

Basic Class Review Points

Math

- Convert between different units of measurement.
- Calculate total exhaustion of a water softener
- Calculate volume of both rectangular and circular tanks
- Make various disinfection calculations using the last four formulas

Chapter 1 – Licensing and Regulatory Requirements

- Licensing Authority and definition of water treatment
- Standards of qualifications for your license class
- Differences between license classes
- Application procedure for a license
- Causes for denial/suspension of a license and field citations
- Exemptions from license requirements
- Public Water Systems: regulatory requirements and safe practices
 - Pressure Requirements
 - Disinfection Residuals
 - Lead Restrictions
 - Cross Connections
 - Air gaps

Chapter 2 – Water Quality Problems

- Values for density, freezing, and boiling
- Unique Properties of Water:
 - High Heat Absorbing Capacity
 - High Surface Tension
 - Universal Solvent
 - Highly Polar
 - Very Stable
 - Freezing and Expansion
- Different uses of water and quality standards
- Natural water cycle processes
- General Water Quality indicators
- Differences between water sources
- Common Water Problems

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Chapter 3 – Waterborne Disease

- **Microorganisms, waterborne infections, and pathogens**
- **How to reduce or eliminate waterborne diseases**
- **Identify common diseases**
- **Coliform bacteria – Indicator organism**
- **Bacteriological test procedures**
- **Interpretation of results**
- **Purpose of disinfection**
- **CT values**
- **Disinfection with chlorine, ozone, and UV**

Chapter 4 – General Water Quality

- **Different units of measurements for impurities**
- **Physical Descriptions of water quality and standards**
 - **Turbidity**
 - **Color**
 - **Temperature**
 - **Odor**
 - **Taste**
- **Chemical characteristics of water and standards**
 - **pH**
 - **Total Dissolved Solids**
 - **Alkalinity**
 - **Conductivity**
 - **Hardness**
- **Differences between Dissolving, Ionization, Ions, Cations, Anions**
- **Clean water act, Safe Drinking Water Act, Maximum Contaminant Levels, Secondary Standards**
- **Common contaminants: source, effects, and standards**
 - **Fluoride**
 - **Nitrogen**
 - **Trihalomethanes**

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Chapter 5 – Water Treatment Technologies

- **Factors to consider**
- **Common Treatment processes: purpose, method, and limitations**
 - **Aeration**
 - **Filtration**
 - **Adsorption**
 - **Activated Carbon**
 - **Chemical Oxidation**
 - **Distillation**
- **Ion Exchange: resin, softening, and deionization**
- **R.O.: Natural osmosis and membranes**

Chapter 6 – Public Relations and Safety

- **Customer confidence and satisfaction**
- **Written safety program**
- **Safety precautions**
- **Unsafe acts and unsafe work conditions**
- **Rolling tanks on wood or carpet floors**