Emergency Preparedness for Your Home

The first 72 hours after a disaster are critical. Electricity, gas, water and telephones may not be working. In addition, public safety services such as police and fire departments may not be able to reach you immediately during a serious crisis. Each person should be prepared to be self-sufficient - able to live without running water, electricity and/or gas, and telephones - for at least three days following a disaster. To do so, keep the following on hand and rotate supplies to keep them fresh:

Food: Maintain enough nonperishable food for each person for at least 72 hours.

Water: Store enough so each person has a gallon a day for 72 hours, preferably for one week. Store in airtight containers and replace it every six months. Store disinfectants such as iodine tablets or chlorine bleach, eight drops per gallon, to purify water if necessary.

First aid kit: Make sure it is well stocked, especially with bandages and disinfectants.

Fire extinguisher: Your fire extinguisher should be suitable for all types of fires. Teach all family members how to use it.

Flashlights with extra batteries: Keep flashlights beside your bed and in several other locations. Do not use matches or candles until you are certain there are no gas leaks.

Weather Radios: National Oceanic and Atmospheric Administration (NOAA)
weather radio, with battery backup, portable radio or portable television with extra batteries: Telephones may be out of order or limited to emergency
use. The NOAA weather radio, portable radio or portable television may be your best source of information.

Miscellaneous items: Extra blankets, clothing, shoes and money. Wear sturdy shoes just in case you need to walk through rubble and debris.

Alternative cooking sources: Store a barbecue or camping stove for

outdoor camping.

Caution: Ensure there are no gas leaks before you use any kind of fire as a cooking source and never use charcoal indoors. Gasoline-powered appliances should be filled away from ignition sources.

Special items: Have at least 72 hours of medications and food for infants and those with special needs. Don't forget diapers.

Tools: Have an adjustable or pipe wrench for turning off gas and water, and a shovel or broom for cleaning up.

Pets: Assemble an animal emergency supply kit and develop a pet care buddy system with friends or relatives to make sure someone is available to care for or evacuate your pets if you are unable to do so. Be sure each of your pets has a tag with your name and phone number. Whether you decide to
stay put in an emergency or evacuate to a safer location, you will need to plan for your pets.

Brad, KE7MU

end.

Water Quality

There are a lot of opinions about water from a hot water tank. After working for nine years at a municipal water treatment plant (as plant instrumentation technician) so I feel I have some relevant knowledge and experience on this subject.

(Does anyone remember what 2-bits are worth? I am sure you do...)

1. Water particulates: Water in today's towns and cities is treated for removal of suspended solids and minerals through aeration and filtration. Aeration helps to remove dissolved minerals such as iron and manganese. To aid in getting the smaller particles, a flocculent (polyelectrolyte or calcium hydroxide) is added that, due to it's ionic charge, causes suspended solids to clump (floc) together and makes removal of the solids more effective. After cleaning the water, we add calcium hydroxide (slake lime) to; a) sweeten the taste of the water, and b) raise the pH. This results in high calcium levels that line the metal and concrete pipes of the distribution system with calcium deposits reducing corrosion and sealing the pipes. However beneficial, the calcium hydroxide comes into our homes and makes irritating and ugly deposits on all our fixtures and appliances (including the water heater).

Note: If you remember, some years ago we got some water from Phoenix that was neutral (7.0 pH) to acidic that dissolved the calcium coating and caused leaking water mains.

2. Water heaters: Modern water heaters are lined with vitreous enamel or "frit"(primarily an alkali borosilicate plus a few metals to aid in binding to steel) termed in retail marketing as "glass lined". Cold water enters the tank through a drop-tube extending from the cold-water tap at the top to the lower 1/3 of the tank. As hot water is removed, the flow of cold water to

the bottom of the tank triggers the thermostat and turns on the heating elements or burners. Normally, there is an amount of sediment that collects at the bottom of the tank over time, distal to the discharge of cold water drop-tube. Calcium deposits on the heating elements and flu (the flu extends up through the middle and exits out the top of the tank) makes up the majority of these deposits that detach and fall to the bottom of the tank. These deposits are not toxic, as we remember from item 1, we added the calcium to start with.

All tanks have an aluminum, magnesium or zinc sacrificial anode, depending on the heater manufacturer. Two things happen in this little micro-water plant. First, there will be galvanic corrosion between any exposed metal (steel) of the tank and everything else in the world specifically because of the high chlorine levels (typically 0.3 ppm to 0.7 ppm at the home). This galvanic corrosion was much more significant when we had iron or copper pipes (a lost benefit is these pipes provided an excellent ground for radios), but is much reduced homes having plastic (polyvinyl chloride (PVC/uPVC), polypropylene, polyethylene) plumbing. The sacrifice products of the anode can create deposits that drop to the bottom of the tank. As with any heavy metal, we don't want to drink these deposits.

However, when we flush the tank using the provided flush spicket, much of the sediment is removed from the tank. When we turn on the hot water tap, the water comes from the hottest point at the top of the tank, has no deposits and is totally safe to drink (biologically speaking). Similarly, if we need to drain the water from the tank for drinking and food preparation, we should filter out all particulates using multiple layers of cloth or other filter media. In this way, we successfully remove any threat to health.

4. Biosafety: According to law, all municipal water is treated with chlorine, ozone or other antimicrobial treatment prior to introduction into a water distribution system. At the water plant I worked at, we maintained a

level of 4-6.0 ppm of free chorine 60 seconds post chlorine injection. (I could tell you more describing the chlorine injection, contact, instrumentation and biological response but this email is getting long.) The chlorine levels drop to about 0.75 ppm after many hours of contact through the process of oxidizing biological mater. At this juncture, the water is fully safe to drink: hot or cold. We then released the water directly into water distribution network. Our system supplies water to residents of the third largest incorporated area in the state of California (26 sq.mi. of pipes and two 6 million gallon storage tanks.)

Recommendations: With periodic flushing (every 3 to 6 months) to remove deposits at the bottom, and the replacement of missing or ineffective anodes as needed (2-3 years depending on water conditions), the hot water tank will deliver safe, potable water to the home and remain in operation for many years beyond manufacturer's warrantee. By filtering out any suspended material (e.g. deposits stirred up from the bottom) with simple home-made filters, all the water in the typical home hot water heater is safe to consume.

Please note - municipal water is safe to drink in an emergency if efforts are made to prevent contamination from a compromised water treatment or distribution system. According to FEMA, a properly maintained water heater is a good source of potable water.

For more information - see the FEMA web at
http://www.fema.gov/plan/prepare/watermanage.shtm

Regards,

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