidents as those incidents in which available assets designed and put in place for the response are overwhelmed or broken at the local, regional or national level; require an extreme amount of federal assistance for response and recovery efforts for which the capabilities do not exist at any level of government; require extraordinary coordination among federal, state, tribal, and local entities because of massive levels and breadth of damage, severe impact, or multistate scope; and require the significant involvement of FEMA, the activation of all primary ESF agencies, and the deployment of initial response resources to support requirements of the affected state.

Appendix V: Improvised Nuclear Device (IND) Program Interagency Working Groups' Activities and Projects

In March 2012, the Federal Emergency Management Agency (FEMA) issued the *IND Response and Recovery Capability-Based Implementation Plan (IND Implementation Plan)*, which identified corrective actions to address IND attack emergency response capability gaps that had previously been identified in the April 2010 DHS [Department of Homeland Security] *Strategy for Improving the National Response and Recovery from an IND Attack (DHS IND Strategy)*.¹ In September 2013, an updated version of the *IND Implementation Plan* was issued to provide information on progress made to address the identified gaps.² The *IND Implementation Plan* recommended actions that were developed by five interagency working groups composed of subject matter experts from federal agencies, state and local emergency management organizations, academic institutions, research centers, and nongovernmental organizations. According to FEMA officials, in addition to developing the recommended actions, the working groups monitor their implementation. Table 10 summarizes the capability gaps, their status, and related ongoing recommended actions as reported in the latest iteration of the *IND Implementation Plan*.

¹DHS, *DHS Strategy for Improving the National Response and Recovery from an IND Attack* (Washington, D.C.: April 2010); FEMA, *Improvised Nuclear Device Response and Recovery Capability-Based Implementation Plan* (Washington, D.C.: March 2012).

²FEMA, *Improvised Nuclear Device Response and Recovery Capability-Based Implementation Plan, Revision 1* (Washington, D.C.: September 2013).

**Appendix V: Improvised Nuclear Device (IND)
Program Interagency Working Groups'
Activities and Projects**

Table 10: Summary of Capability Gaps and Recommended Actions Pursued as identified in the September 2013 IND Implementation Plan

Working group	Capability gap and reported status	Recommended actions pursued to address capability gap
Response	<p>The complex all-hazards issues involved in an improvised nuclear device (IND) incident will be an extreme management challenge. The 2010 <i>Deepwater Horizon</i> Gulf of Mexico oil spill caused members of the response community to question whether the Incident Command System as written could handle these complexities.^a</p> <p>Status—25% complete</p> <hr/> <p>Emergency response officials need the ability to receive, interpret, and exchange nuclear information among themselves and with decision makers following an IND detonation.</p> <p>Status—75% complete</p> <hr/> <p>Because public perception of the dangers of very low level radioactive contamination, refugees may be denied access to shelters and basic human needs. In addition, this same perception of danger will also make it unlikely that many shelters will even be allowed to open within a reasonable proximity to the incident.</p> <p>Status—75% complete</p> <hr/> <p>Household pets, service animals and livestock will be an extreme management challenge if not addressed within emergency plans. The goal is to identify and provide scientifically valid operational processes, adequate staffing, resources and facilities to manage animals.</p> <p>Status—50% complete</p>	<ul style="list-style-type: none"> • Develop a document to address dividing the incident into manageable organizational elements • Develop a document that would outline the required number of incident management teams that are needed to ensure a successful response • Create an incident action plan template and then demonstrate its use with estimating resources for a single geographic sector of a simulated IND incident <hr/> <ul style="list-style-type: none"> • Develop position description and qualifications for subject matter expert assistance to first responders and key leaders • Develop a comprehensive inventory of resources available to an IND response <hr/> <ul style="list-style-type: none"> • Develop a document to address problem areas in decontaminating the affected populations, pets, and other animals • Develop a document to address the problem of the overwhelming number of people and animals in need of assistance after the detonation of an IND <hr/> <ul style="list-style-type: none"> • Develop an animal demographics estimation guidance document • Develop a timeline for animal response missions document • Develop a document to determine training/qualifications for each mission area • Develop a document pertaining to just-in-time training for volunteers • Compile current bibliography of scientific articles and other references pertaining to management of animals in nuclear or radiological incidents
Medical and Public Health	<p>Radiation dose assessment capabilities for the evaluation of large numbers of potentially affected individuals are needed to ensure optimal use of limited medical resources and to systematically perform triage.</p> <p>Status—the recommended actions will take 1-5 years to complete</p>	<ul style="list-style-type: none"> • Research and develop novel methods or systems to conduct radiation biodosimetry applicable in mass casualty situations • Develop rapid, high-throughput methods to assess radiation dose and laboratory networks for surge capacity

**Appendix V: Improvised Nuclear Device (IND)
Program Interagency Working Groups'
Activities and Projects**

	<p>First responders and first receivers need proper baseline education and just-in-time training to appropriately evaluate and manage casualties</p> <p>Status—actions are ongoing</p>	<ul style="list-style-type: none"> • Create just-in-time training for the provision of information on key immediate actions for the medical response to an IND detonation • Coordinate with professional societies and national associations to improve visibility of currently available educational resources • Develop essential baseline educational curriculum for first responders, medical providers, and emergency support function (ESF) #8 stakeholders^b
	<p>Greater access to medical countermeasures with a Food and Drug Administration-approved indication for prevention, mitigation, and treatment of acute radiation syndrome is needed.</p> <p>Status—the recommended actions will take 5-10 years to complete</p>	<ul style="list-style-type: none"> • Develop logistical and operational plans for optimized use of medical countermeasures at all levels of the response • Expand approved indications for currently available countermeasures to include acute radiation syndrome • Research and develop novel countermeasures with Food and Drug Administration-approved prevention, mitigation and treatment of acute radiation syndrome
<p>Communications and Public Messaging</p>	<p>Public communications systems exist but are inadequate for large-scope incidents, such as an IND detonation. Local information sources need to establish initial communications with, among, and between the affected population and response forces, government, and media.</p> <p>Status—ongoing</p> <p>First responders are marginally aware, and the public is largely unaware and generally unprepared to execute effective protective and response actions following an IND incident.</p> <p>Status—ongoing</p>	<ul style="list-style-type: none"> • Develop a strategy for implementing communications training specific to an IND response • Develop a public communications strategy to provide awareness of safety and security actions in the vicinity of the blast area and in the overall federally declared disaster area • Develop a website and tools to broadcast sustained lifesaving messages using existing social networking sources and text-based communications devices • Create, test, and exercise public information on sheltering, evacuation, decontamination, reentry and cleanup, along with guidance to effectively execute shelter-in-place or other protective and response actions following an IND incident • Identify and engage nontraditional federal partners, such as spokespeople and corporate disaster/contingency operations planners for enhanced private and public sector coordination • Use non-English-language outreach, faith-based, and volunteer organizations to help transmit information between the affected population and local response forces, government and media following an IND detonation

**Appendix V: Improvised Nuclear Device (IND)
Program Interagency Working Groups'
Activities and Projects**

	<p>Need systems and methods to provide the public with information on lifesaving and protective measures after an IND detonation.</p> <p>Status—ongoing</p>	<ul style="list-style-type: none"> • Develop a system to disseminate information for the population in the affected and nearby areas that can be used to address critical needs, such as family reunification tools, decontamination locations, and evacuation routes • Further develop, distribute, and inform local populations about Communicating in the Immediate Aftermath messaging document so that the public is able to effectively self-protect in the days following an IND detonation^c • Reestablish communications in affected communities to allow the population to communicate
<p>Scientific Support</p>	<p>First responders, emergency managers, and other public officials may lack the ability to communicate post-IND.</p> <p>Status—study 95% complete.</p> <hr/> <p>Emergency planners lack clear and concise guidance for shelter, evacuation, reentry, reoccupation, and cleanup.</p> <p>Status—ongoing, four cities completed</p> <hr/> <p>The general public lacks awareness of the actions necessary to survive a nuclear incident.</p> <p>Status—ongoing</p> <hr/> <p>The United States needs a scientifically sound technique to compare and incorporate data and predictions from different sources after an IND incident.</p> <p>Status—ongoing</p>	<ul style="list-style-type: none"> • Improve understanding of whether and how federal, state, and local response will be hampered by loss of communications <hr/> <ul style="list-style-type: none"> • Model Urban Areas Security Initiative (UASI) cities (1 in each of the 10 FEMA regions) to produce a key planning document to be used to support the development of local, state, and regional response and recovery plans^d <hr/> <ul style="list-style-type: none"> • Develop and test a prototype “serious gaming” platform to provide a motivating, enriching, and engaging educational preparedness medium <hr/> <ul style="list-style-type: none"> • Implement Rad Responder, a web-based data input and output framework^e

Source : GAO analysis of Federal Emergency Management Agency documents | GAO-15-20

^aThe Incident Command System is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to enable effective and efficient domestic incident management. It is used to organize both near-term and long-term field-level operations for a broad spectrum of emergencies, from small to complex incidents, both natural and manmade. The Incident Command System is used by all levels of government—federal, state, local, and tribal—as well as by many private sector and nongovernmental organizations.

^bEmergency support functions are, according to the *National Response Framework*, the federal government’s primary coordinating structure for building, sustaining, and delivering response core capabilities. ESF #8, one of the 14 ESFs, is the coordinating structure for building, sustaining, and delivering response core capabilities specifically related to public health and medical services.

^c*Communicating in the Immediate Aftermath* is a document developed as a resource for emergency responders and federal, state, and local officials communicating with the public and the media immediately following an IND attack in the United States. An interagency group of communications and radiation technical experts developed the messages in this document, which include key messages for the affected community and the nation, and anticipated questions and answers for distribution to the public. Federal Emergency Management Agency, *Improvised Nuclear Device Response and Recovery: Communicating in the Immediate Aftermath* (Washington, DC: June 2013)

^dThe Urban Areas Security Initiative is a Department of Homeland Security grant program that provides federal assistance to address the unique needs of high-threat, high-density urban areas, and assists them in building an enhanced and sustainable capacity to prevent, protect against, respond to, and recover from acts of terrorism.

**Appendix V: Improvised Nuclear Device (IND)
Program Interagency Working Groups'
Activities and Projects**

^eRad Responder is a FEMA web-based tool to facilitate coordination across all levels of government through the rapid collection and organization of the data that are needed to characterize the IND incident and support lifesaving decisions (e.g., through modeling of the size and direction of the plume containing radioactive materials).

Appendix VI: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528



November 17, 2014

Chris P. Currie
Acting Director, Homeland Security and Justice
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Draft Report GAO-15-20, "EMERGENCY PREPAREDNESS: Opportunities Exist to Strengthen Interagency Assessments and Accountability for Closing Capability Gaps"

Dear Mr. Currie:

Thank you for the opportunity to comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO's) work in planning and conducting its review and issuing this report.

The Federal Emergency Management Agency (FEMA) recognizes the need to continue to improve our Nation's capabilities to respond to disasters, including addressing the recommendations raised in this report. FEMA is committed to supporting our citizens and first responders to ensure that as a Nation we work together to build, sustain and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

The draft report contained three recommendations with which the Department concurs. Specifically, GAO recommended that the Secretary of Homeland Security direct the Administrator of FEMA to:

Recommendation 1: In coordination and collaboration with other federal departments and agencies through the ESF [Emergency Support Function] Leadership Group, issue supplemental guidance to ESF coordinators that details minimum standards for activities and product deliverables necessary to demonstrate ESF preparedness. This guidance should include minimum expectations on how ESF coordinators are to demonstrate (1) that coordination with ESF primary and support agencies is sufficient, (2) that planning and preparedness activities are appropriate, and (3) whether required capabilities are available to effectively and efficiently respond to a disaster.

Response: Concur. As the draft report highlights, ESF coordinators conduct a variety of coordination, planning, and capability assessment activities to oversee the preparedness of the ESFs. To enhance inter-agency coordination, the Administrator of FEMA—in coordination and collaboration with other federal departments and agencies through the ESF Leadership Group—will issue supplemental guidance to ESF coordinators. Per the recommendation guidelines, this

supplemental guidance will identify minimum standards for activities and product deliverables necessary to demonstrate ESF preparedness. Estimated Completion Date (ECD): June 30, 2015.

Recommendation 2: In coordination and collaboration with the National Security Council Staff and other federal departments and agencies, collect information on and regularly report to the Secretary the status of federal interagency implementation of corrective actions identified (1) through prior national-level exercises and (2) following real-world incidents, specifically major disasters.

Response: Concur. FEMA recognizes the need to more widely understand the status of interagency corrective actions in order to better position the Secretary of Homeland Security to comprehensively monitor the status of national preparedness. While FEMA does not have the authority to compel other federal agencies to provide information related to their own corrective actions, FEMA will continue to request status updates and relevant information on these corrective actions related to major disasters and national-level exercises.

FEMA collects and monitors the status of its corrective actions through the Continuous Improvement Working Group and an internal-to-FEMA data-sharing repository. FEMA's National Preparedness Directorate will ensure that the repository is up-to-date and will assess and report quarterly to the Secretary on the completeness of the data in its repository. ECD: June 30, 2015.

Recommendation 3: In coordination and collaboration with other federal departments and agencies, to develop detailed program management information, consistent with leading practices identified in *The Standard for Program Management*, for federal interagency closure of the capability gaps identified in the *DHS IND Strategy*. This information should include, among other things, detailed estimates of completion dates for initiated activities, interim timeframes and milestones for monitoring and tracking progress, and necessary funding and resource requirements.

Response: Concur. In recent years, FEMA's Response Directorate has made substantial progress to address IND preparedness and response capacity improvement. FEMA has developed IND Planning initiatives for the regions, has adapted an IND Planning Tool, has published guidance materials supported by the IND Communications Working Group, and has developed an official training program to enhance workforce response capacity to an IND incident. Concurrent with this engagement effort, FEMA had already started developing a detailed program management information system for federal interagency closure of the capability gaps identified in the *DHS IND Strategy*.

Per the recommendation guidelines, the program management system will include detailed estimates of completion dates for initiated activities, interim timeframes and milestones for monitoring and tracking progress, and necessary funding and resource requirements. While FEMA is unable to direct other federal entities to participate and/or provide information, FEMA will continue to coordinate and collaborate with other federal departments and agencies to collect, track, and evaluate closure of the capability gaps identified in the *DHS IND Strategy*. ECD: April 30, 2015.

Again, thank you for the opportunity to review and comment on this draft report. Technical comments were previously provided under a separate cover. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,



Jim H. Crumpacker, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Appendix VII: GAO Contact and Staff Acknowledgments

GAO Contact:

Chris P. Currie, (404) 679-1875 or CurrieC@gao.gov

Staff**Acknowledgments:**

In addition to the contact named above, Chris Keisling (Assistant Director), David Alexander, Jerry Ambrose, Katherine Davis, Susan Hsu, Tracey King, David Lysy, Amanda Miller, Linda Miller, Erin O'Brien, Geoff Peck, Laurani Singh, and Kristen Timko made key contributions to this report.

Related GAO Products

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For more information on related GAO products, see:
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