Reducing Legionella Growth & Spread in Buildings

Developing a Water Management Program
Source Water in Community Infrastructure

- **Source (surface water or groundwater well)**
- **Water Treatment Plan**
- **Distribution System**
- **Private Service Line**
- **Hospital**

- **Purchased Surface Water**
- **Purchased Groundwater**
Type I Community Water Supply

- The majority of hospitals in Oakland County are served by a Community Water Supply
Type II Non-Community Water Supply

- Type II Water Supplies are regulated by OCHD through a contract with DEQ

- There are nearly 700 Type II supplies in Oakland County
## Type I and Type II Public Water Supplies

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I Community Public Water Supply</td>
<td>Provides year-round service to not less than 25 residents OR not less than 15 living units</td>
<td>Municipalities, Apartments, Nursing Homes, Mobile Home Parks</td>
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<tr>
<td>Type II Noncommunity Public Water Supply</td>
<td>A public supply that is not a community supply, but has not less than 15 service connections or serves no less than 25 individuals on an average daily basis for not less than 60 days per year</td>
<td>Schools, Industries, Places of Employment Hotels and Restaurants (with less than 25 employees), Campgrounds</td>
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<tr>
<td>Type III Public Water Supply</td>
<td>Anything not considered a Type I or Type II water supply; serves less than 25 people AND 15 connections, or operates for less than 60 days per year</td>
<td>Small Apartment Complexes and Condominiums, Duplexes, all Others</td>
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<tr>
<td>Private Water Supply</td>
<td>Serves a single living unit</td>
<td>Single Family Home</td>
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</tbody>
</table>
Our water system is a shared responsibility. The Great Lakes Water Authority operates five water treatment plants that treat water drawn from Lake Huron and the Detroit River to meet Safe Drinking Water Act requirements. This water is delivered to municipalities through a regional distribution system. The municipality, in turn, owns and operates a system of water mains that carry this water to your property service line. In some municipalities, responsibility for maintenance costs associated with the service line is shared between the municipality and property owner (above). In other municipalities, the homeowner is responsible for the entire service line (left).
Additional Regulation

- DEQ regulation of treatment added to facility using Type I source.
- Type II treatment requirements
- Would be in perpetuity
Introduction to Water Treatment to Reduce Legionella

• Legionnaires’ disease is on the rise in the United States

• Water management plans are becoming an industry standard for control of legionella.

• Tools and standards to assist:
  – CDC Toolkit
  – ASHRAE Standard 188
Tool Kit

• Do we really need a water management program to prevent Legionella growth?
  – If your building is a healthcare facility, the answer is YES.

• Developing and maintaining a water management program is a multi-step process:
Element 1:
Establish a Water Management Program Team

• Identify the persons responsible for developing and implementing the program
  – Building owner/administration
  – Maintenance/Engineering
  – Equipment/chemical suppliers
  – Safety Officers
  – Consultants

• For Health Care Facilities:
  – Infection Prevention and Control
  – Risk Management
  – Someone knowledgeable in the accreditation or licensing standards
Element 2:
Describe the Building Water System Using Text and Diagrams

- Write a simple description of the building water system and how it is distributed throughout the building.
- The information from the written flow is then shown by diagram(s)
Element 3: Identify Areas Where Legionella Could Grow and Spread

- Determine where in the water system is a risk or has potential for hazardous conditions of legionella growth.
- Establish control points, control limits and corrective actions for conditions outside of control limits.
Element 4:
Decide Where Control Measures Should be Applied

• Monitoring will be needed to ensure your control measures are performing as designed.
• Chemical or physical parameters must be maintained and have designated minimum and maximum values.
  – Water quality should be measured throughout (chlorine)
  – Water heaters maintained at proper temperature
  – Decorative fountains free of debris or biofilm
  – Disinfectant levels in cooling towers maintained
• Testing of patients with healthcare-associated pneumonia for Legionnaires’ disease.
Element 5:
Establish Ways to Intervene When Control Limits Are Not Met

• Corrective Actions are taken in response to systems performing outside of control limits
• A contingency response is a reaction to control measures that are persistently outside of control limits
  – Always required when Legionnaires’ occurs
  – Even the most closely monitored systems may sometimes require adjustments.
Element 6: Make Sure the Program Is Running As Designed & Is Effective

• Verification: Are we doing what we said?
  – Confirm both initially and on an ongoing basis that the water management program is being implemented as designed

• Validation: Is our program actually working?
  – Confirm both initially and on an ongoing basis that the water management program effectively controls the hazardous conditions throughout the building water systems
    • Environmental testing
    • Infection control data
Element 7:
Document & Communicate All the Activities of Your Water Management Program

• Documentation – Your written program should include at least the following:
  – Program team including names, titles contacts information and roles
  – Building description including age, use, occupants and visitors
  – Water system description
  – Control measures
  – Confirmation procedures
  – Collection and transport of environmental samples; laboratory name/address/contact

• Communicate
  – Notify employees that you have a plan
  – Communicate the plan on regular basis and use this as opportunity for improvements
Special Considerations for HealthCare Facilities

- Both the CDC Toolkit and ASHRAE Standard have “Special Considerations for Healthcare Facilities”
  - Toolkit Appendix A
  - Standard 188 Normative Annex A