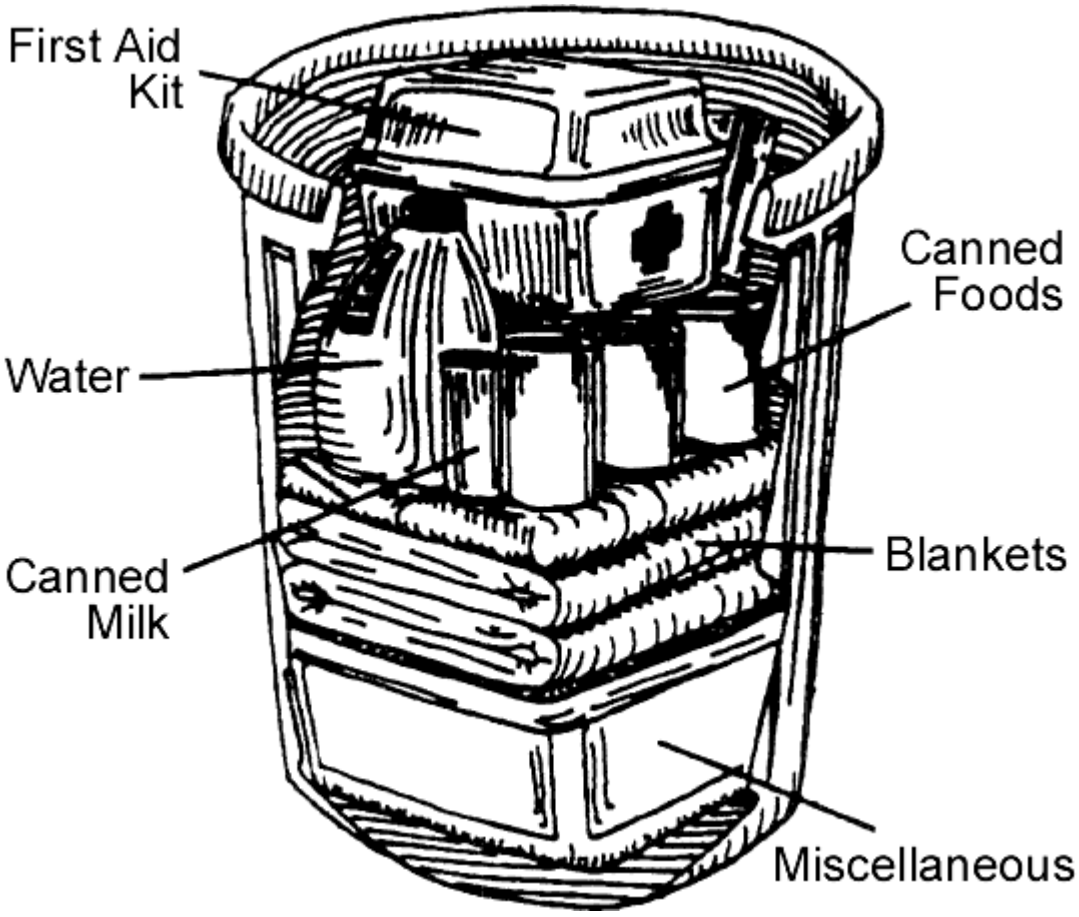
Emergency Preparedness Handbook

A collection of key information
for
Family Emergency Preparedness



Our research took us to two main internet sources, from which most of this educational material comes:

www.fema.gov and www.redcross.org

We hope you find this valuable for you and your family. We encourage you to continue to add information to this folder, as you keep emergency preparedness one of life's priorities. When you run onto additional information, please share what you find with us.

Emergency Preparedness Handbook
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Emergency Contact Information

Contact	Name	Address	Telephone #'s
Local Contact			
Out of State Contact			
Nearest Relative			
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Mother's Work Info.			
Fire Dept.			
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Hospital Info.			
Family Physician			
Other Physician			
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Father's Physician			
Dentist Info			

Gathering Locations

Outside Home	
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Emergency Shut-off Information

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General Checklist for Emergency Preparedness

Disaster can strike quickly and without warning. It can force you to evacuate your neighborhood or confine you to your home. What would you do if basic services--water, gas, electricity or telephones--were cut off? Local officials and relief workers will be on the scene after a disaster, but they cannot reach everyone right away.

Families can--and do--cope with disaster by preparing in advance and working together as a team. Follow the steps listed to create your family's disaster plan. Knowing what to do is your best protection and your responsibility.

Learn

- Call FEMA or Red Cross and find out which disasters could occur in your area.
- Ask how to prepare for each disaster.
- Ask how you would be warned of an emergency.
- Learn your community's evacuation routes.
- Ask your workplace about emergency plans.
- Learn about emergency plans for your work and children's school or day care center.
- Take a basic first aid and CPR class.
- Get training from the fire department for each family member on how to use the fire extinguisher (ABC type), and show them where yours are located.

Identify

- Pick two emergency meeting places---a place near your home and a place outside your neighborhood in case you cannot return home after a disaster.
- Pick one out-of-state and one local friend or relative for family members to call if separated during a disaster (it is often easier to call out-of-state than within the affected area).
- Find the safe spots in your home for each type of disaster.
- Draw a floor plan of your home. Mark two escape routes from each room.
- Conduct a home hazard hunt to identify any safety concerns.

Teach

- Meet with your family to discuss the dangers of fire, severe weather, earthquakes and other emergencies. Explain how to respond to each.
- Discuss what to do about power outages and personal injuries.
- Show family members how to turn off the water, gas and electricity when necessary.
- Teach children how and when to call 911, police and fire.
- Instruct family to turn on the radio for emergency information.
- Teach children your out-of-state contact's phone numbers.

Prepare

- Post emergency telephone numbers near telephones and in your car(s).
- Complete the Emergency Information Sheet. Place copies with phone directory, 72-hour kit, and other locations.
- Create a 72-hour emergency kit that meets your individual family's needs.
- Keep family records in a water and fire-proof container.
- Place a blanket and small first aid kit in your car(s).
- Install smoke detectors on each level of your home, especially near bedrooms.
- Continually work towards having a one-year supply of food, and two weeks of water.

Review and Maintain

- Quiz your family every six months or so.
- Check and replenish your 72-hour emergency kit at least annually.
- Conduct fire and emergency evacuation drills.
- Test and recharge your fire extinguisher(s) according to manufacturer's instructions.
- Test your smoke detectors monthly and change the batteries at least once a year.
- Every year review your plan, 72-hour emergency kit, and emergency supplies. Replace all perishable foods and water.
- Evaluate your progress in maintaining your food and water supply.

Important Information for you to have in an emergency

Important documentation in an emergency

Make a document which contains all of the following information. Place it in a safe location, and leave a copy of this list with a trusted contact. Update it periodically and carry it with you when moving from one locale to another.

- Passport numbers and dates of issue
- Bank account number
- Credit card number
- Insurance policy number
- Car registration, serial, and license number
- U.S. driver's license number
- Social Security numbers, including children'
- Current prescriptions, including eyeglasses
- Contents and location of safe deposit box(es).
- Assets and debts
- Names and address book

Make copies of the following. Take one with you, and leave the other in a secured deposit box.

- Copy of will(s). Originals should be left with lawyer or executor, not in safe depository.
- School Records (yours and childrens)
- Medical/dental records, immunization cards
- Power of attorney (one of the originals)
- Birth and marriage certificate
- Naturalization papers
- Deeds
- Mortgages
- Driver's license, auto insurance policies, auto registration, and title, if applicable
- Stocks (or leave with broker in case you want to sell)
- Bonds (or leave with broker in case you want to sell)
- Insurance papers - life, car, house, medical, and household effects (HHE)
- School records, report cards, test scores, and current samples of work
- Current household effects inventory
- Personal checks, check registers, latest bank statement
- Execute a current power of attorney for each adult family member and have several originals made. Make several copies as well. These are needed to transact business on behalf of spouse or other adult.

Finances:

- Establish credit that will be adequate for emergencies. Obtain individual credit cards for spouse.
- Establish a joint checking account, or two joint checking accounts, enabling each spouse to work from either in the event they are separated for a period of time.
- Get an automatic teller machine (ATM) card for your bank account that can be used all over the country and internationally. Make sure both spouses know the personal identification number (PIN).
- Put checkbooks, bank books, credit cards, some travelers checks, and a small amount of cash in a safe (but easily accessible) place.
- Keep a list of regular billing dates for all recurring expenses -- insurance, mortgages, and taxes.
- Make and continually update an inventory of all your possessions, including jewelry and clothing.
- Decide what to take and what to leave in an emergency. Consider putting items into storage that can't be replaced.
- Consider personal property insurance.
- Update scrapbook and photo albums. Consider leaving sentimental photos and negatives or duplicate photos in storage or with a relative. Put photos on CDs!
- Make duplicates of all personal address lists.
- Consolidate all personal records, financial documents, school records, etc.
- Prepare your house for evacuation -- secure valuables.
- Plan for pets. You may not be able to take them with you. Make advance arrangements for their care, food, etc. Keep the pets' records updated and with you.
- Decide how money will be handled. Who will pay bills? Will you continue to use the joint checking account?
- Keep a small amount of cash set aside in a safe place. Allow for enough to sustain you through an emergency.

72 hour kit

Do-it-Yourself 72 hour kit

- Candle
- Candy, almonds, jerky
- Clothing for each---pants, shirt, socks, underwear, hat, sturdy shoes, and gloves
- Consecrated Oil
- Dish soap and bleach—liquid
- Emergency reflective blanket
- First aid kit and supplies
- Flashlight with extra batteries
- Food 72 hour Supply of Food and Water
- Games, books, puzzles, paper and pen
- Garbage Bags, large and small
- Hand and body warm packs
- Hatchet, Axe or folding saw
- Important Papers & Numbers*
- Insect repellent
- Lightweight stove and fuel
- Medical Face Masks
- Method of water purification
- Money $50 in small bills and coins
- Pocket knife or Multi-tool
- Poncho
- Potassium iodide tablets
- Radio with batteries
- Rope 50-foot nylon rope
- Sewing kit
- Shovel
- Sleeping bag, Wool-blend blanket
- Soap, toothbrush-paste, comb, tissue, sanitary napkins
- Sun block
- Tent/shelter
- Two-way Radios w Batteries
- Water--1 to 2 gallons water/person/day
- Whistle with neck cord
- Windproof/waterproof matches

Some other considerations:

- Extra food
- Camp stove --cooking equipment
- Portable toilet
- Special medication
- Extra glasses
- Portable Container
- Durable water resistant duffel bag, frame pack or day pack

1) Your 72 hour kit should be in a portable container located near an exit of your house or better, sheltered in your backyard.
2) Each family member should have their own 72 hour kit with food, clothing and water. Distribute heavy items between kits.
3) Enclose the extra clothing, matches, personal documents, and other items damageable by smoke or water in plastic to protect them.
4) Keep a light source in the top of your 72 hour kit.
5) Personalize your kit--Make sure you fill the needs of each family member.
6) Inspect your kit at least twice a year. Rotate food and water every six months. Don't forget to check your medications. Check children's clothing for proper fit. Adjust clothing for winter or summer needs. Check expiration dates on batteries, light sticks, warm packs, food and water.
7) Consider the needs of infants, children, and other special needs. (store diapers, washcloth, ointment, bottles and pacifiers).

*What about copies of documents important to your family (such as birth certificates, marriage licenses, wills, insurance forms, phone numbers you might need, credit card information.

Communications

Alternatives to cellular communications in emergencies

When the power is off, phones go out and the internet is down, when police, fire, and hospital services are overwhelmed, amateur radio operators are there to take up the slack as emergency communications volunteers. They have, in fact, been there in virtually all disasters in recent memory .. Hurricanes, fires, ice storms, earthquakes, floods and so on.

With a little forethought and a few bucks, you can prepare yourself for similar events in the future and avoid being incommunicado when you need it the most.

Here are some criteria for setting up an emergency communications system:

1) It should be easy to operate
2) have effective range
3) have a modest amount of protection against interference
4) be inexpensive (i.e. low initial cost, low maintenance and no monthly fees)
5) be readily available
6) be able to operate "off the grid"

There are at least five communications systems that more or less meet these criteria. Some have big drawbacks, others minor ones. In making your choice, you should examine your own needs and match them with the appropriate system.

CB Radio
In the late '50s, the FCC took a set of frequencies from the Amateur Radio service and designated it as the Citizen's Band. The rules were simple: a rubber stamp license, low power, ease of operation and channelized tuning. But the service was a relative sleeper 'til the '70s when movies like "Smokey and the Bandit" and popular tunes like "Convoy," with their "rachet jawin'," truck drivin' cowboys, captured the American imagination. That sent a stampede of otherwise respectable Americans onto the airwaves and the Interstate and overwhelmed the sluggish FCC which promptly abandoned the band to the mayhem that ensued. The Commission's only response to the millions of yahoos yelling at each other over CB was to expand the band to 40 channels.

If you haven't used a CB in the last 20 years, a few things may surprise you: 1) The units themselves are virtually unchanged (which leads one to wonder if they're still selling off excess inventory from the initial craze). 2) Prices for complete systems are cheap. 3) In many areas, the CB channels are relatively quiet. Advantages of using CB radios for emergency communications are considerable. Aside from the low price tag, lack of licensing and fees, they are operated on your car's 12v. electrical system and can be easily operated from home using a small, cheap motorcycle battery. Their range, depending on antenna type and placement, can be anywhere from one to fifteen miles.

Disadvantages of CB's are few, but persistent. Antennas tend to be large (4' to 8' on vehicles and larger for "base" or home stations). While much smaller antennas are sold, their effective range is drastically reduced. Transmissions tend to "leak" into all kinds of other electronic devices. In the home, CBers will often be heard on TV speakers, corded telephones, electronic keyboard speakers, etc. This was an aspect the FCC came to regret as the Commission was faced with hundreds of thousands of complaints from frustrated neighbors. Another problem is that sometimes, during favorable atmospheric propagation, range can be as great as several thousand miles. Thousands of people all hitting their mike buttons at the same time sets up an unearthly squeal and nobody gets through.

Prices for CB radios range from US$50 to $150 for full-sized mobile-mount radios to $230 for handheld portable units with AM/Single Side Band (SSB) capabilities. I recommend units with built-in Weather Radio receivers. Antennas are sold separately and range from $28 to $75 and usually have attached cables and connectors to simply plug into the back of the unit.

49MHz Personal Communicators

After the CB fiasco and before the Family Radio Service was established, manufacturers took advantage of FCC rules regarding transmissions in the 49MHz band. They built small, lightweight, self-contained, low power systems which featured a single headset with boom mike attached to the transmitter/controller which could be clipped onto the user's belt or pants pocket. Usually single channel operation only, some models are sold with as many as five frequency channels. All feature PTT (push-to-talk) mikes as well as VOX (voice operated) transmitters. The VOX feature makes them ideal "hands free" systems for cyclists, joggers or motorcyclists. Without speakers, the audio is heard only through the earphone. Early cordless phones, baby monitors and a few other devices share this band.

The advantage of this system is the extremely low power drain. Most sets are powered by only 2 or 3 AA batteries and can be in service for months. Their size makes them perfect for traveling light, and taking up very little space. The big disadvantage is limited range. Expect under a quarter-mile coverage with these systems. This can be seen as an advantage when you don't want to battle hundreds of other people on your frequency.

Prices for 49MHz Personal Communicators range from $30 to $50 each.

Family Radio Service

Once again, the FCC has tried to give the average citizen a chance to use the airwaves with a new scheme they call the "Family Radio Service" (FRS). Here the Commission sought to re-dress the problems of the first citizen's band. They assigned the band frequencies in the UHF region (around 462MHz) which limits the propagation-induced range. They also limited the output to one-half watt and transmissions use Frequency Modulation (FM). All are small, battery-powered "handi-talkies" which can easily fit into a pocket. The Commission has again chosen channelized operation and this time has allowed 14 channels for use.

Advantages of FRS units are that they are very compact (typically 4" h x 2.5" w x 1.5" d) and weighing 6-10 ounces. The UHF frequency means they have very short antennas (typically only a few inches). Some units also have such useful features as optional headset/boom mikes for

VOX operation, audible low battery alert and transmit LED. Some units feature 38 "interference eliminator codes" which are sub-audible tones which let your unit respond only to other units transmitting a designated tone. Other notable features include a programmable scan feature and automatic "power off" (shuts down if not used after a certain period of time). The main disadvantage of these units is the relatively short range. While manufacturers claim up to two miles, don't expect more than a mile.

Expect to pay $50 each for basic FRS models, $90-$190 for higher-end models with additional features.

General Mobile Radio Service

The General Mobile Radio Service (GMRS) is like the FRS in that it operates in the 460MHz region, uses small handi-talkies and is intended to be used by individuals to communicate with immediate family members. The big differences are that GMRS requires an FCC license with a fee and users must be 18 years or older. In addition, the output of these units is considerably greater (1 to 5 watts), allowing a range of coverage from 5 to 25 miles, depending on terrain and antenna position.

There are 23 GMRS channels used on an unassigned basis and dependent on the cooperation of all users. The channels are split up for base, mobile relay and fixed station or mobile station use. Each license is assigned one or two of eight possible channels or pairs as requested by the license applicants. In order to avoid interference or conflicts in use, the FCC recommends monitoring existing frequencies in your area before making your application and requesting your channels.

The advantage of the GMRS is that this is the most useful of the previously listed services, but brings with it disadvantages of government oversight and stringent frequency assignment. GMRS radios are bigger than FRS units and have more features. Higher power means more batteries (as many as 6 AAs) and a higher price. Expect to pay $200 for handheld 2 watt units and considerably more for 5 watt base station transceiver.

Amateur Radio

The great grand-pappy of the two way radio scene is the Amateur Radio service whose operators are known as Hams and who have pioneered radio communications since the first decade of this century. AR is also the most regulated of the non-commercial services, it can end up being the most expensive, but it can also be the most versatile and powerful.

All hams and their stations must be licensed by the FCC, and in order to receive a license, you must pass a written exam. Any license above the entry level also requires a proficiency in Morse Code. There's no fee for the license (which is good for ten years), no age requirement and operators are allowed to use any frequency for which their license qualifies them.

A nationwide system of repeaters on the 144MHz and 440MHz bands allows nearly seamless communications as hams travel around the country. These repeaters are built, installed and maintained by active and well-populated local amateur radio clubs. Traditional amateur frequencies in the shortwave bands provide excellent coverage for local, regional, national, and

even international, communications. Unfortunately, there's not one radio for all of these capabilities which is why hams typically have three or four separate radios and antennas.

The easiest way into ham radio is via the "Technician" class license which requires a written test based on a text available through many sources. This class allows the user to operate(among others) in the 2 meter band (144MHz). Small handi-talkies for 2 meters are relatively cheap and give a range of 20-50 miles depending on terrain, power and whether or not you're using a repeater. Many repeaters provide access to 911 services through the handi-talkie.

Expect to pay $200-$500 for 2 meter transceivers depending on features. If you're planning to use Amateur Radio for your family, each member needs a Technician license and their own handi-talkie.

Final Points

The FCC has made it illegal to modify any of these radios to operate in any band other than the one for which they were intended or to make it possible to place telephone calls from the radios.

Despite what sales people might tell you, or manufacturers' claims, none of these services offer privacy. Anyone with a similar unit or a scanner can tune into your conversations. You don't need to buy any of these transceivers to find out what's happening in your area in an emergency. Any scanner capable of tuning the VHF or UHF bands can tune in. Any shortwave radio capable of tuning as high as 27MHz can monitor the Citizen's Band. This is particularly useful in winter when you need to know about road conditions in your immediate area. Frequencies for these services can be found at the FCC sources listed below.

Utility Preparedness

Gas

- Locate your gas meter valve and learn to turn off the gas. The gas meter is usually found outside your residence where most of the utilities are connected. The shut off valve is usually found just beneath the gas meter on the plumbing coming up from the ground into the meter.
- If you suspect the shutoff valve is not working properly, call the utility company for an operational check.
- Ensure a wrench is immediately available for turning the meter off in an emergency.
- If you smell natural gas, evacuate immediately. Do not use candles, matches, lighter, open flame appliances or operate electrical switches. Sparks could ignite gas causing an explosion.
- Shut off the gas ONLY if you smell gas or hear a hissing noise.
- Let the gas company turn the gas back on.
- Seek the assistance of a plumber to repair gas pipe damage.

Sewer

- Your sewer system could be damaged in a disaster such as an earthquake, landslide or flood.
- Make sure the system is functioning as designed before using it. This will prevent the contamination of your home and possibly the drinking water supply.
- If you have one of the more modern septic systems that use an electrical pump to force gray-water into the drain field, you may encounter septic system problems during a power outage. If the electrical power is off for an extended time, and you continue to use water as you normally would, the septic tank will quickly fill up and sewage may back-up into your home.
- To maintain the integrity of your septic system during a power outage, restrict the amount of water you put down the drain.
- Have a bucket or portable toilet available for disposing of human waste.
- Plastic bags placed in the toiled bowl will also work.

Electricity

- Locate your main electrical switch or fuse panel and learn how to turn the electrical system power off.
- If a generator is used as a backup power supply remember to:
    - -Follow the manufacturer's instructions
    - -Connect lights and appliances directly to the generator and not the electrical system
    - Note: Generators connected to a utility company's electrical system must be inspected by the utility and the state electrical inspector.

Water

- Clearly label the water shut off valve and learn to turn off the water supply.
- Shut off valves may be found immediately adjacent to your home, near the hot water heater or at the main water meter, usually near the street.
- Ensure valve can be fully turned off. If a special tool is needed, make sure one is readily available.
- Shut off the main valve to prevent contamination of the water supply in your water heater and plumbing.

Sanitation and Hygiene

Sanitation and Hygiene in an Emergency

The lack of sanitation facilities following major disaster can quickly create secondary problems unless basic guidelines are followed.

If the water lines are damaged or if damage is suspected, do not flush the toilet. Avoid digging holes in the ground and using these. Untreated raw sewage can pollute fresh ground water supplies. It also attracts flies and promotes the spread of diseases.

- Store a large supply of heavy-duty plastic bags, twist ties, disinfectant, and toilet paper
- A good disinfectant that is easy to use is a solution of 1 part liquid bleach to 10 parts water. Dry bleach is caustic and not safe for this type of use.
- If the toilet is NOT able to be flushed, it can still be used. This is less stressful for most people than using some other container. Remove all the bowl water. Line it with a heavy-duty plastic bag. When finished, add a small amount of deodorant or disinfectant, securely tie the bag, and dispose of it in a large trash can with a tight fitting lid. This large trash can should also be lined with a sturdy trash bag. Eventually, the city will provide a means to dispose of these bags.
- Portable camp toilets, small trash cans or sturdy buckets lined with heavy-duty plastic bags can also be used. Those with tight fitting lids are best.

Tips for Staying Clean in an Emergency Situation

- As much as possible, continue regular hygiene habits such as brushing your teeth, washing your face, combing your hair and even washing your body with a wet washcloth. This will help prevent the spread of disease and irritation as well as help relieve stress.
- Keep your fingers out of your mouth. Avoid handling food with your hands.
- Purify your drinking water. Use chlorine bleach, purification tablets (check bottle for expiration dates), or by boiling for 10 minutes.
- Sterilize your eating utensils by heat. You can also rinse dishes in purified water that has additional chlorine bleach added to it. (Use 2 1/2 teaspoons bleach per gallon of purified water.)
- Keep your clothing as clean and dry as possible, especially under-clothing and socks.

If, during an emergency situation, you develop vomiting or diarrhea, rest and stop eating solid foods until the symptoms ease up. Take fluids, particularly water, in small amounts at frequent intervals. As soon as can be tolerated, resume eating semi-solid foods. Normal salt intake should be maintained.

Keep Basic Hygiene Supplies Handy
These basic supplies should be kept in your Safe Room, Go Pack and Car.

- Cornstarch
- Fingernail clippers and files
- Sanitary napkins
- Insect repellent
- Toilet paper
- Moistened Towelettes or Baby Wipes
- A few bath towels
- Small hand-held mirror
- Liquid all-purpose soap
- Vaseline Petroleum Jelly
- Liquid Chlorine Bleach
- Ammonia (disinfecting aid)

Emergency Sewage Disposal

Water flush toilets cannot be used when water service is interrupted. The water remaining in the fixture is not sufficient to flush the wastes down the sewer. Clogging may result and your living conditions then become just that much more uncomfortable.

Even if water is available, local authorities may ask you not to use flush toilets, wash basins, and other fixtures connected with soil pipes. The sewer mains may be broken or clogged, which would make it impossible to carry off such waste; or water may be needed for fire fighting or other emergencies. It is necessary for every family to know emergency methods of waste disposal in case such conditions arise.

Failure to properly dispose of human wastes can lead to epidemics of such diseases as typhoid, dysentery, and diarrhea. At the same time, sewage must be disposed of in ways that will prevent contamination of water supplies used for drinking, cooking, bathing, laundering, and other domestic purposes. Here are simple steps that any family can take to prevent such dangers and discomforts.

Temporary Toilet Provisions

Right after an emergency, or during one, you will probably not have the time and tools to prepare a complex emergency sanitation system. If there is a delay of several days in restoring sewage service to your neighborhood, you may find that disposal is a big problem. Your first task is to make some temporary toilet provision for your family, especially the children. Almost any covered metal or plastic container will do. You can use a covered pail, a 5-gallon bucket, or a small kitchen garbage container with a foot operated cover for an emergency toilet. Anything that has a cover and will hold the contents until you can dispose of them will serve for sanitary purposes at first.

Emergency Sewage Storage

Keep on the premises at least one extra 10-gallon garbage can or other waterproof container with a tight fitting cover. This should be lined with paper and/or a plastic bag. And the lid should be fastened to the can to prevent its loss. Such a can may be used for the emergency storage of body wastes until the public sewage system can be put back into action, or until other arrangements can be made. Empty your emergency toilet into this storage can as often as necessary. A small amount of household disinfectant should be added after each use. If you live in an apartment, you may not have a large garbage can or room to keep one. In that case, two smaller covered pails or other containers will do just as well.

Solutions for Apartment Dwellers

Persons in city apartments, office buildings, or homes without yards should keep a supply of waterproof paper containers on hand for emergency waste disposal. Where flush toilets cannot be used and open ground is not available for the construction of privies, such disposable containers offer a practical method of emergency waste collection and disposal. Building managers should plan for the collection of such containers and for their final disposal. Before collection, the used containers may be stored in tightly covered garbage cans or other water tight containers fitted with lids. Homemade soil bags for this purpose can be prepared very easily by putting one large grocery bag inside another, and a layer of shredded newspaper or other absorbent material between. You should have sufficient grocery bags on hand for possible emergencies. A supply of old newspapers will come in handy for other sanitary uses also, such as wrapping garbage and lining larger containers.

Controlling Odors and Insects

Insecticides and deodorants should be used when necessary to control odors and insects breeding in containers that cannot be emptied immediately. At least 2 pints of household bleach solution should be kept on hand for disinfecting purposes.

Other Supplies

Keep on hand an extra supply of toilet tissue, plus a supply of sanitary napkins. If there is illness in the house that requires rubber sheeting or other special sanitary equipment, make sure that adequate supplies are available. At least a week's accumulation of daily newspapers will come in handy for insulating bedding from floors, and lining clothes against cold, as well as for the sanitary uses already mentioned.

Babies

If you have a baby in your home, you may find diaper laundering a problem under emergency conditions. It is best to keep an ample supply of disposable diapers on hand for emergency use. Or, any moisture resistant material can be cut and folded to diaper size and lined with absorbent material.

Heat, Light and Cooking in an Emergency

To conserve your cooking fuel storage needs always do your emergency cooking in the most efficient manner possible. Don't boil more water than you need, extinguish the fire as soon as you finished, plan your meals ahead of time to consolidate as much cooking as possible, during the winter cook on top of your heating unit while heating your home, and cook in a pressure cooker or other fuel efficient container as much as possible. Keep enough fuel to provide outdoor cooking for at least 7-10 days.

It is even possible to cook without using fuel at all. For example, to cook dry beans you can place them inside a pressure cooker with the proper amount of water and other ingredients needed and place it on your heat source until it comes up to pressure. Then turn off the heat, remove the pressure cooker and place inside a large box filled with newspapers, blankets, or other insulating materials. Leave it for two and a half hours and then open it, your meal will be done, having cooked for two and a half hours with no heat. If you don't have a large box in which to place the pressure cooker, simply wrap it in several blankets and place it in the corner.

Matches
Store matches in a waterproof airtight tin with each piece of equipment that must be lit with a flame.

Sterno
Sterno Fuel a jellied petroleum product is an excellent source of fuel for inclusion in your back pack as part of your 72 hour kit. Sterno is very light weight and easily ignited with a match or a spark from flint and steel but is not explosive. It is also safe for use indoors.

Sterno Stove
A Sterno Stove can be purchased at any sporting goods store and will retail between $3 and $8, depending upon the model you choose. They fold up into a very small, compact unit ideal for carrying in a pack. The fuel is readily available at all sporting goods stores and many drug stores. One can of Sterno fuel, about the diameter of a can of tuna fish and twice as high, will allow you to cook six meals if used frugally. Chafing dishes and fondue pots can also be used with Sterno.

Sterno is not without some problems. It will evaporate very easily, even when the lid is securely fastened. If you use Sterno in your 72 hour kit you should check it every six to eight months to insure that it has not evaporated beyond the point of usage. Because of this problem it is not a good fuel for long-term storage. It is a very expensive fuel to use compared to others fuel available, but is extremely convenient and portable.

Coleman fuel (white gas)
W hen used with a Coleman stove this is another excellent and convenient fuel for cooking. It is not as portable or as lightweight as Sterno, but produces a much greater BTU value. Like Sterno, Coleman fuel has a tendency to evaporate even when the container is tightly sealed so it is not a good fuel for long-term storage. Unlike Sterno, however, it is highly volatile; it will explode under the right conditions and should therefore never be stored in the home. Because of its highly flammable nature great care should always be exercised when lighting stoves and lanterns

that use Coleman fuel. Many serious burns have been caused by carelessness with this product. Always store Coleman fuel in the garage or shed, out of doors.

Charcoal

Charcoal is the least expensive fuel per BTU that the average family can store. Remember that it must always be used out of doors because of the vast amounts of poisonous carbon monoxide it produces. Charcoal will store for extended period of time if it is stored in air tight containers. It readily absorbs moisture from the surrounding air so do not store it in the paper bags it comes in for more than a few months or it may be difficult to light. Transfer it to airtight metal or plastic containers and it will keep almost forever.

Fifty or sixty dollars worth of charcoal will provide all the cooking fuel a family will need for an entire year if used sparingly. The best time to buy briquettes inexpensively is at the end of the summer. Broken or torn bags of briquettes are usually sold at a big discount. You will also want to store a small amount of charcoal lighter fluid (or kerosene). Newspapers will also provide an excellent ignition source for charcoal when used in a funnel type of lighting device.

To light charcoal using newspapers use two or three sheets, crumpled up, and a #10 tin can. Cut both ends out of the can. Punch holes every two inches around the lower edge of the can with a punch-type can opener (for opening juice cans). Set the can down so the punches holes are on the bottom. Place the crumpled newspaper in the bottom of the can and place the charcoal briquettes on top of the newspaper. Lift the can slightly and light the newspaper. Prop a small rock under the bottom edge of the can to create a good draft. The briquettes will be ready to use in about 20-30 minutes. When the coals are ready remove the chimney and place them in your cooker. Never place burning charcoal directly on concrete or cement because the heat will crack it. A wheelbarrow or old metal garbage can lid makes an excellent container for this type of fire.

One of the nice things about charcoal is that you can regulate the heat you will receive from them. Each briquette will produce about 40 degrees of heat. If you are baking bread, for example, and need 400 degrees of heat for your oven, simply use ten briquettes.

To conserve heat and thereby get the maximum heat value from your charcoal you must learn to funnel the heat where you want it rather than letting it dissipate into the air around you. One excellent way to do this is to cook inside a cardboard oven. Take a cardboard box, about the size of an orange crate, and cover it with aluminum foil inside and out. Be sure that the shiny side is visible so that maximum reflectivity is achieved. Turn the box on its side so that the opening is no longer on the top but is on the side. Place some small bricks or other noncombustible material inside upon which you can rest a cookie sheet about two or three inches above the bottom of the box. Place ten burning charcoal briquettes between the bricks (if you need 400 degrees), place the support for your cooking vessels, and then place your bread pans or whatever else you are using on top of the cookie sheet. Prop a foil-covered cardboard lid over the open side, leaving a large crack for air to get in (charcoal needs a lot of air to burn) and bake your bread, cake, cookies, etc. just like you would in your regular oven. Your results will amaze you.

To make your own charcoal, select twigs, limbs, and branches of fruit, nut and other hardwood trees; black walnuts and peach or apricot pits may also be used. Cut wood into desired size, place

in a large can which has a few holes punched in it, put a lid on the can and place the can in a hot fire. When the flames from the holes in the can turn yellow-red, remove the can from the fire and allow it to cool. Store the briquettes in a moisture-proof container. Burn charcoal only in a well-ventilated area.

Wood and Coal

Many wood and coal burning stoves are made with cooking surface. These are excellent to use indoors during the winter because you may already be using it to heat the home. In the summer, however, they are unbearably hot and are simply not practical cooking appliances for indoor use. If you choose to build a campfire on the ground outside be sure to use caution and follow all the rules for safety. Little children, and even many adults, are not aware of the tremendous dangers that open fires may pose.

Kerosene

Many kerosene heaters will also double as a cooking unit. In fact, it is probably a good idea to not purchase a kerosene heater that cannot be used to cook on as well. Follow the same precautions for cooking over kerosene as was discussed under the section on heating your home with kerosene.

Propane

Many families have propane camp stoves. These are the most convenient and easy to use of all emergency cooking appliances available. They may be used indoors or out. As with other emergency fuel sources, cook with a pressure cooker whenever possible to conserve fuel.

Lighting

Most of the alternatives require a fire or flame, so use caution. More home fires are caused by improper usage of fires used for light than for any other purpose. Especially use extra caution with children and flame. Teach them the proper safety procedures to follow under emergency conditions. Allow them to practice these skills under proper adult supervision now, rather than waiting until an emergency strikes.

Cyalume Sticks

Cyalume Sticks are the safest form of indoor lighting available but very few people even know what they are. Cyalume sticks can be purchased at most sporting goods stores for about $2 per stick. They are a plastic stick about four inches in length and a half inch in diameter. To activate them, simply bend them until the glass tube inside them breaks, then shake to mix the chemicals inside and it will glow a bright green light for up to eight hours. Cyalume is the only form of light that is safe to turn on inside a home after an earthquake. One of the great dangers after a serious earthquake is caused by ruptured natural gas lines. If you flip on a light switch or even turn on a flashlight you run the risk of causing an explosion. Cyalume will not ignite natural gas. Cyalume sticks are so safe that a baby can even use them for a teether.

Flashlights

Flashlights are excellent for most types of emergencies except in situations where ruptured natural gas lines may be present. Never turn a flashlight on or off if there is any possibility of ruptured gas lines. Go outside first, turn it on or off, then enter the building.

The three main problems with relying upon flashlights is that they give light to very small areas, the batteries run down fairly quickly during use, and batteries do not store well for extended time periods. Alkaline batteries store the best if stored in a cool location and in an airtight container. These batteries should be expected to store for three to five years. Many manufacturers are now printing a date on the package indicating the date through which the batteries should be good. When stored under ideal conditions the shelf life will be much longer than that indicated. Lithium batteries will store for about twice as long as alkaline batteries (about ten years).

If you use flashlights be sure to use krypton or halogen light bulbs in them because they last much longer and give off several times more light than regular flashlight bulbs on the same energy consumption. Store at least two or three extra bulbs in a place where they will not be crushed or broken.

Candles

Every family should have a large supply of candles. Three hundred sixty-five candles, or one per day is not too many. The larger the better. Fifty-hour candles are available in both solid and liquid form. White or light colored candles burn brighter than dark candles. Tallow candles burn brighter, longer, and are fairly smoke free when compared to wax candles. Their lighting ability can be increased by placing an aluminum foil reflector behind them or by placing them in front of a mirror. However, candles are extremely dangerous indoors because of the high fire danger--especially around children. For this reason be sure to store several candle lanterns or broad-based candle holders. Be sure to store a goodly supply of wooden matches

Save your candle ends for emergency use. Votive candles set in empty jars will burn for up to 15 hours. Non-candles (plastic dish and paper wicks) and a bottle of salad oil will provide hundreds of hours of candle light.

Trench candles can be used as fireplace fuel or as a candle for light. To make trench candles:

- Place a narrow strip of cloth or twisted string (for a wick) on the edge of a stack of 6-10 newspapers.
- Roll the papers very tightly, leaving about 3/4" of wick extending at each end.
- Tie the roll firmly with string or wire at 2-4" intervals.
- With a small saw, cut about 1" above each tie and pull the cut sections into cone shapes. Pull the center string in each piece toward the top of the cone to serve as a wick.
- Melt paraffin in a large saucepan set inside a larger pan of hot water. Soak the pieces of candle in the paraffin for about 2 minutes.
- Remove the candles and place on a newspaper to dry.

Kerosene Lamps

Kerosene Lamps are excellent sources of light and will burn for approximately 45 hours on a quart of fuel. They burn bright and are inexpensive to operate. The main problem with using them is failure to properly trim the wicks and using the wrong size chimney. Wicks should be trimmed in an arch, a "V," an "A" or straight across the top. Failure to properly trim and maintain wicks will result in smoke and poor light.

Aladdin Type Lamps

Aladdin Type Lamps that use a circular wick and mantle do not need trimming and produce much more light (and heat) than conventional kerosene lamps. These lamps, however, produce a great amount of heat, getting up to 750 degrees F. If placed within 36 inches of any combustible object such as wooden cabinets, walls, etc. charring can occur. Great caution should therefore be exercised to prevent accidental fires.

The higher the elevation the taller the chimney should be. Most chimneys that come with kerosene lamps are made for use at sea level. At about 4500 feet above sea level the chimney should be about 18-20 inches high. If your chimney is not as tall as it should be you can improvise by wrapping aluminum foil around the top of it and extending it above the top. This will enable the light to still come out of the bottom portion and yet provide proper drawing of air for complete combustion. If the chimney is too short it will result in smoke and poor light. Be sure to store extra wicks, chimneys and mantles.

Propane and Coleman lanterns

Camp lanterns burning Coleman fuel or propane make excellent sources of light. Caution should be used in filling and lighting Coleman lanterns because the fuel is highly volatile and a flash type fire is easy to set off. Always fill them outside. Propane, on the other hand, is much safer. It is not as explosive and does not burn quite as hot. A double mantle lantern gives off as much light as two 100-watt light bulbs. Either propane or Coleman fuel type lanterns are very reliable and should be an integral part of your preparedness program. Be sure to store plenty of extra mantles and matches.

Store lots of wooden matches (1,000-2,000 is not too many). Also store butane cigarette lighters to light candles, lanterns and fireplaces. It would be a good idea for everyone to have a personal fire building kit with at least six different ways to start a fire.

Above all, your home and family must be protected from the ravages of fire by your actions. Study the instructions for any appliance used for heating, cooking, or lighting and understand their features as well as their limitations.

Don't go to sleep with any un-vented burning device in your home. Your family might not wake up.

Whatever you store, store it safely and legally. In an emergency, survival may cause you to make decisions that are questionable with regard to safety. Become educated to the inherent hazards of your choices and make a decision based on as much verifiable information as possible. You and your family's lives will depend on it.

Consider carefully how you will provide fuel for your family for heating, cooking, and lighting during times of emergencies. Next to food, water, and shelter, energy is the most important item you can store.

Food in an Emergency

Storage Tips

- Keep food in a dry, cool spot-a dark area if possible.
- Keep food covered at all times.
- Open food boxes or cans carefully so that you can close them tightly after each use.
- Wrap cookies and crackers in plastic bags, and keep them in tight containers.
- Empty opened packages of sugar, dried fruits and nuts into screw-top jars or air-tight cans to protect them from pests.
- Inspect all food for signs of spoilage before use.
- Use foods before they go bad, and replace them with fresh supplies, dated with ink or marker. Place new items at the back of the storage area and older ones in front.

During and right after a disaster, it will be vital that you maintain your strength. So remember:

Eat at least one well-balanced meal each day.

- Drink enough liquid to enable your body to function properly (two quarts a day).
- Take in enough calories to enable you to do any necessary work.
- Include vitamin, mineral and protein supplements in your stockpile to assure adequate nutrition.

Food Supplies When Food Supplies Are Low

- If activity is reduced, healthy people can survive on half their usual food intake for an extended period and without any food for many days. Food, unlike water, may be rationed safely, except for children and pregnant women.
- If your water supply is limited, try to avoid foods that are high in fat and protein, and don't stock salty foods, since they will make you thirsty. Try to eat salt-free crackers, whole grain cereals and canned foods with high liquid content.
- You don't need to go out and buy unfamiliar foods to prepare an emergency food supply. You can use the canned foods, dry mixes and other staples on your cupboard shelves. In fact, familiar foods are important. They can lift morale and give a feeling of security in time of stress. Also, canned foods won't require cooking, water or special preparation. Following are recommended short-term food storage plans.

Special Considerations:

- As you stock food, take into account your families unique needs and tastes. Try to include foods that they will enjoy and that are also high in calories and nutrition. Foods that require no refrigeration, preparation or cooking are best.
- Individuals with special diets and allergies will need particular attention, as will babies, toddlers and elderly people. Nursing mothers may need liquid formula, in case they are unable to nurse. Canned dietetic foods, juices and soups may be helpful for ill or elderly people.
- Make sure you have a manual can opener and disposable utensils. And don't forget non-perishable foods for your pets.

Shelf-life of Foods for Storage:
Here are some general guidelines for rotating common emergency foods.

Use within six months:
- Powdered milk (boxed)
- Dried fruit (in metal container)
- Dry, crisp crackers (in metal container)
- Potatoes

Use within one year:
- Canned condensed meat and vegetable soups
- Canned fruits, fruit juices and vegetables
- Ready-to-eat cereals and uncooked instant cereals (in metal containers)
- Peanut butter
- Jelly
- Hard candy and canned nuts
- Vitamin C

May be stored indefinitely (in proper containers and conditions):
- Wheat
- Vegetable oils
- Dried corn
- Baking powder
- Soybeans
- Instant coffee, tea and cocoa
- Salt
- Non-carbonated soft drinks
- White rice
- Bouillon products
- Dry pasta
- Powdered milk (in nitrogen-packed cans)

If the Electricity Goes Off:
- FIRST, use perishable food and foods from the refrigerator.
- THEN, use the foods from the freezer. To minimize the number of times you open the freezer door, post a list of freezer contents on it. In a well-filled, well-insulated freezer, foods will usually still have ice crystals in their centers (meaning foods are safe to eat) for at least three days.
- FINALLY, begin to use non-perishable foods and staples.

How to Cook If the Power Goes Out:
For emergency cooking you can use a fireplace, or a charcoal grill or camp stove can be used outdoors. You can also heat food with candle warmers, chafing dishes and fondue pots. Canned food can be eaten right out of the can. If you heat it in the can, be sure to open the can and remove the label first.

Emergency Water Storage

Having an ample supply of clean water is a top priority in an emergency. A normally active person needs to drink at least two quarts of water each day. Hot environments can double that amount. Children, nursing mothers and ill people will need even more. You will also need water for food preparation and hygiene. Store a total of at least one gallon per person, per day. You should store at least a two-week supply of water for each member of your family.

If supplies run low, never ration water. Drink the amount you need today, and try to find more for tomorrow. You can minimize the amount of water your body needs by reducing activity and staying cool.

Amount of Water to Store

Whereas a quart of water or other fluid daily will sustain life, according to the Department of Defense and the Office of Civil Defense, it is recommended that a gallon of water per day per person be stored for food preparation and drinking. A gallon provides added comfort and accommodates increased fluid needs at higher altitudes or warm climates. An additional one-half to 1 gallon per day is recommended for bathing and hygiene, and to wash dishes.

How much water should I store? The rule of thumb is to store at least one gallon per person per day for at least 3 days (for earthquake preparedness). That's 2 quarts for drinking and 2 quarts for food preparation and sanitation. A family of four should store a minimum of 12 gallons of water. Personally, I recommend at least a 10 day supply of water and a 30 day supply if it all possible.

Use the following guidelines when storing water:

- Store your water in thoroughly washed plastic, glass, fiberglass or enamel-lined metal containers. Never use a container that has held toxic substances.
- Plastic containers, such as soft drink bottles, are best. You can also purchase food-grade plastic buckets or drums. Seal water containers tightly, label them and store in a cool, dark place. Rotate water every six months.
- Store containers in a cool dark place. DO NOT store in direct sunlight. Polyethylene plastics (prepackaged milk and water bottles) are somewhat permeable to hydrocarbon vapors. Keep away from stored gasoline, kerosene, pesticides, or similar substances.
- Stored tap water should be rotated every 6 months. Prepackaged bottled water should be rotated once a year. Check the pull date on the container. Be sure it didn't sit on the store's shelf for a year before you purchased it. Self Serve Bottled Water should be rotated once a year, as long as the water treatment process includes ozonation.
- Rotate your stored water with the water you use on a regular basis. This practice helps insure you don't have water stored longer than one year.

Containers That Can be Used for Water Storage

Food-grade plastic or glass containers are suitable for storing water. One-, three- and five-gallon water containers can be purchased from most outdoor or hardware stores. Any plastic or glass

container that previously held food or beverages such as 2-liter soda bottles or water, juice, punch or milk jugs, also may be used. Stainless steel can be used to store water which has not been or will not be treated with chlorine; chlorine is corrosive to most metals.

55 gal drums, designed specifically for water storage can be difficult to transport, if the need arises, but are of a tremendous value in an emergency .When looking for additional food grade containers, the bottom will be stamped with HDPE (High Density PolyEthylene) and coded with the recycle symbol and a "2" inside. HDPE containers are FDA-approved for food. Containers without these designations aren't OK because of possible chemical interactions between the water and the plastic.

Clean used containers and lids with hot soapy water. Once the containers have been thoroughly cleaned, rinse them with water and sanitize the containers and lids by rinsing them with a solution of 1 tablespoon chlorine bleach per gallon of water. Leave the containers wet for two minutes, then rinse them again with water. Remember to remove the paper or plastic lid liners before washing the lids. It is very difficult to effectively remove all residue from many containers, so carefully clean hard-to-reach places like the handles of milk jugs. To sanitize stainless steel containers, place the container in boiling water for 10 minutes. Never use containers that previously held chemicals.

Do I Need to Treat Water?

Once you properly clean containers, fill them with potable, or safe, drinking water. All public water supplies are already treated and should be free of harmful bacteria. However, as an additional precaution, it is recommended that you add 5-7 drops, about 1/8 teaspoon, of chlorine bleach per gallon of water stored. This precaution protects you against any lingering organisms in storage containers that may have been inadvertently missed during the cleaning process.

Where to Store Water

Clearly label all water containers "drinking water" with the current date. Store the water in a cool, dry place away from direct sunlight and heat sources. Do not store it near gasoline, kerosene, pesticides or similar substances.

When potable water is properly stored, it should have an indefinite shelf life; however, it's a good idea to use and replace the stored water every 6 - 12 months. Rotating water this way provides you with an opportunity to experiment and check the amount of stored water against what you require. It also serves as an additional precaution against bacteria or viruses growing in containers which may not have been thoroughly or properly cleaned and sanitized.

If you have freezer space, storing some water in the freezer is a good idea. If you lose electricity, the frozen water will help keep foods in your freezer frozen until the power is restored. Make sure you leave 2 to 3 inches of space in containers because water expands as it freezes.

<u>Four Ways to Purify Water:</u>

In addition to having a bad odor and taste, contaminated water can contain microorganisms that cause diseases such as dysentery, typhoid and hepatitis. You should purify all water of uncertain purity before using it for drinking, food preparation or hygiene.

There are many ways to purify water. None is perfect. Often the best solution is a combination of methods. Two easy purification methods are outlined below. These measures will kill most microbes but will not remove other contaminants such as heavy metals, salts and most other chemicals. Before purifying, let any suspended particles settle to the bottom, or strain them through layers of paper towel or clean cloth.

- Boiling

Boiling is the safest method of purifying water. Bring water to a rolling boil for 1 minute, keeping in mind that some water will evaporate. Let the water cool before drinking.
Boiled water will taste better if you put oxygen back into it by pouring the water back and forth between two clean containers. This will also improve the taste of stored water.

- Disinfection

You can use household liquid bleach to kill microorganisms. Use only regular household liquid bleach that contains 5.25 percent sodium hypochlorite. Do not use scented bleaches, color-safe bleaches or bleaches with added cleaners.
Add 16 drops of bleach per gallon of water, stir and let stand for 30 minutes. If the water does not have a slight bleach odor, repeat the dosage and let stand another 15 minutes.

The only agent used to purify water should be household liquid bleach. Other chemicals, such as iodine or water treatment products sold in camping or surplus stores that do not contain 5.25 percent sodium hypochlorite as the only active ingredient, are not recommended and should not be used.

While the two methods described above will kill most microbes in water, distillation will remove microbes that resist these methods, and heavy metals, salts and most other chemicals.

- Distillation

Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt and other impurities. To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right-side-up when the lid is upside-down (make sure the cup is not dangling into the water) and boil the water for 20 minutes. The water that drips from the lid into the cup is distilled.

<u>Emergency Sources of Water</u>

In an emergency, if you have not previously stored water and commercial or public sources of water are not available, drain water from your plumbing system. Unless you are advised that the public water supply has been contaminated and is not safe, open the drain valve at the bottom of the water heater and salvage the water stored in the heater. A typical water heater holds 30-60 gallons of water. Discard the first few gallons if they contain rust or sediment. Let the water heater cool before draining it from the heater so it does not scald you. Turn off the electricity or gas to the water heater to prevent the heater from operating without water. Once water has been drained into clean, sanitized containers, add 5-7 drops of chlorine bleach* per gallon of water, and stir or shake the solution to mix it. Let it set 30 minutes before use.

Be sure to secure your water heater to prevent it from falling over during an earthquake. Instructions are found on the internet.

Emergency Outdoor Water Sources

If you need to find water outside your home, you can use these sources. Be sure to treat the water first. Additional sources include:

- Rainwater
- Streams, rivers and other moving bodies of water
- Ponds and lakes
- Natural springs
- Avoid water with floating material, an odor or dark color. Use saltwater only if you distill it first. You should not drink flood water.

Hidden Water Sources in Your Home

If a disaster catches you without a stored supply of clean water, you can use the water in your hot-water tank, pipes and ice cubes. As a last resort, you can use water in the reservoir tank of your toilet (not the bowl).

Do you know the location of your incoming water valve? You'll need to shut it off to stop contaminated water from entering your home if you hear reports of broken water or sewage lines.

To use the water in your pipes, let air into the plumbing by turning on the faucet in your house at the highest level. A small amount of water will trickle out. Then obtain water from the lowest faucet in the house.

To use the water in your hot-water tank, be sure the electricity or gas is off, and open the drain at the bottom of the tank. Start the water flowing by turning off the water intake valve and turning on a hot-water faucet. Do not turn on the gas or electricity when the tank is empty.

Using Swimming Pool Water

You should always view your pool as "backup" water; keep the water treated; you never know when it will be needed! The maintenance of the free chlorine residual will prevent establishment of any microorganisms. The maintenance level should be kept about 3-5ppm free chlorine. (See Water Purification for detailed information on purifying pool water.) If other stored water stocks are not available, remove the necessary pool water and boil it or just treat with chlorine to the normal 5ppm. It is best to err on the side of caution.

Covering the pool at all times when not in use is a very good idea. Try to keep the cover clean and wash the area you put it on when removing it from the pool.
When and How to Treat Water for Storage

In an emergency, if you do not have water that you know is safe, it's possible to purify water for drinking. Start with the cleanest water you can find and treat with one of the following methods:

- Boiling and chlorinating: Water can be purified by boiling. Boiling times may vary from state to state, depending on altitude. In Colorado, the water is safe to use once after it has been boiled for three to five minutes and has cooled. If you plan to store boiled water, pour it into clean, sanitized containers and let it cool to room temperature. Then add 5-7 drops, or 1/8 teaspoon, of chlorine bleach* per gallon of water (1/2 teaspoon per 5 gallons). Stir or shake the solution to mix it. Cap the containers and store them in a cool, dry place.
- Filtering and chlorinating: You can filter water if you have a commercial or backpack filter that filters to 1 micron. These are available in sporting good stores and are recommended for use when back-packing. They are not recommended to clean large volumes of water. Filtering eliminates parasites such as giardia and cryptosporidium, but it may not eliminate all bacteria and viruses. Therefore, it's recommended that 5-7 drops (1/8 teaspoon) of chlorine bleach* be added per gallon of filtered water (1/2 teaspoon for 5 gallons). Stir or shake the solution to mix it. Wait 30 minutes before using the water, or cap the containers and store them in a cool, dry place.
- Use liquid household bleach that contains 5.25 percent hypochlorite. Do not use bleaches with fresheners or scents as they may not be safe to consume. The above treatment methods use a two-step approach so less bleach is needed, yet giardia and cryptosporidium are destroyed through boiling or eliminated by filtering. Chlorine may not be effective against these parasites. Since adding too much chlorine to water can be harmful, it's important to be as accurate as possible when measuring.
- Distillation: Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt and other impurities. To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right-side-up when the lid is upside-down (make sure the cup is not dangling into the water) and boil the water for 20 minutes. The water that drips from the lid into the cup is distilled.

Most water filtration devices are designed for use on microbiologically safe water. Don't assume they are safe to use on contaminated water. Check with the manufacturer to be sure.

Use the following guidelines to determine if filtration equipment is adequate to use with microbiologically contaminated water:

<u>Filtration Equipment</u>

	Safe on Microbiologically Contaminated Water?
Carbon Filter	No
Reverse Osmosis	No
Deionization Filter	No
Pitcher Filter	No
Faucet Mount Filter	No
Steam Distiller	Yes - but requires electricity
UV Sterilizer	Yes - but requires electricity

Ceramic Filter Some - but only if rated for bacteriological protection

Equipment that is safe to use on contaminated water is often slow, costly, inconvenient and/or high maintenance. It makes the most sense to use the filtration equipment that best meets your normal daily needs and shift to water storage or alternative methods of water treatment in times of emergencies.

MIOX

The MIOX Purifier was developed for the US Military by the MIOX Corporation and Mountain Safety Research (MSR). It is a miniaturization of municipal water purification systems that purify 1billion gallons of water each day to consumers throughout the world. The MIOX uses electricity to convert salt and water into a disinfectant. It is very compact, ultra light (3.5 oz). It eliminates viruses, bacteria, giardia, cryptosporidia. No pumping is required; it uses no iodine, and will treat large volumes of water.

Earthquake Preparedness

Before

- Get together with the members of your household and put together a disaster plan.
- Assemble disaster supplies and store them in an easy-to-get to location.
- Identify safe spots and danger zones in each room.
- Consider buying earthquake insurance.
- Know how to shut off all utilities.
- Ensure your house is firmly anchored to its foundation.
- Anchor overhead lighting fixtures.
- Store breakable items on low shelves or in cabinets that can fasten shut.
- Place large or heavy objects on lower shelves.
- Fasten shelves to walls. Brace high and top-heavy objects.
- Repair defective electrical wiring, leaky gas and inflexible utility connections.
- Securely fasten water heaters and gas appliances.
- Anchor wood burning stoves to the floor. Secure stove pipe to the flue exit and securely fasten stove pipe segments together.

During

- If indoors -- take cover under sturdy furniture or against an inside wall, and hold on, "Drop, Cover and Hold". Stay away from the kitchen!
- If outdoors -- stay there. Move away from buildings, street lights and utility wires.
- If outdoors near tall buildings -- step inside a doorway, drop down and cover your head and shoulders to protect yourself from falling glass and other debris.
- In a high-rise building -- take cover under sturdy furniture away from windows and outside walls. Stay in the building on the same floor. An evacuation may not be necessary. Wait for instructions from safety personnel. Do not use elevators.
- In a vehicle -- stop as quickly as safety permits, and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses or utility wires.

After

- Check yourself and other for injuries.
- Prepare for after shocks.
- Wear study shoes to prevent injury.
- Use flashlights or battery powered lanterns if the power is out.
- If you smell gas or hear a hissing sound - open a window, leave the building and shut off the main gas valve outside. Do not use electricity (switches, etc.)
- If water pipes are damaged -- shut off the water supply at the main valve.
- Check your home for structural damage to include the chimney.
- Clean up spilled medicines, bleaches, and flammable liquids.
- Visually inspect utility lines and appliances for damage.
- Do not flush toilets until you know that sewage lines are intact.
- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Use the phone only to report a life threatening emergency.
- Listen to the radio for the latest emergency information.
- Stay off the streets and avoid damaged areas, unless you have been asked to help by proper authority.