

# Impacts on Small Drinking Water Systems

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# What is a Small System Anyway ... or How Small does “Small” have to be?

- Less than 10,000 population?
- Less than 20,000 population?
- Less than 150 connections?
- Less than 300 connections?
  
- Does it really matter?

# Who Can Remember What We Did in the 1980s and 1990s?

This was the “flurry of rules” era ...

- Surface Water Treatment Rule ... we built or remodeled a lot of water filtration plants, built reservoirs for needed disinfection contact time, and even discovered new ways to disinfect water
- This rule gave way to “offspring rules” like IESWTR, ESWTR, Filter Backwash Rule, LT<sub>1</sub>SWTR & LT<sub>2</sub>SWTR, and Disinfection By-Product Rule ...

# Who Can Remember What We Did in the 1980s and 1990s?

- Lead and Copper Rule ... we assessed distribution system corrosion conditions through new monitoring, designed and built corrosion control treatment facilities, and continue to monitor and optimize the treatment
- The rule was a huge departure from previous monitoring rules since we monitor at locations beyond our control and easy access

# Who Can Remember What We Did in the 1980s and 1990s?

- Volatile & Synthetic Organic Chemical monitoring of all surface water and groundwater sources
- Was the precursor for source water assessments and the delineation of source water protection zones and protection plans
- Became the groundwater equivalent for surface watershed protection areas

# Who Can Remember What We Did in the 1980s and 1990s?

- Total Coliform Rule implemented for more comprehensive monitoring of distribution system water quality
- Required utilities to abandon “random” coliform sampling in favor of a well-defined sampling plan with designated sites for follow-up monitoring
- Utilities had to recognize an increased level of importance assigned to coliform monitoring

## And Then Came the 2000s with New Tasks and Requirements ...

- Groundwater Rule
- Security / Vulnerability Assessments
- Unregulated Contaminant Monitoring Rule (UCMR)
- Consumer Confidence / Water Quality Reports
- Technical, Financial & Managerial Capacity
- Local rules addressing cross connection control and operator certification

# And Rules the Industry is Still Waiting and Wondering About ...

- Revised Total Coliform Rule
- Re-Authorized Lead & Copper Rule
- Blue-Green Algae / Microcystins
- PFAs
- UCMR88 ... more than Rocky movies ...

New administration may keep the industry waiting ...

... but look at what has been accomplished in the last 30 years

*Water system responsibilities have dramatically changed in the last 30 years, but have water systems changed?*



# Current Issues That Can Turn Into New Requirements or Regulations ...

- Seismic resiliency for utility infrastructure
- Water loss assessment / non-revenue water accounting through water loss audits

More recent requirements differ from earlier rules which were prescriptive. Today, requirements have built-in flexibility ... but ... with flexibility comes complication and increased efforts to comply

*So, are these the only things impacting small systems?*

# So What Are Real Issues Small Systems Are Facing Today?

## Personnel / Staff

- Is it easy to hire new operators / staff?
- Can a small utility be cost-competitive today?
- Can a small utility retain staff ... or is the utility just training staff for other entities to hire away?
- Does your utility have a succession plan?
- Can a small utility afford retirement funding (e.g. Oregon's PERS payments)?
- Can a small utility afford rising health care costs?

# Is Income Keeping Up?

In 1990 ...

- Monthly income = \$2800
- 3-bedroom, 1500 sq ft home = \$67,000
- Annual tuition at Oregon State University = \$3000

In 2018 ...

- Monthly income = \$5000
- 3-bedroom, 1500 sq ft home = \$285,000
- Annual tuition at Oregon State University = \$12,000

*As a culture, are we putting the correct value on water and water system staff?*

# Remember When Water Was the “Silent Utility”?

## Customer Relations

- Does your system spend time with social media?
- Does your system have a strategic plan covering all aspects of the utility?
- Do you know what your customer’s expectations are?
- Do your customers have confidence in the water system in a “post-Flint” era? How are you working to earn and improve that confidence?
- How well does the utility “sell” water rates as they compete with other customer expenses?

# Replacing Aging Infrastructure ...

## Infrastructure Asset Management Planning

- Does the utility have a plan that is proactive or reactive?
- Does the utility have rates that cover the cost of service ... AND ... the cost of capital investments in infrastructure replacement?
- Does the utility have the capacity to manage capital construction projects?

# The Cost of Capital Improvements

## Water System Example

- 50 miles of distribution system mains
- 28 miles of cast iron pipe installed 1935-1955
- Pipe age is 60+ to 80+ years
- Assuming the need to replace much of that pipe over the next 40+ years with 8-inch ductile iron pipe at today's price of \$250/ft ...
- ... means replacing 3300 ft/year for annual cost of \$825,000 for a total cost of \$33 million over 40 years ...
- ... replacing 1.25% of the distribution system annually

# The Realistic Big Picture

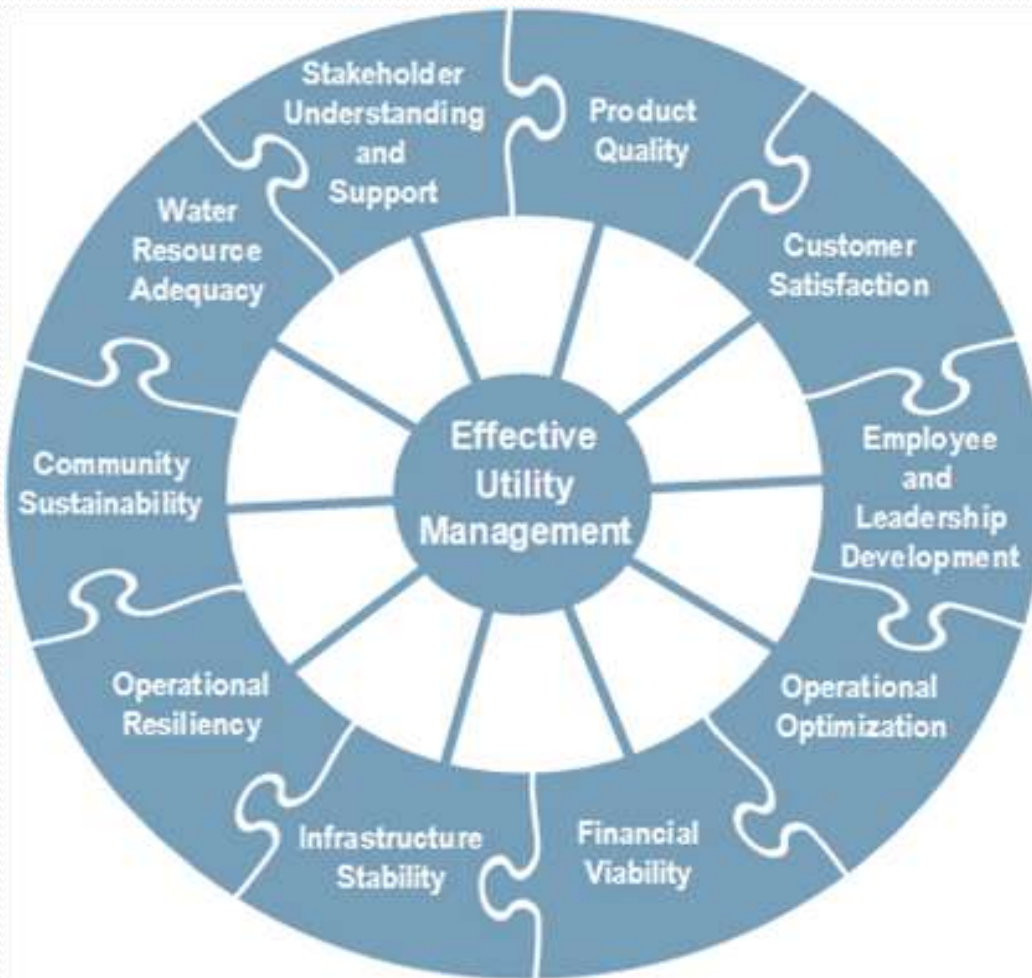
Questions water managers might be asking now ...

- Why do I want to do this?
- At the current rate, is this sustainable?
- How do I know where to start?
- How can I possibly hope to “eat this huge elephant”?

*(Hint: one bite at a time ...)*

- Are there tools to help me?
- I cannot be the only one in this situation, right?
- Wasn't this a talk about water quality & regulations?

# Strategic Management Approach



## EUM – Five Key Areas

- Leadership
- Business Planning
- Knowledge Management
- Measurement
- Continual Improvement



# Today's Takeaway Messages

- This work is not for cowards ... but it should not scare us and steal our sleep at night, either
- There are lots of tools to help us
- The water industry is a network of assistance and cooperation ... tap into it
- There are a lot of tasks to do, but we are up to the challenge considering how much we have already accomplished
- Solutions center around the true value of water
- Everything we do is still aimed at achieving the best water quality possible for an affordable price



Thank You !!!

Contact information for any questions or comments

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