Safe Water Advisory Group

Hybrid Meeting

September 30, 2022 | 6:30-8:30pm

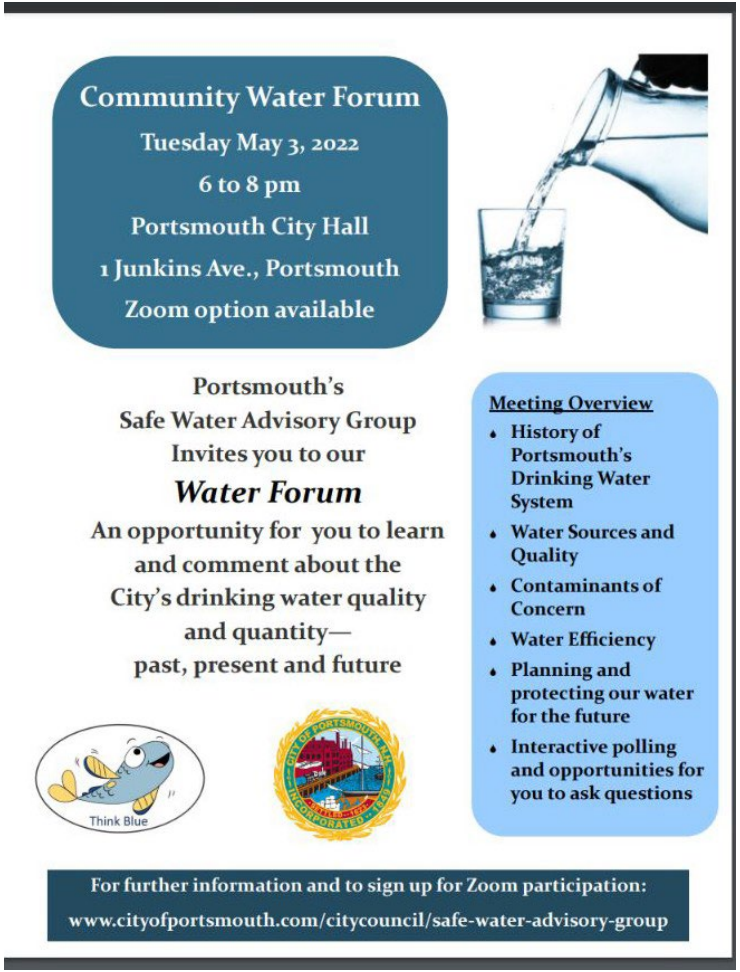
Portsmouth City Hall Conference A | Zoom

Agenda

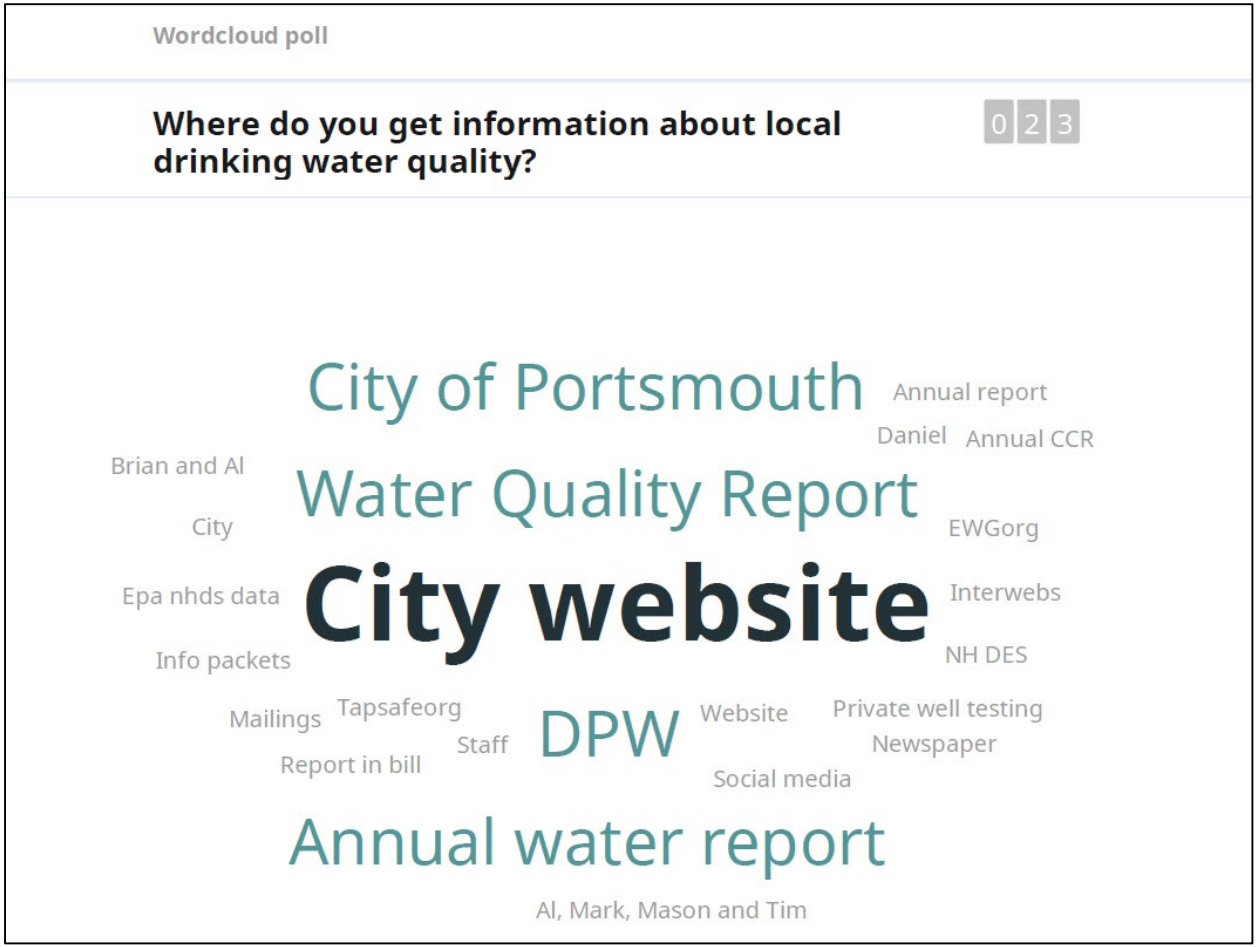
1. Welcome, introductions, hybrid meeting logistics
2. Previous Meeting Minutes - April 20, 2022 meeting
3. Water Forum Update - Brian Goetz
4. Water Supply Update - Brian Goetz and Al Pratt
5. Update on results from PFAS tap sampling projects - Andrea Amico
    - -PFPrA
    - -Total Organic Fluorine
    - -Short chain PFAS bioaccumulation
    - -Discussion on future testing opportunities
6. US EPA updated Health Advisories - Overview - Jonathan Petali, Ph.D. Toxicologist, Environmental Health Program. New Hampshire Department of Environmental Services
    - -City's response
    - -Dust sampling from recent Security Water, Colorado study
    - -SWAG Q&A / Discussion
7. Lead & Copper sampling update
    - -Status of recent water system samples
    - -Consideration of free City lead water testing project
    - -School board efforts and follow up since Feb 2022 SWAG meeting
8. SWAG Discussion of future meeting topics and goals
9. Final questions or closing thoughts
10. Public Comment

Community Drinking Water Forum

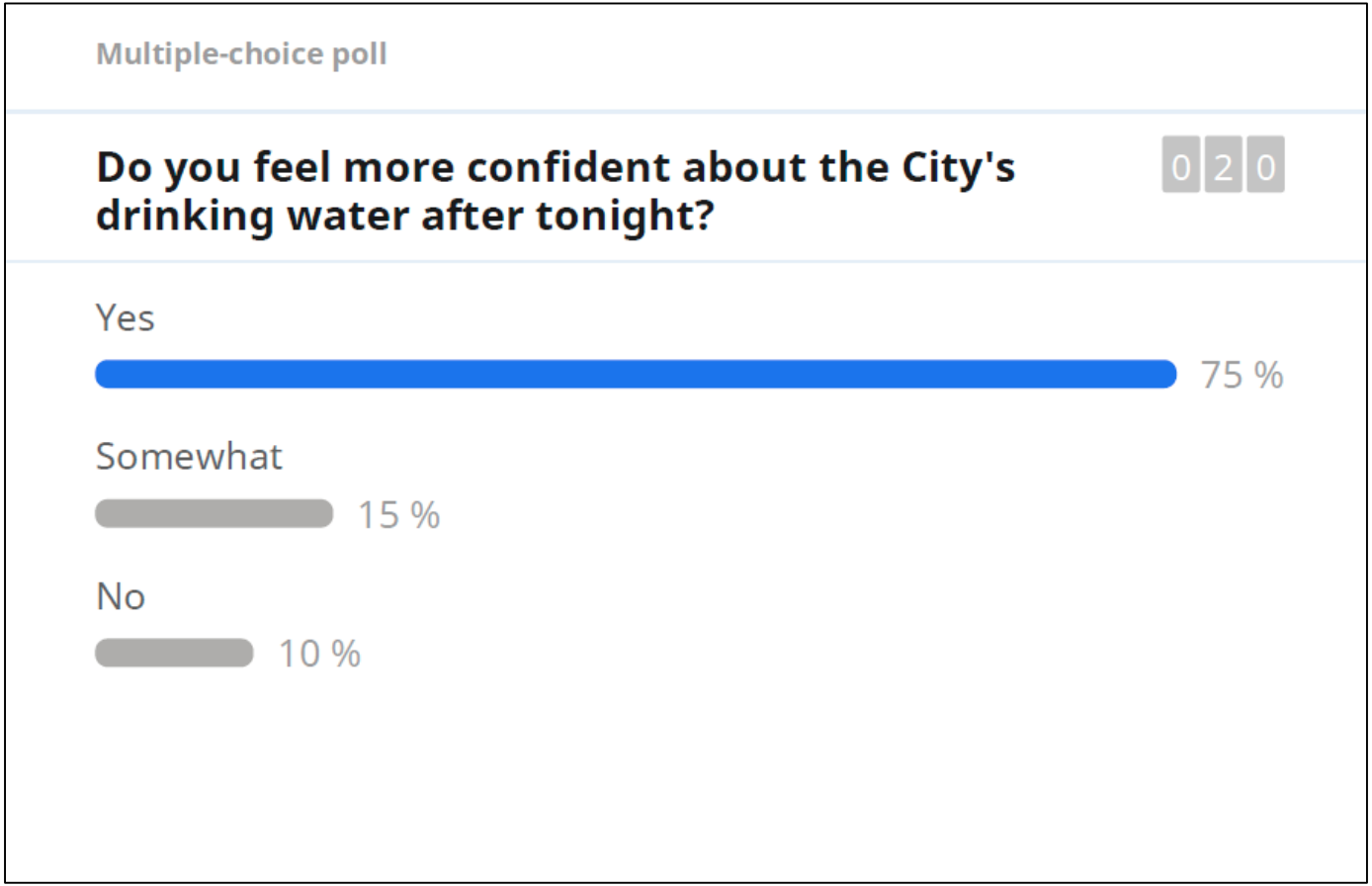
- Held on Wednesday May 3rd from 6-8pm in the Portsmouth City Council Chambers and via zoom (hybrid)
- Hosted during National Drinking Water Week
- Video link https://youtu.be/98ShsRM_UEo



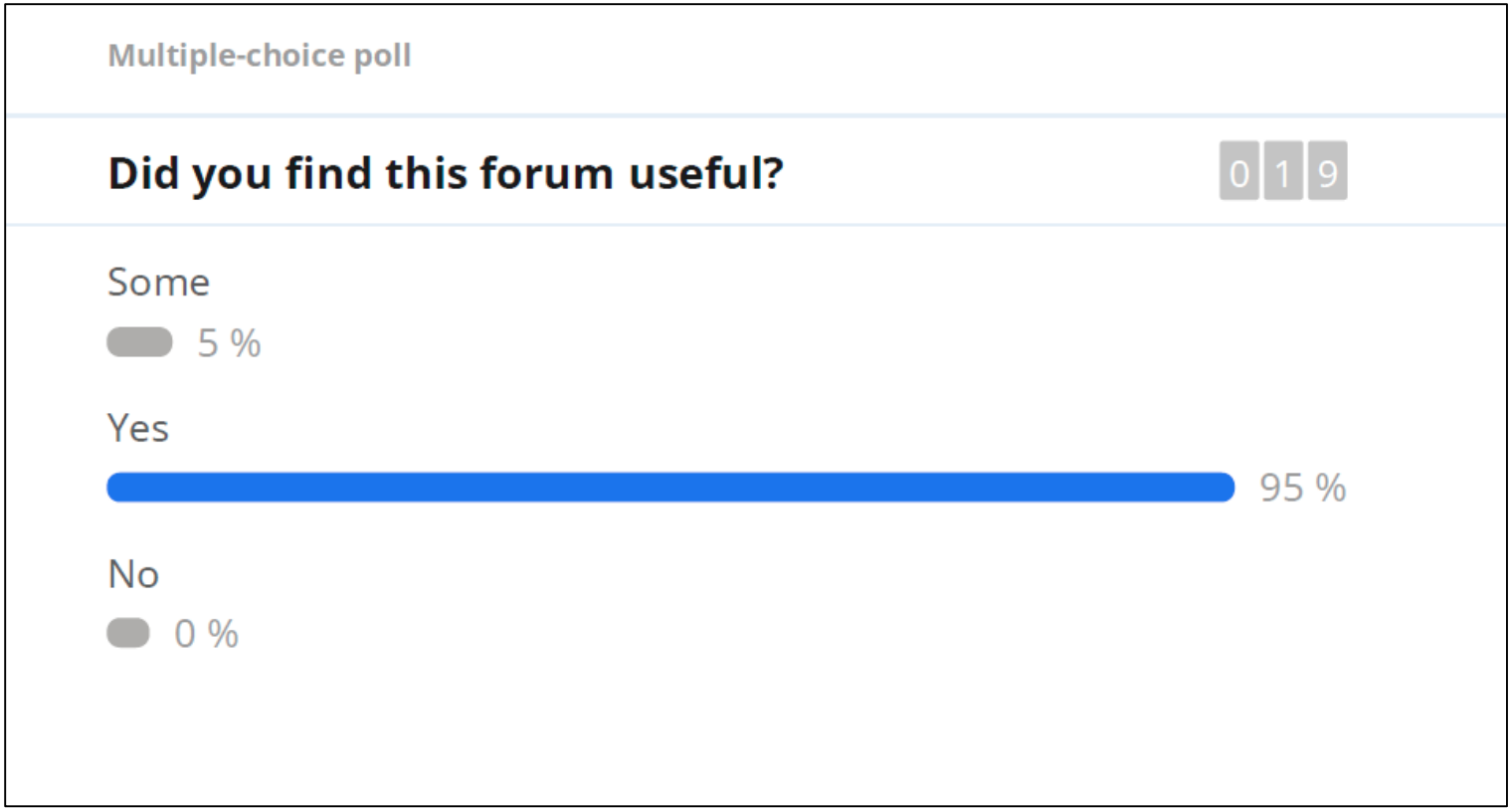
Polling:


Wordcloud poll
Where do you get information about local drinking water quality?
0 2 3
City of Portsmouth
Annual report
Daniel
Annual CCR
Brian and Al
Water Quality Report
City
EWGorg
Epa nhds data
City website
Interwebs
Info packets
NH DES
Mailings
Tapsafeorg
DPW
Website
Private well testing
Staff
Newspaper
Report in bill
Social media
Annual water report
Al, Mark, Mason and Tim

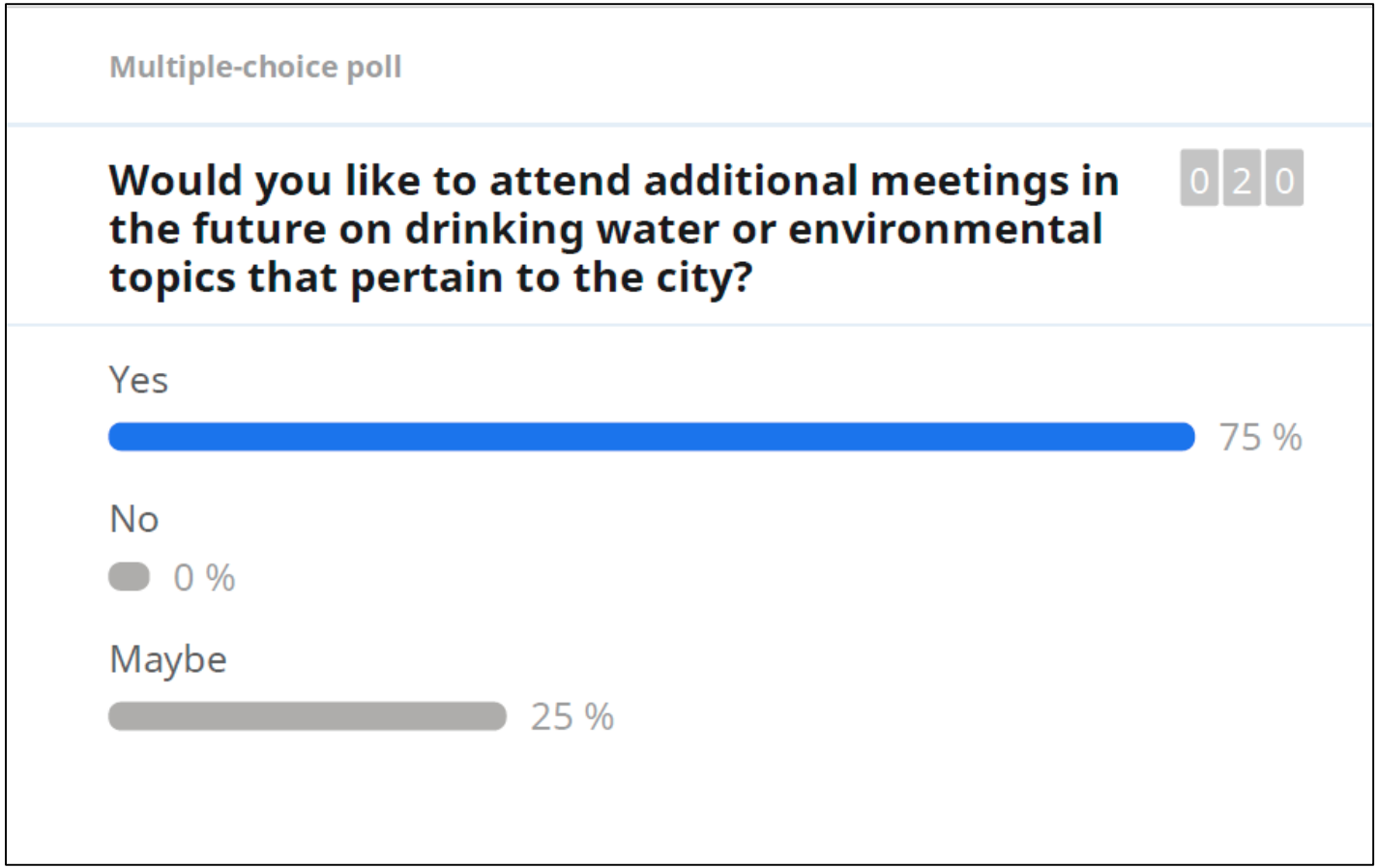
Polling:


Multiple-choice poll
Do you feel more confident about the City's drinking water after tonight?
0 2 0
Yes
75 %
Somewhat
15 %
No
10 %

Polling:

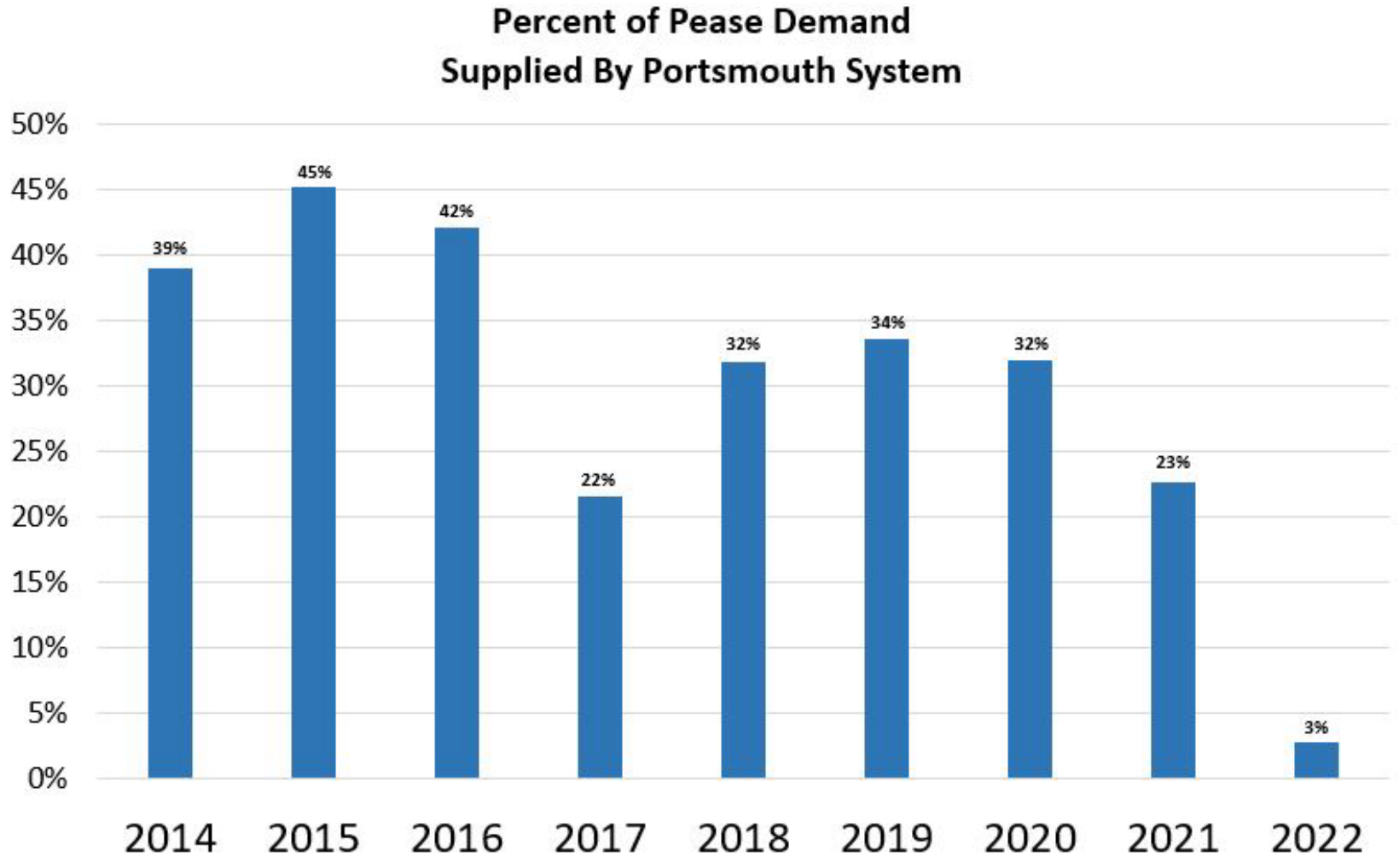

Multiple-choice poll
Did you find this forum useful?
0 1 9
Some
5 %
Yes
95 %
No
0 %

Polling:

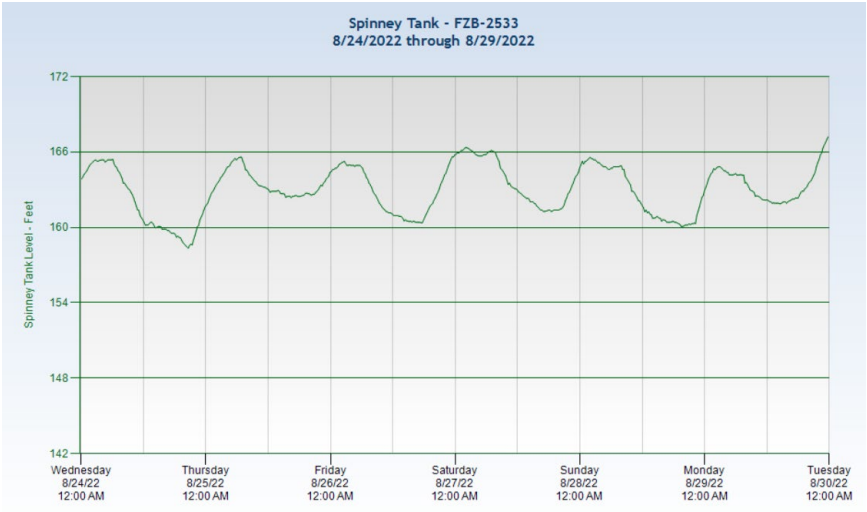

Multiple-choice poll
Would you like to attend additional meetings in the future on drinking water or environmental topics that pertain to the city?
0 2 0
Yes
75 %
No
0 %
Maybe
25 %

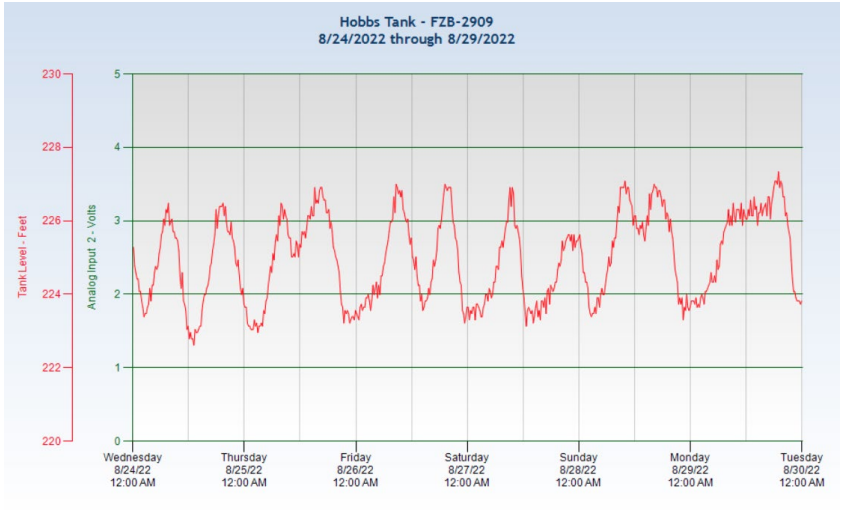
Water Supply and Demands

- Well levels are good for this time of year
- Addition of Madbury Well 5 has helped with peak demands and backup
- Addition of Haven Well has reduced need to pump water from Portsmouth system into Pease
- Customers are complying with **voluntary water restrictions**. Not experiencing any significant spike in demands.


Percent of Pease Demand
Supplied By Portsmouth System
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
39%
45%
42%
22%
32%
34%
32%
23%
3%
2014
2015
2016
2017
2018
2019
2020
2021
2022

Water Supply and Demands – Tank Levels: Portsmouth and Pease





NIDIS Drought.gov
National Integrated Drought Information System

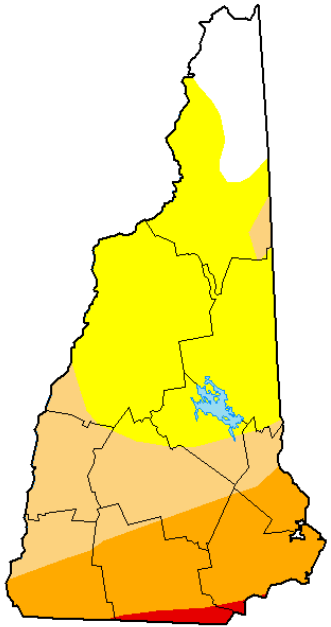
U.S. Drought Monitor

New Hampshire

August 23, 2022

(Released Thursday, Aug. 25, 2022)

Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

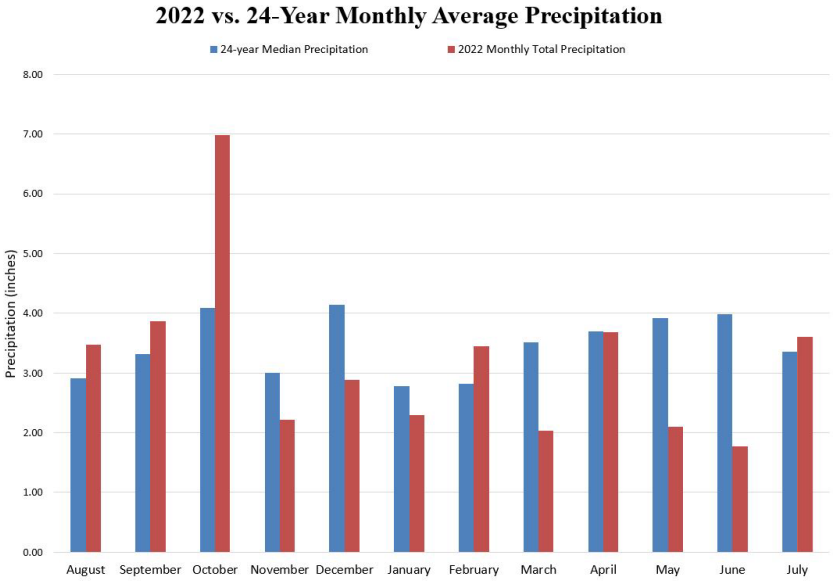
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

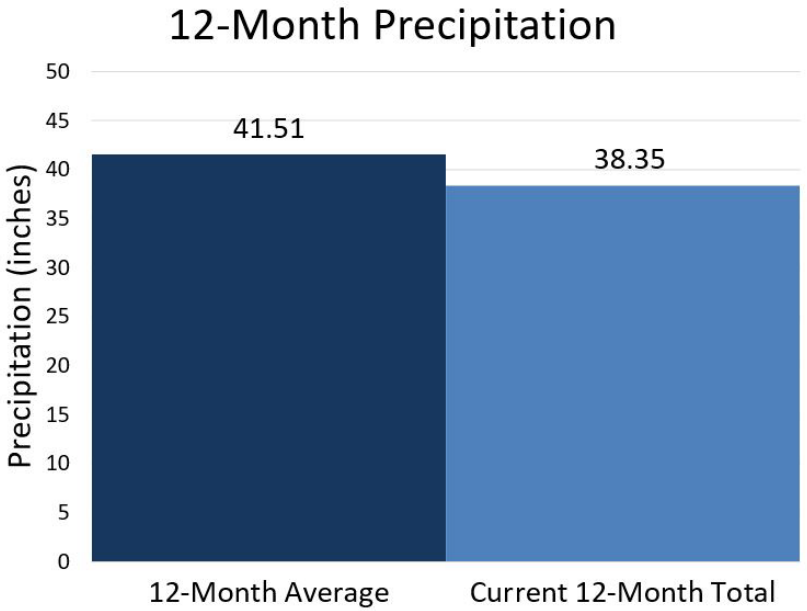
Author:

Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu

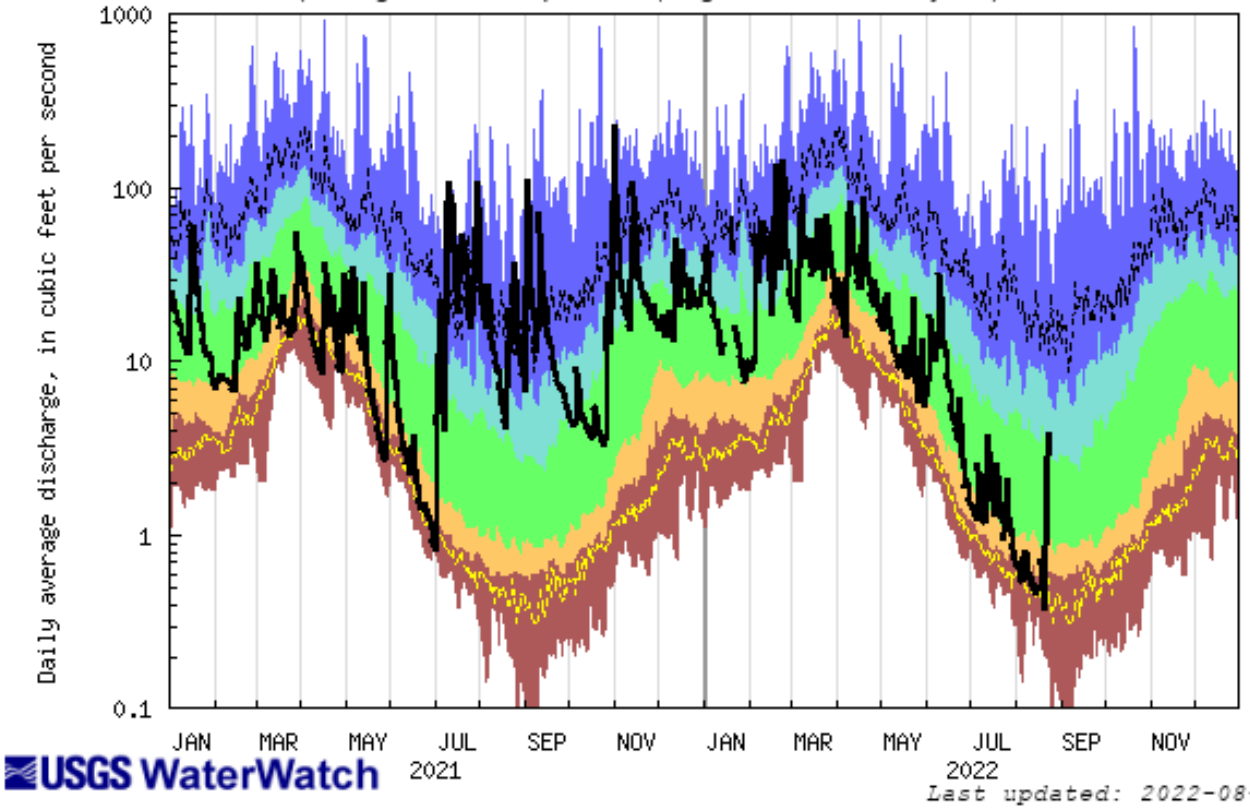
Precipitation





USGS 01073000 OYSTER RIVER NEAR DURHAM, NH

(Drainage area: 12.1 square miles, length of record: 87 - 87 years)



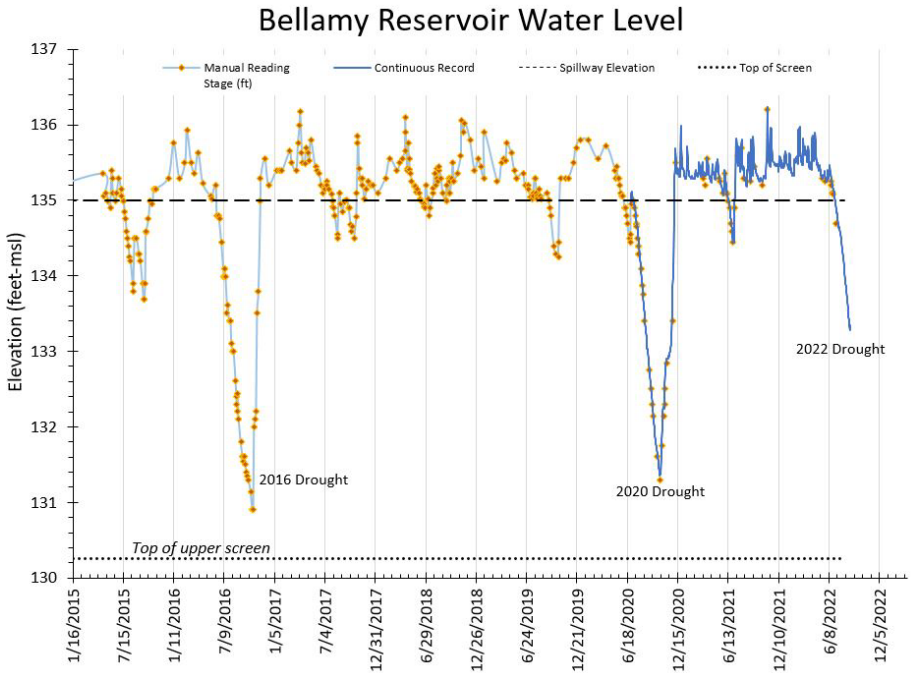
USGS WaterWatch

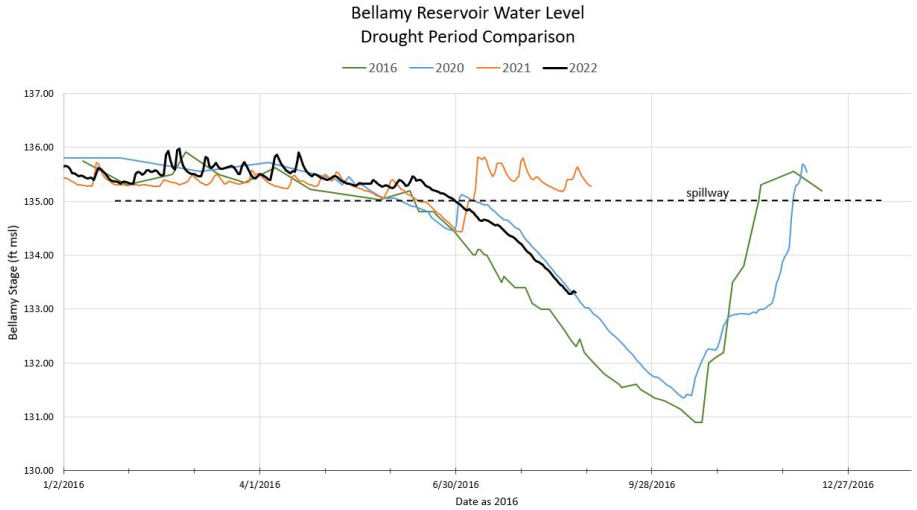
Last updated: 2022-08-25

Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

Reservoir Levels





Update on results from PFAS tap sampling projects: NRDC Project

- NRDC requested tap samples from over 19 communities across the nation with know PFAS in their water in the summer of 2021
- A tap sample from a Portsmouth home was sent to the Eurofins lab in California to analyze for 70 targeted PFAS (a new commercially available testing method at that time)
- Portsmouth tap sample results:

PFAS Identified in your sample

PFAS Detected	ppt (ng/L)	Sample notes
PFPrA	35	
Perfluorobutanesulfonic acid (PFBS)	3.7	
Perfluorooctanoic acid (PFOA)	3.3	
Perfluorohexanoic acid (PFHxA)	2.2	
Perfluorooctanesulfonic acid (PFOS)	2.1	
Perfluorohexanesulfonic acid (PFHxS)	2.0	
Perfluoropentanoic acid (PFPeA)	1.8	
Total PFAS burden	**50.1**	

For the list of 70 PFAS tested see: https://www.eurofinsus.com/pfas-testing/pfas-analyte-list/

Update on results from PFAS tap sampling projects: NRDC Project

- Andrea Amico and a community advocate from Merrimack NH wrote a letter to the US EPA and NH DES requesting additional tap sample analysis in both communities to confirm these results.
- The tap samples were collected on March 1, 2022 and the results are below:

PFPrA Water Sample Results

		2022						2021			
		Eurofins				USEPA ORD		Eurofins			
Sample ID	Sample Description	Conc. (ng/L)	Qualifier*	MDL (ng/L)	RL (ng/L)	Conc. (ng/L)	LOQ (ng/L)**	Conc. (ng/L)	Qualifier*	MDL (ng/L)	RL (ng/L)
1951010_501	Bellamy Reservoir - treated	**2.1**	J	1.7	4.3	**ND**	1 - 10				
1951010_501	Bellamy Reservoir - treated - DUPLICATE	**2.4**	J	1.7	4.2	**ND**	1 - 10				
1951010_503	Portsmouth well - treated	**2.6**	J	1.8	4.4	**ND**	1 - 10				
1951010_DPW	Portsmouth DPW office tap	**2.1**	J	1.8	4.5	**ND**	1 - 10	35***		--	1.8
1531010_509	MVD 4/5 - treated	**3.8**	J	1.8	4.5	**ND**	1 - 10	7		1.8	4.5
1531010_011/005	MVD 4/5 - untreated	**4.8**		1.7	4.3	**ND**	1 - 10	8.9 (011) & 6.8 (005)		1.9	4.7 - 4.8
1531010_511	Pennichuck WW interconnection with MVD - treated	**2.4**	J	1.8	4.4	**ND**	1 - 10				
1531010_16FRNCH	Allen residence - MVD water - pre home-treatment	**3.3**	J	1.7	4.3	**ND**	1 - 10	42		--	1.7
1531010_16FRNCH	Allen residence - MVD water - pre home-treatment - DUPLICATE	**3.4**	J	1.8	4.5	**ND**	1 - 10				
MTBE_8278	Thomas residence - private well - untreated	**3.5**	J	1.7	4.3	**ND**	1 - 10	2.9		--	1.7
MTBE_8178	Dunn residence - private well - untreated	**4.4**	J	1.8	4.5	**ND**	1 - 10	5.2		--	1.7
08-SKB	Surface water - Highland Lake outlet - Sucker Brook	**ND**		1.7	4.3	**ND**	1 - 10				
Field Blank	FIELD BLANK (Bellamy Reservoir - treated)	**ND**		1.8	4.6	**ND**	1 - 10				
Field Blank	FIELD BLANK (Allen residence - MVD water - pre home-treatment)	**ND**		1.8	4.4	**ND**	1 - 10				

*J = Result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL) and the concentration is an approximate value.

Per Mark Strynar (USEPA ORD): Note that method development for this compound has not been conducted, therefore method detection limits are not established. The limit of quantitation (LOQ) could be set at 10 ng/L for a conservative estimate of the lower limit of quantitation. However even with deviation beyond the ideal, linearity of the curve suggests values of 1-2.5 ng/L would be measurable with some additional error associated with that measurement. **None of the collected sample had quantifiable levels of PFPrA above the limit of quantitation regardless of the establishment of 1, 2.5 or 10 ng/L as the lower limit of quantitation from ORD analysis.

***Data from Amico residence (Portsmouth public water)

Abbreviations

Conc. = concentration

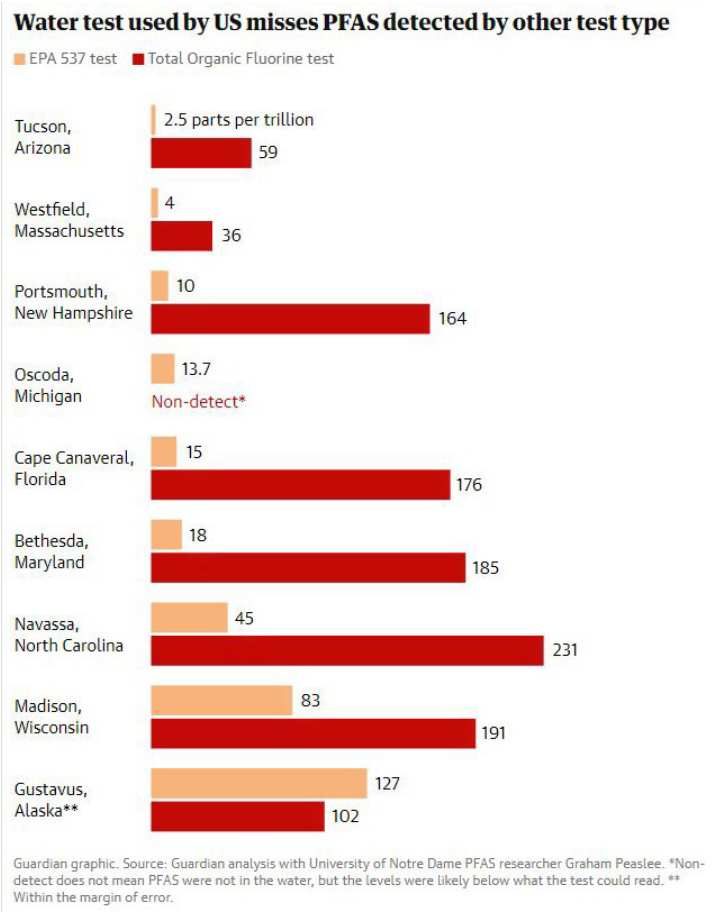
ND = not detected

Update on results from PFAS tap sampling projects: The Guardian Project

- A reporter from The Guardian reached out to PFAS communities across the country requesting tap samples for a project looking at PFAS levels using a standard US EPA method vs a Total Organic Fluorine (TOF) method.
- Andrea Amico worked with City staff to collect tap samples of Portsmouth municipal water in March of 2022 for this project.
- 9 other communities also participated in the project and submitted tap samples.
- The sample for the EPA method was sent to Eurofins and the sample for the TOF method was sent to Dr Graham Peaslee at the University of Notre Dame.

Update on results from PFAS tap sampling projects: The Guardian Project

- Portsmouth tap sample has 10 ppt of PFAS using the EPA 537 method and 164 ppt using the TOF method
- The TOF method does not analyze for specific compounds (only total fluorine)
- Dr Graham Peaslee thinks the difference in results from the EPA method and the TOF method could be due to ultra short chain PFAS that cannot currently be tested for using targeted testing methods



Source: https://www.theguardian.com/us-news/2022/jul/06/us-drinking-water-pfas-toxic-forever-chemicals-epa-tests

Update on results from PFAS tap sampling projects: The Guardian Project

ACS ES&T Water

pubs.acs.org/estwater

Article

Screening for Per- and Polyfluoroalkyl Substances in Water with Particle Induced Gamma-Ray Emission Spectroscopy

Meghanne Tighe, Yukun Jin, Heather D. Whitehead, Kathleen Hayes, Marya Lieberman, Meeta Pannu, Megan H. Plumlee, and Graham F. Peaslee*

Cite This: *ACS EST Water* 2021, 1, 2477−2484

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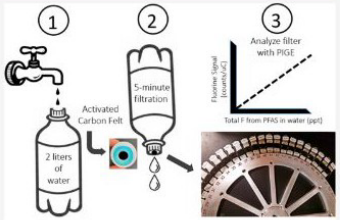
ABSTRACT: A new method for rapidly screening drinking water for the presence of per- and polyfluoroalkyl substances (PFAS) has been developed. This method involves gravity filtering drinking water through an activated carbon felt and subsequently analyzing the surface of the felt with particle induced gamma-ray emission (PIGE) spectroscopy. Using this technique, the total fluorine measurements by PIGE produced linear calibration curves adequate to measure below 50 ppt total fluorine from PFAS in drinking water for as little as 2 L of sample. Inorganic fluoride and PFAS were successfully differentiated by acidifying the sample prior to filtration. Acidification did not affect the anionic PFAS binding to the activated carbon filter, while the inorganic fluoride did not bind to the filter below pH 2. This method is quantitative when measuring individual PFAS; however, as a total fluorine measurement, PIGE cannot differentiate between individual PFAS in a mixed solution. Since most environmental or drinking water samples will likely contain a mixture of PFAS, this method could be used as a preliminary screening tool to identify samples with elevated total extractable organo-fluorine from anionic PFAS that can be analyzed by compound-specific methods subsequently to quantify individual analytes.



KEYWORDS: *PFAS, PIGE, total fluorine, activated carbon, solid-phase extraction, drinking water*

Source: https://pubs.acs.org/doi/abs/10.1021/acsestwater.1c00215?cookieSet=1

Environmental Science & Technology

pubs.acs.org/est

Article

Ultra-Short-Chain PFASs in the Sources of German Drinking Water: Prevalent, Overlooked, Difficult to Remove, and Unregulated

Isabelle J. Neuwald, Daniel Hübner, Hanna L. Wiegand, Vassil Valkov, Ulrich Borchers, Karsten Nödler, Marco Scheurer, Sarah E. Hale, Hans Peter H. Arp, and Daniel Zahn*

Cite This: https://doi.org/10.1021/acs.est.1c07949

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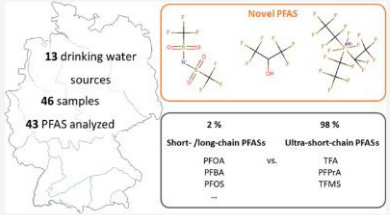
ABSTRACT: Per- and polyfluoroalkyl substances (PFASs) have been a focal point of environmental chemistry and chemical regulation in recent years, culminating in a shift from individual PFAS regulation toward a PFAS group regulatory approach in Europe. PFASs are a highly diverse group of substances, and knowledge about this group is still scarce beyond the well-studied, legacy long-chain, and short-chain perfluorocarboxylates (PFCAs) and perfluorosulfonates (PFSAs). Herein, quantitative and semi-quantitative data for 43 legacy short-chain and ultra-short-chain PFASs (≤2 perfluorocarbon atoms for PFCAs, ≤3 for PFSAs and other PFASs) in 46 water samples collected from 13 different sources of German drinking water are presented. The PFASs considered include novel compounds like hexafluoroisopropanol, bis(trifluoromethylsulfonyl)imide, and tris(pentafluoroethyl)trifluorophosphate. The ultra-short-chain PFASs trifluoroacetate, perfluoropropanoate, and trifluoromethanesulfonate were ubiquitous and present at the highest concentrations (98% of sum target PFAS concentrations). "PFAS total" parameters like the adsorbable organic fluorine (AOF) and total oxidizable precursor (TOP) assay were found to provide only an incomplete picture of PFAS contamination in these water samples by not capturing these highly prevalent ultra-short-chain PFASs. These ultra-short-chain PFASs represent a major challenge for drinking water production and show that regulation in the form of preventive measures is required to manage them.



KEYWORDS: *monitoring, sum parameters, trifluoroacetate (TFA), trifluoromethanesulfonate (TFMS), perfluoropropanoate (PFPrA), hexafluoroisopropanol (HFIP), bis(trifluoromethylsulfonyl)imide (NTf_2), tris(pentafluoroethyl)trifluorophosphate (FAP)*

Source: https://pubs.acs.org/doi/abs/10.1021/acs.est.1c07949

Discussion on Future Testing Opportunities

- The NRDC project is not published yet. They are still collecting samples from some additional communities and plans to publish a report at a later date.
  - No additional testing opportunities are available at this time through this project.

- The Guardian project has been completed. Dr Graham Peaslee from University of Notre Dame has offered to conduct TOF analysis on additional tap samples from the City of Portsmouth and the Pease Tradeport water systems
  - Discuss the pros and cons of additional testing with the TOF method
  - Discuss what is known about short chain PFAS

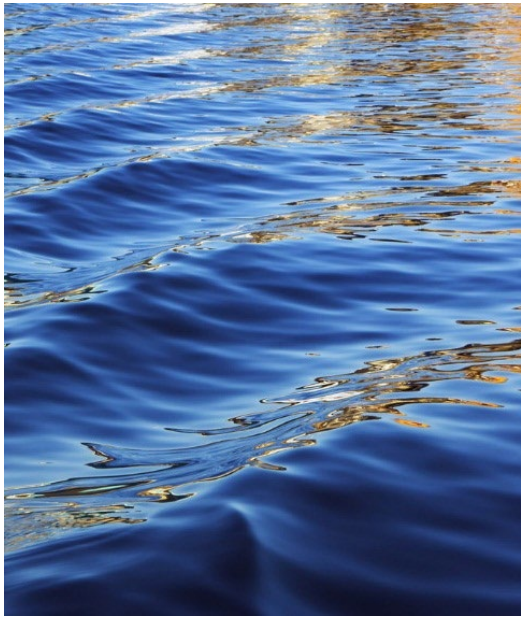
US EPA updated Health Advisories

- Dr Jonathan Petali, Ph.D. Toxicologist, Environmental Health Program - presentation
- Other discussion:
    - City's response
    - Dust sampling from recent Security Water, Colorado study
    - SWAG Q&A / Discussion

PFAS Update for Portsmouth **S**afe **W**ater **A**dvisory **G**roup

August 30th, 2022

Jonathan Petali, Ph.D., Toxicologist
Environmental Health Program
Air Resources Division, NHDES



Overview

1. Primer on Regulatory Jargon
2. EPA's Recent Drinking Water Announcements
3. Comparison to NH and Other States Guidance
4. EPA's Risk Messaging
5. Implication for New Hampshire

What are Health Advisories (HAs) versus Maximum Contaminant Levels (MCLs)?

Health Advisories (HAs) provide information on a contaminant that can cause negative human health effects and is known or anticipated to occur in drinking water. (EPA 2022)

- Not enforceable or regulatory in application
- Usually provided as guidance for the public health entities and public water systems
- Sometimes developed into Lifetime Health Advisory (LHA)

Maximum Contaminant Levels (MCLs) are regulatory standards for public water systems.

- Accounts for feasibility to detect the chemical and technological ability to treat
- Considers cost-benefits analysis to setting a given limit

Ambient Groundwater Quality Standards (AGQS) are regulatory tools used by the New Hampshire Department of Environmental Services (NHDES) to investigate groundwater contamination.

- NH-specific value, not developed by EPA
- Typically matches the MCLs in NH due to interrelationship of groundwater

What did U.S. EPA recently announce related to PFAS?

- **Interim Lifetime Health Advisories** for **PFOA (0.004 ng/L)** and **PFOS (0.020 ng/L)** until late fall, when both will be revised per EPA.
  - ***Calculated using a draft report*** that was partially reviewed by a Science Advisory Board. EPA has not publicly replied to any comments or technical suggestions.
  - ***Based on reduced vaccine antibody response*** to tetanus (PFOA) and diphtheria (PFOS) observed in children from the Faroe Islands.
- **Finalized Health Advisories** for **PFBS (2,000 ng/L)** and **GenX (10 ng/L)**
- Potential Future Health Advisories for **PFBA, PFHxA, PFHxS, PFNA**, and **PFDA**. EPA is working on these assessments.
- **Maximum Contaminant Levels for PFOA and PFOS** will be proposed by December 2022. Year-long rulemaking process to follow.

What are the current MCLs/AGQS for PFAS in New Hampshire?

- 12 ng/L for PFOA (Perfluorooctanoic acid)
- 15 ng/L for PFOS (Perfluorooctane sulfonic acid)
- 11 ng/L for PFNA (Perfluorononanoic acid)
- 18 ng/L for PFHxS (Perfluorohexane sulfonic acid)

These limits were developed for sensitive segments of the population.

- ✓ Pregnant/lactating women and their infants
- ✓ Individuals who consume a lot of water
- ✓ Individuals with chronic exposure (several years to decades)
- ✓ Accounting for additional sources of exposure (e.g., consumer products and food)

For more information about the NHDES PFAS MCLs:
https://www4.des.state.nh.us/nh-pfas-investigation/?page_id=1036

******The NHDES PFAS website is changing next month****

Health Advisories, Maximum Contaminant Levels (MCLs) and Health-Based Guidance Values Expressed in ng/L or parts-per-trillion (ppt)

Specific PFAS	New Hampshire (2020)	EPA (2016) Health Advisories	EPA (2022) Health Advisories	New Jersey (2019-2022)	Michigan (2019-2020)	Minnesota (2021)	New York (2019)	Vermont (2018-2021)	Mass. (2021-2022)	Connecticut (2022)
PFBA			*Drafted RfD*			7,000				
PFBS			2,000		420	100			2,000	
PFHxA			*Drafted RfD*		400,000	200				
PFHxS	18				51			20 (Summed)	20 (Summed)	49
PFHpA										
PFOA	12	70 (Summed)	0.004	14	8	35	10			16
PFOS	15		0.020	13	16	15	10			10
PFNA	11			13	6					12
PFDA										
GenX			10		370					

Where is the major difference between EPA's and NH's (and other states') risk assessment?

Reference Doses (RfDs)

The major difference is the selection of RfDs applied by EPA and other states. This is the amount of chemical exposure, adjusted for individual body weight, that is expected to be without significant health risk. For PFAS, these are "chronic" or long-term RfDs.

Agency	RfD (ng/kg/d)	Critical Health Effect
VTDOH, EPA (2016)	20.0	Developmental toxicity (reduced birth weight in animals)
NHDES, MIDHHS, MNDOH, NJDEP, NYDOH, WADOH	1.8-3.0	Immune toxicity (decreased antibody response in animals)
EPA (2022)	0.0079	Immune toxicity (decreased antibody response in children from the Faroe Islands)

What about other environmental media and sources of exposure?

NHDES does not exclusively evaluate drinking water.

PFAS are found other media, and EPA is still determining how/if these proposed RfDs will apply to other media.

	Reference Dose	TOTAL Daily Dose Limit for Adults (80 kg)	TOTAL Daily Dose Limit for 3-6 Month Infants (7.4 kg)
PFOS (EPA 2022)	0.0079 ng/kg/d	0.639 ng	0.058 ng
PFOA (EPA 2022)	0.0015 ng/kg/d	0.120 ng	0.011 ng

EPA, 2022: https://www.epa.gov/sdwa/drinking-water-health-advisories-pfoa-and-pfos

EPA's Risk Communication

EPA has detailed their risk communication online at: https://www.epa.gov/sdwa/questions-and-answers-drinking-water-health-advisories-pfoa-pfos-genx-chemicals-and-pfbs

- "*If water sampling results show levels of PFOA or PFOS, or show levels of GenX chemicals or PFBS in drinking water above the health advisory levels, water systems should promptly notify their state drinking water safety agency and examine steps to reduce PFAS exposure.*" **NH Public Water Systems test for several PFAS to comply with NH MCLs and report these results to the state.**
- "*If you are concerned about levels of PFAS found in your drinking water, contact your doctor or health care professional.*" **EPA has provided no information for clinicians regarding HAs or PFAS. National Academies of Sciences, Engineering and Medicine (NASEM) made recommendations to ATSDR's clinician guidance a few weeks ago.**
- "*Does EPA recommend bottled water distribution in communities with PFAS above the interim and final health advisories?*" **No. This is complicated due to regulation of bottled water.**
- **These HAs apply to public water systems, and EPA is *currently* not considering these risk values for Superfund Sites.**

Implications for New Hampshire

NH has MCLs for 4 PFAS (PFOA, PFOS, PFHxS and PFNA).

- NHDES is closely following EPA's progress towards finalized HAs and MCLs proposals in Fall 2022.
- EPA's MCLs are unlikely to match the HAs.
- EPA's MCLG for PFOA is likely to be zero due to reclassification of carcinogenicity.
- NH MCLGs for PFOA, PFOS, PFHxS and PFNA are already zero.

Existing data does not show PFBS or GenX at concentrations near the EPA's finalized HAs.

NHDES is tracking all progress related to other PFAS compounds being evaluated by EPA (PFHxA, PFBA, PFDA, PFHxS, PFNA), as well as class-based regulatory tools in development.

NHDES Commissioner is due to update the Legislature in November 2022 per HB 1264 (2020). https://legiscan.com/NH/text/HB1264/2020

While I have your attention…

The NHDES Environmental Health Program is more than PFAS and has been growing since 2020.

- *Technical staff* includes: 1 Toxicologist, 3 Human Health Risk Assessors, 1 Principal Investigator, and our Administrator (Epidemiologist).
- Ongoing review of *NH's Ambient Groundwater Quality Standards* for 105 chemicals.
- *ATSDR's Partnership to Promote Local Efforts to Reduce Environmental Exposures (APPLETREE)* supporting community engagement related to contaminant issues at federal and state sites.
- *Several research collaborations* with NH's academic institutions.
- Supporting several of *NHDES's private well testing* initiatives.

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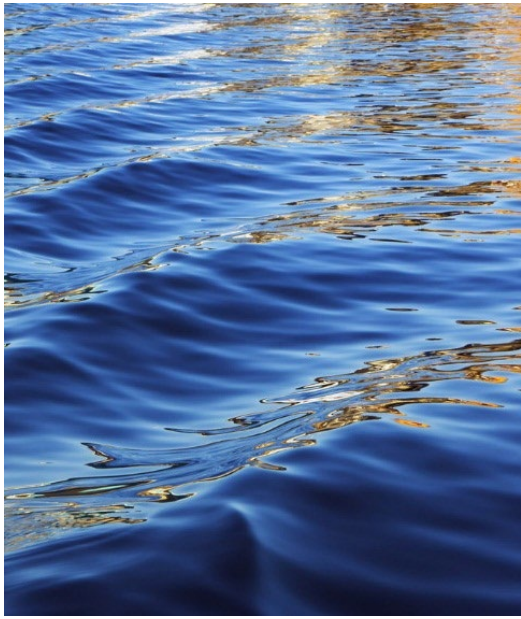
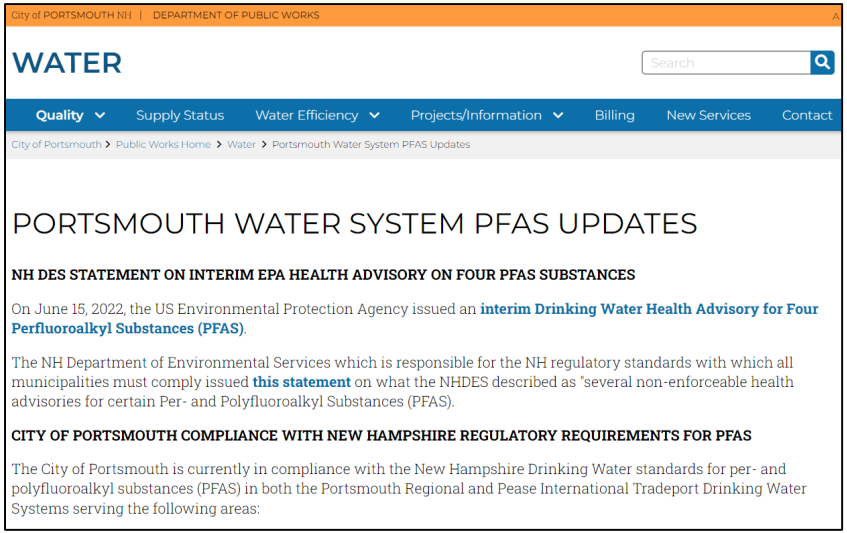


City of Portsmouth's Response

https://www.cityofportsmouth.com/publicworks/water/portsmouth-water-system-pfas-updates



City of PORTSMOUTH NH | DEPARTMENT OF PUBLIC WORKS

WATER

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City of Portsmouth > Public Works Home > Water > Portsmouth Water System PFAS Updates

PORTSMOUTH WATER SYSTEM PFAS UPDATES

NH DES STATEMENT ON INTERIM EPA HEALTH ADVISORY ON FOUR PFAS SUBSTANCES

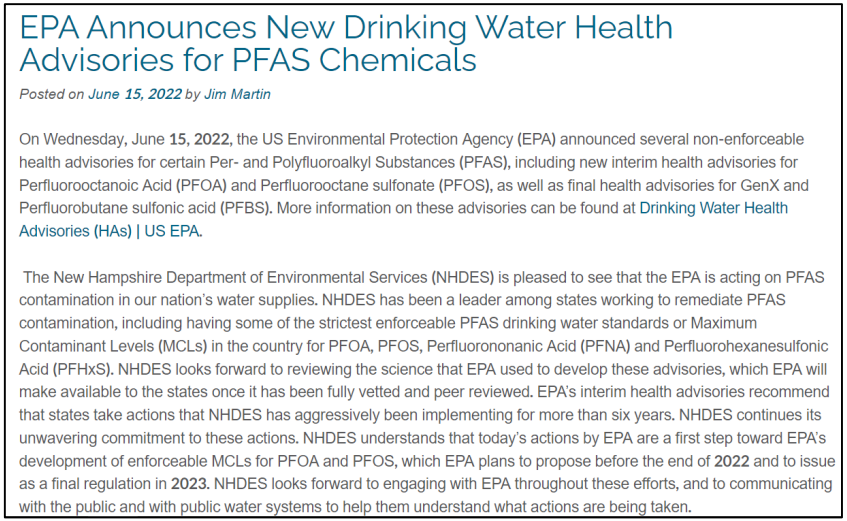
On June 15, 2022, the US Environmental Protection Agency issued an **interim Drinking Water Health Advisory for Four Perfluoroalkyl Substances (PFAS)**.

The NH Department of Environmental Services which is responsible for the NH regulatory standards with which all municipalities must comply issued **this statement** on what the NHDES described as "several non-enforceable health advisories for certain Per- and Polyfluoroalkyl Substances (PFAS).

CITY OF PORTSMOUTH COMPLIANCE WITH NEW HAMPSHIRE REGULATORY REQUIREMENTS FOR PFAS

The City of Portsmouth is currently in compliance with the New Hampshire Drinking Water standards for per- and polyfluoroalkyl substances (PFAS) in both the Portsmouth Regional and Pease International Tradeport Drinking Water Systems serving the following areas:

https://www4.des.state.nh.us/nh-pfas-investigation/?p=1469



EPA Announces New Drinking Water Health Advisories for PFAS Chemicals

Posted on June 15, 2022 by Jim Martin

On Wednesday, June **15, 2022**, the US Environmental Protection Agency (EPA) announced several non-enforceable health advisories for certain Per- and Polyfluoroalkyl Substances (PFAS), including new interim health advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane sulfonate (PFOS), as well as final health advisories for GenX and Perfluorobutane sulfonic acid (PFBS). More information on these advisories can be found at Drinking Water Health Advisories (HAs) | US EPA.

The New Hampshire Department of Environmental Services (NHDES) is pleased to see that the EPA is acting on PFAS contamination in our nation's water supplies. NHDES has been a leader among states working to remediate PFAS contamination, including having some of the strictest enforceable PFAS drinking water standards or Maximum Contaminant Levels (MCLs) in the country for PFOA, PFOS, Perfluorononanic Acid (PFNA) and Perfluorohexanesulfonic Acid (PFHxS). NHDES looks forward to reviewing the science that EPA used to develop these advisories, which EPA will make available to the states once it has been fully vetted and peer reviewed. EPA's interim health advisories recommend that states take actions that NHDES has aggressively been implementing for more than six years. NHDES continues its unwavering commitment to these actions. NHDES understands that today's actions by EPA are a first step toward EPA's development of enforceable MCLs for PFOA and PFOS, which EPA plans to propose before the end of **2022** and to issue as a final regulation in **2023.** NHDES looks forward to engaging with EPA throughout these efforts, and to communicating with the public and with public water systems to help them understand what actions are being taken.

PFAS Update

- Pease Water Treatment Facility continues to treat Pease water to Non-Detect for all NH regulated PFAS compounds
- One short chain compounds are detected after the carbon - PFBA
- Currently looking toward changing some of the filter media out this winter

PEASE WATER TREATMENT FACILITY
PFAS RESULTS - POST TREATMENT

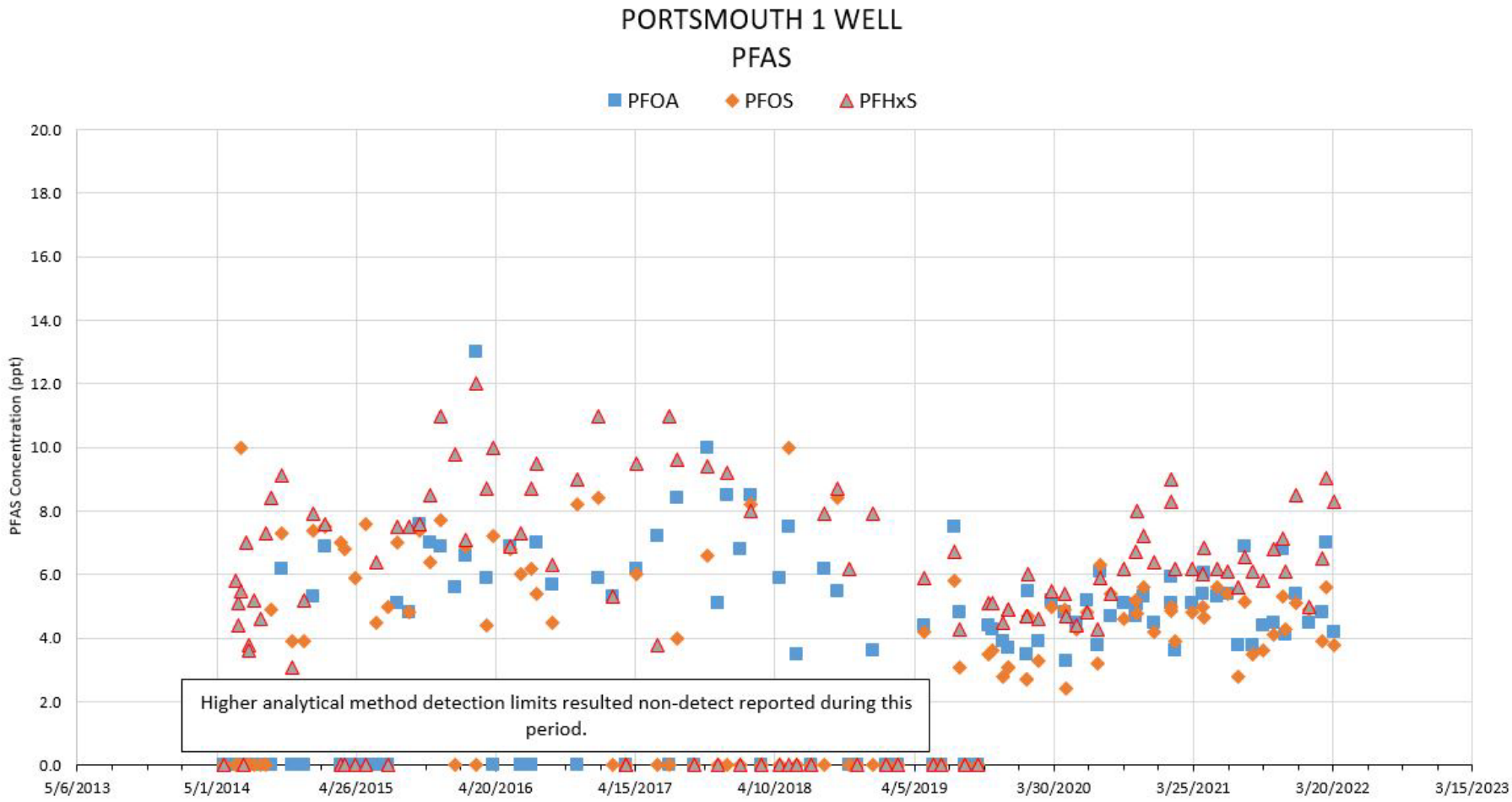
SAMPLED	PFAS*	Gallons Treated
4/27/2021	ND	2,717,039
5/4/2021	ND	4,354,049
5/11/2021	ND	6,387,665
5/12/2021	ND	6,830,373
5/18/2021	ND	9,391,617
6/15/2021	ND	23,133,046
7/19/2021	ND	41,445,555
8/4/2021	ND	52,901,428
8/5/2021	ND	53,782,078
8/11/2021	ND	58,558,918
8/18/2021	ND	64,975,798
8/25/2021	ND	69,830,038
9/15/2021	ND	86,914,498
10/13/2021	ND	106,446,219
11/17/2021	ND	123,708,814
12/14/2021	ND	135,102,720
1/12/2022	ND	145,754,577
2/10/2022	ND	160,343,640
2/16/2022	ND	163,485,793
3/16/2022	ND	174,946,090
4/13/2022	ND	189,692,270
5/17/2022	ND	207,992,500
6/16/2022	ND	228,834,350
7/18/2022	ND	256,890,179

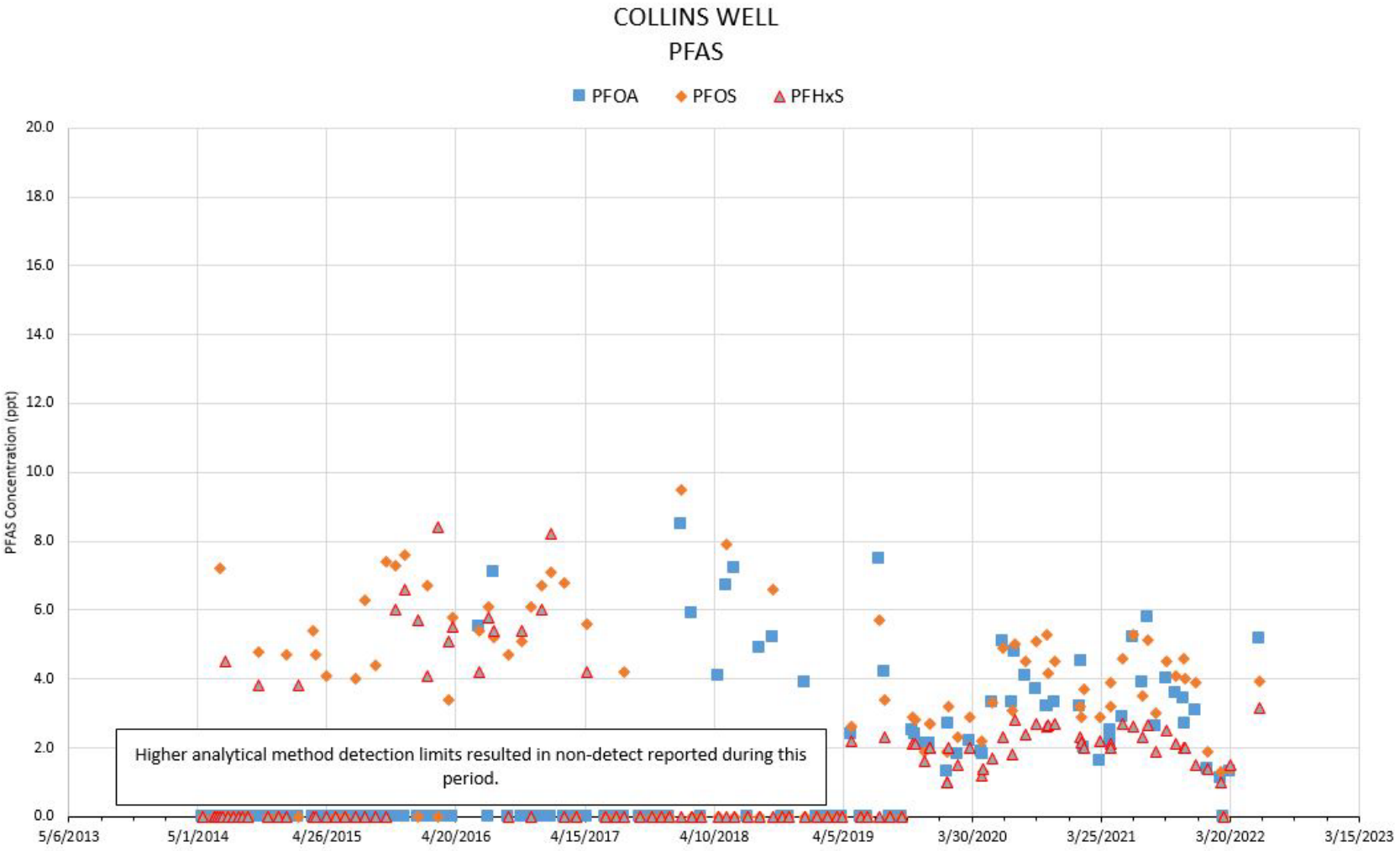
* NH Regulated PFAS (PFOA, PFOS, PFHxS & PFNA)
ND = None Detected at Method Detection Limit (2 ppt)

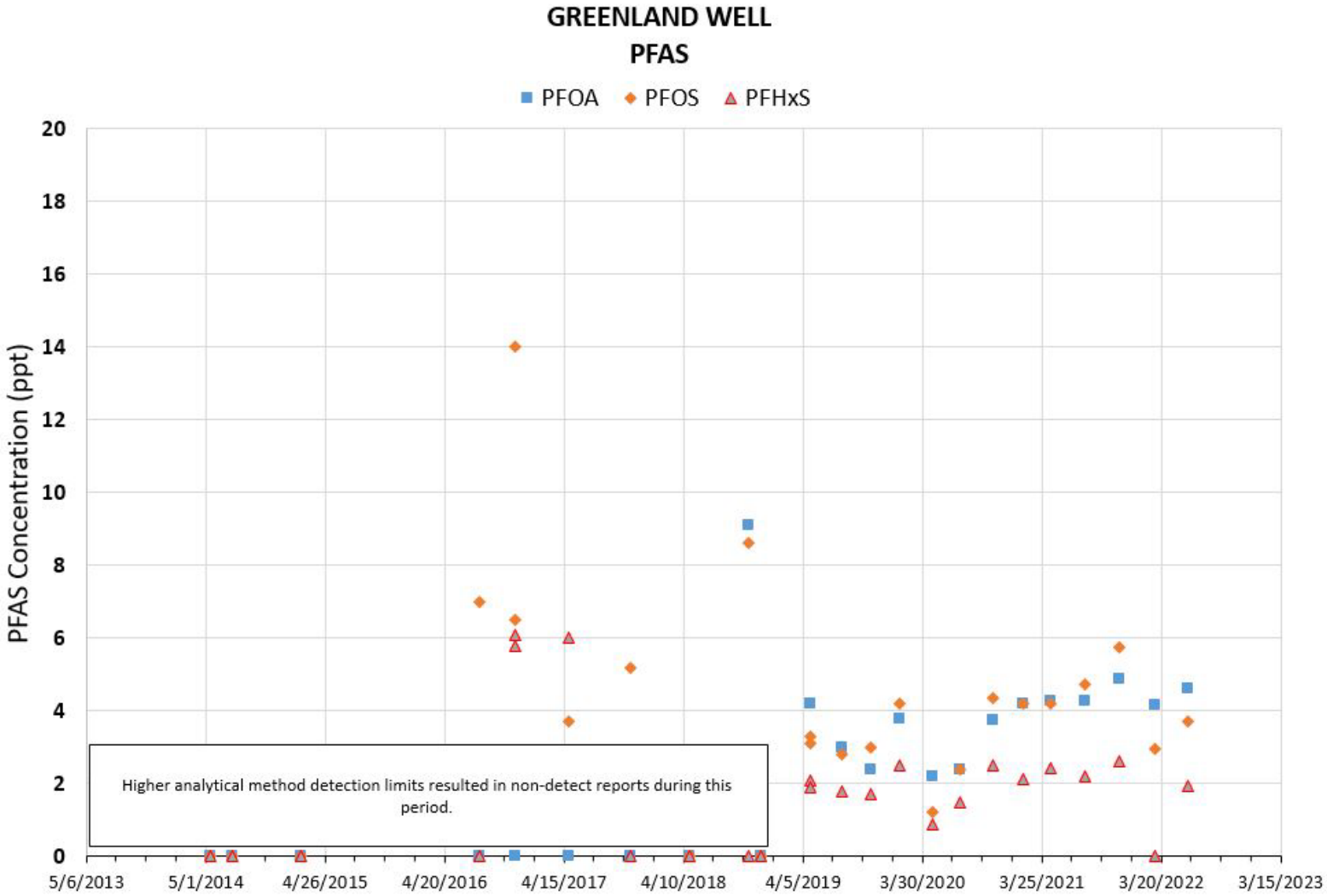
Portsmouth Water Sources
PFAS Averages – 12 Month Rolling
New Hampshire Regulated Compounds

	Parts Per Trillion (PPT)	NH MCL	MADBURY WTP FINISHED	MADBURY WELL 2	MADBURY WELL 3	MADBURY WELL 4	PORTSMOUTH WELL	COLLINS WELL	GREENLAND WELL
PFHxS	**ng/L**	**18**	**0**	**0**	**0**	**0**	**8**	**2**	**1**
PFOS	**ng/L**	**15**	**0**	**0**	**0**	**0**	**5**	**3**	**4**
PFOA	**ng/L**	**12**	**2**	**4**	**3**	**0**	**7**	**4**	**4**
PFNA	**ng/L**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

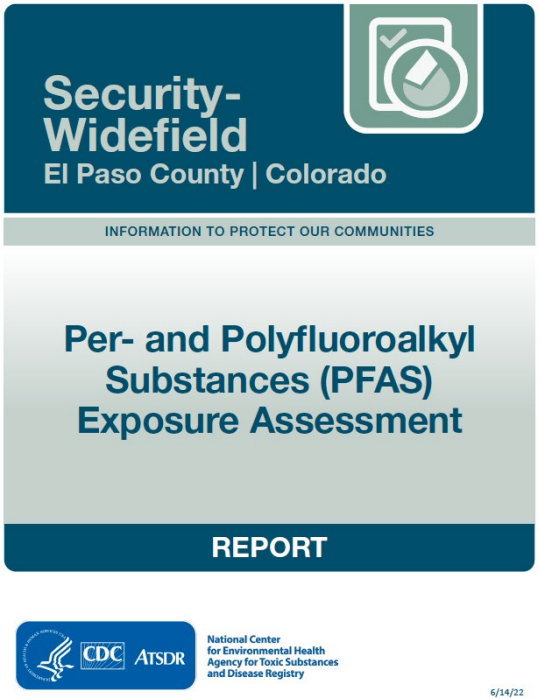
Currently exploring treatment options for Portsmouth/Collins and Greenland Wells


PORTSMOUTH 1 WELL
PFAS
PFOA
PFOS
PFHxS
PFAS Concentration (ppt)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
5/6/2013
5/1/2014
4/26/2015
4/20/2016
4/15/2017
4/10/2018
4/5/2019
3/30/2020
3/25/2021
3/20/2022
3/15/2023
Higher analytical method detection limits resulted non-detect reported during this period.


COLLINS WELL
PFAS
PFOA
PFOS
PFHxS
PFAS Concentration (ppt)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
5/6/2013
5/1/2014
4/26/2015
4/20/2016
4/15/2017
4/10/2018
4/5/2019
3/30/2020
3/25/2021
3/20/2022
3/15/2023
Higher analytical method detection limits resulted in non-detect reported during this period.


GREENLAND WELL
PFAS
PFOA
PFOS
PFHxS
PFAS Concentration (ppt)
20
18
16
14
12
10
8
6
4
2
0
5/6/2013
5/1/2014
4/26/2015
4/20/2016
4/15/2017
4/10/2018
4/5/2019
3/30/2020
3/25/2021
3/20/2022
3/15/2023
Higher analytical method detection limits resulted in non-detect reports during this period.

ATSDR Blood Testing Report - Colorado



- Security-Widefield was one of several sites located near military installations with identified PFAS drinking water contamination from use of products such as aqueous film forming foam (AFFF).
- In September 2020, 346 eligible people (318 adults and 28 children) from 188 households participated in the EA sample collection event. ATSDR performed the following tasks:
- Collected blood and urine samples from every participant
- Collected tap water and dust samples from the homes of 18 randomly selected participants

Dust Sampling:

- Samples were taken from multiple locations in each household, including the primary living space as identified by the homeowner (e.g., living room, family room, television room), the kitchen, and the bedroom in which participants reported spending the most time.
- Patterns and levels of dust contamination measured in participating EA households are comparable to those reported in selected U.S. studies.

Results – ng/g = parts per billion

PFAS	FOD (%)	Maximum Detected Result (ng/g)	Geometric Mean (ng/g)
PFBS	72	67.9	3.25
PFPeS	11	28.0	NA*
PFHxS	72	267	3.53
PFHpS	11	3.25	NA*
PFOS	100	96.0	12.2
PFDS	56	9.83	NA*
PFDoS	28	16.3	NA*
PFBA	67	160	11.0
PFPeA	56	10.6	NA*
PFHxA	100	34.2	6.54
PFHpA	78	22.2	3.51
PFOA	89	65.1	7.99
PFNA	94	36.8	6.70
PFDA	89	13.4	3.92
PFUnA	44	12.2	NA*
PFDoA	56	10.9	NA*

PFAS	FOD (%)	Maximum Detected Result (ng/g)	Geometric Mean (ng/g)
PFTrA	44	5.10	NA*
PFTA	39	8.31	NA*
PFOSA	17	3.13	NA*
N-MeFOSA	6	5.20	NA*
MeFOSAA	61	38.7	2.35
N-MeFOSE	61	1,440	26.8
EtFOSAA	72	12.9	3.08
N-EtFOSE	17	150	NA*
FtS 6:2	44	54.7	NA*
FtS 8:2	6	12.6	NA*

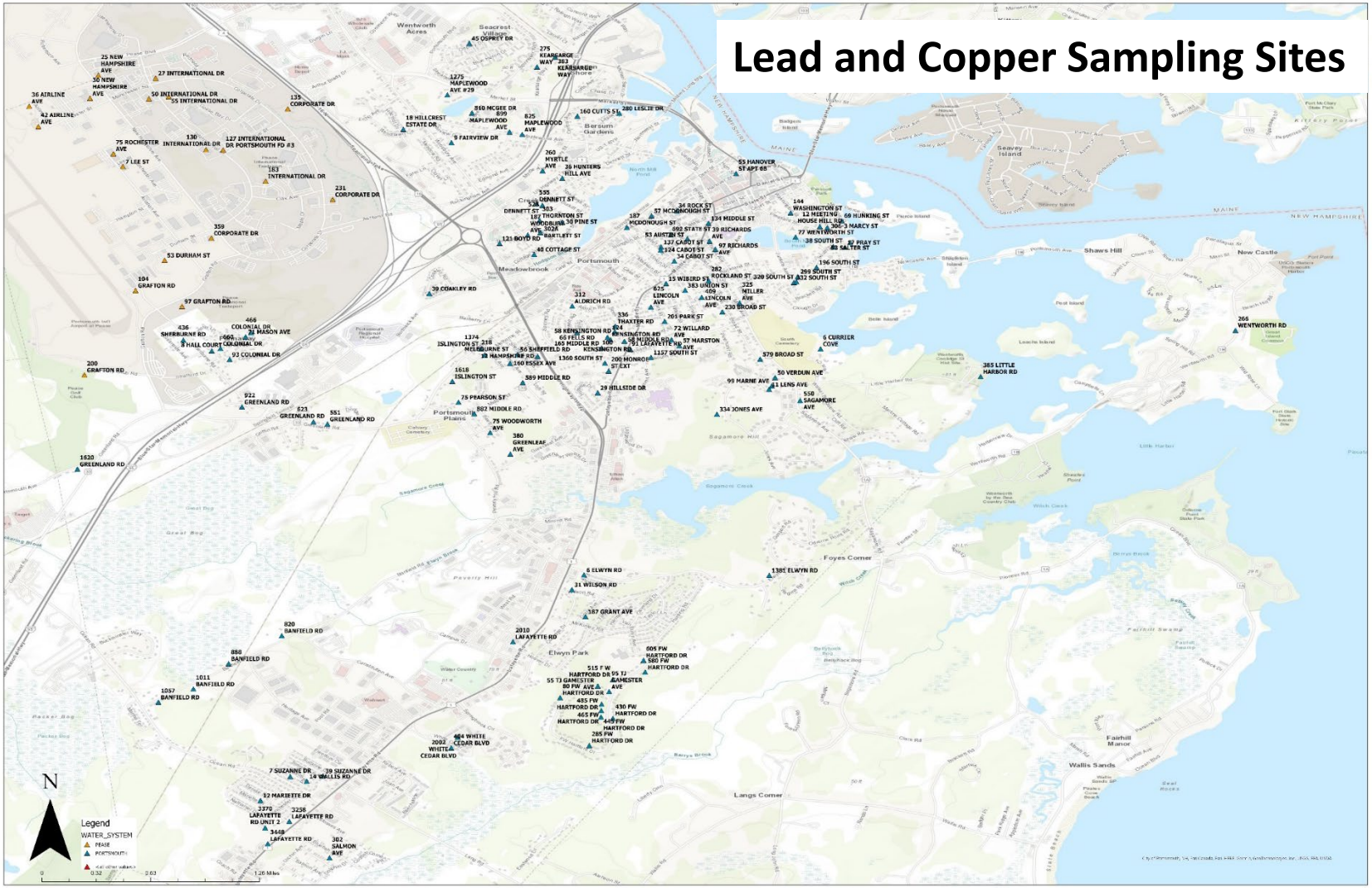
US EPA updated Health Advisories

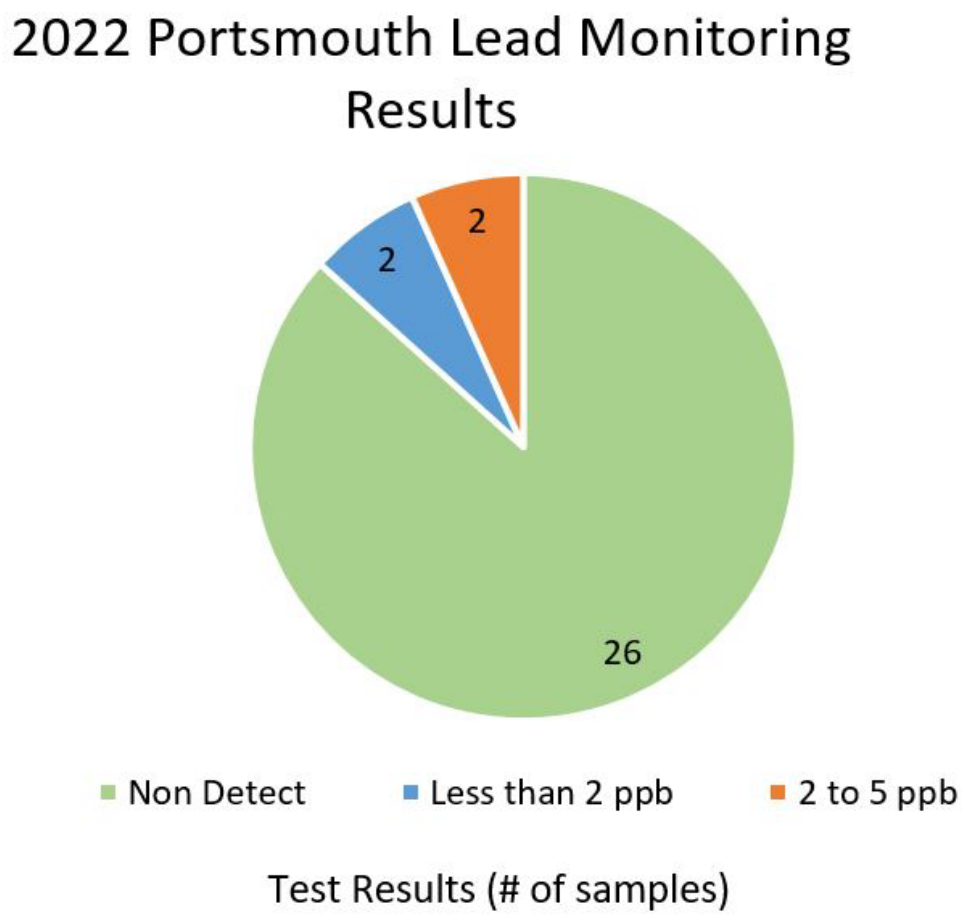
- SWAG Q&A / Discussion

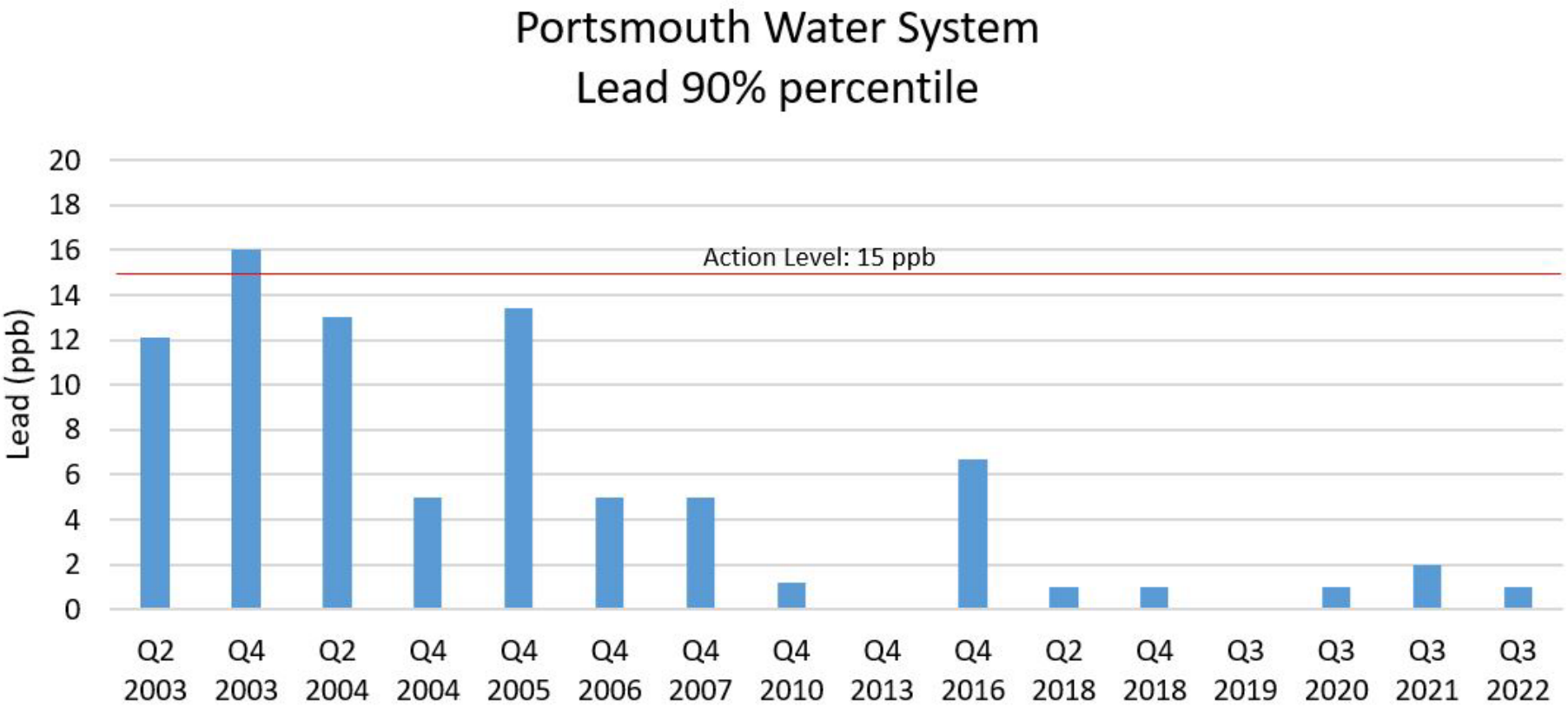
Lead & Copper sampling update

- Status of recent water system samples
- Consideration of free City lead water testing project
- School board efforts and follow up since Feb 2022 SWAG meeting

Lead and Copper Sampling Sites




2022 Portsmouth Lead Monitoring Results
2
2
26
Non Detect
Less than 2 ppb
2 to 5 ppb
Test Results (# of samples)


Portsmouth Water System
Lead 90% percentile
Lead (ppb)
20
18
16
14
12
10
8
6
4
2
0
Action Level: 15 ppb
Q2 2003
Q4 2003
Q2 2004
Q4 2004
Q4 2005
Q4 2006
Q4 2007
Q4 2010
Q4 2013
Q4 2016
Q2 2018
Q4 2018
Q3 2019
Q3 2020
Q3 2021
Q3 2022

HB 1421 – Lead in Drinking Water in Schools and Licensed Child Care Facilities

- Repealed and reenacted RSA 485:17-a
- Schools and licensed child care facilities
- Lowered acceptable lead limit from **15 ppb to 5 ppb**
- Facilities must “correct all locations where previous test results showed lead levels at or above 5 ppb”
- Review previous test results and submit a remediation plan to DES for approval within 90 days.
- Facilities that have not tested have 30 days to do so
- 3 rounds of testing must be completed by June 30, 2024

Lead & Copper sampling update

- Consideration of free City lead water testing project
- School board efforts and follow up since Feb 2022 SWAG meeting

SWAG Discussion of future meeting topics and goals

Potential SWAG Goals/Topics for 2022/2023:

- Community Drinking Water Forum - **done May 2022**
- Ongoing Legislative updates - **update received April 2022**
- Private well owner outreach in collaboration w/NH DES
- Coakley Landfill update
- Monitor emerging contaminants (potential short chain PFAS in City tap water, run off from artificial turf)
- Work with City staff to establish community resources and education on how to dispose of hazardous and PFAS containing products to prevent additional water contamination in our community
- Work with School department to provide education and engagement with students
- Implement a free lead water testing program in the City
- Legionnaires in water
- Discuss other potential sources of PFAS contamination in the City (car washes, solar panels, artificial turf, etc)

Conclusion of the SWAG Meeting

- Final questions or closing thoughts from SWAG members
- Public Comment

Thank you for attending the third SWAG meeting of the year! See you in November!