

Summary Minutes

Nevada Earthquake Safety Council

1 August 2007

The Nevada Earthquake Safety Council (NESC) met from 9:30 a.m. to 2:56 p.m. in the Emergency Operations Center (EOC) at the Nevada Division of Emergency Management (DEM) in Carson City. These and previous minutes are posted on the Web site for the committee (<http://www.nbmng.unr.edu/nhmpe/nesc.htm>).

Ron Lynn chaired the meeting. Individuals attending the meeting are members of the Council:

John Anderson*, Nevada Seismological Laboratory
 Elizabeth Ashby, Nevada Division of Emergency Management
 Scott Ball, URS Corporation, Las Vegas
 Alan Bennett*, City of Reno
 Mike Blakely*, Blakely, Johnson, and Ghusn,
 Wayne Carlson*, Nevada Public Agency Insurance Pool
 Sheila Clement, Emergency Management Coordinator (retired)
 Press Clewe, retired emergency manager, who held the proxy for Bernie Anderson*, Nevada Assembly
 Craig dePolo, Nevada Bureau of Mines and Geology, who held the proxy for Burt Slemmons*, University of Nevada, Reno (retired), consultant in Las Vegas
 Diane dePolo, Nevada Seismological Laboratory, who held the proxy for Jenelle Hopkins*, Clark County School District, Las Vegas
 Bruce Ferrell, State Emergency Response Commission
 Terri Garside, Nevada Bureau of Mines and Geology, who held the proxy for Ian Buckle*, University of Nevada, Reno – Center for Civil Engineering Earthquake Research
 Steve Koenig*, Bellagio Resorts
 Werner Hellmer, Clark County Department of Development Services, Building Department, who held the proxy for Marge Gunn Nutman*, Nevada Association of Counties & Lincoln County Office of Emergency Management
 John Louie, Nevada Seismological Laboratory
 Ron Lynn*, Clark County Department of Development Services
 Rick Martin, Nevada Division of Emergency Management
 Robert Martinez, Nevada Division of Water Resources
 Greg Moss*, The Moss Group
 Jim O'Donnell*, Geophysical Contractor, Las Vegas
 Rebecca Ossa, Nevada State Historic Preservation Office
 Jon Price*, Nevada Bureau of Mines and Geology
 Jim Reagan*, Sierra Pacific Power Company
 Wanda Taylor*, UNLV Department of Geoscience
 Edward D. (Otto) Tune, Nevada Division of Emergency Management
 Ken Smith, Nevada Seismological Laboratory
 William Van Stone, URS Corporation, Las Vegas
 Jim Walker, Nevada Department of Transportation
 Jim Werle*, Converse Consultants

* indicates member of the Board of Directors.

A quorum of directors (the necessary 11) was present.

Board Members unable to attend or send a proxy included:

Warren Hardy*, Nevada State Senator
 Greg Flanigan*, Farmers Insurance

The minutes of the 10 May 2007 meeting were unanimously approved.

Education and Awareness Committee

Diane dePolo reported that various members of the Council have been contacted about an emergency preparedness calendar, to be prepared by a graduate student from UNR for Washoe County. Following input from Council members, the County plans to focus on earthquakes in the month of February.

Diane has been involved in planning for the Nevada National Guard's week-long exercise (June 13-20, 2008), which will use an earthquake event. She has suggested several specific incidents to help make the exercise realistic.

As part of the state mitigation plan, there are plans for getting Living with Earthquakes as newspaper supplements and to create a new earthquake website for the State.

Southern Nevada is planning the TXO8 exercise (with an earthquake and unsuccessful terrorist attack) for sometime in 2008.

There will be a tri-state legal exercise between Nevada, Idaho, and Utah in Reno in March of 2008 (exact date to be set next week). Please contact Glade Myler (gamuler@ag.state.nv.us) if you are interested in attending.

Ken Smith's course to train teachers about earthquake hazards and seismology was a resounding success again this summer.

Research Committee

Craig dePolo noted that the report authored by him and Ron Hess, titled "Loss-Estimation Modeling of Earthquake Scenarios for Each County in Nevada Using HAZUS-MH" (NBMG Open-File Report 06-1) won a national award at the recent geographic information systems conference.

The Committee reviewed the proposed new NEHRP maps. There is a 10 to 15% decrease in ground shaking for most of Nevada, primarily because of new attenuation relations (decrease in ground shaking with distance from the hypocenter of the earthquake).

There will be a session on post-earthquake technical clearinghouses associated with the National Earthquake Conference on April 22-26, 2008 in Seattle.

A new Nevada Quaternary fault map, to be published by the Nevada Bureau of Mines and Geology, is about to go out for review.

Wanda Taylor mentioned that a southern Nevada seismic hazards conference will part of the combined meeting of the Cordilleran and Rocky Mountain Sections of the Geological Society of America on March 19 to 21, 2008 in Las Vegas. The meeting will be co-hosted by UNLV and Northern Arizona University.

Policy Recommendation Committee

Wayne Carlson discussed earthquake-related bills in the 2007 Nevada Legislature. Assembly Bill 189 (sponsored by Assemblyman Anderson, to provide additional staff for UNR's efforts to reduce risks from natural hazards) did not pass. Assembly Bill 326 (sponsored by Assemblyman Mortensen, to make a list of unreinforced masonry buildings) did pass but was vetoed by the Governor, because it was felt that it would be an unfunded mandate for local jurisdictions.

Strategic Planning Committee

Jim Reagan noted that the committee did not meet during the last quarter. Ron Lynn advised that the Committee should move forward to prepare an annual report.

ACTION ITEM: The Strategic Planning Committee (Jim Reagan, Chair) will prepare an annual report, based on minutes of previous NESC meetings.

Bylaws Committee

Jim Reagan reported that the Bylaws Committee met by e-mail and conference call.

MOTION PASSED: The Council voted unanimously to approve proposed changes to the Council's bylaws. The revised bylaws are posted on the NESC website.

Nominating Committee

MOTION PASSED: The Council approved recommending to DEM that Wanda Taylor be appointed as the University-Southern Nevada representative on the Council.

There are two vacancies on the Council: Business and Industry - Northern Nevada and Community Organizations – Southern Nevada.

ACTION ITEM: Rick Martin will work with Ron Lynn on suggestions for the two vacancies on the Council.

Ad Hoc Committee on Department of Homeland Security

No report

DEM Update

Bud Marshall, Exercise Officer with DEM, discussed upcoming exercises. Three earthquake-related exercises are planned in next two years.

August 28, 2007 – A tabletop exercise, only for Clark County, will focus on recovery from an earthquake.

June 13-20, 2008 – The Nevada National Guard's "Vigilant Guard" exercise will involve an earthquake in the Carson City – Reno – Lake Tahoe area. The exercise will involve six local jurisdictions, and National Guard units from California, Hawaii, and other states will participate. If interested in helping with this exercise, please contact Captain Mike Heil of the Nevada National Guard.

November 2008 – This will be either a full-scale or tabletop exercise – the Golden Guardian Exercise – involving an earthquake in the South Lake Tahoe area. Both California and Nevada will participate.

Alan Bennett asked about the coordination of building inspections after an earthquake. Ron Lynn explained that the results of inspections by local building officials (using the ATC-20 and ATC-21 training) will be given to DEM as input for their assessment. Ron said that he will be recommending a new Western States Seismic Policy Council (WSSPC) policy on coordination of building inspectors among states. Alan Bennett noted that they have approximately 80 people trained in northern Nevada and another 100 who should be trained. Jim Reagan noted that the June exercise is a good opportunity to engage the building officials.

Ron Lynn and Mike Blakely mentioned that an ATC-20-trained team can handle rapid visual examination for a single-family home in about 20 minutes, and that a more complicated building may take about 45 minutes.

Ken Smith explained that the Nevada Seismological Laboratory is installing a server in the DEM facility in Carson City to allow them to see real-time data from the Laboratory and from the Internet. This server will also serve as a back-up to the Nevada Seismological Laboratory's facility in Reno.

Rick Martin explained that there may be some funds available from year-end projects that would be approved by the Council.

Rick Martin led a tour of the DEM facility, including the EOC, warning center, public information offices' room, and media room. The building includes DEM, Nevada Department of Homeland Security, Highway Patrol Dispatch, Nevada Division of Forestry, National Guard, and the State's financial system back up. Otto Tune showed the Council the back-up power generators (with capacities of handling the electricity needs of the EOC off the grid for at least two weeks). Captain Mark Heil provided a brief overview of activities in the Nevada National Guard's Joint Operations Center.

FEMA Update

Ron Lynn noted that David Kennard had called in to report that Jeff Lusk has not been replaced yet as the regional earthquake specialist for FEMA. David will be attending the upcoming WSSPC meeting.

Nevada State Mitigation Plan – Earthquake Section

Craig dePolo discussed the latest draft earthquake section for the State Hazard Mitigation Plan. He modified the previous plan based on input from discussions at Council meetings during the last year and cast the action items in terms that the DEM can use in the overall Nevada plan.

There are 10 earthquake-related action items that resulted from this analysis.

1. Retrofit and mitigate shaking hazards in Nevada emergency facilities.
2. Create special planning consideration zones for Nevada communities.
3. Create a Nevada earthquake Internet site.
4. Insert "Living with Earthquakes in Nevada" into Nevada newspapers.
5. Teach Nevada teachers about earthquake safety in workshops, classes, and teaching curriculum.
6. Develop live and Internet-based workshops for professionals and citizens on building with seismic resistance, seismic retrofit methodologies, nonstructural hazard mitigation, and earthquake geology for geotechnical professionals.
7. Develop detailed earthquake disaster planning scenarios.
8. Identify and characterize earthquake hazards in Nevada, including microzonation and characterization of earthquake hazards in Nevada.
9. Inventory and retrofit seismically dangerous buildings.
10. Successful recovery from an earthquake disaster.

Press Clewe questioned whether non-structural mitigation, which has been advocated heavily by the Council over the last several years, is prominently within these action items. Wayne Carlson questioned whether strengthening transportation corridors and utility lifelines were incorporated, either under item 1 or another item.

Update on the Western States Seismic Policy Council's and International Code Council's Joint Annual Meeting in Reno

Craig dePolo described the field trip and program for the WSSPC meeting September 30 to October 3, 2007 in Reno. This is a unique opportunity for Nevadans to participate in a high-level conference on earthquake issues and related building codes. There are a number of excellent sessions scheduled, including scenarios,

updates on the latest national earthquake hazard maps, and policy discussions. For information and registration, visit www.wsspc.org/Conference.

Nevada Hazard Mitigation Planning Committee (NHMPC) Update

Ron Lynn noted that there is a NHMPC meeting following the Council meeting. Jim Walker reported that good progress is being made on the Nevada Hazard Mitigation Plan. The deadline for submission to FEMA is the end of September.

1914 Reno Earthquakes

Craig dePolo described the 1914 Reno earthquakes. On the basis of newspaper accounts of reports by people who felt the earthquake, the sources appeared to be directly under Reno (ground zero). There was a sequence of multiple earthquakes from the months of February through May. The main earthquake was two months into the sequence. There was a significant foreshock 28 hours before the largest event. There may have been two or three sources (locations on specific faults) of the earthquakes, because there was odd damage in Virginia City the day after the main shock in Reno. There was significant shaking in the Great Valley of California, which should be of concern to people there. The Nevada Bureau of Mines and Geology has posted the report on these earthquakes (Open-File Report 06-2), authored by Craig dePolo and Terri Garside, on its website (www.nbmgs.unr.edu). Craig described two specific earthquakes.

February 18, 10:16 a.m. (maximum intensity VI; estimated magnitude 5.8 ± 0.3). In Reno, this event broke windows, cracked walls, and threw bricks down from a fire wall at West and Second Streets and from a chimney on the UNR physics building. Strong shaking lasted for approximately 10 seconds.

April 24, 12:34 a.m. (maximum intensity VIII, estimated magnitude 6.3 ± 0.3). It was felt from Winnemucca to Berkeley. Strong shaking lasted for approximately 15 seconds. In Reno, two chimneys came down on Lincoln Hall, and two chimneys came down on Manzanita Hall on the UNR campus. There was one block in Sacramento at which people ran out of their homes in their nightclothes.

Interestingly, Mount Lassen in northeastern California erupted for the first time in many years on June 1, 1914. There is no reason to believe that the events are connected.

Update on Recent Earthquakes

Ken Smith provided an overview of seismicity in Nevada over the last two and a half years. He also updated the Council on the EarthScope USArray deployment in Nevada. The EarthScope set of 56 temporary, high-quality seismic stations is now operational in Nevada. They are spaced approximately 80 kilometers apart. Stations will stay in place for two years, but stations will begin to move to other states beginning January 2008. The EarthScope project is a major scientific experiment, funded by the National Science Foundation, designed to investigate the structure of the Earth in the United States. Although it is not designed primarily for earthquake detection, it has tremendous side benefits for earthquake monitoring in Nevada. There is a significant increase in the quality of earthquake locations and capability to identify earthquake activity in areas in the state where literally no earthquake monitoring has been conducted. USArray provides high-quality seismic waveform data, improved event locations, and improves that accuracy of real-time earthquake notifications for every area in the state. The Nevada Seismological Laboratory (NSL) is seeking funding to keep stations in Nevada.

In 2005, the NSL located 8,874 earthquakes (and some blasts for construction and mining). In 2006, they located 7,349 earthquakes (including some blasts from mining). To date in 2007, they have located 5,141 events. They are locating events in northeastern California, southeastern Oregon, and northeastern Nevada that would not have been recorded without the temporary EarthScope instruments.

All the magnitude 4 or greater events since 2005 have been close to the California-Nevada border, north of approximately 37°30' North latitude.

On 8 March 2007, the NSL recorded a magnitude 4.85 earthquake northwest of Bridgeport, California, south of Wellington, Nevada. The NSL created a ShakeMap of this event.

There was a magnitude 3.8 earthquake on 27 April 2007 near Alamo. The northeast-trending Paranagut shear zone in the Alamo area has had frequent magnitude 3 earthquakes since the NSL began to record earthquakes.

New Business

Future NESC meeting dates are as follows:

- Wednesday, November 14, 2007 in Las Vegas
- Wednesday, February 6, 2008 in Reno
- Wednesday, May 7, 2008 in Las Vegas
- Wednesday, August 6, 2008 in Reno
- Wednesday, November 12, 2008 in Las Vegas

At the upcoming November 14th meeting, the Council will discuss potential funding opportunities for proposals that have gone through NESC committees.

ACTION ITEM: Individuals interested in submitting earthquake-related proposals for year-end funding from DEM should submit them to the appropriate committees at least one full month before the meeting (that is, by October 14). Any proposals that come in after that date will not be considered. Please use the proposal form posted on the Web at <http://www.nbmng.unr.edu/nesc/proposal.pdf>, and note that 50:50::federal:non-federal matching funds are required.

Alan Bennett discussed the Nevada State Liquefied Petroleum Gas Board's position on not anchoring propane tanks to prevent toppling during an earthquake. He explained that the Board's codes override local codes. However, groups or individuals can approach the Board to ask for changes. Werner Hellmer stated that the Board did adopt a reference code (NFPA 58) that requires anchoring of propane tanks that exceed 125 gallons of water capacity. Ron Lynn formed an ad hoc committee to investigate proper anchoring of propane tanks in Nevada. He asked that Werner Hellmer, Alan Bennett, and Ron Lynn serve on the committee. Glade Myler advised that the committee should engage the Attorney General's office to investigate the regulatory requirements.

ACTION ITEM: The Ad Hoc Committee to Investigate Proper Anchoring of Propane Tanks (Werner Hellmer, Alan Bennett, and Ron Lynn) should report its progress on findings and recommendations at the next NESC meeting.

The Council discussed approaches to take to deal with unreinforced masonry (URM) buildings. Wayne Carlson suggested that the Insurance Commission may be able to supply certain information on the date and style of construction. Rebecca Ossa stated that the State Public Works Board may be able to provide a similar list of State-owned buildings. From this information, estimates could be made of the number of public buildings that are URMs.

ACTION ITEM: Terri Garside will place discussion of the issue of unreinforced masonry buildings on the agenda for the November 14 NESC meeting as a policy recommendation from NESC.

Public Comments

John Louie described a new Nevada Seismological Laboratory project to characterize local site conditions with shear-wave velocity. The project (covering 500 square miles of unincorporated Clark County, including

Coyote Springs and parts of Las Vegas Valley, at a rate of 42 square miles per quarter over a three-year period) is funded by the Clark County Department of Development Services.

The meeting adjourned at 2:56 p.m..

REVIEW OF ACTION ITEMS:

ACTION ITEM: The Strategic Planning Committee (Jim Reagan, Chair) will prepare an annual report, based on minutes of previous NESC meetings.

ACTION ITEM: Rick Martin will work with Ron Lynn on suggestions for the two vacancies on the Council.

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ACTION ITEM: Terri Garside will place discussion of the issue of unreinforced masonry buildings on the agenda for the November 14th NESC meeting as a policy recommendation from NESC.

respectfully submitted by Jon Price, 15 August 2007

Nevada Earthquake Safety Council
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NEVADA EARTHQUAKE SAFETY COUNCIL
Members of the Board of Directors and Officers
(as of 1 August 2007)

Business and Industry, Southern Nevada	Steve Koenig, Bellagio Resorts
Business and Industry, Northern Nevada	vacant
Insurance Industry (statewide)	Greg Flanigan Farmers Insurance (Las Vegas)
State Government (statewide)	Jim Walker Nevada Department of Transportation
Local Government, City	Wayne Carlson Nevada Public Agency Insurance Pool (Carson City)
Local Government, County	Marge Gunn Nutman Nevada Assoc. of Counties & Lincoln Co. Office of EM
Seismology (statewide)	John Anderson Nevada Seismological Laboratory (UNR)
Geosciences, Southern Nevada	Burt Slemmons Las Vegas consultant, UNR (retired)
Geosciences, Northern Nevada	Jonathan G. Price Nevada Bureau of Mines and Geology
Engineering, Southern Nevada	Jim Werle Converse Consultants
Engineering, Northern Nevada	Mike Blakely Structural Engineers Association of NV
Education (statewide)	Jenelle Hopkins Clark County School District, Las Vegas
Community Organizations, Southern Nevada	vacant
Community Organizations, Northern Nevada	Jim Reagan Sierra Pacific Power Company
University, Southern Nevada	Wanda Taylor UNLV Geoscience Department
University, Northern Nevada	Ian Buckle UNR Center for Civil Engineering Earthquake Research
Building Official, Southern Nevada	Ronald L. Lynn Clark County Building Department
Building Official, Northern Nevada	Alan Bennett City of Reno
State Senate	Warren Hardy Nevada State Senator (Las Vegas)
State Assembly	Bernie Anderson Nevada State Assemblyman (Sparks)
Member at Large, Southern Nevada	Jim O'Donnell UNLV
Member at Large, Northern Nevada	Greg Moss The Moss Group

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Burt Slemmons

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