

50 Years of the Safe Drinking Water Act

2023 Minnesota Ground Water Association Fall Conference

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Safe Drinking Water
Act (SDWA) passed by
Congress in 1974

50th Anniversary in
2024!



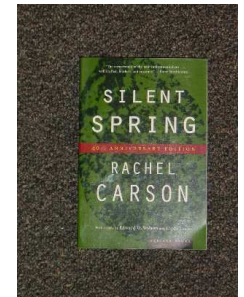
50 Years of the idea of Safe Public Drinking Water across the entire US

- How it started
- Elements of the SDWA
- Snapshot of how things changed
- What is happening lately?

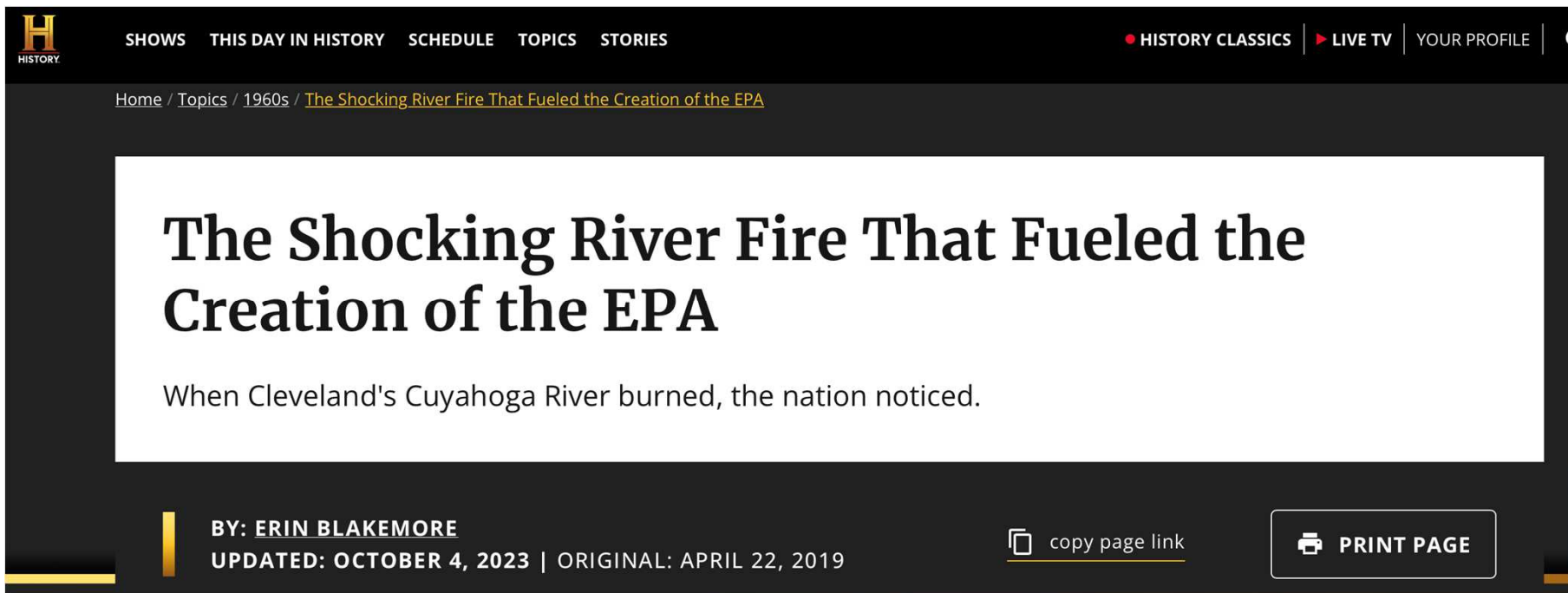


SDWA BACKGROUND

- 1925 & 1942 – U.S. Public Health Service (USPHS) develops guidelines for coliform, water quality parameters, and inorganics (IOCs)
 - State can adopt these guidelines as they see fit
- 1960's – Growing environmental movement
 - 1962 – Rachel Carson publishes Silent Spring
- 1962 – USPHS sets maximum concentrations (not standards) for 5 IOCs, 2 organic chemicals, fluoride and radionuclides
 - Initial requirements for certified operators
- 1963 – Congress begins passing environmental legislation
 - First Clean Air Act (CAA) passed in 1963
- 1970 – Environmental Protection Agency (EPA) established



WHAT WAS HAPPENING IN THE EARLY 1970'S THAT RESULTED IN THE CWA AND SDWA?



The screenshot shows a web page from History Channel. The top navigation bar includes 'SHOWS', 'THIS DAY IN HISTORY', 'SCHEDULE', 'TOPICS', 'STORIES', 'HISTORY CLASSICS', 'LIVE TV', and 'YOUR PROFILE'. The breadcrumb trail reads 'Home / Topics / 1960s / The Shocking River Fire That Fueled the Creation of the EPA'. The main title is 'The Shocking River Fire That Fueled the Creation of the EPA'. Below the title is a sub-headline: 'When Cleveland's Cuyahoga River burned, the nation noticed.' At the bottom, it says 'BY: ERIN BLAKEMORE' and 'UPDATED: OCTOBER 4, 2023 | ORIGINAL: APRIL 22, 2019'. There are also buttons for 'copy page link' and 'PRINT PAGE'.

H
HISTORY

SHOWS THIS DAY IN HISTORY SCHEDULE TOPICS STORIES

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Home / Topics / 1960s / [The Shocking River Fire That Fueled the Creation of the EPA](#)

The Shocking River Fire That Fueled the Creation of the EPA

When Cleveland's Cuyahoga River burned, the nation noticed.

BY: **ERIN BLAKEMORE**
UPDATED: **OCTOBER 4, 2023** | ORIGINAL: APRIL 22, 2019

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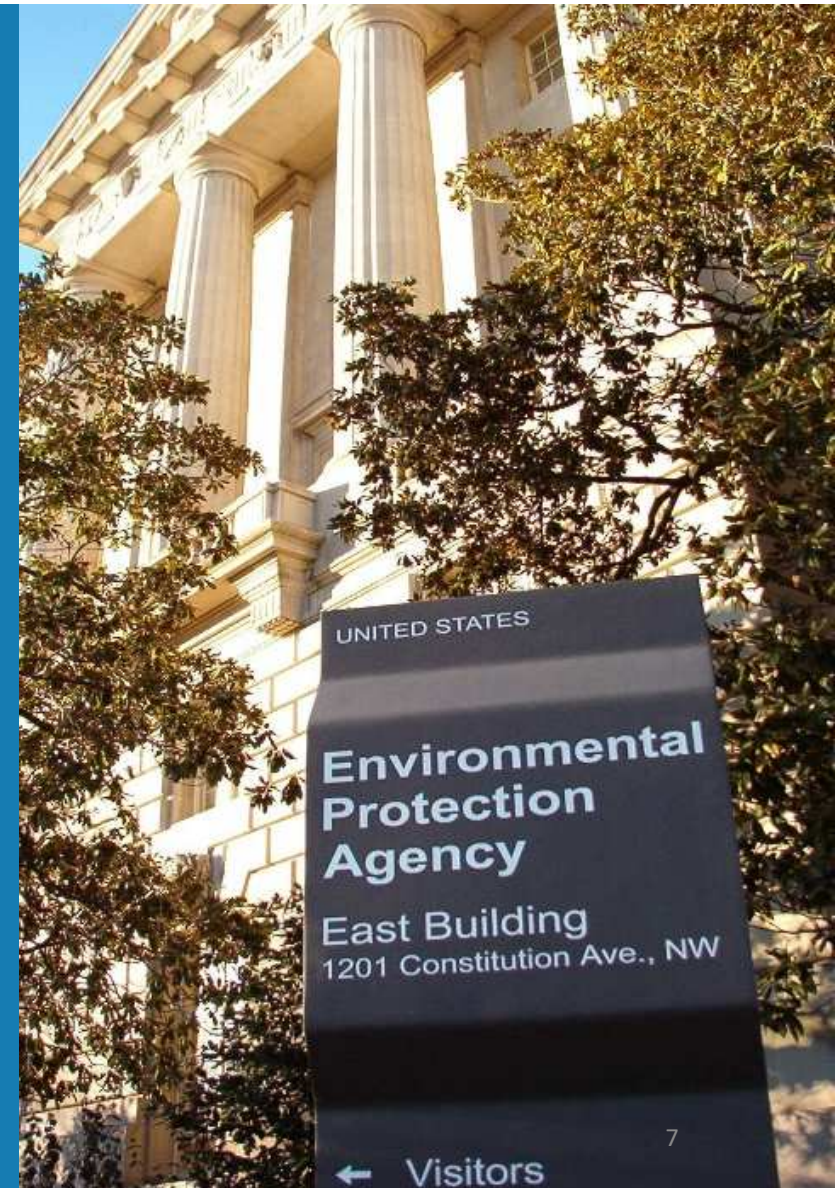
1974

- Watergate scandal results in President Richard Nixon resigning
- Vice President Gerald Ford becomes President in August
- Oil Crisis in US causes gas shortages and long lines at the pumps
- Inflation at 11%+
- Congress passes the Safe Drinking Water Act



President Ford Signed the Safe Drinking Water Act December 16, 1974, in the wake of newspaper headlines, television documentaries, and magazine features warning that our old assumptions about the quality of our drinking water may no longer be valid.

James L. Agee, EPA Assistant Administrator, MARCH 1975



- Potential cancer-causing chemicals found in trace quantities in New Orleans' and Pittsburgh's drinking water.
- In Boston, lead from water supply pipes has been found in water drawn from the tap.
- Viral or bacteriological contamination of drinking water has resulted in communication of disease.

James L. Agee, EPA Assistant Administrator, MARCH 1975



PRESENTATION OUTLINE

- Setting the Stage
- Safe Drinking Water Act (SDWA)
 - Background & initial 1974 SDWA
 - Significant Amendments & Revisions in 1986 & 1996
- SDWA Regulatory Framework
- The Evolution of the Regulations
 - 20 Drinking Water Regulations
- Current & Future Regulations



Clean Water Act & Safe Drinking Water Act

- Clean Water Act (1972)
 - General goal: fishable and swimmable surface waters in the US
 - Establishes basic structure for regulating discharges of pollutants into the waters of the US and regulating quality standards for surface waters
- Safe Drinking Water Act (1974)
 - Protect public health by setting maximum contaminant levels in public drinking water supplies
 - Requires periodic monitoring, and provides authority to require systems to lower contaminant levels to below Maximum Contaminant Levels (MCL)



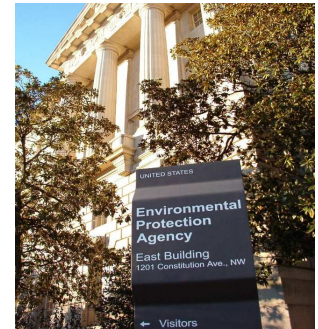
Congress's
goal with the
SDWA:

Safe drinking
water across
the US



SAFE DRINKING WATER ACT (SDWA)

- Initially passed in 1974
 - Initial regulations codified USPHS guidelines
 - 1975 – 22 standards in national interim regulations
- EPA established federal drinking water standards (now at 91)
 - States can administer the rules but must pass their own standards at least as strict
 - States maintain primary enforcement authority->primacy



1974 SAFE DRINKING WATER ACT (SDWA)

- Regulates “public water systems” (PWSs), serving:
 - ≥ 15 connections (e.g. homes or buildings), or
 - 25 people at least 60 days/yr.
- Two types:
 - Community water systems (CWSs) – where people live
 - Approximately 50,000 CWSs Nationwide – mainly publicly-owned systems
 - Non-community systems: Transient and Non-transient



MINNESOTA PUBLIC WATER SYSTEMS

- 964 community systems, providing water to people in their homes or places of residence as well as businesses and public buildings.
- 5,685 noncommunity systems
 - Some provide water to an ever-changing “transient” population at places such as restaurants, resorts, and highway rest stops.



NATIONAL PRIMARY DRINKING WATER REGULATIONS (NPDWR)

Legally enforceable primary standards and treatment techniques for public water systems to protect public health by limiting the levels of contaminants in drinking water:

- Microorganisms
- Disinfectants
- Disinfection Byproducts
- Inorganic Chemicals
- Organic Chemicals
- Radionuclides



1986 SDWA Amendments

Reauthorization of SDWA each time-Supposed to be every 10 years

- **1986 Amendments**

- Congress was frustrated with EPA's slow pace of regulations
- Required EPA to regulate 83 contaminants in five years
 - 25 new regulations every five years
- EPA could not meet these deadlines
 - EPA was repeatedly sued for missing deadlines
 - Would set new deadlines
 - Would miss those deadlines
 - The cycle would repeat



1996 SDWA Amendments

Reauthorization of SDWA each time-Supposed to be every 10 years

- **1996 Amendments**

- A bipartisan effort by Congress to remove the “regulatory treadmill”
 - Develop a new standard-setting process
- The legislative process took multiple two-year sessions of Congress
 - Debating the issues and developing started before legislative language was developed
- Several new programs beyond a new standard-setting process



1996 SDWA AMENDMENTS

- Priority regulations
 - Deadlines for microbial/disinfectants & disinfection byproduct (MDBP), arsenic, filter backwash recycle, sulfate & radon
- New standard-setting process for new contaminants
 - Review of all existing regulations every six years
- Drinking Water State Revolving Loan Fund (DWSRF)
- Consumer Confidence Reports (CCRs)
- DWSRF tied to state adoption of these 3 programs
 - Capacity development programs
 - Operator certification programs
 - Source water protection programs



SDWA AMENDMENTS SINCE 1996

- 2002 – Bio-Terrorism Act
- 2005 – Energy Policy Act
- 2011 – Reduction in Lead in Drinking Water Act
- 2013 – Community Fire Safety Act
- 2015 – Drinking Water Protection Act
- 2015 – Grassroots Rural and Community Water Assistance Act
- 2016 – Water Infrastructure Improvements for the Nation (WIIN) ACT
- 2018 – America’s Water Infrastructure Act (AWIA)
- 2022 – Infrastructure Investment and Jobs Act (IIJA)
 - Also known as the Bipartisan Infrastructure Law (BIL)



SDWA REGULATORY FRAMEWORK

- **Contaminant Candidate List (CCL)**
 - The starting point for regulation – what contaminants are to be considered
 - First CCL in 1998 and then every 5 years
- **Regulatory Determination (RD or RegDet)**
 - First in 2003 and then every 5 years
 - Determinations: regulate, not regulate, issue health advisory, needs more research
 - Three criteria must be met for EPA to regulate a new contaminant
- **If a determination is made to regulate**
 - Proposed rule 24 months after determination
 - Benefit-cost considerations
 - Final rule 36 months after determination



THREE CRITERIA & BENEFIT-COST ANALYSIS

- *The Administrator shall determine to regulate a contaminant if, based on the best available science,:*
 1. *The contaminant may have an adverse health effect;*
 2. *The contaminant is known or likely to occur with a frequency and at levels of public health concern; and*
 3. *(National) regulation presents a meaningful opportunity for health risk reduction*
- MCLG is a health-based goal
- MCL shall be set as close to the MCLG as feasible
- Benefit-cost analysis
 - *If the benefits of a MCL would not justify the costs, the Administrator may promulgate a MCL for the contaminant that maximizes the health risk reduction benefits at a cost that is justified by the benefits*



20 DRINKING WATER REGULATIONS

- Pre-1996 SDWA

1. National Interim Regulations
2. Total Trihalomethanes (TTHMs)
3. Fluoride
4. Phase I Volatile Organic Chemicals
5. Surface Water Treatment Rule
6. Total Coliform Rule (TCR)
7. Phase II Synthetic Organic Chemicals (SOCs) & Inorganic Chemicals (IOCs)
8. Lead and Copper Rule (LCR)
9. Phase V SOCs & IOCs

- Post-1996 SDWA

10. Stage 1 DBPR
11. Interim Enhanced SWTR
12. Radionuclides
13. Arsenic
14. Filter Backwash Recycling Rule
15. LT1ESWTR
16. Stage 2 DBPR
17. LT2ESWTR
18. Groundwater Rule (GWR)
19. Revised TCR (RTCR)
20. Lead and Copper Rule Revisions (LCRR)



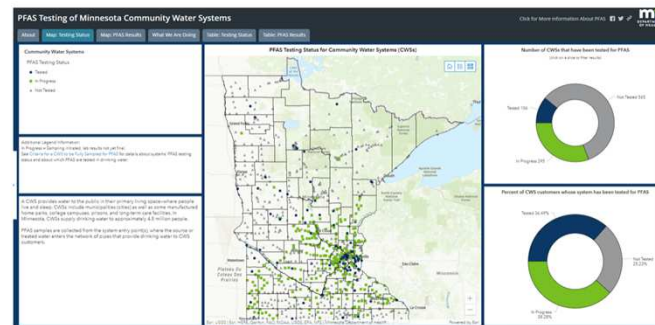
Regulated vs. Unregulated Contaminants

- Exceeding MCL requires action, by rule
- Unregulated contaminants pose a challenge:
 - No regulatory requirement
 - Public expects to be protected
- Contaminant Candidate List (CCL) process helps identify contaminants that may be regulated
- Unregulated Contaminant Monitoring Rule program monitors for priority unregulated contaminants in drinking water every 5 years (using CCL)

Interactive Dashboard for PFAS Testing in Drinking Water

MDH is testing for per- and polyfluoroalkyl substances (PFAS) in community water systems (CWSs) across the state. A goal of this initiative is to evaluate whether Minnesotans are exposed to PFAS at levels above health-based guidance values in drinking water.

Our [Interactive Dashboard for PFAS Testing in Drinking Water](#) shows the status and results of PFAS testing for CWSs in Minnesota. In the dashboard maps, you can see which CWSs have been tested so far and see each system's PFAS testing results.



TODAY'S REGULATIONS

Per- and Polyfluoroalkyl Substances (PFAS)

- Proposed drinking water regulation in March 2023
 - Very low levels (4 ppt) for PFOA and PFOS and Hazard Index for four other PFAS
- Final rule to be released late 2023/early 2024

Lead and Copper Rule Improvements (LCRI)

- To be proposed this summer
- Possible changes to lead service line replacements and action/trigger level?
- Finalized by October 16, 2024?

Consumer Confidence Report (CCR) Rule Revisions

- Proposed in April 2023
 - Proposal requires states to submit all compliance monitoring data
- Final sometime in 2024



Multi-barrier Approach To Providing Safe Drinking Water

- Monitoring
 - Regular Water Sampling and Analysis
 - Site Visits
 - Contaminant Candidate List/UCMR
- Treatment
 - Filtration, Carbon, Reverse Osmosis, UV light
- Prevention
 - Source Water Protection
 - Plan review
- Technical assistance
- Financial assistance



Why We Need a Multi-barrier approach

- 2014: Flint, MI: Source change: Corrosion of lead pipes
- 2014: Lake Erie and Ohio River Bluegreen algae blooms (cyanotoxins)
- 2014: 4-Methylcyclohexanemethanol spill into the Elk River upstream from Charleston, WV
- 2017 PFAS — surveillance detected at several sites in a few states to across the US to national
- 2017: Microplastics recognized
- 2018: Legionella pneumophila bacteria in environment and plumbing systems



Lake Erie harmful algae bloom threatens drinking water supplies

Steve Stewart, [Michigan State University Extension](#), Michigan Sea Grant; and Sonia Joseph Joshi, NOAA Center of Excellence for Great Lakes and Human Health, Michigan Sea Grant - August 05, 2014

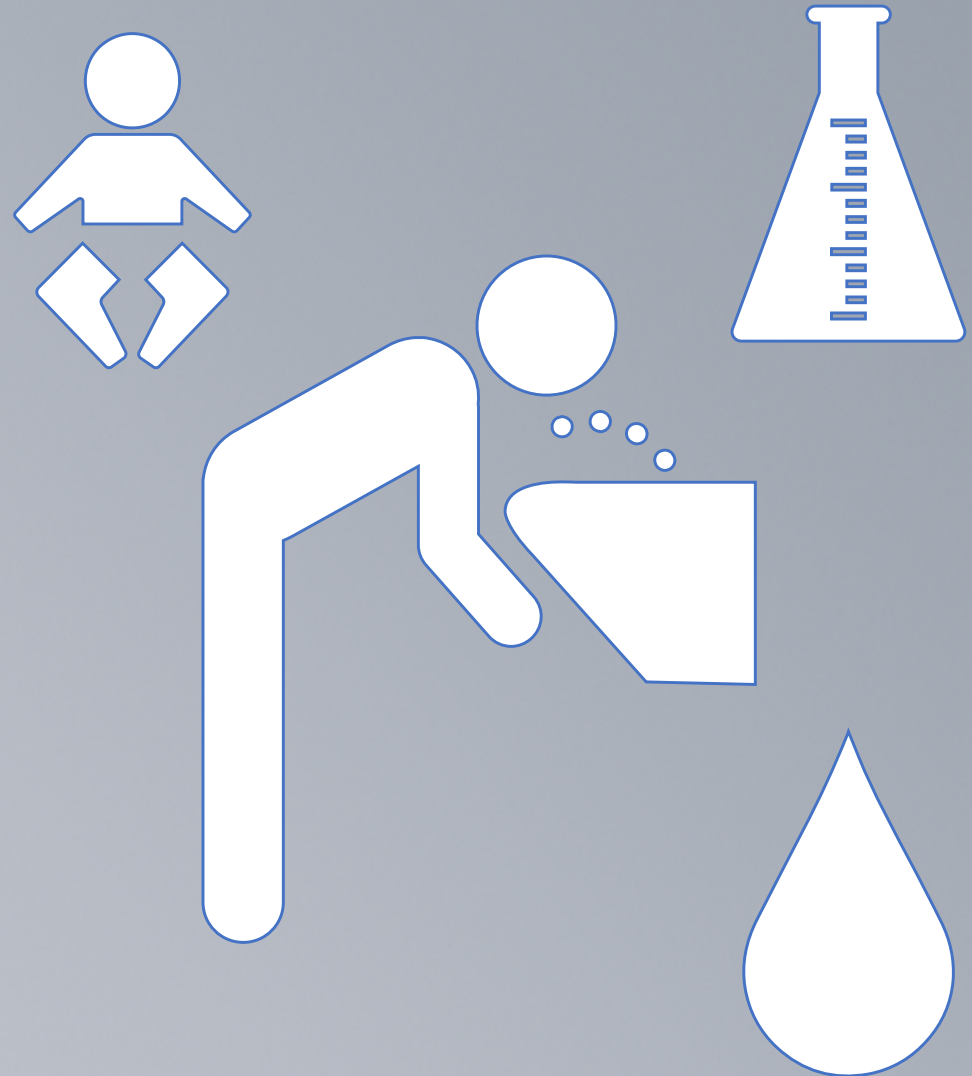
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What happened? What caused it? What can you do? Your questions answered.



Always on our minds:

- Lead and Copper
- Arsenic
- Nitrate
- Manganese
- Viruses
- Staff and training
- Etc.



Evolution of Treatment Technologies

- Disinfection
 - Chlorine
 - Ozone
 - Ultraviolet light
- Granular Activated Carbon Filtration
- Reverse Osmosis



Issues with SDWA Regulatory Process

- EPA has not regulated a new contaminant under the 1996 SDWA regulatory process
 - States are having to act on their own – PFAS (and others)
 - Frustration from consumers and from Congress
- Regulations have become reactionary
- EPA's health effects research is underfunded
- Data from Unregulated Contaminant Monitoring Rule (UCMRs) may not adequately represent groundwater systems
- The fundamentals of the process are solid
 - How to optimize the process?



Just Last Week:

LOCAL

EPA to Minnesota: Take action to protect people from polluted wells in eight counties

A coalition of groups had asked the EPA to declare a public health emergency.

By **Greg Stanley** Star Tribune | NOVEMBER 8, 2023 — 9:47PM



ASSOCIATED PRESS FILE

The Environmental Protection Agency Building

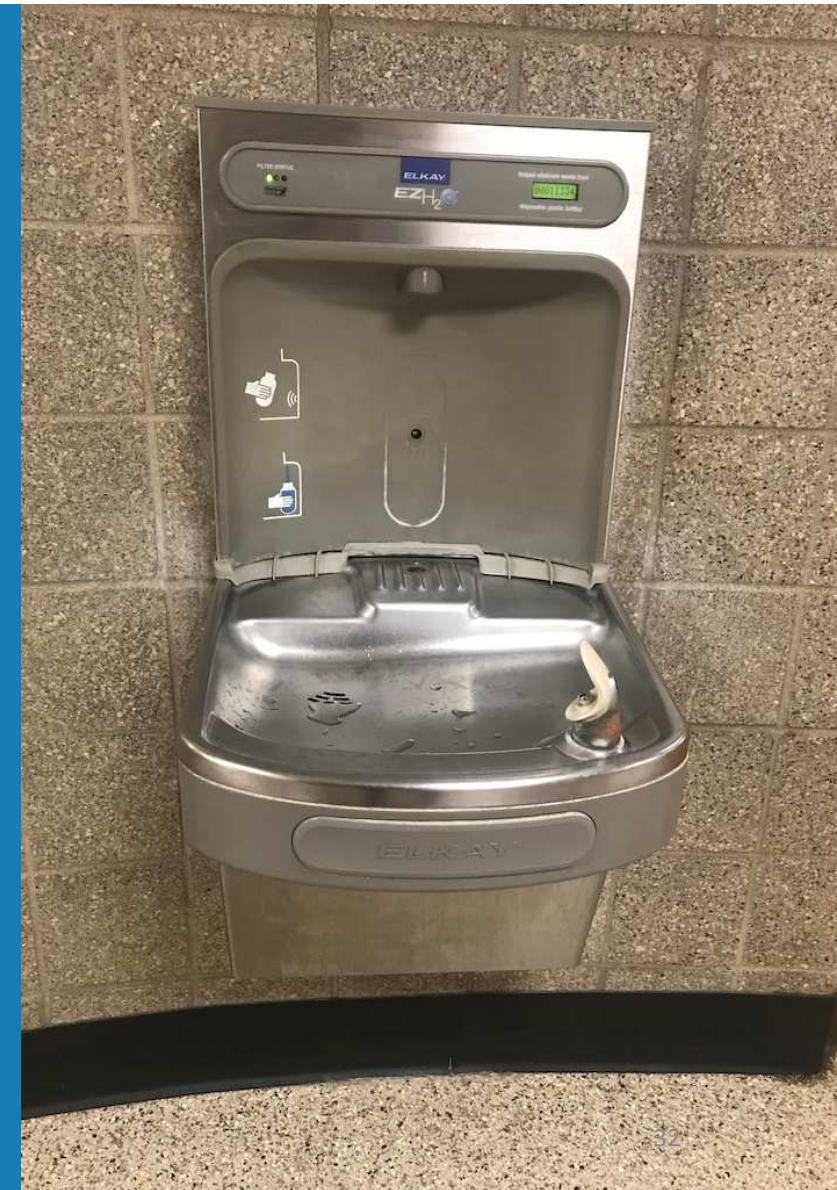
THE FUTURE - RLE

- Industry continues to develop new compounds (for our benefit) that may (or may not) pose new threats to health and environment
- Wastewater and drinking water treatment rules are not well coordinated
- Our ability to find threats will continue to improve into the future
- Infrastructure investment is critical
- Climate change could affect supplies and demand
- Source water protection must be a priority



Thanks to Partners in Protection

- Public Water Supply system staff
- EPA
- Citizens
- State regulatory agencies
- MGWA, ASDWA, AWWA, MRWA
- Environmental Groups
- Researchers
- Laboratory staff
- Toxicologists
- Source Water Protection partners



Thank you!
Questions?



MDH 2022 DW Annual Report:

<https://www.health.state.mn.us/communities/environment/water/docs/report2022.pdf>

Possible Future Regulations

- Six new contaminants from CCLs
- Three contaminants would be revisions to existing regulations
 - Based on new data
- No specific regulatory timetable for any of the nine contaminants yet

Manganese

Lithium

1,2,3-trichloropropane (TCP)

1,4-dioxane

Cyanotoxins

Strontium

Trichloroethylene (TCE)

Arsenic

Hexavalent chromium

LONG-TERM CHALLENGES - RLE

- Historic issues like legacy of lead service lines (Flint)
- Unregulated contaminants
- Dilemma from creation of new useful products for consumers versus risks (PFAS, microplastics, etc.)
- Detection of legacy groundwater contamination from compounds like TCE through broader monitoring efforts
- Balancing health risks: Controlling pathogens through disinfection versus creating disinfection byproducts (DBP)
- Better lab methods that detect contaminants at lower and lower concentrations
- Changing evaluation of health risks (e.g., Manganese)
- New threats identified like viruses downstream of DW treatment plant (How are they getting in there and what do we do with them?)
- Controlling microbial threats like bacterium *Legionella pneumophila* (Legionnaire's disease) within conveyance systems
- West Virginia river spill — citizens identified there was a problem — chemical not monitored
- Source issues like Cyanotoxins (not regulated)
- Hiring knowledgeable staff (MGWA white paper)



REGULATORY QUESTIONS-FOOD FOR THOUGHT

How complicated will future regulations be?

- Think Stage 2 DBPR, LT2ESTR, GWR, RTCR, LCRR/LCRI

What will the working relationship with EPA look like in the future?

Will EPA get its act together on data management?

What do rule managers want out of future Teams Meetings and/or presentations?

