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## Drinking Water 101

### Presentation Outline

- Public Water Supplies
- Principles of Providing Safe Drinking Water
- Federal Role
- National Primary Drinking Water Standards
- State Role
- Oversight of Public Water Supplies

### What is a Public Water System?

- Provides water for drinking or household purposes to persons other than the supplier of the water.
- Serves more than one living unit.

### Types of Public Water Supplies

- Type I - Community
- Type II - Noncommunity
- Type III – Other
- Groundwater
- Surface Water

### Michigan Type I & II Supplies

- Principles for Providing Safe Drinking Water
  - Provide a safe, reliable and adequate supply of water to the public
  - Assure multiple barriers of protection are in place, if one fails will not adversely impact public health:
    - Source water/groundwater protection
    - Well construction
    - Treatment
    - Distribution system integrity
    - Cross connection control program
    - Operator certification and training
    - Provide information to the public

### Source Water Protection & Isolation

- Proper Well Construction

### Surface Water Treatment

- Conventional Treatment
- Other Treatment and Distribution System Safeguards
  - Continuous Positive Pressure
    - Prevents backsiphonage & entry of contaminants
    - Result of adequate supply & storage and proper design
    - Loss of pressure = posting, chlorination & sampling
  - Frequent Testing & Record Keeping
  - Routine Maintenance
    - Well/pump, storage, distribution piping, treatment devices, cross connections, safety & security
  - Cross-Connection
    - A connection or arrangement of piping or appurtenances through which backflow *could* occur.
    - Any piping arrangement that allows a potable water system to be connected to a non potable system.
  - Backflow Caused by Heavy Demands
  - Public Notice

## Public Water Supply Regulations

- Federal Role
  - Safe Drinking Water Act of 1974 – Authorized the U.S. Environmental Protection Agency (U.S. EPA) to regulate all public drinking water supplies.
  - U.S. EPA is authorized to set National Primary Drinking Water Standards (NPDWS).
  - Standards are legally enforceable, there are two types of standards: Maximum Contaminant Levels (MCLs) and Treatment Techniques (TTs).
  - EPA grants authority to states to implement the SDWA and the drinking water standards; called PRIMACY.
  - Contaminants Regulated Under NPDWS
    - Microorganisms – cryptosporidium, total coliforms, *E.coli*
    - Disinfection Byproducts – haloacetic acids (HAA5), total trihalomehtanes (TTHMs)
    - Inorganic Chemicals – arsenic, lead, nitrates, nitrates
    - Organic Chemicals – atrazine, benzene
    - Radionuclides – alpha and beta particles, uranium
  - Steps To Federal Regulation
    1. Contaminant Candidate List
    2. Unregulated Contaminant Monitoring Program
    3. Regulatory Determination
    4. Regulation Development
    5. Draft Rule Published
    6. Comment Period
    7. Final Rule Published
    8. Rule in Effect 3 Years After Final
    9. Review by U.S. EPA Every 6 Years
  - Primacy
    - U.S. EPA grants authority to states to implement the SDWA
    - Standards must be as stringent as federal
    - States have 2 years to adopt new regulations and apply for Primacy
    - Adequate compliance and enforcement program
    - Authority to compel compliance with standards, assess and collect fines and penalties
    - All states have primacy except Wyoming

## Public Water Supply Regulations

- State Role
  - Michigan Safe Drinking Water Act  
Public Act 399 of 1976
  - Statute, rules, policies and procedures add state program activities beyond those required by the federal government:
    - Construction permitting
    - Routine system surveillance
    - Technical assistance
    - General plans and reliability studies
    - Cross connection program
    - Bottled water and water hauling
    - Water withdrawal
  - DEQ - Oversight of CWS
    - Sanitary Surveys and Visits
    - Data Analysis and Reporting
  - Local Health Departments - Oversight of NCWS
    - Sanitary Surveys and Visits
    - Data Analysis and Reporting
    - Annual Contract with DEQ
    - DEQ Oversees and Evaluates LHD Performance