



State of Utah

UTAH SEISMIC SAFETY COMMISSION

Michael O. Leavitt
Governor

T. Leslie Youd
Chairperson

Staff:
Utah Geological Survey
2363 South Foothill Drive
Salt Lake City, Utah 84109-1491
Phone (801) 467-7970
FAX Line: (801) 467-4070

Utah Division of Comprehensive Emergency Management
State Office Building, Room 1110
Salt Lake City, Utah 84114
Phone (801) 538-3400
FAX Line: (801) 538-3770

UTAH SEISMIC SAFETY COMMISSION MEETING

April 20, 1995 -9:00 a.m.

State Office Building Room 1112

MINUTES

Members Present:

Chair, Les Youd
Lee Allison
Walter Arabasz
James Bailey
James Golden
Barry Smith

Professor, BYU Civil Engineering Department
Director, Utah Geological Survey
Director, University of Utah Seismograph Stations
Structural Engineers Association of Utah
Assistant Chief Structural Engineer, Department of Transportation
Western Mountain Region American Institutes of Architects

Members Excused:

D. Douglas Bodrero
Ken Bullock
Lorayne Frank
William E. Juszczak
Craig A. Peterson
David Prothero
Randall Updike
Suzanne Winters

Commissioner, Department of Public Safety
Director, Utah League of Cities and Towns
Director, Comprehensive Emergency Management
Division of Facilities Construction and Management
Utah State Senate
Federal Emergency Management Agency (Ex Officio)
U.S. Geological Survey (Ex Officio)
Science Advisor, Governor's Office of Planning and Budget

CEM Staff Present:

Brenda Edwards
John Rokich
Judy Watanabe

Office Technician, Natural Hazards Section
Natural Hazards Section Chief
Planner, Natural Hazards Section

UGS Staff Present:

Gary Christenson
Janine Jarva

Applied Geology Manager
Senior Geological Technician

Others Present:

Carl Eriksson
Lee Siegel

Salt Lake County Development Services, Structural Engineer
Salt Lake Tribune



Call to Order:

Chairman Les Youd called the meeting to order at 9:10 a.m. and began by asking if there were any corrections to the minutes. There were none and the minutes were approved as submitted.

News:

USGS Meeting: Walter Arabasz reported on the USGS earthquake-hazard meeting which convened on the 15th and 16th of February at the University Park Hotel. It was an open meeting with broad participation. Participants included earth scientists, engineers, and other interested professionals from throughout the intermountain region.

The USGS is preparing new earthquake ground-shaking hazard maps. The purpose of this meeting was to gather local input for these maps. Walter stressed the importance of using up-to-date earthquake catalog and fault information. Drafts of the map may be available by the end of the year. The maps will replace the Algermissen ground-acceleration maps.

Rep. Stephen's bill: John Rokich reported that Rep. Stephens' bill proposing an emergency management trust fund did not pass. It is unclear if the bill will be reintroduced again next year. The State and Local Affairs Committees' opinion was that there is so much to do in this area that the amount of money appropriated by the bill was not sufficient. Funding for the bill was a direct appropriation and not a tax on insurance premiums. The hope was expressed that the bill would be reintroduced next session. The Commission would again support the bill if reintroduced.

WSSPC update: Lee Allison reported on the WSSPC reorganization meeting in Phoenix. The meeting was designed to find ways to make WSSPC more effective. Emergency management directors, state geologists, and members of federal agencies attended. At the end of the meeting there was almost complete unanimity, excluding Lee, in support for the reorganization of the council. There will be a new board of directors, consisting of emergency management directors and state geologists, and increased FEMA funding to back the board. USGS has expressed a willingness to participate more. The WSSPC Board is planning on hiring a professional management company (Council of State Governments) to act as executive director, handle public relations, and lobby. WSSPC has thought of breaking into regional groups but that would decrease the lobbying power. They will remain unified with informal focus groups to deal with local issues.

Rep. Reber's replacement: Gary Christenson said that Representative Peter Knudson of Box Elder County will replace Representative Reber. He is a first term representative and serves on the Business, Labor, and Economic Development Committee; the Transportation and Public Safety Committee; and the Human Services and Health Appropriations Committee. Les suggested that a meeting be set up with Representative Knudson to orient him and solicit his support.

Distribution of the "Strategic Plan": Janine Jarva discussed the distribution of the "Strategic Plan." Most of the original printing was mailed to people on a list developed from USSC

recommendations. A letter was sent to all Utah businesses with 100 or more employees alerting them to the availability of the plan. The Salt Lake Tribune article generated many calls of interest. Twenty-five copies of the "Strategic Plan" have also been sent out of state. The CERT (Community Emergency Response Team) Program has distributed some copies of the plan in their training classes. The response has been very positive. Of the 1500 copies in the second printing, 300 have been distributed. Les requested copies be sent to western state's seismic safety commissions.

Kobe Japan earthquake: Les Youd was a part of a team organized by University of California, Berkeley that went to Kobe Japan. The actual emergency situation was under control by the time the team arrived, but transportation was still difficult. Les has given many talks on the earthquake and several others are scheduled. The Northridge and Kobe earthquakes have given us a chance to see how engineering structures perform in severe earthquakes. A comment was made encouraging EERI membership because they rapidly disseminate information about lessons learned from earthquakes like these.

Miscellaneous: John Rokich introduced the new secretary for the Natural Hazards section at CEM, Brenda Edwards. Brenda will be compiling the minutes for this commission.

Jim Bailey commented on his letter to the editor in the Tribune that listed him as a USSC member rather than listing his business affiliation. He stated that the comments made were his own and did not represent the Commission. After discussion, the sense of the USSC was that being identified as a USSC member increases public awareness and helps the USSC achieve its goals. As long as the member makes it clear that they are presenting their own opinion and not speaking on behalf of the USSC, their identification as a USSC member is encouraged.

California OES Northridge Conference: Carl Eriksson read his prepared remarks. (See attached written presentation.) Some of the points brought out by Carl in the discussion following his prepared remarks included:

- In Salt Lake County, when a home is in a fault-rupture or liquefaction zone, it is reported to the county recorder so that buyers can be notified prior to sale.
- Salt Lake County emergency responders are well prepared for search and rescue, but little planning has been done for recovery and rebuilding.
- Emergency response plans are being set up, and many inspectors/employees have 72-hour kits in their offices.
- Our new building inventory (design, inspection, enforcement) is seismically better, but we probably need to change the triggering mechanism for dealing with existing URM buildings.
- Code enforcement is improving, but problems still exist in smaller jurisdictions; education and training of inspectors are needed for further improvement.
- Structural plan checks are not well done at this time; many cities must contract for

plan-checking services.

- Salt Lake County has completed a reconnaissance inventory of seismic resistance in buildings in the county, and determined that 20-30% are sufficiently suspect to merit more detailed investigation.

Other issues that arose in the discussion following Carl's presentation were:

- California has a large resource base for response and recovery, but Utah does not.
- California regulates many earthquake-related aspects of development, but Utah "dances around any form of regulation."
- California's position that "not only is the state asking you to prepare for an earthquake, they are also willing to help you with that preparation" is not the case in Utah, and the Legislative and Executive branches of government show little inclination in this direction.
- We need a thorough building inventory to determine the extent of Utah's problem.
- We need to inventory city and county preparedness plans and capabilities, and provide state help in developing emergency response plans.
- It is timely for the USSC to inventory what is being done in the state, to help motivate action.
- It is important to identify where we are going.
- We need to look at legal issues of emergency response now, before the disaster strikes.

Les's conversation with Craig Peterson: Les met recently with Senator Peterson (a member of our commission), brought him up-to-date on the status and achievements of the USSC, and reviewed our highest priority initiatives with him. Senator Peterson felt that none of the top seven strategies required legislation but rather were a matter of obtaining adequate funding. He suggested that Commission members meet with department heads and their fiscal analysts to put together a program to achieve our priorities, for inclusion in the Governor's 1996 budget. He further indicated that he would use his influence in the Legislature to get support for such a program if we could get it into the Governor's budget request. This led to a discussion by Lee of the many previous attempts on the part of UGS, CEM, and UUSS to do just that. None have been successful to date. This, along with the discussion resulting from Carl's remarks, made it clear that we need to persuade the Governor that he must take an activist stance. We need him to make it clear to his department heads that he wants to see these priorities achieved and that he expects to see a coordinated program to do so in the budget requests they send up to him.

Meeting with the Governor on "Strategic Plan": Discussion ensued about meeting with the Governor on the "Strategic Plan". Key people were identified to attend the meeting: Brad Barber, Pat Ogden, Suzanne Winters, and Craig Peterson. Les identified specific initiatives that we want to present to the Governor: The strong motion program, the vulnerability study, and earthquake education. Les assigned Lee Allison to be in charge of developing the strong motion

initiative, Lorayne Frank to develop the vulnerability study, and Les will develop the education initiative.

USSC Action plan & standing committees: Lee Allison wrote up a proposal/action plan with suggestions on how to accomplish the USSC mission (see attached proposal). Lee suggested the need for a full-time staff person to the USSC. Some discussion on this matter took place in regard to funding this position.

Lee also proposed the reestablishment of the UEAB standing committees (see attached proposal). He outlined five standing committees and their proposed chairs: 1). Engineering and Architecture-Jim Bailey 2). Earth Sciences-Walter Arabasz 3). Emergency Planning-Lorayne Frank 4). Earthquake Awareness-Lee Allison 5). Intergovernmental Relations-Suzanne Winters.

Motion:	To establish standing committees of the USSC as outlined above.
Moved by:	Lee Allison
Seconded:	Walter Arabasz
Motion Carried:	By a Quorum

Committee chairs were asked to submit a list of committee members (that have agreed to serve) for USSC approval at the next regular meeting.

Les asked that all USSC members receive copies of Lee's proposals Lee asked that they be scheduled for further discussion at the next meeting.

Next meeting: It was decided that an interim meeting be held before the meeting with the Governor to discuss the "Strategic Plan ". This meeting was not scheduled at this time. Our next quarterly meeting is scheduled for Tuesday July 11, 1995 at 9:00 a.m. room 1112 in the State Office Building.

Meeting Adjourned-11:35 a.m.

Minutes respectfully submitted by Brenda Edwards

PROPOSAL

M. Lee Allison, Utah Geological Survey

Suggestions on how to accomplish the USSC mission

The Utah Seismic Safety Commission recognizes that its charge from the state legislature is a continuing mission to effect long-term change and improvement in earthquake mitigation, preparedness, and response in all aspects of society. The responsibility is not government's alone. All members of Utah society must accept responsibility and take the actions necessary to reduce the risks from earthquake hazards.

The USSC will use reports, hearings, and workshops to focus attention on implementing the Strategic Plan by all levels of government and by the private sector. The USSC will work as a facilitator to pull the separate parts together, coordinate individual actions, and assist the primary agencies in every possible way.

The USSC will implement the Strategic Plan by supporting, encouraging, coordinating, and convincing the state operating agencies, local jurisdictions, businesses, and citizens to carry out the initiatives within their areas of responsibility.

Action Plan

- Meet with department directors, and the Governor's Disaster Emergency Advisory Council to present the program and illustrate the importance of agency activities in reducing earthquake hazards, and to seek management & administrative support for existing and proposed initiatives.
- Meet with key representatives from the Governor's Office of Planning & Budget, Legislative Analyst's Office, Legislative Executive Appropriations Committee to present funding requests in the context of the program, answer questions, and provide additional information to assist these agencies. Participate in budget hearings as necessary.
- Ask other state agencies to participate in jointly sponsored workshops, which may be held in conjunction with regular Commission meetings, emphasizing sharing of responsibility for the program.
- Request interim hearings on the program by the legislative committees responsible for reviewing earthquake safety legislation.
- Request the Utah League of Cities and Towns and the Utah Association of Counties to incorporate earthquake safety into committee agendas, and to provide time at statewide meetings for presentations on earthquake safety issues.

These committees could be instrumental in implementing initiatives that affect local governments, and in drafting revisions to the program.

- Request the Utah Chamber of Commerce to incorporate earthquake safety into committee agendas, and to provide time at statewide meetings for presentations on earthquake safety issues. This committee could be instrumental in implementing initiatives that affect business in the state.
- Provide information to the press on the state's progress in meeting the program's milestones and objectives. Articles may also be prepared for publication in professional journals, trade magazines, and other publications.
- Work actively with federal agencies responsible for earthquake hazard reduction and in the hearings about the federal National Earthquake Hazard Reduction Act to assure that the federal program considers Utah's needs. The Commission should keep the Utah Congressional delegation and key congressional committees apprised of the long-term program.
- Report annually on the progress in implementing the initiatives and propose measures to increase support when necessary.
- Receive staff reports about the status of each of the identified initiatives, and assist lead agencies to see that high priority initiatives are carried out.

Specific suggestions for the USSC

1. Establish standing committees with specific charters.
2. Update the Strategic Plan as needed.
3. Produce an annual review of accomplishments and progress throughout Utah.
4. Sponsor an annual or biannual Earthquake Conference.
5. Produce a directory or catalogue of earthquake resources and materials.
6. Publish the Faultline Forum and Fault Line newsletters.
7. Acquire funding for permanent staff for the USSC.
8. Implement the Strategic Plan.
9. Publish books and brochures, including reprints of materials from other states.

10. Hold workshops and briefings on earthquakes for reporters and media personnel.

11. Recognize significant contributions to earthquake safety through annual awards in categories such as business, individuals, media, non-profit groups, scientific or engineering, public policy, individuals, and planning.

12. Create an Earthquake Prediction Evaluation Committee.

13. Urge the creation of a Council of Seismic Safety Commissions.

Presentation to the
UTAH SEISMIC SAFETY COMMISSION
April 20, 1995

My name is Carl Eriksson; I am the chief building official for Salt Lake County. I am also a licensed structural engineer, and I have been involved with seismic issues in the state of Utah, working with the Utah Geological Survey and the Seismograph Station staff, for the past 11 years. Recently I had the opportunity of attending a conference in Los Angeles regarding the Northridge earthquake, which occurred on January 17, 1994. I was privileged to visit many of the damage sites, speak with many people there, and receive formal reports on what worked and what didn't. I am here today to report some of my findings regarding these issues. My intention in reporting these findings is not necessarily to endorse or sanction any particular action taken by California regarding earthquake preparedness and response, but rather to make you aware of some of the possibilities.

The actions taken or being proposed in California fall into 3 different categories:

- A. Laws that require seismically dangerous structures to be retrofitted.
- B. Laws that create incentives to correct seismically dangerous structures.
- C. Actions that provide assistance to local jurisdictions to deal with earthquakes.

The first category, requiring seismically dangerous structures to be retrofitted, was first established by the City of Long Beach in 1959, as a result of serious failures of parapets and unreinforced masonry buildings (URM's) in the 1933 Long Beach earthquake. Many other cities have followed suit, and the State of California, acting on a recommendation of the California Seismic Safety Commission, passed SB 547 in 1986, requiring every jurisdiction to identify all URM's within their boundaries, and to develop programs to mitigate these hazards. An example of a local law that has recently been adopted is found in San Diego. Effective January 1, 1994, their URM retrofitting ordinance requires owners of about 700 buildings (mostly built before 1939) to brace parapet walls and install roof-to-wall ties within five years of notification. Remodeling and repair can trigger additional steps. If an owner spends more than 50% of the buildings value on retrofitting and repair during any five-year period, it must tie roof diaphragms to walls, or, in multistory buildings, tie floor diaphragms to walls. Spending 100% of the building's value requires a complete seismic retrofit within 10 years, as does converting more than 33% of the space to a higher occupancy use. The City of Los Angeles has an even stricter URM ordinance which went into effect in 1981. Retrofitting costs there have averaged \$8 to \$12 per square foot.

The possibility of such ordinances being adopted has historically been opposed by property owners, historic preservationists, and low income community representatives who fear the effort to increase earthquake safety could have negative consequences of large-scale urban redevelopment, or of devaluing their existing properties in which they may have large investments.

Such "unfunded mandates" as those adopted in California, impose heavy burdens on local jurisdictions; many California jurisdictions have simply not complied with the timetables for identifying URM's and developing mitigation programs. These laws, if enacted, might be more effective if combined with incentives which will diminish or offset the costs both to local jurisdictions and to building owners.

On January 1, 1993, a statewide law went into effect in Utah, requiring that all commercial buildings built before 1975 be evaluated for seismic hazards, and that recommendations to correct the hazards be provided by the evaluating engineer. The law has been relatively ineffective, however, because the triggering mechanism is "when said building is undergoing reroofing, or alteration of or repair to" parapets, etc.

The second category, incentives to mitigate seismic hazards, would seem to respond to these problems. Among the possibilities are the following:

Point of Sale incentives

1. Require that any existing commercial or multi-family (more than two) residential building that is sold be inspected for earthquake hazards, and that any hazards identified through the inspection be ameliorated by appropriate repairs. The inspection on commercial buildings would be limited to parapets, cornices, tanks, towers, signs, statuary, and similar appendages that present falling hazards; inadequately connected roof and floor diaphragms in URM's; water heater tiedowns; and suspended ceilings and lights which historically have represented substantial losses in earthquakes, even in modern buildings.

2. Require that any existing one- or two- family dwelling that is sold be inspected for earthquake hazards, and require that any hazards so identified be corrected. The inspection on such dwellings would be limited to chimneys and unreinforced masonry, foundation anchors, water heater tiedowns, and obvious structural problems.

3. Require that any building located in an area of surface fault rupture or high liquefaction shall have notice given to any buyer, of the hazard associated with its location.

4. Provide tax incentives to building owners who voluntarily conduct seismic upgrades of their buildings, whether residential or commercial.

Insurance related incentives

5. Require all homes in Seismic Zone 3 for which new mortgages are issued, to purchase insurance from a state operated insurance fund to cover the first \$5,000 to \$10,000 (or 10%) of losses in an earthquake. It would be purchased at a price of about \$1 per year per \$1000 valuation of the dwelling. The money would be placed in a fund that would be used to assist homeowners after a major earthquake. In addition, this money could be used with item 2, above, by allowing the cost of corrections made in item 2 (not to exceed \$5,000) to be added onto the loaned amount, and insured by the state with these premiums.

6. Limit financial aid to property owners who fail to obtain earthquake insurance, or distribute the available aid to property owners in a manner that significantly favors those who obtain earthquake insurance.

Finally, the third category, assistance to local jurisdictions, sends a message to each municipality that not only is the state asking you to prepare for an earthquake, they are also willing to help you with that preparation. Here are two possible ways the state could help:

1. Provide a state law that will allow the state CEM office to allocate engineers/inspectors to assist cities and counties in performing inspections. Currently, a number of jurisdictions have already established agreements with various engineers to work for them in an emergency; while this foresight on the part of these cities is commendable, it may result in very valuable resources being allocated where they are least needed. There needs to be a central clearinghouse to be sure that

resources are appropriately distributed. This same state law could address the issues of immunity or protection for the volunteer engineers and inspectors, and provide for methods of identification, reporting and record keeping, remuneration, etc.

2. The state could provide to local jurisdictions sample ordinances that would address each of the areas of concern that come up, such as waiving or deferral of permit fees; preservation of historic structures; emergency declaration ordinances; etc. Additionally, sample emergency response plans could be prepared for use by cities and counties. I have obtained a copy of the Los Angeles City emergency plan, which is impressive and most useful in helping to formulate our own plan. Many hours have been spent by our staff members in preparing a plan that is still only rudimentary when compared to the LA city plan.

All of the suggestions and ideas presented here deal with existing building inventory. The new codes and new code enforcement procedures that have been implemented over the past two years will in large measure minimize the problems associated with new construction.

Our legislature has performed commendably in creating the Utah Seismic Safety Commission, and they are to be complimented for their efforts. Likewise I offer my praise to this commission for your efforts to bring about a consciousness of the earthquake threat in Utah, and to take effective steps in preparing us for such an event.

Thank you for the opportunity to speak to you.

References and selected bibliography:

1. "San Diego implements its masonry ordinance", Engineering News-Record (ENR), July 4, 1994, p. 11.
2. An Action Plan for Reducing Earthquake Hazards in Existing Buildings, FEMA publication #90, 1985.
3. "Retroactive Earthquake Regulations in Long Beach", Building Standards Magazine, October, 1984, p. 21.
4. L.A. City Earthquake Safety Ordinance, Division 88 - Earthquake Hazard Reduction in Existing Buildings, Los Angeles Building Code, 1985 Edition.
5. A Guide to Reducing Losses from Future Earthquakes in Utah, Consensus Document, Fifth Annual Workshop on Earthquake Hazards and Risk Along the Wasatch Front Utah, Walter J. Arabaz, July, 1989.
6. 1994 Northridge Earthquake After-Action Report, Draft Copy, not published, K. Robert Ayers, May 13, 1994.