National Level Exercise 2011 (NLE 11)
Functional Exercise
Final After Action Report (AAR)

October 28, 2011

FEMA

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EXECUTIVE SUMMARY

On Monday, May 16, 2011, thousands of players across the United States received notification of a simulated catastrophic earthquake in the New Madrid Seismic Zone (NMSZ), officially kicking off the National Level Exercise 2011 (NLE 11) functional exercise. From May 16–19, 2011, Federal, state, regional, local, international, nongovernmental, and private sector partners participated in the exercise, the capstone event of a White House-directed, congressionally mandated cycle of planning and preparedness events. Notably, exercise activities were carefully balanced with ongoing efforts to respond to and recover from real-world flooding and tornado-related disasters in the Southern and Central United States. Although some partners, including the four states in FEMA Region IV (Alabama, Kentucky, Mississippi, and Tennessee), had to reduce their participation in NLE 11 due to these events, their actions, requests, and decisions were simulated to allow for robust and realistic exercise play. Simultaneously conducting NLE 11 and managing real-world disasters resulted in a realistic "worst-case scenario." Consequently, players were able to test the Nation's ability to respond to several devastating events, strengthening the country's preparedness through their efforts.

The NLE 11 exercise was a follow-on effort to the FEMA Catastrophic Planning Initiative. It was designed and conducted by the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA)/National Exercise Division (NED), with input from the participating Federal and state interagency planners. Eight capabilities (below) served as the foundation for exercise planning.

- Communications
- Incident Management/Emergency Operations Center (EOC) Management
- Citizen Evacuation & Shelter-In-Place
- Mass Care (Sheltering, Feeding, and Related Services)
- Critical Resource Logistics and Distribution
- Emergency Public Information and Warning
- Medical Surge
- Recovery

In addition to the eight capabilities, FEMA leadership had additional overarching objectives. These objectives focused the evaluation on catastrophic-event preparedness by assessing the ability of the Nation's incident management systems to:

- Respond to and stabilize areas impacted by a catastrophic earthquake within the initial 72 hours;
- Implement critical decisions to ensure effective conduct of lifesaving and life-sustaining mission essential functions;

- Engage the NMSZ "Whole Community" response methodology—including citizen volunteers from the impacted communities—in immediate catastrophic earthquake response;
- Identify mission-critical capability, resource gaps, and identify alternative resource solutions; and
- Conduct NMSZ recovery planning activities and tabletop exercises (TTXs).[1]

The purpose of the After Action Report (AAR) is to provide an overview of NLE 11 functional exercise results, identify strengths to be maintained and areas for further improvement, and support the development of corrective actions. Results regarding the final objective of NLE 11, recovery planning, will be reported separately following the National Recovery Tabletop Exercise (NRTTX), an integral continuation of the NLE 11 series.

Major Strengths

A major goal of NLEs is to test existing plans, policies, and procedures to identify planning and resource gaps and to ultimately implement corrective actions to improve preparedness. Past exercises and real-world events have uncovered many such gaps, and the emergency management community has worked diligently to improve performance and increase capability. Our analysis highlighted several strengths in the national response, three of which are highlighted below.[2]

- **Communications.** During NLE 11, the National Communications System (NCS) activated the National Coordinating Center (NCC) to coordinate Emergency Support Function (ESF) #2 (Communications) support to the states. FEMA's Disaster Emergency Communications worked in support of ESF #2, successfully deploying and using their Mobile Emergency Response (MERS) teams to support State EOCs. In addition, state and local entities successfully tested their secondary and tertiary interoperable communications, including the use of the Radio Amateur Civil Emergency Service (RACES) network, amateur radio, and the Army Military Auxiliary Radio System**.**
- **Whole Community**. The first formal exercise of Whole Community Courses of Action (COA) was extremely valuable. A Pets Multi-Agency Coordination (MAC) group was activated successfully, and provided a needed nexus for pet-sheltering activities. Federal, nongovernmental, and faith-based organizations activated a Direct Distribution Task Force (DTTF) to develop strategies and plans, request resources, and coordinate the delivery of supplies from Federal staging areas to the eight impacted states. Finally, the use of social media provided situational awareness and ground truth in an environment of degraded communications.

[1] These overarching leadership objectives are outlined in the NLE 11 Exercise Directive, signed and dated September 23, 2010.
[2] A full list of exercise strengths and areas for improvement can be found in Appendix A.

- **Private Sector and nongovernmental organization (NGO) participation.** The private sector and NGOs participated at unprecedented levels for an NLE and demonstrated that they are major sources for personnel, resources, and information. For example:
  - FEMA/Private Sector Division (PSD) coordinated with over 400 private sector organizations to use non-traditional means of communicating critical disaster information.
  - ESF #8 (Public Health and Medical Services) coordinated with private sector partners to promote shared situational awareness and incorporate private sector support into medical surge response efforts.
  - FEMA communications and private industry successfully collaborated to provide communications support to local and state response operations.

Primary Areas for Improvement

The exercise highlighted opportunities for improving emergency management nationwide. These areas for improvement can be grouped into four cross-cutting themes:

- **Resource Gaps.** The lack of key resources and/or the inability to deliver them in a timely fashion challenged activities in almost every capability. Examples of gaps identified in the exercise analysis include the following:
  - Hazardous Material (HAZMAT), Search and Rescue (SAR), and other key teams;
  - Generators and fuel resupplies;
  - Trained sheltering personnel to support the mass-care mission;
  - Patient-movement support;
  - Medical-surge personnel and supplies;
  - Qualified personnel to conduct road, bridge and building inspections; and
  - Availability of enough rotary-wing assets to deliver resources in a timely fashion to areas where the ground and water main supply routes were obstructed
- **Whole Community.** There remain areas for improvement in both serving and taking advantage of the abilities of all those affected by an event of this magnitude. Although the enormous potential of the private sector was on display in NLE 11, there was a lack of formal mechanisms by which their resources and information were integrated into the incident support system. This lack of formal mechanisms also affected the use of social media and highlighted gaps in processes for integrating information gathered from social media into the response. It was not demonstrated that those with functional needs could be supported in general population shelters. Finally, even successfully demonstrated concepts, such as the Pets MAC and the DDTF, were not widely understood nor used by the rest of the incident management and support structures.
- **Policy and Legal Issues.** Issues concerning liability and credentialing prevented the use of key resources (such as SAR and medical teams) from other countries. In addition, emergency managers raised questions about how to implement national guidance

regarding sheltering those with functional needs in a post-catastrophic-event environment. Funding issues also came to light, such as how cost-sharing works when resources were reallocated from one state to another. Finally, implementation of Whole Community raised questions about the use of Stafford Act funding for private companies and NGOs that were key to the response.

- **Planning.** NLE 11 demonstrated that while Federal, regional, and state planning efforts have made great progress, plans were not fully integrated nor socialized between these levels. Those at the Federal level are not yet familiar with the regional and state Operations Plans (OPLANs), and vice versa. In addition, key aspects of Federal plans, such as incident support in an environment where resources are pushed to the impacted area, do not contain the detail needed to make them operational. Furthermore, plans at each jurisdictional level rely on resources that will be in short supply, do not exist, or cannot be deployed quickly enough to ensure operational success. Other planning issues include the following:
  - Although the National Incident Support Manual (NISM) functioned as an overarching guide to incident support, it did not provide enough detail for the operational setting.
  - The Unified Area Coordination Group (UACG) concept, as proposed in draft documents, was not exercised, and therefore, has not been validated.

Recent real-world events provided a continuous reminder of the value of this exercise series. Devastating earthquakes in Haiti, Chile, and Japan vividly and tragically illustrated the human, economic, and social impacts of such a catastrophic disaster, and underscored the importance of enhancing preparedness for such an event in the United States.

SECTION 1: EXERCISE OVERVIEW

Exercise Details

Exercise Name

NLE 11

Type of Exercise

Operations-based exercise, incorporating elements of both functional and full-scale exercises

Exercise Start Date

May 16, 2011

Exercise End Date

May 19, 2011

Duration

Four days

Location

Federal headquarters locations in the Washington, D.C. area; Federal, regional, state, and local facilities and jurisdictions in Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee participated in the exercise

Sponsor

DHS

Program

National Exercise Program (NEP)

Mission

Respond and Recover

Capabilities

Communications

Incident Management/Emergency Operations Center (EOC) Management

Citizen Evacuation and Shelter-In-Place

Mass Care (Sheltering, Feeding and Related Services)

Critical Resource Logistics and Distribution

Emergency Public Information and Warning

Medical Surge

Recovery

Scenario Type

National Planning Scenario: National Disaster-Major Earthquake

Exercise Planning

The NLE 11 Exercise Coordination Group and the eight working groups—Control and Evaluation, Scenario, Private Sector, Citizen and Community Preparedness, Training, External Affairs, Recovery, and International Partnership—were responsible for exercise planning, oversight, and conduct. The national working groups were supported by regional and state working groups.

The NLE 11 functional exercise was the capstone event in an eighteen-month series of building-block events designed to evaluate the Nation's preparedness for a catastrophic event. These included the following:

- The Resource Allocation Workshop (RAW): Held in Nashville, TN, from November 30–December 3, 2010, the RAW provided Federal, regional, and state planners and operators the opportunity to assess resource capabilities and shortfalls, pre-identify potential resource allocation strategies, define and strengthen relationships, and establish a broad understanding of the Concept of Operations (CONOPS) for a national catastrophic event of this nature.
- The National Tabletop Exercise (NTTX): This discussion-based exercise was conducted on April 13, 2011, as a rehearsal of concept (ROC) drill, enabling participants to organize themselves as they would for an actual response to the NLE 11 catastrophic earthquake scenario (i.e., in coordination and/or operational nodes throughout the Federal, regional, and state levels of government). The purpose of the NTTX was to examine key policy, command, and operational activities associated with the execution of the Federal Interagency Response Plan – Earthquake 2011 (FIRP-EQ 2011) and Joint Regional and State Operational Plans (OPLAN) for a NMSZ earthquake.
- The Great Central U.S. Shake-Out: Over three million people in 11 states practiced "Drop, Cover, and Hold On" at 1015 on April 28, 2011 (April 19 in Indiana), as part of this event.[3] The drill, the first multi-state earthquake preparedness exercise in the U.S., included over 2,016 schools, 268 businesses, and 611 local government agencies.
- NLE 11 Training: FEMA NEP and the Emergency Management Institute (EMI) developed a series of training programs to assist in preparing participants for the exercise. This training covered multiple topics, such as plan reviews, earthquake effects, resource management, and citizen preparedness. The series was delivered in person, through webinars and video teleconferences (VTCs), and via the internet through Web-based training from December 2010 to April 2011.

In addition, the functional exercise was followed by two national events focused on recovery from the NLE 11 catastrophic earthquake scenario:

[3] All times in this report are based on a 24-hour clock, Eastern Daylight Time.

- National Recovery Seminar (NRS): The NRS, held on July 19, 2011, was designed to inform and promote discussion among participants regarding recovery issues associated with a catastrophic earthquake. The seminar utilized a structured format of briefings and facilitated plenary discussion sessions on the following topics: framework and foundations for earthquake recovery and mitigation; perspectives from real-world earthquake recovery and planning considerations for recovery from an NMSZ event; disaster behavioral health and considerations for at-risk populations; critical infrastructure protection and restoration of lifelines; and Whole Community economic recovery considerations.
- National Recovery Tabletop Exercise (NRTTX): This discussion-based exercise was designed to establish a learning environment for participants to discuss disaster recovery policies, procedures, and timelines as they relate to the NLE 11 catastrophic earthquake scenario. The exercise also aimed to provide the first opportunity to explore the application of the National Disaster Recovery Framework (NDRF). The final event in the NLE 11 series, the NRTTX was conducted on September 27-29, 2011. The exercise was driven by predefined critical issues derived from the NDRF; transitional issues from the NLE 11 functional exercise; issues and considerations from the NRS and State Recovery Workshops/TTXs; and stakeholder meetings.

Participating Organizations

The exercise took place at venues in the National Capital Region and across the Central United States, with over 10,000 Federal, state, regional, local, international, nongovernmental, and private sector players at more than 135 sites across the country. In addition, over 7,800 individuals from the private sector and non-profit community participated virtually. Participation included Federal departments and agencies (D/As), four FEMA regions (IV, V, VI, and VII), and eight states (Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee), international, private sector, and nongovernmental partners. Federal players were located in their internal EOCs, at the National Response Coordination Center (NRCC), the appropriate Regional Response Coordination Center (RRCC), and in the states (at EOCs, Initial Operating Facilities [IOFs] and Joint Field Offices [JFOs]). The list of national participating D/As is shown in Appendix B.[4]

International Play

International players included Canada, Chile, Israel, the European Union, Mexico, Russia, and Sweden. Key issues, such as the use of international Urban Search and Rescue (US&R) teams and medical personnel, were raised, and will be discussed in this AAR.

Full-Scale Elements and Linked Exercises

NLE 11 was an operations-based, functional exercise, with some localized full-scale elements. Examples included the following:

- Arkansas School Collapse Earthquake event: a full-scale rescue mission;

[4] State participants and exercise sites can be found in the individual state Exercise Plans (ExPlans)

- Federal, state and international US&R missions at Muscatatuck Urban Training Complex (MUTC) in Indiana.

In addition, the Department of Defense (DoD)-sponsored Ardent Sentry 11 exercise, which focused on Defense Support of Civil Authorities (DSCA), included several components linked to NLE 11:

- Vigilant Guard: a National Guard exercise conducted in multiple states to assess the National Guard's ability to assist state and local agencies in emergency response, coordination, and collaboration;
- Noble Lifesaver/Ultimate Caduceus: a joint Department of Health and Human Services (HHS) and U.S. Transportation Command (USTRANSCOM) full-scale patient movement and tracking exercise in Missouri;
- Turbo Challenge: a USTRANSCOM field training and command post patient movement exercise conducted in Missouri in coordination with the DHS, the Joint Chiefs of Staff, and U.S. Northern Command (USNORTHCOM);
- Positive Response: a Joint Staff "umbrella" exercise and mechanism for the Office of the Secretary of Defense (OSD), Joint Staff, and Services participation.

Number of Participants (approximate)

- Players: 10,270
- National-level controllers/simulators: 500
- National-level evaluators: 70
- Observers: 380
- Virtual engagement: 7,800[5]

[5] Members of the private sector and non-profit community used pieces of the NLE 11 scenario and exercise to run their own exercises. These players played from locations other than those associated with NLE 11.

SECTION 2: EXERCISE DESIGN SUMMARY

The purpose of the exercise was to assess core capabilities demonstrated in an operations-based exercise in response to a catastrophic earthquake, focused on the initial 72 hours of response. The Homeland Security Exercise and Evaluation Program (HSEEP) methodology guided the design, conduct, and evaluation of the exercise. During the planning, conduct, and evaluation phases, NLE 11 capitalized on the emerging relationships among participating Federal, regional, state, tribal, and local agencies; nongovernmental organizations (NGOs); and the international community. The findings will be used to further discussions during the NRS and NRTTX, and collectively used to develop corrective actions to improve strategy and procedures for responding to and recovering from catastrophic disasters.

Exercise Purpose and Design

NLE 11 focused on eight national objectives, each being a target capability. This AAR is the analysis of these capabilities:

- **Communications:** Demonstrate the ability to maintain a continuous flow of critical information among multi-jurisdictional and multi-disciplinary emergency responders, command posts, agencies, and governmental officials for the duration of the earthquake response operation.
- **Incident Management/EOC Management:** Demonstrate the ability to effectively manage a catastrophic earthquake incident through multi-agency unified coordination.
- **Citizen Evacuation & Shelter-In-Place:** Demonstrate the ability to ensure affected and at-risk populations (and companion/service animals) are safely sheltered-in-place and/or evacuated to safe refuge areas in order to obtain access to medical care, shelter, and other essential services, and are effectively and safely re-entered into the affected area.
- **Mass Care (Sheltering, Feeding, and Related Services):** Demonstrate the ability to provide mass care services (sheltering, feeding, and bulk distribution) for the affected general population, individuals with disabilities and access and functional needs, service animals, companion animals, and household pets.
- **Critical Resource Logistics and Distribution:** Demonstrate the ability to identify, inventory, dispatch, mobilize, transport, recover, demobilize, track, and record available human and material critical resources throughout all incident management phases.
- **Emergency Public Information & Warning:** Demonstrate the ability of intergovernmental agencies and the private sector to execute an effective public official and national media strategy in response to a catastrophic earthquake through the effective receipt and transmission of coordinated, prompt, and reliable information regarding threats to public health, safety, and property through clear, consistent information-delivery systems. Assure this information is updated regularly and that it outlines the protective measures that can be taken by individuals and their communities during a catastrophic earthquake.

- **Medical Surge:** Demonstrate the ability to rapidly expand healthcare resources to provide medical personnel, support functions, physical space, and logistics support to deliver triage, treatment, and medical care to the affected and at-risk populations within sufficient time to achieve recovery and minimize medical complications.
- **Recovery:** Demonstrate the ability to implement recovery processes after a catastrophic earthquake, including the establishment of recovery priorities, the assessment of economic impact, and the coordination and implementation of recovery and relief plans to assure that individuals, families, businesses, and communities are provided with appropriate levels and types of relief with minimal delay.[6]

In addition to the national objectives, FEMA had overarching leadership objectives. These objectives emphasized the following:

- Validate national, joint, regional, and state operations planning objectives and courses of action.
  - Validate the NMSZ Joint Region and State OPLAN earthquake planning assumptions.
  - Validate the Federal Interagency Response Plan – Earthquake 2011 (FIRP-EQ 2011).
  - Observe and evaluate Federal and international communications and coordination.
- Confirm the overarching intergovernmental Unified Area Command (UAC)/coordination, control, and communications (C3) unified decision making and resource strategy to influence lifesaving and life-sustaining outcomes within 72 hours and beyond.
  - Evaluate FEMA's ability to execute the Unified Area Coordination Group (UACG) structure in a catastrophic incident.
- Test and evaluate the ability of senior intergovernmental officials, critical infrastructure owners and operators, and the "Whole Community" response methodology to effectively collaborate within the NMSZ catastrophic incident management system.
  - Observe and evaluate Federal and private sector communications and coordination.
  - Support the "Whole Community" planning process by evaluating FEMA critical task operations.
- Identify a comprehensive national earthquake resource/capability inventory for prioritization and adjudication by unified decision-makers during NLE 11.
  - Prioritize and resolve resource gaps.

Finally, the evaluation team considered Whole Community Core Capabilities and incorporated them into the analysis of national capabilities whenever possible. The Whole Community approach represents a shift from a government-centric approach to an approach utilizing the

[6] The recovery capability will not be analyzed in this report. Instead, it will be covered in a separate AAR, which will be written after the NRS and NRTTX.

capabilities of Federal, state, local, tribal, and territorial governments; the private sector; NGOs; faith-based and community-based organizations; and the American public. The approach ensures that all aspects of the American population—including individuals with disabilities and functional needs, non-English speakers, pets, etc.—are included in response efforts. FEMA and its interagency partners are driving these concepts toward a national doctrine, planning and preparing for a catastrophe where extraordinary levels of mass casualties, damage, and disruption overwhelm traditional and well-established response and recovery plans and procedures.

The Whole Community approach includes the following Response Capabilities:

- Situational Assessment
- Public Messaging
- Command, Control, and Coordination
- Critical Communications
- Environmental Health and Safety
- Critical Transportation
- On-Scene Security and Protection
- Mass Care Services
- Health and Medical Treatment
- Mass Search and Rescue Operations
- Public and Private Services and Resources
- Stabilize and Repair Essential Infrastructure
- Fatality Management Services[7]

Scenario Summary

The NLE 11 exercise series, which was a follow-on effort to the FEMA Catastrophic Planning Initiative, was the first NLE to focus on a natural-hazard event. In accordance with guidance from the DHS and FEMA senior leadership to exercise against a scenario that would realistically stress responding department and agencies to the breaking point, U.S. Geological Survey (USGS), national laboratories, and other subject matter experts (SMEs) were asked to develop a plausible worst-case scenario for NLE 11. Drawing on historical data and scientific modeling that accounted for population and economic impacts, experts developed a credible scenario that simulated a sequence of catastrophic earthquakes in the Central United States.

In the scenario, the southwest segment of the NMSZ ruptured at a magnitude of 7.7 from near Marked Tree, AR, to near Ridgley, TN. The shaking from this event triggered a magnitude 6.0 event in the WVSZ near Mt. Carmel, IL. The earthquakes caused widespread casualties,

[7] A crosswalk between national objectives, overarching leadership objectives, and Whole Community core capabilities can be found in Appendix C.

displaced households, and damage to major infrastructure across eight states—Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee.[8]

In response to this scenario, players implemented the following actions over the course of the exercise:

- **Monday, May 16:** Players focused on immediate lifesaving actions and mobilizing responders and resources to locations where critical damage occurred.
- **Tuesday, May 17:** Response activities focused on meeting the health and safety needs of those affected by the simulated catastrophic earthquake.
- **Wednesday, May 18:** In addition to lifesaving activities, players focused on life-sustaining activities and addressed needs related to infrastructure and housing damage.
- **Thursday, May 19:** On the final day of NLE 11, players focused on life-sustaining actions and started shifting to the recovery process.[9]

Players participated in these activities at sites throughout the U.S., as shown in Figure 1, below.

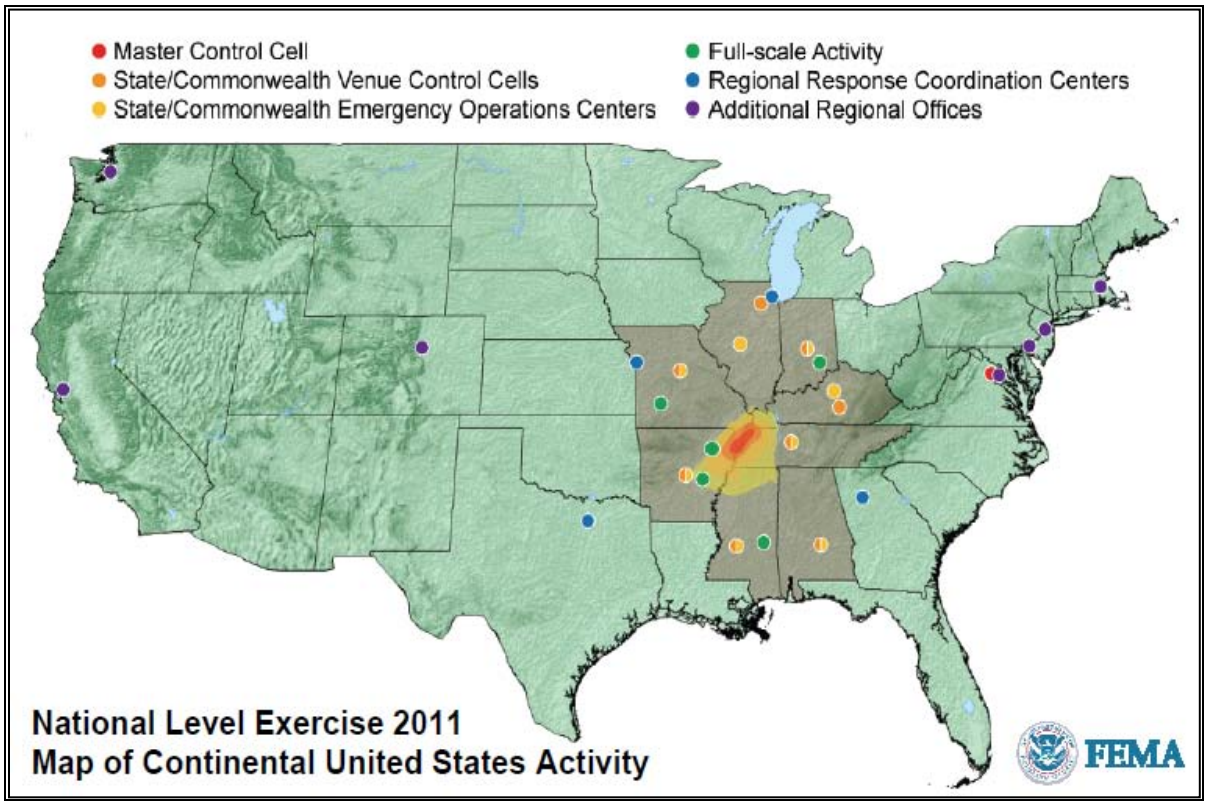

Figure 1. NLE 11 Map of Activity in the Continental United States

[8] Additional details are available in the NLE 11 Scenario Document.
[9] A timeline of key NLE 11 events can be found in Appendix D

The following **scenario assumptions** applied to NLE 11:

- In a functional-exercise environment, resources were not deployed to the field. Therefore, activation, deployment, and on-site arrival were simulated. Once an asset was "deployed," it was assumed it had arrived at its destination after an appropriate amount of time had passed. Issues associated with actual resource movement were not included in the exercise evaluation.
- Real-world weather conditions, dates, and times were used throughout the exercise.
- Real-world response conditions were used by some agencies, but not by others. For example, FEMA did not deploy Incident Management Assistance Teams (IMATs) due to deployments for real-world disasters; however, US&R teams were all notionally available.

The following **artificialities and constraints** were accepted to facilitate accomplishment of the exercise and its objectives. They may have detracted from exercise realism and were taken into account when performing the analysis:

- The Master Control Cell (MCC) simulated operations for Illinois, Mississippi, Alabama, Kentucky, Tennessee, and FEMA Region IV, which were unable to participate due to real-world emergencies. When possible, personnel from those specific states and regions simulated responses to keep artificiality to a minimum.
- Some government departments and agencies and field assets were unable to play throughout a 24-hour time frame; their response activities were simulated, when applicable.
- Physical descriptions of the impact were relayed to exercise players by controllers and simulators. Aftershocks were not part of the national scenario. While some stakeholders injected aftershocks to achieve their objectives, the majority of players in this exercise reacted to the initial two earthquakes only.
- Communications outages—and the need to use secondary and tertiary forms of communication—would have continued through the duration of the exercise. States chose to play communications outages long enough to test their capability, but not so long as to interfere with achieving other exercise objectives.

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SECTION 3: ANALYSIS OF CAPABILITIES

Observations in this AAR are limited by the quality of the data collected, by the exercise artificialities previously described, and by exercise design and development decisions. In the following analysis sections, it is noted where these limitations had an impact on the analysis.

Section 3 is organized according to the capabilities aligned to the national objectives. For each capability, the discussion begins with a general description of how that capability was exercised in NLE 11. A brief analysis of each observation follows, including a description of the root causes and consequences. The only exception to this format is the Incident Management/EOC Management objective. Due to the vast amount of observations in this capability, it has been split into five distinct subjects.

Common themes linking observations across capabilities were evident and are listed below. These observations are aligned to the most appropriate objective and are also referenced in the discussion of other objectives.

- The inability to provide adequate and timely response resources created challenges in almost every capability. While resources gaps are referenced throughout this report, the topic as a whole is discussed in Critical Resource Logistics and Distribution.
- The Action Request Form/Mission Assignment (ARF/MA) process hindered tasks that fall into several capabilities. In this section, the process is discussed as part of Incident Management/EOC Management.
- Information sharing and situational awareness challenges affected the achievement of all capabilities. In this section, it is discussed as part of Incident Management/EOC Management. Federal interaction with both the private sector and the international community were overarching leadership objectives and were linked to several objectives, including Medical Surge and Mass Care. The major observations of these interactions are discussed in Critical Resource Logistics and Distribution.
- Observations about the implementation of plans are part of several capability discussions. First, several strategic-level planning issues can be found in Incident Management/EOC Management in a subsection on national, regional, and state plans. Second, issues related to the National Incident Support Manual (NISM) are discussed in the National Response Coordination Center (NRCC) subsection of Incident Management/EOC Management. Finally, planning gaps that relate to the movement of assets are discussed in Critical Resource Logistics and Distribution.

This report does not cover the Recovery objective, as this topic will be the focus of the NRS and the NRTTX, and will be analyzed more fully in a separate AAR.

1. Communications

Many components of the private sector and national communications apparatus were activated to provide emergency communications support during NLE 11. Emergency Support Function (ESF) #2 (Communications) was activated in the NRCC and personnel were activated in three FEMA regions. In addition, ESF #2 activated the following major response components:

- National Communications System (NCS)
- National Coordinating Center (NCC)
- Disaster Information Reporting System (DIRS)
- FEMA Mobile Emergency Response Support (MERS)

Observation 1.1. States and FEMA regions were able to establish alternate forms of communication in a degraded environment.

Analysis: Strength. States and FEMA regions used alternate forms of communications to share critical information in the absence of primary forms of communication. Some examples include the following:

- FEMA Region VI established alternate communications with the Arkansas Department of Emergency Management (ADEM) through the Military Auxiliary Radio System (MARS), which allowed for communication between the State, region, and national response elements. This was particularly useful when FEMA Region VI reportedly lost radio contact with ADEM through the FEMA National Radio System (FNARS) on the afternoon of May 16, 2011. Using MARS, FEMA Region VI and ADEM were able to maintain communications until FNARS was restored the following day.
- Private sector representatives in the Region VII RRCC established alternate communications with private sector counterparts in the Missouri State Emergency Operations Center (SEOC) using Very High Frequency/High Frequency radio.
- Counties in Indiana and Missouri communicated with their State EOCs via amateur radio operators.

Federal D/As also used alternate communications during the exercise. For example, the United States Army Corp of Engineers (USACE) internet and Blackberry system went down due to real-world events, which forced USACE HQ and Districts to use alternate means of communicating until normal communications were restored. This provided a realistic stress to the USACE communications system and a good opportunity for the agency to test its alternate communications capabilities.

Some venues did not play communications degradation according to exercise rules and guidelines; however, all venues did test alternate communications successfully in some manner. It is essential for responders at all levels of government to continue testing and implementing interoperable and redundant communications to support all aspects of catastrophic earthquake response.

Observation 1.2. The Federal Government provided tactical communications support and analysis.

Analysis: Strength. The Federal interagency deployed several assets and personnel to provide emergency tactical communications support, consisting of:

- FEMA MERS: MERS teams were dispatched to State EOCs in coordination with IMATs to provide on-site telecommunications support, which helped connect responders across multiple levels of government. Within the first 48 hours, MERS sent an ARF for vendor

support to deploy commercial satellite internet capability in the eight impacted states. This also satisfied a Whole Community objective to connect multiple communications systems through a common hub for temporary interoperable communications.

- Roll-Call Survey Teams: FEMA regions requested Federal Communications Commission (FCC) Roll-Call surveys for their impacted areas, and NCS/NCC-facilitated deployment of Roll-Call teams where they were requested. The Roll Calls were initiated to help analyze state and local radio spectrum use and identify the extent of communications outages.

FEMA/Disaster Emergency Communications (DEC) Division, NCS, and the Federal interagency should continue practicing the deployment of tactical communications resources and the mechanisms for contracting private sector support in order to provide interoperable communications support to the affected region, states, and localities.[10]

Observation 1.3. Government and private sector coordination improved communications capability in the impacted area.

Analysis: Strength. Emergency communications personnel collaborated with private sector partners to improve communications capability in several instances:

- On May 16, 2011, the FCC became aware that communications from a Spanish-language broadcasting station in Memphis, Tennessee, were disrupted due to the earthquake. This station was the sole provider for broadcasting Emergency Alert System (EAS) messages and disaster-related information to the area's Spanish-speaking community. The owner of the station requested Special Temporary Authority from the FCC to increase power for broadcast coverage in Memphis. However, government officials were unsure how Stafford Act assistance could be applied to support private broadcasters during a disaster. FEMA legal advisers agreed that Federal support to the private broadcaster was appropriate in this particular event, and that future requests from private broadcasters would be considered on a case-by-case basis.
- The voluntary DIRS program allows communications companies and private broadcasters to report communications infrastructure status in the event of a natural disaster. The NCS/NCC included information reported by DIRS in its daily situation reports, which included information on Public Safety Answering Points, AM/FM radio stations, television stations, cellular towers, and wire lines. This information helped NCS develop a clearer picture of communications infrastructure status in the region and inform telecommunications assistance allocations.
- FEMA/Private Sector Division (PSD) coordinated with over 400 private sector organizations to use non-traditional means of communicating critical disaster information. Examples of these non-traditional means of communication included the following:
  - Outdoor advertising companies provided digital billboard space in the impacted area to communicate key messages.

[10] A full list of deployed resources and their locations can be found in the Supplemental Analysis Document: NLE 11.

- Private sector partners offered to push out information through Goodyear blimps and global positioning system (GPS) devices.
- NCC industry members and a power-product company provided charging systems for cell-phone charging stations in the impacted states.

The Federal interagency should expand its partnerships with the private industry, where possible, and continue exploring ways private industry can supplement interagency disaster communications through non-traditional sources.

Observation 1.4. The process for the prioritization and allocation of communications resources was not fully explored, and cannot be validated.[11]

Analysis: Area for Improvement. Due to the desire of regions and states to address other critical objectives, power and communications outages were not played for the full extent of the exercise. In a real-world event of this nature, experts say that most communications would return significantly later than 48 hours, and that the national communications apparatus would be stressed to the point where prioritization and allocation decisions would have to be made. In addition, during an event where widespread outages have occurred and generator fuel has become increasingly scarce, it is likely that communications would steadily degrade as time went on and generators ran out of fuel. Although there are structures and procedures in place for prioritizing communications resources, there remain potential gaps in planning that were not tested in NLE 11, such as:

- Most critical communications facilities have fuel to power backup generators for 72 hours. However, it remains unclear what Federal, state, local, and/or private sector efforts would take place to anticipate and prioritize which critical communications facilities would receive generator fuel post 72 hours.
- The National Response Framework (NRF) Communications Annex designates the Joint Telecommunications Resources Board (JTRB) as the primary entity for prioritizing Federal communications resources that cannot be resolved by the Federal Coordinating Officer (FCO) or Principal Federal Official (PFO). However, the FIRP-EQ 2011 does not mention the JTRB or its role in prioritizing communications resources as described in the NRF Communications Annex.[12]
- Domestic Resilience Group (DRG) participants also discussed invoking Presidential authorities under section 706(d) of the Communications Act, which allows the President to authorize the use of certain communications facilities or stations "… in the interest of national security and defense…" These authorities were not needed according to the White House Office of Science and Technology Policy (OSTP), because communications were restored on May 18, 2011. The provisions of the Act primarily apply to wartime,

[11] Observation 1.4 is linked with mission critical finding #7 in Appendix E.

[12] During NLE 11, the JTRB conducted several teleconferences to support the interagency response, but it could not make prioritization decisions because communications were largely restored by the third day of the exercise. The JTRB monitored communications developments as they unfolded during the exercise, but there was little need for intervention by the Director of the Office of Science and Technology Policy (OSTP) and little to be discussed in terms of prioritization.

and thus an OSTP member suggested further review of the Act for its applicability to natural disasters.

Observation 1.5. There were duplicative efforts to report and share emergency telecommunications information among government and private industry stakeholders.[13]

Analysis: Area for Improvement. ESF #2 reports telecommunications information upward through two streams: one through the DHS/National Protection and Programs Directorate (NPPD) and the other through FEMA. The information reported was largely the same, but required different formatting depending on the intended recipient. Although there are two tracks of reporting, the content of the reports are coordinated before reaching FEMA and the DHS/NPPD to ensure uniform messaging.

During NLE 11, several reports (beyond NCS/NCC Situation Reports) included updates on telecommunications infrastructure and status, including:

- National Infrastructure Coordinating Center (NICC) Situation Report
- NPPD Incident Daily Update Brief
- National Operations Center (NOC) Situation Report
- FEMA Senior Leadership Brief

Telecommunications information in the reports was largely consistent with information provided in the NCS/NCC Situation Reports. Although players were aware of and managed the duplicative reporting requirements, these requirements increased the burden on the private industry organizations that report the information.

2. Incident Management/EOC Management

The major centers of interagency incident and EOC management were the NRCC; NOC; and FEMA Regions V, VI, and VII RRCCs. In addition, a Unified Area Coordination Group (UACG) was activated, as were three State EOCs and IOF/JFOs in Indiana, Missouri, and Arkansas. While this analysis focuses on the incident and emergency management that occurred at interagency locations, many participating departments and agencies (D/As) set up their own EOCs, and are also referenced in this report as appropriate.

This section analyzes five major areas of Incident Management/EOC Management, each of which contains several observations: Employment of a Federal push strategy; the role and responsibility of the NRCC in a catastrophic event; effectiveness of planning documentation; the execution of the Unified Area Coordination Group (UACG); and acquiring and maintaining a national common operating picture (COP).

2.1. Employment of a Federal push strategy

Post-Hurricane Katrina, FEMA leadership has emphasized a swift response to catastrophic events in order to affect lifesaving and life-sustaining outcomes. This has changed the environment of catastrophic response from a system of pulling assets from the Federal

[13] Observation 1.5 is linked with mission critical finding #5 and #7 in Appendix E.

Government as needed to a Federal system of pushing lifesaving and life-sustaining resources into the affected area. Although stakeholders recognized the need for this swift, imprecise response, there are several systems, processes, and standard operating procedures that have not evolved to adapt to the push environment.

Observation 2.1.1. Submitting pre-scripted mission assignments (MAs) and action request forms (ARFs) reduced the administrative burden on the Emergency Support Functions (ESFs) and on those who would receive support.

Analysis: Strength. Between 17:00 and 18:00 hours on the first evening of the exercise (May 16, 2011), several ESFs activated MAs and states submitted ARFs that had been pre-scripted for general disaster response. These pre-scripts were activated quickly and easily, as the details of the asset, the funding required to activate it, and the mission it could perform were all pre-determined. While most resources were only notionally deployed and response times could not be measured, players believed that crafting these documents ahead of time and activating them in a push environment would have led to a faster response time in a real-world event. Four examples of activated pre-scripts can be found below, and a full list can be found in the Supplemental Analysis Document: NLE 11.

- ESF #11 activated a pre-script to provide the U.S. Department of Agriculture (USDA)/Food Safety and Inspection Service (FSIS) Technical Assistance (TA) to states and local jurisdictions.
- ESF #3 activated a pre-script to provide Debris Planning and Response Teams.
- ESF #8 activated a pre-script for U.S. Food and Drug Administration (FDA) investigators to augment state and local staff to conduct inspections of establishments that prepare, pack, and/or hold human and/or animal food, human and/or animal drugs, biologics, cosmetics, and/or medical devices to help assure such commodities are safe, effective, and/or otherwise fit for use.
- ESF #5 activated a pre-script for the National Geospatial Intelligence Agency (NGA) to provide JFOs with support, as needed.

While pre-scripted MAs were useful to many D/As, there is still more work that could be done on the process to create and distribute them. This is discussed more thoroughly in Observation 2.1.3.

Observation 2.1.2. The Office of Management and Budget (OMB) promptly addressed an insufficient balance in the Disaster Relief Fund (DRF).

Analysis: Strength. In a DRG meeting on May 16, 2011, OMB noted that with the ongoing responses to the floods and tornados, the DRF balance was insufficient to support the Federal response to a disaster on the scale of the NLE 11 scenario. OMB requested estimates from each D/A to support a congressional supplemental request. Later in the meeting, OMB clarified that FEMA would take the lead in requesting and compiling the estimates. Timing of the funding (e.g., current year versus out year) was important to ensure that money would be available when needed and that there would not be an unnecessary surplus. Over the next two days, OMB clarified that the approach would be to request supplemental funding in tranches, with the first tranche running through June 30, 2011. Funding for recovery would

be requested in a later tranche. Although the U.S. House of Representatives was in recess, OMB reached out to the leadership of the Appropriations Committees in both houses and had received indication that they would act on the supplemental request in a positive and timely manner.

Players noted that they hoped this observation was not an exercise artificiality, and that OMB continues to act on supplemental requests in a timely manner.

Observation 2.1.3. To maximize the effectiveness of pre-scripted MAs, further coordination and familiarization are needed at all levels.

Analysis: Area for Improvement. Although players agreed that proper use of well-crafted ARFs and MAs is a positive practice, there remain several challenges to the process, including:

- Several players from the regional and state level reported being unaware of what Federal pre-scripted MAs had been activated, and the subsequent resources that would be sent to them.
- Some pre-scripted MAs and ARFs were not clear and did not contain enough information to fill the request. Those pre-scripts were likely written at the national, regional and state level without coordination of the other jurisdictions.
- Players in the NRCC and NOC had little visibility on what pre-scripted MAs had been activated by other D/As, which made getting an initial common operating picture (COP) challenging.
- Not all D/As have worked with FEMA to anticipate requests after a catastrophic event and to submit potential ARFs and MAs for approval.

Observation 2.1.4. The resource request and fulfillment process did not support an environment where resources are pushed out to the impacted area.[14]

Analysis: Area for Improvement. Real-world events are normally small and involve only one region at a time. In response to those events, the National Response Coordination Staff (NRCS) works around gaps in the system using experienced personnel. In the NLE 11 scenario, however, these gaps became insurmountable. Although several artificialities played a role in the situation—including an overarching lack of training, the use of the National Exercise Simulation Center (NESC) rather than the real NRCC and the use of inexperienced personnel due to real world requirements —there were still issues that would have occurred during a real-world event of this size and complexity. These include the recent introduction of the NISM and FIRP-EQ. There were missing processes and systems that hindered the resource request and fulfillment process, as described below.

[14] Observation 2.1.4 is linked with mission critical finding #1 in Appendix E.

Process Gaps

- There was no mechanism for the RRCCs and NRCC to share information on what resource requests existed, what requests had been filled, what MAs had been issued, or what resources had been pushed from the Federal Government to the regions and states.
  - This issue was especially problematic for lifesaving assets, such as US&R teams, which were in high demand during the first 72 hours.
- There was no mechanism for ensuring that requests are not duplicated at the regional and national levels.[15]
- According to the NISM, the lead of the Intake Tracking and Analysis Unit (ITAU) is responsible for tracking resources from request to fulfillment. However, there was no formal process for reporting back to ITAU how resources were assigned, how they were transported, or when they had arrived.
- There was no formal communication between the Individual Assistance Branch and the Resource and Capability Branch (RCB); both were tasked to send the same commodities (such as water, shelf-stable meals, cots, blankets, etc.).
- An insufficient number of NRCS were trained on all the systems used in the resource request process, so personnel could not be rotated between the different tasks required.

System Gaps

- Intake: There was no single tool to create, receive, or track requests that came in from the different jurisdictional levels, different departments and agencies, or that were part of Individual Assistance efforts. The Resource Allocation Tracking System (RATS), e-mail, Sharepoint, and paper were all used.
- Placing an order: The type and source of resource being ordered dictated what kind of form and system were used. Resources could be ordered through eTasker, eCaps, Form 40-1, or Trading Partner Management (TPM) system.
- Order execution and tracking: Although the Logistics Supply Chain Management System (LSCMS) could track many of the commodities coming out of the Operation Support Group (OSG), there was no single system used to track resources being supplied by the other RCB groups (Individual Assistance, Emergency Services, and Infrastructure Assessment), or through the Transportation and Movement Coordination Group (T&MCG).

Observation 2.1.5. The Incident Support Bases (ISBs) were not capable of managing the push of assets necessary to support a catastrophic earthquake response.

Analysis: Area for Improvement. One danger of the interagency push strategy is that Federal assets may arrive before states have time or communication capability to determine where their requirements lie. Even though NLE 11 was a functional exercise, there are several examples of how notional ISBs would have become overwhelmed and unable to

[15] Although the information is in eTasker and/or the Trading Partner Management (TPM) system, it has to be pulled and not all logisticians have access to all systems.

support additional incoming assets. At least one regional IMAT (Region VII) discussed opening a second ISB in their area due to the backlog of resources that could not be employed without a destination.

In addition to issues of space, players reported problems with billeting of notional response personnel. The ISBs are activated to receive resources rather than personnel, and do not have the capacity to provide billeting on site. This capability requires base-camp operations, which ESF #7 (Logistics Management and Resource Support) projected would take 102 hours from the request/approval process to becoming operational. This issue would cause a significant gap in billeting capacity for personnel arriving in the field within 24 hours of the earthquake.

Observation 2.1.6. While advances have been made, many Department of Defense (DoD) standard operating procedures, requirements, and training sessions were not conducive to an environment where resources are pushed downrange.

Analysis: Area for Improvement. During a response to a scenario as large as NLE 11, the DoD will be a major supplier of equipment, personnel, technical expertise, and services. There were several examples of new approaches that the DoD took to support this response to a catastrophic event. For example, when the event occurred, the DoD reviewed which states had dual-status commanders, meaning that there was a single commander trained to command both National Guard (Title 32) and Title 10 forces conducting response missions in their state. By May 19, 2011, the DoD approved dual-status command for all eight states, ensuring unity of effort in support of the State Governor. In addition, the DoD and HHS coordinated to provide patient evacuation support that was capable of moving patients more efficiently by combining forces.

However, despite examples like the one above, there are challenges to the DoD's ability to support a push environment. Each is described briefly below:

- Unlike other D/As that have more than one funding stream to support disaster response, the DoD is only mandated to spend money on warfare and preparing for warfare. Their Defense Support of Civil Authorities (DSCA) missions are funded primarily through Stafford Act authorities (with the potential to also use funding pursuant to the Economy Act). Therefore, although the Stafford Act grants the DoD the authority to act without an emergency declaration, doing so implies an acceptance of risk.
  - Although the DoD is willing to send resources without the funding stream secured, it is not the DoD practice to send resources without some type of request, whether written or verbal. Some DoD assets, like personnel to support US&R teams, may be critical for the first 72-hours of the response to support lifesaving missions.
- Although some DoD pre-scripts now exist, there is no trigger that can automatically activate them. In addition, players noted that the DoD pre-scripted MAs were unsuited to a catastrophic event environment.
- Active duty National Guard forces have the authority to respond immediately to their local communities for the first 72 hours of a response, and have done so in the past. This practice is not institutionalized among reserve forces.

- Many of the DoD's key assets have an extremely heavy footprint and cannot be operational in less than 72 hours without an extremely high cost. Civilian emergency managers may not fully understand the limitations of these assets.

2.2. The role and responsibility of the NRCC in a catastrophic event

The NRCC as a whole was unable to support a scenario of the size and complexity of NLE 11. While the specific reasons for this are discussed below, it is important to note that exercise artificialities also impeded the response of the NRCS.[16] Due to real-world events, the NRCC was activated to support the flooding and tornados in the South and Midwest. Therefore, the NRCS established an NRCC specific for the exercise in the FEMA National Exercise Simulation Center (NESC). The space was smaller than the real-world NRCC, and some sections of the NRCC (e.g., Planning, GIS, DoD, and ESF #4 [Firefighting]) were forced to use breakout rooms. In addition, since many of the experienced members of the NRCS were involved in real-world response activities, additional and inexperienced personnel filled some positions. Some positions went unfilled and other positions were partially filled as experienced personnel responded to the real-world activities while participating in the exercise.

Observation 2.2.1. The National Advanced Operational Plan (N-AOP) developed during the exercise provided a good template for future events.

Analysis: Strength. The NISM directs the Planning Section to take responsibility for the N-AOP, but there is no template or specific guidance provided for what it should include. During NLE 11, the Planning Section created a report highlighting key gaps in resources for later planning cycles. Senior FEMA leadership commented that the structure and information contained in the report was extremely valuable to decision-makers, and should be used as a template for future exercises and real-world responses.

Although the N-AOP was a valuable product, it was unclear how it was created and to whom it was distributed. This issue is covered further in Observation 2.2.2.

Observation 2.2.2. While the N-AOP was a successful template for future planning, it was unclear from where it pulled information and to whom it was distributed.

Analysis: Area for Improvement. The NRCC Planning Section knew that senior leadership required a product that clearly and accurately laid out future challenges and identified developing issues. However, the NISM contains no details on the information that should be included in the N-AOP; how this information should be gathered and validated; and to whom the N-AOP should be distributed. Thus, exercise players pulled information from regional and state OPLANs and other readily available sources, and the document was not distributed outside of FEMA HQ.

Observation 2.2.3. Players were not familiar with the National Incident Support Manual (NISM) and the differences between incident support and incident management protocols.[17]

[16] According to the NISM, the NRCC is a multi-agency center that provides overall Federal support coordination. The NRCC is staffed by the NRCS, who provide national-level emergency management.
[17] Observation 2.2.3 is linked with mission critical finding #3 in Appendix E.

Analysis: Area for Improvement. The NISM does not just change where key functions of the NRCS are seated, or who communicates with whom; it puts forth the concept of incident support as opposed to incident management. By confining the NISM structure to the sections that play a supporting role (Situational Awareness, Resource Support, and Planning), the NISM redefines the role of the NRCS during a disaster.

Those who staffed the NRCC in NLE 11 (the NRCS as well as D/A representatives) were not trained to implement the shift in philosophy and the changes in their roles and responsibilities. FEMA personnel still accomplished logistics, planning, and other traditional roles, but they did not grasp other concepts of incident support. For example, those in Logistics answered questions, performed tasks, and acted as conduits to their home offices. However, they did not look for ways to support the event by engaging in contingency planning. Leadership, functioning under the NISM, put special emphasis on the Resource Support Section (RSS) to fix the issues that were arising. Both FEMA and ESF personnel staffing the RSS missed the opportunity to act strategically and support the response by anticipating and filling key requirements.

Observation 2.2.4. The NRCC Situational Awareness Section (SAS) did not provide enough information or analysis to support FEMA leadership or the interagency during the initial operational periods.

Analysis: Area for Improvement. According to the NISM, the NRCC SAS Information Collection Unit compiles information and the Information Analysis Unit analyzes information and data to produce reports that senior leadership can use to make decisions that affect the incident response.

The SAS was under-staffed—as was the NRCC as a whole—and was not able to fulfill all positions. In addition, staff had not been trained in their roles and responsibilities under the NISM. However, not all issues can be attributed to the limited staffing, as detailed below:

- The GIS unit was active and well-staffed, but the vast majority of the NRCC (and of FEMA as a whole) was unaware of their presence and their capabilities. As a result, they were asked for very few products from players, with most of their products coming in response to injects or requests from leadership.
- SAS personnel were more comfortable with information collection than they were with information analysis. However, both duties are prescribed by the NISM. On several occasions, FEMA leadership commented that the Senior Leadership Briefing (SLB) was just a collection of facts and figures, and that they could not glean the information they needed to make policy and priority decisions.
  - SAS personnel did not communicate the time requirements of producing analysis versus producing numbers to FEMA leadership. The team was not staffed for the constant request for reports, or the battle rhythm for producing them.
- SAS personnel were uncertain regarding the difference between the five main reports they were responsible for producing (Situation reports, SLBs, Daily Operations Report, National Support Plan, and a Common Operating Picture [COP]). As a result, many of the reports contained the same information in a different format.

- Federal emergency management leadership and private sector representatives noted the unprecedented and effective involvement of the private sector in NLE 11, particularly with respect to the collection and dissemination of information on earthquake impacts and private sector response actions. However, the SAS had no clear procedures to better integrate this private sector information into their products.
- The NISM describes a "database" to log and track requests for information (RFIs). However, in NLE 11, the "database" was a spreadsheet maintained by one person. Other stakeholders could not go into the spreadsheet and update their information, nor could they see the information that others had provided.

Observation 2.2.5. The interdependencies and coordination between the NRCC sections were unclear to players.[18]

Analysis: Area for Improvement. The number and types of sections in the NLE 11 NRCC were different than the classic Incident Command System (ICS) organization of Logistics, Operations, Planning, and Administration/Finance, and instead were aligned with the NISM. During NLE 11, there was limited interaction between the SAS, RSS, Planning Section, and regions. For example:

- Planning personnel did not make use of reports and information from the SAS to pre-identify evolving planning issues, such as task forces that might be needed for mission-specific planning.
- Planning was not involved in the RSS discussions that were identifying gaps early in the response.
- ESFs in the RSS did not work on solutions to the gaps exposed by Planning and SAS, such as projected gaps in fuel in the affected area, or rotary-wing aircraft.
- The SAS did not establish formal reporting requirements to gather information from NRCC sections for their reports.
- Personnel at the local and regional levels are still using ICS. They did not have a clear understanding of the crosswalk between the two systems, and therefore did not know who their counterparts were at the national level.

2.3. Effectiveness of planning documentation

Over the past two years, Federal and state officials in Regions IV, V, VI, and VII have been working to develop scenario-specific catastrophic earthquake OPLANs for their region and state. At the same time, Federal officials worked on a document that would outline the Federal interagency response, and have published the draft FIRP-EQ 2011. NLE 11 provided a unique opportunity to test these plans and others in a large-scale, national functional exercise.[19]

[18] Observation 2.2.5 is linked with mission critical finding #3 in Appendix E.

[19] The scenario used for planning purposes is not identical to the scenario used for the NLE 11 functional exercise. The planning scenario, developed by the Mid-America Earthquake Center, consisted of the combined effects of ruptures of all three New Madrid fault segment. The NLE 11 scenario is less catastrophic and is believed by geologists to be more realistic.

Observation 2.3.1. The matrices in the Federal Incident Response Plan – Earthquake 2011 (FIRP-EQ 2011) and regional and state Operations Plans (OPLANs) were valuable resources for players.

Analysis: Strength. Players at the national, regional, and state level used the synchronization matrices in their earthquake plans. At the Federal level, even those not yet familiar with the FIRP-EQ 2011 were able to refer to the checklists to see what their D/A should consider doing as they waited to get situational awareness. Concurrently, regions and states were using their Operations Plan Synchronization Matrices and checklists to guide their response for the first 72 hours. Players felt that the matrices were a valuable resource, and that they supported a timely, coordinated response.

As the exercise cycle comes to a close, planners should update the matrices with knowledge gained from exercise play. In addition, the Federal Government should consider aligning its plans with the regional and state matrices to better support state requests.

Observation 2.3.2. Players were uncertain if the FIRP-EQ 2011 had been activated, and what that meant for their immediate response activities.[20]

Analysis: Area for Improvement. Once the Secretary of Homeland Security activates the National Response Framework - Catastrophic Incident Supplement (NRF-CIS), Federal departments and agencies (who have all signed onto the Framework) are expected to "act immediately … without any request from state or local authorities." However, during NLE 11, leadership did not activate the CIS, instead stating that the FIRP-EQ 2011 "superseded" the CIS. Players were reminded that they were responding under the FIRP-EQ 2011. Many players were not trained on this hazard-specific document and were not sure how it differed from the more general NRF-CIS. For example, D/As were uncertain whether they needed to wait for the FIRP-EQ 2011 to be "activated," and whether it gave them the authority to push assets into the field before a request from the region or a state. Further complicating the situation, the FIRP-EQ 2011 has no specified mechanism to activate the plan, and no designated authority that would do so. In addition, the plan's language is ambiguous on when and how assets might be deployed during the first 72 hours, and whether an MA, even a verbal one, is needed to release the assets.

In addition to lack of specificity in the FIRP-EQ 2011, this issue is also one of continued training and exercise. In the last several years, FEMA leadership has consistently emphasized swift response to catastrophic events in order to affect outcomes. The authority to do so is found in Section 402 of the Stafford Act, where it clearly states that once the President declares an emergency, Federal departments and agencies are free to act. In addition, the President can direct non-FEMA departments and agencies to send their assets before the declaration—with or without the expectation of reimbursement. While activating and deploying assets without a declaration, an MA, or a promise concerns D/As, the Stafford Act and FEMA leadership have made it clear that they have the authority and obligation to act upon them.

Observation 2.3.3. The FIRP-EQ 2011 had not been socialized at the regional and state levels, nor the regional and state OPLANs at the national level.

[20] Observation 2.3.2 is linked with mission critical finding #9 in Appendix E.

Analysis: Area for Improvement. While the FIRP-EQ 2011 and the OPLANs were all written with good coordination between their multiple stakeholders, it is unclear how well these plans are understood at other governmental levels. All OPLANs cite the CIS instead of the FIRP-EQ 2011 as the trigger to activate their plans and for information regarding what assets may be pushed to the regions and states. There were also instances of a lack of awareness of the OPLANs at the Federal level. As the NRCC worked to generate requirements for commodities, medical teams, and other response elements, they used their own subject-matter expertise to calculate the quantities needed. However, all OPLANs have sections detailing ground truth post-event, and the numbers of commodities and teams they would require. Although the scenario was less severe than the scenario used to build the OPLANs, the information would have been an effective starting point for Federal incident support.

2.4. The Execution of the Unified Area Coordination Group (UACG)

The UACG is a new incident management concept (focused on command, control, and coordination of efforts in a large-scale incident) that is currently in development at FEMA. While the implementation guidance for this concept remains in draft, the NLE 11 scenario—with its impact on multiple states in multiple regions—provided a unique opportunity to test the application of the UACG.

Observation 2.4.1. The FEMA Administrator quickly made the decision to activate and deploy a Unified Area Coordination Group (UACG) based on the USGS' initial estimate of earthquake impacts.

Analysis: Strength. Based on earthquake impact estimates available from the USGS' Prompt Assessment of Global Earthquakes for Response (PAGER) report, the FEMA Administrator announced his intent to forward deploy only two hours after the earthquake, during a 12:00 hours video teleconference with the Secretary of DHS. At 13:15 hours, the Deputy Administrator directed the activation of the UACG, and the NRCS issued the Operations Order at 14:15 hours. Within two hours, all members of the UACG team convened at FEMA HQ, where they were briefed on the situation and the role of the UACG. The team then departed for Little Rock, AR, at 17:00 hours—less than eight hours after the earthquake.

The processes associated with the timely activation and deployment of the UACG, including roster generation and selection of initial destination, should be documented and formalized. This information may assist FEMA as it continues to update and refine the draft UACG guide.

Observation 2.4.2. The UACG achieved one of its major objectives, reallocating critical resources based on information gathered during forward deployment.

Analysis: Strength. When the FEMA Administrator visited the Arkansas State EOC in Little Rock, he and the Director of the Arkansas Department of Emergency Management discussed the critical need for US&R throughout the states affected by the earthquake. The State Director indicated that Arkansas' requirement for technical US&R was less urgent than Tennessee's, as much of the area impacted in Arkansas was rural and had smaller buildings. The State Director suggested that four of the six FEMA US&R teams assigned to Arkansas

could be re-assigned to Tennessee. Through this personal interaction with the state emergency manager, the FEMA Administrator acquired first-hand information on resource requirements and was able to reallocate critical resources with the concurrence of the state.

Although the UACG successfully redirected resources based on its downrange interactions with impacted States, the method of reallocation was not clear to other incident support and management stakeholders. This issue is covered further in Observation 2.4.4.

Observation 2.4.3. The UACG did not function and was not staffed as proposed in the draft UACG guide or in the FIRP-EQ 2011.

Analysis: Area for Improvement. FEMA proposed that the UACG be based on the National Incident Management System (NIMS)/ICS concept of area command. The UACG was seen by its proposers as a tailored application for very large or complex incidents that impact multiple states in multiple FEMA regions. A draft guide was circulated that described a UACG structure that included a team of senior interagency officials—the UACG—and their Unified Area Coordination Staff (UACS). The UACG membership would be comprised of a FEMA Unified Area Coordinator (the FEMA Administrator or his designee); Federal D/A Unified Area Coordinators assigned to the group based on the nature of the incident; and state Unified Area Coordinators. The guide also states that the UACG's primary responsibilities include developing broad objectives for the impacted areas; identifying critical resource needs and allocation/reallocation of assigned resources as priorities change; and ensuring that public information is coordinated, accurate, pertinent, and timely.[21]

The FIRP-EQ 2011 further describes the UACG's role in the overall incident response structure. The plan states that "in the event of a catastrophic earthquake involving multiple Unified Coordination Groups (UCGs), FEMA will establish Unified Area Coordination (UAC) in or near the impacted area through a UACG." After the UACG is stood up, each FCO/UCG will report to the UACG rather than their respective RRCCs, and the NRCC will support the RRCCs and later the UACG while also supporting all other ongoing disasters. Once the UACG is forward deployed, the FIRP-EQ 2011 states that FCOs will report to the FEMA Administrator. The UACG and UCGs will be responsible for incident management coordination, while the RRCCs and NRCC will provide incident support.[22]

During the exercise, the UACG was not staffed and did not function as described in the draft guide or the FIRP-EQ 2011. No state representatives were incorporated into the UACG, which was comprised of only the FEMA Administrator and three Flag/General Officers, and supported by the UACS. Moreover, this group did not make any joint decisions and did not follow the reporting structure outlined in the FIRP-EQ 2011, as FCOs/UCGs continued to report to the RRCCs.

Instead, as directed by the FEMA Administrator, the exercise UACG and UACS functioned as a forward team supporting the FEMA Administrator in the execution of his normal national incident management responsibilities. While the UACG did set forth objectives for

[21] Draft UACG Guide, p. 9.

[22] *Federal Interagency Response Plan – Earthquake 2011, Version 3.5.* Federal Emergency Management Agency. 11 March 2011; pp. A-4-A-6.

incident response, these did not differ from the FEMA Administrator's own priorities as head of the agency. This manifestation of the UACG did not permit validation of the draft UACG guide and caused uncertainty across the Federal interagency, states, and other stakeholders about the mission, responsibilities, authorities, and limitations of the UACG in a catastrophic incident response.

Observation 2.4.4. The UACG's resource prioritization and reallocation method was not transparent to other incident support and management stakeholders.

Analysis: Area for Improvement. Based on a meeting with the Director of the Arkansas State Department of Emergency Management and other discussions, at 1830 on May 17, 2011, the UACS notified the NRCS to reallocate two national search and rescue teams from Missouri and four teams from Arkansas to Tennessee. However, it was not clear:

- Whether the resource allocation process outlined in the FIRP-EQ 2011 was used;[23]
- Whether the factors leading to this reallocation of resources were formally discussed with the other members of the UACG;
- Whether the issues were discussed with the NRCS, regional, or incident-level officials prior to making the decision;
- The extent to which state officials, other than Arkansas, were consulted prior to making the decision; and
- What measures, if any, were taken to provide visibility on UACG decisions to other critical response organizations.

Furthermore, although these teams were reallocated to Tennessee without significant issue during the exercise, additional factors may complicate the adjudication of resources in a real-world event. With respect to legal constraints, the Federal and state cost share for Federal assistance may inhibit or delay the reallocation of assets from one state to another, as the original recipient of the resources may be able to assert ownership of the asset as a result of payment for its use. Additionally, opposition from senior elected officials must also be a consideration in the reallocation of resources. Past events have demonstrated the influence that an impassioned governor or senator, combined with 24-hour media coverage, can have on disaster response efforts. It is unclear if the UACG's decision processes account for these contingencies.

Observation 2.4.5. The forward deployment of the FEMA Administrator with the Unified Area Coordination Group (UACG) may impose an administrative and logistical burden on state emergency response efforts.

Analysis: Area for Improvement. State emergency management officials indicated that the preparations they would have to undertake in advance of a site visit from the FEMA Administrator would place a substantial stress on their EOCs. In the context of a catastrophic earthquake, this additional burden may be unnecessary, particularly as representatives from the corresponding FEMA Regions would also be expected to forward deploy to the impacted State EOCs.

[23] Ibid, pp. C-8 – C-12.

Observation 2.4.6. The chain of command and functionality of the UACG may differ from current plans if led by someone other than the FEMA Administrator.

Analysis: Area for Improvement. At present, there are two models for staffing the UACG. In the first model, the FEMA Administrator serves as the UACG Coordinator, while the second model assumes that a different senior FEMA official—either a Type I FCO or the Director of Disaster Operations (DDO), for example—will lead the UACG. Under the first model, the FEMA Administrator would continue to execute his responsibilities and authorities as the head of FEMA while simultaneously fulfilling the role of the UACG Coordinator. As the Administrator, this individual would have a direct line to the President of the United States in accordance with the existing chain of command.

In the second model, the authorities of the UACG Coordinator and his/her chain of command are not clear. For example, does the UACG Coordinator always have a direct line to the President, regardless of whether the individual is the FEMA Administrator or not? It is uncertain what responsibilities and authorities are specific to the role of the UACG Coordinator, versus what authorities are unique to the FEMA Administrator in his/her dual role as the head of the agency and the UACG lead.

2.5. Acquiring and maintaining a national common operating picture (COP)

During the exercise, the NOC and its operational components—the DHS Crisis Action Team (CAT), NRCC, and National Infrastructure Coordinating Center (NICC)—were all activated to provide situational awareness decision support and build and maintain a COP, as described below.

- The NOC continued in its role as the national situational awareness hub, continuously monitoring all (potential or actual) events while also providing periodic updates on the earthquake response to Federal, state, tribal, local, and nongovernmental partners.
- The DHS CAT dedicated its efforts to the earthquake response, continuously monitoring all (potential or actual) events. The CAT fulfilled RFIs; compiled briefing books for the DHS Secretary and Deputy Secretary; and compiled the DHS Senior Leadership Briefing for dissemination to the DHS components.
- As per the NRF, the NRCC provided overall emergency management coordination, conducting operational planning, deploying national-level assets, and collecting and disseminating incident information in support of a COP for response entities.
- The NICC compiled and disseminated current situation reports on the status of critical infrastructure in the impacted states. These reports addressed impacts to key resource sectors including emergency services, energy, government facilities, health care and public health, nuclear reactors, materials and waste, and transportation systems.

Achieving timely situational awareness is critical to the successful coordination and implementation of response efforts. Given the scale and scope of the NLE 11 scenario, and accordingly, the immense amounts of information sent and received, acquiring and maintaining a comprehensive national COP across Federal, regional, state, and nongovernmental partners

was a challenging endeavor. While various Federal D/A operations centers compiled and disseminated data to support their respective response efforts, participants did not achieve a national COP that provided senior leadership across the Federal interagency with a comprehensive overview of critical information.

The strengths and areas for improvement from the exercise are discussed below.

Observation 2.5.1. Several D/As successfully compiled information from a wide range of sources to develop situational awareness and anticipate requests.

Analysis: Strength. Through daily video teleconferences (VTCs), conference calls, and communication via Liaison Officers (LNOs), several Federal D/As successfully compiled information from a wide range of sources in order to build situational awareness and establish a COP. Several examples are listed in Table 1.

Table 1. Situational Awareness Products and their Purpose/Audience

Situational Awareness Product	Purpose and Audience
FEMA Senior Leadership VTC	Held every day at 1230 EDT, participants included all impacted states, FEMA Regions, and ESFs. All players reported on their top three response priorities, response actions, and unmet needs
DHS Senior Leadership Brief	Compiled and published by the DHS CAT every 12 hours in advance of the DHS Senior Leadership Group conference call, this brief presented updates from all DHS Components involved in response efforts.
USNORTHCOM Interagency Coordination Center (ICC) Updates	Compiled by LNOs from the HHS, USCG, USACE, EPA, USGS, ARNORTH, FEMA, and DOT situated at USNORTHCOM. LNOs pulled reports from their D/As and compiled a briefing that provided interagency context to USNORTHCOM's response efforts and enabled them to anticipate requests for assistance.
Daily National Business EOC (NBEOC) Conference Call	Held every day at 13:00 EST, participants included key private sector partners. The call provided industry officials with a situation update on the incident response and facilitated a discussion of issues that the private sector could help address.

Through these interactions, response entities gained improved situational awareness of the incident response, enabling them to identify issues and respond in a more coordinated manner.

Although these products assisted their respective audiences, some events were scheduled in conflict with one another, such as the NBEOC Call and the FEMA Senior Leadership VTC. Avoiding conflicts when setting the battle rhythm for each operational period and/or consolidating calls will help ensure that all stakeholders can take advantage of situational awareness products and events.

Observation 2.5.2. Federal D/As coordinated with private sector partners through several mechanisms to share incident information and communicate response needs and actions.[24]

[24] Observation 2.5.2 is linked with mission critical finding #5 in Appendix E.

Analysis: Strength. Through Business EOC conference calls at the national and regional levels, e-mail and phone communications with the private sector representative in the NRCC, coordination with the DHS/Private Sector Office and FEMA/Private Sector Division, news media reports on earthquake impacts, and other means, Federal response entities and industry officials engaged with one another to identify resource shortfalls and opportunities for the private sector to assist in response efforts. This exchange of information enabled industry partners to contribute to Federal, regional, and state situational awareness; disseminate public information; and donate critical resources (e.g., meals, water, cots, etc.).

The involvement of the private sector in NLE 11 should be institutionalized to ensure that best practices are captured for future implementation. Although some players were aware of private sector capabilities, they were unsure how to integrate them into their response efforts. Formalizing these coordination mechanisms will help promote timely and effective collaboration between public and private sector partners.

Observation 2.5.3. Several D/As applied the process for executing requests for information (RFIs) to fulfill critical information requirements (CIRs).

Analysis: Area for Improvement. Despite advance knowledge of senior leadership's information requirements, staff at several D/As did not execute forward-leaning processes to collect and fuse information relevant to fulfilling these CIRs or to work toward developing a national COP. For example, although one of the DHS Secretary's CIRs is the status of DHS personnel, the DHS CAT used the RFI process to determine this information for the Senior Leadership Briefing. Furthermore, staff indicated that many other information requests they received were also predictable, and could have been processed prior to receipt of the request.

The RFI process was intended to support information collection and analysis for individual questions that are not captured in CIRs, situation reports, or other briefing materials. When the number of RFIs exceeded what was expected, staff became overburdened. This resulted in delays for providing important information to senior leadership.

Observation 2.5.4. Current RFI and CIR processes are not coordinated across stakeholders.[25]

Analysis: Area for Improvement. Under existing processes, multiple stakeholders with similar information needs will each submit an RFI, leaving the recipient to manage duplicate requests. For example, private sector representatives were asked to respond to similar RFIs from both the NICC and the NRCC.

Similarly, many D/As have the same CIRs, yet information to fulfill these identical requests is collected and processed separately. For instance, the DHS and FEMA senior leadership have many overlapping CIRs but depend on different operations centers to meet these information needs; the DHS Secretary relies on the DHS CAT, while the FEMA Administrator looks to the NRCC. As a result, staff at both centers spent valuable time gathering the same data from the same stakeholders. The absence of a single Federal interagency hub to identify, coordinate, and streamline redundant requests resulted in duplication of effort and placed an unnecessary burden on D/As and other stakeholders. In addition, it contributed to the difficulties in developing a true national COP.

[25] Observation 2.5.4 is linked with mission critical finding #5 in Appendix E.

Observation 2.5.5. The DHS CAT RFI process is time-intensive.

Analysis: Area for Improvement. The RFI process requires many steps for completion (i.e., filling out a template, reviewing the request by CAT Operations leaders, archiving in a shared folder, posting to the Homeland Security Information Network [HSIN], etc.). This lengthy procedure was further affected by both the volume of requests and the absence of standards for data collected. Data was received in table formats, as text in e-mails, and in attachments (among other forms), resulting in team members spending additional time developing templates to monitor and track requests.

Observation 2.5.6. The combination of e-mail and the Homeland Security Information Network (HSIN) was insufficient to support and manage an incident of this size and magnitude.[26]

Analysis: Area for Improvement. Current data and e-mail systems are not configured to support the information management demands that arise during a catastrophic incident response. Given the immense amount of information being received from response entities, inboxes at the NOC, NRCC, and RRCCs quickly reached capacity, requiring personnel to regularly move e-mails to sub-folders. In the absence of standardized e-mail messaging conventions or effective applications to support e-mail filtering, staff at both the NOC and the NRCC spent valuable time reading and prioritizing hundreds of e-mails to identify critical information and resource requests pertaining to critical response needs. As a result, the lack of a process delayed operational communications and led to missed lifesaving and life-sustaining resource requests.

The HSIN platform also proved to be problematic during the exercise. The system failed the first day of the exercise due to the large volume of activity. In addition, the organization of the site into numerous "Communities of Interest" and the lack of a process to reconcile information across these portals created difficulties in navigating the site and locating critical information in a timely manner. Finally, state and local emergency managers did not use HSIN; some because they did not have access and others because they used their own state and local information-sharing technical application. This issue created a gap in Federal and state and local information sharing and impeded the development of a national COP.[27]

3. Citizen Evacuation and Shelter-In-Place

The earthquakes devastated residential areas, resulting in the need to support large populations who had lost their homes. In Missouri alone, 90,000 people were estimated to be sheltering-in-place. By the third day of the exercise, the estimated number of evacuees from a 20-county area in Arkansas was over 34,000. In most of the eight states, evacuations were hindered by limited transportation resources, damage to the transportation infrastructure, and the large size of the populations requiring evacuation. This led to populations sheltering-in-place for long periods of time as they waited to evacuate. To support these populations, Missouri and Arkansas developed event-specific evacuation plans that included evacuation assembly sites and points of distribution

[26] Observation 2.5.6 is linked with mission critical finding #10 in Appendix E

[27] Participants' ability to use HSIN and other technical applications was somewhat limited by the exercise artificiality, in which the Emergency Management System enterprise (EMSe) tool was also used as an information-management platform.

(PODs), where citizens waiting to evacuate could get food, water, and shelter. By the end of the exercise, evacuation of the most impacted areas was still in progress, and the focus was shifting to re-supplying evacuation support teams and moving evacuees into longer-term temporary housing situations.

Observation 3.1. Federal and state counterparts coordinated to develop voluntary evacuation plans and to identify evacuation routes and respite centers.

Analysis: Strength. Federal and state officials coordinated to support evacuation and shelter-in-place operations. For example, in Missouri, the IMAT deployed to the State EOC and worked with state officials to develop voluntary evacuation plans for the impacted area. In Arkansas, the FEMA Region and the IMAT joined together in a UCG with the State to identify and request the resources needed to support populations evacuating or sheltering-in-place. Furthermore, when resources were not available through Federal channels, the UCG explored resources available through other sources, such as the private sector.

Other examples of Federal and state coordination of citizen evacuation and shelter-in-place operations included the following:

- In Missouri, Federal and State ESF #6 (Mass Care) representatives worked together to identify respite centers along their evacuation routes. They also identified five evacuation-assembly sites from which evacuees would be transferred to the mega shelters being set up in Springfield and Kansas City.
- Missouri State law enforcement officials worked closely with the Federal ESF #13 (Public Safety and Security) liaison to request support to direct evacuation traffic along the main evacuation routes.
- Both Arkansas and Missouri created Evacuation Planning Teams that included Federal and state members from each stakeholder ESF.

When activated, IMAT team members and their state counterparts should continue to develop joint voluntary evacuation plans during large-scale responses requiring mass evacuations.

Observation 3.2. In line with Whole Community principles, Federal and state officials considered both traditional and nontraditional resources to fill resource gaps.

Analysis: Strength. Coordination among Federal, state, NGO, and private sector organizations to identify nontraditional sources followed the Whole Community response methodology. Examples of how gaps in evacuation and shelter-in-place resources were filled can be found below.

- The FEMA Individual Assistance Group, coordinating with the Movement Coordination Center (MCC), explored the use of private commercial carriers to support evacuation (air, bus, train) of survivors to receiving states.

- Missouri, Tennessee, and Arkansas requested soft-sided shelters to house individuals sheltering-in-place or at assembly sites until they could be evacuated to a final-destination shelter or temporary-housing location.[28]
- Region VII Individual Assistance/Mass Care personnel, in coordination with volunteers and NGOs, worked with the State of Missouri to establish evacuation-assembly sites, consolidated-assistance sites, and reception processing centers.
- Arkansas used numerous reunification systems to ensure any evacuees separated from family members, children, and/or pets could be reunited. These systems include the National Emergency Family Registry and Locator System (NEFRLS), the National Emergency Child Locator Center (NECLC), and the Red Cross Safe and Well. The National Mass Evacuation Tracking System (NMETS) was activated for evacuee tracking.

Federal and state officials should continue to work together—and with NGO and private sector organizations—to explore both traditional and non-traditional resources to fill resource gaps during response operations.

Observation 3.3. Regional and state plans for both shelter-in-place and evacuation missions may not have been executable due to gaps in key resources or the inability to provide those resources in a timely manner.

Analysis: Area for Improvement. Significant gaps in resources needed to conduct evacuation and shelter-in-place missions emerged during NLE 11. In some cases, these gaps resulted when Federal, state, and contracted partners could not supply the volume of resources needed. In other cases, the resources did not arrive within the time limits identified in the joint regional and state OPLANs because of transportation issues. Many resources arrived later in the week, or were still in transit at the end of the exercise (ENDEX).

Limited numbers of resources and/or delays in transporting resources may make current shelter-in-place and evaluation plans impossible to execute. For example:

- The Federal Government did not have enough soft-sided shelters or shelf-stable meals to fulfill the requests of the impacted states to shelter-in-place.
- Rotary-wing aircraft to deliver those shelter-in-place supplies will be in high demand and may not be available in the immediate response.
- It may be difficult for states to acquire additional buses to transport evacuees, impeding and/or delaying planned evacuation missions.

Observation 3.4. It is unclear what Federal assets will be available to support mass evacuation management.

Analysis: Area for Improvement. Evacuation is primarily a state- and local-level function. However, FEMA, through the Post Katrina Emergency Management Reform Act (PKEMRA), has the authority to:

[28] During the Resource Allocation Workshop, all 8 States requested soft-sided shelters to support shelter-in-place operations.

- Provide grants for planning mass evacuations;
- Direct other Federal agencies to assist state and local governments in precautionary evacuations;
- Coordinate all disaster-assistance efforts provided by Federal, state, and local governments and private organizations, including precautionary evacuations.

Although the Federal Government coordinates with states to develop comprehensive evacuation plans and to manage precautionary evacuations, the exercise scenario showed that the Federal Government will also be called upon to support the management of post-event mass evacuations. During NLE 11, states made several requests for Federal evacuation liaison teams to support mass evacuation management. The RAW, held in December of 2010, identified the evacuation liaison teams available through the FEMA Hurricane Program as the one available Federal evacuation asset that might fulfill this requirement. These teams consist of the Department of Transportation (DOT) traffic management team members and emergency management specialists. Typically deployed for pre-landfall hurricane evacuations, these teams support multi-state hurricane evacuation by facilitating coordination and information sharing across the impacted and evacuee-receiving states. However, these teams may not have the appropriate earthquake expertise. In addition, without prior joint planning, training, and exercise, it would be difficult for these teams to integrate into the state emergency management system.

Observation 3.5. The logistics support needed to operate Welcome Stations in states outside the primary impact zone was not explored.

Analysis: Area for Improvement. In this earthquake scenario, states bordering the impacted states would likely receive thousands of evacuees. However, the logistics needed to activate, operate, and demobilize Welcome Stations were not addressed during the exercise. Welcome-Station operations would involve multiple states and would add extensively to the Citizen Evacuation and Shelter in Place mission, increasing the number of personnel needed and the number of locations they needed to be. After Action Conference (AAC) participants felt that this issue is not typically exercised, yet requires more attention to ensure effective citizen evacuation operations in the future.

4. Mass Care (Sheltering, Feeding, and Related Services)

ESF #6 (Mass Care) was activated on May 16, 2011—the first day of the exercise. Acting in support of Mass Care, the American Red Cross began locating potential shelter sites, generating requirement estimates, and activating their personnel. By the afternoon of May 17, 2011, the American Red Cross had notionally set up disaster-relief operations in Arkansas, Alabama, Illinois, Indiana, Kentucky, Missouri, Mississippi, and Tennessee. As Arkansas and Missouri surpassed their sheltering capacity, they requested support to activate and staff mega-shelters, and the American Red Cross worked on filling those requirements with their partners. In addition, ESF #6 began supporting disaster-relief operations in Michigan, in anticipation of receiving approximately 25,000 to 50,000 evacuees from the affected area.

Observation 4.1. Missouri and the American Red Cross successfully integrated other volunteer organizations into a mission to train and manage shelter volunteers.

Analysis: **Strength**. In line with ESF #6 (Mass Care) planning, volunteer organizations were recruited to support sheltering training and operations. For example, the American Red Cross put in a request to AmeriCorps for volunteer staff on the first day of the exercise. Two hundred and sixty AmeriCorps volunteers were notionally available in Missouri by Day 2, and were assigned to train and engage spontaneous volunteers in sheltering and feeding operations. This allowed newly identified shelter locations to be opened (notionally) and staffed while additional staff resources were en route. It also ensured that staff would be available for new missions, including the activation of two mega-shelters in Kansas City, MO (totaling 200,000 people), and a request from Arkansas to shelter 20,000 people.

The American Red Cross should continue this practice and look for new volunteer partners with whom to work.

Observation 4.2. ESF #6 (Mass Care) and the American Red Cross successfully activated and operated a Direct Distribution Task Force (DDTF).

Analysis: **Strength.** The FIRP-EQ 2011 calls on the American Red Cross to integrate the response efforts of the national NGOs that provide mass care services, in coordination with ESF #6. The activation of the DDTF on the morning of Day 2 provides a good example of how this can be done.

The DDTF was activated to develop strategies and plans, request resources, and coordinate the delivery of supplies to the eight impacted states. In particular, the DDTF focused on developing strategies for distribution methods forward of the ISBs. The task force was composed of National Voluntary Organizations Active in Disaster (NVOAD) members, including the American Red Cross, The Salvation Army, Southern Baptist Disaster Relief, and Feeding America. It also included FEMA, FEMA/IA Technical Assistance Contract (IA-TAC), and FEMA/Logistics Management Directorate (LMD). The DDTF developed several potential strategies for direct distribution of commodities and critical emergency supplies through nontraditional means, including the use of Feeding America's food bank network to distribute donated food supplies. In addition, both AmeriCorps and Convoy of Hope offered fleets of trucks that could help distribute supplies to PODs, and the Adventist Church offered their locations as space to host PODs.

The concept of the DDTF should be further developed and integrated into the management of large-scale and catastrophic events. Further work should be done to ensure coordination between the DDTF and the states that require assistance.

Observation 4.3. Stakeholders successfully activated and operated a Pets Multi-Agency Coordination System (MAC).

Analysis: **Strength.** The Pets MAC, a group responsible for identifying and coordinating resource needs and requests related to household pets and animal care issues, began operations at 08:00 hours on May 17, 2011. It was located at USDA Animal Plant Health Inspection Services (APHIS) in Riverdale, MD, and attached to the NRCC, with liaisons deployed to the Missouri SEOC and the RRCCs in Regions VI and VII. It included 30 individuals representing Federal, state, NGOs, and the private sector. During NLE 11, the Pets MAC successfully supported animal-sheltering operations, including identifying resources such as cages and veterinary medical supplies, and providing support through

Veterinary Medical Assistance Teams (VMAT), Shelter Management Teams, animal transport, and Animal Control Strike Teams. The Pets MAC also supported requests for pet-sheltering operations and a zoo evacuation, and oversaw donations that were related to pets and livestock.

The Pets MAC, previously called the Household Pet Support Task Force, has been a work-in-progress between FEMA, USDA, and other stakeholders for four years. The Pets MAC should continue to be activated during large-scale responses where the mass care of pets and livestock will overwhelm state and local resources.

Observation 4.4. While a Pets MAC was successfully established, the national concept is not fully developed.

Analysis: Area for Improvement. States and other Federal players had little visibility of the Pets MAC existence and mission. For example, Arkansas players said that they were unaware of this group but would have used the capability had they been aware of its existence. In addition, players who were part of the Pets MAC said that they did not have LNOs from every group they might have needed. Finally, the Pets MAC concept should be formally documented and distributed to the wide range of stakeholders that deal with ESF #11 issues after an event.

Observation 4.5. The gap in state and local personnel to perform prompt assessments will compound the size and complexity of the Federal mass care mission.

Analysis: Area for Improvement. During NLE 11, there were requests for assessment personnel to support the ESF #6 mission by inspecting shelter locations and housing within the impacted zone. For example:

- On May 17, 2011, Region VII requested a technical expert from the U.S. Army Corps of Engineers (USACE) to be part of a Mass Care/Housing Mission Planning Team.
- The American Red Cross in St. Louis, MO requested assistance from the State Emergency Management Division to provide structural assessment of a facility that could house 1,000 people.

Sheltering locally allows jurisdictions to reduce the need for long-distance transportation and is consistent with the preference of victims to stay close to home. However, these local shelters in the impacted zone could not be deemed safe to use without an inspection. Those wishing to stay at their residence and those hoping to return home would also be in need of inspectors to do so.

State and local assessment personnel will be in short supply following a catastrophic earthquake. Although the two requests above were notionally filled, participants in the RAW identified assessment personnel and inspectors for all missions (roads, bridges, waterways, sheltering, etc.) as one of the most serious and prevalent gaps. The lack of inspectors, or prioritization decisions that deploy them elsewhere, will seriously affect the Federal sheltering mission, resulting in fewer pre-determined shelter sites available and elongated stays in mass care shelters, as residents are not yet allowed to return to their homes. During the exercise, it was unclear whether:

a) State and local response agencies have considered this gap in their mass care planning;

b) Federal entities have considered the increase in their requirements for sheltering alternatives (such as soft-sided sheltering).

Observation 4.6. Players did not actively exercise new guidance for Functional Needs Support Services (FNSS).

Analysis: Area for Improvement. In the past, states typically activated separate general population and functional-needs shelters to serve the sheltering population. Although general-population shelters were often compliant with the Americans with Disabilities Act (ADA) by virtue of being in public buildings, they could not necessarily support the medical and functional needs of evacuees with special requirements. Thus, separate functional-needs shelters were opened to provide the care or support these populations required.

FEMA published guidance to assist emergency planners and shelter operators to plan for meeting the access and functional needs of disaster survivors in general-population shelters. The guidance offers methods for achieving a lawful and equitable program through the delivery of FNSS.

Although Missouri incorporated some of the guidance and Mississippi requested support to do so, players did not choose to actively exercise these guidelines in their general-population sheltering missions. For example, accommodations for service animals and evacuees requiring functional support were not addressed specifically in the exercise. This is contrary to the Whole Community concept that emergency management should ensure that response and recovery actions are driven by the actual needs of the entire affected community, including those with disabilities and functional needs. Additionally, states whose local sheltering plan relies heavily on sheltering in non-public buildings, such as churches, may experience difficulties when trying to accommodate those with functional needs. Churches do not need to be ADA compliant, nor is it expected that these small, privately run shelters be able to follow guidance to make their facilities FNSS-capable. While the FNSS guidance has no legal or financial repercussions, this leaves state emergency managers and ESF #6 personnel in a difficult position, and these real-world issues may need to be addressed in future exercises.

Observation 4.7. There are inadequate available, trained personnel in the impacted area for staffing mass care services for the general, functional needs, medical needs, and pet populations for this catastrophic scenario.[29]

Analysis: Area for Improvement. Federal and state partners that participated in the RAW indicated that they would face significant shortages in volunteers to stand up and supervise human shelters and pet shelters. This is compounded by the fact that no organization can guarantee its volunteers will show up when deployed, especially in light of this catastrophic earthquake scenario.

[29] Observation 4.7 is linked with mission critical finding #6 in Appendix E.

By the last day of the exercise, the American Red Cross reiterated this projection. While the exact gaps cannot be enumerated, the American Red Cross predicted that they would run out of trained personnel and sheltering resources in the impacted area within a few days.

5. Critical Resource Logistics and Distribution

Federal D/As deployed lifesaving and life-sustaining resources to the impacted states.[30] FEMA pushed IMATs and US&R teams as part of their immediate response. By the end of the exercise, five IMATs, 27 US&R teams and two US&R Incident Support Teams (ISTs) had been sent to the response. The HHS deployed a total of 33 Disaster Medical Assistance Teams (DMATs) and seven Disaster Mortuary Operational Response Teams (DMORTs), under the coordination of two Incident Response Coordination Teams (IRCTs)—Southeast and Heartland. ESF #10 (Oil and Hazardous Material Response) deployed teams from the U.S. Coast Guard (USCG) (including Strike Teams and Disaster Assistance Response Teams) to respond in the impacted region. Numerous ESFs also deployed personnel to RRCCs, State EOCs, ISBs, and other coordinating locations to provide support to regional and state response efforts.

Commodities were distributed from a number of sources, including FEMA's Logistics Management Directorate (LMD), the American Red Cross, ESF #3 (Public Works and Engineering), and ESF #7 (Logistics Management and Resource Support). By the end of the exercise, the RSS in the NRCC reported having ordered for deployment 32.4M liters of water, 38.8M meals, 991K cots, and 1.9M blankets.

Observation 5.1. Coordination among agencies and assets from non-traditional sources, such as the private sector, helped fill some resource gaps.

Analysis: Strength. Three examples of this coordination included the following:

- Impacted states and other ESFs requested over 8,000 law enforcement officers to support the response effort. ESF #13 (Public Safety and Security) successfully filled all of these requests by coordinating response from multiple agencies.[31] In addition, Department of Justice (DOJ) collaborated with State Governor's Offices to ensure that all reporting law enforcement officers had the necessary authority to enforce state laws.
- The Business EOC (BEOC) and FEMA/Private Sector Division functioned effectively as a coordination cell between private sector entities and the government response. During the first day of response, the BEOC functioned as an information sharing center for both private businesses and the national response. At the same time, the BEOC served as a contact point for businesses seeking information about the event and response.
- The Department of State (DOS) coordinated international offers of mass care commodities, including camp beds and cots, blankets, tarps, and water.

[30] Because NLE 11 was a functional exercise, most assets were notionally deployed.

[31] These agencies were Customs and Border Protection (CBP); DHS/Office of Inspector General (OIG); Department of the Interior (DOI); Immigration and Customs Enforcement (ICE); Federal Bureau of Prisons (BOP); Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF); Transportation Security Administration (TSA); and U.S. Marshals Service (USMS).

The coordination by these entities ensured that some resource gaps were successfully filled despite the challenging response environment. Pre-identifying key resource gaps and how they might be filled through nontraditional sources should be an ongoing part of the planning process.

Observation 5.2. Requests for key Federal resources, such as Search and Rescue (SAR) teams and generators, exceeded Federal supplies

Analysis: Area for Improvement. Requests for specific resources during the exercise quickly exhausted Federal supplies. These gaps are recurring, noted in the RAW and, in some cases, real-world events. Examples included the following:

a) Search and Rescue Teams: Over the course of the exercise, the impacted states requested more than 125 SAR teams from FEMA. FEMA's US&R Branch has only 28 teams.

b) Hazardous Materials (HazMat)/Radiological Teams: Impacted states requested 420 HazMat/Radiological Cleanup or Strike Teams. Of those requests, the majority (over 350) were from one state, possibly indicating a discrepancy in that state's understanding of team capacity. However, even discounting all of the 350 teams, there were requests for 70 teams, which could not be filled through the Emergency Management Assistance Compact (EMAC) system and are not available at the Federal level.

c) Generators: Impacted states requested over 2,000 generators during the exercise, mostly in support of hospitals and other high-priority operations. By the end of the exercise, only 108 generators had been deployed to ISBs. During discussions between Federal and state partners at the RAW, FEMA indicated that they have 1,200 generators. Given that generator availability will be limited, especially during the first 72 hours of response, states that pre-identify their critical facilities and other power needs might experience a smoother, more efficient resource allocation.

d) Material Handling Equipment: Post-exercise, participants pointed out an anticipated gap in forklifts in the impacted area. A SME stated that obtaining, fueling, equipping, and finding experienced operators for this equipment would severely impact the ability of a jurisdiction to remove debris and offload critical supplies.

Observation 5.3. NIMS resource typing no longer accurately depicts all Federal personnel, teams, and equipment.

Analysis: Area for Improvement. In both the RAW and NLE 11, it became apparent that NIMS resource typing often does not accurately represent the personnel, teams, and equipment that the Federal D/As actually own or have access to. This issue proved problematic, as states made their requests according to NIMS and were told that the resource they were requesting did not exist, existed in another D/A, or was actually something very different than what the state needed. For example, according to FEMA's Typed Resource

Definitions document,[32] HazMat response teams are available through ESF #10. However, neither EPA nor any other Federal agency has this resource. This caused delays in fulfilling the requests, as states were told that these teams are only available through EMAC.

Observation 5.4. There is a lack of standard operating procedures for filling resource gaps through sources other than the Federal Government.[33]

Analysis: Area for Improvement. Although many players thought about nontraditional ways to fill gaps, some of their solutions proved difficult to execute. For example, soon after the earthquake, FEMA/International Affairs (FEMA/IA) requested that FEMA/Office of Response & Recovery (ORR) activate the International Assistance System (IAS). By the end of the exercise, the government had received 81 offers of assistance from 38 countries and the European Union (EU).[34] Among these offers were 23 SAR teams, four medical teams, four field hospitals, and four HazMat teams. The United States Government (USG) accepted 29 of the 81 offers extended, including:

- 11 US&R teams from individual countries;
- 12 US&R teams from EU member states;
- 1 military-to-military under the civilian assistance plan (for medical personnel);
- 1 Swedish medical team; and
- Commodities from Chile, Sweden, and Mexico including camp beds and cots, blankets, tarps, and water.

The resources offered were often those that were needed. For example, ESF #9 (Search and Rescue) requested 24 international US&R teams to supplement the 28 domestic teams. In all acceptance cables sent for US&R teams, DOS and the USG stressed that tort liability would fall upon the offering country and that the USG could not offer worker's compensation for injuries sustained while responding. Tort liability is of particular importance to US&R teams, as they frequently must damage personal property while undertaking rescues, allowing homeowners to sue response personnel unless the liability is assumed by a larger agency or organization (such as a country or state). This issue caused all but two international offers of US&R teams to be rescinded after liability concerns could not be resolved.[35]

Sweden was unwilling to deploy their medical team without the USG assuming medical liability. Other international offers—such as those to supply field hospitals, medical teams, HazMat teams, and water purification resources—had not been accepted by the end of the exercise and were therefore still pending.

[32] Typed Resource Definitions, Fire and Hazardous Materials Resources. FEMA 508-4, July 2005.
[33] Observation 5.4 is linked with mission critical finding #2 in Appendix E.
[34] Sweden made offers both independently and as a part of the EU offer. Croatia was the only non-member state included within the EU offer. Croatia is currently a candidate for membership in the EU.
[35] One country was still considering the impact of liability issues for their US&R team when the exercise ended and one international US&R team notionally deployed.

Observation 5.5. The Transportation and Movement Coordination Group (T&MCG) lacked the resources necessary to support their mission.[36]

Analysis: Area for Improvement. According to the NISM, the T&MCG is tasked with coordinating and tracking the movement of resources during a disaster response, including commodities, equipment, teams and personnel. The T&MCG is divided into two groups: a Transportation Support Unit (TSU) and a Movement Control Center (MCC).

In addition to the lack of experience with the NISM and the T&MCG, each group faced further, more consequential challenges from a lack of resources to support their missions:

- The TSU was responsible for developing transportation plans and schedules, the provisioning of transportation resources, and monitoring transportation requests for possible duplications or requests that can be combined to improve efficiency.
  - Because there was not a centralized database of ARFs and MAs, it was not possible to see all requests at one time and improve efficiency by combining them.
  - The TSU had no tools to acquire situational awareness on upcoming transportation requirements, and was reliant on the Resource Capability Branch or the Order Processing Group to push information to it. As this push of information was not yet standard operating procedure, the TSU had no visibility on future tasking, which prevented forward planning.
- The MCC was responsible for tracking all resource movement by air, land, or water via database. In addition, they worked with ESF #1 (Transportation) to develop a COP of transportation infrastructure status.
  - As the MCC had no single tracking tool, tracking was accomplished ad hoc through spreadsheets, paper systems, and/or an online database. Creating new systems for each response was inefficient. In addition, ad hoc systems were not easily shared with other departments, agencies, and stakeholders, as they have no standard operating procedures.
  - The MCC had little visibility on teams, personnel, and resources that were not processed through the T&MCG, but was still responsible for tracking them. This caused their movement COP to be incomplete.
  - Within the MCC, ground and air operations were tracked separately. This made it difficult to understand what resources were moving at any one time or to be more efficient by combining movement requirements.

Observation 5.6. Stakeholders required clarification on who controls national airspace during times of peace.

Analysis: Area for Improvement. Due to the amount of damage to bridges and highways, many critical resources and personnel would have needed to arrive at the impacted area by

[36] Observation 5.5 is linked with mission critical finding #8 in Appendix E.

air. The size and complexity of the air traffic control mission would have been unlike anything undertaken in U.S. history.

During the exercise, some players misinterpreted the authorities of the Federal Aviation Administration (FAA) and the DoD to control the airspace. Through a pre-scripted MA, the DoD was tasked to provide air traffic control in several locations. However, under U.S. Code Title 49, the FAA always remains in control of the national airspace during peacetime. The FAA may request assistance from the DoD with specific tasks (and have an memorandum of understanding in place should they need the support), but the FAA remains the sole authority.

6. Emergency Public Information and Warning

In response to the scenario, regional, state, and local ESF #15 (External Affairs) established Joint Information Centers (JICs) to ensure mutual awareness and consistency in messaging across jurisdictional levels. At the national level, this capability was enhanced through the use of the National Incident Communications Conference Line (NICCL) and the Private Sector Incident Communications Line (PICCL).[37]

Observation 6.1. Regional players successfully integrated social media tools into their external affairs operations.

Analysis: Strength. The ESF #15 personnel at most RRCCs used social media's interactive capabilities to transmit health and safety information and respond directly to emergency messages requesting help and/or information. For example, when ESF #15 personnel received messages via social media from citizens in need of assistance, they passed them on to ESF #5 (Emergency Management) and ESF #9 for action. Because NLE 11 was a functional exercise, it was not possible to test if this action reduced response time, but it was clear that the information supported tactical operations.

ESF #15 personnel also responded to public inquiries with lifesaving and life-sustaining information. Examples included messages on shelter locations, post-earthquake safety, food and water safety, family re-unification, FEMA disaster assistance, and other health and safety tips. Other messages were directed to those with access and functional needs, such as the non-English-speaking population. For example, individuals responded to a "tweet" in Spanish requesting shelter information. In addition, Region VI ESF #15 personnel responded to a tweet for help from a hearing-impaired individual. These interactions supplemented public messages transmitted via traditional media tools.

The direct interactions between the emergency management staff and the victims downrange were consistent with the Whole Community approach. The RRCCs should continue to expand their use of social media tools to assist lifesaving and life-sustaining efforts.

Observation 6.2. There was a high level of coordination among the Federal-, regional-, and state-level public information officers.

[37] ESF #15 and its cooperating elements experienced significant staffing shortages during NLE 11 due to the demands of real-world events. Therefore, no National JIC was established.

Analysis: Strength. ESF #15 personnel and the JICs worked closely at the Federal, regional, and state levels to promote timely, consistent, and accurate messaging. As a result, Federal and state press releases were largely consistent. For example, the information gathered during the daily NICCL calls provided situational awareness across Federal public affairs personnel. The NICCL calls allowed for the Federal messaging to coordinate with and reinforce the more specific local and regional messages, including messaging related to health and safety information. As a result, ESF #15 followed their protocols, and more generic, high-level messages were released at the Federal level, while more narrowly focused messages were used at the regional and state levels.

External Affairs personnel should continue to coordinate across all jurisdictional levels to deliver the most accurate, timely information.

Observation 6.3. The interactive capabilities of social media tools were not fully exploited at the national level.

Analysis: Area for Improvement. At the national level, social media tools were often used as a one-way means of disseminating information, akin to the use of traditional media. Most Federal agencies used social media sites as simply another way to provide general information to the public. Federal external affairs personnel monitored social media conversations for trends on what information to disseminate, but they did not directly address inquiries or send victims information tailored specifically for them. For example, several Federal agencies—including the CDC, the HHS, and the USDA—disseminated pre-scripted messages through social media sites, but none of these agencies directly responded to any particular victim's questions or concerns. In addition, although there was some coordination of tweets on food-safety issues between the HHS, the Food and Drug Administration (FDA), and USDA, current plans and procedures do not specifically address how the interagency should coordinate information disseminated through social media.

Observation 6.4. The process for communicating information learned from social media from the national level to field personnel was not defined.

Analysis: Area for Improvement. There are no formal or standard operating procedures on how to use or disseminate social media messages in a disaster. In NLE 11, Federal players were faced with the challenge of how to address information that could impact immediate lifesaving operations in the field.

ESF #15 players passed information received via social media down to the next jurisdictional level. However, the current lack of formal or standard operating procedures on how to use social media messages in a disaster could potentially hamper response efforts in a real-world catastrophic event. In a real-world event, those working at the strategic level of response would be consumed by events in their location, and the process for sending lifesaving information to the correct location would be challenging. For example, there are no guidelines/standard operating procedures to answer the following questions:

- Through what medium should national/regional ESF #15 personnel communicate lifesaving social media messages to response personnel?
- How are messages pertinent to lifesaving operations flagged and separated from other emergency-related messages?

- What is the fastest communication path to get information where it needs to go?
- Should the messages be validated? How might that happen?

Observation 6.5. ESF #15 (External Affairs) personnel at the national level missed opportunities to anticipate potential public affairs challenges or provide FEMA leadership with messaging on the UACG's actions.

Analysis: Area for Improvement. In managing incident communications, one task of the public affairs section of ESF #15 is to provide leadership with support in communicating potentially challenging issues, as the media often reports on the positive *and* negative response efforts during a disaster. In NLE 11, actions of the new UACG, which could have been portrayed negatively in the press, were not addressed in public messaging. The most common talking points included information on FEMA's overall response efforts, general health and safety tips following an earthquake, disaster/Federal aid information, and how to encourage the public to listen to state and local instructions.

Because the UACG was a new part of the emergency-response process, there were no pre-scripted messages associated with its operations. ESF #15 personnel at the national level did not issue any press releases or talking points for leadership explaining the UACG or its actions. In particular, the UACG's reallocation of US&R teams and industrial-size generators from Arkansas to Memphis could have sparked interest from the public and/or decision-makers from those states.

7. Medical Surge

The HHS Secretary's Operations Center (SOC) stood up its Emergency Management Group (EMG) and rapidly initiated the coordination of response efforts, both internally (within the Department) and externally (with other Federal and nongovernmental partners). The National Disaster Medical System (NDMS) was quickly activated, and assets were deployed to the impacted areas in support of lifesaving and life-sustaining missions in a timely manner.

Observation 7.1. The HHS was able to operationalize the Federal strategy of leaning forward and pushing resources to the impacted area.

Analysis: Strength. In anticipation of requests for ESF #8 resources and in accordance with plans, policies, and procedures outlined in their ESF #8 Natural Disaster – Major Earthquake Playbook, the HHS activated the NDMS, began coordinating with the DoD and the VA on patient movement, and initiated procedures to push assets out to Federal ISBs using time-phased force deployment (TPFD). This rapid response aligns with the recent evolution of Federal disaster response toward a more forward-leaning, push environment.

With respect to the use of TPFD, the HHS recently adopted this DoD concept to enable the rapid activation and deployment of NDMS assets. As defined by the DoD, TPFD involves the collection and maintenance of data regarding cargo, personnel, and the movement of assets (e.g., priority of deployment, routing, transportation requirements, etc.). Through this approach, the HHS was able to identify the teams and assets apportioned to the impacted states within 90 minutes of the incident; the HHS was also able to work with their logistics and operations personnel to begin determining the most efficient mechanism for transporting resources.

The application of TPFD also enabled the HHS to better coordinate the movement of personnel and equipment to ensure they arrived at their designated destination simultaneously. This method should be continued and updated as it is more thoroughly integrated into the HHS response plans.

Observation 7.2. The American Association of Blood Banks (AABB) Task Force, the HHS, the DoD, and the American Red Cross quickly coordinated their response to blood-supply issues.

Analysis: Strength. Within several hours of the incident, representatives from the AABB Task Force, the HHS, the DoD, and the American Red Cross held a conference call to discuss the status of the American blood supply and review roles and responsibilities with respect to the transportation of blood and blood products. During the meeting, players identified the impacted blood centers, discussed disaster plans, and determined that transportation, not the blood supply itself, was the key issue. It was also noted that the DoD, National Guard, and Civil Air Patrol have all assisted with transportation of blood and blood products in the past and would provide this support, as needed. In addition, players determined that blood could be accepted from the Canadian Blood Service, if needed.

The AABB Task Force was activated to assess blood levels; the American Red Cross assessed blood supply adequacy and safety; and the HHS worked with the American Society of Hematology (ASH) to coordinate messaging on blood-supply safety. The rapid activation of these blood-supply stakeholders and early initiation of coordinated response efforts on this issue was effective in ensuring that blood and blood products—time-critical medical supplies—were available for lifesaving and life-sustaining efforts in the first 72 hours after the earthquake.

The timely coordination of blood-supply stakeholders should be documented and formalized in an operational concept to ensure that best practices are captured for future implementation.

Observation 7.3. The HHS rapidly initiated coordination efforts with the DoD and the Department of Veterans Affairs (VA) to activate Federal Coordinating Centers (FCCs) and stand up Disaster Aeromedical Staging Facilities (DASFs) to evacuate patients from the impacted area.

Analysis: Strength. Within one hour of the earthquake, the HHS initiated efforts to coordinate with the DoD and VA on patient movement. Upon activation, the HHS EMG was immediately instructed to contact LNOs at U.S. Transportation Command (USTRANSCOM), U.S. Northern Command (USNORTHCOM), and VA to identify aerial ports of embarkation (APOE), assets available for patient movement, and FCC sites. These measures were implemented prior to the receipt of any MAs and enabled the HHS, DoD, and VA to quickly begin responding to requests for patient movement once received. This forward-leaning practice should be formally incorporated into the HHS' catastrophic event response plans.

Observation 7.4. The HHS and FEMA coordinated with private sector partners to promote shared situational awareness and incorporated private sector support into ESF #8 (Public Health and Medical Services) response efforts.[38]

Analysis: Strength. The HHS used several mechanisms to work closely with the private sector during incident response. Three such examples included:

- Through the liaison program, the HHS trained industry representatives to staff positions in the SOC, enabling private sector partners to have a consistent line of communication with their Federal counterparts.
- The HHS conducted conference calls to both push and pull information from industry, providing a situation update and then having an open discussion to identify key issues and challenges. Through this mechanism, gaps were identified and industry partners worked with local officials to resolve issues or adjust medical supply chain logistics to better position themselves to meet needs. For example, private sector partners offered airlift capability to help mitigate the shortage of air assets.
- The HHS activated the Medical Materiel Control Group (MMCG) to identify impacted medical manufacturers and distributors. The HHS Critical Infrastructure Protection (CIP) office worked with the EMG Logistics section to coordinate with the private sector to meet medical supply needs.

The HHS has a well-established relationship with its private sector partners and could consider formally incorporating the private sector's ESF #8 role into its response plans. Furthermore, other D/As may consider the HHS-private sector partnership as a model for their respective efforts to collaborate effectively with industry.

Observation 7.5. Federal patient movement capability was not sufficient to meet the needs of a catastrophic response.

Analysis: Area for Improvement. At present, the DoD and the HHS can staff only four APOEs to support patient movement, and requests for this capability quickly exceeded existing resources.[39] Furthermore, once activated, these facilities and their supporting personnel require 36 to 72 hours to become operational, and have a throughput of 140 patients per day. In the immediate aftermath of a catastrophic earthquake, these assets may not be able to provide timely assistance in all locations requiring support. As a result, states may need to rely on their own capabilities during this response period. Although USTRANSCOM does have some additional means of moving patients (e.g., Contingency Aeromedical Staging Facilities [CASF]) and the HHS is working toward identifying additional Mobile Acute Care Strike Teams to support patient movement, the current capability to stand up and operate an APOE to transport patients is not sufficient to fulfill the requests for assistance expected in a catastrophic earthquake scenario.

[38] Observation 7.4 is linked with mission critical finding #5 in Appendix E.

[39] APOEs were requested by Missouri (3), Tennessee (1), Indiana (1), and Arkansas (1). Additionally, some States, such as Alabama and Kentucky, submitted requests for medical evacuation transportation support that did not specify the need for an APOE but may have also required similar resources.

Observation 7.6. Players requested Disaster Medical Assistance Teams (DMATs) for missions that did not require this asset.

Analysis: Area for Improvement. As described on the NDMS Web site, a DMAT consists of 35 persons and provides primary and acute care, triage of mass casualties, initial resuscitation and stabilization, advanced life support, and preparation of sick or injured for evacuation. Although states requested this asset to fulfill their need for medical assistance, their requirements did not always align to the capability that a DMAT provides. For example, a damaged hospital requiring additional staff support for its emergency room does not need a full DMAT; rather, the hospital may better supplement its staff with a smaller Mobile Strike Team. In this case, the deployment of a full DMAT to this site would result in the underutilization of a critical asset in a catastrophic-event context. Although HHS has the ability to configure teams to meet a range of state and local medical assistance needs, requests for a specific asset, such as a DMAT, may impede this flexibility to optimize resources.

Observation 7.7. Federal fatality management capability was designed to augment, rather than replace, existing state and local fatality management.

Analysis: Area for Improvement. The HHS has 11 Disaster Mortuary Operational Response Teams (DMORTs), potentially containing enough fatality management personnel to supplement state and local operations. However, they may not have enough equipment (Disaster Portable Morgue Units [DPMUs]) to *replace* those operations. During the exercise, the primary mission of the teams was to collect *antemortem* data and humanely remove and store remains until they could be identified and properly interred. With power outages and damage to mortuary facilities throughout the impacted states, existing local fatality management capability, particularly with respect to storage, will be significantly diminished. With only two DPMUs, Federal assets may not be sufficient to meet the demand for temporary morgue facilities.

SECTION 4: CONCLUSION

NLE 11 and its building-block events provided participants with a unique opportunity to understand the aftermath of a catastrophic event without the ramifications of responding to a real-world emergency. New and revised plans were tested—in some cases, for the first time. The private sector and NGOs participated at unprecedented levels for an NLE and demonstrated that they are major sources for personnel, resources, and information.

The NLE 11 catastrophic earthquake scenario was intended to "break the system" and highlight areas for improvement. Through the analysis of observations presented in this report, four cross-cutting issues emerged: resource gaps and how to fill them, implementation of the Whole Community approach, policy and legal issues, and the need for further planning. Each is discussed below.

Resource Gaps and How to Fill Them

Many of the resource gaps observed in NLE 11 had been previously identified in previous exercises, recent real-world events and the RAW. These events have forced those involved in incident support to examine the requirements versus availability, and confront the very real situation of not having "enough." If requirements generated by the states and regions hold true, FEMA and the GSA cannot acquire enough generators, and three weeks post-event, there will not be enough fuel in the affected area to support the ongoing response and recovery. There are not enough trained sheltering personnel in the affected area to support the size and duration of the expected mass-care mission, nor enough patient movement support to move everyone as quickly as planners would hope. Hospitals will need support as they try to resupply after carrying out their medical surge missions, and there will not be enough HazMat or SAR teams to support the states. Rotary-wing aircraft will be an incredibly important asset, as those areas with impassable highways, bridges, tunnels, and waterways turn to the air for receiving personnel and support.

In addition to gaps in response assets, there are also gaps in the technologies needed to perform incident support. The NRCC has no single application that displays and tracks all of the requests for assets. The T&MCG does not have a system to manage all resources in motion, including those moving by land, sea, and air. And the entire response community has found that the combination of e-mail and HSIN is an insufficient backbone to support and manage incidents of this size and magnitude. These technological and procedural gaps could cost lives in a response as requests for assets are duplicated or lost, and a COP is never truly compiled.

Questions remain: What will the Nation do to fill these gaps? Will we try to procure/create more of our key assets? Will we find more efficient ways to use resources outside the Federal Government? Will we change our plans to change the requirements? The answer is not a simple one, and will involve a combination of all three approaches. The sooner we address the issue of our gaps in catastrophic response, the more likely we are to affect outcomes and increase lifesaving and life-sustaining capability in the first 72 hours of response.

Implementation of the Whole Community Approach

At the state and local levels, a Whole Community approach has been the norm rather than the exception. States have been working on integrating a more diverse population into their planning efforts and using resources from a wide variety of sources. Neighbors have always helped neighbors out of necessity, whether it was called "Whole Community" or not. However, even at the state level, there are areas for improvement. Real-world events have shown that some populations (such as those with functional needs, pets, and disabilities) still slip through the cracks, and further planning must be done. In addition, new forms of communication and information gathering—such as social media—should continuously be accounted for in plans and procedures.

Nationally, the first formal exercise of Whole Community Courses of Action (COA) was extremely valuable. Some COAs, such as the concept of a Pets MAC, the use of a DDTF, and the use of social media to inform response activities were well-received and validated. FEMA communications (MERS) successfully collaborated with private industry to provide communications support to state and local response operations, and ESF #8 coordinated with private sector partners to promote shared situational awareness and incorporate private sector support into medical surge response efforts.

There remain areas for improvement in both serving and taking advantage of the abilities of all those affected by an event of this magnitude. While the enormous potential of the private sector was on display in NLE 11, the Federal Government could improve the formal mechanisms by which their resources and information are integrated into the incident support system. To affect the outcome of the incident in the first 72 hours, private sector resources must be seamlessly integrated into existing resourcing and situational awareness systems without the delays involved in figuring out how it should be done. In addition, procedures need to be created, trained, and exercised to further integrate information gleaned from social media into the response. Even more can be done to ensure that those with functional needs will be supported in general population shelters, and successful concepts—such as the Pets MAC and the DDTF—have to become more widely understood and used by the rest of the incident management and support structures.

Policy and Legal Issues

To ensure that teams can be brought in from other states and countries, issues of liability and credentialing must be addressed pre-event. If out-of-state or foreign damage assessment, medical, or SAR teams are to be employed, Federal and state governments must work through these complicated legal issues regarding liability and credentialing. Credentialing must be almost immediate, and all stakeholders will need a clearly defined plan to guide their acceptance/use of foreign first-response teams.

It is still unclear to states how Federal regulations for ensuring that shelters are ADA compliant will affect them after a catastrophic event or during planning for those events. Local shelters may be held in schools that meet this guidance, or in churches, which do not. State emergency management needs more guidance to support the need to balance regulation and the reality of post-event conditions.

Funding issues will also arise after a catastrophic earthquake. Resources that are reallocated from one state to another may still require a cost-share, and sorting through the funding questions after the event will be difficult. Stafford Act assistance was offered to a private radio station in NLE 11, and it will be important for those dealing with communications issues to know whether this will be the norm.

The Need for Further Planning

According to the FEMA Comprehensive Preparedness Guide (CPG) 101, post-exercise is the time to review, revise, and maintain plans. Lessons that were learned through major exercises should be incorporated back into plans to close the loop on the process and ensure that the plans remain living, viable documents.

In NLE 11, players learned that those at the Federal level are not yet familiar with the regional and state OPLANs, and vice versa. These plans are powerful tools to understand resource requirements and deployments, and set expectations about the response. Mutual understanding of each other's documents will ensure that Federal, regional, and state response elements work together in a way that makes the plans operational and not just conceptual. The Federal Government should support a bottom-up planning approach and ensure that regional and state OPLANs are used to inform their own planning documents, such as the FIRP-EQ 2011.

In addition, further work needs to be done to perform incident support in an environment where resources are pushed to the impacted area. FEMA needs to elevate the NISM from an overarching guide on how FEMA will support an incident, to a true manual on how that will occur. While it was clear that further training was necessary, gaps in tools and defined standard operating procedures must also be addressed to make the NISM less of a CONOPS and more of the "manual" that the name implies.

Another area for further planning surrounds the concept of the UACG. Since its original proposal by FEMA, the UACG was never well understood by Federal D/As. Although the draft CONOPS was briefed to participants, it differed significantly from how it was actually implemented during the NTTX and the functional exercise. If FEMA believes the UACG to be a valid part of catastrophic response, they must clearly and consistently define the concept. Then, the UACG concept must be coordinated and approved by the Federal interagency, and socialized among all stakeholders.

Finally, the resource gaps that have been clearly identified through this exercise should be addressed in future planning. Armed with the knowledge of how many soft-sided shelters they will receive, or how many (if any) of the four DASFs will be available, regions and states can make the appropriate changes to their plans. The availability—or lack thereof—of certain resources will affect *what* and *how* missions can be carried out, and knowing these gaps ahead of time supports the type of planning that leads to plans that can be actualized after an event. This future planning will promote out-of-the-box thinking and a requirement to either find assets from non-traditional sources, or change response plans based on the resources likely to be available after the event.

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APPENDIX A: COMPLETE LIST OF STRENGTHS AND AREAS FOR IMPROVEMENT

Table A-1. Relationship between National Capability Objectives, Overarching Leadership Objectives, and Whole Community Core Capabilities

Communications
Strengths
States and FEMA regions were able to establish alternate forms of communication in a degraded environment.
The Federal Government provided tactical communications support and analysis.
Government and private sector coordination improved communications capability in the impacted area.
Areas for Improvement
The process for the prioritization and allocation of communications resources was not fully explored, and cannot be validated.
There were duplicative efforts to report and share emergency telecommunications information among government and private industry stakeholders.
Incident Management/EOC Management
Strengths
Submitting pre-scripted mission assignments (MAs) and action request forms (ARFs) reduced the administrative burden on the Emergency Support Functions (ESFs) and on those who would receive support.
The Office of Management and Budget (OMB) promptly addressed an insufficient balance in the Disaster Relief Fund (DRF).
The National Advanced Operational Plan (N-AOP) developed during the exercise provided a good template for future events.
The matrices in the Federal Incident Response Plan – Earthquake 2011 (FIRP-EQ 2011) and regional and state Operations Plans (OPLANs) were valuable resources for players.
The FEMA Administrator quickly made the decision to activate and deploy a Unified Area Coordination Group (UACG) based on U.S. Geological Surveys' (USGS') initial estimate of earthquake impacts.
The UACG achieved one of its major objectives, reallocating critical resources based on information gathered during forward deployment.
Several D/As successfully compiled information from a wide range of sources to develop situational awareness and anticipate requests.
Areas for Improvement
To maximize the effectiveness of pre-scripted MAs, further coordination and familiarization are needed at all levels.

The resource request and fulfillment process did not support an environment where resources are pushed out to the impacted area.
The Incident Support Bases (ISBs) were not capable of managing the push of assets necessary to support a catastrophic earthquake response.
While advances have been made, many Department of Defense (DoD) standard operating procedures, requirements, and training sessions were not conducive to an environment where resources are pushed downrange.
While the N-AOP was a successful template for future planning, it was unclear from where it pulled information and to whom it was distributed.
Players were not familiar with the National Incident Support Manual (NISM) and the differences between incident support and incident management protocols.
The NRCC Situational Awareness Section (SAS) did not provide enough information or analysis to support FEMA leadership or the interagency during the initial operational periods.
The interdependencies and coordination between the NRCC sections were unclear to players.
Players were uncertain if the FIRP-EQ 2011 had been activated, and what that meant for their immediate response activities.
The FIRP-EQ 2011 had not been socialized at the regional and state levels, nor the regional and state OPLANs at the national level.
The UACG did not function and was not staffed as proposed in the draft UACG guide or in the FIRP-EQ 2011.
The UACG's resource prioritization and reallocation method was not transparent to other incident support and management stakeholders.
The forward deployment of the FEMA Administrator with the Unified Area Coordination Group (UACG) may impose an administrative and logistical burden on state emergency response efforts.
The chain of command and functionality of the UACG may differ from current plans if led by someone other than the FEMA Administrator.
Several D/As applied the process for executing requests for information (RFIs) to fulfill critical information requirements (CIRs).
Current RFI and CIR processes are not coordinated across stakeholders.
The DHS Crisis Action Team (CAT) RFI process is time-intensive.
The combination of e-mail and the Homeland Security Information Network (HSIN) was insufficient to support and manage an incident of this size and magnitude.
Citizen Evacuation and Shelter-In-Place
Strengths
Federal and state counterparts coordinated to develop voluntary evacuation plans and to identify evacuation routes and respite centers.
In line with Whole Community principles, Federal and state officials considered both traditional and nontraditional resources to fill resource gaps.

Areas for Improvement
State and regional plans for both shelter-in-place and evacuation missions may not have been executable due to gaps in key resources or the inability to provide those resources in a timely manner.
It is unclear what Federal assets will be available to support mass evacuation management.
The logistics support needed to operate Welcome Stations in states outside the primary impact zone was not explored.
Mass Care
Strengths
Missouri and the American Red Cross successfully integrated other volunteer organizations into a mission to train and manage shelter volunteers.
ESF #6 (Mass Care) and the American Red Cross successfully activated and operated a Direct Distribution Task Force (DDTF).
Stakeholders successfully activated and operated a Pets Multi-Agency Coordination System (MAC).
Areas for Improvement
While a Pets MAC was successfully established, the national concept is not fully developed.
The gap in state and local personnel to perform prompt assessments will compound the size and complexity of the Federal mass care mission.
Players did not actively exercise new guidance for Functional Needs Support Services (FNSS).
There are inadequate available, trained personnel in the impacted area for staffing mass care services for the general, functional needs, medical needs, and pet populations for this catastrophic scenario.
Critical Resource Logistics and Distribution
Strength
Coordination among agencies and assets from non-traditional sources, such as private sector, helped fill some resource gaps.
Areas for Improvement
Requests for key Federal resources, such as Search and Rescue teams and generators, exceeded Federal supplies.
NIMS resource typing no longer accurately depicts all Federal personnel, teams, and equipment.
There is a lack of standard operating procedures for filling resource gaps through sources other than the Federal Government.
The Transportation and Movement Coordination Group (T&MCG) lacked the resources necessary to support their mission.

Stakeholders required clarification on who controls national airspace during times of peace.
Emergency Public Information and Warning
Strengths
Regional players successfully integrated social media tools into their external affairs operations.
There was a high level of coordination among the Federal-, regional-, and state-level public information officers.
Areas for Improvement
The interactive capabilities of social media tools were not fully exploited at the national level.
The process for communicating information learned from social media from the national level to field personnel was not defined.
ESF #15 (External Affairs) personnel at the national level missed opportunities to anticipate potential public affairs challenges or provide FEMA leadership with messaging on the UACG's actions.
Medical Surge
Strengths
The HHS was able to operationalize the Federal strategy of leaning forward and pushing resources to the impacted area.
The American Association of Blood Banks (AABB) Task Force, the HHS, the DoD, and the American Red Cross quickly coordinated their response to blood-supply issues.
The HHS rapidly initiated coordination efforts with the DoD and the Department of Veterans Affairs (VA) to activate Federal Coordinating Centers (FCCs) and stand up Disaster Aeromedical Staging Facilities (DASFs) to evacuate patients from the impacted area.
The HHS and FEMA coordinated with private sector partners to promote shared situational awareness and incorporated private sector support into ESF #8 (Public Health and Medical Services) response efforts.
Area for Improvement
Federal patient movement capability was not sufficient to meet the needs of a catastrophic response.
Players requested Disaster Medical Assistance Teams (DMATs) for missions that did not require this asset.
Federal fatality management capability was designed to augment, rather than replace, existing state and local fatality management.

APPENDIX B: NATIONAL PARTICIPATION

American Red Cross
- Biomedical Services
- Disaster Services

Department of Agriculture (USDA)
- Animal and Plant Health Inspection Service (APHIS)
- Food and Nutrition Service (FNS)
- United States Forest Service (USFS)

Department of Commerce
- Bureau of Industry and Security (BIS)
- Economic Development Administration (EDA)
- Economics and Statistics Administration (ESA)
- National Institute for Standards and Technology (NIST)
- National Oceanic and Atmospheric Administration (NOAA)

Department of Defense (DoD)
- Office of the Secretary of Defense (OSD)
- National Geospatial-Intelligence Agency (NGA)
- National Guard Bureau (NGB)
- Joint Staff

United States Transportation Command (USTRANSCOM)
- United States Army Corp of Engineers (USACE)
- United States Northern Command (USNORTHCOM)

Department of Energy (DOE)
- National Nuclear Security Administration (NNSA)

Department of Health and Human Services (HHS)
- Centers for Disease Control and Prevention (CDC)
- Food & Drug Administration (FDA)
- Office of the Assistant Secretary for Preparedness and Response (ASPR)

Department of Homeland Security (DHS)
- Domestic Nuclear Detection Office (DNDO)
- Federal Emergency Management Agency (FEMA)
- Office of Intergovernmental Affairs (IGA)
- National Protection and Programs Directorate (NPPD)
- Office of Health Affairs (OHA)
- Office of Intelligence and Analysis (I&A)
- Office of Legislative Affairs (OLA)
- Office of Policy (PLCY)
- Office of Public Affairs (OPA)
- Operations Coordination and Planning (OPS)
- Transportation Security Administration (TSA)
- United States Coast Guard (USCG)
- United States Customs and Border Protection (CBP)
- United States Immigration and Customs Enforcement (ICE)

Department of the Interior (DOI)
- United States Geological Survey (USGS)

Department of Justice (DOJ)
- Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)
- Bureau of Prisons (BOP)
- Federal Bureau of Investigation (FBI)

Department of Labor
- Occupational Safety and Health Administration (OSHA)

Department of State (DOS)

Department of the Treasury

Department of Transportation (DOT)
- Federal Aviation Administration (FAA)
- Federal Railroads Administration (FRA)

Department of Veterans Affairs (VA)

Environmental Protection Agency (EPA)

Federal Energy Regulatory Commission (FERC)

General Services Administration (GSA)

Nongovernmental Organizations (NGOs)
- Catholic Charities
- Convoy of Hope
- Feeding America
- National Voluntary Organizations Active in Disasters (NVOAD)
- Salvation Army
- Southern Baptist Disaster Relief

Nuclear Regulatory Commission (NRC)

Office of the Director of National Intelligence (ODNI)
- National Counterterrorism Center (NCTC)

Small Business Administration (SBA)

The White House
- Domestic Resilience Group (DRG)
- Office of Management and Budget (OMB)

United States Agency for International Development (USAID)

APPENDIX C: CROSSWALK BETWEEN NATIONAL CAPABILITY OBJECTIVES, OVERARCHING LEADERSHIP OBJECTIVES, AND WHOLE COMMUNITY CORE CAPABILITIES

Table C-1. Relationship between National Capability Objectives, Overarching Leadership Objectives, and Whole Community Core Capabilities

National Capability Objectives	Overarching Leadership Objectives	Whole Community Core Capabilities
Communications		• Critical Communications
Incident Management / EOC Management	• Validate the NMSZ Joint Regional and State OPLAN earthquake planning assumptions. • Validate the Federal Interagency Response Plan – Earthquake 2011 (FIRP-EQ 2011). • Evaluate FEMA's ability to execute the UACG Structure in a catastrophic incident. • Observe and evaluate Federal-Private sector communications and coordination. • Observe and evaluate Federal-International communications and coordination.	• Situational Assessment • Command, Control & Coordination • On-Scene Security and Protection • Environmental Health & Safety
Citizen Evacuation and Shelter-In-Place		• Critical Transportation
Mass Care		• Mass Care Services
Critical Resource Logistics and Distribution	• Prioritize and resolve resource gaps. • Observe and evaluate Federal-Private sector communications and coordination. • Observe and evaluate Federal-International communications and coordination. • Validate national, joint regional and state operations planning objectives and courses of action.	• Critical Transportation • Mass Search & Rescue Operations • Public & Private Services & Resources
Emergency Public Information and Warning		• Public Messaging
Medical Surge		• Health and Medical Treatment • Fatality Management Services
Recovery		• Stabilize & Repair Essential Infrastructure

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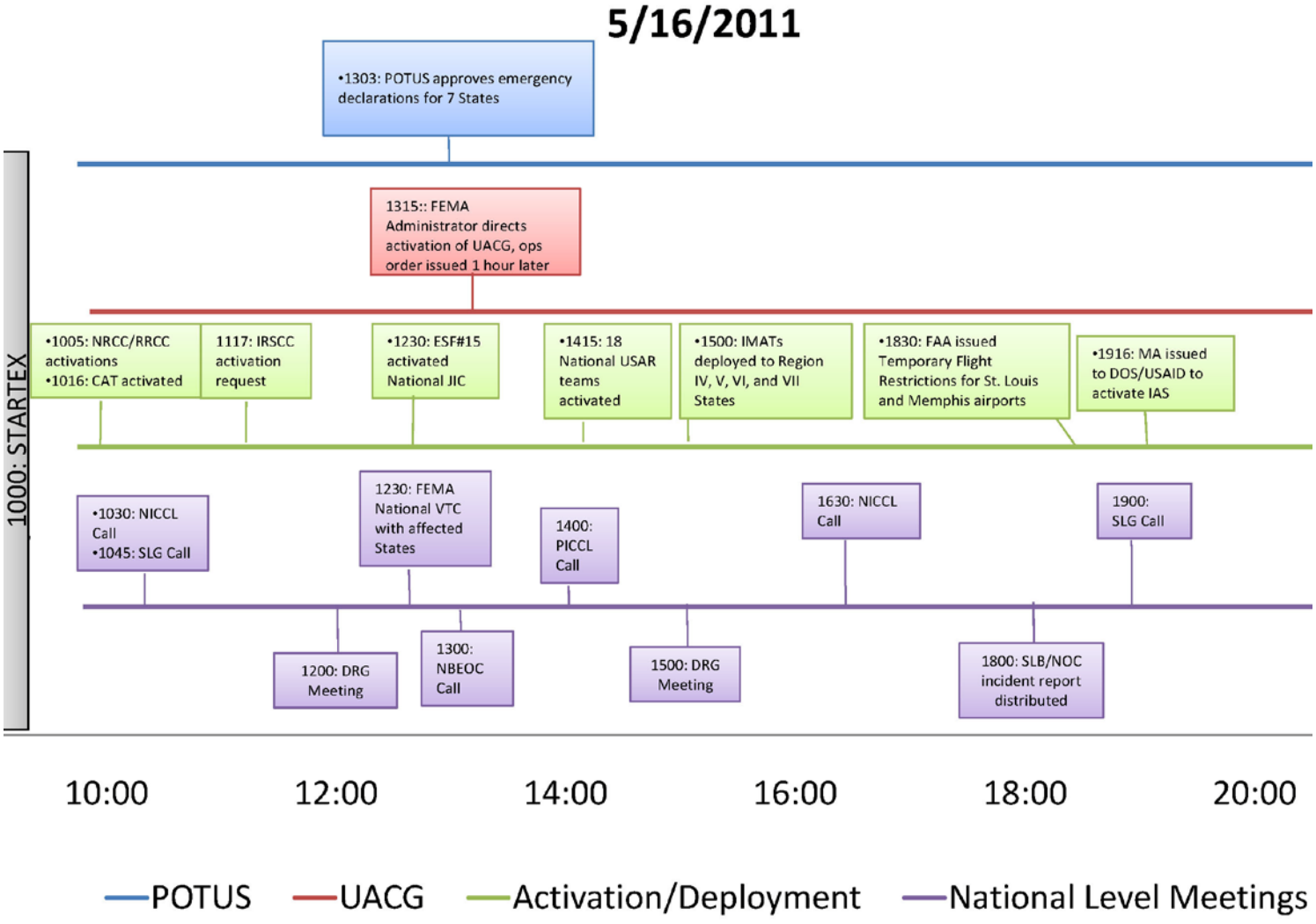
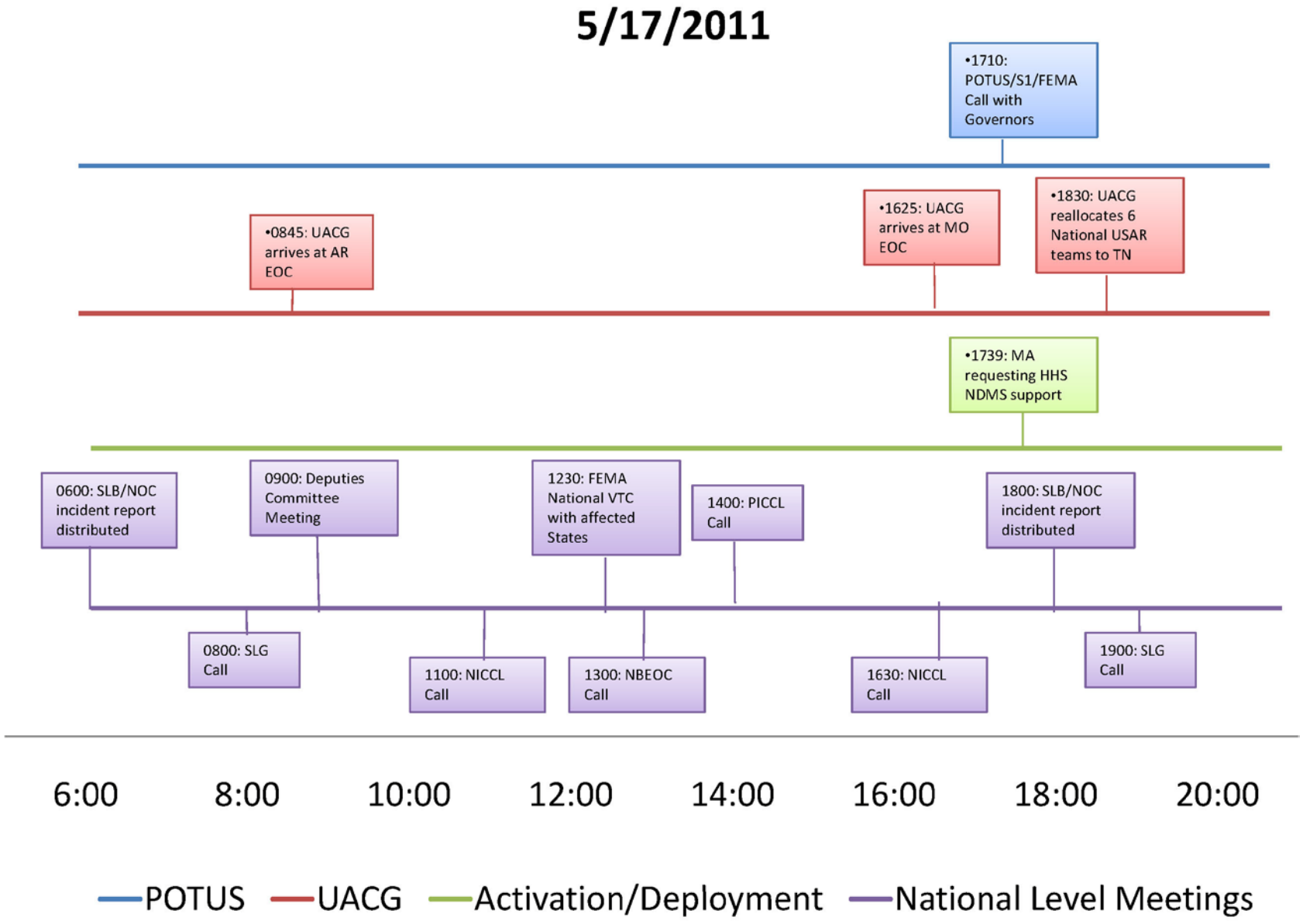
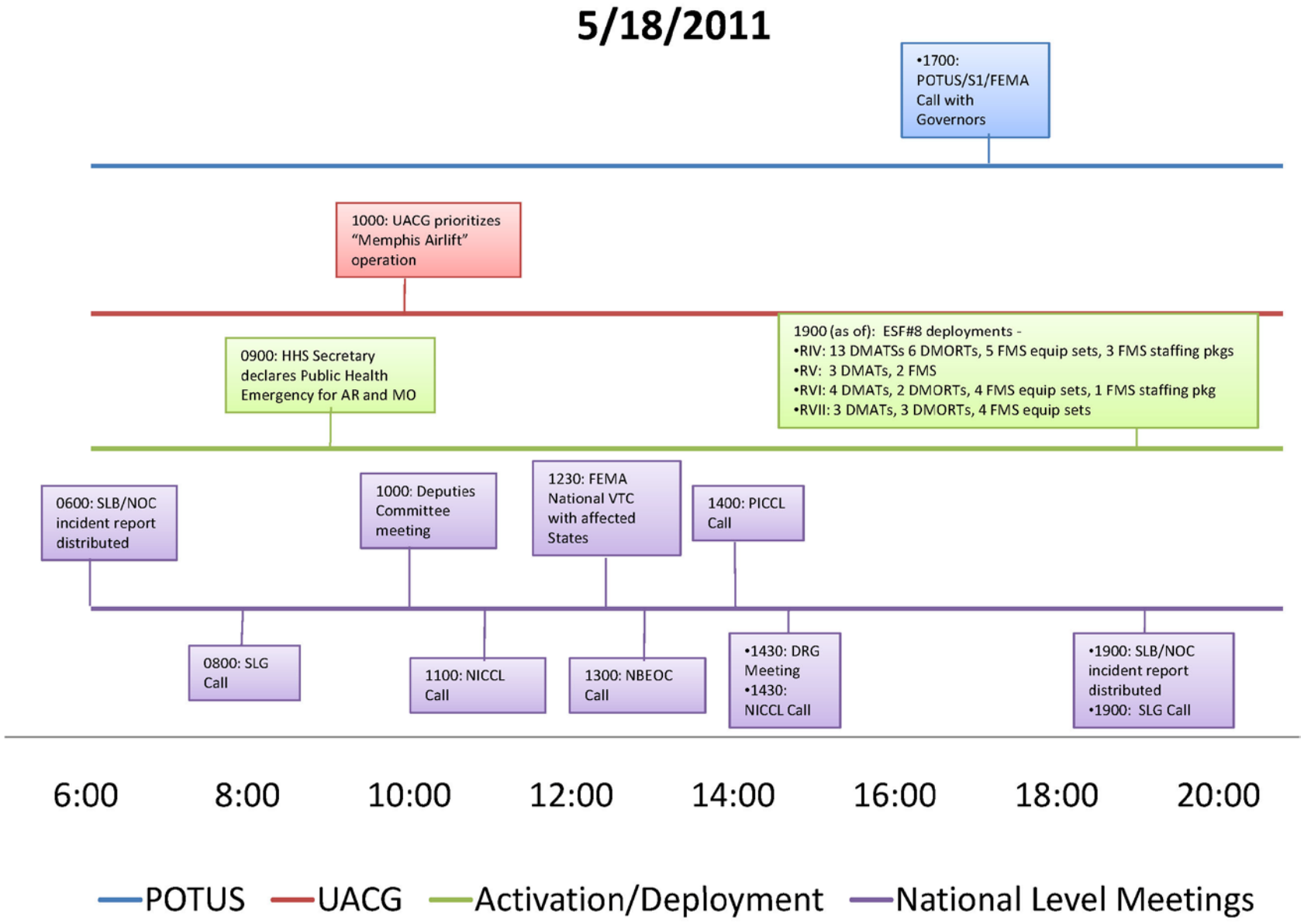
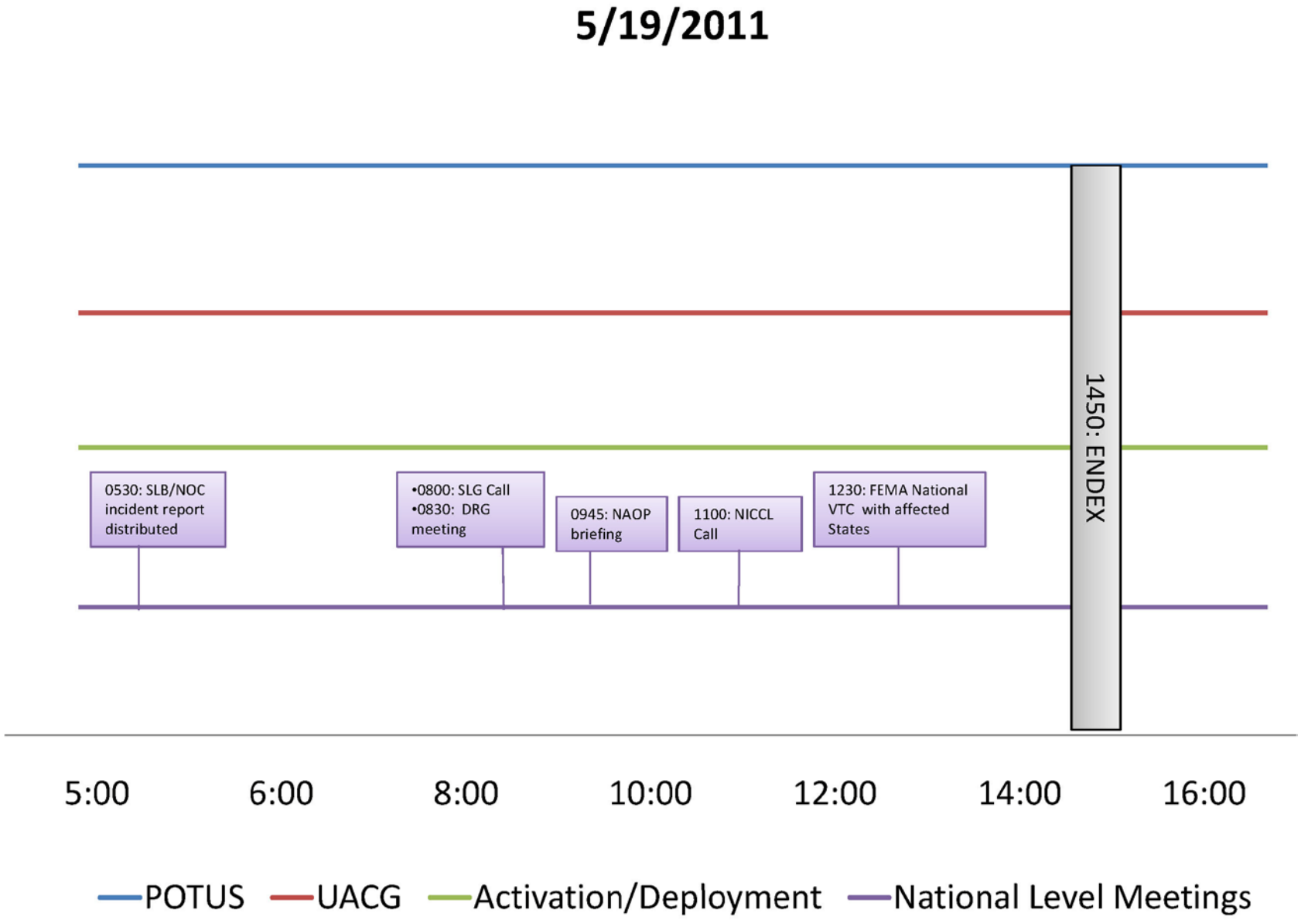
APPENDIX D*: TIMELINE OF KEY NLE 11 EVENTS



*All times are reflective of Eastern Standard Time


5/17/2011
•1710: POTUS/S1/FEMA Call with Governors
•0845: UACG arrives at AR EOC
•1625: UACG arrives at MO EOC
•1830: UACG reallocates 6 National USAR teams to TN
•1739: MA requesting HHS NDMS support
0600: SLB/NOC incident report distributed
0900: Deputies Committee Meeting
1230: FEMA National VTC with affected States
1400: PICCL Call
1800: SLB/NOC incident report distributed
0800: SLG Call
1100: NICCL Call
1300: NBEOC Call
1630: NICCL Call
1900: SLG Call
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
POTUS
UACG
Activation/Deployment
National Level Meetings


5/18/2011
•1700: POTUS/S1/FEMA Call with Governors
1000: UACG prioritizes "Memphis Airlift" operation
0900: HHS Secretary declares Public Health Emergency for AR and MO
1900 (as of): ESF#8 deployments -
•RIV: 13 DMATSs 6 DMORTs, 5 FMS equip sets, 3 FMS staffing pkgs
•RV: 3 DMATs, 2 FMS
•RVI: 4 DMATs, 2 DMORTs, 4 FMS equip sets, 1 FMS staffing pkg
•RVII: 3 DMATs, 3 DMORTs, 4 FMS equip sets
0600: SLB/NOC incident report distributed
1000: Deputies Committee meeting
1230: FEMA National VTC with affected States
1400: PICCL Call
0800: SLG Call
1100: NICCL Call
1300: NBEOC Call
•1430: DRG Meeting
•1430: NICCL Call
•1900: SLB/NOC incident report distributed
•1900: SLG Call
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
POTUS
UACG
Activation/Deployment
National Level Meetings


5/19/2011
0530: SLB/NOC incident report distributed
•0800: SLG Call
•0830: DRG meeting
0945: NAOP briefing
1100: NICCL Call
1230: FEMA National VTC with affected States
1450: ENDEX
5:00
6:00
8:00
10:00
12:00
14:00
16:00
POTUS
UACG
Activation/Deployment
National Level Meetings

APPENDIX E: CROSSWALK BETWEEN MISSION CRITICAL FINDINGS AND AAR OBSERVATIONS

To ensure that lifesaving, life-sustaining issues were dealt with as soon as possible after the exercise, FEMA sought, gathered, and compiled a list of potential mission critical issues submitted by the Federal interagency. A mission critical finding is any factor of the national response system (personnel, organization, equipment, training, etc.) whose failure or inadequate performance will lessen or limit the ability of the United States Government to deliver lifesaving or life-sustaining support within the first 72 hours of a disaster.

Immediately after the exercise, FEMA/NED presented the DRG with a list of 20 such issues. The DRG reviewed the issues and responded with ten issues that they deemed "mission critical". These issues were assigned a lead Federal agency, which was responsible for providing corrective actions. The lead agencies returned these corrective actions, and the interagency is currently working to address them.

Table E-1.Relationship between Mission Critical Findings and AAR Observations

Mission Critical Finding	Related NLE 11 AAR Observation
Mission critical finding #1: Existing processes to request, activate, deploy, and track lifesaving/life-sustaining resources did not meet the requirements of the Federal strategy to “push” large quantities of resources from FEMA and other Federal response partners into the impacted area. There were delays in communicating projected resource requirements, completing and communicating Action Request Forms (ARFs) and Mission Assignments (MAs), and carrying out the procedures required to release resources from Incident Support Bases (ISBs). A review of the current processes and procedures for resource request, deployment, and employment is needed to better align and streamline these processes and procedures to meet the requirements of a Federal “push” strategy implemented for catastrophic events.	Observation 2.1.4: The resource request and fulfillment process did not support an environment where resources are pushed out to the impacted area.
Mission critical finding #2: Unresolved issues delayed and/or prevented the acceptance of needed international Urban Search and Rescue (US&R) teams, medical teams, and medical equipment and pharmaceuticals. A mechanism (e.g., tools or templates) is needed to ensure that State Governors are prepared to consider their options (e.g., issuing waivers or temporary licenses) and take actions to address liability, licensure, and related issues in coordination with the Federal Government.	Observation 5.4: There is a lack of standard operating procedures for filling resource gaps through sources other than the Federal Government.

Mission critical finding #3: The NLE 11 National Response Coordination Center (NRCC) did not adequately support this catastrophic incident response. For example, the NRCC staffing plan used during the exercise was insufficient for the size and scope of catastrophic response efforts. In addition, the staff did not have a good understanding of applicable concepts, plans, and procedures, such as the Response Management Group, National Incident Support Manual (NISM), and the development of the National Advanced Operational Plan (N-AOP). Also, very limited situational awareness was shared or maintained within the NRCC. A review of the NRCC's performance in NLE 11 is needed to identify and resolve gaps in staffing, training, polices, and procedures.	Observation 2.2.3: Players were not familiar with the National Incident Support Manual (NISM) and the differences between incident support and incident management protocols. Observation 2.2.5: The interdependencies and coordination between the NRCC sections were unclear to players.
Mission critical finding #4: The significant, anticipated shortages of gasoline and diesel fuel were not fully addressed during the exercise. A national framework or operational plan is needed to identify fuel requirements and sources, address transportation and distribution challenges, and address any related legal issues.	N/A: This mission critical finding was struck from the final list.
Mission critical finding #5: There were not adequate processes to request and obtain lifesaving/life-sustaining support from the private sector. A strategy is needed to fully integrate the private sector into the national response coordination structure and ensure there are processes and procedures for identifying, requesting, and delivering needed resources from the private sector.	Incorporated into several observations, including: • Observation 1.5 • Observation 2.5.2 • Observation 2.5.4 • Observation 7.4
Mission critical finding #6: There were not enough available, trained personnel for staffing mass care services for the general population, functional needs population, medical needs (physical/psychological) population, and pets in this catastrophic scenario. A strategy is needed to identify requirements and personnel resources, and ensure there are mechanisms in place to effectively match resources to identified needs in times of emergency.	Observation 4.7: There are inadequate available, trained personnel in the impacted area for staffing mass care services for the general, functional needs, medical needs, and pet populations for this catastrophic scenario.
Mission critical finding #7: Critical gaps in achieving communications after a catastrophic event were not fully addressed during the exercise. A strategy is needed to ensure that the Federal Government can effectively communicate with populations without power or access to modern technologies as well as ensure effective communication among and within its D/As.	Observation 1.4: The process for prioritization and allocation of communications resources was not fully explored, and cannot be validated. Observation 1.5: There were duplicative efforts to report and share emergency telecommunications information among government and private industry stakeholders.

Mission critical finding #8: Existing plans and coordination mechanisms did not support the transportation and distribution of lifesaving and life-sustaining personnel and resources. A review of the current processes and procedures for transportation and movement coordination is needed to identify gaps and improvements in coordinating ground operations and air-space management, communicating priority transportation routes, and facilitating the distribution of resources from nontraditional sources (such as meals and water from the private sector).	Observation 5.5: The Transportation and Movement Coordination Group (T&MCG) lacked the resources necessary to support their mission.
Mission critical finding #9: Differing assumptions by Federal D/As about which Federal plans and annexes required activation led to uncertainty about the specific response actions that could be taken and the authorities in place. Many responding Federal D/As waited for activation of the National Response Framework (NRF) Catastrophic Incident Supplement (CIS), while others operated under the Federal Interagency Response Plan – Earthquake 2011 (FIRP-EQ 2011). The relative purpose and roles of these Federal plans require further clarity so that Federal D/As have a shared understanding of which plans are applicable in specific situations.	Observation 2.3.2: Players were uncertain if the FIRP-EQ 2011 had been activated, and what that meant for their immediate response activities
Mission critical finding #10: Information technology (IT) problems—such as capacity limitations on e-mail inboxes and non-standardized e-mail messaging conventions—created significant delays in submitting and processing requests for lifesaving and life-sustaining resources. A government-wide strategy is needed to facilitate intergovernmental e-mail communication.	Observation 2.5.6: The combination of e-mail and the Homeland Security Information Network (HSIN) was insufficient to support and manage an incident of this size and magnitude.

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APPENDIX F: ACRONYMS

Table F-1. Acronyms

Acronym	Definition
AABB	American Association of Blood Banks
AAR	After Action Report
ADA	Americans with Disabilities Act
ADEM	Arkansas Department of Emergency Management
AFI	Area For Improvement
AM	Amplitude Modulation
ARF	Action Request Form
ASH	American Society of Hematology
ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
BEOC	Business Emergency Operations Center
BOP	Federal Bureau of Prisons
CASF	Contingency Aeromedical Staging Facility
CAT	Crisis Action Team
CBP	Customs and Border Protection
CDC	Centers for Disease Control and Prevention
CIP	Critical Infrastructure Protection
CIRs	Critical Information Requirements
CLC	Corporate Lodging Consultants
CONOPS	Concept of Operations
COP	Common Operating Picture
D/A	Department/Agency
DASF	Disaster Aeromedical Staging Facility
DDTF	Direct Distribution Task Force
DEC	Disaster Emergency Communications Division (FEMA)
DHS	Department of Homeland Security
DHS/OHA	Department of Homeland Security/Office of Health Affairs
DHS/IP	Department of Homeland Security/Office of Infrastructure Protection
DHS/I&A	Department of Homeland Security/Office of Intelligence and Analysis
DHS/IGA	Department of Homeland Security/Office of Intergovernmental Affairs
DHS/OLA	Department of Homeland Security/Office of Legislative Affairs
DHS/PLCY	Department of Homeland Security/Office of Policy
DHS/OPS	Department of Homeland Security/Operations Coordination and Planning
DLA	Defense Logistics Agency
DMAT	Disaster Medical Assistance Team
DMORT	Disaster Mortuary Operational Response Team
DoD	Department of Defense
DOI	Department of the Interior

Acronym	Definition
DOJ	Department of Justice
DOS	Department of State
DOT	Department of Transportation
DIRS	Disaster Information Reporting System
DRF	Disaster Relief Fund
DNDO	Domestic Nuclear Detection Office
DRG	Domestic Resilience Group
DSCA	Defense Support of Civil Authorities
EMG	Emergency Management Group
ENDEX	End of Exercise
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ESF	Emergency Support Function
FCC	Federal Communications Commission/Federal Coordinating Center
FDA	U.S. Food and Drug Administration
FE	Functional Exercise
FEMA	Federal Emergency Management Agency
FEMA/IA	FEMA International Affairs
FIRP-EQ 2011	Federal Interagency Response Plan – Earthquake 2011
FMS	Federal Medical Station
FNARS	FEMA National Radio System
FNSS	Functional Needs Support Services
FSIS	Food Safety and Inspection Service
GETS	Government Emergency Telecommunications Service
GIS	Geographic Information System
HHS	Department of Health and Human Services
HSIN	Homeland Security Information Network
HUD	U.S. Department of Housing and Urban Development
IA	Individual Assistance
IA-TAC	Individual Assistance Technical Assistance Contract
IAS	International Assistance System
ICE	Immigration and Customs Enforcement
ICS	Incident Command Site
IMAT	Incident Management Assistance Team
INSARAG	International Search and Rescue Advisory Group
IOF	Initial Operating Facility
IRCT	Incident Response Coordination Team
IRSCC	Interagency Remote Sensing Coordination Cell
ISB	Incident Support Base
ITAU	Intake Tracking and Analysis Unit
JFO	Joint Field Office

Acronym	Definition
JIC	Joint Information Center
JLOC	Joint Logistics Operations Center
JTRB	Joint Telecommunications Resources Board
LMD	Logistics Management Directorate
LNO	Liaison Officer
LSCMS	Logistics Supply Chain Management System
MA	Mission Assignment
MARS	Military Auxiliary Radio System
MASF	Mobile Aeromedical Staging Facility
MCC	Movement Control Center
MERS	Mobile Emergency Response Support
MMCG	Medical Materiel Control Group
N-AOP	The National Advanced Operational Plan
NCC	National Coordinating Center
NCS	National Communications System
NDMS	National Disaster Medical System
NECLC	National Emergency Child Locator Center
NEFRLS	National Emergency Family Registry and Locator System
NESC	National Exercise Simulation Center
NGA	National Geospatial Intelligence Agency
NGO	Nongovernmental Organization
NJIC	National Joint Information Center
NICC	National Interagency Coordination Center
NICCL	National Incident Communications Conference Line
NISM	National Incident Support Manual
NLE 11	National Level Exercise 2011
NMSZ	New Madrid Seismic Zone
NMETS	National Mass Evacuation Tracking System
NOC	National Operations Center
NPPD	National Protection and Programs Directorate
NRCC	National Response Coordination Center
NRCS	National Response Coordination Staff
NRF	National Response Framework
NRF-CIS	National Response Framework Catastrophic Incident Supplement
NRS	National Recovery Seminar
NRTTX	National Recovery Tabletop Exercise
NSS	National Security Staff
NVOAD	National Voluntary Organizations Active in Disaster
OIG	DHS/Office of Inspector General
OMB	Office of Management and Budget
OPLAN	Operations Plan

Acronym	Definition
OPG	Order Processing Group
ORR	FEMA/Office of Response & Recovery
PAGER	Prompt Assessment of Global Earthquakes for Response
Pets MAC	Pets Multi-Agency Coordination System
PFO	Principal Federal Official
PICCL	Private Sector Incident Communications Line
POD	Points of Distribution
PSD	Private Sector Division
PSMA	Pre-scripted Mission Assignment
RATS	Resource Allocation Tracking System
RAW	Resource Allocation Workshop
RCB	Resource and Capability Branch
RFI	Request for Information
RRCC	Regional Response Coordination Center
RSS	Resource Support Section
S	Strength
SA	Situational Awareness
SAR	Search and Rescue
SAS	Situational Awareness Section
SEOC	State Emergency Operations Center
SLB	Senior Leadership Briefing
SLG	Senior Leadership Group
SOC	Secretary's Operations Center
SOP	Standard Operating Procedure
TA	Technical Assistance
T&MCG	Transportation and Movement Coordination Group
TPFD	Time-Phased Force Deployment
TPM	Trading Partner Management
TSA	Transportation Security Administration
TSU	Transportation Support Unit
UACG	Unified Area Coordination Group
UACS	Unified Area Coordination Staff
UCG	Unified Coordination Group
USG	United States Government
US&R	Urban Search and Rescue
US&R ISTs	Urban Search and Rescue Incident Support Teams
USACE	United States Army Corps of Engineers
USAID	United States Agency for International Development
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USGS	U.S. Geological Survey

Acronym	Definition
USMS	U.S Marshals Service
USNORTHCOM	U.S. Northern Command
USTRANSCOM	U.S. Transportation Command
VA	U.S. Department of Veterans Affairs
VTC	Video teleconference
WC	Whole Community
WPS	Wireless Priority Service