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State Of California

ALFRED E. ALQUIST  
SEISMIC SAFETY COMMISSION

*Arnold Schwarzenegger, Governor*

Minutes of August 12, 2010 Meeting  
Delta King Hotel & Conference Center, 1000 Front Street, Sacramento, California

**Members Participating**

Mark Church, Chair  
William Chubb  
Christina Curry  
John Littrell  
Gary McGavin (arrived at 11:35 a.m.)  
Ali Sadre  
Heather Scott (arrived at 10:33 a.m.)  
Michael Stevens  
David Thorman  
David Walls

**Members Absent**

Jonathan Changus  
Sharron Leason  
Elizabeth Mathieson

**Staff Participating**

Richard McCarthy, Executive Director  
Karen Cogan, Administrative Manager  
Robert Anderson, Engineering Geologist  
Brian Laughlin, Student Intern  
Henry Reyes, Structural Engineer  
Fred Turner, Senior Structural Engineer

**I. CALL TO ORDER/ROLL CALL**

Commission Chairman Mark Church called the meeting of the Alfred E. Alquist Seismic Safety Commission to order at 10:05 a.m. Administrative Manager Karen Cogan called the roll and confirmed the presence of a quorum.

**II. CHAIRMAN’S REMARKS**

Chairman Church welcomed everyone to the historic Delta King. He reviewed highlights of the meeting agenda and observed that the Commission continues its work on innovative projects, leveraging scarce funds wisely.

Chairman Church announced that a new commissioner, Heather Scott, had been appointed to represent Senator Elaine Alquist’s office. He welcomed former Commission Chairman Lloyd Cluff to the meeting.

**III. APPROVAL OF JUNE 10, 2010 MINUTES**

Commissioner Ali Sadre proposed two minor changes to the June 10 minutes: On Page 2, under “Update on the El Mayor-Cucapah Earthquake,” first paragraph fifth line, he recommended inserting the word “University” after “San Diego State.” On Page 3, fourth paragraph, fourth line, he suggested deleting the word “people” after “staff.”

ACTION: Commissioner Michael Stevens made a motion, seconded by Commissioner John Littrell, that:

*The Commission approve the June 10 minutes as amended.*

\* Motion carried, 8 - 0 (Commissioners Gary McGavin and Heather Scott absent during voting).

#### **IV. EXECUTIVE DIRECTOR'S REPORT**

Executive Director Richard McCarthy thanked Ms. Cogan for arranging the meeting location at the Delta King on short notice.

##### **Budget**

Mr. McCarthy reported that the Commission budget was in good shape at the start of the new fiscal year. He said Secretary Leonard had complimented the Commission on its superior fiscal management. He noted that the Commission has not yet charged for overhead for the research program, so 10 percent of those funds remain available as a budget cushion. Mr. McCarthy cautioned that until the state budget is passed, the Commission will be unable to process bills or pay vendors.

Mr. McCarthy stated that some state employee unions have reached a settlement regarding furloughs, agreeing to take one furlough day each month in exchange for a 5 percent increase in retirement contributions and a 5 percent reduction for line item salary reduction (office). He said issues regarding employee furloughs and payment of minimum wage to state employees pending the passage of a new budget have not yet been resolved.

Mr. McCarthy advised that the Agency issued an order on August 11 instructing all departments to remain on August 13 and suspending Friday furloughs until further notice. He added that there is still a possibility the Commission office will be closed on the second, third, and fourth Fridays of each month in the future.

Commissioner Littrell asked if the delay in passing a state budget will affect any of the Commission's research projects. Mr. McCarthy said projects funded from the 2010-11 budget could be affected because the Commission is unable to issue any payments until the budget is approved.

##### **Commission Appointments/Election of Officers**

Mr. McCarthy reported that the Governor's Office was in the process of taking applications and interviewing candidates for vacant positions on the Commission, and all positions are likely to be filled soon.

Mr. McCarthy noted that the Commission chairperson will appoint a Nominating Committee at the October meeting to propose a slate of officers for 2011. New officers will be installed in December and take over their duties in January.

### **Statewide Shakeout Drill**

Mr. McCarthy advised that the Commission's October meeting will be held in Los Angeles to facilitate the Commission's participation in the second annual statewide Shakeout Drill. He said the Shakeout will take place at 10:21 a.m. on October 21, and the Commission meeting will begin at 11:00 a.m. that day. He noted that the Commission obtained a special exemption for an out-of-town meeting.

Ms. Cogan drew attention to the informational flyer about the itinerary for the October meeting. She asked all commissioners to let her know as soon as possible if they planned to attend.

### **Round Table Summit with Baja California, Mexico**

Mr. McCarthy noted that after Secretary Leonard saw reports of impacts of the El Mayor-Cucapah earthquake on Mexican agriculture, he expressed interest in exploring potential impacts on California agriculture in more depth. Mr. McCarthy has been working with the California Energy Management Agency (CalEMA) to convene a round table summit in Sacramento to hear more detailed descriptions of damage and response activities. He proposed inviting Mexican officials and representatives from agricultural industry groups in California. He advised that the summit will be held sometime in October, and he promised to keep commissioners posted.

Mr. McCarthy reported that the Mexican government may request a letter from the Governor supporting its request for post-disaster assistance funds from the International Monetary Fund.

Mr. McCarthy advised that the Commission has been working with the U.S. Navy to investigate potential current velocities in the San Diego harbor and the Navy will be hosting a meeting in San Diego in early September. He encouraged commissioners to attend.

Mr. McCarthy noted that the purpose of the workshop that afternoon was to discuss approaches for obtaining input from California businesses regarding their most efficient ways to prevent job losses and stimulate the economy after major disasters. He said the Agency Secretary recommended calling this initiative "Restoring California Commerce after Earthquakes."

## **V. OVERVIEW OF THE GLOBAL EARTHQUAKE MODEL**

Mr. McCarthy welcomed Dr. Ross Stein, U.S. Geological Survey, and invited him to discuss the Global Earthquake Model (GEM) project.

Dr. Stein used a cube to demonstrate differences braced corners and additional materials can make in a building's strength. He said strengthening buildings can increase construction costs by as much as 15 percent, but the result is much higher safety and stability. He emphasized the importance of making people understand earthquake risks and how to mitigate them.

Dr. Stein explained that the purpose of the GEM project is to better define earthquake risks, develop accurate and uniform global risk models, and provide widely accessible and understandable information. He said much of the world's population is concentrated in earthquake-prone regions, but many areas are unaware of the dangers they face and their inventories of vulnerable buildings. He stated that the GEM project was founded in 2008 to address these issues. He noted that GEM is currently backed by six global companies, nine countries, and many leading international organizations, and growing recognition of its important contributions will expand its support.

Dr. Stein said GEM is committed to engaging scientists and engineers and providing tools and training to assist them. He noted that GEM is developing open-source software, creating global inventories of active faults and building inventories to incorporate in models, and assisting with the establishment of regional centers funded by local institutions and governments. He discussed sources of income and how funds are spent. Dr. Stein pointed out that California can benefit from GEM because California's earthquake models depend on global observations. He observed that California, like many other areas in the world, faces risks of large earthquakes, and having better risk visualization and communication tools will lead to greater standardization and accuracy in prediction and mitigation. He stated that GEM's open-source tools will provide a wide range of useful information and transparent results for scientists, policy makers, and planners.

Mr. McCarthy noted that a delegation from Haiti visited the Commission offices the previous week to discuss strategies for rebuilding and relocation populations to outlying areas. He remarked that the members of the delegation seemed overwhelmed and at a loss as to how to begin this massive recovery effort. He asked Dr. Stein how GEM could help with such basic problems. Dr. Stein responded that providing credible and accessible information will help people better understand their seismic risks so they can identify key priorities and find safe places to rebuild. He added that a simple project like retrofitting hospitals would require a relatively small investment and would improve recovery tremendously.

Commissioner Sadre remarked that there are huge differences in socioeconomic impacts, code enforcement, and construction quality from country to country, and he asked how GEM can bring all these factors together in uniform models. Mr. Bazzurro noted that having an accurate inventory of building locations and vulnerabilities will allow better estimates of rebuilding costs. He said having a global exposure database will be a crucial part of global models. Commissioner Sadre asked if GEM will use the new generation of attenuation models currently available in the U.S. Dr. Stein responded that the Pacific Earthquake Engineering Research Center (PEER) and leading engineers are working with international consortia to harmonize information and develop uniform datasets. He acknowledged the task of creating uniformity will be challenging, but added that GEM is committed to doing its best to further this effort.

Commissioner Littrell asked about the end products GEM will create. Dr. Stein said results will depend on the audience, with different tools and information available for different types of users. He displayed a slide of the OpenGEM portal and explained how information will be organized.

Commissioner Thorman questioned why the U.S. was not one of the nine participating countries. He asked how the project can be expanded to other countries and what California can do to help. Dr. Stein advised that the U.S. government is weighing sponsorship. He said GEM is actively courting other governments, professional organizations, and private companies. Because California will be a beneficiary of the end products, he recommended that the state actively advocate for and support the GEM project. He welcomed a statement of support from the Commission.

Mr. McCarthy suggested that the staff draft a letter of support for the Commission to consider at its October meeting. Commissioner Littrell requested more detailed information about GEM's scope and budget, and Dr. Stein said he would be delighted to provide follow-up information.

Chairman Church thanked Dr. Stein and Mr. Bazzurro for their presentation.

## **VI. RESEARCH PROGRAM – PROPOSED PROJECTS**

### **Lake Tahoe Hazard Study**

Mr. McCarthy said Commissioner Elizabeth Mathieson and the California Geological Survey have been working with Northern Illinois University, NOAA and the National Aeronautics and Space Administration (NASA) to study lakes under Antarctica, and Lake Tahoe was selected as the site for testing a remotely operated submersible vehicle (ROV). He explained that the work in Lake Tahoe will help improve scientific understanding of the geohazards and environmental conditions there, and he recommended that the Commission support this effort. Mr. McCarthy noted that the Commission is being asked to provide funding for two related projects, one directed by Northern Illinois University involving test dives using the sophisticated submersible vehicle, and another being undertaken by the California Geological Survey to collect more accurate hazard data about Lake Tahoe.

Dr. Gordon Seitz, California Geological Survey, stated that test dives of the new, custom-built ROV will be conducted over ten days in October. He said the vehicle will allow a more detailed investigation of seismic hazards in Lake Tahoe. He reported that research shows evidence of large landslides that have generated waves as high as 100 meters. He noted that the ROV will survey specific target areas to allow better assessment of future landslide potential, and he described how core samples of the lake floor will be collected.

Dr. Seitz showed maps of active faults and pointed out areas where landslides took place in the past. He played a video simulation of a major landslide along the western shore of Lake Tahoe that occurred about 55,000 years ago.

Ms. Liz Taylor, DEEP Ocean Engineering Research, a company specializing in subsea robotics and submersible vehicles, described how the ROV was designed and created. She said the 22-inch-diameter vehicle will fit through a narrow hole in the Antarctic ice and carries 27 sensors and high-definition cameras. She noted the ROV is capable of going to a depth of 3,300 feet and will use a percussion sediment hammer to extract core samples.

Commissioner Littrell asked what the primary work product of the research in Lake Tahoe will be. Dr. Seitz responded that the team will issue a detailed report and maps showing subsurface faults and landslide hazards. Mr. McCarthy advised that the California Geological Survey will send the report to the Commission for eventual distribution to the Legislature and Governor's Office. He said the information will help the California Earthquake Authority identify risks for the region and set more accurate insurance rates. He added that the State of Nevada will be asked to participate.

Mr. McCarthy requested that the Commission approve up to \$50,000 for the Northern Illinois University to oversee the work, plus \$25,000 for the California Geological Survey. He recommended that the Commission authorize the two projects and approve the funding request.

**ACTION:** Commissioner McGavin made a motion, seconded by Commissioner Stevens, that:

*The Commission authorize the two projects and expenditure of \$75,000 total as proposed.*

\* Motion carried, 10 – 0.

## **VII. RESEARCH PROGRAM – CURRENT PROJECTS**

### **Tall Buildings Initiative**

Mr. McCarthy reported that Agency representatives asked numerous questions last week about the Tall Buildings Initiative, and he invited Professor Jack Moehle, PEER, to provide an update.

Professor Moehle informed the Commission that this project is scheduled for completion at the end of November, and results will be published before the end of the year. He noted this research has been paid for with funds from the Commission, federal and state agencies, and a number of private organizations. He explained that this project came about as a result of questions over the past several years about the performance and reliability of new designs and materials being used in the construction of high-rise buildings.

Professor Moehle clarified that the California Building Code provides basic prescriptive guidelines, but modern architects have been experimenting with new forms of construction that may improve building functionality. He said traditional high-rise buildings were generally configured with a central core and a perimeter frame, and he showed slides illustrating this configuration. Professor Moehle noted that in recent years, designers have developed core wall systems and braced frames that improve day-to-day functionality and result in more attractive structures. He said the Tall Buildings Initiative looks at three different building designs in downtown Los Angeles and examines how well they meet a series of defined performance objectives. He explained that the performance objectives are intended to ensure that buildings remain functional after large, once-in-a-lifetime earthquakes, preserve occupant safety in larger rare events, and stay safe from collapse in maximum-intensity earthquakes. Professor Moehle estimated that the additional cost for high-performance designs and materials is less than 1 percent of total building costs, and observed that most building owners are willing to spend this

extra money if it will result in safer and more durable buildings. He added the results of the study will be a series of practical guidelines for building designers.

Chairman Church thanked Professor Moehle for the update. He observed that this research fills an important gap and will improve seismic safety throughout California.

### **Fire Following Earthquake Project**

Mr. McCarthy noted that the Commission is funding two projects pertaining to fire following earthquake. The first, a PEER study of water sources for fire suppression, will begin in early September. He said a meeting was being held the following week with CalEMA representatives to approve a draft proposal for the second project, a special PBS broadcast and outreach campaign. He indicated he would have more to report on both projects at the October meeting.

Mr. McCarthy proposed deferring the Legislative Update until the afternoon workshop session.

## **IX. COURT DECISIONS REGARDING LIABILITY OF OWNERS OF UNREINFORCED MASONRY BUILDINGS (Out of Order)**

Senior Structural Engineer Fred Turner drew attention to the information in the meeting packet about a recently published appellate court decision regarding the liability of owners of unreinforced masonry buildings. He said the lawsuit originated after two people in Paso Robles were killed by a building that collapsed in the 2003 San Simeon earthquake, and the appellate court upheld the lower court's decision on two issues: 1) the building owners were liable for the deaths, even though the City of Paso Robles gave building owners until 2018 to retrofit their buildings; and 2) multiple building owners were jointly and severally liable, regardless of their proportionate share in ownership.

Mr. Turner said the defendants filed a petition for review with the California Supreme Court, and that court will decide by October 1 whether the case will be reviewed. He added that he would provide an update at the October meeting.

At 12:22 p.m., the Commission recessed for lunch. Chairman Church reconvened the meeting at 1:55 p.m.

Chairman Church administered the oath of office to newly appointed Commissioner Heather Scott and welcomed her to the Commission.

## **X. WORKSHOP ON POST-EARTHQUAKE ECONOMIC RECOVERY ISSUES**

Mr. McCarthy introduced Mr. Stan Devereux, formerly with the California Earthquake Authority, a consultant who will be advising the Commission on strategies to reach out to California businesses for their ideas about how best to restore commerce after a major disaster. He welcomed former Commissioner Lloyd Cluff, representing PG&E, and Mr. Bruce Patton, Senior Staff Counsel, California Department of Insurance, to the workshop session.

Mr. Devereux welcomed comments and feedback from the Commission regarding how best to solicit ideas from the business community. He emphasized the importance of thinking about recovery issues before disasters strike so a series of response actions can be implemented immediately to keep businesses functioning. He suggested holding roundtable discussions with business leaders in Northern and Southern California, and highlighted the need to get upper management people involved.

Mr. Cluff recalled the Inter-Utility Seismic Working Group that was established during his term on the Commission, and said this group, comprising representatives of California's electric, gas, and water utilities, identified a number of issues pertaining to restoring utility service after major earthquakes. He recommended reviewing the initiatives developed after the Loma Prieta and Northridge earthquakes as a starting point for this effort.

Mr. Cluff noted that PG&E has spent \$2.8 billion on seismic upgrades to its systems over the past two decades, and considerable progress has been made by other utilities. He said PG&E learned from its emergency drills that deploying response crews to restore power quickly was a critical problem when transportation networks were down, and PG&E now has master contracts in place with helicopter and ferry companies to provide post-disaster services. Mr. Cluff stated that the Inter-Utility Working Group developed a number of documents for the California Public Utilities Commission, and the Seismic Safety Commission published a list of 72 initiatives in a document called *California at Risk* in September 1989. He added that these initiatives were on every state legislator's desk and at the Governor's Office when the Loma Prieta earthquake occurred in October 1989, which enabled the Legislature to act quickly to adopt legislation to address post-earthquake problems.

Student Intern Brian Laughlin talked about lessons he learned from writing a disaster recovery plan for the City of Paso Robles. He indicated that small businesses are typically vulnerable to failure one to three years after a disaster when loans dry up and local services have not yet been restored. He advocated taking steps to bolster socioeconomic recovery by helping people engage in their communities. He encouraged the Commission to disseminate information about best practices, encourage businesses to focus on issues before disasters, and foster open public collaboration to build local-state partnerships and instill trust in the entities that provide information and develop policies. Mr. Laughlin added that local governments need state guidance in creating disaster recovery plans.

Mr. McCarthy thanked participants for their ideas.



**XI. ADJOURN**

Chairman Church thanked everyone for participating.

There being no further business, Chairman Church adjourned the meeting at 2:48 p.m.

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Office Manager

Approved by:

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Richard McCarthy  
Executive Director