

# Smart Monitoring of Premise Plumbing for *Legionella* Growth Conditions

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# Monitoring Domestic (Potable) Water Systems for *Legionella* Growth Conditions

Why?

What?

Where?

How?

Reduce Risk and Stay in Compliance  
Monitoring domestic water for *Legionella* growth  
conditions is required to comply with...



ANSI/ASHRAE Standard 188-2021



# Testing for Conditions—not Just *Legionella*—is Important

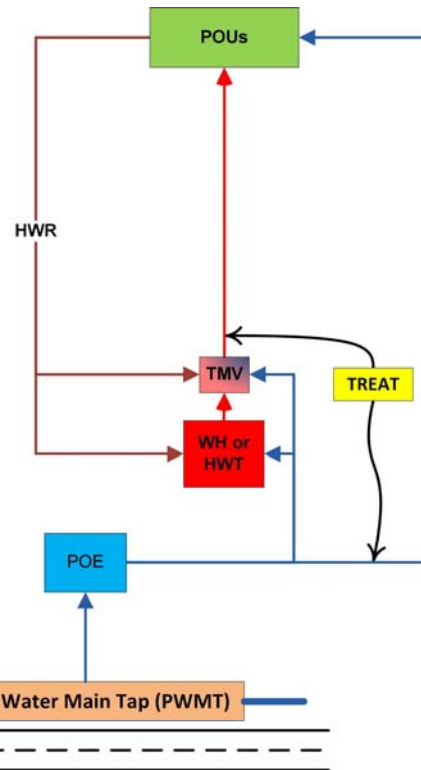
To determine specific growth factors

For alerts to incidents requiring an immediate response

Because very few facilities test for *Legionella* adequately

# What and Where

What?  
Temperature  
Disinfectants  
pH  
What else?



Where?  
Depends on what  
POE?  
POUs?  
Where else?

**What should be monitoring? Where?**  
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How?

*Considerations for...*

Sensors

Handheld devices

# Automation is Important

Facilities are more likely to monitor if it's easy.

Study of Comprehensive WMPs in the LAMPS software application:

- *Legionella* positivity decreased with increased WMP implementation and *Legionella* testing but...
- Few facilities fully implemented their WMPs and tested for *Legionella*.

## Data from WMP Study

### Comparison of Control Measure (CM) Compliance with Number of Tests and Domestic Water *Legionella* Positivity in LAMPS WMPs Active > 12 Months

CM % OK*	<i>Legionella</i> **	Other Microbial**	Temp**	Disinfectants**	<i>Legionella</i> % Positive in DW***
0	0.81	0.14	1.44	2.98	NA
0.5-49%	5.62	2.21	8.18	12.05	24.03%
50-79%	7.21	1.54	33.99	7.95	21.40%
80-94%*	17.36	7.82	26.77	32.50	16.88%
95-100%*	33.16	23.67	51.53	33.84	14.98%

\* As of the end of the study period, < 20% of sites had CM compliance  $\geq$  80%. < 10% had CM compliance 95-100%

\*\* Avg number of tests in recent 12 months. Only 10% of sites tested 20+ samples. Only 6% tested 40+ samples.

\*\*\* For the life of the WMP, excluding sites with fewer than 6 domestic water test results total



# Minimum Specification in New Buildings?

*At the POE, continuously monitor...*

Disinfectant residual

Temperature

Conductivity

Turbidity

pH



# Thank You!

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