TOMPKINS COUNTY HEALTH DEPARTMENT
Your Partner for a Healthy Community

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Shock Disinfection of Water Supply Systems

When a water supply has been exposed to bacterial contamination, it is advisable to disinfect the system using a commercial chlorine compound such as chlorine bleach. Disinfection should occur after: construction of a new water supply, repairs are made to an existing water supply, a positive coliform or E. coli test, or any time the well cap or lid has been removed.

The disinfection process outlined below is intended to eliminate the effects of previous contamination, but will not continue to disinfect or render safe a water supply which is continuously or intermittently contaminated. Therefore, before disinfecting the water supply system, all sources of pollution should be eliminated and proper repairs should be made. Contact a water system specialist or the Tompkins County Health Department (TCHD) for advice.

The most convenient source of chlorine is ordinary household bleach. Chlorine bleach contains about 5.25% chlorine (sodium hypochlorite) and is available at most grocery stores. Note that "Ultra" Chlorine Bleach products contain 6% chlorine. If possible, use NSF approved chlorine, as other types have additives in them. **DO NOT** use scented bleach.

Shock Disinfection Procedure:

1. Ensure that you have potable drinking water (bottled water or disinfected well water) available. Your well water will be heavily chlorinated for 1-2 days after this procedure, so you may consider doing laundry and showering before you begin.
2. Disconnect carbon or charcoal filters. Chlorinated water should be allowed to pass through water treatment devices such as softeners, iron filters and water sand filters to disinfect them. Water softeners can be shocked separately by adding 1/2C household bleach into the salt (brine) solution. Check with the manufacturer to ensure chlorine will not damage the water treatment equipment. To save energy during this procedure, turn your hot water heater to pilot if it is gas, or off if it is electric.
3. Clean the well and any storage tanks. Using a hose, rinse down the inside of the casing of the well. Then run the hose away from the well until the water is clear.
4. Refer to the charts on back of this sheet to determine the amount of chlorine to use. Dilute the chlorine in a 5 or 10 gallon bucket with water, then pour this dilution into the well casing, dug well, reservoir, or other structure to be disinfected.
5. Run the hose into the well again for at least 10 minutes to mix and recirculate the chlorine solution. Cover the well.
6. Turn on each indoor and outdoor tap, one at a time. When the water coming out has a strong chlorine odor, turn that tap off and proceed to the next one. Allow the chlorine solution to sit in the distribution piping for the amount of time specified below. This step sanitizes the distribution piping.
7. Flush the chlorinated water from all the lines after the contact time has elapsed. You may want to run water through a hose to the road ditch or a location away from the well or septic system before turning on the indoor faucets. This is not required, but prevents the exposure of your septic system to high levels of chlorine. Repeated exposure to elevated chlorine levels can negatively impact the

functioning of your septic system. Also, be aware that heavily chlorinated water can be harmful to your lawn, trees, or garden.

8. Reconnect any water conditioning equipment you may have disconnected. Continue to use the water for all household purposes except those intended for consumption (drinking, ice-making, washing of fruits and vegetables to be eaten raw). After one to two weeks, collect a water sample for bacteriological testing. It is critical when resampling that no chlorine be present in the water. If the bacteriological problem has not been eliminated, contact the TCHD for further advice and assistance.
9. Ensure that the water continues to be safe to drink by testing the water for bacteria again, 2 to 3 months after the shock chlorination procedure.

Quantities of liquid household bleach, 5.25% sodium hypochlorite, required for water well disinfection (note that the stronger solution requires less contact time):

Table 1: **10 hour minimum contact time** (100 ppm chlorine concentration)

Feet of Water in Well	Well Diameter (inches)				
	3	4	5	6	8
30	½C	¾C	1C	1¼C	2½C
40	½C	¾C	1¼C	2C	3¼C
60	¾C	1¼C	2C	2¾C	1¼Q
80	1C	1¾C	2½C	3¾C	1½Q
100	1¼C	2C	3C	1Q	2Q
150	1¾C	3C	1¼Q	1¾ Q	3Q
200	2¼C	1Q	1½Q	2¼Q	1G
250	2¾C	1¼Q	2Q	2¾Q	1¼G
300	3½C	1½Q	2¼Q	3½Q	1½G

Table 2: **4 hour minimum contact time** (250 ppm chlorine concentration)

Feet of Water in Well	Well Diameter (inches)				
	3	4	5	6	8
30	1C	1¾C	2½C	3¾C	1½Q
40	1¼C	2C	3¾C	1¼Q	2Q
60	2C	3¼C	1¼Q	2Q	3Q
80	2½C	1Q	1½Q	2½Q	1G
100	3C	1¼Q	2Q	3Q	1¼G
150	3½C	2Q	3Q	1¼G	1¾G
200	1½Q	2½Q	1G	1½G	2½G
250	1¾Q	3¼Q	1¼G	1¾G	3¼G
300	2¼Q	1G	1½G	2¼G	4G

Table 3: Quantities of liquid household bleach, 5.25% sodium hypochlorite, to disinfect volumes of water in storage tanks

Chlorine concentration	Water in Gallons								
	100	200	250	500	750	1,000	2,000	5,000	10,000
100 PPM (10 hr contact)	3C	1½Q	2Q	1G	1½G	2G	4G	9½G	19G
250 PPM (4 hr contact)	2Q	1G	1¼G	2½G	3¾G	5G	10G	25G	50G

KEY: C = cups Q = quarts G = gallons

Note: Caution should be exercised when handling bleach solutions. If chlorine accidentally gets on your skin, immediately flush the area with clean water