

The Safe Drinking Water Act: Drinking Water Regulations And Their Impact on Public Health

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Presentation Outline

- Short SDWA & regulatory history
 - The good news about the regulations
- The Regulatory “Gaps”
- The Needs
 - Financial capital
 - Past regulations
 - Future regulations
 - Infrastructure
 - Human capital

Three Iterations of the SDWA

1. Initial 1974 SDWA set up the federal standard-setting process
 - Not enough regulations were developed to satisfy Congress & others
2. 1986 SDWA – prescriptive regulatory schedule
3. 1996 SDWA refined contaminant identification and risk management
 - New state programs for DWSRF, capacity development, operator certification, and source water assessments



Regulatory History

- 19 regulations for 91 contaminants from 1975-2013
 - Costs - \$4.2 Billion/yr. (2013 \$)
- Nine prior to the 1996 SDWA Amendments
 - Primarily numerical MCLs based on annual average of quarterly samples
- Ten after the 1996 SDWA Amendments
 - Harder to treat contaminants and/or more complex regulations



The Good News about the Regs

- Most of the major risks that we know about in drinking water have already been addressed
 - 91 contaminants are regulated
 - Initial disinfection requirements in 1989 to address bacteria, viruses, and *Giardia*
 - Strengthened in 2006 to address *Cryptosporidium*
 - Arsenic standard lowered from 50 ppb to 10 ppb in 2001
 - 1991 Lead and Copper Rule lowered lead levels in water
 - Disinfection by-products (DBPs) regulations are tighter and apply to all system sizes
 - Lot of other common chemicals are already regulated
- National compliance is 92%-93%

The Regulatory Gaps

- SDWA regulations apply to systems serving >15 connections or >25 people
 - Regulations for only contaminants with acute health endpoints for non-community and transient systems
- Very small systems serving <15 people are not regulated under the SDWA
 - Regulated by local ordinances that vary considerably
- Private wells
 - Also regulated by local ordinances

Cost of Past SDWA Regulations

Regulation	Annualized Capital and O&M Cost (\$ M/yr., 2013\$, 3% discount rate)
Surface Water Treatment Rule	1,007
Lead and Copper Rule	937
Stage 1 Disinfection By-Products Rule	872
Interim Enhanced Surface Water Treatment Rule	388
Arsenic	251
(Skip to #18 and #19)	
Filter Backwash	8
Fluoride	7

Total Compliance Costs for 19 Regulations - \$4.62 Billion/yr. in 2013\$, 3% discount rate

Cost of Future Regulations

- Long-Term Lead and Copper Rule Revisions - ??
- Cyanotoxins - ??
- PFOA and PFOS - ??

- Hexavalent Chromium
 - Estimated CA compliance costs - \$616 Million/yr.
 - Guesstimate that national compliance costs would be twice CA costs based on UCMR3 monitoring results - \$1.23 Billion/yr.

Per Household Costs

- CA hexavalent chromium
 - Coachella Water District serves 219,000
 - Increase of \$744/yr.
 - City of Woodland serves 14,000 people
 - Increase of \$1,288/yr.
 - Oak Trail Mutual Water Co. serves 105 people
 - Increase of \$14,000/yr.
- Not just a small system problem
 - DC Water average monthly water and sewer bill
 - FY 2009-\$47 to FY 2025-\$145

Infrastructure Costs

- AWWA “Buried No Longer Report”
 - \$1 trillion over the next 25 years
- EPA 2011 Drinking Water Needs Survey
 - \$384 billion over the next 20 years
- Both \$ are quite large
- Both don't include \$ for wastewater or stormwater
 - Typically the same bill for a household

Human Capital

- Water systems are facing workforce issues, just like everyone else
 - Not just scientists and engineers, but across the board
 - Water systems need a wide variety of skill sets
 - Field positions now need some technical skills due to GIS and laptops used in their business processes
- Managing boards need human capital
 - Significant issue for very small systems
 - What size system before one full-time staff? Any other responsibilities??
 - Volunteer management for a very small system can be problematic

Thanks & Questions?

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