MANCHESTER-BY-THE-SEA

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To: Residents and Water System Customers of Manchester by the Sea

From: Chuck Dam, DPW Director

Date: Tuesday, May 03, 2022
Subject: PFAS Update

In 2021, the Massachusetts Department of Environmental Protection issued a new drinking water regulation for a family of chemicals called per- and polyfluoroalkyl substances (PFAS) and limits six PFAS compounds (known as the PFAS6) separately or together to 20 parts per trillion (ppt). The new state drinking water standard requires public water suppliers like us to test for the presence of PFAS at each point of entry into the distribution system. As of the writing of this letter, our two sources, the Gravelly Pond Treatment Facility and the Lincoln Street Well, have tested and continue to test below the maximum contaminant limit (MCL) for PFAS6. Our certified laboratory test results to date are included below.

It is important to note, violation of the MCL would result from a quarterly average over the 20ppt threshold (including split sample results), not an individual test. As we continue to test and monitor the level of PFAS in our drinking water we have taken proactive steps to understand what additional treatment may be available and how we would implement these improvements including media alternatives, bench scale/pilot testing, equipment layout, construction duration, and potential costs. As of now these are conceptual improvements that may be needed and are not currently required for our drinking water system to meet the regulation. Should we elect or be required to implement these upgrades, bench scale pilot testing and further design development will be completed.

Test Results:

LINCOLN STREET WELL* - REGULATED COMPOUNDS - ng/l (ppt)

Date	PFHpA	PFHxS	PFOA	PFNA	PFOS	PFDA	PFAS(6) Total	
10/13/2021	4.44	1.53	10.5	ND	3.31	ND	**18.25**	
11/4/2021	4.34	1.51	11.4	ND	3.13	ND	**18.87**	
12/21/2021	4.72	1.67	11.4	0.654	3.67	ND	**19.79**	
1/11/2022	4.81	1.57	11.3	ND	3.21	ND	**19.32**	
2/10/2022 (AA)	3.7	1.24	9.85	0.623	3.11	ND	**16.66**	**Split Sample**
2/10/2022 (NECC)	3.31	1.17	7.23	ND	1.49	ND	**10.54**	
3/8/2022 (AA)	4.91	1.44	12.2	0.739	2.96	ND	**20.07**	**Split Sample**
3/8/2022 (NEC)	4.42	1.29	9.82	0.693	1.76	ND	**14.24**	
4/7/2022 (AA)	4.2	1.36	11	0.81	3.42	ND	**18.62**	**Split Sample**
4/7/2022 (NEC)	3.04	1.18	7.18	ND	1.77	ND	**10.22**	

*monthly samples required after initial confirmatory test results between 10 and 20 ppt

GPWTF* - REGULATED COMPOUNDS - ng/l (ppt)

Date	PFHpA	PFHxS	PFOA	PFNA	PFOS	PFDA	PFAS(6) Total	
10/13/2021	1.6	0.52	4.6	ND	2.75	ND	**7.35**	
11/4/2021	1.48	ND	4.43	ND	2.81	ND	**7.24**	
1/11/2022	1.58	ND	4.48	ND	2.32	ND	**6.80**	
4/7/2022 (AA)	1.44	ND	4.28	ND	2.44	ND	**6.72**	**Split Sample**
4/7/2022 (NEC)	1.19	ND	2.94	ND	1.69	ND	**2.94**	

* only quarterly samples required after initial confirmatory test results under 10 ppt

PFAS are a family of chemicals used for nonstick, stain-resistant and water-proof coatings, and in numerous consumer products, industrial uses and firefighting foams. Manufacturing of certain PFAS was discontinued in the U.S. decades ago, but they may still be used in imported products. PFAS are resilient and do not degrade easily. As a result, they are widely found in the environment as products are disposed of and PFAS leaches into the soil and water, finding its way to food and drinking water sources.

PFAS is ubiquitous, and in the United States and other industrialized countries, most people have concentrations of these compounds in their blood. The good news is the levels have been dropping as use of certain PFAS have been discontinued. A 2015-2016 federal study found an 82% drop in PFOS and 70% drop in PFOA in the general population, according to the U.S. Center for Disease Control and Prevention.

While more research is needed to better understand the health impacts of exposure to substantial levels of PFAS, state regulators who have reviewed scientific findings are sufficiently concerned to set drinking water standards for PFAS. In addition, MassDEP recommends pregnant women, nursing mothers and infants not consume water if tests show PFAS levels above the state's allowable limits (when the PFAS6, individually or in combination, are above 20 ppt). These individuals are advised to use alternative sources of water such as bottled water tested for PFAS or in-home filtration systems certified to remove PFAS by independent testing groups.

We wish we had definitive answers on the health impacts, but more research is needed. MassDEP states consuming water with PFAS above the drinking water standard does not mean that adverse effects will occur, and that the degree of risk depends on the level of chemicals and the duration of exposure.

There are scientific studies that suggest potential links between exposure to certain PFAS in the environment and health effects. The studies have looked at the effects on the development of fetuses and infants, the thyroid, the liver, kidneys, hormone levels and the immune system, as well as if a cancer risk exists for people exposed to levels well above the drinking water standard.

Other Links:

{link to MBTS PFAS Executive Summary}

{link to MBTS 2021CCR}

https://www.epa.gov/pfas

https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas

https://www.safewatermass.org/