

PUBLIC HEALTH ENGINEERING GUIDELINE: DISINFECTION OF WATER STORAGE FACILITIES

This guideline is intended for large, covered storage tanks and reservoirs, which can generally be entered by maintenance staff for cleaning about twice per year. Water storage facilities may contain dangerous gases or low oxygen, and the Water Supplier is responsible for following all WorkSafeBC requirements for ventilation and confined space entry. The instructions below assume that the disinfectant is a dilute solution of unscented household bleach (5% sodium hypochlorite) and clean water. Household bleach contains about 50,000 ppm (or mg/L) free available chlorine.

1. CLEAN TANK

- Remove all items that will not permanently remain in the tank
- Clean tank walls and floor thoroughly with high-pressure water jet, scrubbing, or equivalent
- Discharge or otherwise remove all water, dirt, etc.

2. CHLORINATE TANK

There are two main options for disinfecting the storage tank (see *AWWA Standard C652-02* for others). The chlorine content should be checked using test strips that range up to 200 ppm chlorine.

A) Two-Stage Chlorination @ 50 ppm & 2.5 ppm

(1000 parts water : 1 part household bleach)

- Fill tank with clean water to approximately 5% of total storage volume
- Pour sufficient bleach through cleanout or inspection manhole to produce an initial concentration of at least 50 ppm (total storage volume / 20,000, if using 5% bleach)
- Let stand minimum **6 h**
- Fill tank to overflow with clean water (this will dilute the chlorine concentration to ~ 2.5 ppm)
- Let stand additional minimum **24 h**.

or

B) Contact Chlorination @ 200 ppm

(250 parts water : 1 part household bleach)

- Spray equipment should only be used when thorough ventilation is assured and appropriate respiratory protection (gas mask, self-contained breathing unit) is used
- Spray or brush **all** exposed inner surfaces with a 200 ppm solution of chlorine
- Let stand minimum **30 minutes**
- Add enough clean water to purge drain.

3. BACTERIOLOGICAL SAMPLING AND VERIFICATION

- Empty tank, ensuring that chlorinated water does not enter septic field, fish-bearing stream, or other sensitive environment
- Fill tank with clean water at the normal level of chlorination for water system operation
- Pressurise water system
- Open all taps for at least one minute
- Test all taps to ensure no offensive chlorine odour
- Contact the Health Unit to request a lab requisition for sampling after storage tank maintenance
- Measure and record chlorine residual and collect water sample for bacteriological analysis from tap closest to the water storage tank, and deliver to Health Unit for testing
- Do not use water until laboratory test confirms no detectable coliform bacteria.