

City of Portsmouth



PFAS OCCURANCE IN NEW HAMPSHIRE AND PORTSMOUTH

April 6, 2021 Meeting
Safe Water Advisory Group (SWAG)

PFAS In New Hampshire

STATUS REPORT ON THE OCCURRENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONTAMINATION IN NEW HAMPSHIRE

This report has been developed to satisfy the requirements of the Laws of New Hampshire

January Session of 2018, Chapter 306:2 (HB 1766)

Prepared by
New Hampshire Department of Environmental Services

Robert R. Scott, Commissioner

December 1, 2020



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State Effort to Sample for PFAS

- Solid Waste Facilities

- 200 unlined/lined solid waste disposal facilities or synthetic lined wastewater treatment lagoons in New Hampshire for which the owner/operator is responsible for monitoring water quality.
- As of September 2020,
 - 92% have sampled
 - 89% have PFAS detections
 - 63% have exceedances of the AGQS PFAS Standards

- Hazardous Waste Remediation Sites

- 515 sites
- As of September 2020,
 - 42% have sampled
 - 89% have PFAS detections
 - 63% have exceedances of the AGQS PFAS Standards

State Effort to Sample for PFAS

- Oil Remediation Sites
 - 1,500 sites
 - As of September 2019,
 - Less than 1% have sampled
 - Detections but not attributed to petroleum
- Groundwater Discharge Permit Sites
 - 79 sites sampled
 - 64 sites with detections

Public Water Systems

- As of September 2020:
 - Approximately 58% have been sampled for PFAS
 - 32% of wells having detections of PFOA, PFOS, PFHxS, or PFNA.

PUBLIC WATER SYSTEM PFAS SAMPLING SUMMARY	PFOA Detected (ng/L) Std=12	PFOS Detected (ng/L) Std= 15	PFHxS Detected (ng/L) Std= 18	PFNA Detected (ng/L) Std= 11
TOTAL	1,137	1,137	1,137	1,137
DETECTIONS	347	196	136	29
% WITH DETECTS	31%	17%	12%	3%
OVER MCL	72	35	17	6
% OVER MCL	6%	3%	1%	1%

Sites in Portsmouth



Table 2 – Solid Waste Facility
PFAS Water Quality Summary

NHDES SITE #	SITE NAME	PROJECT TYPE	TOWN	Max PFOA Detected (ng/L) AGQS = 12	Max PFOS Detected (ng/L) AGQS = 15	Max PFNA Detected (ng/L) AGQS = 11	Max PFHxS Detected (ng/L) AGQS = 18
198404087	JONES AVE LANDFILL & ASH CONTAINMENT	LAND/UNLN	PORTSMOUTH	32.5	20.8	ND	12.8
198404088	PSNH SCHILLER STATION	LAND/UNLN	PORTSMOUTH	ND	7.51	ND	ND

Sites in Portsmouth

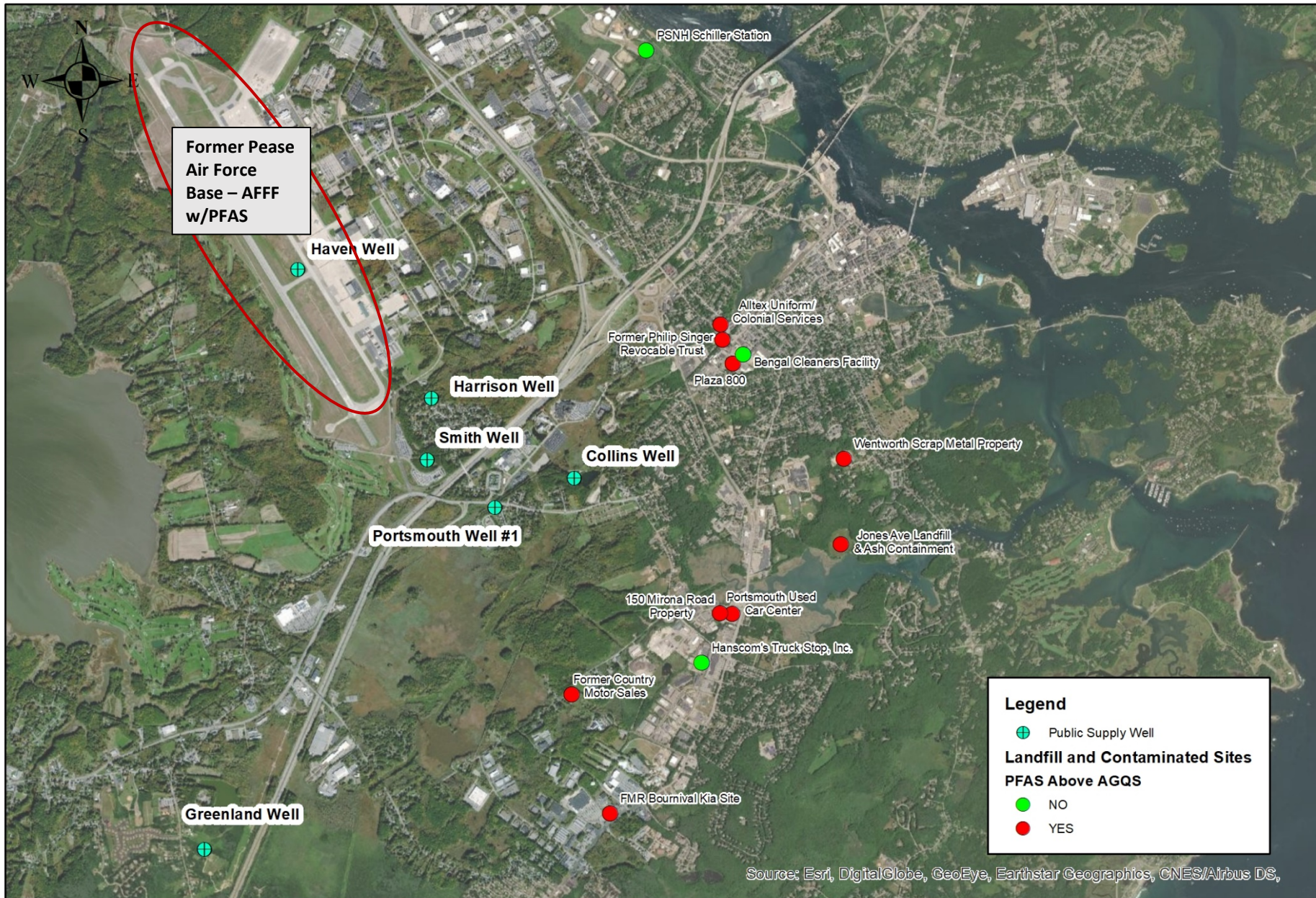


Table 3 – Hazardous Waste Remediation Sites
PFAS Water Quality Summary

NHDES SITE #	SITE NAME	PROJECT TYPE	TOWN	Max PFOA Detected (ng/L) AGQS = 12	Max PFOS Detected (ng/L) AGQS = 15	Max PFNA Detected (ng/L) AGQS = 11	Max PFHxS Detected (ng/L) AGQS = 18
198404081	ALLTEX UNIFORM/COLONIAL SERVICES	HAZWASTE	PORTSMOUTH	160	800	13	30
198905023	PLAZA 800	HAZWASTE	PORTSMOUTH	100	200	13	4.2
199408047	FORMER COUNTRY MOTOR SALES	SITEEVALHW	PORTSMOUTH	15	200	ND	66
199006049	FORMER PHILIP SINGER REVOCABLE TRUST	HAZWASTE	PORTSMOUTH	27	11	4.1	3.9
199605033	PORTSMOUTH USED CAR CENTER	HAZWASTE	PORTSMOUTH	29.4	60.6	ND	ND
199801091	BENGAL CLEANERS FACILITY	HAZWASTE	PORTSMOUTH	7.9	2.59	10.2	3.91
200512019	WENTWORTH SCRAP METAL PROPERTY	HAZWASTE	PORTSMOUTH	27.3	78.7	3.9	23.1
201005026	150 MIRONA ROAD PROPERTY	SITEEVALHW	PORTSMOUTH	47.9	119	4.7	12.8
201010003	FMR BOURNIVAL KIA SITE	HAZWASTE	PORTSMOUTH	17	25	3	4
201801004	HANSCOM'S TRUCK STOP, INC.	HAZWASTE	PORTSMOUTH	6	7.4	2	10

Sites in Portsmouth

- No Oil Remediation Sites
- No Groundwater Discharge Sites



PFAS concentrations as published in "Status Report on the Occurrence of Per- and Polyfluoroalkyl Substances (PFAS) Contamination in New Hampshire", NHDES, December 1, 2020. This report does not include data from the Pease Tradeport wells.



Landfill and Contaminated Sites PFAS in Groundwater Portsmouth, NH

Portsmouth's Drinking Water System PFAS Sampling

- 2014 – October 2018, semi-annual
 - EPA Method 537.1
 - 23 compounds
- April 2019 – July 2020, quarterly
 - EPA Method 537.1m (low detection limits)
 - 16 compounds
 - Laboratory Isotope Dilution Method
 - 19 compounds
- October 2020 – ongoing, quarterly
 - EPA Method 533
 - 25 compounds

Portsmouth Water Supply Sources Lab Results with PFAS Detections

NHDES MCL (Parts per Trillion)		-	-	-	-	18	-	11	15	12	-
SAMPLE LOCATION	COLLECTION DATE	6:2 FTS	PFBS	PFBA	PFHpA	PFHxS	PFHxA	PFNA	PFOS	PFOA	PFPeA
Treatment Plant Finished	1/28/2021	0.89	0.93	1.15	1.37	0.56	1.07	ND	ND	1.59	1.41
Madbury Well 2	1/28/2021	ND	1.89	1.85	1.07	1.00	1.56	ND	1.15	2.74	1.89
Madbury Well 3	1/28/2021	ND	1.78	1.06	1.10	0.91	1.33	ND	1.48	2.69	1.40
Madbury Well 4	10/30/2020	ND	2.12	0.62	1.00	0.58	1.38	ND	1.15	3.58	1.31
Portsmouth Well	2/5/2021	ND	1.80	2.60	2.10	6.20	3.30	ND	3.90	3.60	3.70
Collins Well	2/5/2021	3.00	14.20	2.60	ND	2.00	1.50	ND	3.70	2.00	1.80
Greenland Well	1/28/2021	ND	2.58	1.74	1.60	2.11	4.00	0.36	4.21	4.21	3.78

Portsmouth Water Supply Sources Lab Results (Rounded to Parts per Trillion)

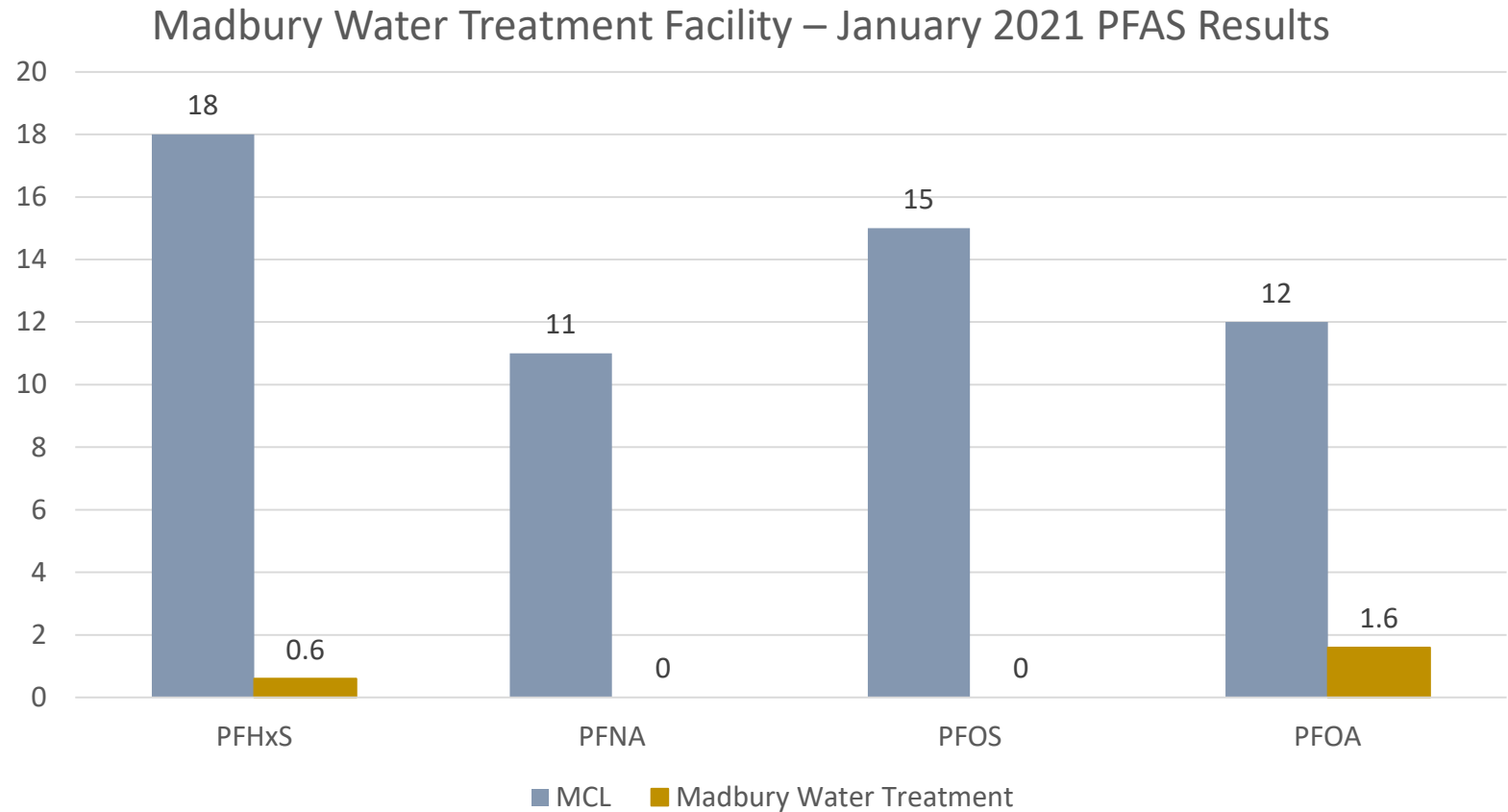
NHDES MCL (Parts per Trillion)		-	-	-	-	18	-	11	15	12	-
SAMPLE LOCATION	COLLECTION DATE	6:2 FTS	PFBS	PFBA	PFHpA	PFHxS	PFHxA	PFNA	PFOS	PFOA	PFPeA
Treatment Plant Finished	1/28/2021	1	1	1	1	1	1			2	1
Madbury Well 2	1/28/2021		2	2	1	1	2		1	3	2
Madbury Well 3	1/28/2021		2	1	1	1	1		1	3	1
Madbury Well 4	10/30/2020		2	1	1	1	1		1	4	1
Portsmouth Well	2/5/2021		2	3	2	6	3		4	4	4
Collins Well	2/5/2021	3	14	3		2	2		4	2	2
Greenland Well	1/28/2021		3	2	2	2	4	0	4	4	4

* No MCL for PFBS – Four States have set guidelines:

State	Guideline
Massachusetts	2,000
Michigan	420
Minnesota	2,000
Washington	1,300

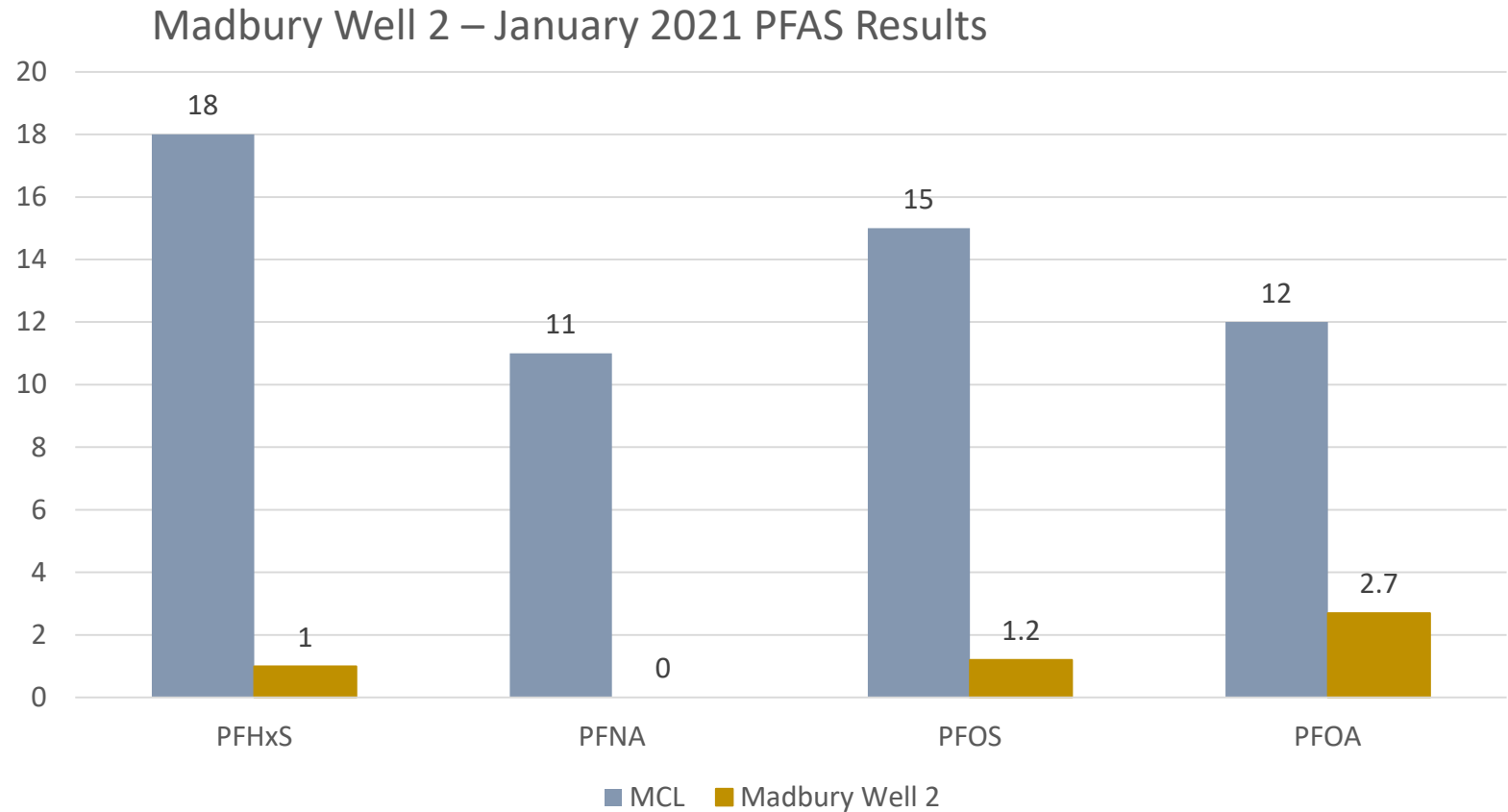
Madbury Water Treatment Facility

- 65.8 % of City's water supply
- 16 samples since 2014



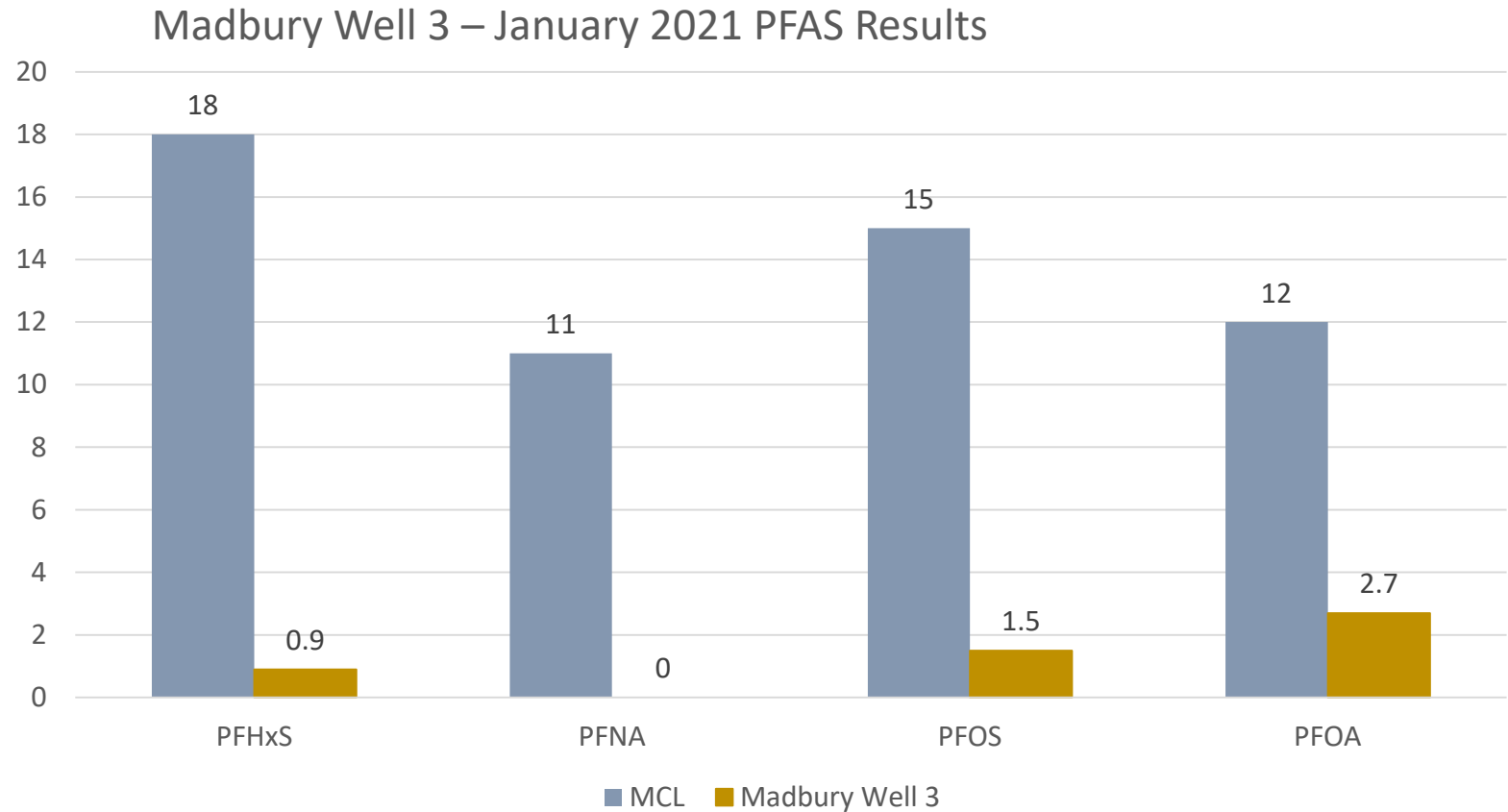
Madbury Well 2

- 2.2 % of City's water supply
- 14 samples since 2014



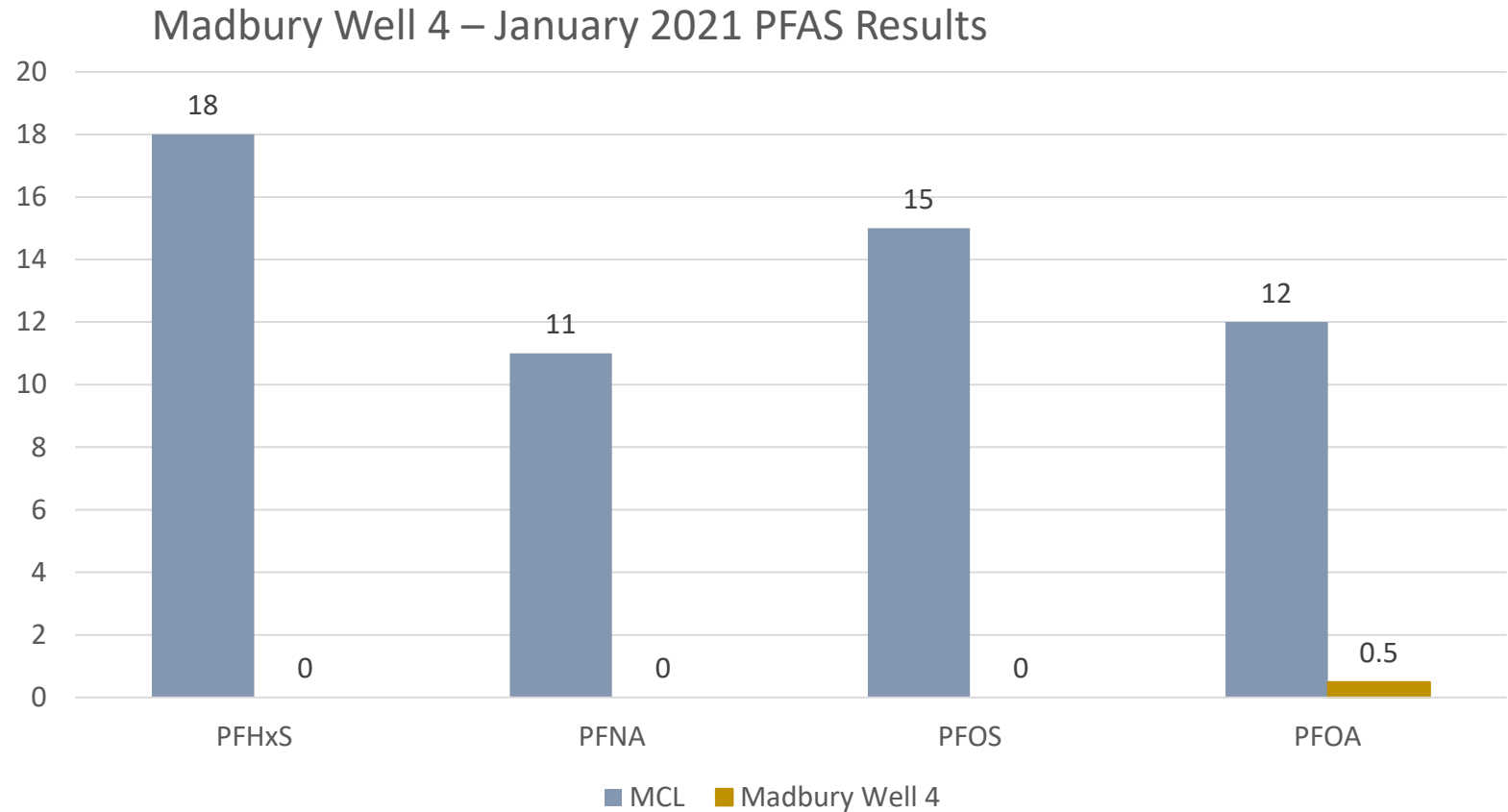
Madbury Well 3

- 4.6 % of City's water supply
- 15 samples since 2014



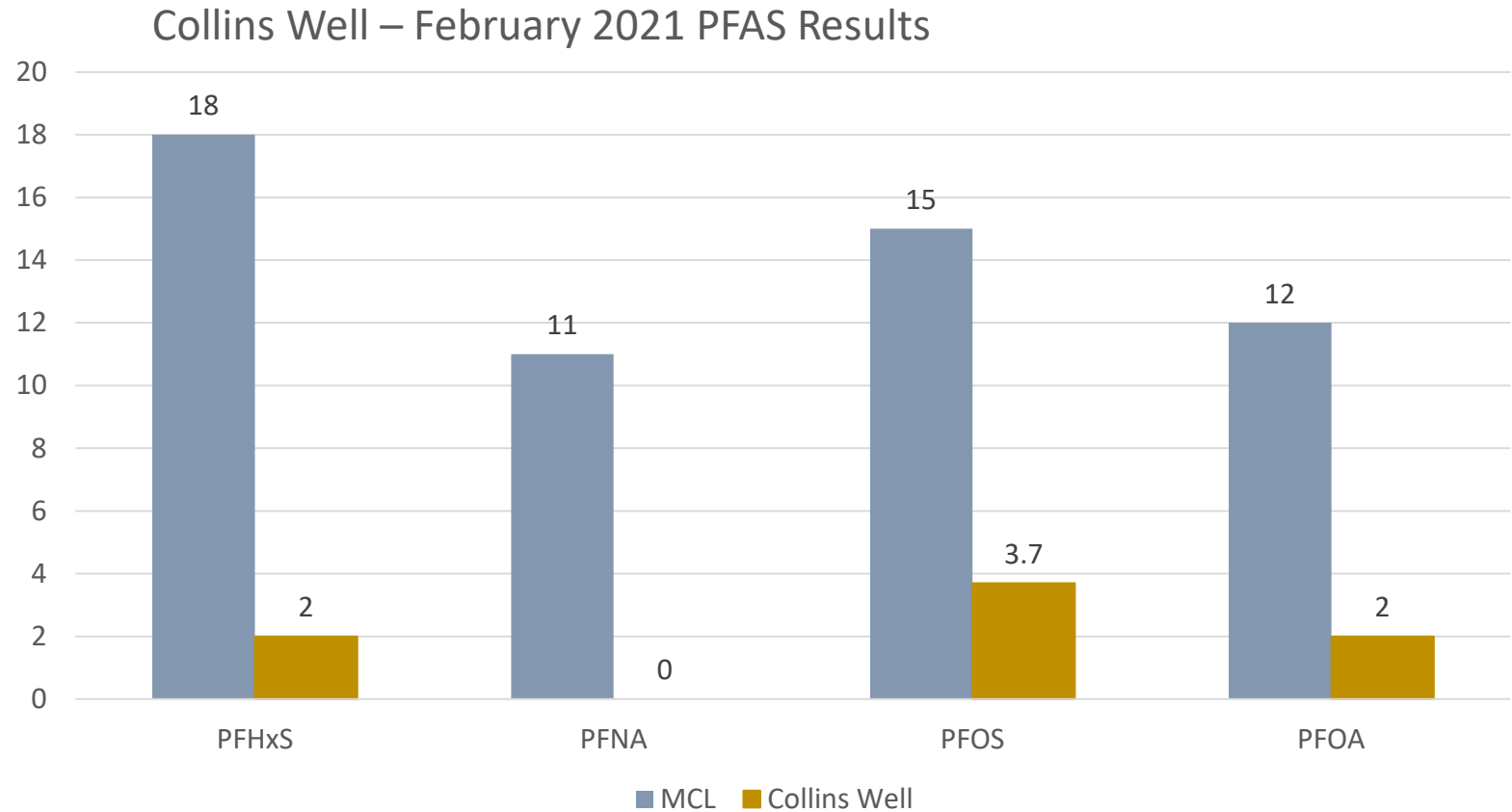
Madbury Well 4

- 5.0 % of City's water supply
- 13 samples since 2014



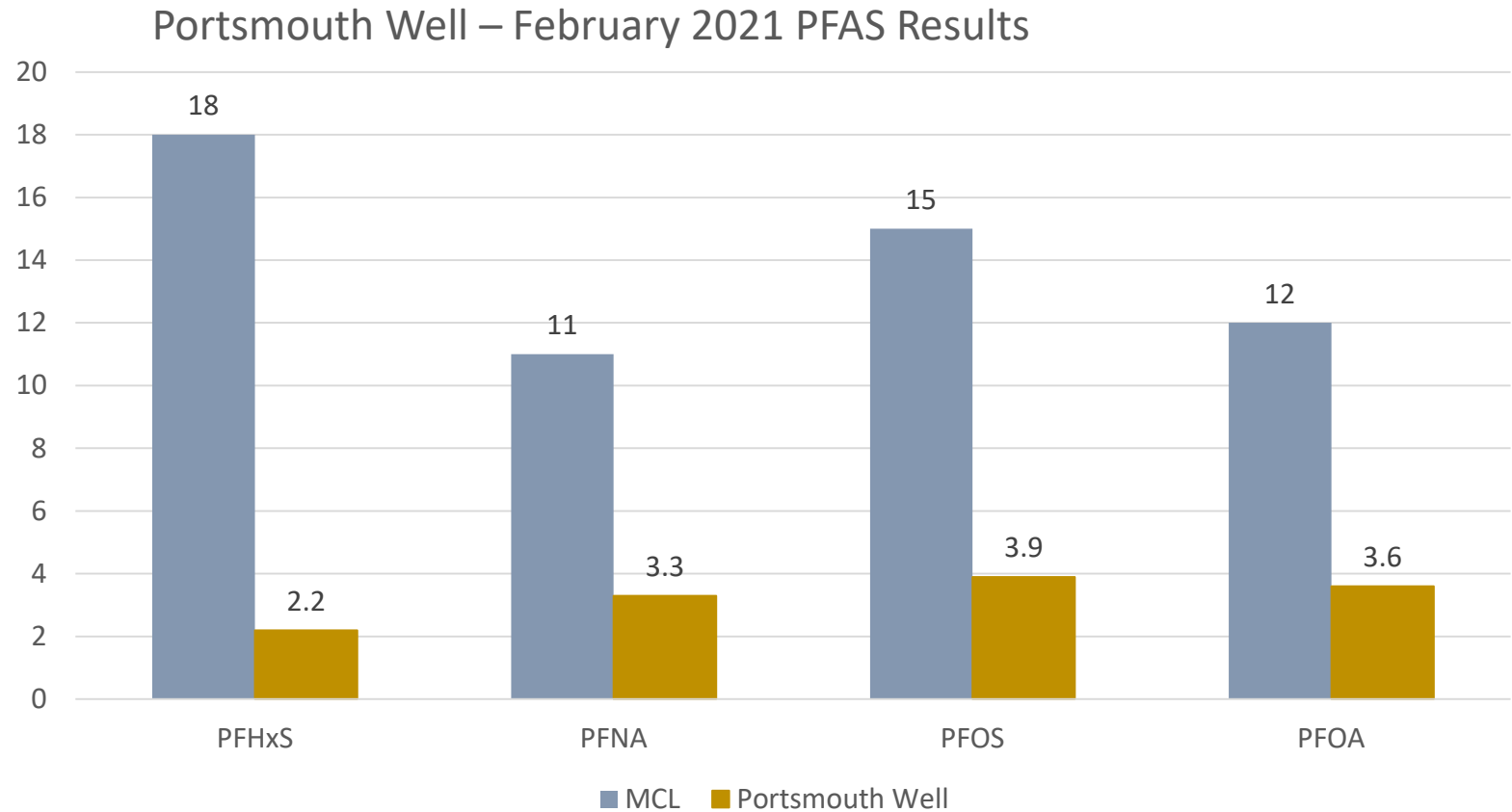
Collins Well

- 4.0 % of City's water supply
- 98 samples since 2014
 - Monthly sampling by Air Force
 - Quarterly sampling by City



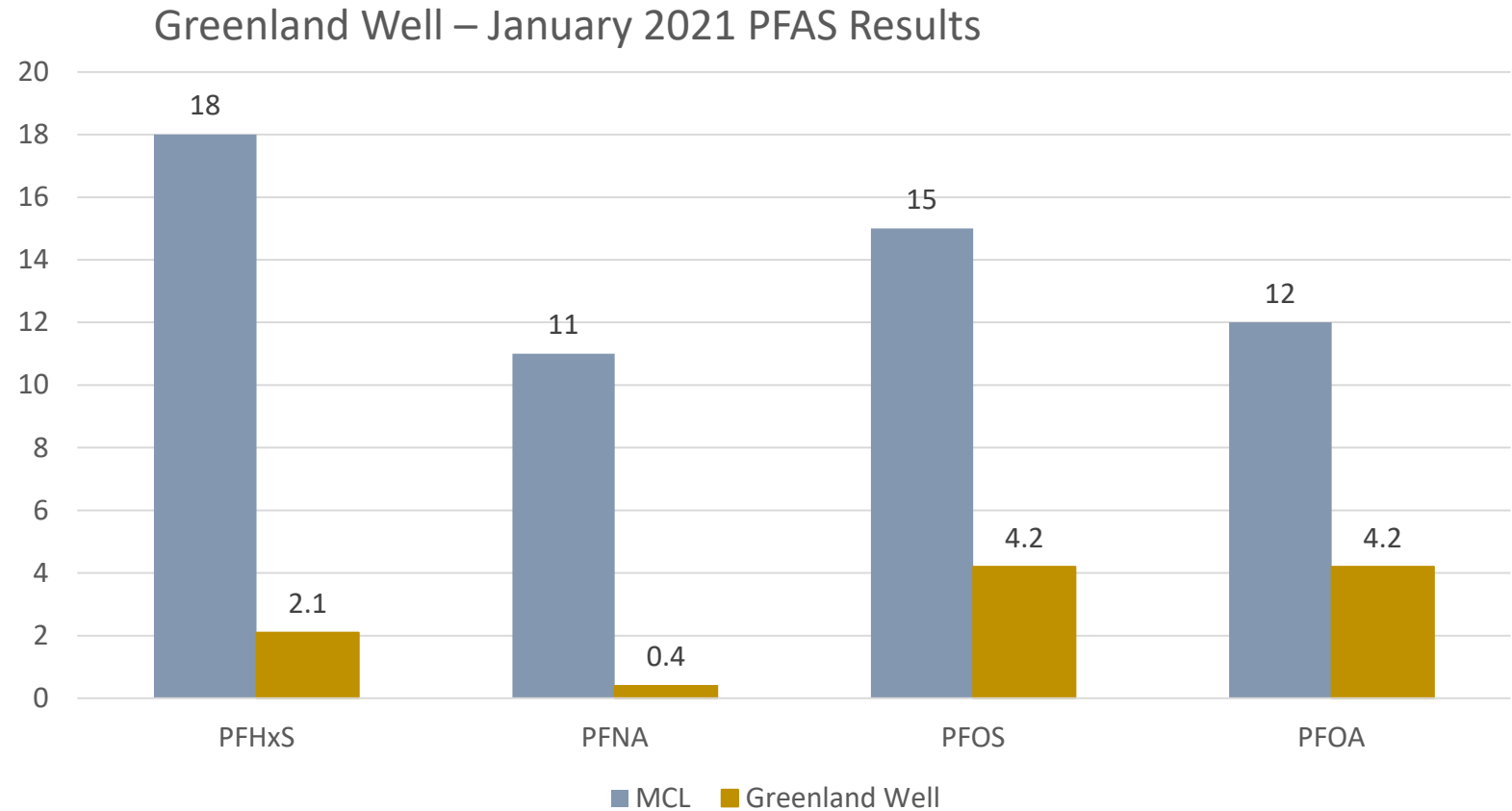
Portsmouth Well

- 6.4 % of City's water supply
- 99 samples since 2014
 - Monthly sampling by Air Force
 - Quarterly sampling by City

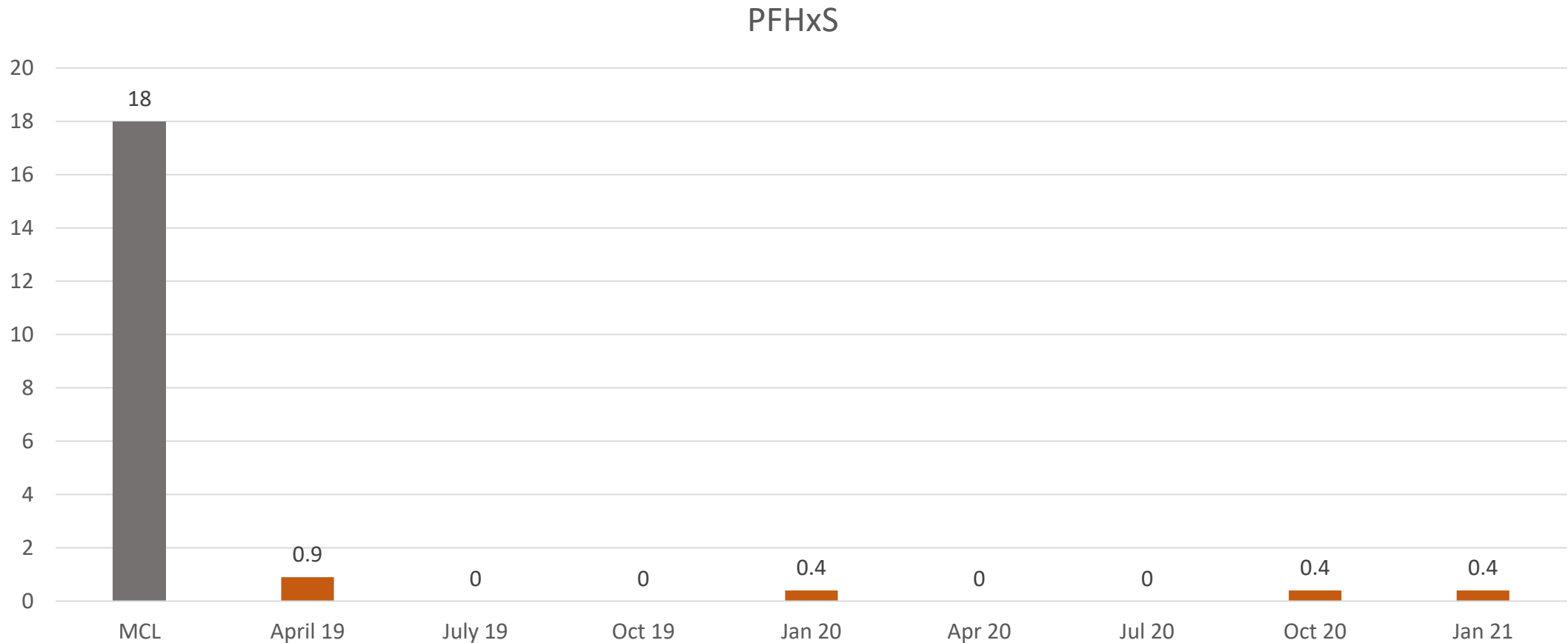


Greenland Well

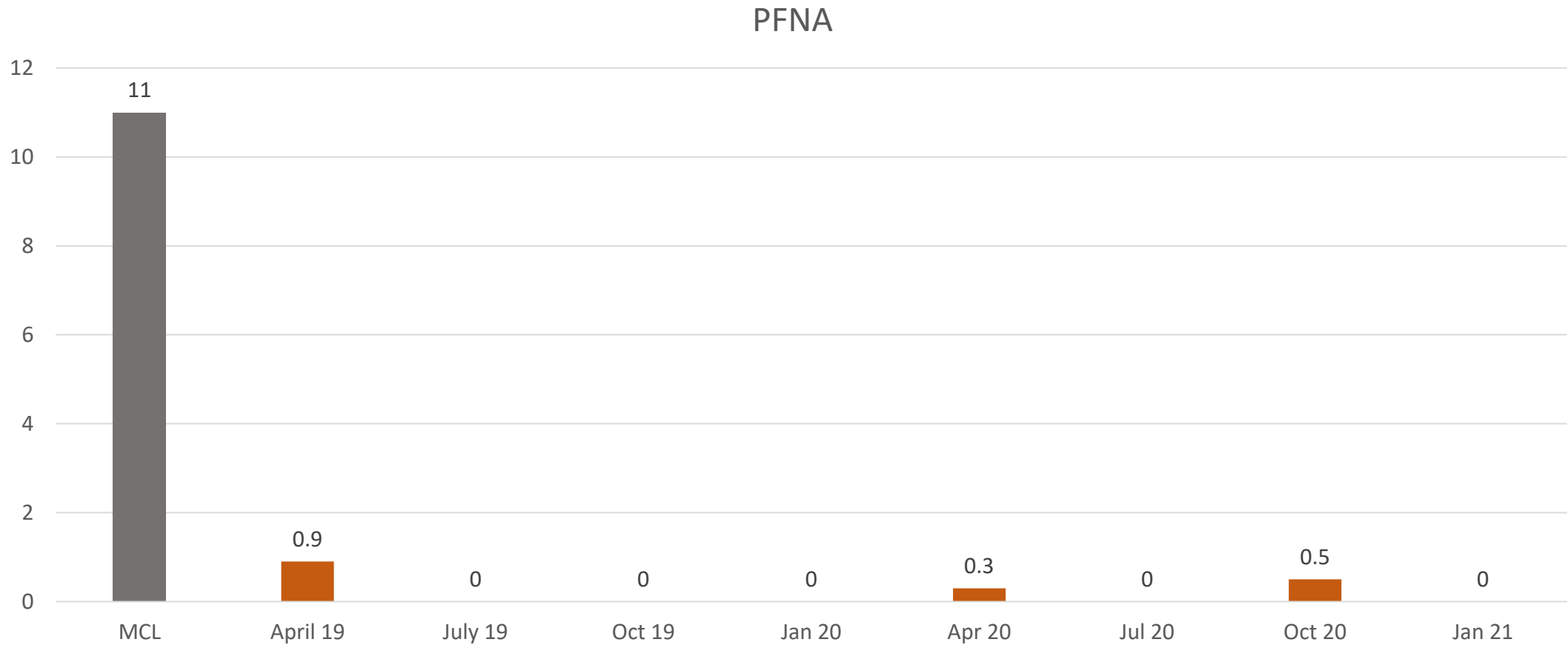
- 9.8 % of City's water supply
- 20 samples since 2014



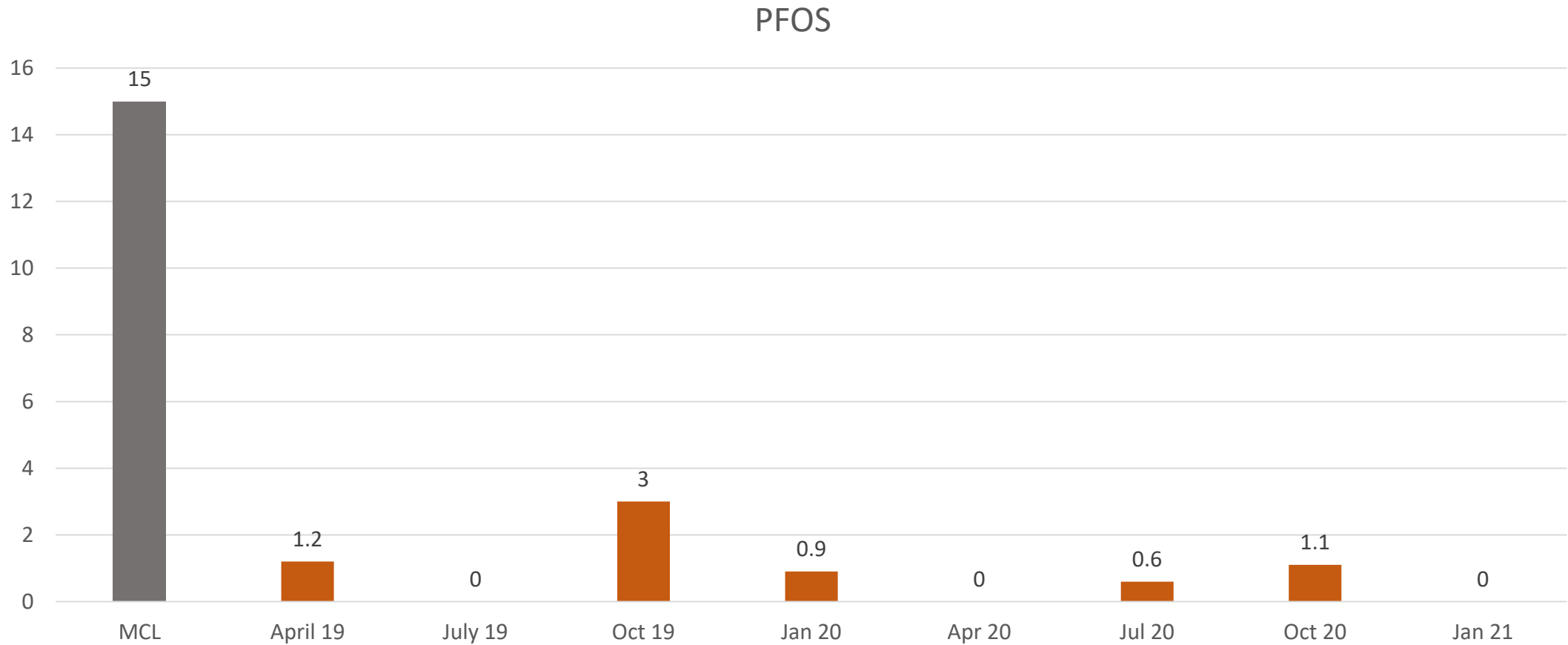
Madbury Treatment Trend – Last Two Years of Sampling for PFHxS



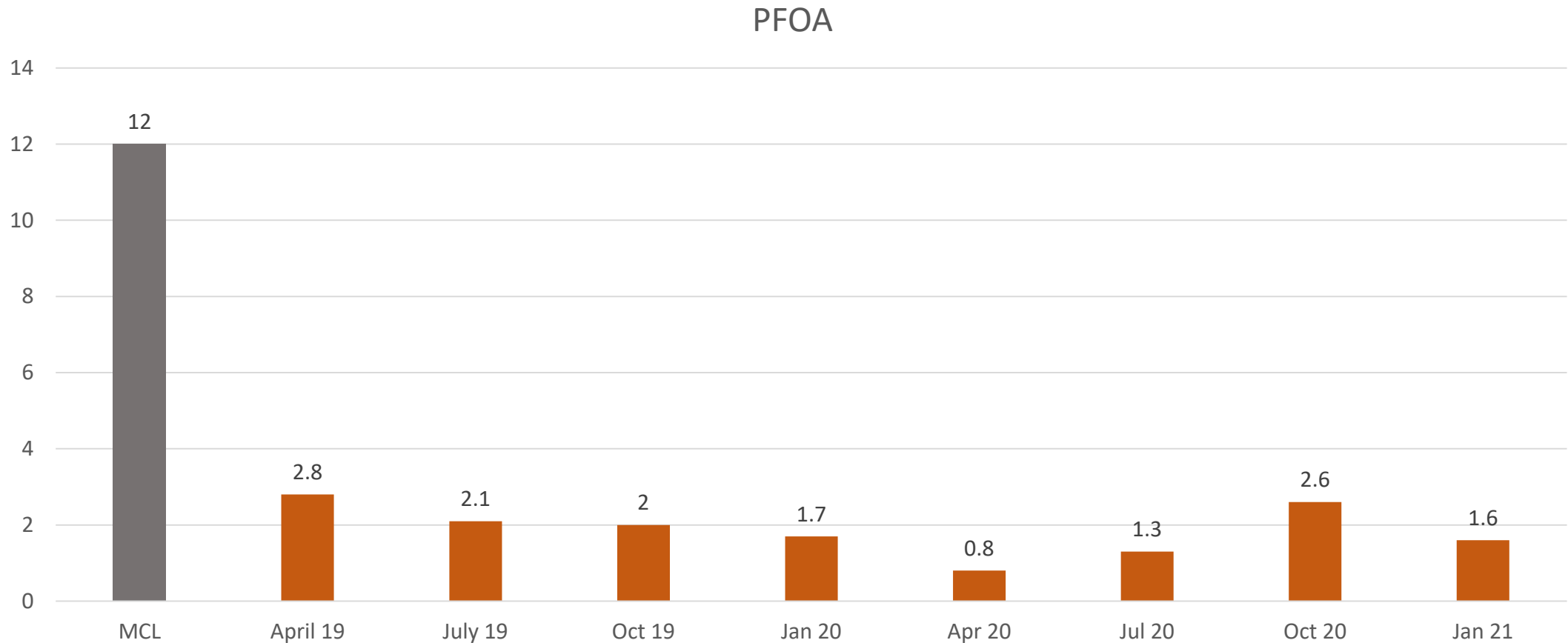
Madbury Water Treatment – Last Two Years of Sampling for PFNA



Madbury Water Treatment – Last Two Years of Sampling for PFOS



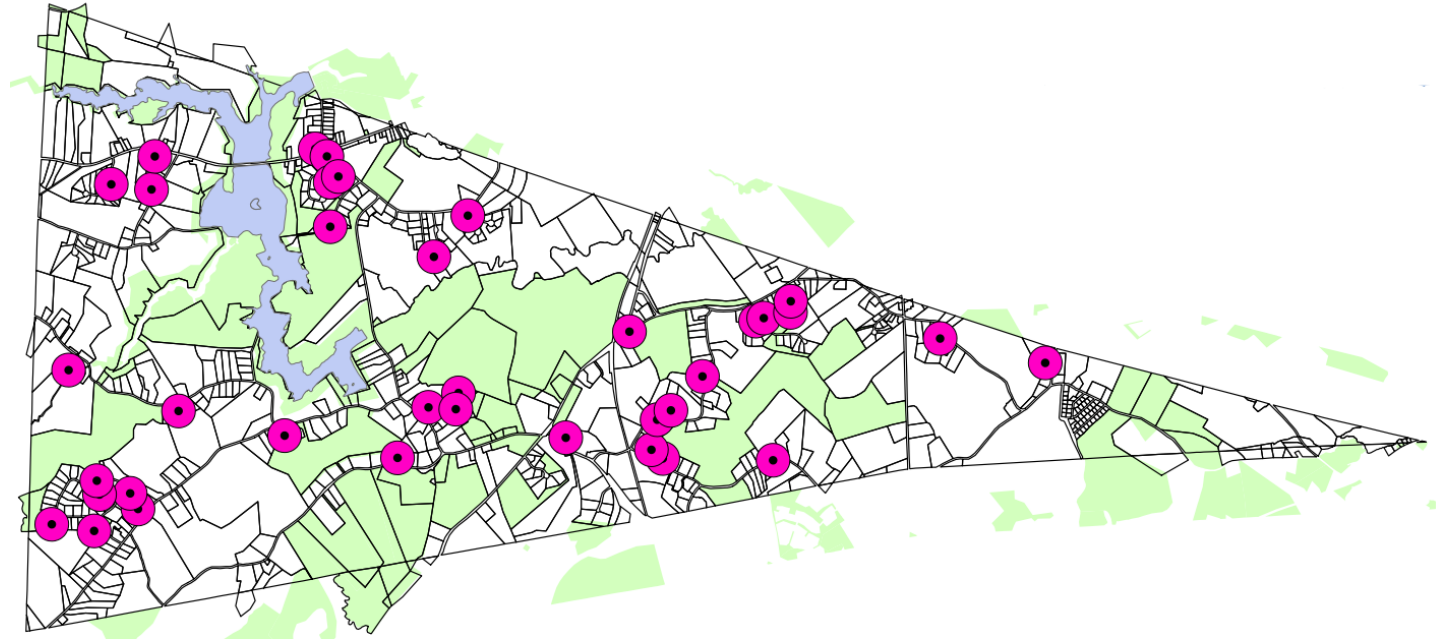
Madbury Water Treatment – Last Two Years of Sampling for PFOA



MADBURY

2019

Residential Well Testing



- In 2019 Madbury offered to collect samples from private homeowners for Standard Analysis test
- Homeowner paid about half (\$55); remainder (\$65) subsidized by the Madbury Water Board
- Additionally, DES offered VOC and PFAS analyses if Standard Analysis and GPS data was shared.
- Standard Analysis: Total Coliform Bacteria, E.coli Bacteria, nitrate, nitrite, chloride, sodium, fluoride, pH, hardness, iron, manganese, lead, copper, and arsenic
- 41 Samples total:
 - 37 Standard Analysis, VOC and PFAS
 - 3 Standard Analysis only
 - 1 Standard Analysis, VOC and PFAS for the DHHS biomonitoring program

Madbury - 2019 Residential Well Testing

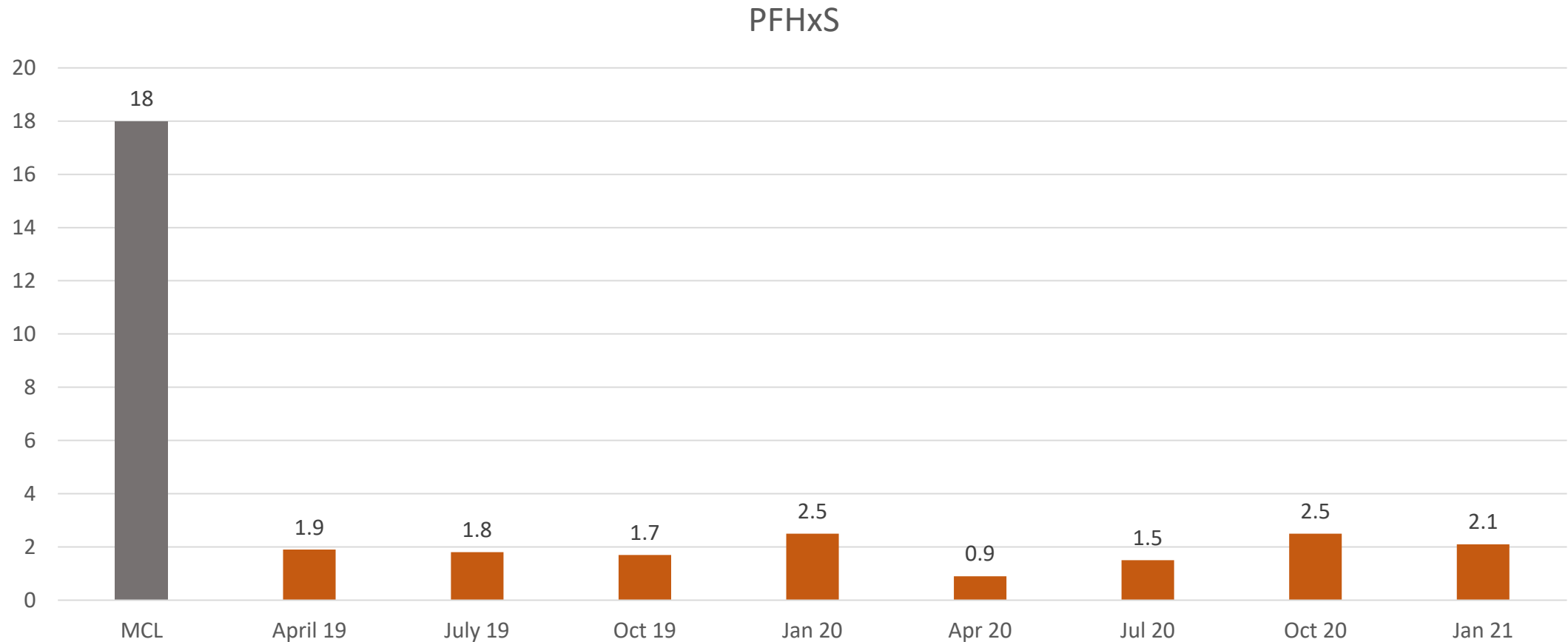
- Summary of Standard Analysis samples (41) with results exceeding federal/state standards:

Parameter	EPA MCL or recommended	Number exceed MCL	%
• Arsenic	0.010 mg/L (MCL in 2019)	13	32%
• Arsenic	0.005mg/L (NH limit in 2021)	17	41%
• Iron	0.300mg/L	4	10%
• Manganese	0.050mg/L	3	7%
• pH	6.5-8.5	3	7%
• Nitrate	10mg/L	1	2%
• Total Coliform Bacteria present		6	15%

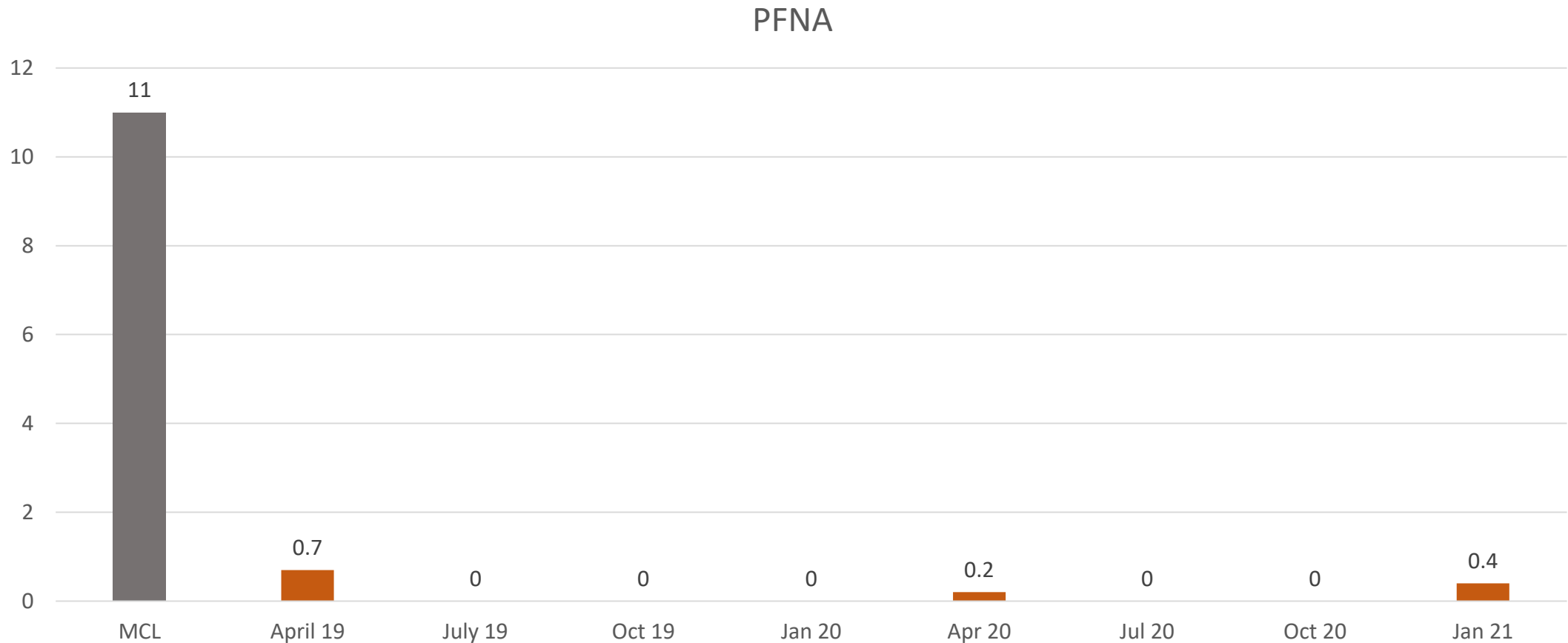
- Summary of VOC samples (38): no VOCs found
- Summary of PFAS samples (38): no sample exceeded the state limits for 4 PFAS compounds

<u>NH Limits: PFOA at 12 ng/L; PFOS at 15ng/L; PFNA at 11 ng/L; PFHxS at 18ng/L</u>
• PFOA was found present in 19 of the samples (50%)
• PFOS was found present in 8 samples (21%)
• PFNA and PFHxS were not found in reportable levels
• One sample over 100ng/L PFAS, however, none of the NH standards were exceeded

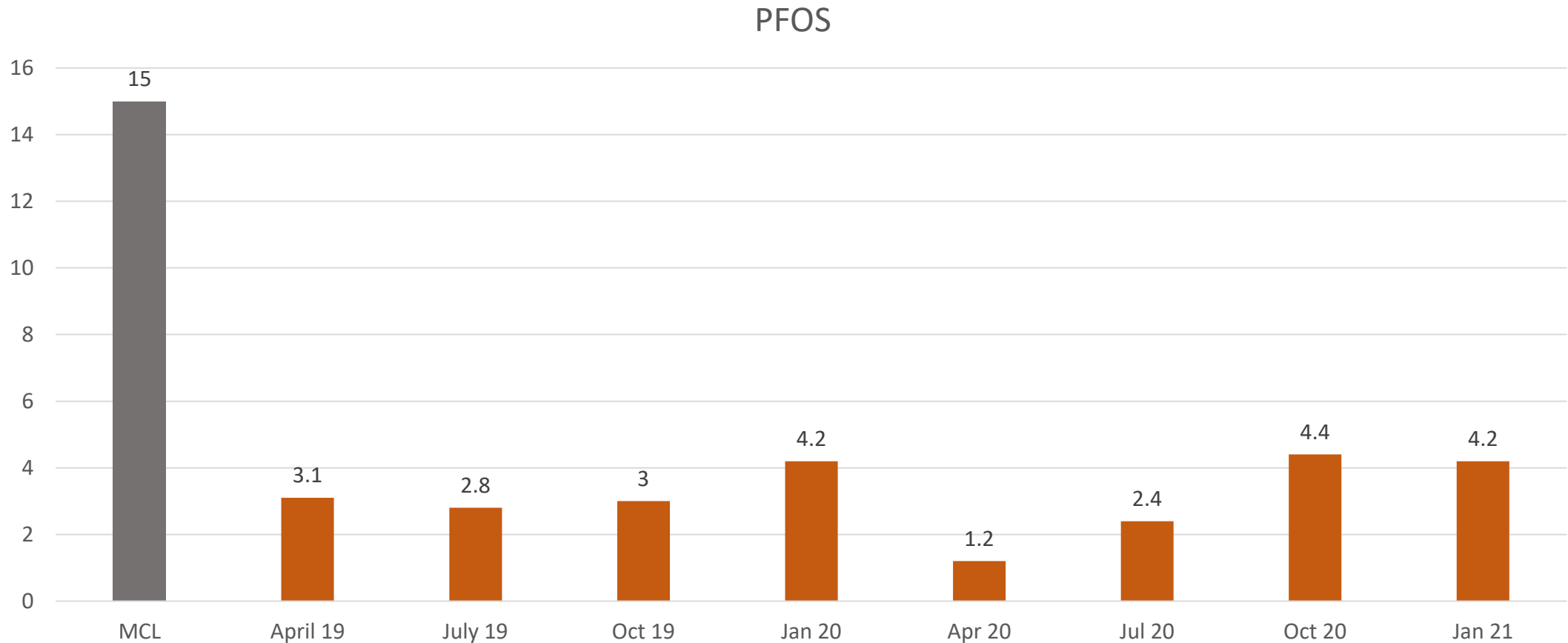
Greenland Well Trend – Last Two Years of Sampling for PFHxS



Greenland Well Trend – Last Two Years of Sampling for PFNA



Greenland Well Trend – Last Two Years of Sampling for PFOS



Greenland Well Trend – Last Two Years of Sampling for PFOA

