Fire following earthquake (FEE) is a significant problem in California. Fire services in California have not been tested by a major earthquake since 1906. This study shows that a major earthquake in major metropolitan cities in California will result in simultaneous ignitions and water distribution breaks.

San Francisco has already developed and maintains a high pressure seawater-supplied Auxiliary Water Supply System (AWSS). SF recently, in June 2010, approved a $412 million bond issue to enhance their system.

Central Los Angeles and Orange County could benefit from building a saltwater high pressure system since they are at great risk due to fire following earthquake.

This map shows Los Angeles and Orange County high pressure salt water system pipe network in storm drain channels (blue lines) with proposed connectors (black lines) overlaid on ShakeOut scenario ignitions. The pipe network is supplied from pump stations (P). Blue and yellow buffer zones around pipelines would be areas reachable by a PWSS.

SALTWATER HIGH PRESSURE SYSTEMS
as alternative sources of water

San Francisco has already developed and maintains a high pressure seawater-supplied Auxiliary Water Supply System (AWSS). SF recently, in June 2010, approved a $412 million bond issue to enhance their system.
APPROXIMATELY 1,600 IGNITIONS OCCUR IN SOUTHERN CALIFORNIA, WITH THE CENTRAL LA BASIN EXPERIENCING HUNDREDS OF LARGE FIRES.

there is a crucial need for post-earthquake fire fighting water supply in California.

this problem should be highlighted in joint meetings between key figures in the California Fire Service and key water agencies. State-wide plans for post-earthquake fire fighting should be developed and implemented.

Recommendations from PEER Report 2011/08 sponsored by the CA SEISMIC SAFETY COMMISSION

THREE STEPS FOR SUGGESTED FURTHER STUDY:

1. Develop a standardized California Portable Water Supply System (PWSS) to be deployed in major urban areas. This PWSS would suffice for the San Francisco Bay Area.

2. Develop a saltwater high pressure system for LA and Orange Counties to be used with the PWSS. This is quite feasible if existing large storm drain channels could be used for pipeline rights-of-way.

3. Develop and deploy neighborhood equipment container caches to enhance post-disaster fire-fighting capabilities. These would be used by NERT, CERT, and other volunteers.

CALIFORNIA IS HIGHLY EXPOSED

there are about 9.5 million residential properties

1 MILLION commercial property insurance policies in CA

$4.7 trillion is the total value of insured property

guidance provided by the insurance industry for adequacy of public water supplies

DOES NOT mention or consider EARTHQUAKES

Source: Survey of fire and water agencies conducted by PEER, 2011

MOST FIRE AND WATER DEPARTMENTS IN CALIFORNIA could be BETTER INFORMED about the specifics of their earthquake risk generally believe most municipal water supplies are UNRELIABLE in a major earthquake do NOT FULLY UNDERSTAND water department system vulnerabilities

Source: Statistics from the CA Department of Insurance, 2009

Source: Survey of fire and water agencies conducted by PEER, 2011

2008 ShakeOut Exercise Mw 7.8 San Andreas earthquake analysis found that

Tokyo oil refinery following the 2011 Mw 9.0 earthquake; Source: daehanilbo.co.kr

Los Angeles Basin; Source: johnlund.com

Berkeley FD BAWSS 12 inch Ultra LDH; Source: Berkeley FD

Portable Water Supply System (PWSS), Kobe FD; Source: Scawthorn

Source: Statistics from the CA Department of Insurance, 2009