

State of California
Seismic Safety Commission

Memo

To: Seismic Safety Commissioners

From: Henry Reyes, Staff Structural Engineer
Seismic Safety Commission
1755 Creekside Oaks Drive, Suite 100
Sacramento, CA 95833
(916) 263-5506 x 225

Date: March 6, 2013

Subject: Fire Following Earthquakes – Phase II
Project Title: *Coordinated Planning and Preparedness for
Fires Following Earthquakes*

Background

On November 10, 2011 the Commission voted to provide funding for \$49,000 from the California Research and Assistance fund to the Pacific Earthquake Engineering Research Center (PEER) on the above subject project to follow-up on activities recommended on the Fire Following Earthquake – Phase I Report. This report entitled: *Water Supply in regard to Fire Following Earthquake* was approved by the Commission on July 14, 2011 and submitted to the Commission on November 10, 2011.

The report found (a) Most larger urban fire and water departments are ill informed as to the specifics of their earthquake risk; (b) Water department system vulnerabilities is not well understood by fire departments, although water and fire departments both generally believe most municipal water supply systems are unreliable in a major earthquake; and (c) While some water departments and fire departments have vigorously addressed this issue, many have not.

The purpose of the Phase II project is to cooperate with key urban fire and water departments in California, in order to encourage coordinated planning and preparedness for fires following major earthquakes. Cooperation will be fostered via preparation of 'white papers' on the issues.

Progress Update

PEER started work on the project on January 1, 2012. Conducting the study for PEER is Dr. Charles Scawthorn, a visiting scholar at PEER, as the lead researcher. End date is June 30, 2013.

Dr. Scawthorn will present a progress update on the project

Water Supply in Regard to Fire following earthquake

Charles Scawthorn
Pacific Earthquake Engineering Research Center
University of California, Berkeley

Fire following earthquake (FFE) is a significant problem in California. Year 1 of the project reviewed the reliability of California's urban regions' firefighting water supply following a major earthquake, finding that the capacity of many cities vis-à-vis the demands that multiple simultaneous post-earthquake fires will place on those supplies is poorly understood. Three measures were identified to improve this situation: Development of a standardized California portable water supply system (PWSS); possible development of a saltwater high pressure system for the Los Angeles Metropolitan Area (Los Angeles and Orange counties), to be used in conjunction with the PWSS; and development and deployment of neighborhood equipment container caches, for use by NERT, CERT and other volunteers, to enhance their currently very limited post-disaster firefighting capability.

Year 2 of the project has developed draft performance target goals for post-earthquake firefighting water supply. The goals have several key elements: (1) quantify each jurisdictions' fire and water demands given a major earthquake, (2) develop a Fire Following Earthquake Water Supply Plan (the "Plan") which specifies how post-earthquake firefighting will be conducted, including specifics as to post-earthquake water sources and conveyance; (3) exercise of the Plan, and (4) publication of quantitative estimates of the burnt areas given the Plan's implementation. The project is currently working with key water and fire agencies to refine these goals.

Water Supply in Regard to Fire following earthquake

Fire following earthquake (FFE) is a significant problem in California. To address this problem, Charles Scawthorn of the Pacific Earthquake Engineering Research Center (UC Berkeley) will review the PEER project Year 1 finding that the capacity of many cities vis-à-vis the demands that multiple simultaneous post-earthquake fires will place on those supplies is poorly understood. PEER identified three measures to improve this situation: Development of a standardized California portable water supply system (PWSS); possible development of a saltwater high pressure system for the Los Angeles Metropolitan Area (Los Angeles and Orange counties), to be used in conjunction with the PWSS; and development and deployment of neighborhood equipment container caches, for use by NERT, CERT and other volunteers, to enhance their currently very limited post-disaster firefighting capability.

Year 2 of the project has developed draft performance target goals for post-earthquake firefighting water supply. The goals have several key elements: (1) quantify each jurisdictions' fire and water demands given a major earthquake, (2) develop a Fire Following Earthquake Water Supply Plan (the "Plan") which specifies how post-earthquake firefighting will be conducted, including specifics as to post-earthquake water sources and conveyance; (3) exercise of the Plan, and (4) publication of quantitative estimates of the burnt areas given the Plan's implementation. PEER is currently working with key water and fire agencies to refine these goals.