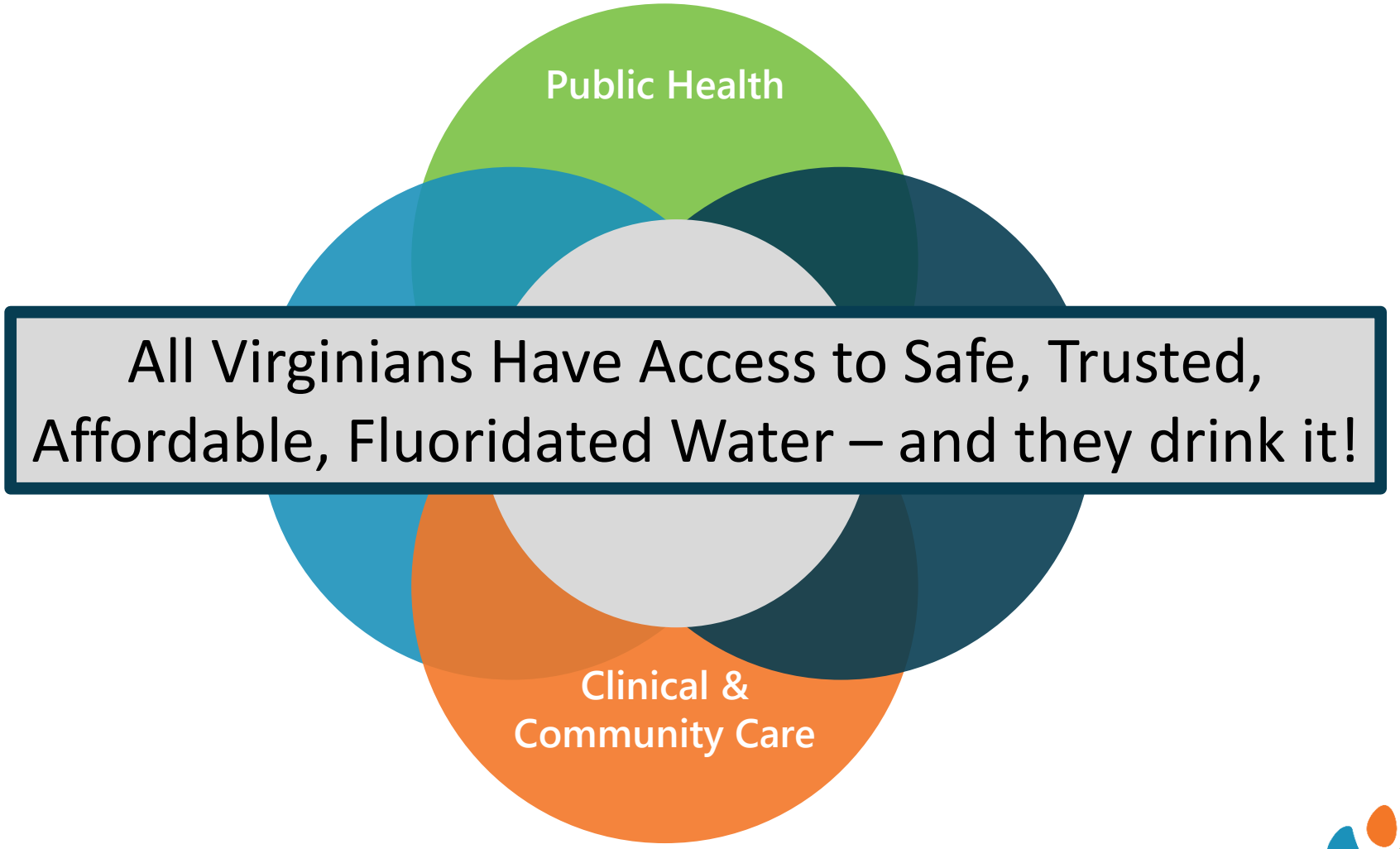
Water Equity Taskforce

February 26, 2020

What is WET?


Public Health
All Virginians Have Access to Safe, Trusted, Affordable, Fluoridated Water – and they drink it!
Clinical & Community Care

Its Complicated

Where we landed.

Water IS the healthiest drink … yet

- **Inequity** is consistent across all spheres
- **Trust** issues are real
- Can't shrug off **safety** concerns

How can we make sure Virginia's water is safe, trusted, fluoridated AND that PEOPLE DRINK IT?

Desired Outcomes

- Continue to cultivate a network of water stakeholders across the state.
- Gain shared understanding of water from a variety of perspectives.
- Build consensus on next steps to get us closer to our mission: that everyone in Virginia has safe, trusted, fluoridated water that they are drinking.

Agenda

Welcome and Introductions	Sarah Holland, Chief Executive Officer *Virginia Health Catalyst*
WET – Proposed Framework	Sarah Holland
Water Vignette's:	
1. Health and Trust	Hannah Robbins, Marketing Specialist *Virginia Foundation for Healthy Youth* Emily Keenum, Coordinator of Health Initiatives *Virginia Early Childhood Foundation*
2. Infrastructure and Community Water Fluoridation	Dwayne Roadcap, Office Director *Office of Drinking Water- VDH* Jeanette Bowman, Community Water Fluoridation Coordinator *Dental Health Program- VDH*
3. Environment	Lance Gregory, Division Director *Water and Wastewater Services*
4. Water Quality	Erin Ling, Sr. Extension Associate and Program Coordinator *Virginia Tech*
5. Public Literacy	Brenda Davy, Professor, Dept of Human Nutrition, Foods and Exercise *Virginia Tech*
Taskforce Structure	Sarah Holland
Wrap Up	Sarah Holland

Water Equity – Nat'l Framework
(with some Virginia tweaks!)

Our Mission: All Virginians have access to safe, trusted, affordable, fluoridated water – and they drink it!

US Water Alliance

- All people have access to clean, safe, affordable water
- There is community resilience in the face of a changing climate
- The community and economic benefits of water infrastructure investment are maximized

Virginia-specific:
Virginians choose tap water as their preferred beverage

Water Equity – Nat'l Framework
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A Word From Our Experts

Hannah Robbins, MPH

Marketing Specialist

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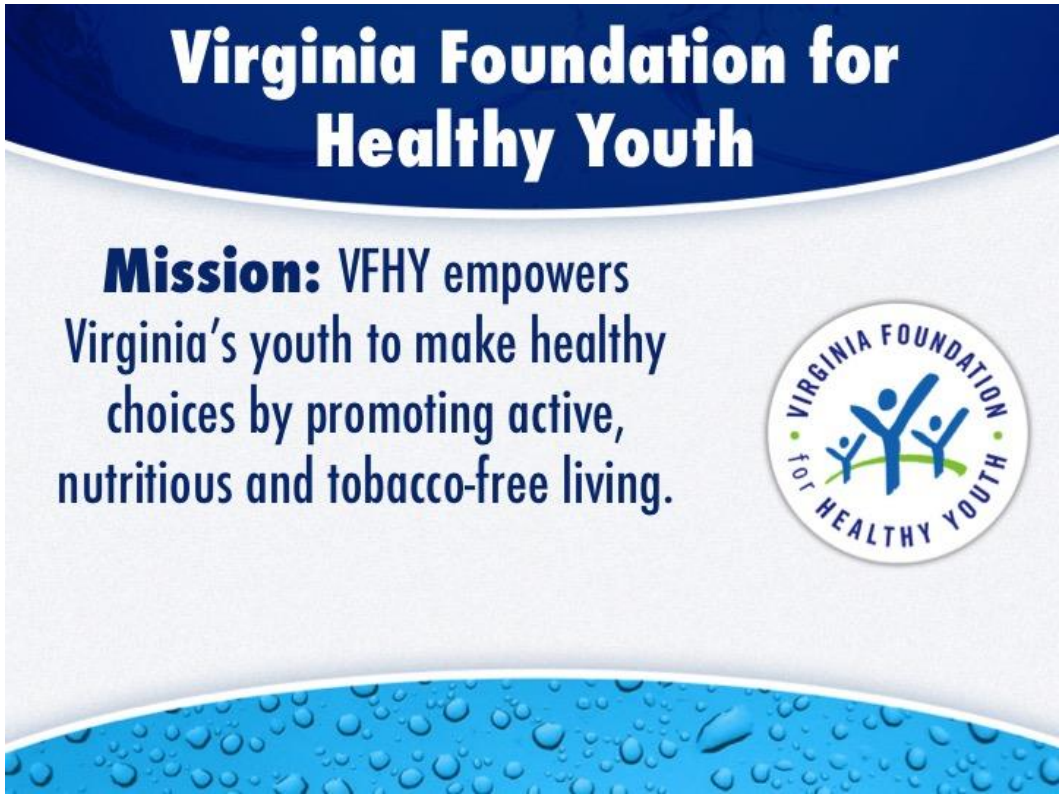


Why W.E.T?

- Water consumption is a key priority for the Virginia Foundation for Healthy Youth to address obesity prevention in the Commonwealth.

What can VFHY offer W.E.T?

- Water-positive communications, educational materials, and statewide promotion to schools, resource centers, and early childhood providers, advocacy effort at local levels

What can W.E.T offer VFHY?

- Enhanced understanding of water safety and quality communications, and access to statewide water-positive partners

Statewide Campaign

8th Annual Rev Your Bev Day
in November 2019

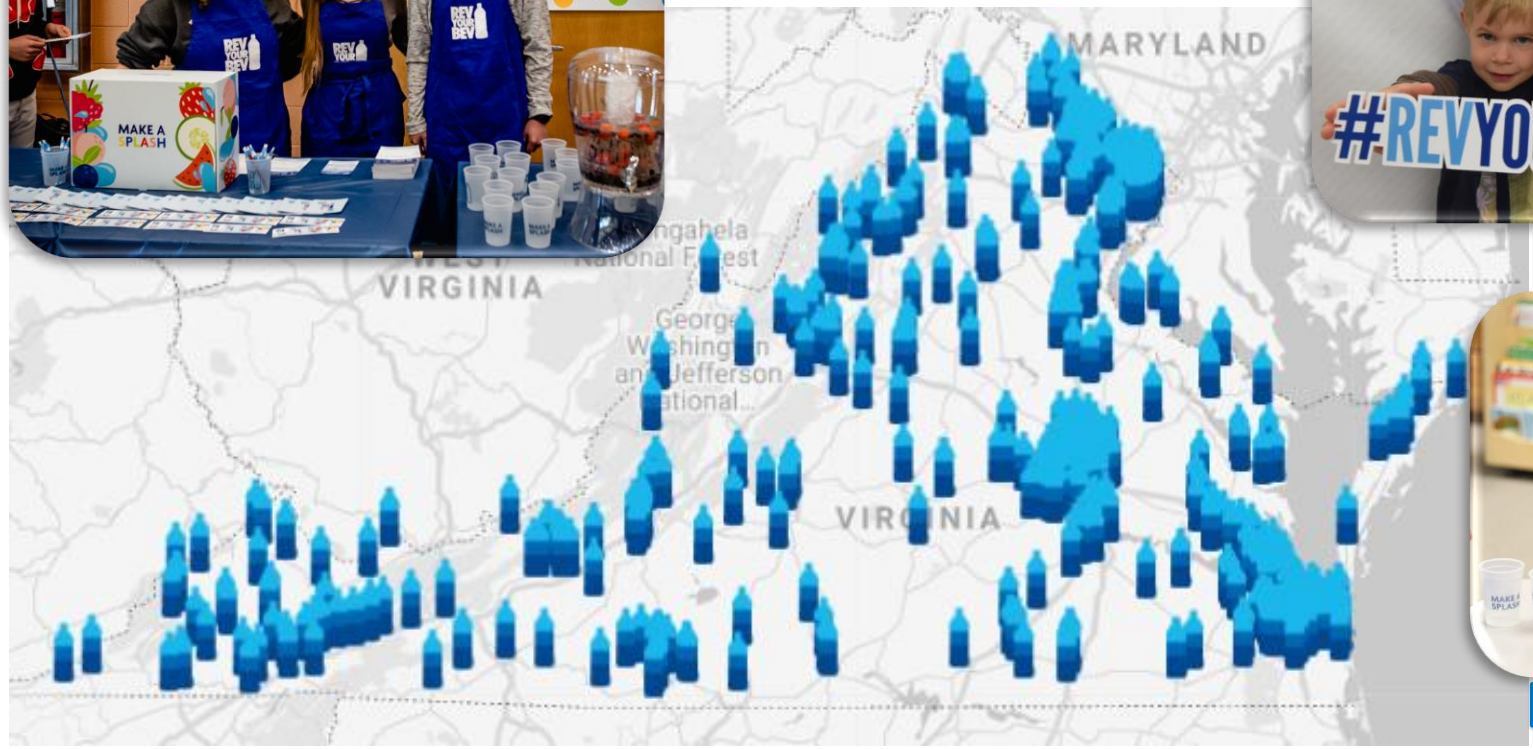
700 Events + Kits Distributed

Since 2013 more than
100,000 youth and adults
have participated

REV YOUR BEV

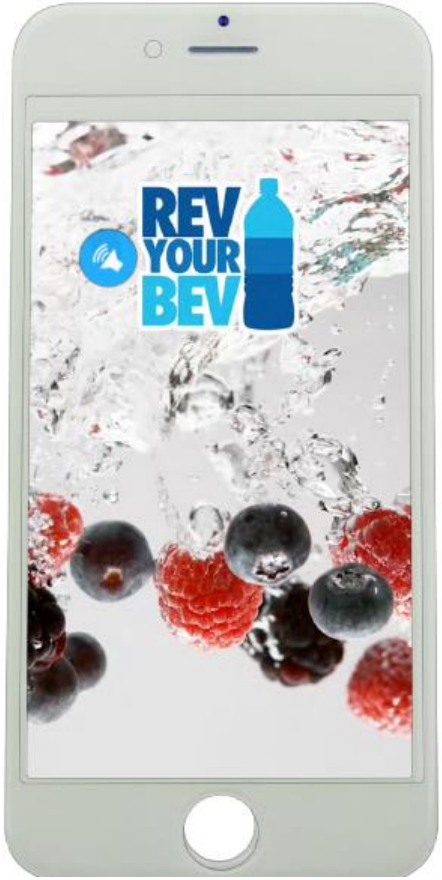
Schools K-12

Community Centers



Early Care Education

November 13, 2019 Rev Your Bev Day Events

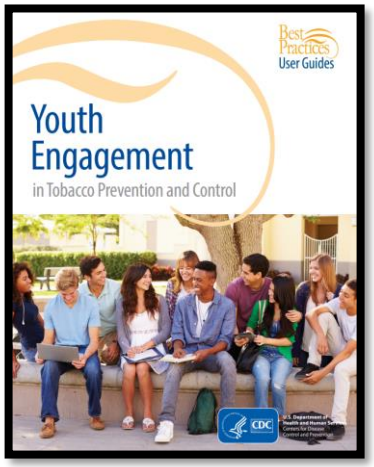


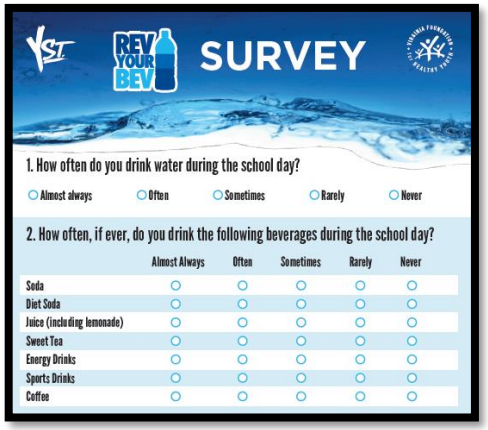
- TV
- Online
- Social Media
- Word of Mouth
- Youth Engagement

Youth Engagement

- Volunteer initiative for high school students focusing on two priorities:
  - Tobacco and E-cigarettes
  - Obesity
- Since 2004 more than 9,000 youth have been trained
- 22 Partner schools across Virginia
- Measures of Progress: Data collection
- Educate local key decision makers
- Advocate for policy change
- 2019: Y-street 24/7 Campaign culminated in passage of statewide bill for tobacco and e-cigarette free schools

Y-Street Featured in CDC Best Practice Guide





Collect information from students

Build support for access within schools

Encourage staff role modeling

Work with Division Wellness Committees to Update Policies

Goal: Increase access to water, water consumption, and decrease sugary beverage consumption

Charlottesville High School Commitment Form Signing

Campaign Success

THANK YOU!

Hannah Robbins
hrobbins@vfhy.org

VIRGINIA FOUNDATION for HEALTHY YOUTH

REV YOUR BEV

Virginia Early Childhood Foundation

Vision: Every Virginia child is prepared for school, ready for work, ready for life.

Aim to forge public and private partnerships that build capacity at state and local level:

- Systems building
- Focus on quality early care
- Data & policy
- Business and workforce engagement

Virginia Early Childhood Foundation®

Nemours Childhood Obesity Prevention grant

Early Care Policy and Practice Improvements

- Improve Meals and Snacks
- Eliminate SSB, promote water
- No Screen time
- More Physical Activity
- Promote Breastfeeding

Virginia Early Childhood Foundation®

Early Care as Priority Health Setting

- 67% children under 5 in early care (~339,770)
  - Center & family home child care
  - Head Start programs
  - Virginia Preschool Initiative
- Dietary patterns track
- ~75% daily calories / food consumption

Strategies for Healthy Beverages

- Supported learning collaboratives w/education about SSB & water
- Partner w/care systems that influence practices in early care
- Partner in Rev Your Bev - ECE
  - Day of action promoting beverage best practices in early care

The Early Childhood Solution

INCREASE awareness that the water is the healthy choice for young children

EDUCATE families and staff about being water-drinking role models!

EMPOWER children to establish healthy water habits while young!

Water Best Practices for High Quality Early Care Environments

- Water is freely available, indoors and outdoors
- Offer water to children
- Children who are ready can "self-serve"
- Teach children water is healthy and refreshing!
- Staff role models
- Educate and encourage parents to serve water

WET Early Care Opportunities

- Messaging – healthy beverage practices exceed licensing
- Is the water safe all over the commonwealth?
- Equity related to physical access in child care settings
- Reaching parents

Thank you!

Emily@vecf.org
804.358.8323

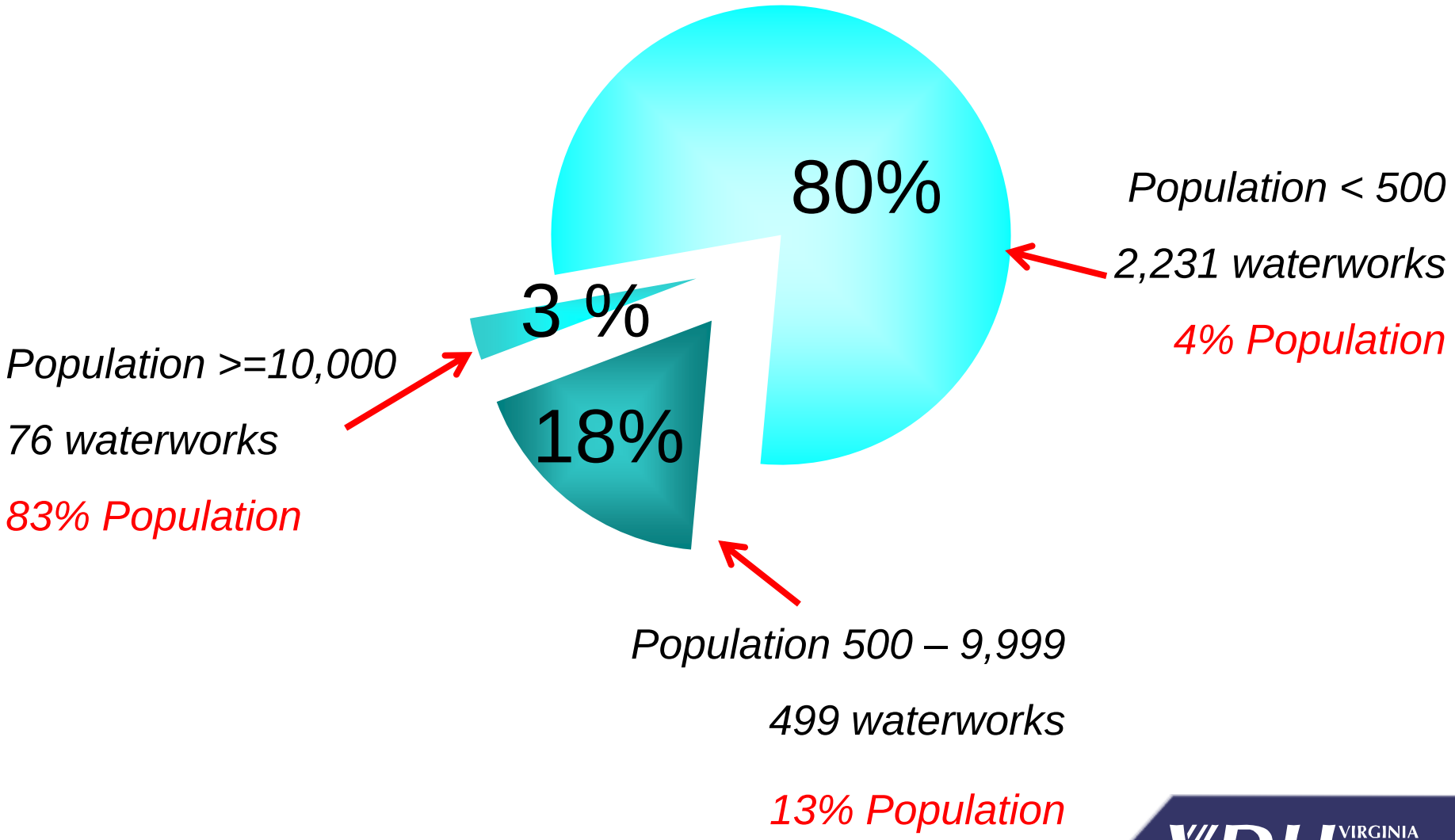
Water Equity Taskforce

February 26, 2020

Dwayne Roadcap, REHS, OSE, LPSS
Director, Office of Drinking Water

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Keeping Drinking Water Safe: 2,806 Waterworks in Virginia



Drinking Water Programs

- Drinking Water State Revolving Loan Fund
- Capacity Development
- Waterworks Operator Training
- Compliance and Enforcement
- Data Management
- Emergency Preparedness

Water Sector Challenges

Lead

Natural & Man-made Disasters

Harmful Algal Blooms

Chemical Spills

Aging Infrastructure

Unregulated Contaminants

Virginia's $8.1 Billion Challenge:

Not well understood, difficult to assess

Out of sight out of mind, billing too low

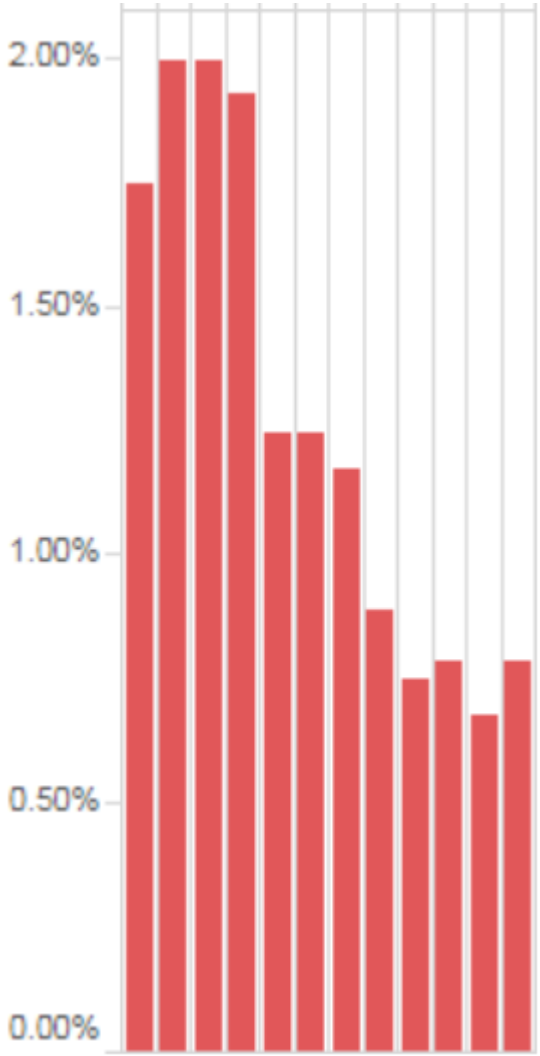
Unknown inventory and incomplete maps

Expensive to replace, including street repairs

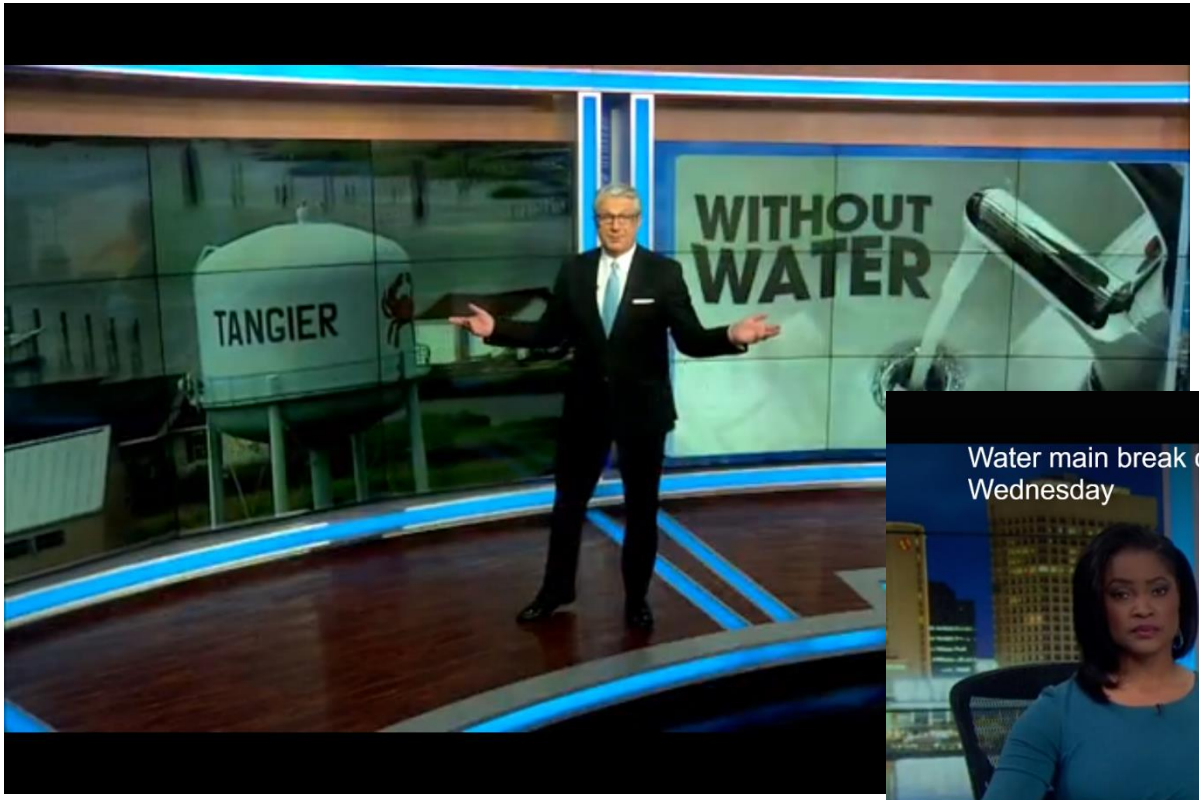
50+ year old pipe with pressure leak below paved street

Health Based Violations: Drinking Water

Percent of Systems with Health Based Violations



Water Main Breaks



Consumer Confidence Report Rule

- All community water systems
- A brief annual water quality report
  - source water
  - detected contaminants
  - compliance
  - educational information

Consumer Confidence Report Rule

- July 1 - Distribution of CCR to customers
- October 1 – Certification to VDH
- Post CCR on Internet (CWS ≥ 100,000)
- Make CCR available on request

March 2018

I am pleased to present Leesburg's 2017 Annual Water Quality Report. Leesburg's drinking water continues to meet or exceed all quality standards established by the Federal Safe Drinking Water Act. This report is designed to inform you about the quality water we deliver to you every day.

In 2017, for the 14th consecutive year, Leesburg's Water Supply Division received the Excellence in Waterworks Operations/Performance Award from the Virginia Department of Health. This award focuses on excellence in overall plant performance and filtration operations by recognizing organizations that set and achieve goals well beyond the established regulations.

In order to ensure safe drinking water for our customers, Leesburg performs extensive water quality monitoring and testing. In all, we test for over 120 constituents and possible contaminants. You'll find a summary of the testing and monitoring results in the "Substances Detected In Our Water" table on page 2 of this report. This report also contains information about:

- The sources and treatment of Leesburg's drinking water
- Drinking water regulations and general water information
- How to take part in Leesburg's decision-making processes

We hope you will take time to read this important report, and we encourage you to participate in decisions involving your drinking water. To obtain more information regarding any topic in this report, or if you have any questions, comments or suggestions on how we can make next year's report more useful, please call our Department of Utilities at (703) 771-2750.

Sincerely,

Kelly Burk
Mayor, Town of Leesburg

Public Participation Opportunities

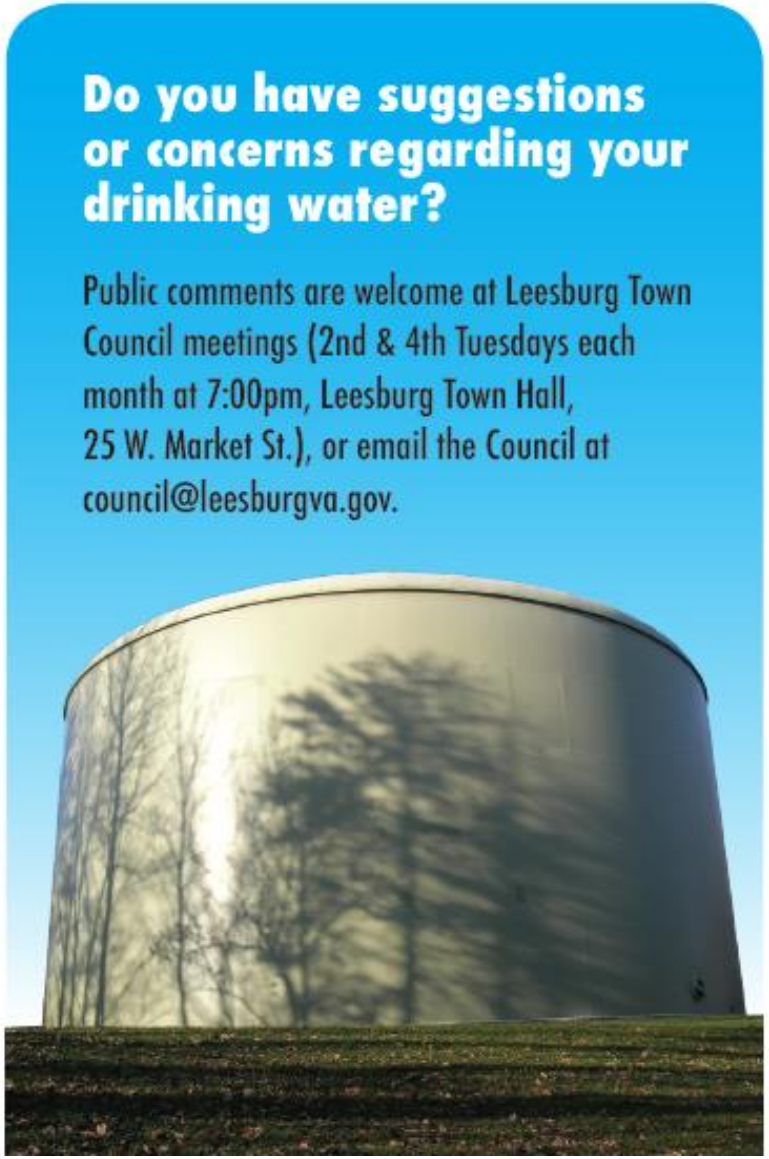


Table of Detected Contaminants

Substances Detected in Our Water

SUBSTANCE (UNITS)	LEVEL DETECTED (RANGE)	SAMPLE DATE	MCL (ALLOWED)	GOAL (EPAs MCLG)	TYPICAL SOURCE	MEETS STANDARD
Copper [1] (ppm)	0.3 Locations exceeding action level = 0	2016	Action Level 1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits	✓
Fluoride [2] (ppm)	0.75 (<0.20 - 0.75)	2017	4	4	Water additive which promotes strong teeth; erosion of natural deposits	✓
Haloacetic Acids (HAAs) (ppb)	32.9 (8.8 - 42.9)	2017	60	n/a	Byproduct of drinking water disinfection	✓
Lead [1] (ppb)	2 Locations exceeding action level = 0	2016	Action Level 15	zero	Corrosion of household plumbing systems; erosion of natural deposits	✓
Barium [3] (ppm)	Rollins WFP: 0.03 Paxton Well: 0.09	2017 2016	2	2	Drilling wastes and metal refinery discharge; erosion of natural deposits	✓
Chlorine MRDL (ppm)	1.32 (0.33 - 2.20)	2017	4 MRDL	4 MRDLG	Water additive used for disinfection to control microbes	✓
Nitrate/Nitrite [4] (ppm)	Rollins WFP: 0.51 Paxton Well: 4.4	2017 2017	10	10	Runoff from fertilizer use; septic systems; erosion of natural deposits	✓
Gross Beta (pCi/L)	Rollins WFP: 2.7 Paxton Well: 3.3	2017 2016	50	zero	Erosion of natural deposits	✓
Total Organic Carbon (TOC) [5] (ratio)	2.08 (1.0 - 3.48)	2017	Treatment Technique	n/a	Naturally occurring organic matter	✓
Trihalomethane (THM) (ppb)	67.1 (14.6 - 106)	2017	80	n/a	Byproduct of drinking water disinfection	✓
Turbidity [6]	0.08	2017	Treatment Technique	n/a	Soil runoff	✓

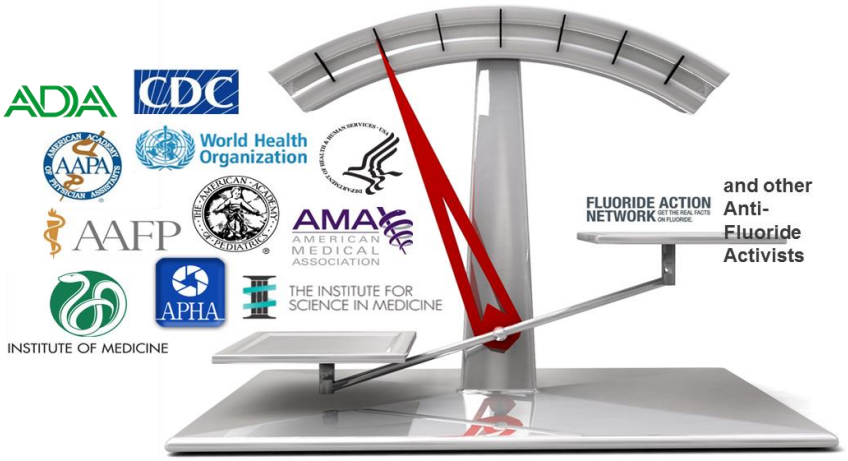
Virginia's Water Fluoridation Program

Water Equity Taskforce
February 26, 2020

Jeanette Bowman, MPH
Community Water Fluoridation Coordinator
Office of Family Health Services
Virginia Department of Health

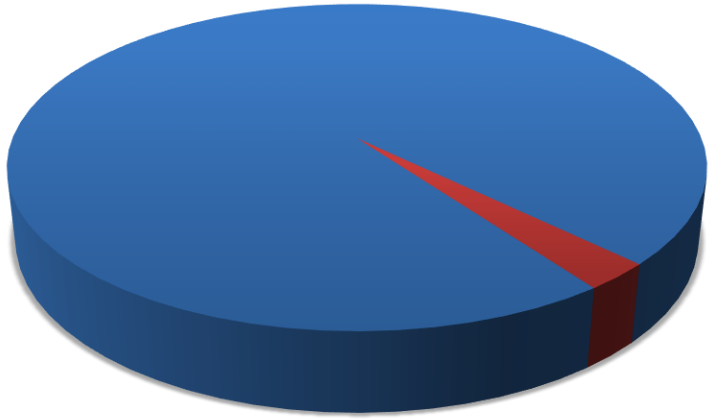
Major Public Health Achievement for 75 Years

- All water naturally has fluoride, but amounts vary
- Responsible for drastic decline in tooth decay 1950s through today
- Most equitable and cost-effective method of delivering fluoride to all members of community
- Supported by all major public health, medical, and dental organizations
- 3,000+ scientific studies and research findings assess and confirm safety and effectiveness



Water Fluoridation in Virginia

- 142 fluoridated localities
- 6.6 million Virginians receive fluoridated water
- CDC Ranks Virginia #5 in US!

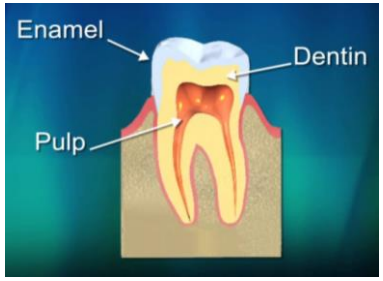


- 96% of Virginians on public water receive fluoridated water

Why do we put fluoride in the water?

It prevents cavities and keeps tooth enamel strong

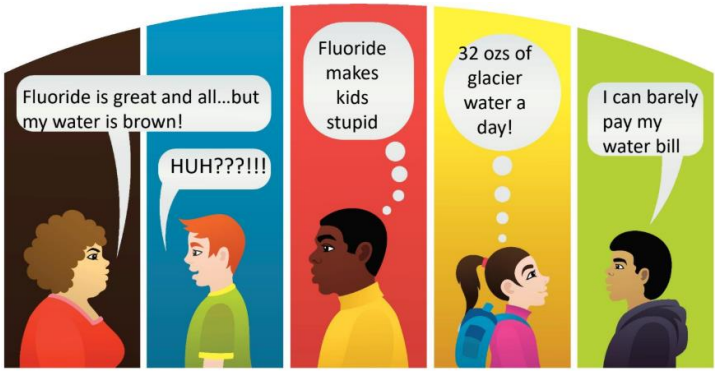
- Helps **children**:
  - Fluoride becomes part of developing tooth enamel
- Helps **children and adults**:
  - Mixes with saliva to protect tooth enamel from plaque and sugars
  - Helps tooth enamel repair itself in early stages of dental decay



Virginia's CWF program

- Promote policy changes: work with Office of Drinking Water to increase amount and quality of CWF
  - 90-day prior-notice to State Health Commissioner and consumers before starting and stopping CWF
- Provide financial assistance for fluoride supplies/equipment
- Improve Virginians' understanding of CWF
  - General population
  - Health professionals
  - Waterworks operators

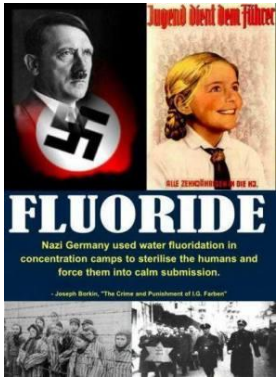
Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

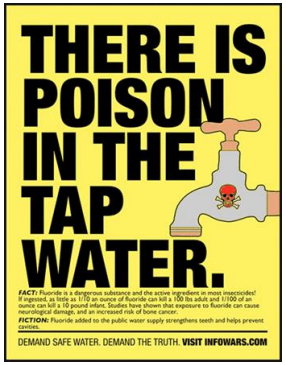


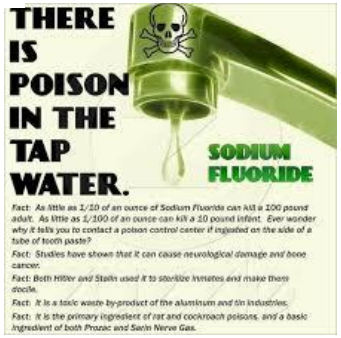
Anti-fluoridation Movement

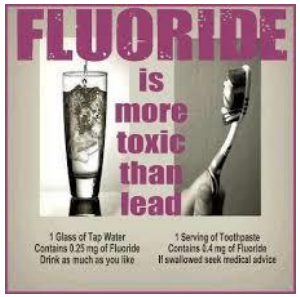
- Opponents of water fluoridation create resistance by coordinating campaigns
  - Portray water fluoridation as ineffective and highly dangerous
  - Alarmist social media messages
  - Politically engaged
- In past 5 years, 74 cities have voted to remove fluoride from community water

A quick search on Google



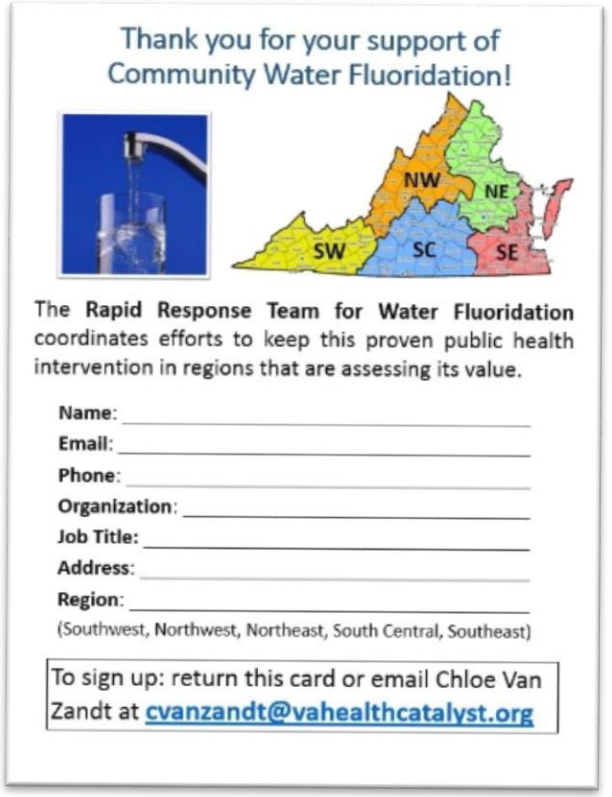


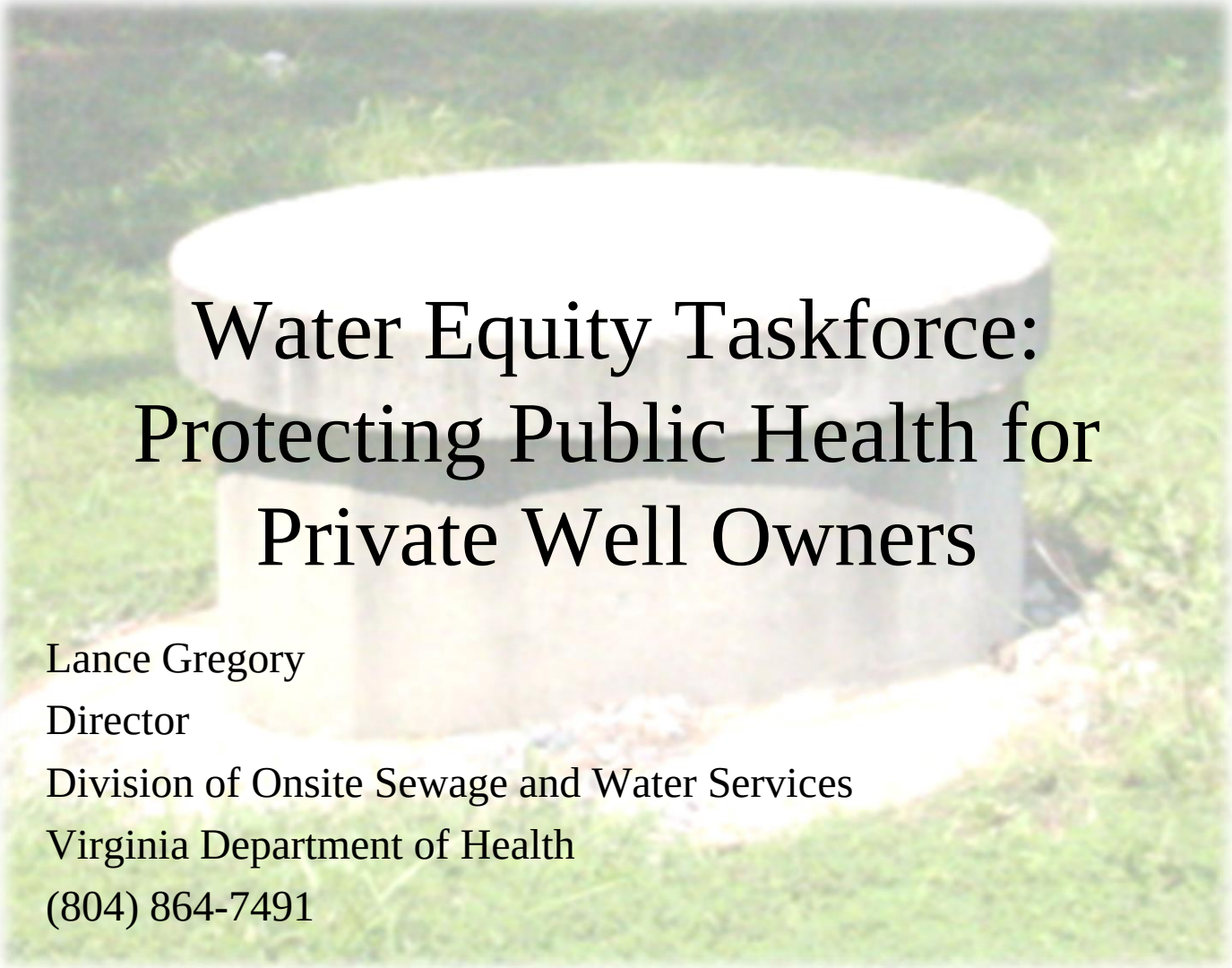




Rapid Response Team

- Many people are unaware that water fluoridation continuance may be at stake in their community
- Easy to stop fluoridation
- Age of Google = Age of ***mis-***information
- Skepticism, distrust, and fear of safety and effectiveness of fluoridation





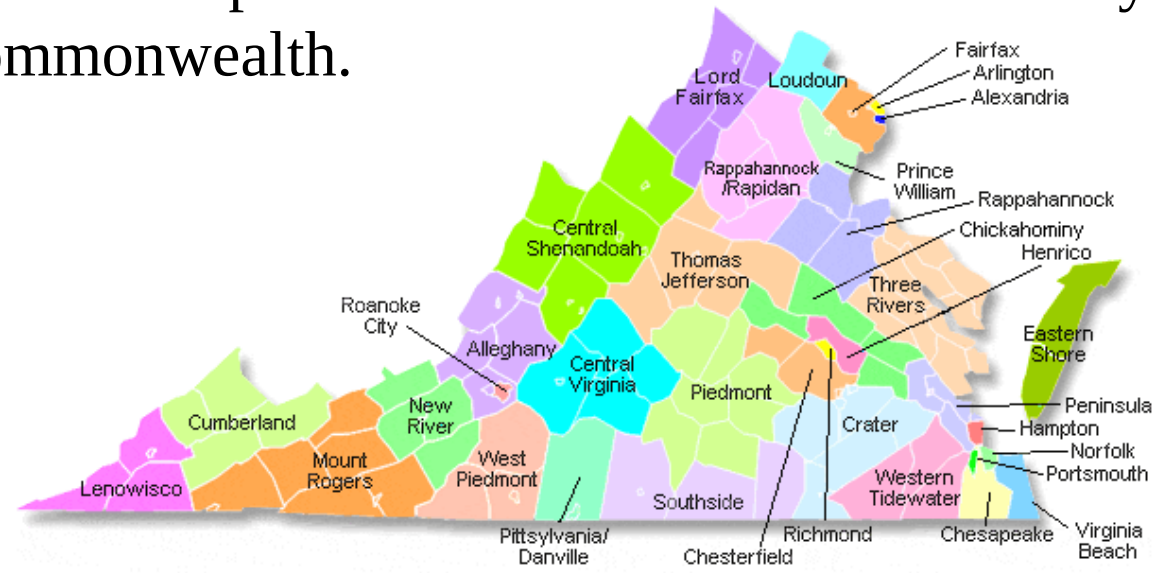
Water Equity Taskforce: Protecting Public Health for Private Well Owners

Lance Gregory
Director
Division of Onsite Sewage and Water Services
Virginia Department of Health
(804) 864-7491

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

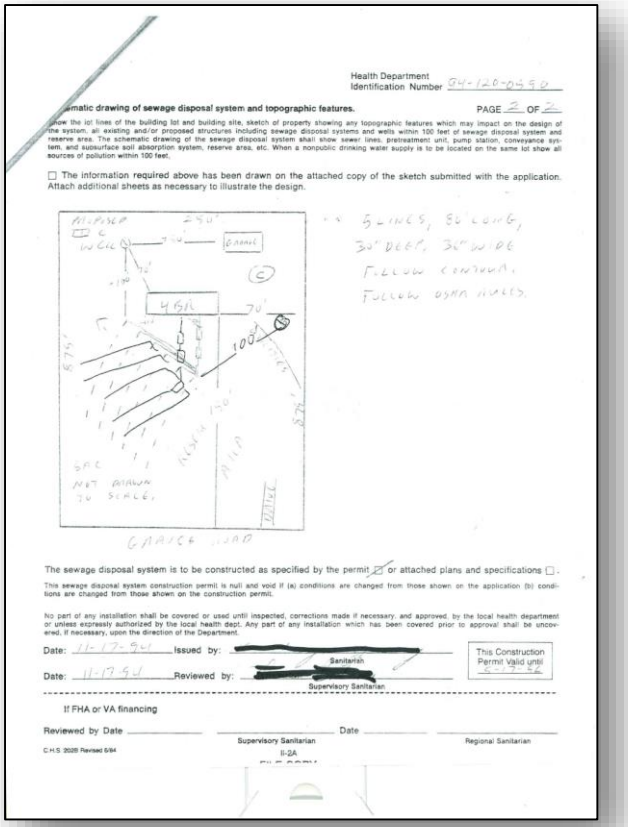
Background

- More than 700,000 homes in Virginia rely on private wells for drinking water.
- VDH first promulgated Private Well Regulations in 1990.
- Local health department staff are available in every locality in the Commonwealth.



Permitting

- All private well require a permit from VDH.
- Minimum construction standards.
  - Well classes.
  - Minimum casing and grout depth.
  - Well head protection.
- Minimum separation distances.
  - Potential sources of contamination.



Health Department Identification Number 54-120-0450

matic drawing of sewage disposal system and topographic features. PAGE 2 OF 2

☐ The information required above has been drawn on the attached copy of the sketch submitted with the application. Attach additional sheets as necessary to illustrate the design.

The sewage disposal system is to be constructed as specified by the permit ☑ or attached plans and specifications ☐.

This sewage disposal system construction permit is null and void if (a) conditions are changed from those shown on the application (b) conditions are changed from those shown on the construction permit.

No part of any installation shall be covered or used until inspected, corrections made if necessary, and approved, by the local health department or unless expressly authorized by the local health dept. Any part of any installation which has been covered prior to approval shall be uncovered, if necessary, upon the direction of the Department.

Date: 11-17-94 Issued by: [redacted] Sanitarian

This Construction Permit Valid until

Date: 11-17-94 Reviewed by: [redacted] Supervisory Sanitarian

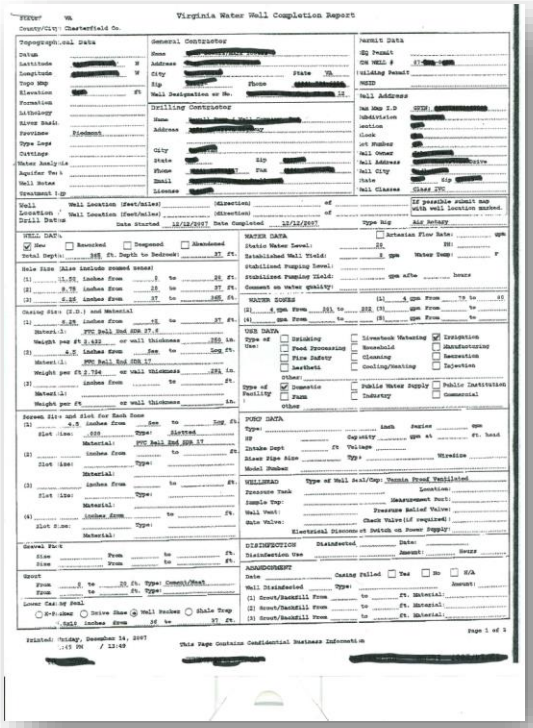
If FHA or VA financing

Reviewed by Date _____ Supervisory Sanitarian Date _____ Regional Sanitarian

C.H.S. 2028 Revised 6/84 II-2A

Inspections

- Visual check for compliance.
- UWWCR.
- Water Sample.
- Inspection Statement.



Virginia Water Well Completion Report

Information

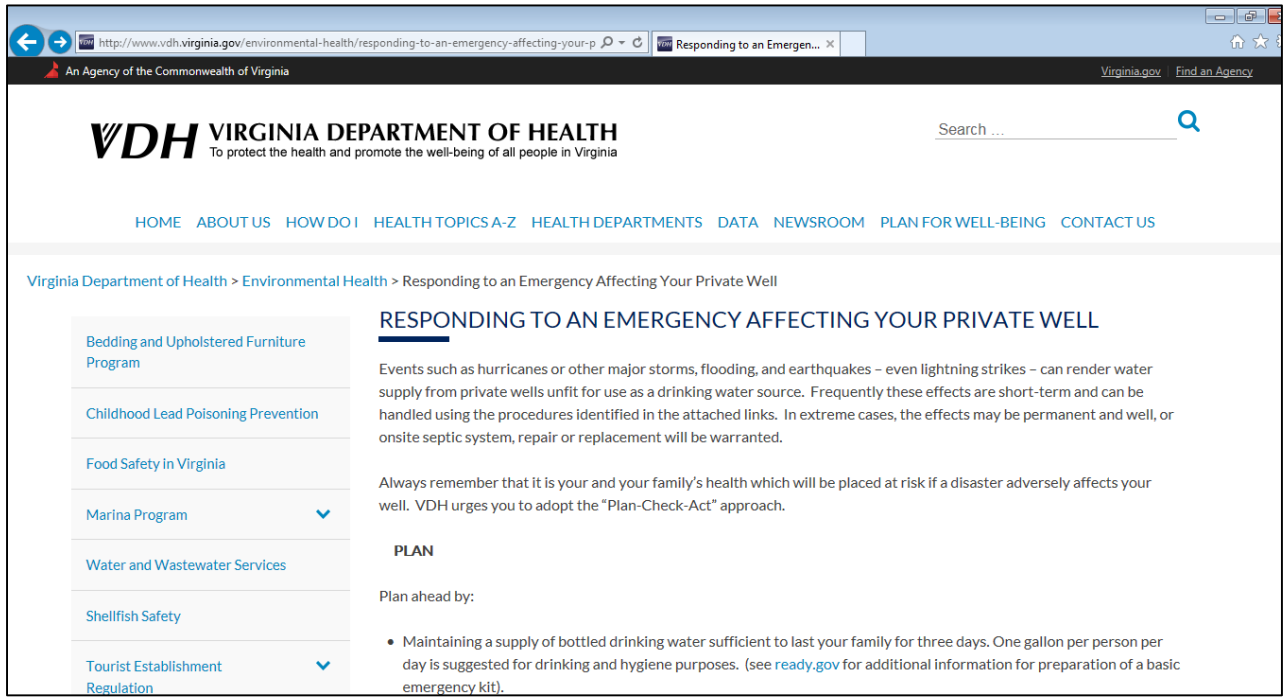
- Respond directly to calls.
- Be Well Informed.
- Real estate FAQs.
- Public outreach.

BE
WELL
INFORMED
VIRGINIA

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Response

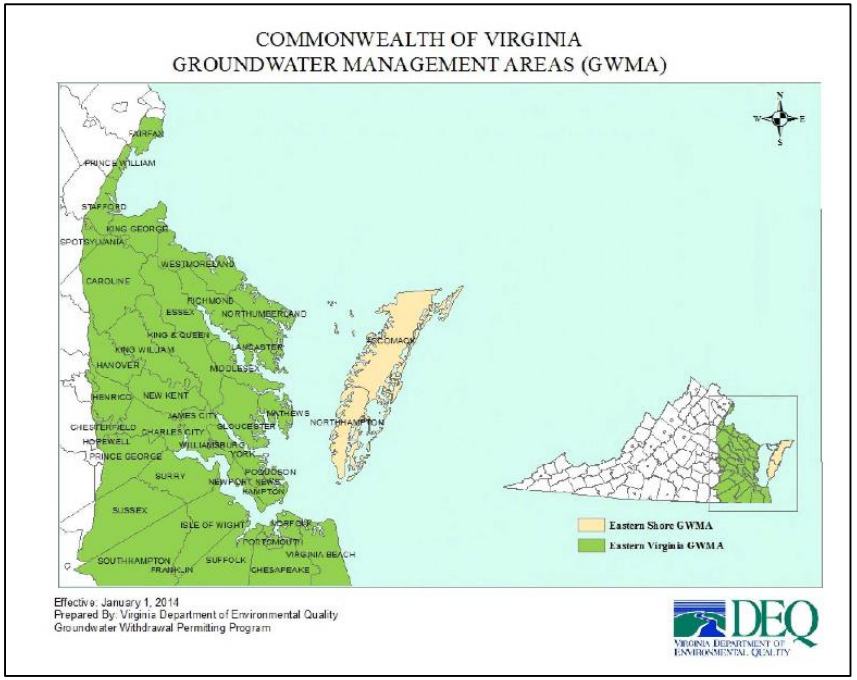
- Emergency response.
- Specific health issues.
- Assessments.



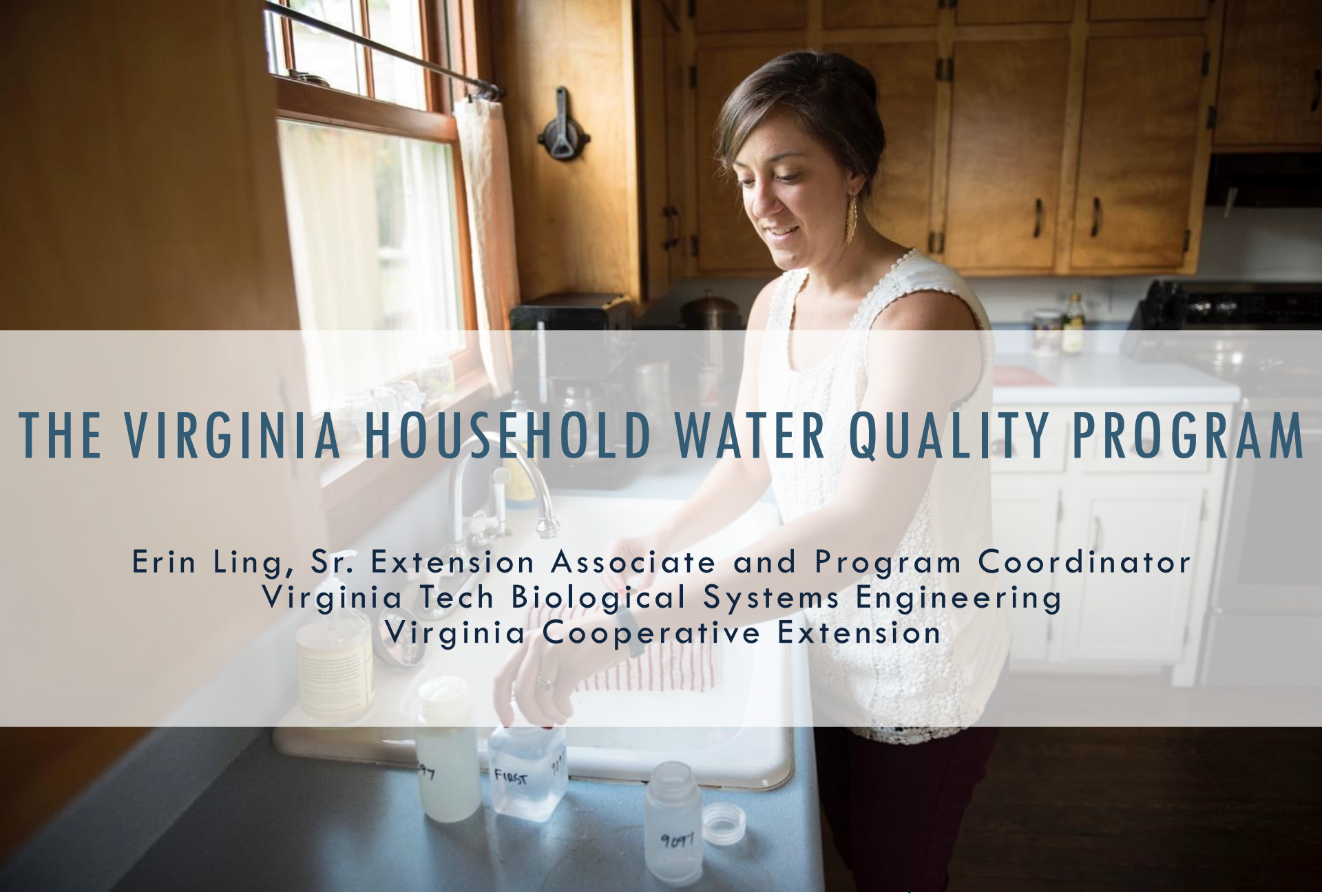
VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Improvements and Emerging Issues

- Private Well Regulation Revisions.
- Rainwater Harvesting Regulations.
- PFOA/PFAS
- Ground Water Management Areas.



Questions?



THE VIRGINIA HOUSEHOLD WATER QUALITY PROGRAM

Erin Ling, Sr. Extension Associate and Program Coordinator
Virginia Tech Biological Systems Engineering
Virginia Cooperative Extension

VIRGINIA TECH

Virginia Cooperative Extension
Virginia Tech • Virginia State University

PRIVATE WATER SUPPLIES IN VIRGINIA

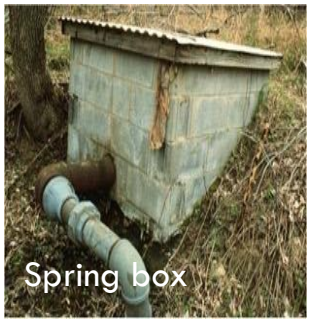
About 1.6 million people, or 22% of Virginians, rely on wells, springs or cisterns (USGS, 2014)

Decrease in waterborne disease outbreaks overall since the 1980's, relative **INCREASE** in outbreaks associated with private water supplies (Craun, et al., 2010)

Homeowners relying on private water supplies:

- Are responsible for all aspects of water system management
- Often lack knowledge and resources to effectively manage
- Usually don't worry about maintenance until problems arise

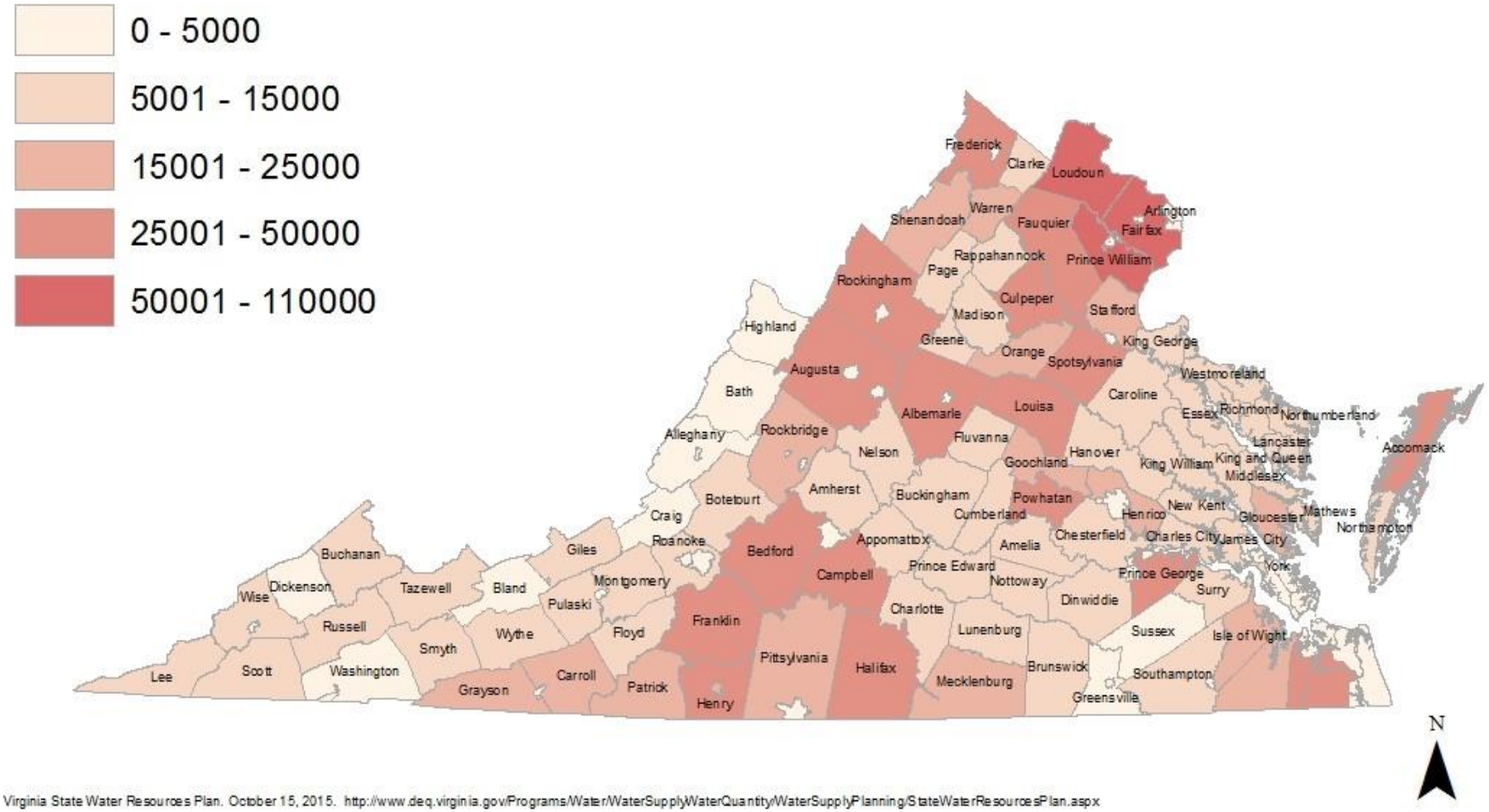

Drilled well


Spring box


Bored well

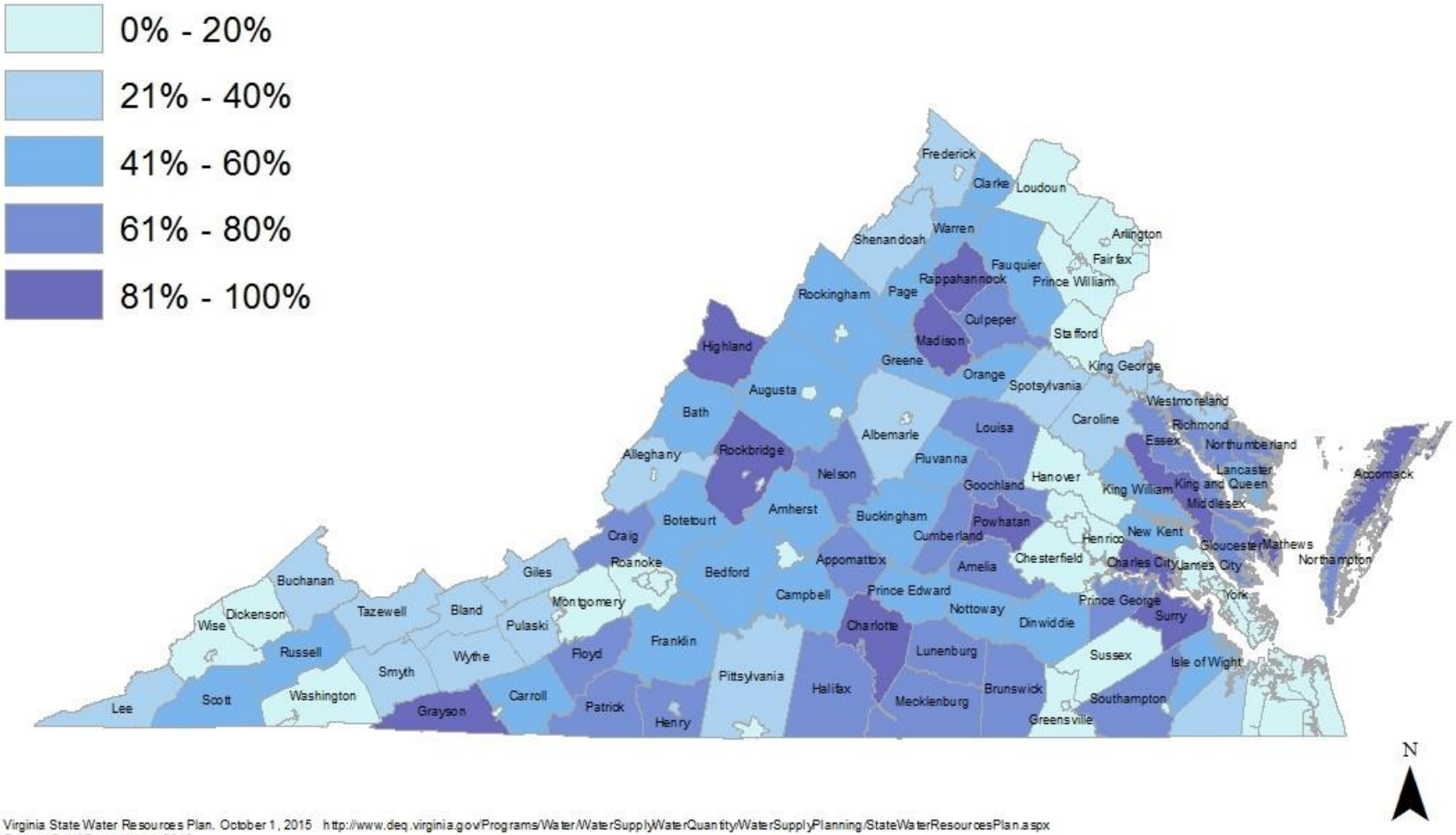
Craun, G. F., et al. 2010. *Clinical Microbiology Reviews* 23(3): 507–528.

Number of People Served by Private Wells



Virginia State Water Resources Plan. October 15, 2015. http://www.deq.virginia.gov/Programs/Water/WaterSupplyWaterQuantity/WaterSupplyPlanning/StateWaterResourcesPlan.aspx

Percent of Population on Private Wells by County



Virginia State Water Resources Plan. October 1, 2015 http://www.deq.virginia.gov/Programs/Water/WaterSupplyWaterQuantity/WaterSupplyPlanning/StateWaterResourcesPlan.aspx
Census QuickFacts. July 1, 2016

WHAT IS THE VAHWQP?

- Drinking water clinics coordinated with trained local extension agents in 60+ counties annually
- Confidential and affordable testing for 14 parameters
- Homeowners collect samples
- Coordinate transport; samples analyzed at Virginia Tech labs
- Provide interpretation of results and information about maintenance and addressing problems
- Personal and empowering: people connect with their own water
- 32,000+ samples total analyzed from all counties

VAHWQP DRINKING WATER CLINICS*

Testing for :

- Total coliform (MPN)
- E. Coli (MPN)
- Nitrate
- Fluoride
- Sodium
- Manganese
- Iron
- Copper
- pH
- Total dissolved solids
- Sulfate
- Hardness
- Arsenic
- Lead

*Research lab, NOT state-certified lab.
Follow all standard methods, QA/QC.
For information and education purposes.
Only process in batches through clinics.

"SUPPLEMENTAL" METALS RESULTS

The instrument (ICP-MS) used to analyze metals and elements reports many additional results beyond what we normally report; we monitor these results

We provide an additional report only if levels are higher than recommended.

Most are rarely occurring in well and spring water.

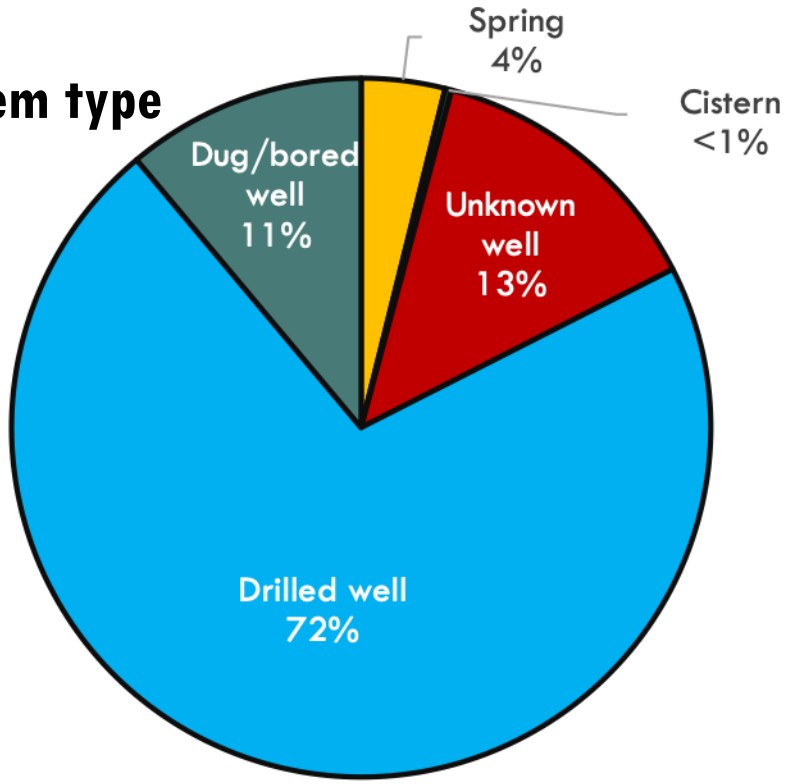
Some do have public regulations associated with them, and some do not, which can make it tricky to explain the results.

Supplemental metals						
Aluminum	Silicon	Phosphorus	Chloride	Potassium	Cadmium	Cesium
Titanium	Vanadium	Chromium	Cobalt	Nickel	Tin	Uranium
Zinc	Selenium	Strontium	Molybdenum	Silver	Barium	

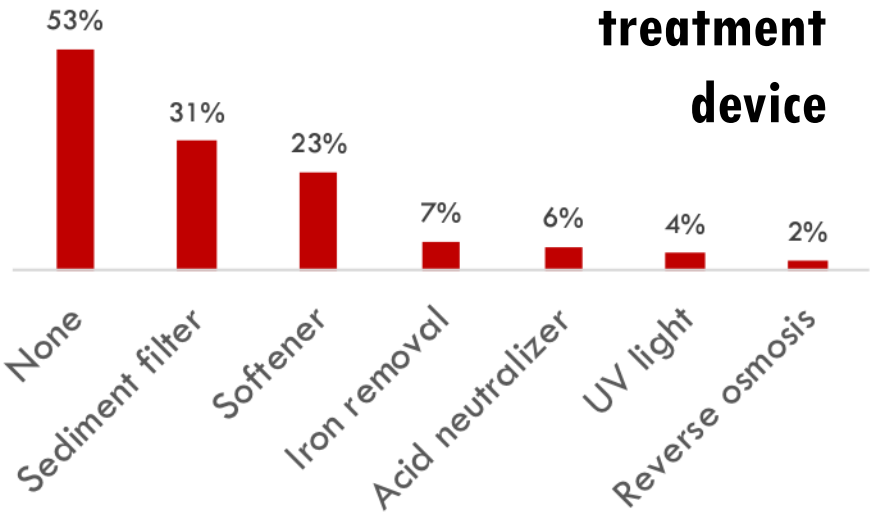
VAHWQP SYSTEM CHARACTERISTICS

(2008-2019; N=16,034)

System type



Type of treatment device



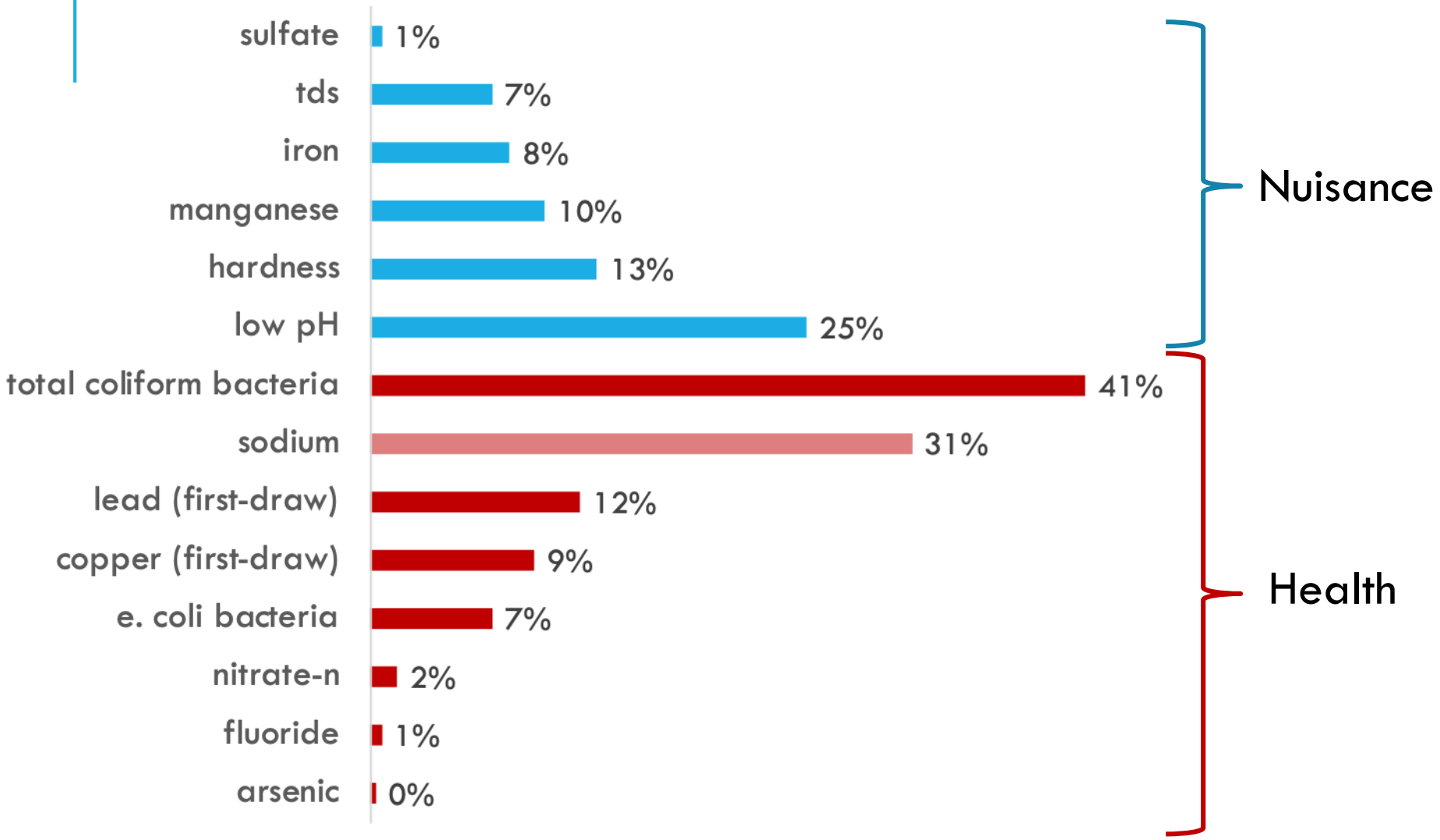
Wells are an average of 30 years old.

80% of participants have never tested or tested only once.

The most common treatment devices are for aesthetic contaminants.

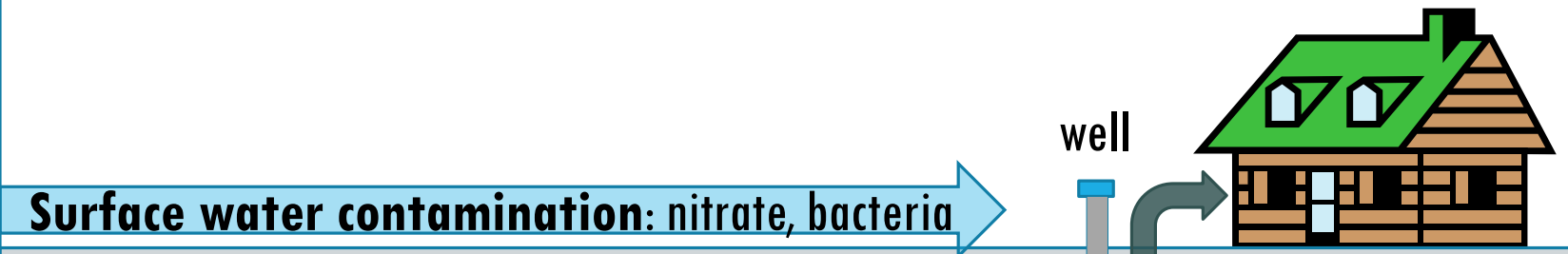
VAHWQP: WHAT'S IN THE WATER*?

(2008-2019; N=16,034)



***% exceeding EPA standards or recommendations according to SDWA (municipal regulations)**

SOURCES OF POTENTIAL CONTAMINANTS OR ISSUES OF CONCERN



Where a contaminant comes from affects how we can deal with it!

Source may be plumbing materials or existing water treatment device:

sodium
copper
lead
bacteria

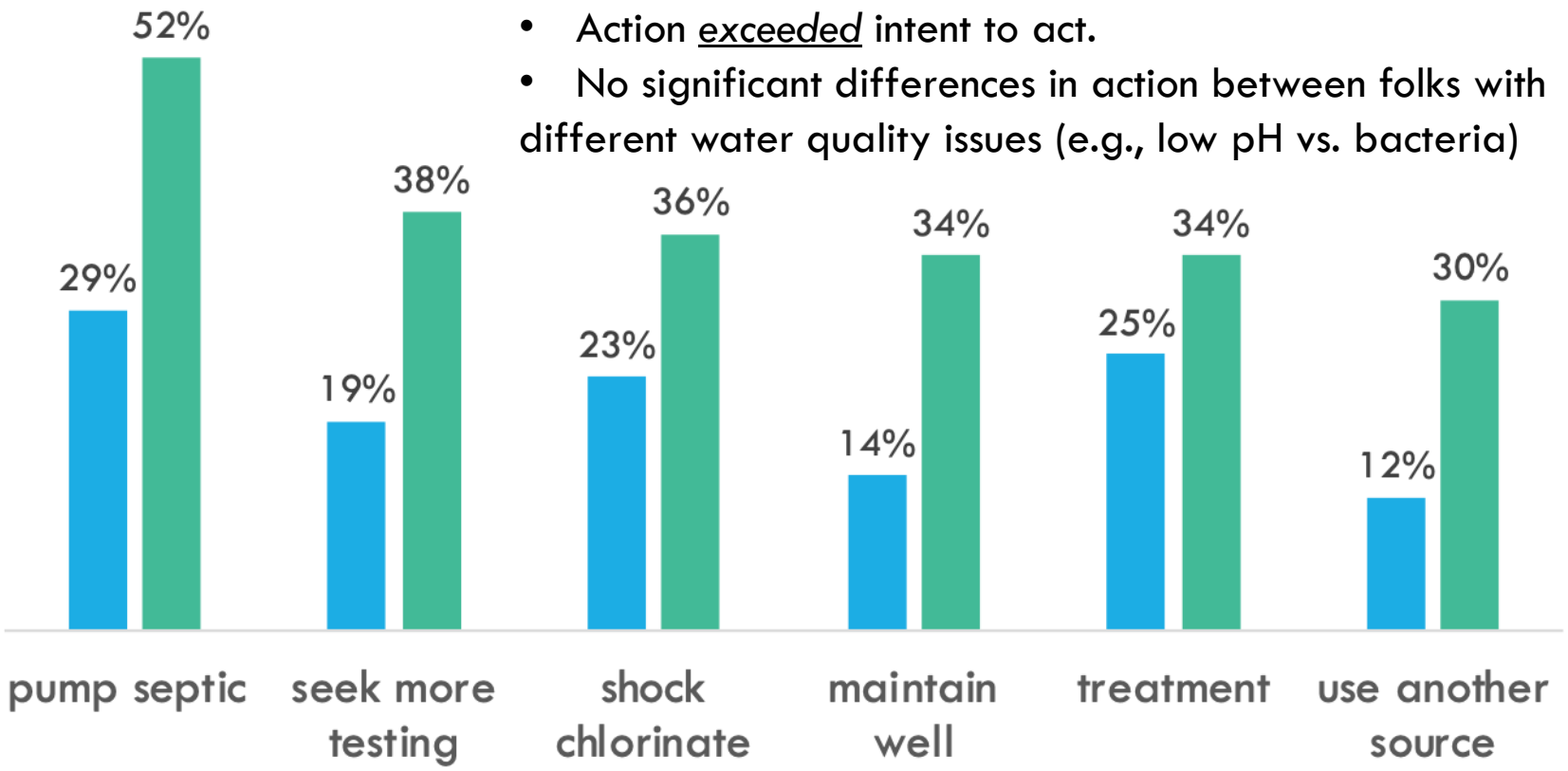
Some are found in groundwater naturally, either due to human activities on or below ground:

pH/corrosivity
chloride
nitrate
fluoride
TDS
manganese
sodium
sulfate
iron
arsenic
hardness

IS IT WORKING?

VAHWQP DRINKING WATER CLINICS: INTENT TO ACT VS. ACTION

- 70% took some action; 64% took more than one action
- Action <u>exceeded</u> intent to act.
- No significant differences in action between folks with different water quality issues (e.g., low pH vs. bacteria)



Intent to act survey
N= 1696; RR=34%

Retroactive phone survey
N= 500; RR=30%

PEER-REVIEWED JOURNAL ARTICLES

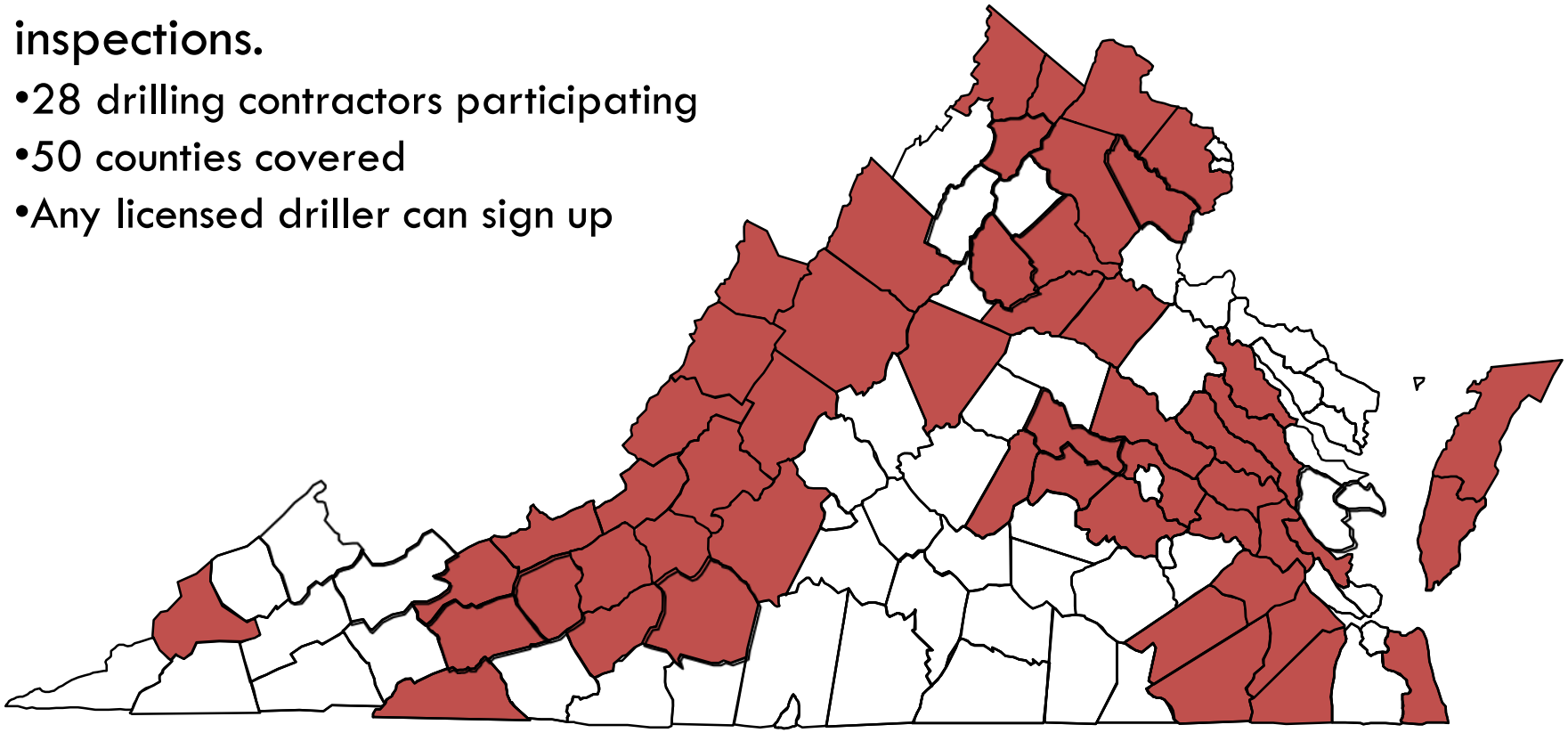
Popular Press and Journal Articles

- **FEATURED!** Well Maintenance, Ground and Surface Water, and Well Drilling on Pulse of the Planet!
- Watch video about VAHWQP and VWON featured on Virginia Tech website
- New Human and Agricultural Biosciences Building (home of BSE Water Quality Lab) featured on NPR!
- **Peer-reviewed journal articles relating to VAHWQP:**
  - Allevi, et al., 2013. Quantitative analysis of microbial contamination in private drinking water supply systems. Journal of Water and Health 11.2 pp 244-255. doi: 10.2166/wh.2013.152.
  - Benham, et al., 2016. What's in your water? Development and Evaluation of the Virginia Household Water Quality Program and Virginia Master Well Owner Network. Journal of Human Sciences and Extension. Volume 4, Number 1. pp 123-138.
  - Pieper, et al., 2015. Profiling Private Water Systems to Identify Patterns of Waterborne Lead Exposure. Environmental Science and Technology. DOI: 10.1021/acs.est.5b03174
    Environ. Sci. Technol. 2015, 49, 12697–12704.
  - Pieper, et al., 2015. Incidence of waterborne lead in private drinking water systems in Virginia. Journal of Water and Health 13.3. pp 897-908. doi: 10.2166/wh.2015.275.
  - Pieper et al. 2016. Quantifying lead leaching potential from plumbing exposed to aggressive waters. Journal-American Water Works Association 108 (9), E458-468.
  - Pieper et al. 2016. Simultaneous Influence of Geology and System Design on Drinking Water Quality in Private Systems. Journal of Environmental Health 79 (2), E1-E9.
  - Smith, et al., 2014. Associations between fecal indicator bacteria prevalence and demographic data in private water supplies in Virginia. Journal of Water and Health 12.4 pp 824-834. doi: 10.2166/wh.2014.026

WELLCHECK NETWORK

Partnership between VAHWQP and VWWA (well drillers' group)
Goal: Connect homeowners who want to learn more with licensed well drillers who provide standard, easy to understand inspections.

- 28 drilling contractors participating
- 50 counties covered
- Any licensed driller can sign up



YOUTH VAHWQP

Worked with 8 high schools 2015-19

Donation from SERCAP, VLWA, VT seed grant to cover analysis

Parental consent to test well water

Students visit VT campus for tours, presentations, hands-on lab work

Return results to parents; students deliver interpretation presentation; parents pass post test!

Also reach ~400 youth and their families through VT summer camps and fairs annually

4-H collaborations

New methods to reach families with young children about lead

QUESTIONS? COMMENTS?

VIRGINIA HOUSEHOLD WATER QUALITY PROGRAM

ERIN LING (WELLWATER@VT.EDU)

VIRGINIA TECH

BIOLOGICAL SYSTEMS ENGINEERING

VIRGINIA COOPERATIVE EXTENSION

WWW.WELLWATER.BSE.VT.EDU

EMAIL: WELLWATER@VT.EDU

PH: 540-231-9058

Water Equity Task Force 2-26-20

Virginians need safe, trusted water that they will drink! What can we do?

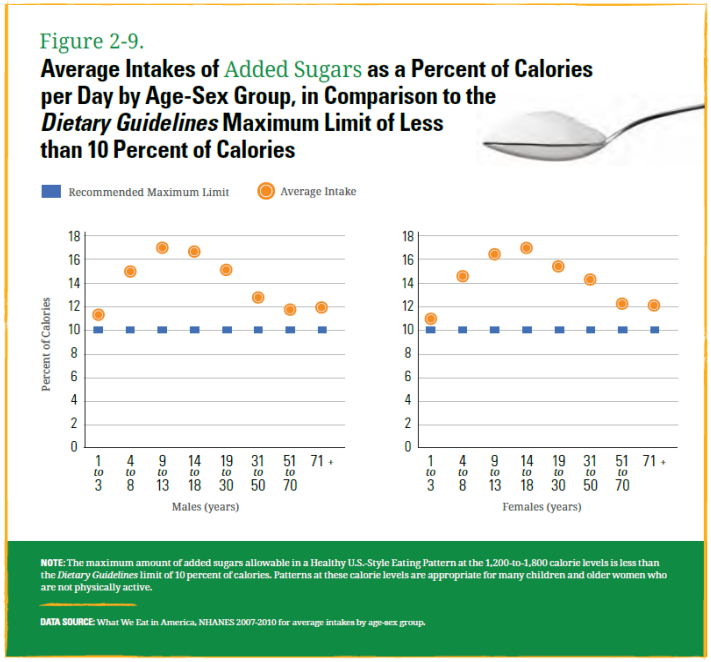
Brenda Davy, PhD RDN, Professor

Department of Human Nutrition, Foods, and Exercise

Virginia Tech

WHY DOES A NUTRITION RESEARCHER CARE ABOUT THIS?

Dietary Guidelines for Americans 2015-2020



Shift To Reduce Added Sugars Consumption to Less Than 10 Percent of Calories per Day:[4]

Individuals have many potential options for reducing the intake of added sugars. Strategies include choosing beverages with no added sugars, such as water, in place of sugar-sweetened beverages,

PROMOTING TAP WATER, AS THE BEVERAGE OF CHOICE

Opportunities:

- Growing body of research - health benefits of water consumption for children and adults (obesity, diabetes, cognitive [brain] function, etc)
- Consumer Confidence Reports (CCR) – EPA-mandates annual water quality reports be sent to consumers from local water utilities. (…will soon be two times per year!)
- USDA school lunch & breakfast program regulations: water must be available & accessible to children during the meal service.

PROMOTING TAP WATER, AS THE BEVERAGE OF CHOICE

- Barriers/challenges?
  - Perceptions about tap water safety – esp. among those at greatest risk for health disparities (low health literacy, minorities, rural & low SES communities, SW Virginia)
    - **an equity issue**!
    - "I don't want to drink that [town] water."
  - CCR: "a majority of respondents…expressed concern about water quality after reading it".
    - "confusing, misleading, and alarming."
  - How is the regulation implemented in schools? Is the water safe? Do kids drink it?
    - California study: only 42% of school administrators had heard of legislation; 25% believed school drinking water quality was poor.

Davy et al. Journal of Nutrition Education and Behavior, 2015.
Zoellner et al. Journal of the Academy of Nutrition and Dietetics, 2012.
Evans & Carpenter. Utilities Policy, 2019.
USDA, FNS: https://www.fns.usda.gov/cn/clarification-milk-and-water-requirements-school-meal-program
Patel, Am Journal of Public Health, 2014.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2018	2	2	0.0220	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2018	[4]	[4]	1.93	1.00–3.08	No	Water additive used to control microbes
Fluoride (ppm)	2018	4	4	0.55	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2018	60	NA	33	17–52	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	0.70	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	36	16–53	No	By-product of drinking water disinfection
Total Organic Carbon[1] (removal ratio)	2018	TT (In compliance if > or = 1.0)	NA	1.06	1.00–1.23	No	Naturally present in the environment
Turbidity[2] (NTU)	2018	TT, 1 NTU max	NA	0.35	0.09–0.35	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT, < or = 0.3 NTU (95% of the time)	NA	97%	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2017	1.3	1.3	0.085	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	<2.0	1/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] The value reported under Amount Detected for TOC is the lowest ratio of the percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.
[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Roy, J of Water & Health, 2015
Phetxumphou, J of Water & Health, 2016

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Turbidity[2] (NTU)	2018	TT, 1 NTU max	NA				
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT, < or = 0.3 NTU (95% of the time)	NA				

- Written at 11th-14th grade reading level
- (6th-7th grade recommended by NIH)

- Readability Ease: equivalent to the Harvard Law Review…

- Message Clarity: average grade = 50 = F
- (using CDC's Clear Communication Index, scored 0-100)

Tap water samples were collected for lead and copper analyses from sample sit

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Virginians need safe, trusted water that they will drink! What can we do?

- Revise the CCR! (…this will be a future requirement?)*
  - Consider multiple perspectives – water utilities, consumers, NIH & CDC recommendations for health communications for readability, clarity, understandability)
  - Postcards (or in water bill) - with *key consumer message:* Is my water safe?
  - Refer to website for detailed info (e.g., URL, downloadable pdf).
    - Addresses "information overload" of CCR; may help prevent unintended consequences
  - Cost savings for Virginians? Utilities, grocery bills, health care…

Phetxumphou et al. Opflow, 2017.
*America's Water Infrastructure Act of 2018

VIRGINIANS NEED SAFE, TRUSTED WATER THAT THEY WILL DRINK! WHAT CAN WE DO?

Key Considerations for Providing Excellent Drinking Water Access in Schools

Location of water sources:

At least 1 water source is available in the following key school locations:

- Food service area
- Outdoor physical activity area
- Indoor physical activity area
- Classrooms, including modular buildings
- Common areas

Number of water sources:

The school has 1 water source for every 25 students

Nonfountain sources:

At least 1 nonfountain source of water accessible for students throughout the school day

Water source maintenance:

Water sources in the school are maintained (clean of debris and trash, working, and with adequate flow rates)

Water quality and safety:

School drinking water is tested for lead or other contaminants

The school posts drinking water quality testing results for staff and students to see

Drinking water at the school is clear

Drinking water at the school is cold

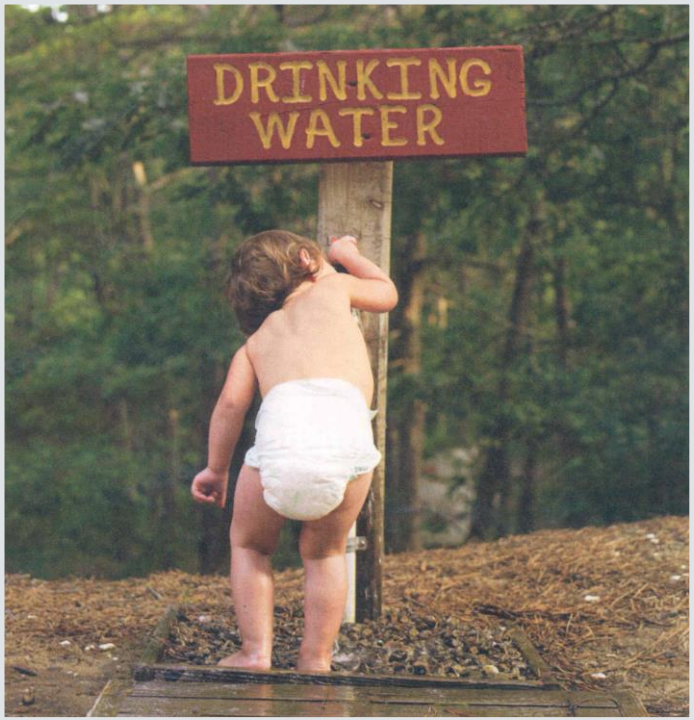
Drinking water at the school tastes good

Schools?

- Patel, Am J Public Health, 2014

- Evaluated public schools in California.
- Benefits for child health, school performance….
- Barriers?

STATEWIDE TAP WATER PROMOTION?



PSAs, communication campaigns, VDH, WIC, SNAP:

- Value of tap water
- Health benefits of water consumption
- If you don't like the taste? Try…
- Environmental benefits (plastic bottles..)
- Testing options, for those with concerns

Thank you!

WET Structure

Collective Impact structure

WET Taskforce:
Biannual meetings

You're here

Steering Committee:
Quarterly meetings
Crosspollination

Workgroup:
- Virtual meetings
- Regular communication
- Workplans
- Shared goals

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- Virtual meetings
- Regular communication
- Workplans
- Shared goals

Workgroups

1. **Access and Affordability:** All people have access to clean, safe, affordable water
   - Affordability
   - Access to infrastructure
   - Water quality

2. **Consumer Literacy:** Virginians choose tap water as their preferred beverage
   - Trust
   - Literacy
   - Promotion

What do you think?

- Meeting frequency
- Chairpeople

Workgroups Up Next …

3. There is community resilience in the face of a changing climate

4. The community and economic benefits of water infrastructure investment are maximized

THANK YOU!