



JAMI COOK
SECRETARY

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



A.J. GARY
DIRECTOR

October 24, 2019

The Honorable Cecile Bledsoe, 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.

Please 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 2019, ADEM maintained its relationship with the Arkansas 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 (ARGEAC) meetings.
- ADEM reaches out to the State Fire Marshall for subject matter expertise – most often to answer questions about the Arkansas' Building Code.
- The Arkansas Division of Emergency Management and the Arkansas Geological Survey 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.

Earthquake Hazard Study for Pulaski and Lonoke Counties

Arkansas Geological Survey has applied for grant funding in collaboration with the University of Memphis through the United States Geological Survey. The grant will fund a project focusing on an Earthquake Hazard Study for all of Pulaski and parts of Lonoke Counties. The purpose of the study is to collect and analyze geologic and geotechnical data about the soils and geology in the area of interest. Analysis of the information will offer insight into how specific areas – beginning in central Arkansas – will be affected by strong earthquakes. Grant award notification will be announced in mid to late November, 2019. Stakeholder meetings will be held throughout the study timeframe to educate stakeholders on the details of the project, why it should be undertaken, how it will be funded, etc. The project is phased and will be completed over multiple years. It will use existing soil data available from various state and federal agencies such as the Arkansas Department of Transportation (ARDOT), utility companies (Entergy), private geotechnical firms and the U.S. Geological Survey. It will collect data first hand in areas where there are data gaps.

The Arkansas Geological Survey is also working with the United States Geological Survey Lower-Mississippi Gulf Water Science Center and other stakeholders on an Arkansas Mississippi Alluvial Plain (MAP) study. The study will focus on the geophysics, groundwater modeling, and water quality in the region. This study is scheduled in phases to take place over the next few years.

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 2019, ADEM hosted courses focused on building capabilities to support response to earthquakes. Below is a list of classes the state offers to all citizens, government officials and employees:

- May 3, 2019- ATC-20 Rapid Visual Inspection training at the University of Arkansas at Fayetteville, AR
- July 13, 2019 ATC-20 Rapid Visual Inspection training at Camp Joseph T Robinson, North Little Rock, AR
- July 19, 2019 ATC-20 Rapid Visual Inspection training at Arkansas Electric Co-Op, Little Rock, AR

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

INSPARK (INSPECT ARKANSAS)

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.

INSPARK is currently serving as a model program for member and partner states of the Central United State Earthquake Consortium (CUSEC) to develop their programs. Kentucky and Louisiana are working to build programs similar to our Arkansas' INSPARK program. CUSEC and Arkansas' INSPARK hosted a meeting on Petit Jean Mountain October 24-25, 2018 to work with the leaders of each of CUSEC's states (Alabama, Tennessee, Kentucky, Indiana, Illinois, Missouri, Mississippi, and Arkansas.) At the Petit Jean meeting, Rapid Building Inspection Teams trained on the updated Collector App and made plans for the Building Inspection Teams' participation in the June 2019 Shaken Fury Exercise.

The Collector App, the primary means of data collection during trainings and real-life events, has been successfully integrated into the INSPARK Program. The Collector App information can be conveyed to the State Emergency Operations Center (SEOC) in real time during a disaster. Arkansas exercised The Collector App in INSPARK's August 2019 exercise. Volunteers practiced logging into the App and completing Rapid Inspection Forms that were then uploaded and analyzed.

INSPARK leaders have been working to build a stronger relationship with the American Institute of Architects Arkansas Chapter (AIAAR). AIAAR has established a Disaster Assistance Committee (DAC) whose roll 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.

Arkansas Children's Disaster Reunification Plan Pilot Program (CDR3P)

The Arkansas Voluntary Organizations Active in Disaster have partnered with the National Center for Missing and Exploited Children to serve as one of two pilot programs in the United States to develop a disaster reunification plan for children who are separated from their parent or caregiver as a result of earthquake or other disaster. The Arkansas Department of Human Services (DHS) is the lead agency for this effort. The Arkansas Division of Emergency Management and others support DHS. The Reunification Plan was completed and exercised in March, 2019.

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 (ARGEAC) meets bi-annually:

January 30, 2019 in Jonesboro, Arkansas

- Chairman Martha Kopper discussed the most recent Central US Earthquakes including the magnitude 4.9 on December 18, 2018 and the 3.3 quake in Central Tennessee near the Watts Bar Nuclear Power Plant. Ms. Kopper discussed the development of the new Earthquake Early Warning (EEW) System being developed in Washington and California. At an estimated 28 million dollars per year to run, it isn't feasible to develop the EEW for the Central US at this time. The Central US will continue to concentrate on education and mitigation efforts.
- Jim Wilkerson of the Central United States Earthquake Consortium (CUSEC) updated the council on the changes that have taken place in NEHRP funding over the last two years. CUSEC is working with member states offering assistance, working with the state Earthquake Program Managers and their Federal partners, to allow states better access to NEHRP funding, which can be difficult. Mr. Wilkerson also discussed CUSEC's new ShakeOut participation boards which will be used in outreach to build ShakeOut participation in our K-12 schools.
- Hilda Booth, the state Earthquake Program Manager, spoke on the success of the 2018 ShakeOut campaign. The state earthquake program will continue to bolster ShakeOut participation by utilizing social media such as Twitter and Facebook in 2019 to promote the ShakeOut drill. NEHRP funds will also be used to purchase an Earthquake Kiosk, GoKit Passport Books, and Learning Cards, all items that will encourage families to prepare for a catastrophic event.
- Byron Galloway of State Farm Insurance discussed claim handling during large-scale earthquakes. He spoke about the industry efforts to mitigate damage from earthquakes including increased public awareness, building pre-standards, and building code

upgrades. Mr. Galloway had just returned from Anchorage where he had been working on insurance claims from the 2018 Alaskan earthquake. Only 1/3 of Alaskan residents have earthquake insurance even though it's the most active earthquake environment in the United States.

July 12, 2019 in Little Rock, Arkansas

- Chairman Martha Kopper discussed the two major earthquakes to hit Southern California. A 6.4 Richter magnitude on July 4, a 7.1 on July 5 and the thousands of aftershocks that were still occurring. She discussed Arkansas' relationship with the New Madrid Seismic Zone (NMSZ), the probability of a NMSZ event and about ways to prepare for a large earthquake.
- Chairman Kopper, the Arkansas Geological Survey's (AGS) Geohazard Section Supervisor, gave an update on earthquakes in Arkansas. As of this meeting, there were 21 earthquakes in Arkansas in 2019. The AGS, along with FEMA, Department of Defense (DOD), CUSEC, and Homeland Security, participated in a table top exercise in Springfield, IL in March, 2019 in preparation for Shaken Fury 2019. AGS defined the capabilities they can offer and they're hoping to be utilized for more than mapping after a disaster. AGS is also working collaboratively with the University of Memphis to study the potential for soil liquefaction in the Mississippian Embayment.
- Jim Wilkerson, CUSEC's Executive Director, gave an update on CUSEC's participation in the Earthquake Table Top Exercise that was held in Spring Field, IL on March 20, 2019. The exercise tested information sharing integration as well as the agreements and relationships established to address a variety of issues from evacuation routes to information sharing and fuel prioritization. CUSEC held an annual board meeting on September 25, 2019.
- Hilda Booth, the state Earthquake Program manager, discussed the success of many of the preparedness and educational tools that were made possible with the 2019 NEHRP funding. The Earthquake program works to build the state's ShakeOut participation and will utilize Social Media ads to promote the ShakeOut drill. The program is also looking forward to using NEHRP funding to purchase a portable Earthquake Kiosk and is collaborating with five other states to produce the Without Warning comic book series that will be geared towards the NMSZ and the Central US earthquake threat.
- Dr. Thomas L Pratt, Research Geophysicist and Central & Eastern U.S. Coordinator with the United States Geological Survey (USGS) Earthquake Hazards Program, spoke about the exploration of shallow faulting in the Mississippi Embayment using airplanes. After giving a brief history of earthquakes on or near the NMSZ, Dr. Pratt discussed the Blytheville Arch, which is a strike-slip flower structure, whose movement coincides with modern seismicity reactivation and where there seems to be a series of faults, not just a single fault.

National Earthquake Program Manager's Meeting and National Earthquake Conference

The Arkansas Division of Emergency Management participated in the National Earthquake Program Manager's (NEPM) Meeting held April 22-26, 2019 in Salt Lake City, Utah. The meeting provided an opportunity for FEMA, at both the national and regional levels, to brief the states and territories about funding streams and other national developments that will influence

state and territorial earthquake preparedness. The states were able to exchange information about their individual education and awareness campaigns. The meeting also provides an opportunity for various partners, such as CUSEC, to share their capabilities and activities to help the state earthquake programs.

A significant amount of time was also set aside for training, including training on the National Earthquake Hazard Reduction Program (NEHRP) funding, the National Earthquake Technical Assistance Program (NETAP), Earthquake Early Warning technology (EEW), Grants Management, and the Earthquake Performance Assessment Tool (EPAT). The next NEPM meeting is scheduled for March 3-6, 2020 in San Diego, California.

Emergency Management Assistance Compact

In March of 2019, ADEM Operations Branch participated in the annual All Hazards Resource Allocation Workshop with the National Guard. This workshop brings together Guard representatives from every state to discuss their most catastrophic events and to allocate resources through handshake agreements. In the event of an earthquake, these Guard resources will be requested and sent through EMAC. ADEM participates because all EMAC missions, by law, must be coordinated by state emergency management.

ShakeOut

The Arkansas Earthquake Program actively promoted the Central United States ShakeOut in 2019. 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. Social Media messages were sent out via Facebook and Twitter, encouraging people to register for this international drill.

ShakeOut was held on October 17, 2019 at 10:17 am. Participation was strong with 207,424 participants registered in the state of Arkansas. Participation across different groups was as follows.

• Individuals/Families	188
• Childcare and Pre-Schools	791
• K-12 Schools and Districts	71,248
• Colleges and Universities	17,550
• Local Government	356
• State Government	10,432
• Federal Government (Including Military)	81
• Businesses	101,054
• Healthcare	4,217
• Senior Facilities/Communities	624
• Disability/AFN Organizations	311
• Non-Profit Organizations	347
• Preparedness Organizations	150
• Faith-based Organizations	15

- Youth Organizations 4
- Animal Shelter/Service Providers 7
- Volunteer Radio Groups 16
- Science/Engineering Organizations 20
- Media Organizations 13

Conference Calls, Presentations, and Meetings

- December 20, 2018- GEAC planning meeting with Martha Kopper, North Little Rock
- January 10, 2019 (and continuing on the second Thursday of each month) Monthly Central United States Earthquake Consortium (CUSEC) conference call
- January 21, 2019 (and continuing on the third Tuesday of each month) Central and Eastern United States (CEUS) Earthquake Coordination Committee conference call
- February 16, 2019- Nonstructural Mitigation Event, Blytheville, AR
- February 20, 2019- Earthquake Summit, Sikeston, MO
- February 24, 2019- GEAC Planning Meeting, North Little Rock, AR
- March 6, 2019- Clay County Local Emergency Planning Committee (LEPC), Piggott, AR
- March 9, 2019- McCain Mall Safety Summit, North Little Rock, AR
- March 14-16, 2019- Onsite Leadership Training, Kansas City, MO
- April 3, 2019- FEMA E74 training, Tunica, MS
- April 12-14, 2019- Earthquake Fieldtrip, Cahokia, IL
- April 18, 2019- Earthquake presentation, Tuckerman, AR
- April 22-26, 2019- Earthquake Program Managers Meeting, Salt Lake City, UT
- June 14, 2019- INSPARK planning meeting, Little Rock, AR
- August 23-29, 2019- INSPARK "Collector App" exercise, AR
- September 4, 2019- Meeting/State Science Specialists STEM Unit, Little Rock, AR
- September 13, 2019- AR STEM Coalition Quarterly Meeting, North Little Rock, AR
- September 16 & 21, 2019- Earthquake Presentation, Department of Labor and Licensing, Little Rock, AR
- September 17, 2019- Meeting/School Safety Coordinator, Little Rock, AR
- October 2, 2019- Earthquake Presentation, Social Security Administration, North Little Rock, AR
- October 7, 2019- Arkansas Schools Plant Managers Association (ASPMA) Meeting, Hot Springs, AR
- October 10, QuakeSmart Greene County, Paragould, AR
- October 12, Public Education Event, Hoxie, 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:

- April 4, 2019- Arkansas Tech University, Earthquake Presentation, Russellville, AR

- May 8, 2019- Cedar Ridge Schools, Earthquake Presentation, Newark, AR
- September 12, 2019- Boys and Girls Club, Safety Event, Little Rock, AR
- October 14-15, 2019- AState, ShakeOut Event, Jonesboro, AR
- October 17, 2019- Don Roberts Elementary, ShakeOut Drill, Little Rock, AR

Recommendation for Improvement

Due in large part to the efforts put forward by the Arkansas Earthquake Program, in conjunction with the Central United States Earthquake Consortium (CUSEC) and the Federal Emergency Management Agency (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 Arkansas Division of Emergency Management is to continue to provide public outreach to gain citizen involvement and awareness in relation to the New Madrid Fault System. Additional consideration for improvement would be to identify and obtain additional funding sources to assist with the forward progression of the Arkansas Earthquake Program.

In 2019, the state's Earthquake Program purchased education and awareness materials, which have been widely distributed at various events and presentations. Funding for the materials came from a \$5000.00 grant secured from State Farm Insurance Company by the State Earthquake Program Manager.