PFAS6 Results for North Chelmsford Water District Treatment Plant @ Point of Entry to the Distribution System (2026)

New GAC installed December 2025				
Compliance Period	**Date Collected**	**PFAS6 Results (ng/L)**	**PFAS6 MCL (ng/L)**	**Violation?**
1st Quarter 2026	1/5/2026	*ND*	20	No
2nd Quarter 2026	4/7/2026	*ND*	20	No
3rd Quarter 2026	7/27/2026	*ND*	20	No
4th Quarter 2026	10/13/2026	*ND*	20	No

Historical data for 2021-2025 is available at the end of this document.

PFAS

What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a class of man-made chemicals which can potentially cause adverse health effects in animals and humans. Since the 1940s, PFAS have been manufactured and used in a variety of industries around the world, including for the production of non-stick, stain repellent, and waterproof products, industrial applications, and firefighting. PFAS can enter the environment through production or waste streams and can be difficult from the environment and the human body.[1]

"J" Indicators/Qualifiers

According to the Massachusetts Department of Environmental Protection, a "J" Indicator/Qualifier is used to "note that the reported concentration is considered estimated […] whenever the measured concentration is lower than the Reporting Limit but above the Method Detection Limit. The 'J' qualifier means that the reported result is estimated.[2]" Essentially, the "J" Indicator/Qualifier indicates that the lab equipment was not able to determine an exact concentration of the substance, but it was able to see that the substance was present in the sample.

GAC Filtration

Summary

GAC is a material used to filter harmful chemicals from contaminated water or air. It is composed of granules of coal, wood, nutshells, or other carbon-rich materials that have been heated to "activate" the surface of the granules. As contaminated water flows through GAC, contaminants sorb (stick) to the GAC surface and are removed. GAC can sorb a wide range of contaminants, such as fuel oil, solvents, polychlorinated biphenyls (PCBs), dioxins, radioactive materials, some metals, and industrial chemicals. GAC treatment typically involves pumping contaminated water or soil vapor through a column or tank filled with GAC. As contaminated material flows through the GAC, the contaminants sorb to the outer and inner surfaces of the granules. The water or vapor exiting the container is cleaner. Sometimes the water or vapor must be pumped through additional columns or tanks to ensure all contaminants are removed.[3]

[1] https://www.epa.gov/sites/default/files/2019-10/documents/pfas_drinking_water_treatment_technology_options_fact_sheet_04182019.pdf
[2] https://www.mass.gov/doc/how-to-interpret-my-pfas-laboratory-report/download
[3] https://semspub.epa.gov/work/HQ/401595.pdf

Efficacy of Treatment

GAC has been shown to effectively remove PFAS from drinking water when it is used in a flow-through filter mode after particulates have already been removed from the water via conventional sand filtration or a similar process. According to current research, GAC can be 100% effective for a period of time, depending on the specific PFAS that needs to be removed, the type of carbon used, the depth of the bed of carbon, flow rate of the water, temperature, and the degree and type of organic matter as well as the presence of other contaminants, or constituents, in the water.[4]

Replacement

GAC needs to be replaced when the available surfaces on the granules are taken up by contaminants and additional contaminants can no longer sorb to them. The "spent" GAC may be replaced with fresh GAC or regenerated to remove the sorbed contaminants.[5] On average, the North Chelmsford Water District replaces the GAC at the Water Treatment Plant every 18 months.

PFAS Contamination and Remediation History

On October 11, 2020, the Town of Chelmsford ("the Town") reported elevated levels of PFAS at 52 and 54 Richardson Rd (Town DPW and Chelmsford Dog Park) to the Massachusetts Department of Environmental Protection (MassDEP) Bureau of Waste Site Cleanup. The Town was allotted one year from that date to develop and have approved an Immediate Response Action Plan per 310 CMR 40.00 (Massachusetts Contingency Plan). Since then, the North Chelmsford Water District has been regularly monitoring PFAS levels at all six wells and at the point of entry to the distribution system (the point at which the water has finished being cycled through various treatment processes and is ready to be received by customers).

The Immediate Response Action Plan, as designed by the Town's consultant, includes implementation of the most efficient technology available to lower PFAS concentrations below the MCL. The Town's Engineering Consultant, Weston & Sampson, proposed to treat the water for PFAS then re-inject it back into the aquifer, and maintain frequent testing to ensure that the treatment was effective. MassDEP, the Town, and the North Chelmsford Water District all approved this process, which remains in effect to date.

MassDEP has a regularly updated website rich with PFAS resources and information; we encourage you read through it at https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas. Please note that this information may not include the recent regulatory updates from the EPA.

The EPA's summary of their new regulations may be found here: https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas.

[4] https://www.epa.gov/sites/default/files/2019-10/documents/pfas_drinking_water_treatment_technology_options_fact_sheet_04182019.pdf
[5] https://semspub.epa.gov/work/HQ/401595.pdf

Historical PFAS6 Results for North Chelmsford Water District Treatment Plant @ Point of Entry to the Distribution System (2021-2025)

Compliance Period	Date Collected	PFAS6 Results (ng/L)	PFAS6 MCL (ng/L)	Violation?
1st Quarter 2021	1/6/2021	*ND*	20	No
	2/3/2021	*ND*	20	No
	3/3/2021	*ND*	20	No
2nd Quarter 2021	4/7/2021	*ND*	20	No
	5/5/2021	1.91	20	No
	6/2/2021	2.17	20	No
3rd Quarter 2021	7/7/2021	2.64	20	No
	8/4/2021	2.70	20	No
	9/1/2021	2.76	20	No
4th Quarter 2021	10/6/2021	3.44	20	No
	11/3/2021	5.89	20	No
	12/2/2021	4.62	20	No
1st Quarter 2022	1/5/2022	3.76	20	No
	2/2/2022	4.04	20	No
	3/9/2022	*ND*	20	No
2nd Quarter 2022	4/6/2022	*ND*	20	No
3rd Quarter 2022	7/1/2022	*ND*	20	No
4th Quarter 2022	10/1/2022	*ND*	20	No
1st Quarter 2023	1/4/2023	*ND*	20	No
2nd Quarter 2023	4/6/2023	2.14	20	No
3rd Quarter 2023	7/1/2023	5.12	20	No
4th Quarter 2023	10/2023 (Old GAC)	3.30	20	No
	11/1/2023 (New GAC)	*ND*	20	No
1st Quarter 2024	1/11/2024	*ND*	20	No
2nd Quarter 2024	4/3/2024	*ND*	20	No
3rd Quarter 2024	7/2/2024	*ND*	20	No
4th Quarter 2024	10/2/2024	*ND*	20	No
1st Quarter 2025	1/17/2025	*ND*	20	No
2nd Quarter 2025	4/18/2025	2.23	20	No
3rd Quarter 2025	7/21/2025	2.86	20	No
4th Quarter 2025	11/5/2025	2.1	20	No