

# EARTHQUAKE SAFETY COUNCIL

## Summary Minutes

### Meeting On

August 27, 1993  
Hacienda Hotel, Las Vegas, NV

#### I. CALL TO ORDER:

Meeting was called to order by Chairman Anderson at 9:40 a.m. Minutes from the June 4, 1993 meeting were approved.

#### II. ADMINISTRATIVE SUPPORT:

The Earthquake Program Manager (EPM) provided administrative information for the meeting. Attendees were advised that attendance would be taken from the sign-in roster and that the folder they received contained forms and instructions so that reimbursement of their expenses could be made. Special thanks were expressed by the Chairman and the EPM for the support provided by Chris Chairsell, UNLV Environmental Studies Energy & Environmental Education Section, for her outstanding assistance in coordinating the meeting.

#### III. INTRODUCTIONS:

Chairman asked each attendee to make a self introduction. Attendees were:

John Anderson, Chairman  
Rick Bennett, Assemblyman  
Mike Blakely, Dept of Education  
Harold Bonham, State Geologist  
Mario Camdia, UNLV Engineering Dept  
Gary Cordes, NV League of Cities  
Greg Erny, AIA  
Ron Lynn, Clark Co Building Dept  
Floyd Marcucci, Dept of Transportation  
John Merchant, City of Las Vegas  
Gary Peirson, Dept of Education  
Burt Slemmons, Consultant Geologist  
John Tucker, City of Las Vegas  
Charles Watson, Consultant Geologist  
Robert Weber, Clark Co Building Dept  
David Weide, UNLV Engineering  
Diane Donovan, Consultant Geologist  
Mike Kloberdanz, Nevada Public Service Commission  
Catheen Faulx, Clark Co Emergency Management  
Sam Palmer, Kleinfelder Consultants,  
James Hawke, Div of Emergency Management  
Chris Chairsell, UNLV  
James Goodfellow, Earthquake Program Manager  
Gina Putt, Div of Emergency Management

#### IV. CHAIRMAN COMMENTS:

Chairman noted this was an important meeting that would establish actions and priorities for the Council for an extended period. The Chairman encouraged all attendees to give their candid opinions so that all issues and concerns could be addressed.

Chairman discussed the National Earthquake Hazard Reduction Program (NEHRP) reauthorization process. NEHRP is now 17 years old and was reauthorized in 1990. At that time Congress directed an advisory committee to report to them in January 1993 to provide suggestions for improving the program during the next reauthorization. The conclusions in the report of the Advisory Committee have direct application to the Nevada Earthquake Safety Council. The essential conclusion was that the results of research were not being applied to problems in a timely manner and as a result mitigation of the risks from earthquakes was not being accomplished. One of the primary roles for the Earthquake Safety Council is to improve the transfer of knowledge from the research community into the public and private sectors where the users are.

A major problem reported by the Expert Advisory Committee is that NEHRP has four primary agencies and the "lead agency" is lead for administrative purposes only. This has led to competition for funds and support among the federal agencies and reduced their ability to not only transfer research knowledge but also reduced their ability to develop and maintain a consistent and programmatically successful effort over the years.

During the following discussion, there were four major concerns that emerged: 1) timeliness: results from the program are too slow in delivery to the actual end user, 2) user needs: the program lacks coherent, understandable goals that reflect the ultimate user needs, 3) knowledge transfer: very little useful information is being given to the ultimate user, and 4) lack of clarity in goals: government seems to lack adequately defined short and long-term goals to support the needs of the private sector and individuals.

The consensus of the attendees was that the program at the national level would be improved if the "lead agency" status were more clearly defined and lead agency responsibilities were focused on management of the overall program instead of simply being a coordinator of multiple agencies individual programs. It was felt this could lead to improved state and local programs that could focus on applying efforts toward the broader goals of mitigation, i.e., pre-earthquake actions taken to reduce the risk.

#### V. RECENT EARTHQUAKES:

Chairman Anderson provided technical information on the current earthquake activity. He summarized the seismological

data for the extended boundary area between the Pacific Plate and the North American Plate. Of major significance to the Council was the summary of plate movement that demonstrates the critical need for Nevada to become better prepared for a damaging earthquake.

The Seismological Lab has calculated that earthquake events in the Great Basin are precursors of earthquakes of equal or greater magnitude within 50 hours slightly less than 10% of the time. Of greater significance has been the conclusion that major/great earthquakes can generate damaging earthquakes several hundred miles from the epicenter into Nevada and other Great Basin states.

The current UNR field work has mapped 265 faults across Nevada, primarily in the western and central counties. More work is needed to complete the mapping coverage in the remaining counties.

The Chairman noted specifically that the national earthquake program models much of the probability estimates and damaging effects of earthquakes on strike-slip experience from studies of the San Andreas fault. In Nevada and the other Great Basin states this California model does not represent the typical ground displacement that has been observed. In the Great Basin a "normal" type of earthquake ground displacement is more common and the National program does not take into consideration this difference in the NEHRP plan.

It was the consensus of the attendees that this information was of great value in helping understand the statewide seismic risks. The conclusion is that this kind of presentation should be taken to the public so they can better appreciate the hazards and determine the individual precautions they wish to take from the earthquake risks that they feel are appropriate to their circumstances.

#### **VI. NEVADA SCIENCE CONSORTIUM:**

Chairman invited David Weide, UNLV Geoscience Department, to discuss the recent meeting of state and academic geological representatives at Ely. Mr Weide reported at this meeting the representatives agreed to:

- 1) Establish a NV Consortium for Geochemistry and Geochronology. This would enable the "big ticket" items of equipment to be split between UNR and UNLV for budget saving purposes.
- 2) Develop funding proposals for the expensive items from a variety of sources including the government and the private sector.
- 3) Develop funding proposals to support operating personnel.
- 4) Revise the current "formula-driven" faculty/support ratios at UNR and UNLV.
- 5) Develop an inventory of equipment and personnel.

- 6) Establish a state-wide interactive TV education network.

It was the consensus of the attendees that such a consortium represented the wave of the future to keep Nevada at the leading edge of academic investigation while recognizing the budget constraints all public funded organizations must respect.

#### **VII. INTERNATIONAL ATOMIC ENERGY AGENCY CROATIA MISSION (IAEA):**

Chairman invited Councilmember Burt Slemmons to report on his trip as a member of the IAEA Croatia Mission inspection team. Mr Slemmons described the team members and their mission to Zagreb to review proposed sites for potential nuclear power plants. Team members were from the U.S., France and Germany. Mr Slemmons was responsible for reviewing paleoseismicity of the sites as there is concern that any future nuclear power plant must be located in a seismically safe location. Results of this visit indicated that Zagreb needed to conduct more studies before it could be concluded that the proposed locations met the safety criteria of IAEA.

The consensus of the attendees was that by understanding the seismicity problems encountered in trying to locate a nuclear power plant, the Council would better understand the earthquake problems facing parts of Nevada.

#### **VIII. NEVADA EARTHQUAKE RISK REDUCTION PLAN:**

Chairman asked the Earthquake Program Manager (EPM) to update the Council on the status of the Nevada Earthquake Risk Reduction Plan (NERRP).

The EPM provided the following comments:

Nevada entered the national earthquake program in 1991 when the state and FEMA mutually recognized that Nevada had the third greatest earthquake risk nationally, behind only Alaska and California. The NERRP is a 5 year plan with 2 goals:

- 1) find and recommend immediate improvements that will reduce the risks to public safety, and,
- 2) recommend long term mitigation actions that will provide permanent improvements benefitting the state.

Nevada presents a major planning, mitigation and response problem that is shared by many Great Basin states that are part of the national program. The total population of the state is small, less than 1.3 million people, and almost 90% live in two major urban areas. This population disparity between the rural and urban areas presents a major challenge in developing a program that can meet the needs of both urban and rural users. The current draft of the NERRP is beginning to recognize the difference in the needs of the local users of the

program, however, comments received on the current draft reflect the need for significant improvement. The overall goal of the program is for the document to be the vehicle through which the latest and best information from science, engineering and emergency management can be made available for local governments and the private sector to use for their individual safety improvements. The EPM asked each attendee to review the latest draft and forward comments to him so that a revision can be prepared prior to the next Council meeting.

In the following discussion Burt Slemmons asked to have a data sheet included in NERRP that would list the recent seismic studies that have been conducted in the Las Vegas area or that applied to the Las Vegas area. The consensus of the attendees was that the document is headed in the right direction, but more work needs to be done before it should be widely distributed for review and comment. (EPM note: Data sheet attached)

**IX. FUTURE OF THE EARTHQUAKE SAFETY COUNCIL:**

Chairman next introduced the main discussion agenda item of the meeting; What is the future of the Earthquake Safety Council? The current status of the Council is as an advisory group to the Director of Emergency Management. While there were specific individuals identified as members when the Council was initially being developed, since the first meeting in May 1992 many new organizations and individuals have become involved and some original members have withdrawn. In the recent legislative session just completed a bill was considered that would have established a specific membership list and provide a budget to support the annual activities that were to provide direct advisory service on seismic issues to the Governor and the Legislature. This bill died in committee. The intent of this discussion was to consider what the role of the Council should be, who the audience should be for the advisory services the Council may offer, and who should be involved as members of the Council.

After much active discussion, it was the consensus that the State of Nevada needs a formal statewide advisory council. Three significant conclusions were reached: 1) that the Council must maintain the highest standards of science, 2) increased participation must be obtained from the design professions, 3) the Council must be an "inclusive" versus "exclusive" organization that represents the broad spectrum of interests in seismic safety; i.e., the private sector (business and individuals) users, the scientific community, the engineering community, the emergency management professionals and the officials who make policy. It was believed that the Earthquake Safety Council presented a unique opportunity for those specialists familiar with the National Earthquake Hazard Reduction Program to bring mitigation information to these "users" and for the "users" to express

their needs directly to the experts. This past lack of successful communication among the participants involved in seismic safety must be overcome.

Several significant issues were discussed. Of major concern was the perception that a legislative charter would create a "mandate" about seismic safety instead of focusing the Council on an advisory role. Such a perception has created many of the concerns about the future of the Council both in the Legislature and among the users community. As part of this overall concern, the issue of potential changes in Codes and Standards with related cost concerns plus the unequal earthquake risk across the state, the question of retrofit needs among older buildings and finally the possible negative publicity resulting in the private sector over seismic risk have been a major handicap in obtaining recognition for the Earthquake Safety Council.

The following conclusions were reached:

1. The Earthquake Safety Council should be an advisory body to the head of the Nevada Emergency Management Division until the Legislature has had an opportunity to review the process at the next session. The Chief of Emergency Management agreed with this conclusion.
2. The Earthquake Safety Council should establish a formal statement of mission and objectives to clarify activities to members and the public. All attendees agreed to forward inputs as soon as possible to the EPM so that a draft could be prepared for the next meeting.
3. The Earthquake Safety Council should concentrate on major issues affecting statewide safety rather than nuts and bolts details.
4. The Earthquake Safety Council should be a key contributor and sponsor towards improving the transfer of knowledge accumulated by NEHRP activities to the "users" community in Nevada.
5. The Earthquake Safety Council should be a direct link between the private sector and the public sector as well as providing an open public forum to discuss issues affecting both urban and rural Nevada safety concerns.
6. The Earthquake Safety Council should be an inclusive rather than an exclusive organization and special efforts should be made to encourage participation from all parts of the state society.

#### **X. FUTURE MEETINGS:**

Chairman discussed the need to establish a regular meeting date. It was believed such a regular time would improve attendance and simplify some of the administrative details. It was noted during the discussion that appropriate holiday changes as well as special events would always need to be

accommodated. The consensus was that quarterly meetings would be held as incorporated into the FEMA supported funding. It was agreed that the second month of the quarter and the third Friday would become a standardized meeting date. A general consensus was strongly supported that meeting locations should be rotated within funding limits to all parts of the state. Initially, meetings would be rotated between Reno and Las Vegas due to funding constraints.

The next meeting was scheduled for Friday, November 12, 1993 so that it would not interfere with the Thanksgiving holiday. The meeting will be held in Reno with the location and time to be announced with the agenda.

**XI. ADJOURNMENT:**

Meeting was adjourned at 3:00 p.m.

## RECENT EARTHQUAKE POTENTIAL STUDIES IN THE LAS VEGAS REGION

Several studies are important for assessing hazards in the Las Vegas-southern Nevada region. Studies and reports that will expand our knowledge of the hazard in this region include:

1. Wyman, Richard V. and 5 others: Geology of Las Vegas, Nevada, United States of America, Association of Engineering Geology Bulletin, v. 30, n. 1, p. 37-78. The report summarizes data for 17 earthquake sources that affect Las Vegas Valley.
2. Golder Associates Inc: Probabilitstic Seismic Hazard Assessment for the Mead Substation, Boulder City, Nevada by Don West, Ricardo Zepeda, and Robert Youngs of Geomatrix Consultants, Inc. for Western Area Power Administration of U. S. DOE. The report includes fault and seismicity maps at a scale of 1:500,000 and tabulates fault characteristics and prepares maximum credible earthquake (MCE) values for 51 Quaternary faults or fault systems in the region considered. The mean MCE for each fault varied from  $M = 6.5$  to 7.7.
3. U. S. Bureau of Reclamation: Seismotectonic Structures of the Northern Lower Colorado, by Lucille Piety, with a fault map at a scale of 1:500,000.
4. U. S. Geological Survey\U. S. Bureau of Reclamation: Compilation of Known Surface Quaternary Faults within 100 km of Yucca Mountain, by Larry Anderson and others in a map at scale of 1:250,000. When published, this will provide fault locations for the region west of Las Vegas.
5. Civilian Radioactive Waste Managment Systems Managment & Operations (M&O) contractor for U. S. DOE by the the Technical Assessment Team in Technical Assessment of "Exploratory Shaft Seismic Design Basis Working Group Report" (SAND88-1203). Prepared by a team of ten, that includes seismologists, paleoseismologists and earthquake engineers, with a final report expected in a few months. Report is based on an available earthquake catalog, and a new compilation of paleoseismic data.
5. Jennings, C.W., 1992: Preliminary fault activity map of California Department of Mines and Geology, Open-File Report 92-03, scale of 1:750,000 and report on fault characteristics and reference.

Several maps by John Dohrenwend, Marith Reheis, and colleagues of the U. S. Geological Survey were published in 1991 and 1992 for Nevada and eastern California quadrangles at a scale of 1:100,000.