Summary Minutes

Nevada Earthquake Safety Council

6 February 2008

The Nevada Earthquake Safety Council (NESC) met from 9:45 a.m. to 2:15 p.m. at the Washoe County Emergency Operations Center in Reno, Nevada. These and previous minutes are posted on the Web site for the committee (http://www.nbmg.unr.edu/nhmpc/nesc.htm).

Ron Lynn chaired the meeting. Individuals attending the meeting are members of the Council:
John Anderson*, Nevada Seismological Laboratory
Thiago Andreotti, Rotary Exchange Student in engineering, Brazil
Elizabeth Ashby, Nevada Division of Emergency Management, who also held the proxy for Ryan Turner*, American Red Cross
Alan Bennett*, City of Reno
Mike Blakely*, Blakely, Johnson, and Ghusn,
Ian Buckle*, University of Nevada, Reno – Center for Civil Engineering Earthquake Research
Wayne Carlson*, Nevada Public Agency Insurance Pool
Craig dePolo, Nevada Bureau of Mines and Geology, who also held the proxy for Wanda Taylor*, UNLV Department of Geoscience
Diane dePolo, Nevada Seismological Laboratory, who also held the proxy for Greg Flanigan*, Farmers Insurance
Terri Garside, Nevada Bureau of Mines and Geology
Jenelle Hopkins*, Clark County School District, Las Vegas
Werner Hellmer, Clark County Department of Development Services, Building Department
Steve Koenig*, Bellagio Resorts
John Louie, Nevada Seismological Laboratory
Ron Lynn*, Clark County Department of Development Services
Rick Martin, Nevada Division of Emergency Management
Yui Miyata, Nevada Seismological Laboratory
Greg Moss*, The Moss Group
Glade A. Myler, Senior Deputy Attorney General, counsel for NESC
Jim O'Donnell*, Geophysical Contractor, Las Vegas
Rebecca Ossa, Nevada Historic Preservation Office
Clayton Pang, FEMA Region IX
Jon Price*, Nevada Bureau of Mines and Geology
Jerry Quinn
Jim Reagan*, Sierra Pacific Power Company
Darren Rice, Washoe County Sheriff's Office
Ken Smith, Nevada Seismological Laboratory
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:
Bernie Anderson*, Nevada Assembly
Marge Gunn Nutman*, Nevada Association of Counties & Lincoln County Office of Emergency Management
Warren Hardy*, Nevada State Senator

The minutes of the 14 November 2007 meeting were unanimously approved.

Jim Reagan described emergency procedures in case of a fire in the Washoe County regional operations center. The fire-suppression system uses carbon dioxide. If a fire-alarm sounds, exit immediately and meet in the parking lot.

Education and Awareness Committee

Diane dePolo reported that she continues to participate in planning for the Vigilant Guard '08 exercise in June. Six Nevada counties and three California counties are participating. Washoe County will have rubble piles in Reno and Incline Village and focus on recovery.

Jenelle Hopkins reported that the Nevada State Science Teachers Conference will be this coming Friday and Saturday.

Research Committee

Jim Werle announced that there will be a joint meeting of the Rocky Mountain and Cordilleran Sections of the Geological Society of America (www.geosociety.org) on March 19-21 on the UNLV campus. There will be a Seismic Hazards Summit of the Southern Nevada Region on Thursday, March 20. One-day registration is available at a reasonable cost.

Jim stated that the fault trenches that had been proposed along Las Vegas Wash did not go forward because of costs of dealing with archaeological issues required for a permit from Clark County. The trenches would have helped to determine the vulnerability of a tunnel that is being designed to collect and convey treated water and inject it into Lake Mead. Jim stated that the project leaders felt that disruption of the tunnel from an earthquake would not be a disastrous situation; water could be shut off and contained while repairs are made.

Craig dePolo described a poster on the 1914 Reno earthquakes that he and Terri Garside presented at the December 2007 American Geophysical Union meeting. For details about these earthquakes, please refer to Nevada Bureau of Mines and Geology Open-File Report 06-2 (http://www.nbmg.unr.edu/dox/of062.pdf).

Craig reported on the November 2007 meeting of the Nevada Quaternary Fault Working Group, which was attended by fault experts from the U.S. Geological Survey, U.S. Bureau of Reclamation, Utah Geological Survey, California Geological Survey, Idaho Geological Survey, UNR, UNLV, other universities, and consulting companies. The group evaluated approximately 11 faults in detail. Craig noted that we are in the early stages of understanding earthquake hazards from specific fault sources; much more work is needed to adequately characterize the earthquake hazards. The group will be reconvened in the future to examine additional faults that are considered of high hazard and risk for urban areas in Nevada.

Craig discussed issues regarding use of the USGS Quaternary Fault and Fold Database. Among all the states, Nevada has the most number of mapped faults within this database. The fault locations were compiled at scales of 1:100,000 to 1:250,000, and transferred to 1:100,000, but people are using the USGS database to locate faults at scales of 1:12,000 or larger. The 1:100,000 scale more or less equates to a Google Earth view from 15 miles above the Earth. The USGS states that the accuracy of the fault locations is no more than 450 feet or 140 meters, but Craig checked several locations and concluded that some faults are actually mislocated by considerably more distance. Some would best be viewed in Google Earth at an elevation as much as 42 miles. Craig has drafted the following letter, slighted edited by Jon Price, for possible adoption by the Council.

"DRAFT POSSIBLE LETTER TO STATE ENGINEERING BOARD

The Nevada Earthquake Safety Council has witnessed misuse of the United States Geological Survey's (USGS) online fault and fold database (http://earthquake.usgs.gov/regional/qfaults/), in which consultants plot the database on Google Earth maps at large and inappropriate scales. The result is usually misplotting of the fault trace, because errors in making the map are magnified. The dataset was never intended to be used this way, and this practice exceeds limits that are stated in the online explanation.

To understand the problem, consider that most of the ground surface does not have faults. So it is likely that the location where a misplotted trace is placed will not have a fault if explored. Consequently, known faults are not being explored and are erroneously dismissed because of the negative field results from misplaced locations. A report on a misplaced fault may be adopted by adjacent projects, spreading the impact.

The metadata with the USGS dataset states, "Their [the mapped faults'] accuracy is no more than 450 ft (140 m), or the width of the fault trace at about 15 miles." Google Earth viewed at about 15 miles altitude is equivalent to a scale of about 1:100,000, the compilation scale of the project. Some input data were initially compiled at a scale of 1:250,000 and transferred to 1:100,000 for this project, so additional limits might be applied. For now, **the problem would be largely solved if users of the USGS data set complied with the stated limitations of the data**. This data set does not replace the need to conduct a site-specific review for earthquake faults to insure proper planning and design.

Nevada has more mapped Quaternary faults than any other state in the Union, and a wise approach to this hazard, avoiding unnecessary building across faults, will benefit not only occupants and individual property owners but the State as a whole, because we will avoid large amounts of fault-displacement damage from earthquakes.

Recommended guidelines for fault studies in Nevada have been endorsed by the Nevada Earthquake Safety Council and the Nevada chapters of the Association of Environmental and Engineering Geologists, and are available online (http://www.nbmg.unr.edu/nesc/guidelines.htm). We are currently considering an update to address this issue of plotting faults at inappropriate scales. In the meantime, we encourage you to alert engineers under your jurisdiction to comply with the limitations of the USGS data set and recognize that plotted faults may be mislocated by more than 450 feet.

Thank you,

Chair, NESC"

ACTION ITEM: Terri Garside will add the following item to the agenda for the May NESC meeting: possible adoption by the NESC of a draft letter on accuracy of fault locations in the USGS Quaternary fault data base to the State Engineering Board.

Greg Moss noted that the City of Sparks has not adopted any guidelines regarding faults, and that Washoe County has a 10-foot setback requirement.

John Louie reported on the January 2008 meeting of a working group on a Nevada Community Velocity Model. Such a model includes seismic velocities for shallow materials important in construction, building foundations, and liquefaction hazards (soil classifications for seismic provisions in building codes), deeper basin-fill materials, and bedrock. Creation of a "community model," one that is accepted by most experts as a reasonable representation of available data, helps to model ground shaking for building design, local effects, and basin effects related to the geometry of the underlying soils and rocks. The model will also help to understand effects of directionality – the direction in which seismic waves propagate from the earthquake's hypocenter. There will be a follow-up workshop later in the year, probably in November.

Policy Recommendation Committee

Wayne Carlson suggested that NESC have booths at upcoming safety conferences. The booths are free for non-profit groups such as NESC.

ACTION ITEM: Diane dePolo, on behalf of the NESC Education and Awareness Committee, will arrange for an Earthquake Safety Council booth and solicit volunteers to help with the booth for two back-to-back safety conferences: the City of Reno Safety Conference – June 24 (contact Chuck Connally, 848-7511) and the Governor's Safety Conference – June 25-26 (contact Adam Cleghorn, 850-3600).

MOTION ADOPTED: The Council unanimously adopted the proposed policy statement regarding Special Planning Consideration Zones. A draft was included with the agenda for the meeting; please see the attachment to these minutes for details.

Discussion about this policy statement led to a general consensus that legislative action would not necessarily be needed.

Allstate Insurance has cancelled and no longer offers earthquake insurance to its policy holders in Nevada. Buildings that are not in special planning consideration zones for earthquake hazards might be more insurable by companies that do offer earthquake insurance.

MOTION ADOPTED: The Council unanimously adopted the proposed policy statement regarding Activating Applied Technology Council 20 Post Earthquake Inspections. A draft was included with the agenda for the meeting; the words "and cost reimbursement issues" were deleted from that draft in an amendment to the motion. Please see the attachment to these minutes for details.

Ron Lynn noted that other certifications, in addition to the Applied Technology Council, may be available in the future.

Wayne Carlson noted that rural governments are not routinely exercising their disaster/emergency response plans.

MOTION ADOPTED: The Council unanimously adopted a motion to present a bill draft request for a Nevada All Hazards Safety Action Priority Act to Assemblyman Anderson, Assemblyman Mortensen, and Senator Hardy for consideration during the 2009 legislative session. (See attachment for details on this proposed bill draft.

Glade Myler mentioned that the Legislature may want to approach this as a resolution rather than as an act adopted into statute. Jon Price noted that some aspects might be better as a resolution, while others may be better adopted into statute.

Glade noted that 50% of federal Department of Homeland Security funding coming to Nevada is supposed to be focused on improvised explosive devices (IEDs). Several individuals noted that buildings that are likely to collapse during an earthquake may also more easily collapse from an explosion than buildings that were designed to withstand earthquakes without any loss of life.

Wayne Carlson discussed his inventory of unreinforced masonry buildings (URMs). He distributed a spreadsheet indicating preliminary data from the assessor's offices of 14 mostly rural counties (all except White Pine, Clark, and Washoe Counties) of possible URMs. In compiling this list, he defined URMs as buildings built before 1973 with the following construction types as

- probable commercial URMs: adobe block, brick with clay tile backup, solid brick, glass block, hollow clay block, solid granite stone, solid limestone, solid local stone;
- possible commercial URMs: ashlar stone veneer with block backup, block with stucco, brick with block backup, cavity concrete block, cavity brick, cavity brick with block backup, concrete block, rubble

stone veneer with block backup, PF masonry veneer, PF metal with block backup, and PF stone veneer on metal panels; or

probable residential URMs: masonry exterior walls of adobe block, common brick, concrete block, face brick, face brick or stone, poured concrete (SIP forming), stone on block, and stucco on block.

The list included 877 commercial buildings in 10 counties (with a combined replacement cost of $384,670,818) and 1,260 residential buildings in 14 counties (with a combined replacement cost of $152,718,596).

Rebecca Ossa stated that the State Historic Preservation Office is putting its building information on the Web in a searchable database in a geographic information system.

Glade Myler cautioned that identifying specific URMs may be illegal according to recent statutes regarding terrorism. He noted that NRC 239c, enacted in 2003, stipulates restrictions on release of information regarding plans for certain buildings.

Jim Walker has looked at NDOT buildings and needs a definition of URMs. He would also appreciate knowing whether size and use of the building (e.g., pump houses versus road salt and sand storage buildings) should be a criterion for reporting on URMs managed by NDOT.

Mike Blakely volunteered to help Wayne Carlson write the definition for URMs that Wayne and Jim will use. Mike noted that the fundamental criteria for URMs are stone, masonry, brick, or block construction without reinforcement.

ACTION ITEM: Wayne Carlson work with Mike Blakely to create a definition of URMs that can be used in culling through the county assessor's databases, the NDOT database, and other State and University databases. Wayne will continue to build the database on URMs in Nevada, and he will convey the definition to Jim Walker and others as needed.

Ron Lynn noted that the proposed policy recommendation of the Western States Seismic Policy Council regarding URMs (see the agenda for this meeting for details of draft WSSPC Policy Recommendation 08-4) states that "all structures built under the Uniform Building Code of 1961 or later should have been reinforced, although this should be verified by field inspections." Mike Blakely explained that the year 1973 is used by some individuals because after the 1971 San Fernando earthquake, codes were modified to account for damage from poor tie downs of buildings to their foundations. Ron noted that the State of Nevada and some local jurisdictions were as much as three cycles (9 years) behind in adoption of building codes, such that a 1973 date for the database on possible URMs in Nevada ought to cover most such buildings.

Please refer to more discussion about URMs below under Discussion of WSSPC Policy Recommendations.

Strategic Planning Committee

Jim Reagan is in the process of putting together the 2007 annual report for NESC.

ACTION ITEM: Jim Reagan will produce a draft of the 2007 NESC annual report for adoption at the May meeting. Terri Garside will place adoption of this report on the agenda for that meeting.

Nominating Committee

There are two vacant positions at this time. Glade Myler suggested Jeff Maples, Emergency Manager for Southwest Gas in Carson City should be contacted to see if he would be willing to serve in the position of a representative from Business and Industry in Northern Nevada. Jim Werle suggested that Scott Ball, URS in Las Vegas, should be contacted to fill the position for Geosciences, Southern Nevada.

ACTION ITEM: Glade Myler will contact Jeff Maples to ask if he is willing to serve as a NESC Board member in the position of a representative from Business and Industry in Northern Nevada. Ron Lynn will contact Scott Ball to ask if he is willing to serve as a NESC Board member to fill the position for Geosciences, Southern Nevada.

Ad Hoc Committee on Department of Homeland Security

ACTION ITEM: Glade Myler will keep NESC posted on relevant developments from the Department of Homeland Security.

Ad-Hoc Committee on Anchoring of Propane Tanks

Werner Hellmer noted that there are no requirements at the national or state level for anchoring horizontal propane tanks. The Nevada Board for the Regulation of Liquefied Petroleum Gas has authority in this regard. Alan Bennett noted that the tank manufacturers have specific requirements for installation in areas where tanks may be toppled (such as flood areas and earthquake-hazard zones). Mike Blakely said that he understands that tanks of all types need to be anchored, according to building codes, but building codes are superseded by regulations of the Nevada Board for Regulation of Liquefied Petroleum Gas. Mike stated that these tanks will fail during earthquakes if not properly bolted down.

ACTION ITEM: Terri Garside will add as an action item to the agenda for the May NESC meeting to discuss adoption of the following letter (with final wording subject to amendments):

> "Nevada Board for the Regulation of Liquefied Petroleum Gas
> P.O. Box 338
> Carson City, NV 89702
>
> Dear Sir or Madam:
>
> On behalf of the Nevada Earthquake Safety Council, I would like to voice concern regarding the requirements for anchorage of horizontal LPG storage tanks. We have reviewed the requirements set forth in NRS 590, NAC 590, and NFPA 58 (2004); it appears as though there are no requirements for such tanks to be restrained in order to resist movement caused by ground motion. We have included several FEMA documents that identify the importance of protecting LPG tanks from damage during earthquakes. There are a variety of possible methods that can be implemented to secure such tanks that do not impart undue stress upon the tank's mounts or shell. We would welcome the possibility of meeting with you in order to discuss our concerns.
>
> Thank you.
>
> Sincerely,
>
> Chair, NESC"

DEM Update

Elizabeth Ashby discussed the Truckee River Irrigation Canal breach in Fernley that began on January 5, 2008. The FEMA disaster recovery center in Fernley was closed last night, but an office for small business loans is still open. Damage has been estimated to be at least $3.2 million. FEMA has already provided $1.98 million in individual assistance to homeowners. The State also has resources set aside for assistance, but homeowners must first apply for individual assistance from FEMA or the Small Business Administration. After a total disaster assistance amount is decided by FEMA, the State and local agencies will be eligible for an additional 15% for mitigation projects; Elizabeth anticipates that this may happen in March.

Elizabeth noted that one resident thought she felt an earthquake, and although the Nevada Seismological Laboratory actually recorded an event at about the time that the irrigation canal failed, John Anderson stated that the small earthquake (magnitude 4) was too far away (over 100 kilometers) to have caused the breach.

Elizabeth reported that DEM funding for NESC from FEMA EMPG funds should be forthcoming soon.

Discussion on a Letter of Support from the NESC for Earthquake-Hazard Parcel Mapping in Henderson, NV and Needs for a User-Friendly Earthquake Web Site for Nevada

MOTION PASSED: The Council unanimously approved a motion to provide a letter of support from NESC for John Louie's project on earthquake-hazard parcel mapping in Henderson.

ACTION ITEM: John Louie will work with Ron Lynn on appropriate wording for a NESC letter of support for earthquake-hazard parcel mapping in Henderson.

John Louie discussed efforts by Yui Miyata, the Webmaster for the Nevada Seismological Laboratory, to develop a Web site for Nevada earthquakes. A beta version is available at www.seismo.unr.edu/nvquakesinfo. Please e-mail suggestions to webmaster@seismo.unr.edu.

Update on the National Earthquake Conference, April 22-26, 2008 in Seattle, Washington

Jon Price urged individuals interested in the National Earthquake Conference to visit http://www.earthquakeconference.org/ for details about the conference and associated field trips and to register.

Discussion on NESC Support of the Western States Policy Council's Policy Recommendations

Jon Price led a discussion of four WSSPC policy recommendations that are proposed for adoption during the National Earthquake Conference. All four are likely to be supported by Nevada's three voting members of WSSPC (representatives from NESC, DEM, and NBMG). These include:

08-1 Improving Tsunami Public Education, Mitigation, and Warning Procedures for Distant and Local Sources
08-2 Active Fault Definition for the Basin and Range Province
08-3 Real-Time Earthquake Monitoring Networks
08-4 Identification and Mitigation of Unreinforced Masonry Structures

Craig dePolo discussed the possibility of using a 15,000-year date for recently active faults. It may make more sense than the current date of 10,000 years. The Holocene is now defined as 11,500 years ago to the present (which is equivalent to 10,000 years in typical, uncorrected carbon-14 dates). The logic for using 15,000 years is that date corresponds to the last high stand of Lake Bonneville (Utah and eastern Nevada), Lake Lahontan (western Nevada), and other late Pleistocene lakes in the Great Basin.

Ron Lynn described the development of the draft policy recommendation on URMs. It includes a definition of URMs as "made from brick, hollow clay tile, stone, concrete blocks, or adobe materials that are not strengthened by the addition of steel rods or other bracings."

Seismicity Report and Seismic Monitoring Needs for Southern Nevada

John Anderson reported on a cooperative agreement between UNR and UNLV, signed by the presidents of both universities, for working together on earthquake monitoring in southern Nevada.

John stated that 2007 was near a record low for earthquakes in terms of numbers of magnitude 3 or greater earthquakes (36 earthquakes of $M \geq 3$ in 2007; only two years had fewer, 1977 and 2005, each with 31). There were only 3 earthquakes of magnitude 4 or greater in Nevada in 2007. Although we don't know what the future will bring, statistically we have normally seen more earthquakes than in 2007 and would expect more in coming years.

John reviewed a recent article by Bernard Guest and others on the Stateline fault zone in the Pahrump area of southern Nevada. That paper proposes a slip rate for the fault (on the order of 2 mm/year) that is much higher than had previously been recognized. The rate is based primarily on displacement of a volcanic feature that is several million years old. Craig dePolo noted that critical studies are needed of the recent activity (last few thousands or tens of thousands of years). If the higher rate is applicable for recent activity, the earthquake hazard for Pahrump and Las Vegas would be higher than currently modeled by the USGS.

John emphasized that the seismic monitoring network in southern Nevada doesn't have enough stations to adequately determine locations and magnitudes of earthquakes. With a denser network, the Nevada Seismological Laboratory could locate earthquakes on specific faults in and around Las Vegas Valley, understand how stresses are transferred from the Eastern California shear zone across Nevada into Utah, and eventually allow for early warning of seismic shaking in Las Vegas Valley from earthquakes on distant faults, including major faults near Death Valley and in southwestern Utah. An additional 20 seismic stations in southern Nevada would create the necessary denser network. The Nevada Seismological Laboratory welcomes dialog from people and organizations interested in improving monitoring in southern Nevada so that the Laboratory understands the objectives. John Anderson reported that they have not yet been able to purchase any of the NSF EarthScope stations that are currently deployed in Nevada and will be removed over the next two years.

Old Business

Ron Lynn reviewed action items from the previous meeting.

ACTION ITEM: Ron Lynn asked that comments on the NESC annual report be given to Jim Reagan.

New Business

ACTION ITEM: Craig dePolo will invite representatives from the USGS and DOE and their contractors to the May meeting to discuss the implications of earthquake hazards at Yucca Mountain for possible licensing of a nuclear waste repository.

Future NESC meeting dates are as follows:

Wednesday, May 7, 2008 in Las Vegas at the Clark County Department of Development Services
Wednesday, August 6, 2008 in Reno (Sierra Pacific office)
Wednesday, November 12, 2008 in Las Vegas at the Clark County Department of Development Services

Public Comment Period

There were no additional comments.

The meeting adjourned at approximately 2:15 p.m.

REVIEW OF ACTION ITEMS

Terri Garside will add the following item to the agenda for the May NESC meeting: possible adoption by the NESC of a draft letter on accuracy of fault locations in the USGS Quaternary fault data base to the State Engineering Board.

Diane dePolo, on behalf of the NESC Education and Awareness Committee, will arrange for an Earthquake Safety Council booth and solicit volunteers to help with the booth for two back-to-back safety conferences: the City of Reno Safety Conference – June 24 (contact Chuck Connally, 848-7511) and the Governor's Safety Conference – June 25-26 (contact Adam Cleghorn, 850-3600).

Wayne Carlson work with Mike Blakely to create a definition of URMs that can be used in culling through the county assessor's databases, the NDOT database, and other State and University databases. Wayne will continue to build the database on URMs in Nevada, and he will convey the definition to Jim Walker and others as needed.

Jim Reagan will produce a draft of the 2007 NESC annual report for adoption at the May meeting. Terri Garside will place adoption of this report on the agenda for that meeting.

Glade Myler will contact Jeff Maples to ask if he is willing to serve as a NESC Board member in the position of a representative from Business and Industry in Northern Nevada. Ron Lynn will contact Scott Ball to ask if he is willing to serve as a NESC Board member to fill the position for Geosciences, Southern Nevada.

Glade Myler will keep NESC posted on relevant developments from the Department of Homeland Security.

Terri Garside will add as an action item to the agenda for the May NESC meeting to discuss adoption of a draft letter to the Nevada Board for the Regulation of Liquefied Petroleum Gas (with final wording subject to amendments).

John Louie will work with Ron Lynn on appropriate wording for a NESC letter of support for earthquake-hazard parcel mapping in Henderson.

Comments on the NESC annual report should be given to Jim Reagan.

Craig dePolo will invite representatives from the USGS and DOE and their contractors to the May meeting to discuss the implications of earthquake hazards at Yucca Mountain for possible licensing of a nuclear waste repository.

respectfully submitted by Jon Price, 13 February 2008

Nevada Earthquake Safety Council
c/o Nevada Bureau of Mines and Geology
University of Nevada/MS 178
Reno, Nevada 89557
775/784-6691 ext. 5

NEVADA EARTHQUAKE SAFETY COUNCIL
Members of the Board of Directors and Officers
(as of 14 November 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	Vacant
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	Ryan Turner American Red Cross
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

Members of the Executive Committee

Chair	Ronald L. Lynn
First Vice Chair-South	vacant
First Vice Chair-North	Jim Reagan
Second Vice Chair-South	Jim Werle
Second Vice Chair-North	Greg Moss
Secretary	Jonathan G. Price
Past Chair	John Anderson
Division of Emergency Management Representatives	Rick Martin
Senior Deputy Attorney General, counsel for NESC	Glade A. Myler

Special Planning Consideration Zones
Policy Statement 2008-1

Purpose:

An effective construction planning process requires consideration of earthquake hazards and their effect on community resources and risk mitigation. Special Planning Consideration Zones can be an important tool for local governments to assess the earthquake risks associated with proposed construction projects. This policy recommends that local governments designate specific earthquake zones that are subject to special planning consideration. These areas are for the purpose of identifying and mitigating the earthquake risks.

Policy Statement:

It is the policy of the State of Nevada, through its Division of Emergency Management (DEM) and the Nevada Earthquake Safety Council (NESC), that local governments should designate Special Planning Consideration Zones. Their purpose is to evaluate projects that should require special planning considerations, i.e., identifying and mitigating the earthquake risks.

NESC supports development of Guidelines for Establishing Special Planning Consideration Zones to assist local governments similar to those adopted for fault setbacks and liquefaction hazards.

Local Government Responsibilities:

1. Work with knowledgeable professionals and organizations to determine the earthquake hazards throughout the community
2. Consult with local stakeholders to identify specific zones in which the earthquake hazard should be further evaluated and considered for mitigation efforts to reduce the risks of locating a project in the zone
3. Create development standards for each designated zone
4. Develop a protocol for review of development and construction plans by local government inspectors
5. Empower planning departments to require mitigation plans to be developed prior to project approval

Legislative Interest:

To the extent DEM can implement this policy within its current framework and budget, no legislative action will be required. If legislation is necessary, then Assemblyman Anderson and Assemblyman Mortensen may be interested in proposing a bill draft.

Fiscal Impact:

Additional board and staff time will be involved in identifying hazards, establishing zones and developing requirements for mitigation. The cost for this effort is unknown at this time.

Benefits and Detriments of Implementation:

BENEFITS: As with the NESC Guidelines on mitigation of liquefaction risks and setbacks from known faults, these Special Planning Consideration Zones will help mitigate earthquake risks as new developments are evaluated by local governments. To the extent these mitigation efforts prevent or reduce the potential damages that may occur following an earthquake, community lives and resources will be preserved. Our communities will perform better in significant earthquakes, resulting in a better image and less disruption to the tourism industry.

DETRIMENTS: Additional board and staff time and expense will be involved in identifying hazards, establishing zones and developing requirements for mitigation. Developers likely will experience delays in projects during the review process and additional costs for mitigation. Some developers may choose not to proceed with projects.

Communications:

NESC will need to contact local governments, various professionals and organization stakeholders to elicit their support and cooperation in this effort. Cooperation between legal advisors to develop appropriate ordinances that are consistent among local governments will be necessary to assure developers of a streamlined review process. NESC can facilitate workshops to explain the purpose of the zones and the earthquake hazards associated with each community.

Assessment of Effectiveness:

Measures to assess the effectiveness of these planning zones ultimately will be a post-disaster assessment. Local officials can utilize HAZUS scenarios to measure the effect of disasters within zones and inform key property owners and developers of the value of such special planning efforts in assuring the success of their developments, both short term and long term, through risk mitigation.

Activating ATC 20 Post Earthquake Inspections
Policy Statement 2008-2

Purpose:

To assure an effective recovery process following an earthquake, qualified inspectors that rapidly can assess buildings for occupancy is critical This policy establishes an activation process for such inspectors, whether local, regional or from out of state and includes implementation of mutual aid agreements, and includes measures for assuring transportation and housing for the inspectors while they conduct inspections.

Policy Statement:

It is the policy of the State of Nevada, through its Division of Emergency Management (DEM) and the Nevada Earthquake Safety Council (NESC),that DEM develop and maintain a roster of Applied Technology Council ATC 20 certified inspectors in the State of Nevada for the purpose of activating them in the event of an earthquake. In conjunction with local governments, DEM will develop protocols for coordinating activation.

DEM Specific Responsibilities:

1. Consult with the local jurisdictions to determine how many certified inspectors likely will be needed by each jurisdiction in the event of a disaster
2. Consult with various professional organizations to garner support for the response protocols and recruiting inspectors
3. Promote and recruit sufficient personnel to obtain ATC 20 certifications for placement on the roster
4. Develop a call-out protocol for activation of inspectors and assignment of inspection sites

Legislative Interest:

To the extent DEM can implement this policy within its current framework and budget, no legislative action will be required. If legislation is necessary, then Assemblyman Anderson and Assemblyman Mortensen may be interested in proposing a bill draft.

Fiscal Impact:

Additional DEM staff time will be involved in developing the protocols, creating and maintaining the rosters and developing mutual aid agreements. The cost for this effort is unknown at this time.

Benefits and Detriments of Implementation:

BENEFITS: Reports about other states' experiences in activating ATC 20 inspectors indicated that delays in availability, inadequate number of trained inspectors were significant problems in actual disaster responses. By adopting and implementing this policy, DEM will have an opportunity to avoid inadequate responses by preplanning and monitoring the process.

DETRIMENTS: Additional staff time and expense will be necessary to implement protocols and to facilitate cooperation between DEM and the various organizations that can assist with a disaster. Rosters will be difficult to develop, but even more difficult to maintain current contact information and availability to assist.

Communications:

DEM will need to contact various professional organization stakeholders to elicit their support and cooperation in this effort. Once the protocols are developed, DEM will need to publish information about the response process to local officials and property owners so that they are aware of the available response efforts. Advance notification to the public of the protocols will enable better public acceptance and cooperation during a disaster as recovery efforts are undertaken.

Assessment of Effectiveness:

Measures to assess the effectiveness of these protocols ultimately will be a post-disaster assessment. Short of that, DEM can conduct test call-outs to determine availability for response based upon a few scenarios and record the results in terms of the number of available inspectors, their response times, transportation constraints and cost estimates for the response. DEM also can test the same scenarios with key property owners to determine awareness and cooperation with the process.

BILL DRAFT REQUEST
Assemblyman Anderson (potential sponsor)
Assemblyman Mortensen (potential sponsor)
Senator Hardy (potential sponsor)

Enact Nevada All Hazards Safety Action Priority Act

I. Intent of Proposed Bill: (Brief summary of intended effect)

Request that the Legislature adopt the Nevada All Hazards Safety Action Priority Act of 2009 incorporating the following elements that not only will save the lives of citizens and protect their property from damage, but will also demonstrate to potential visitors that Nevada takes an effective and proactive steps to deal with known risks and enhance emergency response and protect emergency responders.

a) Adopt for the State and strongly encourage local governments to adopt policies that promote public awareness of earthquake, flood, wildfire and other disaster risks, how to prepare for disasters and how to acquire disaster/emergency safety kits
b) Prepare for effective emergency response to a disaster by exercising existing response plans or encouraging the adoption of plans where they are not in place
c) Require Nevada's buildings to have life-safety resistance during an earthquake. Inventory the most seismically dangerous buildings and develop a plan for retrofitting or re-designating occupancy to reduce risks. The priority would be on critical structures and public life-line facilities including at least hospitals, emergency response facilities, energy generation facilities, and water and wastewater facilities.
d) Plan for quick recovery from any disaster by developing a plan through collaborative workshops throughout the State for regional local governments, major counties and cities and rural communities.
e) Plan for efficient tourist management and well being during and following a disaster by development of a Nevada Visitor's Disaster Response Plan working with hotel owners and other tourism facilities to distribute information to tourists, such as, an emergency response handout in hotel rooms and other public places.

II. Justification or Purpose: (Brief narrative of requirement. Use continuation sheet if necessary)

The Federal Emergency Management Agency, in its 2001 Report Number 366, estimated the annual earthquake loss for the state of Nevada to be $55 million per year, of which $28 million is in the Las Vegas metropolitan area and $17.8 million is in the Reno metropolitan area. These figures cover direct economic losses to the building inventory and do not include long-term, indirect economic losses for businesses, social losses, casualties, or damages to lifelines and other critical facilities.

These estimated annual losses take into account the buildings at risk and the frequency of earthquakes. A single, large urban earthquake in Nevada could cause billions of dollars in damage.

Nevada is the third most seismically active state in the Nation in terms of the frequency of major, magnitude 7 or greater, earthquakes. Only Alaska and California have major earthquakes more frequently than Nevada. Nevada ranks fifth in terms of estimated annual earthquake loss.

The seismic provisions in current building codes are meant to prevent loss of life and provide for public safety, not to assure that a building can be reoccupied after an earthquake. Since many public buildings are critical emergency facilities for shelter and serve as emergency response activation points, assuring that they have the ability to sustain operations following an earthquake or other disaster is critical.

Preparedness for earthquakes is comparable to preparedness for any major disaster, manmade or natural, particularly in terms of hardening of lifelines and critical infrastructure (e.g. water, sewer, electrical and communication systems), strengthening of buildings to withstand damage, for public safety during and after the event, pre-disaster preparedness and post-disaster recovery.

Since Nevada has significant hazards throughout the state, citizens of Nevada should be made aware of earthquake, flood, wildfire and other hazards and need to be prepared for these hazards and the aftermath of disasters. The State of Nevada Division of Emergency Management is charged with preparing for and responding to all hazards, educating the public and recommending preventative measures. This bill is to establish public policy that focuses on mitigation of the risks before a disaster, enhanced emergency response capabilities following a disaster due to better life safety for responders and the occupants of buildings, and awareness and preparedness by citizens and visitors.

The Nevada Earthquake Safety Council (NESC) is charged with the responsibility of recommending new research, mitigation projects, and other worthwhile projects that educate and provide information that helps the public understand earthquake hazards. The Division of Emergency Management has provided funds for recommended projects when available. NESC supported research resulted in development of the guidelines and the adoption of them further adds to Nevada's earthquake preparedness.

The purpose of the Nevada Hazard Mitigation Planning Committee is to advise the Nevada Division of Emergency Management (NDEM) concerning hazard-mitigation planning, activities and policies. All hazards, including natural and man-made, may be considered. The Committee implements the State Hazard Mitigation Plan including reviewing mitigation projects, overseeing mitigation grants and promoting activities to build disaster resistant communities.

III. <u>NRS Title, Chapter and Section affected:</u> (If applicable)

IV. <u>Effective Date:</u>

- X Default (October 1, 2009)
- o July 1, 2009
- o Upon Passage and Approval
- o Other _____

V. <u>Suggested language:</u> (Optional) (Use continuation sheet if necessary)

VI. <u>FISCAL NOTE:</u>

Effect on the State

Yes_x__ No ___ Contains Appropriation_____

Executive Budget_____ Effect less Than $2,000_____

Effect on Local Government

Yes_x__ No ___ Contains Appropriation_____

VII. Preprinting of Bill: (Subsection 3 of NRS 218.240)

May bill be preprinted? Yes _x__ No ___

VIII. Name of persons to be consulted if more information needed:

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Wayne Carlson, Chair, Committee on Policy Recommendations, Nevada Earthquake Safety Council, 1761 E. College Parkway, Suite 113, Carson City, NV 89711