

The Portable Water System

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In 1984 Assistant Chief Blackburn, Division 2, SFFD, studied the history of the 1906 Fire and Earthquake, including the specifics of the Operations of the SFFD during this dramatic event.

The main problem facing the SFFD on April 17, 1906 was a lack of water supply due to the many broken water mains throughout the City caused by the 8.3 magnitude earthquake.

28,000 buildings were destroyed by the fire, including most of the building stock East of Van Ness Ave, including Downtown, south of Market and the Mission District to 20th and Dolores streets. Part of this study included a new report on "Fire Following Earthquake" for the City of San Francisco, this report was commissioned by Cornell University, with Dr Charles Scawthorn, of Dames and Moore as one of the lead researchers.

A new development in Fire Protection had occurred, 5 inch hose was now available and the SFFD had purchased several miles of it. Assistant Chief Blackburn had developed a proposal

to manufacture a prototype, "portable hydrant", for testing with the 5 inch hose, to see if it could be utilized as an "Above Ground Water System" in the event of an earthquake.

The Chief of Department, Emmet Condon agreed to this proposal. The test "Portable Hydrants" were manufactured at the SFFD Central Shops under the guidance of Chief Machinist Rudy

Navarro. The SFFD Director of Training, Chief Robert Donohue, supervised the testing of the new system and authorized an extensive training program for the entire Fire Department to be Trained in it's use at emergencies. This important Training Program was essential to the successful deployment of the system at fires and emergencies. Dr Scawthorn and Asst Chief Blackburn made a special presentation to Mayor Feinstein for funding of the new system plus other facilities for Earthquake Protection. Mayor Feinstein approved the funding for the new System following this presentation.

The new Portable Water System was deployed on special Hose Tenders and stationed throughout the city. Each Hose Tender carries one mile of 5 inch hose, necessary appliances including three to six Portable Hydrants. The Portable Water System works by using 5 inch hose as an above ground water main, Portable Hydrants are inserted into the layout for distribution as needed. SFFD pumpers pump into the system at each end, or at other points along the layout. The SFFD Fireboat Phoenix is utilized along the waterfront as a sea-born pumping station to supply the system with it's 8,000 GPM supply. The Portable Water System can be extended and can take many different forms, such as going around a City block and branching off to wherever needed. It can be supplied from more than one point. The only limits are the equipment available and the imagination of the person in charge. It is a revolutionary system and has been proven at many and varied Emergencies in the United States and Central Africa.

The original Portable Water System was developed for the SFFD, but other Fire Departments have also adopted it as well, including: Oakland, Vallejo, The Presidio of SF, San Bruno Water District, Vancouver B.C., and UNICEF, Kigali, Rwanda.

Significant uses of the Portable Water System:

The Portable Water System has been used in many emergencies in and out of San Francisco, the most significant was the fire following the Earthquake in the Marina District following the Loma Prieta Earthquake of October 1989. The System performed as designed, with the Fireboat Phoenix serving as the sea-borne pumping station at the foot of Scott Street and the Marina Green. The fire was controlled to one square block, preventing a conflagration from getting out of control and possibly destroying the Marina District.

Other significant events:

1. Supply drinking water to the SF County Jail in San Bruno in 1987
2. Laguna Honda Hospital in 1987,
3. Several major fires in industrial districts within the City, 1987-90
4. Assisting East Bay MUD, 1988, in Walnut Creek supplying water to a isolated district that had a damaged water main.
5. Protecting SF Water Department facilities at Early Intake, July 1987
6. Assisting the Oakland Fire Department during the East Bay Hills fire of 1992, stopping the fire at an important residential district near the Claremont Hotel.
7. Assisting the Southern Pacific Railroad at Lake Shasta to pump the chemicals from the Lake following a major derailment near Dunsmuir, July 1993
8. Protecting SF Water Department Facilities during forest fires, 1996 at the Hetch Hetchy Dam Site and Camp Mather in the high Sierras.

The Portable Water System in conjunction with water purification equipment is designed to supply drinking water for 1,000,000 people. After the fires are extinguished following a major earthquake, drinking water for the population is a critical need. This was demonstrated at Goma, Zaire, (now the Congo), in July of 1994.

Following the Rwanda Civil War, more than 1,000,000 refugees flooded into the city of Goma, located on the shores of Lake Kivu, at the border of Rwanda and Zaire, Cholera broke out due to a highly polluted water supply, the daily death rate reached 6,500 per day. US Senator Feinstein advised President Clinton of the Portable Water System capability, the system with now Retired Asst Chief Blackburn and eight former and active SFFD firefighters were flown by a C-5 US Military Transport to central Africa. There they were able to stop the Cholera epidemic within ten days by providing massive amounts of purified Drinking water.

They were credited with saving the lives of more than 140,000 people at this event.

Earthquakes are a fact of life for California and the City of San Francisco. The SFFD has developed the tactics, strategy and equipment to deal with broken water mains following

earthquakes. Together with the Fireboats Phoenix and Guardian as portable pumping stations, the City is able to provide the means to prevent another conflagration such as occurred in 1906 from again destroying San Francisco.

