

PREPARING FOR AND COPING WITH LOCAL DISASTERS: AN INFORMATION OVERLAY

RUSSELL C. COILE, Ph.D., PE, CEM, FICD
Disaster Coordinator/Emergency Program Manager
Pacific Grove Fire Department.
Pacific Grove, California 93950-3317 U.S.A.
Tel (408) 648-3110 Fax (408) 648-3107
e-mail russell@coile.com

ABSTRACT

California is not just "Disneyland" - it is also "Disaster land" with earthquakes, tsunamis, floods and fires. California is the largest in population of the 50 states with more than 30 million residents. It also seems to have experienced more disasters than any of the other states in recent years. Because of these numerous disasters, a system of comprehensive disaster planning for earthquakes and other disasters has been developed and implemented in California. "Comprehensive" means disaster preparedness planning by individuals, families, neighborhoods, cities, counties, the State, schools, non-governmental organizations, businesses, and industry. Large earthquakes present a sort of worst-case scenario with no warning and the chaos of damaged highways and damaged or collapsed buildings with no electricity, no gas, no telephone, no water, and no sewer systems. Fires usually add to the damage.

Pacific Grove is a small city but would serve as a well defined model for comprehensive disaster planning for earthquakes. The City has a disaster preparedness training program for individuals, families and neighborhoods called "Volunteers in Preparedness" which organizes neighborhood emergency response teams which include amateur radio operators for emergency communications. The State of California adopted a new "Standardized Emergency Management System" in December 1996. This new system is designed to facilitate one city's providing mutual aid to another city, and the counties providing additional resources to each other, with further backup from all over the State. Non-governmental community-based organizations such as the American Red Cross and the Salvation Army have key roles to play in assisting earthquake victims. Businesses and industry have learned the hard way from past earthquakes the value of cost-effective business continuity planning for efficient business recovery. The Federal Response Plan which marshals the resources of 26 government agencies to help a state in a Presidentially-declared disaster and the role of the Federal Emergency Management Agency will also be reviewed.

INTRODUCTION

Individuals and Families

California has experienced two earthquakes and a variety of other disasters such as floods and fires during recent years. A system of "comprehensive" disaster planning evolved which starts with individuals. Ideally, each individual should consider what is feasible, prudent and cost-effective to do to prepare for disasters. Earthquakes provide a convenient scenario - no warning, damage to highways and buildings, no electricity, no telephone, no gas, no water, no sewer system, etc. An individual should consider disaster preparations he or she might do at home, at the office, and en route in a automobile. Next the individual might consider what disaster preparedness measures would be appropriate for his or her family.

Neighbors

The Los Angeles Fire Department and later the San Francisco Fire Department decided to approach neighborhood associations to train neighborhood emergency response teams (NERT). The reason is that the Fire, Police and Public Works Departments will probably be overwhelmed in any large scale disaster. There may not be enough fire engines to try to put out numerous simultaneous fires or rescue disaster victims trapped under earthquake rubble. Many cities in California now have training programs for neighborhood emergency response teams. In my city of Pacific Grove, we call our program "Volunteers in Preparedness". The program consists of six classes:

- Class #1 Earthquake Preparedness in the Home
- Class #2 Utility Control, and Hazardous Materials
- Class #3 Disaster Medicine
- Class #4 Search and Rescue
- Class #5 Volunteer in Preparedness Team Management and Amateur Radio
- Class #6 Fire fighting training with fire extinguishers and rescue operations

The cost of materials for each student is \$30 for hard hat, identification vest, and firefighting materials expense.

Cities

In October 1991 there was a disasterous fire in Oakland and Berkeley. This "East Bay Hills" fire had 25 deaths and 150 injured. There were 3,354 houses and 456 apartments destroyed. This was the worst urban fire in the history of the United States. The estimated cost of the fire was \$1.5 billion.

There were a number of contributing factors to the poor performance of the Oakland and Berkeley fire departments according to the official "lessons-learned" report prepared by the East Bay Hills Fire Operations Review Group. The weather made firefighting almost impossible with temperature of 92 degrees Fahrenheit, relative humidity of 16 percent, and winds of 30 knots gusting to 50 knots. The streets were narrow and clogged with burned-out hulks of a thousand automobiles.

However there were also important organizational problems. The Oakland Fire Department did not use the Incident Command System and had no formal mutual aid agreements. The Fire Department moved its command post to three different locations during the fire, while the Police Department established two different command posts. It was difficult for the Governor to find out who was in charge and what was going on.

Furthermore, the Oakland Fire Department had a different size hydrant from all other California cities so that mutual aid engines from other cities needed to use an adapter which was in short supply. The Oakland Fire Department's budget had been cut so much in the preceding ten years that about 40 % of the personnel had retired without replacement, and there had not been money for wildland fire training. With only a little money for modernization, the fire engines had antiquated four-channel radios for communication instead of modern sixteen-channel radios. This made it difficult to communicate with the 300 mutual aid fire engines which had arrived to try to help.

State Senator Petris, whose home in Oakland had been burned, prepared the draft of Senate Bill 1841 which was approved by the state legislature and signed by the Governor. This law is found in Section 8607 of the Government Code. The intent of the law is to improve the coordination of state and local emergency response in California. The new "Standardized Emergency Management System" (SEMS) was effective December 1, 1996.

SEMS Training

A comprehensive training program was developed for all emergency personnel because this is a new system. Four courses were developed by the Governor's Office of Emergency . All city, county, and state employees were to get appropriate training.

Basic Components of SEMS

The new Standardized Emergency Management System was based on improvements to existing systems and some new concepts. These components are:

Incident Command System (ICS) - The ICS as developed by FIRESCOPE will be used at the field level by all responders.

Multi-Agency Coordination - Multi-agency coordination is the coordination among different agencies within a jurisdiction, such as Fire and Police. Inter-agency coordination takes place between different levels, such as city police, county deputy sheriffs, state police and California Highway Patrol officers.

Master Mutual Aid agreement - State, counties and cities originally signed a master agreement in 1950. This has been further developed to cover fire, law enforcement, coroner, emergency medical and search & rescue systems.

Operational Area - An operational area consists of a county and all political subdivisions within that county's area.

Operational Area Satellite Information System (OASIS) - A satellite communications system with a high frequency radio backup installed at each of the 58 counties, the regions the State.

Counties

California is divided into 58 counties. Each county with all of its cities and special districts became an operational area for disaster purposes on 1 December 1996. The county provides a city in distress with mutual resources from other cities.

State

The Governor's Office of Emergency Services at the State level established three Regional offices for disaster administration. Our Coastal Region can request resources from other counties to help our county.

Federal Government

The Federal government has a Federal Response Plan to coordinate the disaster activities of 26 agencies. The Federal Emergency Management Agency (FEMA) is in charge of these efforts. FEMA will coordinate federal assistance with the State.

Non-governmental community-based organizations

The American Red Cross provides mass care and shelter to disaster victims. Red Cross volunteers raise money to pay for providing temporary shelter, meals, clothing, and essentials to earthquake victims to help them recover from the disaster. The Salvation Army and numerous other non-profit organizations such as Food Banks are being organized into community collaborative associations for coordination of disaster activities. For example, there are more than 400 such non-governmental organizations in Monterey County.

Business and Industry

Cost-effective and prudent disaster preparedness mitigation activities are underway in many businesses and industrial organizations. What started with an emphasis on contingency planning for computerized accounting systems by off-site storage of backup computer files has blossomed into comprehensive business recovery disaster planning.

Training

The State of California has an annual statewide earthquake exercise scheduled for the first Tuesday of April each year. For example the announcement for the 1996 exercise in the City of Pacific Grove was as follows:

Statewide Earthquake Exercise, 10:30 a.m., April 2, 1996

1. The City of Pacific Grove will participate in the State of California's earthquake exercise scheduled for Tuesday, April 2, 1996. The City's emergency operations center will be activated at 10:00 a.m. at the Community Center, 515 Junipero Avenue.

2. The exercise will proceed in the context of a "BIG" earthquake. It will be assumed that the following conditions will prevail after 10:30 a.m.:

No electrical power

No gas

No telephone service and cellular service is overloaded

No drinking water

No sewer system

Earthquake damage to local highways, bridges over the Salinas River, overpasses and underpasses on Routes #1 and #68 has resulted in access problems. Earthquake damage to PG&E power generating stations at Moss Landing and other locations, switching facilities and transmission lines has resulted in a lack of electrical power for Pacific Grove (scenario assumption - loss of power for one week). Earthquake damage to telephone switching facilities and telephone lines has resulted in an initial lack of regular telephone service. (scenario assumption - no telephone service of any kind for one week). Earthquake damage to water, sewer, and gas pipe lines has been widespread in Pacific Grove (scenario assumption - no resumption of services for two weeks). Earthquake damage to unreinforced masonry structures has been extensive. Earthquake damage to housing has resulted in approximately 17% (Kobe, Japan experience) of the population of Pacific Grove displaced from their homes and 10% of these requiring temporary shelter and feeding, (scenario assumption - Residents needing shelter 274). Earthquake damage has resulted in 0.35% of the population (Kobe experience) in Pacific Grove dead, and 2.34% injured (Kobe experience) who require first aid and/or hospitalization, (scenario assumption - Dead: 57, Injured: 377).

3. Preliminary planning for the exercise includes the following events:

o 10:00 a.m. Activation of the City's emergency operations center at the Community Center, 515 Junipero Avenue, based upon an earthquake prediction message received from the State OES.

o 10:30 a.m. Earthquake !

o The City of Pacific Grove's Damage Assessment Team may be activated under the direction of the Chief Building Inspector and begin damage assessment surveys.

o The following organizations may conduct an earthquake evacuation exercise after the 10:30 a.m. earthquake:

Hopkins Marine Station, Stanford University

Monarch Pines

o The Monterey County Chapter American Red Cross in Salinas will send a shelter management team and an emergency response vehicle (complete with amateur radio station) to Pacific Grove. The team has a Red Cross trailer which contains cots, blankets and comfort kits. Monterey County Red Cross may need to request mutual aid

assistance from the cluster of nearby Red Cross chapters, such as Carmel-by-the-Sea and Santa Cruz.

- o The Monterey Bay Search Dogs, Inc. will be requested to provide urban rescue search dogs to find survivors buried alive in (pretend) earthquake rubble of collapsed buildings. The search operation will be conducted at the City's Corporation Yard, 2100 Sunset Drive at 11:00 am.

- o Radio station KOCN will set up a portable remote facility at the emergency operations center so that the Mayor and City Council members can make live broadcasts to residents of Pacific Grove.

- o Pacific Grove amateur radio operators will set up an amateur radio station at the emergency operations center.

- o The Salvation Army will activate its headquarters amateur radio station in Salinas and send its emergency canteen vehicle over to Pacific Grove to provide coffee and lunch to disaster workers at the emergency operations center.

- o Troop 90, Pacific Grove Boy Scouts will provide scouts for duty as pages at the EOC to deliver messages, run errands, escort visitors and assist with security.

- o The Volunteers in Preparedness (VIP) neighborhood emergency response teams who are registered disaster service workers will be activated in their respective neighborhoods. These teams, assisted by assigned Boy Scouts and amateur radio operators, will collect preliminary damage information in their neighborhoods and report by amateur radio to the EOC. The VIP teams will conduct search & rescue operations in their neighborhoods as well as provide emergency utility control, disaster medical attention and assistance to earthquake victims.

Conclusion

Comprehensive planning for disasters has the potential for saving lives, reducing injuries, and preparing communities and businesses to recover as soon as possible. Information is critical to the success of these efforts.

References and Notes:

Amateur Radio Emergency Service (American Radio Relay League) - information:
<http://www.arrl.org>

American Red Cross earthquake preparedness literature at local Red Cross Chapters: Are you ready for an earthquake, ARC 4455; Your family disaster plan, ARC 4466; Emergency Preparedness Checklist, ARC 4471; Your Family disaster supplies kit, ARC 4463; Emergency Management Guide for Business and Industry, ARC 5025
<http://www.redcross.org>

Coile, Russell C. (1997). The Role of Amateur Radio in Providing Emergency Electronic Communication for Disaster Management. Disaster Prevention and Management, ISSN 0965-3562, Vol. 6, No. 3, pages 178-185 <http://www.sp.nps.navy.mil/npsarc/k6ly.html>

Earthquakes: a Survival Guide for Seniors. California Governor's Office of Emergency Services (OES), Coastal Region Earthquake Program, 1300 Clay Street, Suite 400, Oakland, CA 94602, (510) 286-0895 <http://www.oes.ca.gov>

Emergency management information <http://www.disasters.org/emgold>

FEMA Publications Catalog, FEMA-20. Federal Emergency Management Agency, P.O.Box 70274, Washington, DC 20024 <http://www.fema.gov>

San Francisco Fire Department, Neighborhood Emergency Response Team Training Office, 698 Second Street, Room 118, San Francisco, CA 94107-2015 (415) 558-3456 fax (415) 558-3457 NERT Student Manual and other information.
e-mail : <nertsffd@slip.net> **Web:** <http://www.slip.net/~nertsffd/>

Standardized Emergency Management System (SEMS) Regulations. Chapter 1, Division 2, Title 19 California Code of Regulations, Government Code Section 8607 (a)

Wright, Russell G. (1995). Event-Based Science -Earthquake! ISBN 0 201 490900 Student Edition, ISBN 0 201 494 159 Teacher's Guide. (Other units in this series include: Oil Spill!; Hurricane!; Asteroid!; Toxic Leak!; Flood!; Volcano!; and Tornado!)
Scott Foresman - Addison Wesley Publishing Company, 1 Jacob Way, Reading, Massachusetts 01867 (800) 552-2259, fax (800) 333-3328 <http://www.awl.com>

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[Return to Electronic Index Page](#)