



## Ohio Department of Health Bureau of Local Environmental Health Services

### Maintaining Chlorine Residuals for Hauled Water

December 2002

Under Ohio Administrative Code 3701-28-18, water haulers are required to maintain free chlorine residuals in their water loads at a minimum of .2 PPM from the time they fill the truck until the point the water is delivered to the private water system. Most public water supplies where the water hauler fills their trucks will already have the minimum levels of chlorine needed. However, when the free chlorine level falls below .2 PPM the water hauler is required to increase the levels. Upper level restrictions for chlorine for public water are now set at 4.0 mg/l, although water becomes unpalatable as levels get too high. To increase the free chlorine residual by about .1 PPM in 1000 gallons of water add one teaspoon of 5.25% chlorine bleach initially, check the chlorine residual, and then add additional chlorine, one-teaspoon at a time, until the desired residual is reached. The water should be agitated or re-circulated while the chlorine is being added.

The basis for increasing the chlorine residual by .1 PPM in 1000 gallons of water using 5.25% bleach is as follows:

60 drops = 1 teaspoon = (.17 oz)

1 tablespoon = 3 teaspoons = (.5 oz.)

1 gallon of water = 128 ounces

5.25% Chlorine = 52,500 parts per million (PPM) or (mg/l) milligrams per liter.

$X / 1000 \text{ gal.} \times 128 \text{ oz.} = .1 \text{ PPM} / (5.25 \times 10,000)$

$X / 128,000 \text{ oz} = .1 \text{ PPM} / 52,500 \text{ PPM}$

$.1 \text{ PPM} \times 128,000 \text{ oz.} / 52,500 \text{ PPM} = X$

$X = 0.24 \text{ oz}$

About 0.24 oz of 5.25 % chlorine bleach can be added to 1000 gallons of water to theoretically increase the chlorine residual by .1 PPM. **But...**

Iron, sulfur and other total dissolved solids that occur naturally in the water will use up available chlorine until what is remaining is free chlorine. Most of the dissolved minerals that may be present in public water supplies will have already been oxidized by chlorine that was initially added at the plant. However, **more** than the .24 oz. of chlorine will probably need to be added to 1000 gallons of water in order to raise the free chlorine by .1 PPM.