Emergency Hauling, Storing and Disinfecting of Water Supplies

Areas of Illinois can experience conditions that require the purchasing and hauling of drinking water by home owners, farmers, institutions and small private subdivisions whose own water supplies are not adequate. The following information on emergency water supply and treatment is intended for use by owners of such supplies until these temporary water shortages are over.

Sources of Potable Water

Water should be obtained from a municipal water supply. When this is not possible, many food industries, such as milk and beverage plants, have the necessary equipment (i.e., pasteurizers and bottlers) for handling water. In certain emergencies where water from such facilities is not in adequate supply, unprocessed water from private supplies may be used if a sanitary survey and sampling indicate a supply is free from contamination. A residual type disinfectant should be added regardless of source (see Disinfection of Water).

Water Transport Vehicles

Water must only be transported in tank trucks or wagons constructed and used for that purpose. In emergencies when such vehicles are in short supply, water may be hauled in vehicles normally used for transporting milk or beverages. When milk or beverage transport trucks are used, they should be thoroughly washed and disinfected on the inside (see Disinfection of Equipment). Many milk, beverage and similar type processing plants have automatic tank truck cleaning and disinfection equipment approved by the Illinois Department of Public Health.

Water Storage Facilities

Water storage facilities such as reservoirs or storage tanks are necessary during an emergency. Pressure tanks can be used for storage as long as any potentially contaminated water is drained. The air valves should be opened during the disinfection process to allow contact of all internal areas of the tank with the disinfectant. A properly constructed reservoir that has been cleaned and disinfected is best (see Disinfection of Equipment), but any type of tank or container that can be thoroughly cleaned, properly disinfected and tightly covered may be used. Tanks or containers

previously used to store oil, gasoline, pesticides or any other potentially toxic substances must not be used.

Disinfection of Water

The most reliable method for purifying water is to vigorously boil the water for five minutes. This will kill any disease-causing bacteria present in the water. When boiling is not practical, chemical disinfection should be used. Chlorine and iodine are the most commonly used chemical disinfectants.

Liquid chlorine (bleach) is recommended for use in small individual systems when disinfection is necessary. Chlorine may be obtained in powder or liquid form from drug stores or supermarkets. Whichever form of chlorine is used, make sure it is from a source that is fresh. The powder form [calcium hypochlorite is 65 percent available chlorine and the liquid form [sodium hypochlorite (bleach)] is usually 5.25 percent available chlorine. When using the powder, mix by adding the powder to a quart of water. Allow the solution to settle and use the clear liquid, without shaking (See table below). This stock solution loses strength and should be made up fresh at least once a week.

Emergency Disinfection of Water

Product (Example)	Available Chlorine (Percent)	Stock Solution	*Quantity of stock solution to treat	
			1 Gallon	1,000 Gallons
Bleach	5.25	Full strength	8 drops	1 ⅔ cups (13 oz.)
Calcium Hypochlorite	65	2 heaping tablespoons (1 oz.) in quart of water	20 drops	1 quart

**Double amount for turbid or colored water.*

After adding the stock solution to the water volume being treated, stir it thoroughly and let the treated water stand for 30 minutes before using.
Common household iodine from the medicine chest or first aid kit also may be used to disinfect water. Add 10 drops of 2 percent tincture of iodine to each gallon of water, mix well and let stand for at least 30 minutes before using.

Commercially prepared chlorine and iodine tablets containing the necessary dosage for drinking water disinfection may be obtained at any drug store. They should be used in accordance with label instructions.

Disinfection of Equipment

Equipment used for storing or transporting potable water must be thoroughly cleaned and disinfected prior to use. Cleaning should be done to remove any dirt, scale, and other loose materials. Disinfection of equipment or tanks should be done by one of the following methods:

1. Add 20 ounces of 65 percent calcium hypochlorite to each 1,000 gallons of water; or

2. Add 2 gallons of 5.25 percent sodium hypochlorite (bleach) to each 1,000 gallons of water; or

3. Add 2 pints of 5.25 percent sodium hypochlorite (bleach) to each 100 gallons of water.

This will result in a solution that has about 100 mg/L chlorine. Let it stand a minimum of 12 hours, then drain through the distribution system, if possible. A residual chlorine test should show a distinct residual in the water drained out of the tank; if not, the disinfection process should be repeated. The complete contents of the tank should be drained to a safe location such as a sanitary sewer, the water should be dechlorinated if a large volume has to be drained to a storm sewer or waterway.

Residual Chlorine

When using emergency water sources, the level of residual chlorine in the water for consumption should be between 0.5 and 4 parts per million, after the treatment described in this bulletin. Inexpensive color comparator test kits can be purchased from most large department stores and swimming pool supply companies. Testing for residual chlorine should be performed several times per day for large volume uses and at least twice per day for small volumes.

If you have any questions, please contact your local health department or the nearest Illinois Department of Public Health regional office.

REGIONAL OFFICES

ROCKFORD REGION
4302 N. Main St.
Rockford, IL 61103-1209
815-987-7511

MARION REGION
2309 W. Main St., Suite 106
Marion, IL 62959-1195
618-993-7010

PEORIA REGION
5415 N. University St.
Peoria, IL 61614-4784
309-693-5360

EDWARDSVILLE REGION
#22 Kettle River Drive
Glen Carbon, IL 62034
618-656-6680

CHAMPAIGN REGION
2125 S. First St.
Champaign, IL 61820-7944
217-278-5900

WEST CHICAGO REGION
245 W. Roosevelt Road, Building 5
West Chicago, IL 6018-4803
630-293-6800

Illinois Department of Public Health, Division of Environmental Health, 525 W. Jefferson St., Springfield, IL 62761, 217-782-5830, TTY (hearing impaired use only) 800-547-0466. Questions may be directed to your local health department, to one of the Illinois Department of Public Health's regional offices or to the Department's central office in Springfield.