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 Executive Director

California Seismic Safety Commission's  
 Ad Hoc Committee on Tsunami Safety  
 Minutes of Meeting  
 June 23<sup>rd</sup>, 2005

Pillsbury Winthrop Shaw Pittman LLP Conference Room  
 50 Fremont Street, 6<sup>th</sup> Floor  
 San Francisco, California 94105

**Committee Members Present**

Mr. Donald Parker, Chairman (CSSC)  
 Mr. Linden Nishinaga (CSSC)  
 Dr. Michael Reichle (CGS)  
 Mr. Orville Magoon (Coastal Zone Foundation)  
 Dr. Lori Dengler (Humboldt State University)  
 Ms. Crystal Rockwood (Pillsbury Winthrop Shaw Pittman LLP)  
 Dr. Jose Borrero (University of Southern California)  
 Mr. Richard Eisner (OES)

**CSSC Staff Present**

Mr. Richard McCarthy  
 Mr. Robert Anderson  
 Mr. Henry Reyes  
 Mr. James Lee  
 Ms. Karen Cogan

**Speakers**

Mr. Lloyd Cluff (PG&E)  
 Dr. Mark Johnsson (CCC)  
 Mr. Doug Sandy (S.F. OES/HS)  
 Mr. Gerry Meis (Caltrans)

**Observers**

Mr. David Soroka (NWS)  
 Mr. J. Keay Davidson (S.F. Chronicle)  
 Dr. Robert Dahlgren (UCSC/Melampous)  
 Dr. Robert Weigel (UCB)  
 Dr. Hung Kie Thio (URS Corp)  
 Dr. Gene A. Ichinose (URS Corp)  
 Mr. Mark Strobin (NWS)  
 Mr. Lawrence Klein (CSSC)

**Call to Order**

The Seismic Safety Commission's Ad Hoc Committee on Tsunami Safety Chairman Mr. Donald Parker called the meeting to order at 10:10am. He welcomed all of the Committee members along with Staff and the guest speakers. Then the observers were asked to introduce themselves by giving their names and whom they were affiliated with.

**General Discussion**

Don Parker then started the general discussion asking for someone to explain the chain of events surrounding the 7.2 earthquake that occurred on June 14<sup>th</sup>, 2005.

Rich Eisner spoke about the events that occurred surrounding the June 14<sup>th</sup> Earthquake that occurred off the coast of California. The actions of the Richard Hagemeyer Pacific Tsunami Warning Center and Palmer Center were mentioned along with how messages were sent out and where some breakdowns in communications occurred.

Lori Dengler then spoke about the region where the earthquake happened, and explained that the earthquake was between 7.0-7.4 and there was an arrival time of less than two hours (if a wave had been generated) so a warning was issued.

Orville Magoon said that there is a state funded real time water level measuring system that is perfectly capable of detecting tsunamis. And without stepping on anyone's toes we could modify the system a little to be able to measure the tsunamis when they arrive, so the first responders would know how high the water is before they go in.

Parker wanted to mention that he knew that metropolitan dispatch centers are under staffed and that they don't have enough people to answer phones let alone monitor things.

## **Guest Speakers Section**

Lloyd Cluff from PG&E spoke about the December 26, 2004 tsunami's impact on: houses and buildings; gas, transportation facilities; and, about how the facilities in California would fare against a tsunami. The liquefied natural gas plant in Sumatra was hit by a two to four meter wave and was built well enough that it did not miss one shipment that was planned to go out. Cluff then talked about the Diablo Canyon Nuclear Power plant and also the Humboldt Bay Power plant, which are both Nuclear power facilities. He then discussed the maximum tsunami inundation heights at both sites.

Linden Nishinaga asked Cluff if there was extensive damage to the ports in Sumatra. Cluff responded by saying he went mainly to the port in Banda Aceh where the petroleum facility was and said everything in the port was completely destroyed. Mark Johnsson asked what a well-designed structure that Cluff was talking about would be in reference to the UBC. Cluff then answered that well designed for PG&E is beyond what the UBC recommends, but seeing that most buildings were built sub UBC standards and were still standing.

## **Lunch 12:05**

Mark Johnsson spoke on the Coastal Commission's approach to tsunami planning. The main points in the planning are to evaluate the hazard to help decide on when to give Coastal development permits, work for local coastal plans, educate the population, to get signage passed, and use new inundation maps. Also noted was that the Coastal Commission required education plans of evacuation routes, and also vertical evacuation plans in some of its permits.

Dengler said we should think about because there are no standards for vertical evacuation, and also there are no water height or force estimates that have been accepted at this site so those are great big question marks.

Johnsson then talked about LCP Policies, and showed the example of location specific policy as in Malibu's LCP Policy. Also mentioned was the rules of signage are visual impact and messages. With the tsunami signs we are trying to get a blanket permit for all areas so we wouldn't have to give permits for every sign.

Parker said it seems at the local level before anything is ever accomplished there is an extensive environmental impact report done, with things that you are talking about local planning would it fall within that?

Johnsson said an environmental impact report is triggered when a project is of a certain scale or has potential impact to the environment, and that's the first thing they should address.

Doug Sandy S.F. OES/HS spoke about the new warning system that was being installed in San Francisco and will be ready in July. It is replacing the old mechanical system with a new system of 65 sirens that could also be used to voice instructions and also give threat specific notices. In relation to tsunamis, the siren system can be sub-divided into zones to customize coverage, and since there is a tsunami run-up zone that is more prone than other areas the message could be broadcast to those specific residents when an evacuation is issued.

An issue was raised to ascertain if the radio messages were also to be broadcasted in the two commonly used San Francisco foreign languages to match the proposed warning signs that will be written in Spanish and Chinese in order to reflect the current demographics of San Francisco. This is because broadcast messages only spoken in English may pose a risk to a large portion of the inhabitants. It was also asked if the messages will be on the website or is it only for public education.

In response Sandy said the information on the website is in the different languages but wasn't as yet sure of multi lingual broadcasting. As of right now the website is for education only.

Gerry Meis said that there is a federal evacuation sign that has already been put into place, which is text only with blue and white colors, which is a generic evacuation route sign. Recently there has been a tremendous amount of interest in evacuation routes and signs for tsunamis. He said he has been working with the NWS but the difficulty is to get the new symbol sign adopted, this is because the FHWA has said we already have evacuation signs and those should be used.

It was asked if Oregon went through the federal process to put up the signs that the state adopted.

Meis responded by saying if they had gone through the process we wouldn't be in this position. He also said that he is drafting a letter to send to the FHWA to give the OK for us to experiment with the Oregon signs in California. Also stated was a problem with the circular sign is that circular signs should only be used at rail road crossings so even if you see the back of the sign you can automatically assume that there is a rail road crossing. Parker noted that it is a complex issue and something we need to take seriously, and the report we are going to publish in December will be given to the Governor to help them make sure they are consistent constituents are not subject to horrific consequences following tsunamis. And hopefully we can address the signage issue to help push it through the federal level.

McCarthy asked Meis if it would be good to also send a letter of support to the FHWA to help pass the signage issue. And the idea was supported by Meis and by the committee.

## **Public comments**

Don Parker concluded the speaker session and then asked the public and committee if they had any comments or questions.

Linden Nishinaga started the discussion by mentioning the Ports of Los Angeles and Long Beach in terms of their huge economic significance as the first and second busiest ports in the U.S. He passed out

relevant port information to the committee members in order for them to look over and see the potential economic impact if a disaster were to strike. Also Nishinaga recommended a port hydrodynamic expert named David Dykstra of the firm Moffatt and Nichol, which has done extensive port engineering and research, to speak at our next meeting.

Orville Magoon wanted to also recommend Fred Reichlen who is also an expert from Cal Tech.

Lori Dengler also recommended Martin Eskijian of the State Lands Commission to speak at the meeting.

Parker then recapped on what was discussed in the last meeting of having a fifth meeting for the committee. Also discussed was that the meeting depended on whenever the budget will be passed or not and if there is a travel freeze.

McCarthy said that the next three meetings should be planned so that we can figure what we want to do and then change plans if the budget isn't passed.

Parker said that the next meeting should be in southern California because the last two have been in Northern California.

Magoon said that people from Scripps should be there so they could explain their tide height system and how we could use it.

There were no comments or corrections for the draft outline from the last meeting and the Committee was asked to submit comments if they had any to add after the meeting.

McCarthy wanted people to keep in mind the outline, and keep to five findings and recommendations with illustrations. He also recommended that we write out an outline on how the committee was formed and explain the process that was followed.

Dengler said that on one of her handouts it showed the summary of all of the 81 credible history tsunami events and if they were tele or local tsunamis.

Hong Kie Thio then passed out work done by URS on probabilistic data that they calculated and made a report on.

Dengler then added that there is no place on the California coast that has not been affected by some sort of tsunami in the short-recorded history that we have.

McCarthy then recapped topics that needed to be covered based on June 14<sup>th</sup> Tsunami Event, and said we need to make sure the warning system moves smoothly from the federal to state to local agencies, improve tsunami education of the public, develop mitigation options, new building codes, get the signage issue passed, and refine the accuracy of the inundation maps.

Parker mentioned the need to identify the risk and hazard if there were a Cascadia event in reference to loss of lives and damage.

Dengler said that we do not have enough information to make accurate damage assertions from tsunamis in ports. Another recommendation was that tsunami safety should be institutionalized, and enter the state's hazard assessment.

Parker wanted to let them know that just rising the water is one thing, but if water is rushing in with high velocity with swirling and he wanted to know what it would do to the marinas, houses on the river and anything else near the water.

Nishinaga said that even though there may presently be discrepancies in the appropriate and precise levels of tsunami risks that should be applied to the ports relative to their potential human and economic impacts, he thought we should nevertheless clearly address in our report at least qualitatively issues of tsunami hazards relative to human and local, State, and national economic impacts.

Lloyd Cluff made an announcement of a meeting by the USGS about tsunamis in Menlo Park California.

Anderson then added that on the 28<sup>th</sup> of June at the State Capitol people would speak about communication issues and get an overview of what happened.

The date for the next meeting was set for July 28<sup>th</sup> with the location to be set based on availability.

It was brought up that the Army Corps, Port Authorities, Martin Eskijian, Fred Riechlen, Scripps, URS, Mick Hornick, and FEMA.

McCarthy added that we should have 30-45 minutes for discussion so that we could talk about findings and recommendations. McCarthy recommended the following issues for discussion:

- Improve dissemination of information by making sure the warning system moves smoothly from federal to state to local agencies
- Provide and improve tsunami education and outreach to the public
- Develop mitigation options for the design and construction of buildings that could be included in the building code
- Refine accuracy of inundation maps
- Identify the risk and hazard if there was a Cascadia event in reference to loss of lives and damage
- Land use

Parker then thanked Crystal Rockwood and The Pillsbury Winthrop Shaw Pittman LLP firm for providing the conference room and lunch. Then he adjourned the meeting at 3:02pm.