Rainbow Water District

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LESSONS LEARNED AND HOW TO BE BETTER PREPARED FOR WINTER EVENTS

January 24, 2024

We asked for feedback from our Facebook followers, and added some of our own observations. Here are some ideas that were shared, to help you prepare before the next winter event.

HEAT

- Keep a supply of dry firewood if you are able to burn wood for heat. At least one cord of wood so you have enough to share with neighbors.
- Pellet stoves require a stockpile of pellets, and some electricity to run a fan or power the auger that feeds pellets into the stove. You likely need some form of backup power to allow this heat source to work in a power outage.
- If you have a generator that can provide part of your house, you may be able to turn off some devices and handle running one or more 1500 Watt space heaters. Be careful of the risk of fire from portable heaters and use of extension cords.
- Propane catalytic heaters like a Portable Buddy Heater are designed for camping and can be used indoors. As a safety precaution, you can get a battery-powered carbon monoxide detector. You will need multiple 1 lb disposal canisters, or you can buy an adapter hose that allows you to connect a 20 lb propane cylinder to the heater. https://www.mrheater.com/portable-buddy-heater.html

BACKUP POWER

- Gas, diesel, propane or natural gas generators can be portable and plugged in to supply just a part of the house, or they can be larger to power the entire house.
- 20 lb propane gas cylinders hold 4.6 gallons when compressed as a liquid. We found that with icy roads, propane trucks were not able to resupply the first few days of the outage, and there were lines to get fuel when it was available. Consider larger containers and/or storing more fuel of whatever type you use.
- There are many types of portable power stations and car chargers that have USB ports to connect phones and rechargeable lights. A mixture of devices that can be recharged or take batteries can be helpful, depending on your ability to recharge.
- Lots of batteries! For about $20 you can get a small suitcase like a “Battery Daddy” that stores batteries of different sizes and a tester, keeping an inventory available.

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WATER

- During an extended outage like we had, some of the public water supply wells were not able to operate and the large storage tanks were depleted to the point that some parts of the Springfield water system had low pressure. This could trigger a boil water advisory, which is hard to do if you are not able to heat water in your home. Everyone should consider storing some water for such an emergency.
- For drinking, you need at least 1 gallon per person or pet per day. This is easier if you are connected to a community water supply and able to get water from the tap. If your stored water has been sitting, or the public water system has been potentially contaminated, you need to bring water to a rolling boil for one minute then let cool.
- Beyond drinking, more water is needed when you think about food preparation, making baby formula, hand washing, and cleaning dishes.
- Whether on septic tank or city sewer, you can pour water into your toilet tank and get the toilet to flush if your water service is not working (e.g., freeze damage or well off).
- **The attached US EPA guide gives instructions for emergency disinfection of water.**

LIGHTING

- Flashlights and solar or rechargeable lanterns. Extra batteries and power bricks to allow you to recharge. Headlamps allow you to move about with your hands free.
- Candles have some risk from the open flame, but unscented candles like a Bolsius White Pillar Candle found on Amazon, 2” diameter and 6” high, will burn for up to 36 hours and give off light and heat. $54 for a box of 20 candles.
- Battery-powered fake candles can give some ambient light and work as nightlights to allow easier movement through the house. They can last for multiple days.

COMMUNICATIONS

- Phone numbers for your friends, family and neighbors. When it is hard or dangerous to walk outside, you can still make wellness checks by phone.
- A hand-cranked or battery-powered radio (with extra batteries) to allow you to receive some news and information when phones and internet are not working.
- Monitor Facebook for updates. When times are good Rainbow does not always keep the content fresh, but are trying to improve. This is a key tool for us during a crisis.

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COOKING

- Barbecues allow you to cook food, but a propane or butane cook stove, even one burner, can provide more options to boil water, heat from a can, etc. You may have a barbecue and your neighbor has a cook stove. Work together!
- If you are able to run a generator and get some power, an electric hot pot allows you to heat water for coffee, tea, instant oatmeal, etc.
- When the microwave does not work, a homemade chafing dish allowed a Sterno can to warm food set in a pan.

FOOD STORAGE

- One silver lining of a winter power outage is the cooler temperatures may help with food storage. When it was still cold and the ice was not melting, it worked to put food from the refrigerator in a cooler on the porch and save much of it. When the ice thawed and roads were open again, then it became necessary to buy ice or run the refrigerator and freezers from a generator.
- Many of us do not can and store as much food as previous generations did, but this event was a reminder that preparing food one day at a time or consistently using delivery services leaves you vulnerable. Everybody should have some storage of canned goods and a can opener, as well as easy to prepare food. Companies like Mountain House sell dehydrated food in a pouch. As long as you can boil water and pour it into the pouch you can have nutritious food.
- Remember morale boosters. Store some candy or chocolate. Keep some instant coffee and tea bags available. Crackers, nuts, trail mix can be easy to grab and go.

ENTERTAINMENT

- When streaming does not work for videos and music, go “old school.” If you have a generator that can power up some outlets, keep a player and a stash of movies on DVD and Blu-Ray available.
- Put batteries in the boom box to provide music from the radio station, or other recorded media.
- Read a book by candlelight. It worked for Abraham Lincoln!

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PRACTICAL

- A propane hand torch came in handy when ice coated car and camper doors, helping gently thaw the ice to allow access to the vehicle. The propane torch also helped melt ice off locks and fence gates, mailbox doors, etc.
- Warm clothing. Thermal underwear and thick socks helped when we were below freezing and only hard partial heat working.
- Ice cleats to slip over your shoes and provide better traction for getting around.
- Are you one of those people that let the gas tank get below a quarter tank? If you always keep the tank at least half or three-quarters full you will be able to get around even if gas stations are out of power or having a tough time getting resupplied.

PETS

- Remember to store extra food and water for your pets (or livestock) also.

MEDICINE

- Hospital emergency rooms were swamped with people who did not have medicine or heat or power to run medical equipment. Store extra medicine if possible. Think ahead.

SAFETY KNOWLEDGE

- Always be willing to learn new things. Study what works and does not work.
- Do not run cars in enclosed spaces.
- Do not use open flame gas stoves without proper ventilation.
- Do not use propane stoves indoors.
- Watch for getting wood stoves and inserts too hot, or running portable heaters from extension cords and getting them too close to flammable items. Fire danger can increase in times like these, just when it is harder for the fire department to respond.
- You can get food poisoning from spoiled foods. If frozen foods thaw or refrigerated foods get too warm, toss the food if you have any doubts. Insurance can help cover food replacement, so it is better to be safe.
- Do not overexert yourself. Cleanup work like shoveling snow, scraping ice, and removing fallen branches can trigger medical emergencies like a heart attack. Pay attention to your body. Have a safety buddy when you are cutting wood or working near fallen trees and branches. Wear protective equipment and call for professional help if the job is too big.

United States Environmental Protection Agency

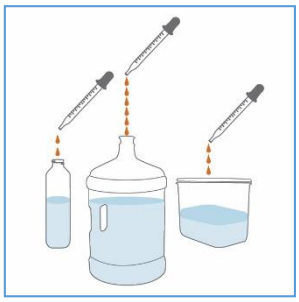
EMERGENCY DISINFECTION OF DRINKING WATER

In an emergency situation where regular water service has been interrupted – like a hurricane, flood, or water pipe breakage – local authorities may recommend using only bottled water, boiled water, or disinfected water until regular water service is restored. The instructions below show you how to boil and disinfect water to kill most disease-causing microorganisms that may be present in the water. However, boiling or disinfection will not destroy other contaminants, such as heavy metals, salts, and most other chemicals.

ONLY USE WATER THAT HAS BEEN PROPERLY DISINFECTED FOR DRINKING, COOKING, MAKING ANY PREPARED DRINK, WASHING DISHES, AND FOR BRUSHING TEETH.

- ❑ Use **bottled water** or water you have properly prepared and stored as an emergency water supply.
- ❑ **Boil water**, if you do not have bottled water. Boiling is sufficient to kill pathogenic bacteria, viruses and protozoa (WHO, 2015).
  - If water is cloudy, let it settle and filter it through a clean cloth, paper towel, or coffee filter.
  - Bring water to a rolling boil for at least one minute. At altitudes above 5,000 feet (1,000 meters), boil water for three minutes.
  - Let water cool naturally and store it in clean containers with covers.
  - To improve the flat taste of boiled water, add one pinch of salt to each quart or liter of water, or pour the water from one clean container to another several times.

- ❑ **Disinfect water using household bleach**, if you can't boil water. Only use regular, unscented chlorine bleach products that are suitable for disinfection and sanitization as indicated on the label. The label may say that the active ingredient contains 6 or 8.25% of sodium hypochlorite. Do not use scented, color safe, or bleaches with added cleaners.
  - If water is cloudy, let it settle and filter it through a clean cloth, paper towel, or coffee filter.
  - Locate a clean dropper from your medicine cabinet or emergency supply kit.
  - Locate a fresh liquid chlorine bleach or liquid chlorine bleach that is stored at room temperatures for less than one year.
  - Use the table on the next page as a guide to decide how much bleach you should add to the water, for example, add 8 drops of 6 % bleach or 6 drops of 8.25% bleach to each gallon of water. Double the amount of bleach if the water is cloudy, colored, or very cold.
  - Stir and let stand for 30 minutes. The water should have a slight chlorine odor. If it doesn't, repeat the dosage and let stand for another 15 minutes before use.
  - If the chlorine taste is too strong, pour the water from one clean container to another and let it stand for a few hours before use.



Volume of Water	Amount of 6% Bleach to Add†	Amount of 8.25% Bleach to Add†
1 quart/liter	2 drops	2 drops
1 gallon	8 drops	6 drops
2 gallons	16 drops (1/4 tsp)	12 drops (1/8 tsp)
4 gallons	1/3 tsp	1/4 tsp
8 gallons	2/3 tsp	1/2 tsp

† Bleach may contain 6 or 8.25% sodium hypochlorite

ADDITIONAL WATER GUIDANCE FOR EMERGENCIES

Prepare and store an emergency water supply. Visit the Federal Emergency Management Agency (FEMA) website www.ready.gov/managing-water for additional guidance on preparing and storing an emergency water supply.

Look for other sources of water in and around your home. Although bottled water is your best choice, you may be able to find other sources of water by melting ice cubes or draining your hot water tank or pipes.

You can also use river or lake water. It is generally better to use flowing water than still, stagnant water. However, do not use water with floating material in it or water that has a dark color or questionable odor.

Regardless of the source, treat the water by following the instructions on the previous page.

If you have a well on your property that has been flooded, make sure to disinfect and test the well water after the flood. Contact your state or local health department for advice or go to water.epa.gov/drink/info/well/whatdo.cfm.

Consider how the water looks and how to filter it if needed. Disinfection does not work as well when water is cloudy or colored. If water is cloudy, let it settle. Then filter the water through a clean cloth, paper towel, or coffee filter. Store the settled and filtered water in clean containers with covers.

OTHER DISINFECTION METHODS

If you don't have liquid bleach, you can use one of the other disinfection methods described below.

- **Granular calcium hypochlorite**. The first step is to make a chlorine solution that you will use to disinfect your water. For your safety, do it in a ventilated area and wear eye protection. Add one heaping teaspoon (approximately ¼ ounce) of high-test granular calcium hypochlorite (HTH) to two gallons of water and stir until the particles have dissolved. The mixture will produce a chlorine solution of approximately 500 milligrams per liter. To disinfect water, add one part of the chlorine solution to each 100 parts of water you are treating. This is about the same as adding 1 pint (16 ounces) of the chlorine solution to 12.5 gallons of water. If the chlorine taste is too strong, pour the water from one clean container to another and let it stand for a few hours before use. CAUTION: HTH is a very powerful oxidant. Follow the instructions on the label for safe handling and storage of this chemical.
- **Common household iodine (or "tincture of iodine")**. You may have iodine in your medicine cabinet or first aid kit. Add five drops of 2% tincture of iodine to each quart or liter of water that you are disinfecting. If the water is cloudy or colored, add 10 drops of iodine. Stir and let the water stand for at least 30 minutes before use.
- **Water disinfection tablets**. You can disinfect water with tablets that contain chlorine, iodine, chlorine dioxide, or other disinfecting agents. These tablets are available online or at pharmacies and sporting goods stores. Follow the instructions on the product label as each product may have a different strength.

MORE INFORMATION

World Health Organization (WHO), 2015. *Technical Briefing on Boil Water*.

Safe Drinking Water Hotline 1-800-426-4791
water.epa.gov/drink/hotline