



STATE OF ARKANSAS
GOVERNOR ASA HUTCHINSON
DEPARTMENT OF PUBLIC SAFETY
DIVISION OF EMERGENCY MANAGEMENT



JAMI COOK
SECRETARY

A.J. GARY
DIRECTOR

November 15, 2021

The Honorable Terry Rice, State Senator
The Honorable Jeff Wardlaw, State Representative
Co-Chairs, Arkansas Legislative Council
c/o Bureau of Legislative Research
Room 315, State Capitol Building
Little Rock, AR 72201

Dear Senator and Representative:

Enclosed is the annual Arkansas Earthquake Program report as required per ACA 12-77-107. We are providing this report in an electronic version and can provide a print version upon request.

The report was submitted on October 26, 2021, but incorrectly addressed to Senator Bledsoe as we were unaware that Senator Rice is the current senate co-chair on the Council. Please excuse the error and do not hesitate to contact me if I, or my staff, may be of further assistance.

Sincerely,

A.J. Gary
Director and State Homeland Security Advisor

To the Co-chairs of the Legislative Council:

In accordance with the House Bill 2032 amending Act 711, the Arkansas Division of Emergency Management (ADEM) hereby reports the following activities of the Arkansas Earthquake Program as they relate to specific requirements of the bill:

A. Continued assessment from proper scientific authorities of the seismic risk to the state:

In 2021, ADEM maintained its relationship with the Arkansas Department of Energy and Environment, Division of Geological Survey (AGS) and the State Fire Marshall through meetings, email, phone correspondence, and educational events.

- ADEM and AGS share responsibilities for the Arkansas Governor's Earthquake Advisory Council (GEAC) meetings.
- ADEM reaches out to the State Fire Marshall for subject matter expertise – most often to answer questions about the Arkansas Building Code.
- The ADEM and AGS continue to interact frequently. Activities that have involved both agencies were INSPEct ARKansas (INSPARK) trainings, educational/ STEM events, and the regular discussion of possible projects that might be undertaken with the funding available from the National Earthquake Hazard Reduction Program (NEHRP). ADEM and AGS work together to spread earthquake awareness and mitigation throughout the state, cooperatively staffing booths at preparedness events. (A list of conference calls, presentations, and meetings begins on page 7.)

Department of Energy, Ground Water Protection Council Grant

The Arkansas Geological Survey began working with the University of Memphis as a part of the Department of Energy, Ground Water Protection Council funded grant of \$10,000. The project is deploying a small seismic array around the El Dorado, Arkansas area (and elsewhere), an area known for oil and gas production since the 1920s. The area has experienced periodic seismicity in the 1930s, 1980s, in 2007 and more recently. It is unknown whether these earthquakes were related to human activity. One cluster of earthquakes south of El Dorado in the 1980s was linked to a saltwater disposal injection well by a researcher in 1991. The project incorporates the data from these past earthquakes with the most recent February, 2020 and May, 2021 earthquakes in order to determine the velocity (how fast a point on the ground is shaking as a result of an earthquake) of earthquakes in the El Dorado area.

B. Training and education of the state and local government officials, employees, and citizens of Arkansas regarding preparation and protective measures that can be taken before, during, and after an earthquake:

In 2021, ADEM hosted courses focused on building capabilities to support response to earthquakes. Below is a list of classes offered by the state to all citizens, government officials and employees.

- December 8, 2020: ATC-20, Rapid Visual Inspection Training
- April 29, 2021: ATC-20, Rapid Visual Inspection Training
- June 1, 2021: Cal OES Safety Assessment Program (SAP) Training
- July 9, 2021: ATC-20, Rapid Visual Inspection Training

In 2021, ADEM promoted the following courses that FEMA, CUSEC, and the Applied Technology Council sponsored and offered to citizens, government officials, and employees.

- February 10, 2021: Web-Based Training on Reducing Earthquake Risk in the Classroom and Beyond (FEMA's National Earthquake Technical Assistance Program)
- February 17, 2021: FEMA P-2018 Seismic Evaluation of Older Concrete Buildings for Collapse Potential
- February 24, 2021: New Madrid Earthquake Resilience Webinar #2
- February 25, 2021: Technologies for Earthquake Resilience (CUSEC)
- May 13, 2021: FEMA P-154, Rapid Visual Screening of Buildings for Potential Seismic Hazards (pre-disaster), and ATC-20, Post Earthquake Safety Evaluation of Buildings (post-disaster)
- May 27, 2021: FEMA P-1000, Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety
- June 3, 2021: FEMA 395, Earthquake Safety and Mitigation for Schools
- June 24, 2021: FEMA P-767, Earthquake Mitigation for Hospitals

C. Planning coordination, guidance, and assistance to all state and local government officials in preparation for, response to, and recovery from earthquakes:

INSPECT ARKANSAS (INSPARK)

Arkansas has had a training program for building inspection in place for over twenty years. In October 2014, the earthquake program began working to better organize and utilize these trained building inspectors after a catastrophic earthquake. This included the creation of a new database, the execution of multiple classes to help certify building inspectors and the creation of a standard operating guide to document how Arkansas will identify and deploy teams of inspectors after an earthquake.

An INSPARK website has been developed (inspectarkansas.org) that allows members to access information, take reassessment tests, and learn more about mitigating damage from

earthquakes in the state. The Arc GIS Survey123 App, the primary means of data collection during trainings and real-life events, has been successfully integrated into the INSPARK Program. The Survey123 App information can be conveyed to the State Emergency Operations Center (SEOC) in real time during a disaster.

INSPARK leaders have been working to build a stronger relationship with the American Institute of Architects Arkansas (AIAAR) Chapter. AIAAR has established a Disaster Assistance Committee (DAC) whose role it will be to support ADEM and the INSPARK program. The committee will be looking at means to support members and member firms that suffer a loss from a disaster. DAC will also be working toward recruiting architects to join INSPARK and educating the architecture profession about natural and man-made hazards and what these architects can do to protect themselves, their families, and their offices from risks.

D. Coordination of earthquake program activities with comparable agencies of the federal government and other states:

Arkansas Governor's Earthquake Advisory Council

The Arkansas Governor's Earthquake Advisory Council (GEAC) meets bi-annually.

January 15, 2021 Virtual

- GEAC's Chairperson discussed the proposed legislation to add earthquake drills to North East Arkansas schools emergency drills has been turned over to Senator Missy Irvin who is part of the Safe Schools Legislation working group. Further information will be discussed at future GEAC meetings. (The legislation passed on March 3, 2021.)

AGS is working with the University of Memphis to determine seismic hazards (ground shaking, ruptures, landslides, and liquefaction) for parts of Pulaski and Lonoke counties. The geotechnical data the University is using was gathered from Entergy Arkansas. The study will attempt to acquire more data from boreholes from things like cellphone towers and bridges.

AGS is looking into the possibility of utilizing an intern to study the staging areas of North East Arkansas as identified in the State's Earthquake Plan. The study would gather material to assess the potential susceptibility of landslide and liquefaction at these sites.

On January 5, 2021, the President of the U.S. signed into legislation H.R. 8810 – 116th Congress, The National Landslide Preparedness Act. This act will establish a national program to identify and reduce losses from landslide hazards and establish a National 3D Elevation Program. It is Public Law 116-323. The United States Geological Survey (USGS) has been granted \$25 million, budgeted over the next three years, to fund the 3D Elevation Program.

There were eighty-one seismic events (five felt) in Arkansas in 2020, nineteen of which were in the New Madrid Seismic Zone. There were twenty-eight incidents near the town of Minard ranging from 2.2-2.6 magnitudes that were felt both locally and into MO and TN. There were also five events near Enola, AR within the Guy-Greenbrier Swarm, the greatest of which measured 2.5 on the Richter scale.

- The Federal Alliance of Safe Homes (FLASH) gave a presentation on their newly updated all hazards Ready Business/QuakeSmart tool kits. FLASH is a nonprofit, originally created by the Federal Emergency Management Agency (FEMA) to help all businesses, but with a focus on small business, set up business continuity plans. The presentation was meant to garner interest from the Counties in Arkansas to hold QuakeSmart workshops and to encourage business to utilize the toolkit. More information on FLASH can be found at https://flash.org/readybusiness/quake_smart.php.
- The Arkansas Division of Emergency Management (ADEM) described the mitigation projects that were undertaken in 2020. One of the successful multi-state projects was a series of Public Service Announcement (PSA) videos geared towards the great ShakeOut earthquake drill, which will be reused each year. ShakeOut is an excellent way to bring focus to Northeast Arkansas, the New Madrid Seismic Zone (NMSZ), and the threat of a devastating earthquake in Arkansas. Unfortunately, Arkansas saw a significant decrease in ShakeOut participation from the previous year due to Covid-19.

The National Earthquake Program Managers Meeting and many of the upcoming 2021 projects will be undertaken virtually. Information on upcoming trainings and information on Arkansas' Rapid Visual Inspection Team, INSPARK, can be found at www.inspectarkansas.org.

- The Central United States Earthquake Consortium (CUSEC) updated us on the new Consortium for Emergency Services Technology, which will be a regional information-sharing platform for CUSEC member States. He discussed CUSEC's roll in Earthquake Awareness Month, which is in February. Upcoming events are on their website at www.cusec.org.
- The keynote speaker was Faith Newton, Senior Manager of Emergency Preparedness at Walmart. Her presentation entitled *Global Emergency Management - Preparing for the Possibilities* described Walmart Incorporated's approach to Emergency Management. She discussed the Planning, Operations, and Response and Recovery efforts to protect their customers and 2.2 million associates before, during, and after a disaster. Walmart has six stocked disaster distribution centers, strategically located across the country to provide rapid response to struggling communities in the event of a natural disaster. Ms. Newton concluded by answering questions from the GEAC members.

July 20, 2021 Virtual

- GEAC's Chairperson discussed recent earthquakes and the different mechanisms used to record and analyze seismic data. Utilizing the most up to date scientific data allows communities to better understand the importance of preparing for a catastrophic earthquake.

The legislation to add earthquake drills to North East Arkansas schools' emergency drills has passed. Governor Hutchinson signed Bill 249 into law on March 29, 2021. The Act requires earthquake drills in areas susceptible to earthquakes in Arkansas' K-12 schools.

AGS is working with the University of Memphis on a geotechnical database in Eastern Arkansas. The Arkansas Electric Cooperative Corporation is providing geotechnical data that will be used to determine the seismic hazards (ground shaking, rupture, landslides, and liquefaction) in parts of Pulaski and Lonoke Counties.

An Earthquake Insurance Summit will be held in St. Louis, MO on September 28-29. The event will bring together leading voices in the insurance industry, regulatory industry, and government to focus on what needs to be done to "close the gap" on earthquake insurance coverage in the New Madrid Seismic Zone (NMSZ.) Register at Centralusquakesummit.org.

There have been twenty-six reported earthquakes in July 2021 so far. Nine were in the NMSZ, eleven in the Eastern Ozarks, four in Central/North Central Arkansas, and two in Northwest Arkansas.

- The State Earthquake Program Manager described the mitigation projects that were undertaken so far in 2021 and future projects aimed at encouraging the citizens of AR to prepare for a catastrophic earthquake. A new Earthquake Kiosk is available for loan to schools and organizations; it is a fun/interactive way to teach communities the history of earthquakes in Arkansas and how to prepare for them. Public Service Announcement (PSA) videos geared towards the Great ShakeOut Earthquake Drill (October 21, 2021) will be used to bring focus to Northeast Arkansas, the New Madrid Seismic Zone (NMSZ) and the threat of a devastating earthquake in Arkansas.

The National Earthquake Program Managers Meeting was held virtually June 15-17, 2021. The meeting brought together Program Managers from across the country along with guest speakers, several FEMA representatives, and the earthquake consortiums to discuss earthquakes and how to better prepare our communities.

ADEM held three ATC-20 trainings and a Cal OES Safety Assessment Program (SAP). These trainings prepare volunteers to rapidly inspect buildings following an earthquake. The leaders from rapid inspection teams from across the country will meet in St. Louis after the Insurance Summit on October 1, 2021 and will participate in an exercise on

October 2, 2021. Information on upcoming trainings and information on Arkansas' Rapid Visual Inspection Team, INSPARK, can be found at www.inspectarkansas.org.

- The Central United States Earthquake Consortium (CUSEC) discussed the approval of their 2021 Work Plan from FEMA and the possible effects of the budget cut that was imposed. CUSEC is partnering with Missouri's Department of Emergency Management to hold a Multi-State Seismic Advisory Commission Meeting on September 30, 2021 to run in conjunction with the Insurance Summit being held that same weekend and an exercise at Jefferson Barracks will follow on October 2.

CUSEC has been working on the development of the Consortium for Emergency Services Technology (CEST). Once completed the service will be a regional information-sharing platform for CUSEC member States (AR, AL, MS, KY, IN, MO, TN). This service will be tested at the 2022 Cascadia Rising exercise.

CUSEC is working on an Earthquake Scenario Dashboard, which, once completed, will be enable planners to access a database to buildout an earthquake scenario from a cache of different magnitude earthquakes. CUSEC board of directors will meet in Gulf Shores, AL August 12-13, 2021.

- A panel discussion group was put together to discuss maintaining business resiliency after a Catastrophic Earthquake. The group was made up of representatives from Walmart, Target, CVS Pharmacy, The Waffle House, and the Small Business Administration. The panelists introduced themselves and explained about their companies' response efforts before, during, and after a disaster. The GEAC members then asked questions of the panelists, hoping to learn best practices from industry leaders. The panelists were from Walmart, Target, CVS Pharmacy, The Waffle House and the Small Business Administration.

Emergency Management Assistance Compact

ADEM Operations attended the annual All Hazards Resource Allocation Workshop with the National Guard. This workshop virtually brought together Guard representatives from every state to discuss their most catastrophic events and to allocate resources in the event of an earthquake. Arkansas EMAC has assisted our neighboring states with nine missions this year, which were good practice for similar missions that will need to be undertaken in an earthquake event.

ShakeOut

The Arkansas Earthquake Program actively promoted the Central United States ShakeOut in 2021. This yearly drill encourages people in homes, schools, businesses, and other organizations to practice what to do during an earthquake and improve preparedness using the "Drop, Cover and Hold On" methodology. A ShakeOut Social Media campaign has been developed, utilizing NEHRP funds, encouraging people to

register for this international drill. The videos and PSA can be used across a variety of platforms, are specifically NMSZ oriented, and can be used indefinitely.

ShakeOut was held on October 21, 2021 at 10:21 am, there were 91,482 registered participants in the state of Arkansas, less than previous years because COVID-19 restrictions on large groups prevented large group registration and participation. The pandemic also limited activities to promote awareness of the event. ShakeOut.org offered many innovative ideas and approaches for participating in the drill and adapting it to a pandemic. Participation across different groups was as follows.

Category	Participants
Individuals/Families	80
Childcare and Pre-Schools	4,139
K-12 Schools and Districts	43,297
Colleges and Universities	15,685
Local Government	488
State Government	12,069
Federal/National Government (Including Military)	173
Businesses	10,765
Healthcare	3,150
Senior Facilities/Communities	312
Disability/AFN Organizations	725
Non-Profit Organizations	75
Preparedness Organizations	62
Faith-based Organizations	420
Museums, Libraries, Parks, etc.	5
Animal Shelter/Service Providers	6
Volunteer Radio Groups	19
Media Organizations	2
Other	10

Conference calls, presentations, and meetings

- November 10, 2020: (and continuing on the third Tuesday of each month) Central and Eastern United States (CEUS) Earthquake Coordination Committee conference call
- November 12, 2020: (and continuing on the second Thursday of each month) Monthly Central United States Earthquake Consortium (CUSEC) conference call
- November 20, 2020: Arkansas Legislative Council Meeting, Little Rock, AR
- December 4, 2020: INSPARK ATC-20 Planning Meeting, Virtual
- December 9, 2020: Cal OES Safety Assessment Training, Virtual
- December 16, 2020: GEAC planning meeting

- January 4, 2021: FEMA NEHRP Grant Program Participation Meeting
- January 12 & February 19, 2021: National Earthquake Program Managers Meeting Planning Committee meeting
- February 2, 2021: Resiliency Workshop planning meeting/CUSEC
- February 9, 2021: Cal OES SAP training preparedness meeting
- February 18, 26, 2021: Facebook Live Event-Earthquake Awareness Month
- February 19, 2021 (and ongoing through June 10): Resiliency Workshop
- March 12, 2021: Facebook Live Event- Preparedness
- March 24, 2021: Fatality Earthquake Planning Meeting
- March 24, 2021: GEAC planning meeting
- June 15-17, 2021: National Earthquake Program Managers Meeting, Virtual
- August 18, 2021: Exhibitor, 53rd annual Association of Counties Conference, Rogers, AR
- August 24-27, 2021: Exhibitor, Emergency Management Conference, Rogers, AR
- September 14, 2021: Exhibitor, County Judges Association of Arkansas Fall Meeting, Benton, AR
- September 17-18, 2021: Red Cross Preparedness Fair, Bentonville, AR
- September 24, 2021: Radio 107.1 ShakeOut radio spot
- September 28-29, 2021: Arkansas Association of Chief of Police Conference, Little Rock, AR
- October 13, 2021: Jonesboro Radio Group-2 Radio Spots
- October 19-20, 2021: Rural Development Conference, Jonesboro, AR
- October 21, 2021: The Great ShakeOut Earthquake Drill, A-State, Jonesboro, AR and McDermott Elementary, Little Rock, AR

E. The dissemination of information to the public pertaining to earthquake hazards, especially to Arkansans living near the New Madrid Fault, protective measures, seismic resistance in building construction, and appropriate actions to be taken before, during and after an earthquake and other matters the Arkansas Division of Emergency Management shall determine to be necessary or appropriate to educate, inform, and equip citizens in this state to deal with an earthquake:

- September 23, 2021: AR State Independent Living Council (ARSILC) Cross Disability Summit, Little Rock, AR
- September 24, 2021: Y107.8 Radio, Conway, AR
 - October 8, 2021: AR Crime Information Center Conference, Little Rock, AR
 - October 16, 2021: Mix & Fox Radio Stations, Jonesboro, AR
 - October 19, 2021- KARK 4 Morning Show, Little Rock, AR

Recommendation for Improvement

Due in large part to the efforts put forward by the Arkansas Earthquake Program, in conjunction with the CUSEC and FEMA, many Arkansas citizens have become aware of the potential threat posed by the New Madrid Seismic Zone (NMSZ). However, there is still room for improvement. The recommendation of the ADEM is to increase public outreach to promote citizen involvement in mitigation of the NMSZ peril. The Arkansas Earthquake Program requires additional funding toward education and awareness activities that will build and maintain interest in preparedness against this hazard.