

**BDPNN Meeting  
30 May 2013  
EBMUD**

Norine Smith opened the meeting and welcomed everyone. There were about 50 people at the meeting, with 1/2 of them newcomers to these meetings. She also introduced the staff members and gave some updates. The Network newsletter will be coming out soon, asking for volunteers to help with Juneteenth and Solano Stroll booths

Also, the Network's work plan for the coming year is in progress, including an emphasis on reaching out to the Spanish-speaking members of our community. Lastly, there will be a fundraiser for the Network in the Fall-Winter of 2013, with a performance of the Oakland Interfaith Gospel Choir. Watch for the announcements in coming newsletters.

Then Norine introduced the guest speakers for the evening. They were Steve Shively and Walter Nobrega from East Bay Municipal Utility District (EBMUD). Steve has 28 years experience, including many years in the San Mateo County Sheriff's office and Office of Emergency Services (including search and rescue and Emergency Operations Center experience), plus 3 years with EBMUD including working with State and County agencies particularly in exercises. Walter is a field engineer working for EBMUD for the past 28 years.

EBMUD responsibilities include over 1.3 million customers covering 332 square miles of territory in Alameda and Contra Costa Counties. About 90% of the water supply for this area comes from the Mokelumne River system in Amador County. The water quality of EBMUD is ranked #2 in the nation, behind one water system in upstate New York. EBMUD also covers wastewater management services. See the map in this report or online at: <http://www.ebmud.com/about/service-area-map> <http://www.ebmud.com/our-water/water-supply/current-water-supply-outlook/water-system-map> The water system crosses 5 different fault zones, including the Hayward Fault. The main source water pipe goes through the Caldecott Tunnel, with a secondary source pipe near San Ramon in the south. Thus, all our source water is NOT going through just the Caldecott Tunnel line, but can be routed through the southern pipe near San Ramon. EBMUD has been working very hard on improvements to the tunnel system to make it more robust in a major quake, spending \$350 million in seismic retrofits. Essentially, each side of the fault can move up to 8 feet and still the pipe will be able to send water through. With the expected 7.0 on the Hayward Fault, the amount of movement is expected to be about 3 feet overall, so the tunnel water supply will very likely be intact.

The entire system can also be broken down into smaller loops depending upon damage after a major quake. As the water system integrity is restored to different parts, smaller loops of the water system will be operational while repairs continue on the broken parts. There are portable pumps located in various parts of the system to do this. For example, there is one of these pumps in the Chabot/Claremont area. Overall, the estimate for the return of normal water supply to the residents of EBMUD's districts is less than 30 days. Because of the system's ability to be subdivided into smaller loops, some areas will have water much sooner, but the most damaged areas might have to wait as long as 30 days. As a reminder, all water is connected, so there isn't a separate water system for the fire hydrants and the houses and businesses; everything is on the same system.

The speakers then reviewed the types of disasters that EBMUD plans for and continues to have exercises on: gas fires (such as San Bruno in 2010), brush fires (such as Oakland Hills in 1991), levee failures (such as the Jones Tract Levee failure in 2004), earthquakes (such as Loma Prieta in 1989), terrorism, and storms. The storm damage is, of course, the most frequent type of

damage that they have to deal with. In any disaster, however, the priority is saving lives first, then working on the infrastructure to restore utilities.

They have emergency staff on duty 24/7. There is a primary monitoring center for all systems with emergency power backups located in Oakland, with secondary monitoring centers in Walnut Creek and Pardee. Any of these locations is able to monitor and control the water supply to the entire EBMUD region. The system can even sense when the Super Bowl is having a commercial because of all the toilets flushing at the same time when people are racing to the bathroom so they don't miss any of the game.

In addition, all the major junction points have emergency backup systems. This includes all the reservoirs and other choke points in the system, so if all power goes out during a quake, there will still be the ability to automatically control some of the major parts of the water system. If there is a major break in a supply line, there are T-valves that can be used to restore some water supply when crews are on scene and reroute the water using hoses through the T-valves. Essentially they can bypass the break. Most of the smaller parts of the water system will still need manual control (i.e., people) to turn on and off the valves as needed.

In addition, the various fire departments have the training and tools to control the water systems as needed. If EBMUD personnel cannot get to a location due to a major quake, then the fire departments can take care of major leaks manually.

There have been lots of retrofits and upgrades to the reservoirs in the area. For example, the Berryman open reservoir was built in 1915, but it was shut down, reduced in size, and moved off the fault line. It now consists of a steel tank that is able to handle a 7.0 earthquake. The Summit open reservoir is currently scheduled for retrofit as well.

There are a large number of mutual aid agreements between county, city, and state agencies, including sharing water from Los Angeles or Las Vegas, for example. As long as the pipes are intact, we can get water from a variety of locations. Also, EBMUD allots the water to each City, and each City decides how the water is routed in their area and who gets priority (such as hospitals, Red Cross shelters, etc). EBMUD does not decide where the water goes.

Lastly, the speakers clarified that the sewer lines actually belong to each City. EBMUD gets involved when the sewer lines connect to the water treatment facilities, and then water treatment is their responsibility.

Next, the speakers focused on what we can all do to prepare for the chaos period (the first 3-10 days) after a major disaster such as a Hayward Fault 7.0 earthquake. We need to prepare to be without all of the following things: electricity, gas, water, communications, transportation, and medical. Our family plans should focus on having our own supplies for the first 3-10 days of any disaster. This includes having a meeting site, and an alternate meeting site, for the family to rendezvous if they are in different places and need to find each other. They should also have an out-of-area contact, preferably a cell phone number that everyone knows because sometimes voice is completely blocked, but text messages can get through, and that doesn't work on a land line. Each family also needs to know the neighborhood and what the escape routes are in case of fire and evacuation. Each location is different, and examining all your options in advance will keep the panic factor down.

You need to get 3 days minimum (10 days desired) of supplies for every member of your family, including pets. Think about a camping trip where you need to bring everything with you. This includes a minimum of 1 gallon per person/pet per day (generally 2 quarts for drinking, 2 quarts for hygiene) of water stored in food-grade containers, plus food. If the food is dehydrated, you need even more water to rehydrate it. Make sure you have a battery-powered radio to listen for news such as a "boil water notice" (boiling water for a minimum of 3-5 minutes before drinking it) or where to go to get water if your neighborhood is completely dry. Also, you need to have an extensive first-aid kit to take care of the most likely injuries that your family would experience.

Everyone is encouraged to have a "Go-Kit" for each member of the house, plus a Go-Kit for your workplace, plus a Go-Kit for the car with extra supplies in case you have to walk home. Storage of the survival equipment (such as tents, sleeping bags, etc.) should be in containers that are easily movable in case of evacuation.

For the proper storage of water, you can use tap water in food-grade containers and change it out every 6 months. Keep the water in a cool, dark, dry location. When you change out the water, use soap and water to clean the containers before putting in the new water. If you use tap water, you don't need to add additional chlorine. If you choose to put chlorine into the water, you must use unscented pure 5.25% sodium hypochlorite bleach only. Iodine is never recommended for purifying water for drinking. It is possible to get a camping water purification system that uses ultraviolet light powered by a battery, but make sure it's certified to make drinking water for humans. You can also purchase 55-gallon water drums that will store tap water for up to 5 years when used with a water preserver.

Many people use bottled water from the store, and this can be used safely up to the expiration dates on the containers. However, water might be useable much later than the expiration date if the water is stored in a cool, dark, dry location. It's always best to rotate out the supply of bottled water when you get new bottles and use the older ones to always have a fresh supply.

If you never lose water system pressure after the quake, then you can generally trust that the water is good. However, you won't know if you lost pressure unless you are home at the time and can check if air is coming from the taps. There are a few ways you can disinfect the water, if your water supply is still running after the quake but you are unsure if it was disrupted. These include: boiling the water using a heat source and a clean pot, and using unscented chlorine bleach in the proper proportions. Make sure you have a medicine dropper or small measuring spoons to measure the bleach accurately.

Distillation is another way to purify the water, where you can be certain of its purity. You do this by boiling the water in a pot, and using a system to catch the water vapor. The vapor then condenses and forms pure water that can be used for drinking and cooking.

Alternate sources of water in the home include:

- hot water heater: Make sure you disconnect the heating source (gas, electric) before you use the water. You will need to wait for the water to cool down so you don't get scalded. Also, you should close the water input to the water heater in case the supply line is contaminated. When you remove the water (using the spigot near the bottom), use a clean cloth or paper towels as filters to take out silt and debris that might be in the bottom of the water heater. Then, to be perfectly safe, you should also treat the water using one of the systems already described.
- toilet tank (not the bowl): As long as you don't use any chemical additives (such as the blue disks), you can drink the tank water, or use it for hygiene. You may also want to treat it.
- hot tubs and pools: again, this water can be used for hygiene but can be treated for drinking as well.
- second hot water heater: Some people install a second hot water heater in their home that is not heated or hooked up to a heating system. This tank is used for the purpose of having fresh water in case of emergencies at all times. It is upstream from the hot water heater and has the supply line and output line at the top of the heater.
- military canned water: This water has a shelf life of up to 30 years.

If your city does not have water, City officials will make a request through the County, who will pass the request on to the State, who will pass the request to the Federal government. This is when FEMA would likely become involved. If the requests are made quickly, more than likely FEMA and other agencies (such as Red Cross, etc.) will be able to arrive in the area within 7-10

days. However, we all need to have supplies until these agencies actually arrive with supplies. For sanitation (toilet, etc.), if there has been a big quake, you must immediately assume that the sewer system is destroyed, and you must not use any of the sinks or toilets in your home, and you must not dump anything directly into a sewer drain (such as at the street). You must have a home sanitation kit, which includes a bucket and plastic bags, which now becomes the toilet. Remember to include toilet paper, hand wipes, hand sanitizer, and some sort of scent to put into the bucket/plastic bags. EBMUD is not responsible for picking up the plastic bags during/after a disaster; it is the responsibility of the City and waste disposal to pick these up. Make sure the bags are kept separately from the regular trash when waste pick-up is resumed. There will be instructions about how to mark these bags on the radio and/or TV.

After a major quake has happened, keep the following things in mind:

- Watch for fires and do what you can to put them out immediately.
- Aftershocks will be common, and some of them might be more powerful than the initial quake. - Make sure you listen to your radio or TV for important announcements about shelters, boil water notices, evacuations, or locations of water if your neighborhood is dry.
- Do not use the telephone except for emergencies. If it is not working, your only recourse is to send a runner to the fire stations or the Emergency Operations Center for your city.
- Check your home for damage and turn off any utilities that are leaking. Check your home after each aftershock.

If the phones are working and you can get through, you can report a water leak to the EBMUD emergency line at 866-403-2683. If the leak is in your home, you can shut off the water at the main shutoff valve on your house. If the leak is near the street or sidewalk, the leak is probably on the EBMUD side of the line. You need to shut off the water at the main EBMUD valve at the sidewalk near the street. This would be the only time you need to use this valve, unless the valve on your house is stuck open. The EBMUD valves either work or they don't; there is no maintenance, such as with a gas valve. They usually fail between 50-80 years, but anything can happen sooner or later, depending upon the conditions that the valve is exposed to. Most parts of the EBMUD water system will last 50-80 years on average, without a major disaster.

Useful websites:

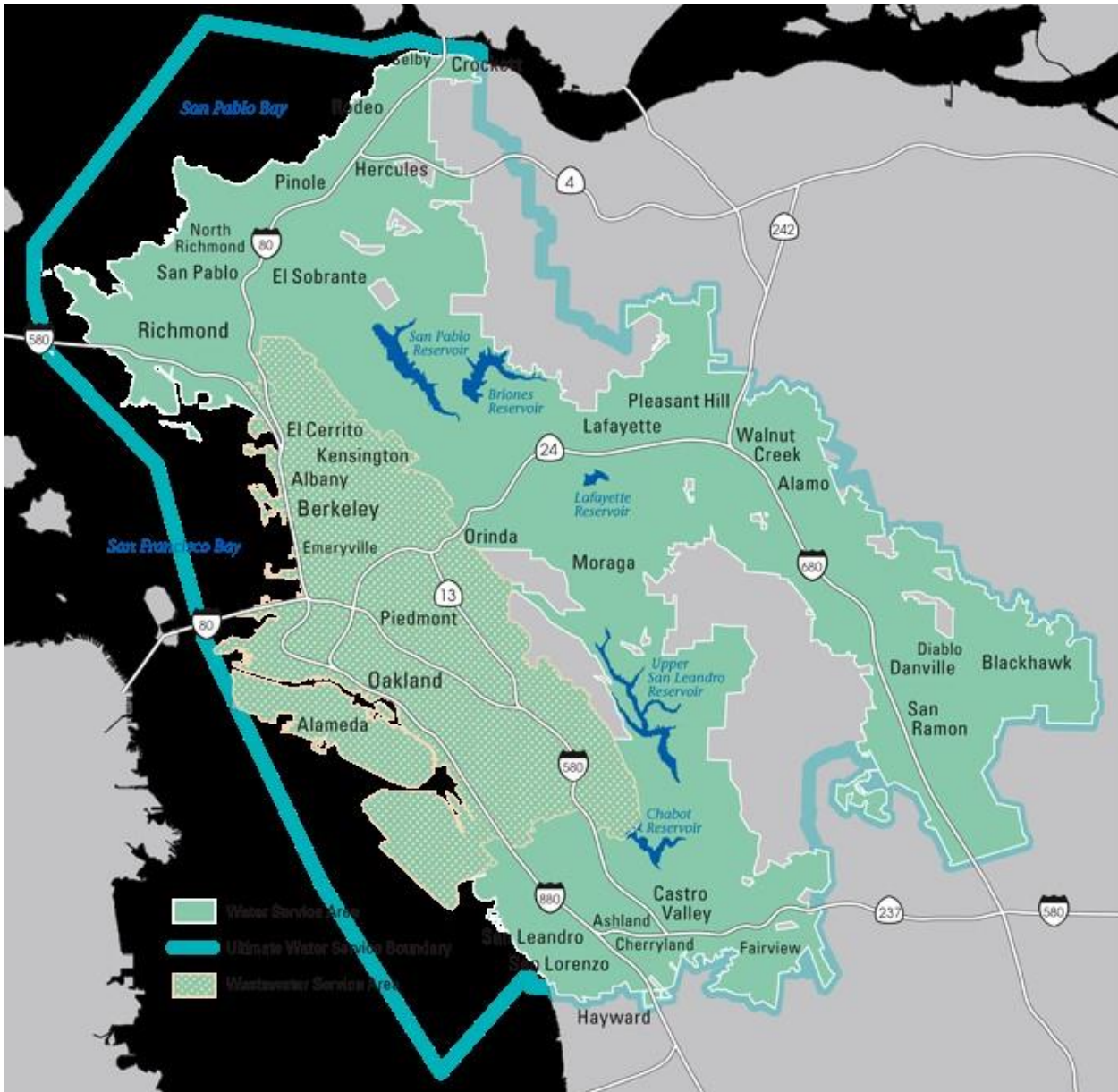
Military canned drinking water: [www.worldgrocer.com/v/canned-water.htm](http://www.worldgrocer.com/v/canned-water.htm) Meals

Ready to Eat (MREs): [www.wisefoodstorage.com](http://www.wisefoodstorage.com) or [www.longlifefood.com](http://www.longlifefood.com)

General emergency supplies:

[www.simplerlife.com](http://www.simplerlife.com)

[www.earthquakesupplycenter.com](http://www.earthquakesupplycenter.com)



EBMUD service area (as of 2013)