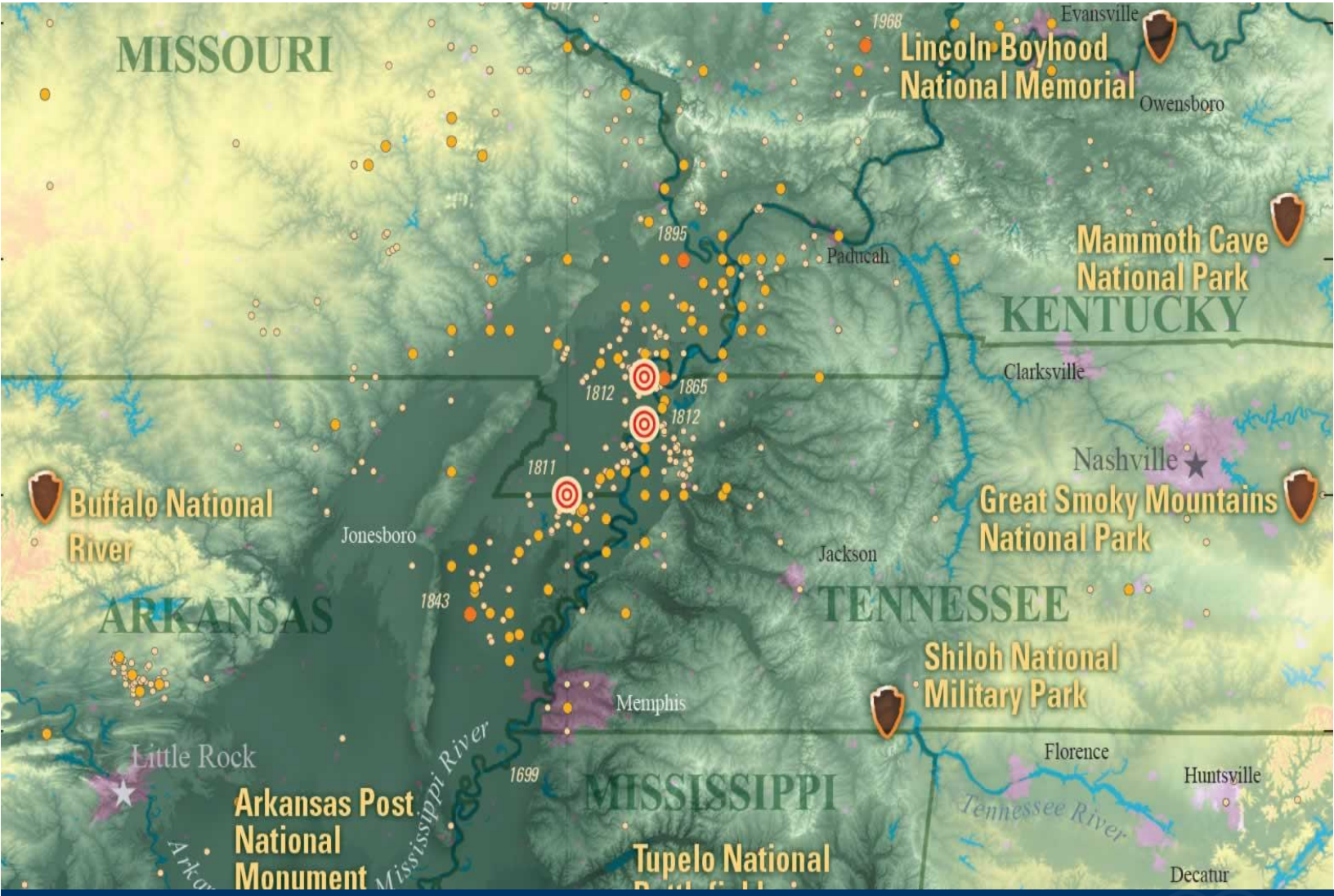


Central United States Earthquake Consortium
New Madrid Seismic Zone

Earthquake Tabletop Exercise

March 20, 2019

Situation Manual

NATIONAL EXERCISE PROGRAM

HANDLING INSTRUCTIONS

This document serves as the *Central United States Earthquake Consortium (CUSEC) New Madrid Seismic Zone (NMSZ) Situation Manual* for the CUSEC NMSZ Tabletop Exercise. The Situation Manual (SitMan) reflects the information provided to the exercise planning team as of the date of publication and may be modified prior to execution at the direction of the Exercise Director.

This document should be handled in accordance with appropriate directives and guidelines as prescribed by the exercise sponsors listed below. Reproduction of this document, in whole or in part, is prohibited without prior approval.

For more information on this exercise, please consult the following points of contact:

Jim Wilkinson

Executive Director

Central United States Earthquake Consortium

jwilkinson@cusec.org

Bobby Gillis, MA

Planning Section Supervisor

Kentucky Emergency Management

100 Minuteman Pkwy.

Frankfort, KY 40601

bobby.j.gillis.nfg@mail.mil

Ted Robinson, MEP

Exercise Program Manager

National Exercise Division

Federal Emergency Management Agency

400 C Street, SW

Washington DC, 20024

teddy.robinson@fema.dhs.gov

TABLE OF CONTENTS

EXERCISE OVERVIEW

Exercise Name	Central United States Earthquake Consortium New Madrid Seismic Zone Tabletop Exercise
Exercise Date	March 20, 2019 – 9 A.M. – 4:00 P.M. (Central Standard Time)
Scope	Participation level: Executive leadership from CUSEC and Member States (State Directors, Planning Chiefs, ESF leads, and Resource Management staff) including Federal supporting partners, private sector. The exercise will be policy focused.
Mission Area(s)	Protection, Response
Core Capabilities	▪ Intelligence and Information Sharing ▪ Operational Coordination
Objectives	1. Test information sharing and information integration as well as agreements and relationships established to address energy/fuel prioritization, main supply route command and control, evacuation routes, and state geology resources. 2. Discuss operational reporting, tracking, and management of deployed EMAC resources.
Threat/Hazard	Earthquake
Scenario Overview	The Tabletop Exercise discussion will be centered a 7.7 magnitude earthquake scenario that occurs near the southern fault line in the New Madrid Seismic Zone. The earthquake causes significant damage throughout the immediate area northeast and southwest of the epic center. The earthquake impact areas in Alabama, Arkansas, Indiana, Illinois, Kentucky, Missouri, Mississippi, and Tennessee.
Participating Organizations	See **Appendix A** for a complete list of Participating Organizations.

Points of Contact

Bobby Gillis, MA
Planning Section Supervisor
Kentucky Emergency Management
100 Minuteman Pkwy.
Frankfort, KY 40601
bobby.j.gillis.nfg@mail.mil

Ted Robinson, MEP
Exercise Program Manager
National Exercise Division
Federal Emergency Management Agency
400 C Street, SW
Washington DC, 20024
teddy.robinson@fema.dhs.gov

AGENDA

New Madrid Seismic Zone Earthquake Tabletop Exercise

March 20, 2019

9:00 A.M. – 4:00 P.M.

Springfield, IL

Event	Presenter/Facilitator	Time
Registration		08:30 a.m.
Welcome & Opening Remarks	Alicia Tate-Nadeau, Dir, *Illinois EMA* James Joseph, RA, *FEMA Region V* Michael Dossett, Dir, *Kentucky EM*	09:00 a.m.
Administrative Remarks	Bobby Gillis, Planning Section Supervisor Kentucky Emergency Management Agency	09:20 a.m.
Exercise Guidelines & Overview	Ted Robinson, *FEMA, NED, Facilitator*	09:30 a.m.
Additional Resource Briefings	Martha Kopper, *Geohazards Supervisor* Greg Shanks, *Kentucky Emer. Mgmt. Agency*	10:00 a.m. 10:15 a.m.
Situational Assessment	Ted Robinson, *FEMA, NED*	10:30 a.m.
BREAK		**11:00 a.m.**
Module 1 Scenario Update	Ted Robinson, FEMA, NED	11:15 a.m.
Module 1 Group Discussion: Information Sharing, Operational Reporting, Tracking and Management	Table Leader	11:20 a.m.
Module 1 Plenary: Discussion Questions	Ted Robinson, FEMA, NED	11:40 a.m.
LUNCH		**12:30 p.m.**

Module 2 Scenario Update	Ted Robinson, FEMA, NED	1:30 p.m.
Module 2 Group Discussion: Energy/Fuel Prioritization, Transportation, Geologist Resources	Table Leader	1:40 p.m.
Module 2 Plenary: Discussion Questions	Ted Robinson, FEMA, NED	2:10 p.m.
ENDEX		**2:45 p.m.**
BREAK		**2:45 p.m.**
Hotwash	Ted Robinson, FEMA, NED	3:00 p.m.
Closing Remarks	**Jim Wilkinson, Executive Director, CUSEC**	**3:30 p.m.**

GENERAL INFORMATION

Introduction

The New Madrid Seismic Zone (NMSZ) is a series of active faults in a weak spot known as the Reelfoot Rift. It extends 150 miles southward from Cairo, Illinois, to Marked Tree, Arkansas. Large earthquakes—estimated 7.0 magnitude—occurred in 1811-1812. There is an average of more than 200 measured events per year with the potential to produce future large earthquakes.

The region of potential impact due to earthquake activity in the NMSZ is comprised of eight states: Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri and Tennessee. Moreover, the Wabash Valley Seismic Zone (WVSZ) in southern Illinois and southeast Indiana and the East Tennessee Seismic Zone in eastern Tennessee and northeastern Alabama constitute significant risk of moderate-to-severe earthquakes throughout the central region of the USA.

The Central United States Earthquake Consortium New Madrid Seismic Zone Tabletop Exercise will examine the ability of the Consortium to effectively respond to a 7.7 magnitude earthquake. The TTX will take place on March 20, 2019 from 9 A.M. to 4 P.M. (Central Standard Time). The exercise will be held in Springfield, IL.

Objectives

The following exercise objectives in **Table 1** describe expected outcomes for the CUSEC NMSZ TTX. The objectives are linked to core capabilities, which are distinct critical elements necessary to achieve the specific mission area(s).

Table 1: Exercise Objectives and Core Capabilities

Exercise Objective	Core Capability
1. Test information sharing and information integration as well as agreements and relationships established to address energy/fuel prioritization, main supply route command and control, evacuation routes, and state geologist resources.	▪ Operational Coordination ▪ Intelligence and Information Sharing
2. Discuss operational reporting, tracking, and management of deployed EMAC resources.	▪ Operational Coordination

Assumptions and Artificialities

In any exercise, assumptions and artificialities are necessary to complete play in the time allotted and/or to account for logistical limitations. Exercise participants should accept that assumptions and artificialities are inherent in any exercise and should not permit these considerations to undermine their participation.

Assumptions

Assumptions constitute the implied factual foundation for the exercise and, as such, are assumed to be present before the exercise starts. The following assumptions apply to the exercise:

- The exercise is evaluated. Although individual organizations and participants are not graded, exercise evaluators will assess the collective performance of participating organizations in terms of their capabilities, plans, and processes.
- The exercise scenario is plausible, and events occur as they are presented.
- Players should respond to the scenario using their **knowledge of current plans, capabilities**, and insights derived from relevant training.

Artificialities

During this exercise, the following artificialities apply:

- Players should not focus on the details of the scenario, but rather on the "big picture" concepts depicted. The scenario information is intended only to **stimulate conversation** and not represent all information that would be available in a real-world incident. Treat the **scenario as plausible, assume events occur as presented, and accept the scenario information** as the full extent of information available to the players at the time.
- This exercise will be held in an **open, low-stress, no-fault environment**. Varying viewpoints, even disagreements, are expected.
- There is no **"hidden agenda"** nor are there any trick questions.
- The scenario assumes certain player actions as it moves through each phase. Players should first discuss the actions stipulated by the scenario. However, players are welcome to engage in "what if" discussions of alternative scenario conditions.
- **Decisions are not precedent-setting** and may not reflect an individual organization's final position on a given issue. This exercise is an opportunity to discuss and present multiple options and possible solutions. Creativity is encouraged.
- Issue identification is not as valuable as suggestions and recommended actions that could improve recovery efforts. **Focus on problem-solving and identification of solutions**, whether structural, program-based, or policy-oriented.

PARTICIPANT INFORMATION AND GUIDANCE

Participant Roles and Responsibilities

The term *participant* encompasses many groups of people, not just those playing in the exercise. Groups of participants involved in the exercise, and their respective roles and responsibilities, are as follows:

Facilitators

Facilitators guide exercise play and are responsible for ensuring that participant discussions remain focused on exercise objectives. They are responsible for making sure everyone feels included in the conversation and has the opportunity to participate. They also provide additional information and resolve questions as required.

Players

Players are personnel who have an active role in discussing their real-world roles and responsibilities related to the issues and hazards presented during the tabletop exercise. Players respond to the situation presented based on current plans, policies, and procedures and discuss or initiate actions in response to the simulated emergency.

Evaluators

Evaluators are responsible for observing and documenting all key decisions and discussion points made throughout the tabletop exercise to identify strengths and areas for improvement related to exercise objectives.

Observers

Observers view selected segments of the tabletop exercise from a designated observation area and must remain within the observation area throughout the exercise. Observers do not directly participate in the exercise. However, they may support the development of player responses during the discussion by asking relevant questions or providing subject matter expertise.

Support Staff

The exercise support staff includes individuals who perform administrative and logistical support tasks during the tabletop exercise (e.g., registration, catering, etc.).

EXERCISE STRUCTURE

Tabletop Exercise Structure

The CUSEC NMSZ TTX consists of five main activities: Two 15-minute Resource Briefings, one 30-minute Situational Assessment Overview; and two 60-minute Exercise Modules followed by a 15-miunte Hotwash & Summary of Conclusions. The exercise facilitator will provide an overview of the scenario, and introduce a video update of the current situation. Players will respond to facilitated discussion questions that are organized according to the exercise session. Discussions should focus on key actions, activities, and decisions that each player would perform given the earthquake scenario conditions.

- **15-minute** resource brief by Arkansas State Geologist on state geology resources
- **15-minute** resource brief by Kentucky Emergency Management Agency on the funding reimbursement process and Mission Readiness Packages
- **30-minute Scenario Assessment Overview** will focus on reviewing the Scenario Ground Truth to support decision making
- **Module One Table discussion and plenary** will focus on player response to discussion questions that address exercise objective 1: Test information sharing and information integration as well as agreements and relationships established to address energy/fuel prioritization, main supply route command and control, evacuation routes, and state geologist resources.
- **Module Two Table discussion and plenary** will focus on player response to discussion questions that address exercise objective 2: Discuss operational reporting, tracking, and management of deployed EMAC resources.

Exercise Guidelines

This exercise will incorporate a scenario-based format informed and guided by the exercise objectives. The Sessions, and associated discussion questions, support achievement of the exercise objectives by initiating discussion, facilitating decision-making, and assisting participants in their arrival of appropriate response outcomes based on the exercise scenario. Participants will be acting in real-world roles when considering the scenario, offering observations and discussing decision-making processes. This approach allows the discussion to focus on situations within a moving timeline, and for participants to contribute to the discussion from the perspective of their role in this scenario. The facilitator will ensure that the scenario moves along at an appropriate pace and that all participants have an opportunity to contribute throughout the exercise.

EXERCISE EVALUATION

Exercise Evaluation

Evaluation of the tabletop exercise will be based on participant ability to address exercise-specific objectives and aligned capabilities. Evaluation provides an objective overview of participant discussion during the exercise and identifies key issues and strengths related to the exercise objectives. Accurate, systematic, and practical evaluation is an essential component of a successful exercise.

Hotwash

- Participate in the hot wash at your venue with controllers and evaluators.
- Complete the Participant Feedback Form. This form allows players to comment candidly on emergency response activities and exercise effectiveness. Provide the completed form to a controller or evaluator.
- Provide any notes or materials generated from the exercise to their controller or evaluator for review and inclusion in the AAR/IP.

After-Action Report/IP (AAR/Improvement Plan)

The AAR summarizes key information related to evaluation. The AAR primarily focuses on the analysis of core capabilities, including capability performance, strengths, and areas for improvement. AARs also include basic exercise information, including the exercise name, type of exercise, dates, location, participating organizations, mission area(s), the specific threat or hazard, a brief scenario description, and the name of the exercise sponsor and POC.

Improvement planning is the process by which the observations recorded in the AAR are resolved through development of concrete corrective actions, which are prioritized and tracked as a part of a continuous corrective action program.

The IP identifies specific corrective actions, assigns them to responsible parties, and establishes target dates for their completion. It is created by elected and appointed officials from the organizations participating in the exercise and discussed and validated during the AAM.

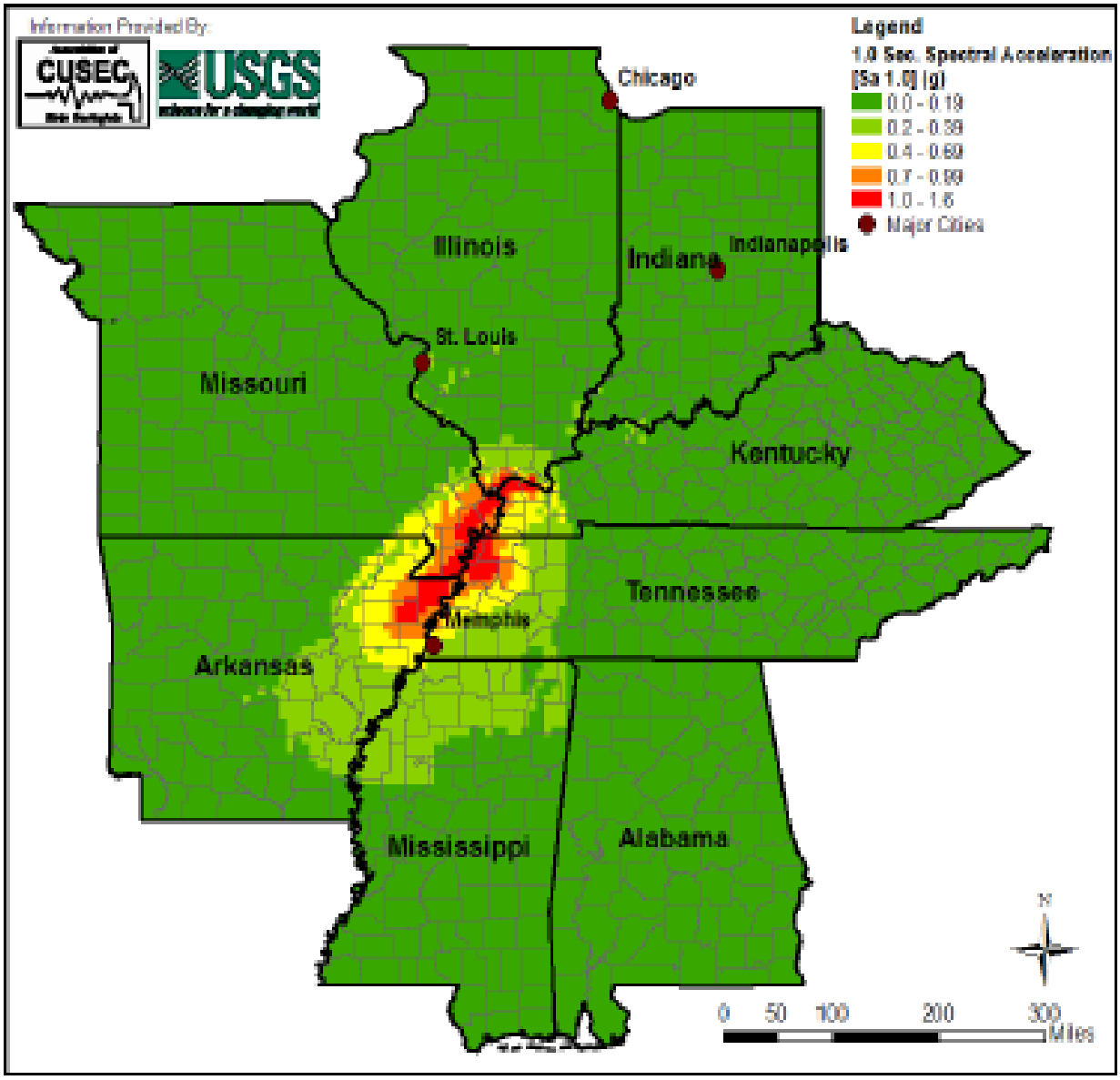
After-Action Meeting

The AAM will allow the Lead Evaluator, members of the Exercise Planning Team, and decision- and policy-makers of participating organizations to debrief the exercise and review the draft AAR/IP. The AAM will provide an opportunity to interact with, discuss, validate, and refine the observations and corrective actions outlined in the draft AAR. The AAM should be an interactive session, providing the opportunity to validate the observations and corrective actions in the draft AAR/IP and determine associated responsibilities and timelines.

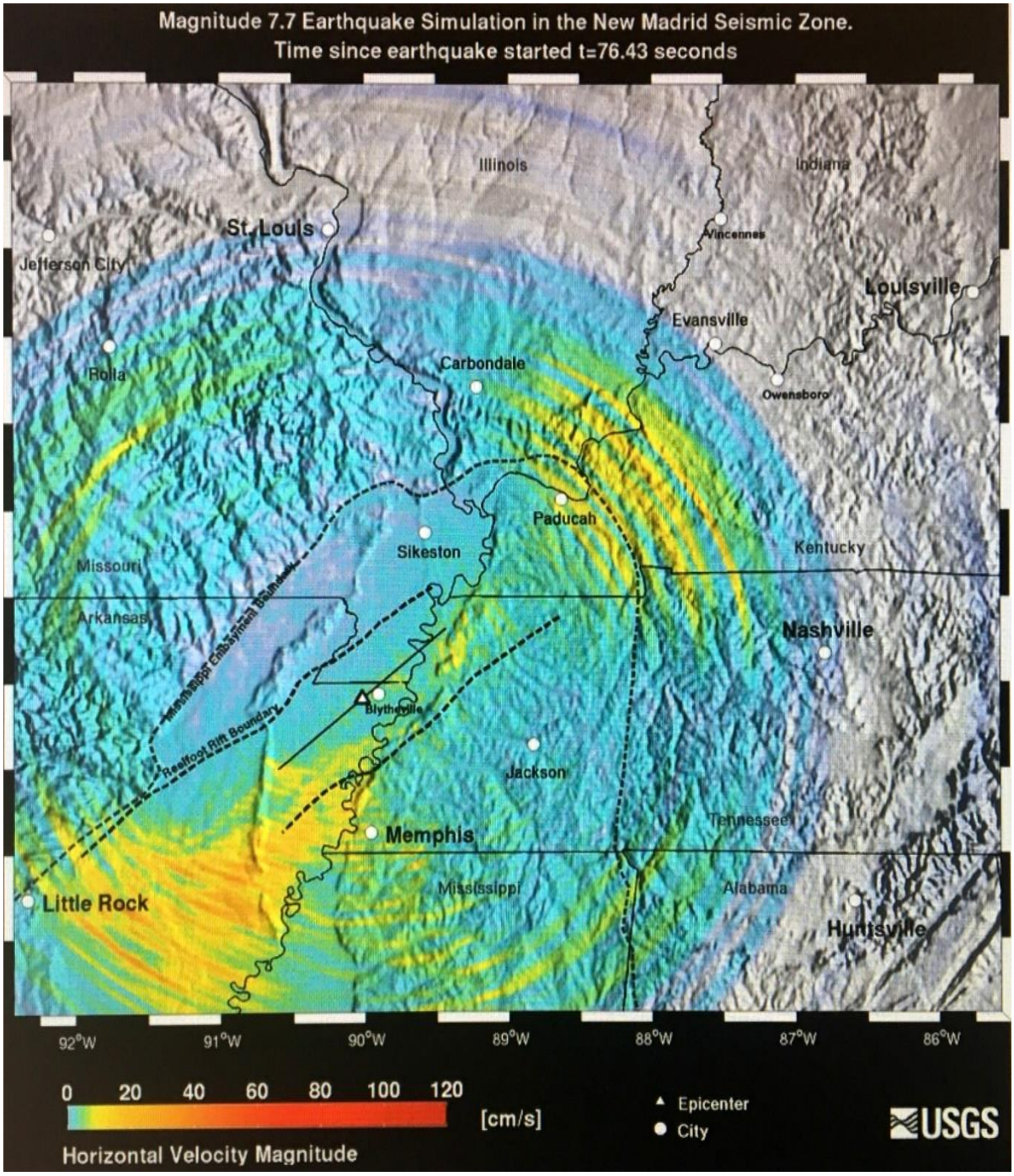
SCENARIO DEVELOPMENT

Opening Scenario

At **0700 a.m. (CST)** on March 20, a magnitude 7.7 earthquake was recorded in the central U.S. region near the southern section of the New Madrid Seismic Zone. The United States Geological Survey is reporting the epicenter appeared to be just southwest of Blytheville, Arkansas and seismic waves traveled outward in all directions. This earthquake produced successive waves of strong ground shaking that began moving along the Reelfoot rift and appeared to be focused northeast toward Paducah, Kentucky and southwest toward Little Rock, Arkansas. The USGS has also reported that the earthquake produced long-period shaking that lasted up to 30-45 seconds in some areas, including Memphis, Little Rock, and Paducah.



Magnitude 7.7 Earthquake Occur in New Madrid Seismic Zone



Earthquake Seismic Waves at New Madrid March 20, USGS

MODULE 1: SCENARIO UPDATE

Scenario

It has been 24 hours since a magnitude 7.7 earthquake rocked the area within the New Madrid Seismic Zone. Significant damage has been reported within a 420 mile area from Little Rock, Arkansas north to Evansville, Indiana.

Initial priority focus is on life-saving measures, search and rescue, medical evacuation, ruptured gas lines, down live power lines, fire suppression, hazardous materials and chemicals, etc.

Assumptions to Consider

- The magnitude of the earthquake has created geographic competition for resources. Regional mutual aid fire, EMS, and law enforcement resources are limited as other jurisdictions face similar circumstances.
- Federal mobilization of resources may take 24 to 48 hours to arrive in the affected areas, and there may not be enough resources to service all affected areas initially.
- Disrupted communications systems, overwhelmed first responders, and the overall magnitude of the situation may slow the collection and sharing of the initial situation assessment.
- Damage to critical City facilities (EOC, DOCs, and fire stations) may require alternative arrangements to manage response services.
- Damage to water and communications systems may challenge EMS operations.
- The number of people trapped in buildings may initially exceed capacity to respond.
- Local medical facilities are damaged. Surviving hospital capacity may be inadequate to treat casualties and other medical emergencies

Module 1 Discussion Questions

1. During the first 24 hours following the earthquake, what are your agency's role, immediate concerns and priorities?
2. Discuss what systems/platforms your agency uses to collect Essential Elements of Information to support decision-making? Does a need exist for interoperability with other systems, WebEOC, ArcGIS-based, etc.?
3. Discuss what specific critical information/data elements for transportation related Essential Elements of Information will your organization need in order to drive response efforts following a catastrophic earthquake event? (Air, Rail, Roads, Waterways, Fuel)
4. What partnerships currently exist to establish and manage a fuel supply chain? How will fuel be sourced to support initial response efforts? What is the private sectors role?
5. If key bridges, highways and rail leading into the area near the epicenter received moderate to severe damage, how would resources be transported?
6. How will the operational status of main supply routes be determined? How will this information be shared? How might reoccurring aftershocks affect on-going operations?
7. In addition to distributing fuel at PODs (Fuel Points of Distribution), what other methods are in place to support distribution efforts. What is the private sector's role?
8. What state geology resources are available to support response efforts? Discuss authorities and the responsibility for coordination and management of the state level U.S. Geological Survey (USGS) Geospatial Data Clearinghouse? Discuss how this information is shared with Emergency Management Agencies and other partners.
9. Discuss fuel-related waivers that might be available in the first 24 to 48 hours after the earthquake?

MODULE 2: SCENARIO UPDATE

Scenario

It has been 72 hours since the magnitude 7.7 earthquake occurred in the area within the New Madrid Seismic Zone. Urban Search and Rescue Teams and other resources have arrived and continue to deploy throughout the impacted areas. Missouri, Arkansas, Tennessee, and Kentucky have requested EMAC A-Teams be deployed to their states. FEMA/DHS has requested a National EMAC Liaison Team (NELT). FEMA/DHS has also requested a Regional EMAC Liaison Team (RELT) in Region IV. A number of main supply routes and evacuation routes have been cleared. Air transport of resources to established staging areas are also underway.

State disaster response resources in Missouri, Arkansas, Tennessee, and Kentucky are exhausted due to the widespread geographic impact of the earthquake and are not available to support EMAC requests outside of their state.

EMAC®
Emergency Management Assistance Compact

Discussion Questions

1. Discuss how resources are requested through the EMAC? What processes exist to reduce the time between resource requests to deployment?
2. How are resources tracked once request have been filled and assets deployed?
3. How will an event that causes geographically dispersed damage across neighboring states affect resource requests and sourcing? Discuss the challenges of moving personnel vs equipment in this environment.
4. Who manages the command and control of EMAC resources once they receive an EMAC Mission Order Authorization and arrive in the deployment area?
5. Discuss EMAC reimbursement process. Can federally reimbursed funds to cover EMAC reimbursement?

ENDEX

Hotwash – Summary of Outcomes

1. To what degree did the exercise achieve the elements of Objective 1 by facilitating for the discussion of:
   - Information sharing and integration
   - Relationships to address Energy/Fuel prioritization
   - Main Supply Route
   - Command and Control
   - Evacuation Routes
   - State Geologist Resources
2. To what degree did the exercise achieve the elements of Objective 2 by facilitating for the discussion of EMAC resources:
   - Operational Reporting
   - Tracking
   - Management

Closing Remarks

Michael Dossett

Director, Kentucky Division of Emergency Management

Chairmen, CUSEC Board of Directors

Jim Wilkinson

Executive Director

Central United States Earthquake Consortium

APPENDIX A: PARTICIPATING ORGANIZATIONS

ORGANIZATION	REPRESENTATIVE	ROLE/SECTOR
Alabama Department of Economic and Community Affairs	Emergency Management Coordinator	State Emergency Management
Alabama Power Company	Power Delivery Storm Center Director	Other
American Red Cross	State Emergency Management Liaison	ESF Representative
Arkansas Department of Emergency Management	Response & Recovery Division Director	State Emergency Management
Arkansas Department of Transportation	Staff Maintenance Engineer	ESF Representative
Arkansas Geological Survey	Geology Supervisor	State Geological Survey
CUSEC	Associate Director	Other
CUSEC	Executive Director	Other
Dept. of Energy	ESF12 Region IV Regional Coordinator	Dept. of Energy
DHS	NG Military Advisor	Other
DHS / FEMA	Regional Administrator	FEMA
DHS/FEMA R-IV	Plans Chief	FEMA
DNR/MGS	Division Director	State Geological Survey
DNR/MGS	Chief, Geologic Resources Section	State Geological Survey
Federal Highway Administration	ER Coordinator/Bridge Engineer	ESF Representative
FEMA	National Exercise Division	FEMA

FEMA Exercise Branch	Support	FEMA
FEMA Exercise Branch		FEMA
FEMA Exercise Branch	Lead Support to Shaken Fury 2019	FEMA
FEMA NED	Exercise Program Manager	FEMA
FEMA Region 7	Earthquake Program Manager	FEMA
FEMA Region V	Response Division Director	FEMA
FEMA Region V	Operational Planner	FEMA
FEMA RVII	REO	FEMA
G&H International, Inc.	Support for DHS S&T	Other
IEMA	Exercise Officer	State Emergency Management
IEMA-DOIT	GIS Specialist	State Emergency Management
IL Emergency Management Agency	Manager, Applications Development and GIS	State Emergency Management
Illinois Emergency Management Agency	Exercise Planner	State Emergency Management
Illinois National Guard	Interagency and Intergovernmental Liaison to IEMA	State National Guard
Illinois National Guard	BG, Dir. of Joint Staff	State National Guard
Indiana Geological and Water Survey	Outreach Coordinator	State Geological Survey
INDOT	Dir. Emergency Planning & Response	ESF Representative
Kentucky Emergency Management	Director	State Emergency Management

Kentucky National Guard	Director of Joint Staff	State National Guard
KYEM	Ops & Planning Chief	State Emergency Management
KYEM	Assistant Director of Operations	State Emergency Management
KYEM	Planning Section Supervisor	State Emergency Management
KYEM		State Emergency Management
KYNG	Director of Military Support	State National Guard
MABAS-IL	Operations Branch Chief	Other
MABAS-IL	SEOC LNO	Other
MABAS-Illinois	Deputy Operations Branch Chief	ESF Representative
MABAS-Illinois	Operations Branch Chief	Other
Missouri National Guard	Chief, Plans and Exercises	State National Guard
Mutual Aid Box Alarm System (MABAS)	Operations Branch Chief	Other
Shawnee Preparedness and Response Coalition	President	ESF Representative
South Carolina Emergency Management Division	Operational Planner	State Emergency Management
TEMA	Exercise Specialist	State Emergency Management
TEMA		State Emergency Management
US Army Corps of Engineers, Memphis District	Emergency Management	Other
USASMDC/NGB	DAART Operations	Other