



## Disinfection Overview PARTICIPANT HANDOUT

### Overview:

This lesson mentions the different types of disinfection methods available, but this module is focused on disinfection by free chlorine and combined chlorine (chloramine) only. Topics include types of disinfection, chlorination, chloramination, and nitrification.

### Learning Objectives:

At the completion of this lesson, participants should have the ability to:

- Be able to discuss the purpose and types of disinfection
- Be able to discuss the basics of chlorination and chloramination

### Key Concepts:

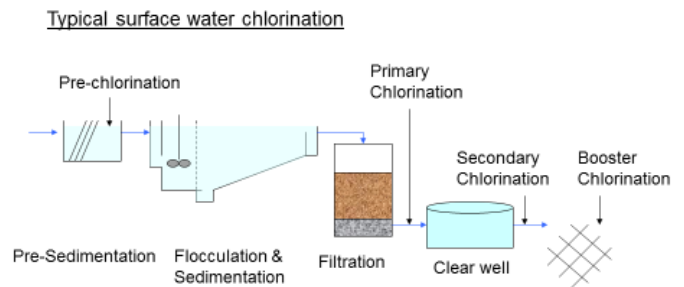
#### Which disinfectants provide protection in the distribution system?

- Chlorine
- Chloramines

Disinfectants that do not provide distribution system residuals (*and not covered in this training*):

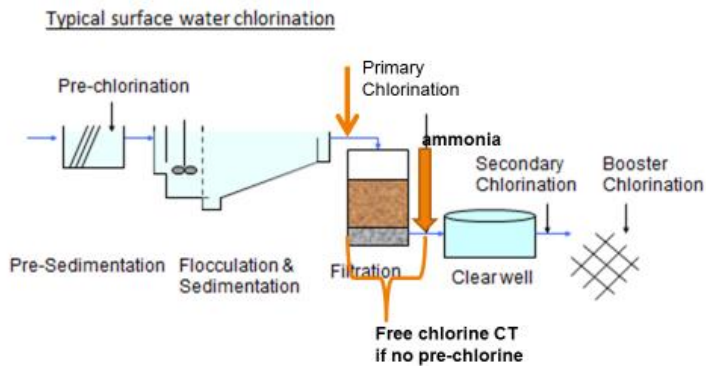
- Chlorine dioxide
- Ozone
- UV (Ultraviolet disinfection)

### Chlorination

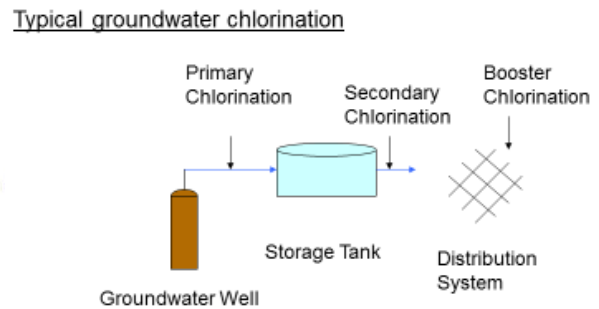


### Notes:

## Chloramination



## Chlorination



## Chlorine Dose Calculation

- What is the initial  $\text{Cl}_2$  dose if:
  - Stock chlorine solution is 10%
  - Flow rate is 200 gpm
  - Chlorine feed rate is 1.2 gph
- Chlorine concentration
  - 1% NaOCl = 10,000 ppm = 10,000 mg/L
  - 10% NaOCl = 100,000 ppm = 100,000 mg/L
  - 1 gallon = 3.78 liters

### Notes:

### Additional Resources:

- RCAP's Resource Library: [www.rcap.org](http://www.rcap.org)
- Small Drinking Water Systems Research
  - <http://www.epa.gov/water-research/small-drinking-water-systems-research-0>