

The National Earthquake Risk Management Conference

Understanding the Hazards and Reducing the Risks

**Seismic Safety Advisory Boards Invitational Meeting
September 17, 2000**

Ron Lynn, Chair of the Nevada Earthquake Safety Council, chaired the meeting, which ran from 8:15 a.m. to 4:00 p.m.

Attendees and the states or organizations that they represented included:

Rod Combellick, AK
R. Scott Simmons, AK
Bill Sims, AR
Larry D. Fellows, AZ
James Davis, CA
Dan Shapiro, CA
Henry Reyes, CA
Shirley Dean, Mayor of Berkeley, CA
Bob Kirkham, CO
Vince Matthews, CO
Brian Yanagi, HI
Ernie Harper, ID
Donald C. Haney, KY
Ed Fratto, NESEC (Northeast States Emergency Consortium)
William Durbin, MO
Ed Gray, MO
Ed Deal, MT
David Love, NM
Evonne Gantz, NM
Ron Lynn, NV
Jonathan G. Price, NV
Craig dePolo, NV
Robert H. Fakundiny, NY
Mark Darienzo, OR
Ronald P. Zurawski, TN
Walter J. Arabasz, UT
Bob Carey, UT
Ed Von Turkovich, VT
Karen Frett, VI
Glen Woodbury, WA
George Crawford, WA
Ray Lasmanis, WA
Maillian Uphaus, WA
Robert J. Bezek, WY
Ed Wallace, WY
Patti Sutch, WSSPC (Western States Seismic Policy Council)
Todd Fleming, WSSPC
Michael Burns, BBS, Inc.
Elizabeth Lemersal, FEMA
Sue Luebbering-Evers, FEMA
Carl Mortensen, USGS
Alistair McCrone, Humboldt State University

Ron Lynn thanked FEMA for their support of this meeting and noted that the last time the state seismic safety boards, councils, and commissions met as a full group was in 1996, although there had been informal meetings during each of the last two WSSPC annual meetings. Individuals introduced themselves, provided brief statements about their groups, and explained their expectations for this meeting.

Walter Arabasz challenged the group to think about two rhetorical questions:

1. If the time between damaging earthquakes in your state is longer than 10 years, how do you sustain efforts of your seismic safety commission?
2. If your age is greater than 50, what is your plan for succession – how will your enthusiasm for earthquake preparedness and mitigation be continued?

Mayor Dean explained Berkeley's efforts in earthquake mitigation. She noted that about 37% of single-family homes have been retrofitted, and the city has authorized \$250,000,000 in bonds for retrofitting public buildings. The city is also looking at an independent fire system for pumping water after a major earthquake. The city is concerned about how to deal with soft-story and unreinforced masonry buildings. FEMA's Project Impact program has given Berkeley's efforts a boost. They take advantage of April Earthquake Month, the October anniversary of the Loma Prieta earthquake, and other events to promote earthquake mitigation.

Individuals highlighted some of their groups' best products:

Alaska- various technical reports from the geological survey and the seismology lab at the University of Alaska; earthquake simulator (purchased) used at state fairs and other venues; coloring book featuring Ernie Earthquake, Heidi Hazmat, and Tommy Tsunami; ice scraper with tsunami information; yellow plastic bag with earthquake information.

Arizona – brochure on earthquakes in Arizona, video for schools, earthquake hazard map.

Arkansas – Web site, including state hazard mitigation plan; earthquake awareness week.

Berkeley – Newsletter to neighborhood watch groups (with everything from recipes for firehouse chili to information on earthquake mitigation). 60% of Berkeley residents are hooked into the Net; the city's Web site has maps of earthquake hazards and various other reports (from USGS and state).

California – publication on "Earthquake Risk-Management Tools for Decision Makers;" updates to "Homeowners Guide to Earthquake Safety" and "Commercial Property Owners Guide to Earthquake Safety" – the former required by law to be distributed at the time of sale of a house; recent report to the governor and legislature on lessons learned from recent earthquakes in Turkey, Greece, and Taiwan; many other publications; striving for consensus on the hazards and risks (e.g., collaboration with USGS on the probabilistic seismic hazard map that became part of the NEHRP provisions used in building codes); consensus on the use of HAZUS.

Colorado – Earthquake Fact Sheet – has been distributed widely in the state.

CUSEC – their popular journal.

Hawaii – Web site on state hazard mitigation, “The Bad Boys of Nature” (World Wrestling Federation theme); home retrofit guide for earthquakes and hurricanes.

Idaho – brochure introduced through network television; efforts with schools and senior-citizen homes for low-cost mitigation.

Missouri – Strategic plan requires an annual report to the governor; earthquake awareness week; press releases (on the impacts of the 5.2 Napa Valley – Yountville earthquake in early September 2000); Mid-America Earthquake Center (U of Illinois); all-hazards calendar.

Montana – display materials for schools; new active fault map; real-time postings of earthquakes on the Web (with USGS help).

Missouri – Strategic plan requires an annual report to the governor; earthquake awareness week; press releases (on the impacts of the 5.2 Napa Valley – Yountville earthquake in early September 2000); Mid-America Earthquake Center (U of Illinois); all-hazards calendar.

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NESEC – publications and videos; inclusion of earthquakes in a multi-hazard approach; successful school training program (in New Hampshire).

Nevada – Earthquake calendar distributed to schools and with posters from a school poster contest; “Planning Scenario for a Major Earthquake in Western Nevada,” used in numerous earthquake exercises, including most recently an Integrated Emergency Management Course for state officials at FEMA’s training center in Emmitsburg, Maryland; Publication (on the Web and in hard copy) of “Living with Earthquakes in Nevada;” strategic plan on the Web and used to help guide the activities of the council; updated annually through a strategic planning committee; Web site of the Seismological Laboratory at the University of Nevada, Reno – thousands of hits per week; real-time seismograms and quick reports; new epicenter map, distributed free to schools; awards from the Nevada Earthquake Safety Council, including one to a newspaper reporter; guideline for fault investigations and liquefaction.

New Mexico – quarterly magazine free to teachers and others (“Lite Geology”); “Rockin’ Round New Mexico” summer program for teachers; doorknob cover on what to do before, during, and after an earthquake.

New York – working on an update of the state emergency response plan; made for TV movie on “Earthquake in New York” (with fortunately no attribution to the geological survey); adoption of seismic building code provisions in New York City (not yet accepted for the whole state); earthquake fact sheet; working on HAZUS with updates of engineering-response characteristics of soils and rocks in glacial areas; debates (among academic and consulting communities on one side and Ontario government officials on the other side) in western New York and eastern Ontario about earthquake hazards around Lake Ontario (with concerns over two nuclear power plants near Toronto) – getting arguments in peer-reviewed journal (Tectonophysics).

Oregon – “Earthquakes at Risk” document, with artwork cover from a student at a Benton County school; standing subcommittees on education and legislation; bill proposed to mandate earthquake drills for public buildings; bill proposed for retrofitting of schools; updating Web site.

Tennessee – published hazard maps and catalogs of earthquakes; working with other state geologists within CUSEC on regional maps; Center for Earthquake Information at the University of Memphis – Web site.

Utah – Strategic Plan; one-page and two-sided fact sheets (on the Web); ICBO has helped write a two-page brochure on Utah's parapet ordinance; involvement of women (with most passionate commitment to the future).

Vermont – all-hazards approach working best in the northeast; FEMA's earthquake curriculum has been accepted in their schools; American Red Cross's "Disaster Masters" program is another good collaboration.

Virgin Islands – coloring book; presentations at schools and senior homes (many of which are old); fairs; recent report on inspections in critical areas (schools, hospitals, senior centers). The last major earthquake was in 1867. Combining with hurricane hazards helps.

Washington – Many of the recommendations in a 1991 report on a policy plan for the state have been followed: school modernization; partnerships with CREW, Project Impact communities, home retrofit, school retrofit, "Prepare Because You Care" all-hazards program, new liquefaction maps (which feed into HAZUS evaluations and Project Impact), "Earthquake Primer," Earthquake Awareness Week in April, close working relationships with the press, feeding new information from USGS and others; Geologists Registration Act passed by last session of the legislature; telephone companies put a page in the phone books; actual disasters help hazard-program budgets.

WSSPC – National Awards in Excellence (to be featured during the National Earthquake Risk Management Conference)

The group then had a brainstorming session to identify the top national seismic safety issues. The following items were briefly presented then separated into broad categories for discussion during break-out sessions.

BUILDING AND INFRASTRUCTURE ISSUES

- Retrofitting old buildings
- Adoption of International Building Code 2000 & International Residential Code
- Enforcement of the building code
- Infrastructure Protection
- Lessons learned from earthquakes worldwide – post earthquake damage assessment
- Funding

COMMUNICATION plus IMPLEMENTATION or TACTICAL PLANNING

- Identification by the public of their perception of acceptable risk
- Risk communication (hazard, outcomes & consequences) and consensus among the scientific community
- Identification of all the hazards associated with earthquakes (shaking, liquefaction, landslides, etc., including complete seismic monitoring of the country (ANSS))
- Coordination of loss-reduction efforts
- Use of HAZUS
- Direct link between a presidential declaration and HAZUS results – as official policy (to use HAZUS as justification for a presidential declaration)

- Media understanding of the basics of earthquake hazards
- National spokesperson (with USGS) for earthquakes with the level of visibility of the National Hurricane Center
- Coordinated educational effort (through the schools)
 - Retrofitting older schools
 - NEA
 - Schools initiative
- Usability of materials
- Regionalized implementation needed
- Strategies
- Funding

TRANSLATION AND TRANSFER OF GEOSCIENCE RESEARCH

- Geologic data discrepancies – lack of consensus on policy implications
- Funding

PARTNERSHIPS

- Partnership building
 - Planning organizations
 - American Red Cross
 - Involvement of the private sector (insurance, banking, real estate, etc.)
 - Tribal organizations
- Funding
- Multi-hazard integration

COMMUNICATION

This break-out group spent much time discussing Web sites. They stressed the process from awareness to knowledge to concern to action. One useful tool is a weekly report in the newspaper of occurrences of natural disasters. Some audiences don't want to hear the bad news (e.g., school boards that would need to pay for retrofitting once they are aware of the problems). Processes need to be put into place to assure continuity. Web linkages should be made between existing products.

The break-out group discussed how to achieve a consensus on the use of HAZUS and recommended that regional HAZUS working groups be used. An example was given of slightly different outputs when running HAZUS on different computer operating systems. Considerably different results can be generated when different assumptions are made about the building stock or geologic conditions.

The average citizen needs to be able to understand information about earthquakes. For example, FEMA could have a "community page" on its Web site to emphasize easily understood information.

TRANSLATION AND TRANSFER OF GEOSCIENCE RESEARCH

The group proposed that regional earthquake prediction and evaluation councils be established throughout the country. These can be patterned after the existing California Earthquake Prediction and Evaluation Council and the Central United States Earthquake Prediction and Evaluation Council. The Iben Browning incident (a false, unscientific prediction of an earthquake in the New Madrid area, which was hyped by the press, but no panel of experts came forward quickly to dispel the Browning prediction) and implications

regarding earthquakes hazards in the New Madrid area on the basis of new geodetic data were given as examples of the need for scientific consensus on the implications of predictions and new data.

The preferred model for a regional earthquake prediction and evaluation council has the following elements. Its charter should be to evaluate new developments in earthquake research and events and provide advice to emergency managers and policy makers. The council's audience should be emergency management agencies (including state offices and FEMA headquarters and regions). The emergency management agencies should be ready to receive the council's advice and forward appropriate recommendations to the public and policy makers. The council needs criteria to trigger meetings; these criteria should include public concern (as in the Iben Browning case) and scientific developments (as in the case of new geodetic data in the New Madrid area). Membership on the council should be limited to scientific and other technical experts. Individual councils should be geographically defined on the basis of common seismic sources. The USGS should serve in the role as a resource for regional councils and should interact on evaluating predictions and scientific developments. For example, the California Earthquake Prediction and Evaluation Council involves USGS scientists.

The break-out group also advanced the idea that state and regional seismic safety groups (state seismic safety boards, councils, and commissions and regional consortia) seek opportunities to use new technology to lower seismic risk. This includes use of the emerging Advanced National Seismic System and improved testing methodologies (such as shake tables).

The break-out group also advised that seismic safety groups commit to long-term credible communication of earthquake risk, rather than capitalizing on single events. The use of HAZUS and the September 20, 2000 release of FEMA's annualized loss estimation calculations for the United States are examples of opportunities to develop long-term credible communication of earthquake risk. There needs to be cross communication between disciplines.

BUILDING AND INFRASTRUCTURE ISSUES

The group discussed how to develop a strategy for the adoption of the International Building Code 2000 (IBC) & International Residential Code (IRC). One approach is tax incentives. Another is insurance. In some cases laws need to be changed; for example, 93 counties in Missouri are currently prohibited (by the state constitution) from having building codes.

Enforcement can be better accomplished through education of contractors and building inspectors. The group encouraged FEMA and the ICC to further educate inspectors, engineers, and planners for post-disaster damage assessment.

The group set the following priorities for building and infrastructure issues (with number 1 being the highest priority):

1. infrastructure protection
2. adoption of IBC and IRC
3. identification and retrofitting of old buildings
4. post-earthquake damage assessment

In the full-group discussion afterwards, the suggestion was made that there be more consistency in the data collected during post-earthquake damage assessment. It was also pointed out that additional strong-motion instruments in urban areas through the Advanced National Seismic System will provide valuable information for post-earthquake analysis.

PARTNERSHIPS

This group looked at how to use existing consortia, boards, councils, and commissions more effectively. They stressed the importance of bringing in the needs of local communities, insurance experts, and other users. The feeling was that the regional consortia should create a steering group to discuss policies. Members of the steering group would include representatives of WSSPC, CUSEC, NESEC, CREW, NEMA, AASG, FEMA, and the USGS. Additional groups should be represented as needed. Other agencies should be able to be added to the process (e.g., NOAA/National Weather Service when discussing floods). Policy suggestions should be forwarded to NEMA and AASG, who would act on the steering group's recommendations and communicate their resolutions and recommendations to FEMA, the USGS, and others.

In the full-group discussion afterwards, the suggestion was made to deal with multiple hazards as an appropriate area for national consideration.

Ron Lynn opened a discussion on outcomes from this meeting.

1. The overall group came to the consensus that a national steering group be formed as suggested by the partnership break-out group. Ron charged the executive directors of the consortia and representatives from FEMA and the USGS to move forward with the steering group. Items for the steering group to consider include the following:
 - a. Adequate funding to keep their Web page up to date – to help it stay current and alive – FEMA to help.
 - b. The need for infrastructure hardening regarding natural disasters, particularly recognizing their importance relative to cyber threat and terrorism.
 - c. The steering group should consider multiple hazards.
 - d. The steering group should discuss and further the recommendations coming from the translation and transfer discussion group.
 - e. The steering group should also be the recipient of policy suggestions developed at this week's National Earthquake Risk Management Conference.
 - f. The steering group should serve as a voice for seismic policies, with information being forwarded to Congress and to local government (through NEMA and AASG).
 - g. The steering group should discuss how frequently the state seismic safety boards, councils, and commissions meet.
 - h. The steering group should determine whether a formal association is needed.

2. Elizabeth Lemersal discussed the Earthquake Information Providers Group (EQIP) Web site (eqnet.org). EQIP is a working group made up of state, regional, and national organizations that gather, prepare and disseminate information about earthquakes. FEMA volunteered to help develop links to state products. The group came to the consensus that FEMA should assist with this effort. Ron Lynn, Walter Arabasz, Patti Sutch (in abstentia), and Ed Von Turkovich volunteered to help Elizabeth with this effort. Ed Fratto cautioned that FEMA should avoid reinventing Web sites that already exist in the earthquake community.
3. Ron Lynn asked the group: How frequently should this group of state seismic safety boards, councils, and commissions meet? Some answered ideally every year, at the most every two years. Jim Davis stressed the importance of these groups helping one another. It was suggested that at the next meeting there be more exchange of best products. Scott Simmons advocated having the group meet along with WSSPC. Ron Zurawski and Brian Yanagi suggested that the steering group first meet and see what progress it can make; a physical meeting every two years would be appropriate.

Ron Lynn thanked everyone for attending and adjourned the meeting at 3:58 p.m.

Submitted by Jonathan Price, State Geologist of Nevada and Chairman, Western States Seismic Policy Council