



Colorado Department  
of Public Health  
and Environment

## DISINFECTION OF WATER SUPPLY WELLS CONTAMINATED BY FLOOD WATERS

These general guidelines for applying the *Rules and Regulations Governing Retail Food Establishments in the State of Colorado* are provided by the Colorado Department of Public Health and Environment, Consumer Protection Division. Additional information about the rules and regulations may be obtained by calling 303-692-3620, or visiting the division's web page - [www.cdphe.state.co.us/cp](http://www.cdphe.state.co.us/cp)

Wells that have been flooded or otherwise contaminated by installation, construction or repair work must be thoroughly disinfected before use.

1. Inspect the water supply installation to determine and correct any damage or faults which would provide a source of contamination to the well by way of insects, surface drainage, dust or insects.
2. Disconnect well from storage and distribution system. Pump well to waste until water is relatively free of turbidity. Stop pump - reconnect to systems.
3. Add a chlorine solution consisting of 1 gallon of 5% available chlorine, household bleach (**UNSCENTED**) in 10 gallons of water, to well between well casing and pump drop pipe.
4. Start the pump and open all faucets on the system. Pump until chlorine odor is detected at the faucets, close faucets and stop the pump. Allow the chlorine solution to remain in the well, storage and distribution system at least overnight or preferably 24 hours.
5. Pump well to waste until odor and taste of chlorine has disappeared. Excessive amounts of contamination in the well or water supply system may require repeating the process.

Two days after disinfection collect a sample of water for bacteriological analysis, using only a sterile container furnished by the Colorado Department of Public Health and Environment, and the Local Health Departments or the County Public Health Nurses Office.

Until the well can be returned to service, the following temporary measures can be used to treat water for drinking and cooking purposes.

1. By boiling water briskly for 10 minutes.
2. Chlorination with household **UNSCENTED** Bleach (5%)
- 3.

Gallons of H <sub>2</sub> O:	Clear H <sub>2</sub> O	Cloudy H <sub>2</sub> O
¼	2 drops	3 drops
½	4 drops	5 drops
1	8 drops	1 tsp.
2	1 tsp.	2 tsp.
5	2 tsp.	1 tbsp.
100	1 oz.	1½ oz.
1000	1 cup	1 pt.

All water so treated should be relatively clear, add household **UNSCENTED** bleach; cover, shake well and allow to stand 20-30 minutes before use.

Boiled and chlorinated water must be stored in clean covered containers.

## **PERSONAL HEALTH PROTECTIVE MEASURES**

### **IN COLORADO DISASTER AREAS**

1. For cooking and table use boil all water, (unless approved by your local health department). If water cannot be boiled, add two drops of household UNSCENTED bleach to one quart of water, shake it thoroughly, let stand for 30 minutes.
2. Practice thorough handwashing before eating, particularly if you are working in a disaster area.
3. If you become injured, the need for a tetanus "shot" should be discussed with your physician.
4. Typhoid "shots" are generally not recommended unless there are active cases or carriers in the population.
5. Keep children and sightseers away from dirt and debris.

Detailed information may be obtained by contacting the following:

### **COLORADO STATE DEPARTMENT OF PUBLIC HEALTH SALVAGING FOODS CONTAMINATED BY FLOOD WATERS**

#### **Canned and Glass Packaged Foods**

1. Place cans and glass containers in separate piles to facilitate identification after labels are removed for cleaning and sterilizing.
2. **Discard** all containers showing evidence of excessive rust, leaking, swelled ends or faulty closures; glass containers with porous screw top type closures of paper or fiber, (mayonnaise, mustard, pickles, drug bottles, baby food). Contents from glass containers having crimped caps (bottled beer, soda water) should not be consumed.
3. Wash cans and glass containers (commercial vacuum type lids and two-piece Mason-Dome type) that can be used, with detergent in the water and rinse in clear water. Then cover containers with a chlorine solution. (Use one (1) tablespoon of household bleach which is **UNSCENTED** and has 5% available chlorine, to each gallon of clear water) for at least one minute. Experience has shown the only flood damaged foods that are entirely safe for salvage are those in sealed metal cans, cleaned and sterilized as noted.

#### **Sealed Foil or Cellophane and Paper Packaged Foods**

1. If submerged, **discard all**.
2. Food products in these types of containers (candy, cereals, crackers, bread, chewing gum, shelled nuts) stored above flood levels are often damaged by condensation and subsequent decomposition. Examine such containers for leaks or breaks and **discard** any that are damaged.
  - (a) If food in these containers is finely divided, (i.e., powdered or granulated) but now is found to be caked or not free flowing, **discard**.
  - (b) If foil packages are sound, discard those which show stain on inner paper wrapper.
  - (c) If unbroken and otherwise acceptable packages show evidence of **only** outer water contamination, they may be wiped dry and used.

(d) Cans with fitted lids, (non sealed type; cocoa, baking powder, condiments) should be opened and examined. **Do not** keep if there is evidence of moisture inside.

### **Unpackaged Foods**

1. Fruits, root and tuberous vegetables should be washed and immersed for at least one minute in chlorine solution, (one (1) tablespoonful of bleach which is **UNSCENTED** and has 5% available chlorine to each gallon of water). As added precaution, these foods should be peeled and if possible, cooked.
2. Head and leafy vegetables should be **discarded**.
3. All dried bulk foods, grains, beans, nuts, dried fruits, and dried milk and eggs should be **discarded**.
4. All fresh or processed meat (except those in hermetically sealed cans) cheese, eggs, dairy and poultry products should be **destroyed**.
5. All submerged drugs should be **destroyed**.

### **Frozen Foods**

1. If flood water has reached the inside of the refrigerator or freezer, **throw away** all foods not in sealed cans.
2. Foods, not contaminated by flood water, may be salvaged and frozen if:
  - (a) They have not reached a temperature above 45° F.
  - (b) Are only partially thawed and still retain ice crystals. It is pointed out that refreezing of foods may result in some impairment of quality. Completely thawed foods including fruits, vegetables, meats and poultry, fish, shellfish, and cooked food should not be refrozen.

**Bacteria multiply rapidly. If you question these foods, throw them out. Do not rely on odor or taste. Prompt disposal of the discarded foods, by burial on the premises or removal to public dumps, is essential to prevent access to insects and rodents.**

**\*REMEMBER: FLOOD WATERS ARE HEAVILY CONTAMINATED WITH DISEASE ORGANISMS. IF THERE IS DOUBT, THROW THE FOODS OUT.**

### **Removal of Odors from Refrigerators or Freezers**

1. Wash inside with detergent and water. Rinse surfaces with a chlorine solution (one (1) tablespoon of bleach which is UNSCENTED and has 5% available chlorine), allow to air dry.
2. If odors remain, try washing with: 1 teaspoon baking soda to each quart of warm water or 1 cup of vinegar or household ammonia to each gallon of water. This can be followed by use of commercial deodorizers.
3. Charcoal (activated charcoal is best) will absorb odors in warm and/or cold freezers.

Additional information may be obtained by contacting your local health agency.