MassDEP SRF Program

Project Evaluation Form (PEF)

PFAS Water Treatment Plants and Meter System Upgrades

Webster Water Department

August 2022

Tighe&Bond

Engineers | Environmental Specialists

100% Recyclable

Project Narrative

The proposed system improvements for the Webster Water Department (Water Department) include 2 per- and polyfluoroalkyl substances (PFAS) treatment facilities and a meter upgrade project. This narrative provides a description of the project and its benefits. The following report justifies the submission as a Tier V project that should be eligible for 0% PFAS financing as the Memorial Beach and Bigelow Wells have detectable concentrations of PFAS6 [defined as the sum of the concentrations of perfluorooctane sulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorohexane sulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluoroheptanoic acid (PFHpA), and perfluorodecanoic acid (PFDA)], that are close to or that exceed the Massachusetts Department of Environmental Protection (MassDEP) Maximum Contaminant Level (MCL).

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Attachment B: Memorial Beach Wells Site Plan

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Section 1
Project Background

1.1 Existing Problems

The Water Department system improvements project is classified as a Tier V project as it will remove PFAS from drinking water thereby protecting public health. The *PFAS Treatment Siting Analysis* (2022) prepared by Tighe & Bond evaluated several options for PFAS treatment as described further in this narrative (see Attachment A).

Additionally, the Webster Water Department continues to have high Unaccounted for Water (UAW) at approximately 26% even after repairs from regular (annual) leak detection testing. Therefore, the project also includes a meter system upgrade with advanced metering infrastructure and replacement of approximately 5,000 water meters. This project will enable the Water Department to recover costs of under-registered meters and will significantly reduce the amount of unaccounted for water. The recovered costs can then be used to offset some of the costs for the proposed new treatment plants.

1.1.1 Water Sources of Supply

The Webster Water Department water supply consists of three groundwater sources: Memorial Beach Pump Station No. 1, Memorial Beach Pump Station No. 2, and Bigelow Road Pump Station No. 3. The Memorial Beach Wells include six wells and two pump stations located off Memorial Beach Drive as shown in Attachment B. The Memorial Beach Wells connect to the Memorial Beach Iron and Manganese Water Treatment Plant (WTP) before entering the distribution system. The Bigelow Well connects to the Bigelow Road corrosion control facility where aeration and chemical addition take place prior to water entering the distribution system.

Pump Stations No. 1 and No. 2 are the primary sources of water for Webster as, combined, they have the largest permitted capacity (2.75 MGD). The current Memorial Beach Water Treatment Plant that treats water from Pump Station No. 1 and No. 2 provides 87% of the water used by Webster. Permitted capacities of all pump stations are summarized in Table 1-1. While Pump Station No. 3 is not the Town's primary source it is the largest single source of water and it can provide a large portion of the Town's permitted capacity, which is useful during summer months or when any of the wells are offline at Memorial Beach. However, water quality issues related to PFAS at Pump Station No. 3 have put a strain on the ability of the Water Department to meet current water demands and ensure desired redundancy.

TABLE 1-1

Water Supply Sources

Source	Well ID	Pump Station MassDEP Source ID	Approved Well Capacity (MGD)
Memorial Beach Pump Station No. 1	PS1-1 (04G) PS1-2 (05G) PS1-3 (06G) PS1-4 (07G) PS1-5 (08G)	2316000	1.73
Memorial Beach Pump Station No. 2	PS2-1 (01G)	2316000	1.02
Bigelow Road Pump Station No. 3	PS3-1 (03G)	2316000	2.16

1.1.2 Drinking Water Quality

The two Memorial Beach sources: PS No. 1 and PS No. 2 have produced a blended water quality below the 20 ng/L MCL for PFAS6, but concentrations of PFAS6 detected at individual wells have been as high as 17 ng/L.

On October 6, 2021, the Town received a Notice of Noncompliance (NON) from MassDEP for violating the PFAS6 MCL of 20 ng/L with a PFAS6 quarterly average of 22 ng/L at Pump Station No. 3 (03G). The NON is included as Attachment C. Due to exceedances of the PFAS6 MCL, the Town took Pump Station No. 3 offline until a treatment plant could be designed and constructed. However, on May 15, 2022, the pump at Well No. 6 (PS No. 2) had mechanical issues. Documentation for the Well 6 failure is included in Attachment D. Well No. 6 is the highest capacity well and therefore the Town was unable to meet system demands without operation of Pump Station No. 3. Prior to bringing the well back online, the Town sampled for PFAS6 and results from sampling indicated detections at 10.3 ng/l, which is below the MCL. Well No. 6 remains offline as there are bacteria issues resulting from the repair of mechanical issues, therefore Pump Station No. 3 remained online. In June and July of 2022, PFAS6 samples collected from Pump Station No. 3 indicated detections of 20 ng/l and 26 ng/l, respectively. The July sample results triggered an MCL exceedance. Pending clean bacteria results at Pump Station No. 2, Pump Station No. 3 will be taken offline and used for emergencies only. PFAS sampling results are included in Table 1-2.

In addition to PFAS, water from Memorial Beach Pump Stations No. 1 and No. 2 is treated for manganese and iron removal through Greensand filtration prior to entering the distribution system. Pump Station No. 3, however, does not currently treat for manganese or iron. The water at Bigelow Road does not exceed the iron Secondary Maximum Contaminant Level (SMCL) of 0.3 mg/L. However, both the raw and finish water exceed the manganese SMCL of 0.05 mg/L. Iron and manganese sampling results for Pump Station No. 3 are included in Table 1-3. Without treatment, the health-related and aesthetic issues created by the PFAS and manganese in the well water make this source unsuitable for distribution. Note that iron and manganese pretreatment would be required prior to PFAS treatment at Pump Station No. 3.

Although, Memorial Beach WTP is delivering finished water to the distribution system at concentrations below the MCL for PFAS6, concentrations for individual wells have been as high as 17 ng/l. Additionally, based on the newly published Environmental Protection Agency (EPA) interim health advisories for PFOS and PFOA and other PFAS compounds, it is anticipated that regulatory requirements will only become more stringent in the future. Therefore, since raw water at the Memorial Beach wells is consistently above the current MA action level (10 ppt), a PFAS treatment plant is also imperative at this location to ensure high water quality standards will continue to be met in the future.

In summary, without the addition of two treatment plants to remove PFAS from Memorial Beach Pump Stations Nos. 1 and 2, and Bigelow Pump Station No. 3, the Webster Water Department cannot:

- Utilize the full permitted capacity from Bigelow Pump Station No. 3
- Meet average day demands of the system during the Summer
- Meet current water quality regulations

TABLE 1-2
Webster PFAS Concentrations

Sample Location	Exploratory Round		Quarter 3 2021				Quarter 4 2021				Quarter 1 2022				Quarter 2 2022				Quarter 3 2022
	1st Round 4/6/2021	2nd Round 5/3/2021	7/30/21	8/25/21	9/29/21	QTR-3 AVG	10/21/21	11/18/21	12/16/21	QTR-4 AVG	1/20/22	2/17/22	3/18/22	QTR-1 AVG	4/21/22	5/16/22	6/16/22	QTR-2 AVG	7/21/22
Station 1 Well 1	4.38	4.24					5.18			5.18						0.00		0.00	
Station 1 Well 2	**11.10**	**10.30**					**10.8**			**10.80**						7.28		7.28	
Station 1 Well 3	**10.40**	9.54					**12.6**			**12.60**						6.74		6.74	
Station 1 Well 4	8.03	7.36					**15.5**			**15.50**						9.77		9.77	
Station 1 Well 5 (QTR Raw Water Compliance Sample)	**14.20**	**14.70**		**17.00**		**17.00**	**14.6**			**14.60**		**10.70**		**10.70**		**11.80**		**11.80**	
Station 2 Well 6 Raw	1.86	2.00					2.12			2.12							0.00		
Station 2 Mult 2 (Finished Water Compliance Sample)	5.61	0.00	6.30	**10.40**	6.80	7.83	6.63	6.74	6.63	6.67	5.08	6.16	5.05	5.43	5.60	6.08	5.81	5.97	6.39
Station 3 Raw	**14.60**	**15.10**			**15.50**		**16.8**	**14.3**	**17.8**	**16.30**	**12.60**	**13.70**	**11.00**	**12.43**	**11.00**			**11.00**	
Station 3 Finished (Finished Water Compliance Sample)	**15.20**	**15.60**	**20.40**	**24.20**	Offline	**22.30**	Offline				Offline				Offline	**10.30**	**20.00**	**15.15**	**26.10**

Red Bold Text indicates MA MCL Exceedances

Blue Bold Text indicates Action Level Exceedances

TABLE 1-3
Bigelow Road Well Iron and Manganese levels (2020 – 2021)

Sample Location	Iron (mg/L)		Manganese (mg/L)	
	Range	Average	Range	Average
Bigelow Road (raw)	0.065 – 0.273	0.158	0.007 – 0.257	0.116
Bigelow Road (finish)	ND – 0.079	0.057[1]	0.028 – 0.219	0.107

[1] Detection Limit of 0.0500 mg/L was used for Non-Detect results to calculate average.

1.1.3 Resiliency Issues

Currently, the Water Department is trying to limit the use of Bigelow Pump Station No. 3 due to PFAS concentrations above the MCL. However, due to bacteria issues at Pump Station 2, Bigelow Pump Station No. 3 must remain online to meet current demands even with PFAS concentrations exceeding the MCL. Therefore, it is imperative that a PFAS treatment plant be installed at both the Bigelow Pump Station No. 3 and Memorial Beach Pump Stations No. 1 and No. 2 to meet current system demands while providing redundancy and high water quality standards.

Although the concentration of PFAS6 detected at the finished water for Memorial Beach Pump Stations No. 1 and No. 2 have not yet exceeded the MCL, PFAS6 concentrations just below the MCL have been detected at individual wells, suggesting that water quality issues may arise if higher concentrations are detected in the future.

1.2 Existing Public Health Issues

Without PFAS treatment, the health-related and aesthetic issues created by the high PFAS concentrations at Bigelow Pump Station No. 3 make this source unsuitable for distribution. Additionally, without treatment, water from Memorial Beach Pump Station No. 1 and No. 2 are at high risk of being unsuitable for distribution due to PFAS6 concentrations from individual wells being just below the MCL. The Water Department is only marginally able to meet current demands with the water quality issues associated with Bigelow Pump Station No. 3. If Pump Station No. 3 must remain online to meet system demands, the customers could be exposed to water with PFAS concentrations higher than the MCL. This project addresses the health risks associated with these compounds at all three pump stations and will reduce PFAS and manganese concentrations at the water sources to below their respective MCLs.

1.3 Affected Population

The Webster Water Department serves approximately 16,767 people through approximately 5,000 service connections. The Town has a median household income (MHI) of $50,036 (United States Census Bureau, 2016-2020). The Town has a per capita income of $28,697.39 and an adjusted per capita income of $27,884.88. Based on the 2021 Affordability Calculation, the Town of Webster is a Tier 3 community. Webster contains EJ communities including Block Group 1, 2, and 3, which fall under low income and minority criteria. All block groups will be serviced by the project.

Section 2 Project Description

Attachment E includes a figure of the proposed projects throughout the Webster Water Distribution System.

2.1 Contract 1: Two PFAS WTPs to Treat Memorial Beach and Bigelow Wells

This project includes the construction of two new WTPs, one at Memorial Beach and one at the Bigelow Well site. Both plants have a design flow of 1,500 gpm with four filters total (two in each series) operating in a lead/lag configuration. The proposed treatment systems will include the construction of two new buildings on the Water Department's property, with one construction located at the site of the Memorial Beach WTP, and a second construction located at the site of Bigelow Pump Station No. 3. The Memorial Beach site will be designed with provisions for the expansion of the existing iron and manganese filtration systems and the implementation of PFAS filtration system using Granular Activated Carbon (GAC). It is anticipated that Calgon Filtrasorb will be used as the filter media at the two new WTPs, which has been approved by MassDEP and is on their List of Approved Technologies for Use in Massachusetts.

The new building located at Bigelow Pump Station No. 3 will also be designed to include iron and manganese treatment and a PFAS filtration system using GAC. As a part of both WTPs, new replacement wells will be installed at each site (Pump Station No. 2 and 3) to improve redundancy.

As a part of the WTP projects, the Town is considering pre-purchasing the filter vessel to get ahead of long lead times and shorten the construction period. It is our understanding that the Town would pre-purchase the filters (with MassDEP approval) and could be reimbursed after the project had been approved and interim financing was in place.

2.2 Contract 2: Water Meter Upgrades

As discussed previously, the Webster Water Department continues to have high UAW at approximately 26% even after repairs from regular (annual) leak detection testing. Therefore, the project also includes a meter system upgrade with advanced metering infrastructure and replacement of approximately 5,000 water meters and radios. This project will enable the Water Department to recover costs of under-registered meters and will significantly reduce the amount of unaccounted for water. In addition, the meter upgrade program will also reduce labor hours needed by utility personnel since drive-by data collection will no longer be necessary. The implementation of an upgraded meters system will also allow for real time data monitoring that can be used to detect malfunctions or irregularities quickly.

2.3 Major System Components

Process Flows: The design flow for each proposed WTP is 2.16 MGD (1,500 gpm).

Memorial Beach Pump Station No. 1 Well 1 through 5: Pump Station 1 Wells 1 through 5 are treated at the Memorial Beach Treatment Plant for iron and manganese. Minor piping adjustments from the pump station to the proposed WTP at the Memorial Beach site will be made.

Memorial Beach Pump Station No. 2 (Well 6): The Pump Station 2 Well is currently treated at Memorial Beach Treatment Plant for iron and manganese. Minor piping adjustments from the pump station to the proposed WTP at the Memorial Beach site will be made.

Bigelow Road Pump Station No. 3 Well 1: Pump Station 3 Well 1 will be treated at the Bigelow Road Treatment Plant. New piping from the well will be directed to the proposed WTP at the Bigelow Road site.

Treatment System: The conceptual design for the new PFAS treatment systems within the Memorial Beach PFAS WTP will include 4, 40,000lb GAC vessels that are 12 feet in diameter. Following treatment at the existing Memorial Beach Iron and Manganese Treatment plant, water will be directed to a new PFAS treatment building proposed to be located to the southeast of the existing iron and manganese plant as shown on Figure 2 of Attachment A.

The conceptual design for the new treatment system within the Bigelow Road WTP will consist of chemical feed and storage systems, pretreatment for iron and manganese followed by 4, 40,000lb GAC vessels that are 12 feet in diameter for PFAS removal as shown on Figure 3 of Attachment A.

2.4 Energy Efficiency Measures

Energy Efficient Process Components: Premium efficiency motors and variable frequency drives will be specified.

Energy Efficient Site and Building Components: Use of insulated windows for natural light, LED lighting fixtures, occupancy sensors, and tankless hot water heaters will be specified.

2.5 Back-Up Systems

If a power outage occurs, standby power capabilities are available at Memorial Beach Pump Station Nos. 1 and 2 and Bigelow Pump Station No. 3. Memorial Beach Pump Station No. 1 cannot supply the water system during a power outage, as the generator is not large enough to power the well pump. The water supply system must rely on the Memorial Beach Pump Station No. 2 and Bigelow Pump Station No. 3. The generators will be evaluated during design of the new WTPs to determine if a larger generator or additional generator will be necessary to power the entire facility to ensure delivery of potable water to all customers, even during a power outage.

Section 3 Project Implementation

3.1 Planning Efforts

Tighe & Bond developed a *PFAS Treatment Siting Analysis* (2022), which is included in Attachment A. The Siting Assessment documented three alternatives to address PFAS6 levels that exceed the MCL at Bigelow Road Pump Station No. 3 and future concerns with PFAS6 levels at Memorial Beach Pump Station Nos. 1 and 2.

3.2 Alternatives Discussion

Alternative A - One alternative is taking no action in removing PFAS from the water supply. This option is not viable, as taking no action would result in the Town being out of compliance. The Bigelow Road Pump Station No. 3 exceeds the MCL for PFAS6 and requires treatment to remain in use. Without the Bigelow Road Pump Station No. 3 in use, Webster may not be able to provide the daily demand during peak days or if a well at the Memorial Site is out of service for maintenance or emergency situations.

Alternative B – A second alternative includes installation of a blending water transmission main from the Bigelow Road Pump Station No. 3 to before the Memorial Beach WTP point of entry. The transmission main installation would require approximately 8,300 linear feet of water main. Due to the changing landscape of PFAS Regulations, analytical methods, and groundwater quality at the Town's groundwater sources, it is possible that blending strategies will be unreliable and unsuitable for a long-term solution.

Alternative C - The third alternative (preferred alternative) involves the construction of two new WTPs: one at Bigelow Pump Station No. 3 and one at the Memorial WTP. The installment of a PFAS WTP at Bigelow Pump Station No. 3 will reduce levels of PFAS6 below the MCL and allow the pump station to stay online. It is anticipated that greensand pressure filtration or biological filtration would be implemented at the site to reduce manganese concentrations to below the MCL. Pilot testing will be required for the greensand or biological filtration.

The installment of a PFAS WTP at Memorial Beach will reduce PFAS6 concentrations and minimize water quality issues that may arise in the future. Minor chemical feed system modifications are assumed. Little to no water main construction for finished and raw water transmission mains are anticipated.

The Preferred Alternative was selected as it increases the redundancy of the water system and meets the growing water demands of the Town.

3.3 Project Status

The proposed projects include two contracts. Contract 1: Two PFAS WTPs to Treat Memorial Beach and Bigelow Wells and Contract 2: Water Meter Upgrades as described further in Section 2. The Webster Water Department has retained Tighe & Bond to assist with preliminary design for PFAS removal. PFAS Bench scale testing has been performed and the results are included in Attachment F. A PFAS Pilot Report is planned to be submitted for MassDEP review in September 2022. Preliminary results indicate that four vessels (2 pairs) in lead/lag operation will be required at each WTP. Additional pilot testing will be required for greensand or biological filtration for iron and manganese removal at Pump Station No. 3 and is anticipated to begin in the Fall of 2022. Contract 2 work will follow a similar schedule. The intended goals of these projects are to submit the loan application in October

2023, obtain funding on the 2023 Intended Use Plan, and bid in early 2024. A detailed proposed timeline is presented in Table 3-1.

TABLE 3-1

Preliminary Project Schedule

Task	Schedule
PFAS Pilot Report	September 2022
Conceptual Design	June – September 2022
DWSRF PEF Application for 2023 IUP	August 12, 2022
Design Funding at Fall Town Meeting	October 2022
Iron/Manganese Piloting/Pilot Report for Bigelow Site	November 2022 – April 2023
75% Design	November 2022 – May 2023
Permitting	March – December 2023
Anticipated 2023 DWSRF Draft IUP Funding List	February 2023
Construction Funding at Spring Town Meeting	May 2023
90% Design	June-October 2023
SRF Loan Application Submitted	October 13, 2023
Anticipated SRF Loan Application Approved	December 2023
100% Design / Bid Documents	November 2023 – March 2024
Bidding and Award Phase	March – June 2024
Construction Contractor's Notice to Proceed	July 2024
Contract 1: Two PFAS WTPs to Treat Memorial Beach and Bigelow Wells	
Construction Substantial Completion	March 2026
Construction Final Completion	May 2026
Contract 2: Water Meter Upgrades	
Construction Substantial Completion	July 2025
Construction Final Completion	October 2025

Attachment A

PFAS Treatment Siting Analysis (2022)

PFAS Treatment Siting Analysis
Webster, MA

TO: Tom Cutler, Webster Water and Sewer Superintendent

FROM: Danielle Teixeira, PE Tighe & Bond
Derek Belanger, PE Tighe & Bond
Kristen Chan, EIT Tighe & Bond
Jeff Faulkner, PE Tighe & Bond

DATE: July 5, 2022

This memorandum is intended to document conceptual siting alternatives for the removal of perfluoroalkyl and polyfluoroalkyl substances (PFAS) at the Town of Webster's Memorial Beach and Bigelow groundwater drinking water sources. The purpose of this memo is to help advance alternative selection by the Town. The costs presented are orders of magnitude to compare and contrast alternatives against one another. The costs should not be considered developed enough for project budgeting.

A draft memorandum was presented to the Webster Water and Sewer Commissioners on May 4, 2022. The Commissioners reviewed the memorandum and prepared a list of questions for Tighe & Bond. Responses to these questions were submitted to the Commissioners on May 31, 2022 and are included as an attachment to this document.

The Town of Webster Water Department (Town) water supply consists of three groundwater sources:

- Memorial Beach Pump Station No. 1 — 1.73 MGD permitted capacity
- Memorial Beach Pump Station No. 2 — 1.02 MGD permitted capacity
- Bigelow Road Pump Station No. 3 — 2.16 MGD permitted capacity

The two Memorial Beach sources: PS No. 1 and PS No. 2 have produced a blended water quality well below the 20 nanograms per liter (ng/L) Maximum Contaminant Level (MCL) for PFAS6 [defined as the sum of the concentrations of perfluorooctane sulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorohexane sulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluoroheptanoic acid (PFHpA), and perfluorodecanoic acid (PFDA)],but concentrations of PFAS6 detected at individual wells have been as high as 17 ng/L.

On October 6, 2021, the Town received a Notice of Noncompliance (NON) from the Massachusetts Department of Environmental Protection (MassDEP) for violating the PFAS6 MCL of 20 ng/L with a PFAS6 quarterly average of 22 ng/L at the Bigelow Road Pump Station No. 3 (03G). Both PS No. 3 samples taken during 2021 Quarter 3 were greater than 20 ng/L. Samples collected on July 30, 2021 and August 25, 2021 had detections of PFAS6 at 20.4 ng/L and 24.2 ng/L, respectively. Due to exceedances of the PFAS6 MCL, the Town has voluntarily taken PS No. 3 offline until a treatment plan is developed and implemented. PS No. 3 remains available for emergencies. The Town is preparing to perform well cleaning and PS No. 3 may need to go back online while wells at PS No. 1 and 2 are being cleaned in June/July 2022.

For this siting analysis, Tighe & Bond developed planning level concepts for three treatment alternatives using Granular Activated Carbon (GAC). GAC has been used extensively in drinking water and remediation treatment due to its ability to adsorb a range of trace contaminants. Other technologies including Anion Exchange (IX) or Membrane Filtration are

also effective at removal of PFAS, but due to existing raw water quality (higher concentrations of sulfides and chlorides) and overall higher construction costs, these technologies were not evaluated as a part of this analysis.

GAC vessels are typically provided in pairs; operated in lead/lag for redundancy. Under this scheme, the lead vessel would be the primary treatment vessel sized for a minimum of 10 minutes of Empty Bed Contact Time (EBCT). Water treated by the lead vessel would then flow through an identical lag vessel to "polish" any PFAS remaining in the effluent of the lead vessel. MassDEP typically requests designs provide lead/lag operations to:

1) Increase the reliability for meeting the treated water quality goals
2) Reduce PFAS monitoring due to the lag vessel offering treatment if PFAS breakthrough occurs in the lead vessel, and
3) Increase the operational flexibility for scheduling media changeouts providing operators with the ability to change out the media in the lead vessel without decreasing the treatment capacity. Lead/lag operation also allows for PFAS to break through the lead vessel (typically 50% breakthrough) without compromising the finished water quality, which extends the life of the media and reduces annual operations and maintenance costs.

As discussed previously, Tighe & Bond reviewed three siting alternatives for treatment of PFAS, a summary of the alternatives are provided in Table 1.

TABLE 1
Alternatives Summary

Treatment Siting Alternative	Design Flow [gpm]	Maximum Flow [gpm]	Site
A - No Action	N/A		N/A
B - Bigelow PFAS WTP	1,500	2,000	PS3
C - Bigelow PFAS WTP and Memorial Beach PFAS WTP	3,000	4,000	PS3 and MBWTP
D - Centralized PFAS WTP at Memorial Beach and Water Transmission Main	3,000	4,000	MBWTP and Public Ways

Alternative A – No Action

Since PFAS in drinking water is regulated by both the United States Environmental Protection Agency (USEPA) and MassDEP, a "No-Action" approach would result in Town being out of regulatory compliance and therefore, will not be considered an acceptable alternative. Exceedance of the PFAS6 MCL will cause the Bigelow Road Pump Station No. 3 to be out of compliance and ultimately result in deactivation by MassDEP, similar to action taken by MassDEP with Pump Station No. 1 Well 1 and 4 due to high levels of manganese 8 or 9 years ago. Without the use of the Bigelow Road Pump Station No. 3, the Town may not be able to provide the maximum day demand during peak summer days or if an additional well goes down for emergency or maintenance.

Similarly, the Memorial Beach Wells are fed through a single iron and manganese Water Treatment Plant (WTP), without the ability to bypass the WTP prior to entering the distribution system. Therefore, the Town would not have any redundancy if the WTP or point of entry are compromised.

To maintain the Bigelow Road source for production, while other alternatives are explored, the Town may pursue a blending water transmission main from Bigelow Road Pump Station No. 3 to before the Memorial Beach WTP point of entry. While MassDEP may allow blending on a temporary basis it is unlikely this approach will be allowed without progress towards a PFAS treatment solution. Due to the changing landscape of PFAS Regulations, analytical methods, and groundwater quality at the Town's groundwater sources, it is possible that blending strategies will be unreliable and unsuitable for a long-term solution.

In addition, the Town may pursue procurement of one or a pair of treatment vessels for temporary treatment at Bigelow Road PS No. 3 while exploring long term treatment solutions. Temporary treatment using exterior vessels may be best suited to meet summer demands, however these systems could also be provided with insulation or heat-traced to allow for operation in the winter.

Alternative B – Construction of a PFAS WTP at the Bigelow Road Pump Station (PS No. 3)

Alternative B involves constructing a PFAS WTP at the Bigelow Road site where PS No. 3 is located. This site is a Town owned parcel (14 acres) in an area that is bounded by private parcels to the North and South and by Bigelow Road and the French River to the East and West, respectively. The PS No. 3 site has a relatively flat grade with a grassy area around the existing pump station that will require minimal site work for the construction of a new WTP, however this construction work would likely be within the Zone I of the Bigelow well. In addition, the site is in a FEMA Zone X500 indicating the area is at risk of a 500-year flood or presents a modest risk of 100-year flood with average depths of less than 1 foot. If the Bigelow site is selected for construction, elevating critical infrastructure 3-ft above the 100-year flood elevation and the potential need for compensatory flood storage should be considered during design. The PS No. 3 site presents little to no impact to neighbors. The closest neighbor is approximately 400 feet north of the site. The existing Bigelow PS No. 3 site already has periodic chemical deliveries; it is expected that GAC media delivery will be significantly less frequent than the existing chemical deliveries and would not represent significant additional impact to traffic or neighbors.

PS No. 3 has an approved well capacity of 2.16 MGD (1,500 gpm) and would preliminarily require four 12-ft diameter GAC adsorption vessels to maintain minimum EBCTs at between 1,500 – 2,000 gpm design flows. The WTP footprint would conceptually be between approximately 4,000 square feet depending on the adsorption media and the operational scheme selected in design and other design considerations.

Photo 1: GAC filter vessels being installed in Dudley, MA. These filter vessels are 12-ft diameter and 24-ft tall for reference.

For this alternative we've assumed installation of four 40,000 lb GAC vessels to treat PFAS6 under a "lead/lag" scenario at a flow rate of 1,500 gpm; maintaining 10 minutes of EBCT in the lead vessel. The vessels can also be operated in parallel, splitting the flow between both vessels, simultaneously. However, parallel operation would increase the risk of PFAS breakthrough and would have higher annual O&M costs due to replacing the GAC media more frequently.

We've assumed the new PFAS WTP would be a pre-engineered metal or concrete building approximately 4,000 square feet with approximately 30-foot ceiling height. Minor piping adjustments will be needed in the existing pump station building to reorient piping to the new GAC building prior to chemical treatment. While there will not be a requirement to expand the chemical feed systems at the pump station due to increased capacity, this alternative includes minor upgrades to the existing chemical feed systems due to age. The two generators on site would also be replaced with one larger generator. The existing Venturi aeration system will be replaced with a packed tower aeration system similar to the one at the MBWTP. The new PFAS WTP would add 10 – 25 PSI of backpressure to the existing pump, depending on the installed pump and the acceptable reduction in capacity, the well pump will most likely need replacement to a higher horsepower.

Additionally, we have included conceptual costs for the addition of iron and manganese treatment at the Bigelow pump station. We anticipate that biological filtration could be implemented at the site. The addition of iron and manganese filters at the site would also require piloting prior to design.

The PS No. 3 site requires minor water main construction for both finished and raw water transmission mains totaling approximately 200 linear feet (LF). The WTP would be constructed in the location of the existing pump station building. GAC treatment requires provisions for backwash following media delivery. The WTP would consist of permanent backwash storage tanks or would require additional staging area for temporary backwash storage tanks. Backwash water and pumping provisions may be provided for redundancy, but the capacity of the existing well is sufficient to provide the 800 – 1,000 gpm required for initial backwash of one 40,000 lb GAC vessel. Under this scenario the raw water would be treated through the lead vessel to remove PFAS and routed upwards through the lag vessel to provide the necessary bed expansion to remove GAC fines within the media bed.

For final disposal of backwash water and GAC fines, the PS No. 3 site provides a short distance to the nearest sanitary sewer. An existing 4-inch DI force main from a pump station on Riverside Drive is installed along Bigelow Road connecting to an 8-inch gravity sewer on North Main Street. Disposal of residuals would require approximately 100 LF of new sewer force main and a sewer pump station. A conceptual site plan is shown on Figure 1 and a summary of probable costs is provided in Table 2.

TABLE 2
Summary of Probable Costs – Alternative B Bigelow Road PFAS WTP

Description	1,500 gpm Lead/Lag
Contractor General Conditions, Bonds & Insurance, OH&P (25%)	$2,300,000
Demolition	$150,000
Site/Civil	$500,000
Water Treatment Plant Building (4,000 sq ft)	$2,000,000
Building System (Plumbing & HVAC)	$250,000
Process Piping and Equipment (4 GAC Vessels)	$2,400,000
Existing Facility Upgrades	$400,000
Iron and Manganese Treatment	$2,100,000
Backwash Water Storage Tanks	$200,000
Instrumentation & Controls	$100,000
Electrical	$1,000,000
Probable Construction Costs	**$11,400,000**
Design Contingency (40%)	$4,600,000
Engineering (25%)	$2,900,000
Estimated Capital Project Budget	**$18,900,000**

Alternative C – Construction of a PFAS WTP at Bigelow Road and Memorial Beach (Decentralized) [2 WTPs]

PFAS6 concentrations at Bigelow Road are currently driving the need for the Town to explore PFAS treatment. As discussed in Alternative B, construction of a PFAS WTP at Bigelow Road

PS No. 3will reduce the PFAS6 concentrations to below the MCL and allow the source to stay active. Due to the changing landscape of PFAS regulations, analytical methods, and groundwater quality at the Town's groundwater sources, it is possible that future PFAS treatment of the Memorial Beach Wells may also be necessary. Under Alternative C, construction of two PFAS WTP's – one at Bigelow Road and one at Memorial Beach WTP site – was evaluated. In addition to the concepts provided below, this alternative includes Alternative B.

The Memorial Beach site is on a Town owned parcel (39 acres) off of Park Street, and is bounded to the North and South by Memorial Beach Drive and Webster Lake respectively; and East and West by a Town Beach Recreational Overflow Parking and a Town Recreational Walking Track.

The existing WTP site allows for minor expansion between the existing building and walking track/woodlands, to the South, however larger buildings would likely require additional space from the adjacent Beach parking lot, to the East. While there is minor room for expansion, the site quickly drops in grade and becomes woodlands that lead to wetlands and ultimately Webster Lake 1,000 ft to the South. The Beach overflow parking lot area has a relatively flat grade with a compact sandy/gravel surface, clear and free of any trees or significant obstructions. The Memorial Beach site presents a larger impact to neighbors than the Bigelow site, as the WTP would be located adjacent to public recreational areas. Construction of a new building to the East of the WTP would impact the Beach overflow parking lot. In addition, construction activities would likely impact traffic to the beach. However, there is likely no long-term impacts to traffic following construction as media deliveries can be scheduled in the non-summer months when the beach is closed. It should be noted that there is an assumed impact on beach traffic during the summer months due to the reduction in beach parking. However, it is our understanding that this overflow lot is only utilized on two to three weekends a year. There are no wetlands or flood area concerns immediately surrounding the WTP, however construction of a new PFAS WTP would likely be within the Zone I of the Memorial Beach Well No. 6 (01G) (Pump Station No. 2).

Similar to Alternative B, Alternative C assumes installation of four 40,000lb GAC vessels, at each site, to treat PFAS6 under a "lead/lag" scenario at the required minimum of 10 minutes of EBCT. The design capacity for each WTP is 1,500 gpm for a total production capacity 3,000 gpm in lead/lag. The maximum capacity for each WTP is 2,000 gpm for a total maximum production of 4,000 gpm.

The existing Memorial Beach Iron and Manganese WTP building includes provisions for expansion of the existing iron and manganese filtration system through the South Wall. Therefore, a new building to the East of the Memorial Beach WTP would be constructed in the existing Beach overflow parking lot to house the new PFAS treatment, which would be piped immediately downstream of the existing iron and manganese treatment system. Based on our discussions with GAC vendors, we believe the residual chlorine levels of <1 mg/L in the effluent of the iron and manganese filtration system will not adversely impact the downstream GAC vessels, however, the residual chlorine levels will be quenched by the GAC and the treated water will require additional chlorination from the existing sodium hypochlorite feed system prior storage in the existing chlorinated finished water clearwell for pumping into the distribution system by the high lift treated water pumps.

We've assumed the PFAS WTP would be a brick building approximately 2,400 square feet with approximately 30 foot ceiling height. Due to the height of the walls, expansion of the existing masonry building may not be cost effective. In addition, a staggered roof line may cause snow drifts for which the existing Memorial Beach WTP roof was not designed. While expansion of the building to house GAC filters may be possible, additional evaluations would be needed in design. For the purpose of this evaluation we've assumed a separate building would be provided.

Piping adjustments will be needed in the existing WTP building to reorient piping to the new GAC building. While the expanded treatment system will require multiple points of chlorination, the reduced capacity of the WTP would likely provide additional chemical storage capacity. For the purpose of this analysis, we've assumed minor chemical feed system modifications. The new PFAS WTP would add 10 – 25 PSI of backpressure to the existing Aerated Water pumps, however it is possible the reduction in capacity would allow the pumps to overcome the additional pressures to provide average flows in Lead/Lag, while peak flows in parallel would significantly reduce the headloss through the system.

The MBWTP site requires little to no significant water main construction for both finished and raw water transmission mains totaling approximately 500 linear feet (LF). GAC media will require provisions for backwash following a media delivery. The conceptual WTP would reuse the existing backwash waste tank through temporary hose connections at the new building. The existing backwash water supply piping would be extended from the MBWTP to the new PFAS WTP to provide the 800 – 1,000 gpm required for initial backwash of one 40,000 lb GAC vessel. Under this scenario the raw water would be treated through the lead vessel to remove PFAS and routed back to the treated water clearwell where the backwash supply pumps would pump the treated water back the new PFAS WTP to provide the necessary bed expansion to remove GAC fines within the media bed.

For final disposal of backwash water and GAC fines, the MBWTP site provides an existing sewer pump station connected to the existing backwash waste holding tank. This pump station is connected to the Town gravity sewer in Memorial Beach Road. A conceptual site plan has been provided on Figure 2 and a summary of probable costs is provided in Table 3.

TABLE 3
Summary of Probable Costs – Alternative C
Two Decentralized PFAS WTPs

Description	Bigelow	Memorial Beach
Contractor General Conditions, Bonds & Insurance, OH&P (25%)	$2,300,000	$700,000
Demolition	$150,000	$100,000
Site/Civil	$500,000	$700,000
Water Treatment Plant Building (4,000 sqft Bigelow, 2,400 sqft Memorial)	$2,000,000	$1,500,000
Building System (Plumbing & HVAC)	$250,000	$250,000
Process Piping and Equipment (4 Vessels)	$2,400,000	$2,400,000
Existing Facility Upgrades	$400,000	$100,000
Iron and Manganese Treatment	$2,100,000	-
Water Storage Tanks	$200,000	-
Instrumentation & Controls	$100,000	$100,000
Electrical	$1,000,000	$1,000,000
Probable Construction Costs	**$11,400,000**	**$6,850,000**
Design Contingency (40%)	$4,600,000	$2,800,000
Engineering (25%)	$2,900,000	$1,800,000
Estimated Capital Project Budget	**$18,900,000**	**$11,450,000**
Total Estimated Capital Project Budget	**$30,350,000**	

Alternative D – Centralized PFAS WTP at Memorial Beach

Due to the changing landscape of PFAS regulations, analytical methods, and groundwater quality at the Town's groundwater sources, it is possible that future treatment of all the Town's water supply wells will be needed. A centralized WTP for the treatment of PFAS allows for reduced operational complexity. The centralized WTP would be located at the Memorial Beach WTP site, as the Memorial Beach WTP requires more operations attention for iron and manganese treatment, compared to chemical addition at Bigelow Road. By siting the new PFAS WTP to treat all the Town's sources at the Memorial Beach Site, the Town can provide centralized operations staff, but would also lose redundancy of point of entry into the distribution system.

As discussed in Alternative C, the area immediately to the South of the Memorial Beach WTP will be used for expansion of the iron and manganese filter system to account for additional flow from the Bigelow Pump Station. A centralized PFAS WTP would be sited to the East of the existing site in the public beach overflow parking lot as shown on Figure 3. The Beach overflow parking lot area has a relatively flat grade with a compact sandy/gravel surface, clear and free of any trees or significant obstructions. Construction of a new building to the East of the existing site, adjacent to the site stormwater system would reduce the impact to the walking track adjacent to the existing Memorial Beach WTP. Construction activities would likely impact traffic to the beach, however following construction, there is likely no long-term impacts to traffic, as media deliveries can be scheduled in the non-summer months when the beach is closed. It should be noted that there is an assumed impact on beach traffic during the summer months due to the reduction in beach parking, however, this is beyond the scope of this memorandum. There are no wetlands or flood area concerns immediately surrounding the WTP, however construction of a new PFAS WTP would likely be within the Zone I of the Memorial Beach Well No. 6 (01G).

The proposed location of the centralized WTP is located on a Town owned parcel, due to setback requirements, the planning board may require that an Approval Not Required (ANR) be filed to join the lots.

The proposed centralized PFAS WTP would treat water from all three pump stations, which have a total approved well capacity of 4.91 MGD (3,410 gpm). The existing Memorial Beach Water Treatment Plant is designed for 2.75 MGD, however the wells at the Memorial Beach Pump Stations have not been capable of providing full capacity to the WTP. A centralized PFAS WTP would be conceptually sized for 4.3 MGD or approximately 3,000 gpm, which is greater than the current maximum day demand. A conceptual treatment system would preliminarily require six 12-ft diameter adsorption vessels to maintain minimum EBCTs at between 2,000 – 3,000 gpm design flows. Therefore, a conceptual Water Treatment Plant would likely be 5,200 square feet depending on the operational scheme selected in design.

We've assumed the PFAS WTP would be a brick and masonry building approximately 5,200 square feet with an approximately 30 foot high ceiling. We have assumed a masonry building with a brick veneer is required to match the existing construction of the Memorial Beach WTP. Additional evaluations should be performed in design to confirm the cost effectiveness of materials of construction.

The new PFAS WTP would add 10 – 25 PSI of backpressure to the existing aerated water pumps. Based on observed operations, these pumps may be capable of providing maximum daily demands at the future pressures, however we've assumed minor upgrades to increase the capacity of the existing pumps to compensate for the increase in backpressure. As the existing capacity of the existing Memorial Beach Iron and Manganese WTP is not being expanded, the existing chemical storage systems should be sufficient for use in the centralized WTP. We've assumed minor upgrades to include a new chemical day tank and metering pump for a permanent pre-clearwell chlorine feed prior to the treated water clearwell. We've also assumed replacements for the aeration tower and generator onsite. Due to centralization of all treatment, the Memorial Beach site would be the single point of entry into the distribution

system. To allow for additional redundancy, if the High Lift Pumps were to fail, we've assumed the Town will maintain high lift pumping systems at Bigelow Road, which will be capable of pumping through the PFAS WTP without being conveyed through the pumping systems at the Memorial Beach WTP. The Town may utilize multiple sets of pumps, pressure reducing valves, variable frequency drives or a combination of these or other techniques which will be developed in design to meet the hydraulic requirements of the system. If the Town were operating the PFAS WTP in bypass of the Memorial Beach WTP, chemical addition would also be required. Conduits from the Memorial Beach WTP could be routed to the new building, from the existing chemical storage areas or new chemical storage could be provided. Minor upgrades to the chemical feed system has been included to account for bypass of the Memorial Beach WTP.

Alternative D's centralized WTP would require significant water main construction both at the Memorial Beach site and a raw water transmission main from Bigelow Road to Memorial Beach. There are two proposed alternatives for the 12-inch raw water transmission main:

- Alternative D1 – Park Avenue
- Alternative D2 – Second Island Road

Figure 4 presents the two alternative routes that are being considered for the raw water transmission main. Alternative D1 – Park Avenue would require the construction of approximately 12,700 linear feet of water main. Alternative D2 – Second Island Road would require the construction of approximately 8,300 linear feet of water main. Proposed route limits are included in Tables 4 and 5.

TABLE 4
Approximate Limits of Work: Alternative D1 Water Main – Park Avenue

Road	Limits	Approximate Length (LF)
Bigelow Road	PS No. 3 to North Main Street	1,700
North Main Street	Bigelow Road to Slater Street	750
Slater Street	North Main Street to Park Avenue	3,000
Park Avenue	Slater Street to Thompson Road / Route 193	2,850
Park Avenue[1]	Slater Street to Thompson Road / Route 193	2,850
Thompson Road / Route 193	Park Avenue to Memorial Beach Drive	1,000
Memorial Beach Drive	Thompson Road to Memorial Beach WTP	550
	Total	**12,700**

[1] Existing 8-inch water main to be replaced with new 12-inch water main

TABLE 5
Approximate Limits of Work: Alternative D2 Water Main – Second Island Road

Road	Limits	Approximate Length (LF)
Bigelow Road	PS No. 3 to North Main Street	1,700
North Main Street	Bigelow Road to Slater Street	750
Slater Street	North Main Street to Park Avenue	3,000
Park Avenue	Slater Street to Second Island Road	300
Second Island Road	Park Avenue to Memorial Beach Drive	2,000
Memorial Beach Drive	Second Island Road to Memorial Beach WTP	550
	Total	**8,300**

[1] Existing 8-inch water main to be replaced with new 12-inch water main

The common transmission main route consists of 5,600 LF from Bigelow Road to Park Avenue where Second Island Road intersects with Park Avenue. Both Alternatives also include 550 LF of water main on Memorial Beach Drive. The common transmission main route crosses a bridge along Bigelow Road. Neither Alternative route crosses any significant culverts.

At the end of the common transmission main route where Second Island Road meets Park Avenue, Alternative D1 continues southeast along Park Avenue for 2,500 LF until Park Avenue meets Thompson Road, also known Route 193 (not a state controlled road). At the Town's request, 2,850 LF of water main replacement was added to this alternative because the proposed water main on Park Avenue coincides with the Town's water main replacement program. The Town is already planning on replacing the existing 8-inch water main on Park Avenue with new 12-inch ductile iron water main. If this alternative is chosen, mobilization costs can be reduced by constructing the proposed raw water transmission main and replacing the existing water main at the same time. The proposed water main route then follows Thompson/Road/Route 193 north for 1,000 LF until it reaches Memorial Beach Drive. It is our understanding that there may be a 5-year roadway opening moratorium on Thompson Road. If this alternative is chosen, additional coordination will be necessary.

Instead of continuing southeast along Park Avenue at the intersection of Park Avenue and Second Island Road, the route for Alternative D2 follows Second Island Road for 2,000 LF until Second Island Road meets Memorial Beach Drive. Alternative D2 does not include any water main along state highways.

Site piping would likely require approximately 1,000 LF of water main for use in conveying process water between the existing Memorial Beach WTP and the new centralized PFAS WTP, as well as backwash supply and waste piping. Provisions for backwash following a media delivery will be required. The conceptual WTP would reuse the existing backwash waste tank through buried ductile iron process piping connections at the new building. The existing backwash water supply piping would be extended from the MBWTP to the new PFAS WTP to provide the 800 – 1,000 gpm required for initial backwash of one 40,000 lb GAC vessel. Under this scenario the raw water would be treated through the lead vessel to remove PFAS and routed back to the treated water clearwell where the backwash supply pumps would pump the treated water back the new PFAS WTP to provide the necessary bed expansion to remove GAC fines within the media bed.

For final disposal of backwash water and GAC fines, the MBWTP site provides an existing sewer pump station connected to the existing backwash waste holding tank. This pump station

is connected to the Town gravity sewer in Memorial Beach Road. A conceptual site plan has been provided in the attached documents and a summary of probable costs is provided in Table 6.

TABLE 6

Summary of Probable Costs – Alternative D Centralized PFAS WTP

Description	3,000 gpm Lead/Lag
Contractor General Conditions, Bonds & Insurance, OH&P (25%)	$4,500,000
Demolition	$100,000
Raw Water Transmission Main (8,300 LF)	$4,000,000
Site/Civil	$1,000,000
Water Treatment Plant Building	$3,500,000
Building System (Plumbing, HVAC, Painting, Fire Protection)	$1,000,000
Process Piping Equipment (6 Vessels)	$3,800,000
Existing Facility Upgrades (including aeration Tower)	$600,000
Iron and Manganese Expansion	$2,000,000
Instrumentation & Controls	$300,000
Electrical	$1,500,000
Probable Construction Costs	**$22,300,000**
Design Contingency (40%)	$4,500,000
Engineering (25%)	$9,000,000
Estimated Capital Project Budget	**$35,800,000**

Alternatives Analysis

The alternatives presented in the previous sections are summarized in Table 7. Each alternative is presented with a description and major advantages and disadvantages as well as recommended Capital Project Budget.

TABLE 7
Summary of Alternatives

Description	Advantages	Disadvantages	Order of Magnitude Cost (Rounded)
Alternative B or C **Site Specific PFAS WTPs** Construction of a PFAS WTP at PS No. 3 site, assumes a future PFAS WTP at Memorial Beach will be required	*Lower Capital Investment*	*Floodplain*	***$19M or $30M***
Alternative D Centralized PFAS WTP Construction of a raw water transmission main to convey PS No. 3 raw water to the Memorial Beach WTP site and construction of a centralized PFAS WTP adjacent to the Memorial Beach WTP	*Temporary Blending* *Centralized Operations*	*Public Beach and Walking Track* *Higher Capital Investment* *Reduced Point of Entry Redundancy*	***$36M***

Based on the analysis of alternatives presented in the memorandum, it appears all alternatives are feasible and would reasonably mitigate the PFAS6 concerns of the water system. Alternative B is the most economical. If future water quality regulations change, an additional WTP would be needed at Memorial Beach however this is not currently required. Construction of a PFAS WTP at each of the Town's sites represents the preferred alternative from an economic evaluation. However, State and Federal programs are currently in place which are providing low interest loans and principle forgiveness/grant for projects associated with PFAS6 mitigation. While these programs are currently in effect and subsidizing the burden of capital projects addressing PFAS6, these programs may be temporary. It is unknown whether less or more public assistance may be available for capital projects addressing PFAS6 if a future Memorial Beach PFAS WTP is needed (Alternative C).

The conceptual level budgetary cost estimates presented in this analysis are based on Class 4 level construction cost estimates, as defined by AACE International. According to these standards, the estimate class designators are labeled Class 1, 2, 3, 4, and 5, where a Class 5 estimate is based on the lowest level of project definition and a Class 1 estimate is closest to full project definition and maturity. Class 4 estimates are intended for conceptual studies. The expected accuracy range of a Class 4 estimate is between +40% to -25%. The level of project definition for a Class 4 estimate is between 1% and 15%. The purpose of the numbers provided in this analysis is to advance alternative selection and should not be used for project budgeting. Once an alternative has been selected, a more defined budget can be prepared.

Attachments

Figure 1: Alternative B – Bigelow Road WTP Conceptual Site Plan

Figure 2: Alternative C – Memorial Beach PFAS WTP Conceptual Site Plan

Figure 3: Alternative D – Centralized PFAS WTP at Memorial Beach Conceptual Site Plan

Figure 4: Proposed Water Transmission Main Routes

Responses to Commissioner's Questions

CONCEPTUAL
NOT FOR CONSTRUCTION

N

REPLACE EXISTING GENERATORS WITH ONE NEW GENERATOR

DEMOLISH EXISTING WELL PUMP STATION AND REPLACE PUMP

EXISTING CORROSION CONTROL FACILITY AND BURIED CONCRETE CLEARWELL.
REPLACE EXISTING CHEMICAL FEED SYSTEM, WATER METERS, PUMPS, EXHAUST FANS, AND HEATER.

50'X80' BIGELOW IRON, MANGANESE, AND PFAS WTP

100 LF 12-INCH WATER MAIN

TWO 18,000 GALLON BURIED PRECAST BACKWASH TANKS

BURIED SEWER PUMP STATION, DISCHARGE TO 4-INCH FORCEMAIN IN BIGELOW ROAD

FEMA ZONE: AE
FEMA ZONE: X500

BIGELOW ROAD

452
454
456
458
460

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

WEBSTER WATER DEPARTMENT
WEBSTER, MASSACHUSETTS

ALTERNATIVE B
BIGELOW ROAD PFAS WTP
CONCEPTUAL SITE PLAN

DATE:	3/25/2022
SCALE:	AS SHOWN
FIGURE:	1

Tighe&Bond

Plotted On:May 04, 2022-2:12pm By: KChan
Tighe & Bond:J:\W\W5002 Webster MA\034 PFAS Pilot Study\Drawings_Figures\AutoCAD\Sheet\W5002-034_Bigelow.dwg

CONCEPTUAL
NOT FOR CONSTRUCTION

N

EXISTING AERATION BUILDING, TOWER AERATOR, AND BURIED CONCRETE CLEARWELL. CLEAN AND RESTORE AERATION BUILDING PUMPS.

EXISTING MEMORIAL BEACH WTP. REPLACE CHEMICAL FEED SYSTEMS AND FILTER MEDIA.

EXISTING BURIED CONCRETE BACKWASH WASTE TANK

MEMORIAL BEACH DRIVE

BEACH PARKING LOT

REPLACE EXISTING GENERATOR

MEMORIAL BEACH PFAS WTP 30'X80'

PUMP STATION NO. 2 (WELL NO. 6)

RESERVE AREA FOR FUTURE IRON AND MANGANESE EXPANSION (52'X32')

492

490

488

486

W

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

WEBSTER WATER DEPARTMENT
WEBSTER, MASSACHUSETTS

ALTERNATIVE C
MEMORIAL BEACH PFAS WTP
CONCEPTUAL SITE PLAN

DATE:	3/25/2022
SCALE:	AS SHOWN
FIGURE:	2

Tighe&Bond

Plotted On:Apr 26, 2022-8:33am By: BJL
Tighe & Bond:J:\W\W5002 Webster MA\034 PFAS Pilot Study\Drawings_Figures\AutoCAD\Sheet\W5002-034_MemBch - FIG2.dwg

CONCEPTUAL
NOT FOR CONSTRUCTION

N

BIGELOW WELL RAW WATER TRANSMISSION MAIN ALTERNATIVE 3B

CONNECT 9,000 LF 12-INCH RAW WATER TRANSMISSION MAIN FROM BIGELOW ROAD PUMP STATION 3 AT THE CORNER OF MEMORIAL BEACH DRIVE AND THOMPSON ROAD

REUSE EXISTING WATER MAIN BENEATH I-395 OVERPASS

BIGELOW WELL RAW WATER TRANSMISSION MAIN ALTERNATIVE 3A

300 LF 8-INCH DI MEMORIAL BEACH WTP BYPASS FINISHED WATER MAIN

1,000 LF 8-INCH DI MEMORIAL BEACH WTP BYPASS WATER MAIN

CLEAN AND RESTORE AERATION BUILDING PUMPS

EXISTING MEMORIAL BEACH WTP. REPLACE CHEMICAL FEED SYSTEMS AND FILTER MEDIA.

EXISTING BURIED CONCRETE BACKWASH WASH TANK

AERATION TOWER

IRON AND MANGANESE EXPANSION BUILDING (52'X32')

64'X80' CENTRALIZED PFAS WTP

300 LF 8-INCH BACKWASH DRAIN

200 LF 8-INCH BACKWASH SUPPLY

200 LF 12-INCH TREATED WATER

200 LF 12-INCH FILTERED WATER

CHEMICAL FEED CONDUIT

EXISTING PUMP STATION NO. 2 (WELL NO. 6)

NEW ISOLATION VALVES AT THE CONNECTION OF PS NO. 3 RAW WATER MAIN WITH PS NO. 1 RAW WATER MAIN

PUMP STATION NO. 1 RAW WATER TRANSMISSION MAIN

THOMPSON ROAD

PUMPING STATION ROAD

MEMORIAL BEACH DRIVE

492 490 488 486

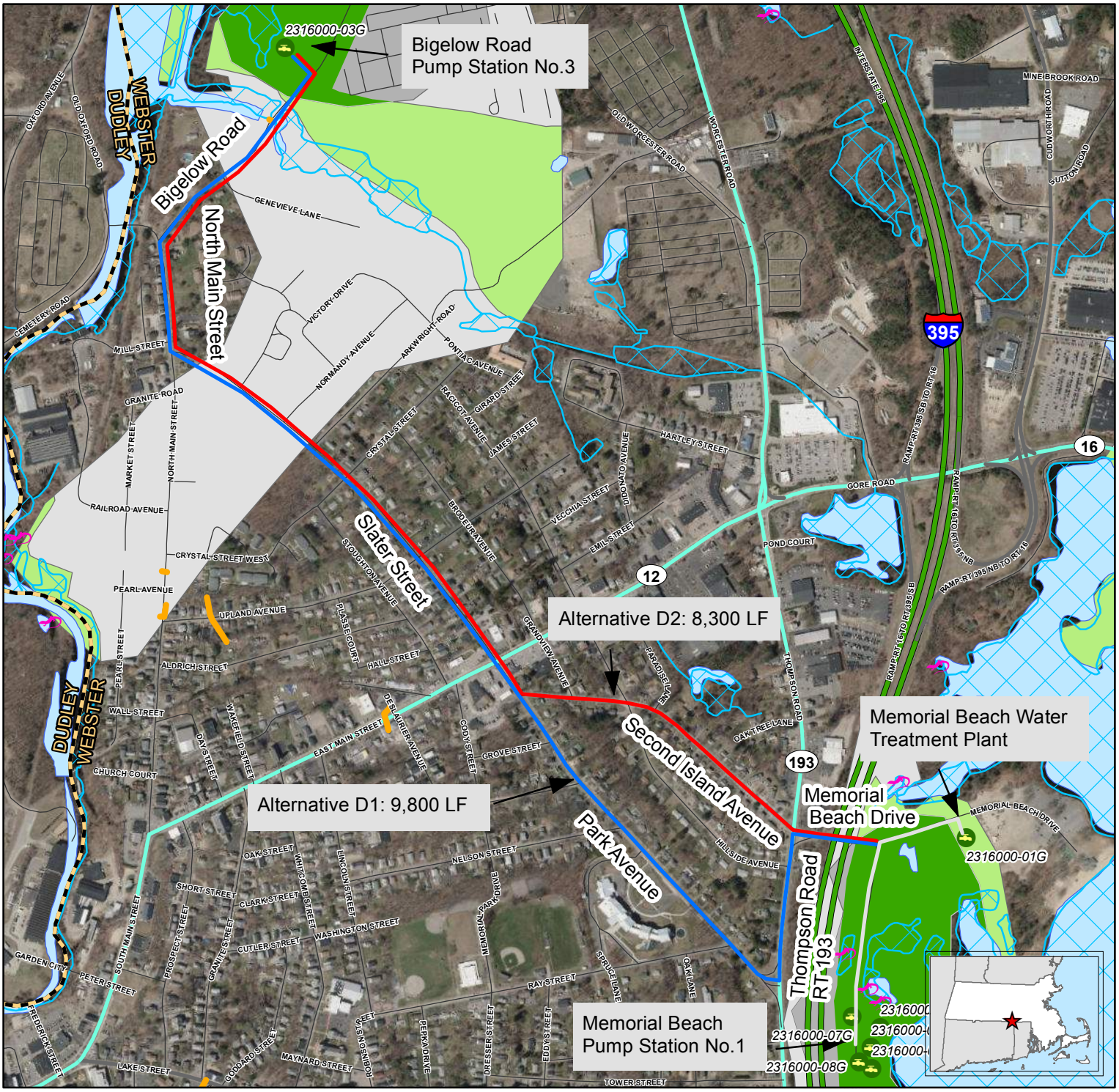
SCALE IN FEET
0 100' 200'
GRAPHIC SCALE

WEBSTER WATER DEPARTMENT
WEBSTER, MASSACHUSETTS

ALTERNATIVE D
CENTRALIZED PFAS WTP
AT MEMORIAL BEACH
CONCEPTUAL SITE PLAN

DATE:	3/25/2022
SCALE:	AS SHOWN
FIGURE:	3

Tighe&Bond



Legend

Proposed Water Main Routes

- Alternative No. D1
- Alternative No. D2
- Exisiting Water Main
- Town Boundary
- NHESP Certified Vernal Pools
- Culverts
- NHESP Potential Vernal Pools
- Non-Landfill Solid Waste Sites
- Proposed Well
- Emergency Surface Water
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Highway
- Major Road - Collector
- Minor Street or Road
- Aquaducts
- Hydrologic Connections
- Inland Wetlands
- Public Surface Water Supply (PSWS)
- Water Bodies
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer

1:11,000

0 500 1,000

Feet

N

FIGURE 4
PROPOSED WATER TRANSMISSION MAIN ROUTES

WEBSTER, MA

Data source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology
Data valid as of April 2022.

April 2022

Tighe&Bond

PFAS Treatment Siting Analysis
Webster MA
Water and Sewer Commission Comment Responses and Anticipated Project Schedule

TO: Tom Cutler, Webster Water and Sewer Superintendent
Webster Water Sewer Commission

FROM: Danielle Teixeira, PE Tighe & Bond
Derek Belanger, PE Tighe & Bond
Jeff Faulkner, PE Tighe & Bond

DATE: May 31, 2022

The purpose of this memo is to provide responses to the PFAS Treatment Site Analysis review comments from the Webster Water and Sewer Commission submitted to Tighe & Bond on May 13, 2022 and to provide a sense of the project schedule. The questions from the Commission with Tighe & Bond's responses are outlined below.

If we were to use Alternative-B, would Bigelow be able to become our prime producer of 1,500 gpm with Memorial Beach WTP becoming our low producer/backup? Sort of like a role reversal (when Bigelow only provided 10% of our needs). We assume that Bigelow would need to treat iron and manganese at 1,500 gpm and that might change the Bigelow Treatment Plant.

We recommend balancing the operation of the Town's sources to allow for regular maintenance and inspection. Bigelow would likely be capable of meeting the Town's average daily demand with iron and manganese treatment and would possibly have longer runtimes between iron and manganese filter backwashes than the current Memorial Beach WTP. However, it should be confirmed that the Bigelow well can produce 1,500 gpm. It should also be noted that pumping a single source hard and relying on it as a primary source has the potential to more rapidly degrade it's water quality.

Note that if Bigelow is made the primary source and a mechanical issue arises at the station, it is unlikely that maximum day demand especially in the summer months could be achieved relying solely on the remaining wells at Memorial Beach WTP at the current capacity (prior to well cleaning). However, this scenario should be tested to further evaluate.

For the Bigelow site, iron and manganese treatment in addition to PFAS treatment would require a building with a conceptual 7,400 square feet footprint. The Town may consider demolishing the existing well pump building and making modifications to the existing corrosion control facility to maximize efficiency for operations and site layout. A conceptual floor plan for Bigelow is attached as Figure 1. A conceptual floor plan for Memorial is also attached as Figure 2.

Could we take the high level PFAS level wells offline at Memorial Beach WTP and still meet our daily needs, peak seasonal flows, and provide proper fire protection? Alternative-B could then become the sole solution.

The wells with the highest PFAS6 concentrations at the Memorial Beach site are:

- *PS1-5*
- *PS1-4*
- *PS1-3*
- *PS1-2*

The PS1-4 & 5 wells represent the highest PFAS6 concentration but also the lowest volume producing wells. If the PFAS6 concentrations increase, Wells PS1-4 and PS1-5 would likely be the first to exceed the MCL. However, due to the low concentration and higher capacities, PS1-1 and PS2-6 would blend down the higher PFAS6 concentration wells allowing the WTP to meet average daily flows with the capacities observed during our February 2022 site visit. Note that for blending there are additional complexities associated with operation and maintenance that accompany simultaneously running specific wells.

The WTP may also be able to meet higher peak seasonal flows following the pending well cleaning. However, with PS1-4 and PS1-5 deactivated, PFAS concentrations may begin to rise at the other wells. There is a possibility that PS1-4 and PS1-5 are acting as PFAS interceptor wells where the PFAS is being drawn into these wells preventing higher levels of PFAS from traveling to other wells at the site. If PS1-4 and PS1-5 are acting as PFAS interceptors, PS1-4 and PS1-5 could be potentially run to waste during operation to maintain their role as interceptors.

If Alternative-B is selected and Bigelow becomes the primary supply as described above will the design need to meet stringent FEMA 100 and or 500 year flood requirements and what impact will that have on the budget if required

The final location of a proposed building is subject to additional evaluation during the design phase to mitigate the costs of compliance with providing critical infrastructure 3-ft above the 100-year flood elevation. Currently the proposed building is in the area of the existing pump station. The elevation in this area is approximately 456 feet. The elevation of the Zone AE (453 feet) is the edge of the 100-year flood boundary. The 500-year flood elevation is approximately 458 feet. Therefore, the conceptual building location is likely not in the 100-year flood zone but is in the 500-year flood zone. If the proposed building remains within this area, we assume that the building floor elevation could be at 456.5 feet with all critical equipment located greater than 2 feet off the floor to be above the 500-year flood elevation. Depending on the final size of the building, this proposed location may be located within the buffer zone of the wetlands, which will require review by the Webster Conservation Commission. All information presented at this point is from available GIS data. A topographical survey would be performed during final design.

The project Opinion of Probable Cost (OPC) presented in the siting analysis currently includes moderate site work to accommodate the new building and infrastructure, however the final building location may need to be moved North, closer to the existing corrosion control facility and/or closer to Bigelow Road, to avoid construction in the 100 year flood plain.

With Alternative-B, a new sewer pump station is needed on North Main along with about 100ft of pipe. How much would that cost? We do not believe that that was included in table 2.

The sewer pump station required for the disposal of PFAS backwash water, floor drain waste, and sanitary waste was included in the Process Piping and Equipment line item. Disposal of PFAS backwash water is an infrequent event and can be equalized and disposed of using a residential type packaged sewer pump station typically costing less than $25,000. However, disposal of iron and manganese backwash is a more significant process concern. Additional design and piloting as well as discussions with the sewer department will be needed to determine the extent of iron and manganese backwash residuals handling that will be required at the Bigelow Road Site.

The Town needs to be prepared to answer the question "what would a new well cost", if asked. Given the financial climate, we may have to look very hard at Alternative-B due to timing with the school. The commission will ultimately make the decision on what to present to town meeting for approval.

Typically, the new source exploration and approval process in Massachusetts can take 5 years or more. Project costs may conceptually range from $2M to $5M depending on effort needed for well exploration, the size of the well(s), distance from the existing distribution system and the available three phase power, among other factors. These costs do not include any costs for treatment should the new source be high in iron/manganese, PFAS or other constituents that need to be treated prior to entering the distribution system.

Typically, it is more reliable/cost effective to treat an existing high yielding well than to explore for a new well to replace the yield and hope for a better water quality. A new source is also complicated by land ownership of the 400-foot radius around the new source. If the Town can find any historical well exploration or pump test reports in their files, they are a best first place to research for potential future well sites.

A replacement well on the Bigelow Road site could conceptually cost in the range of $300,000 – $500,000, which would include well installation, submersible well pump, pitless adapter, and electrical work. It is unknown whether this well would have significantly reduced PFAS6 but it may provide additional source redundancy.

If we choose Alternative-B, what impact will it have on MassDEP SRF funding including any potential grants if we need PFAS treatment later on down the road at Memorial Beach WTP.

The current Federal and State investment in water infrastructure is at a generational high, specifically, to mitigate the widespread PFAS6 contamination. MassDEP SRF is providing loans at 0% interest for projects related to PFAS removal which is not guaranteed to continue in the future. Webster is a Tier 3 community (with respect to SRF Affordability Calculations) and currently Tier 3 communities through SRF are receiving 19.8% in loan forgiveness. Based on the Final 2022 Intended Use Plan, the 19.8% loan forgiveness is the lowest that a Tier 3 community could receive, and this number could increase to as much as 35%. However, there are still significant unknowns with regard to the long-term implementation of these federal funds. PFAS projects are expected to receive additional subsidies over the next 5 years through the Federal Infrastructure Investment and Jobs Act (IIJA) via the SRF Program. (Note Year 1 of the 5 years is from the August 2021 SRF Applications so Webster would

submit an application in August 2022 which would be for Year 2 of this 5 year spending program .

Note that there are unknown short term impacts on costs from supply chain issues and price inflation due to the scale of federal dollars available and the impact of the "Build America Buy America" (BABA) SRF provisions.

If a PFAS WTP at Memorial Beach is not pursued now it is likely that the Town of Webster would lose out on millions of dollars of principal forgiveness and grant money and 0% interest financing. Also, a future Memorial Beach PFAS WTP will only get more expensive to build 5, 10, or 15 years later.

Bigelow is classified as Treatment 1 facility per MassDEP. Will it be reclassified with the addition of PFAS Treatment and how will that impact our staffing plans? Memorial Beach is a Treatment 2 facility. Could it be upgraded to a Treatment 3 and how will that impact our staffing plans if we select Alternative-C?

All Alternatives will likely require the facilities to be classified as Treatment 2 facilities. This can be reviewed in further detail at the Final Design phase in consultation with MassDEP. However, a Water Department must have a primary operator licensed in the classification of the system with the secondary operator having at least a license only 1 step below.

Please explain why biological iron and manganese removal was selected at Bigelow instead of the same treatment we have at Memorial Beach Greensand Plus. The pros and cons of each would be helpful and also visiting a nearby facility with biological treatment would be beneficial to staff.

Based on review of initial water quality at Bigelow and the Town's current concerns about frequent backwashing at the Memorial Beach WTP, biological iron and manganese removal is being suggested as a potential treatment option for the Bigelow WTP. However, we recommend that on-site pilot testing for aeration and both biological and traditional GreensandPlus filtration for iron and manganese be performed. We anticipate the budget for piloting to be $200,000, which we included in our preliminary budget estimate. This task would be performed during the final design phase which we anticipate to begin in the Fall of 2022.

Biological filtration uses naturally occurring bacteria to oxidize iron and manganese. The bacteria take the place of a chemical oxidant resulting in less chemical addition. The use of biological treatment results in lower chemical costs, longer filter runs between backwashes, and overall less operation and maintenance.

At the time that the Memorial Beach WTP was being designed, biological treatment was a relatively new technology for the New England area with very few WTPs in operation near Massachusetts. Town staff at that time indicated they did not want to pursue biological treatment for the Memorial Beach WTP. However, since the construction of the Memorial Beach WTP, Tighe & Bond has been involved in the design and construction of several iron/manganese biological treatment WTPs including facilities in Middleborough, MA and Putnam, CT. Iron/manganese biological treatment WTPs are also in the construction phase in Dracut, MA and Littleton, MA amongst others

What impact will piloting iron/manganese removal at Bigelow have on our design timeline and SRF application?

The piloting should not have a significant impact on the design timeline. We will include a conceptual design for iron/manganese removal in the SRF Project Evaluation Form which will be a sufficient level of detail for the August 2022 SRF application deadline. The Town should anticipate piloting beginning in Fall 2022 to allow for sufficient time for design prior to the SRF October 2023 design submission. If the Town proceeds with piloting of aeration and, iron and manganese in 2022, additional design details can be developed to refine these estimates. We recommend funding the Design Phase at the Fall 2022 Town Meeting and the Construction Funding at the Spring 2023 Town Meeting to meet SRF deadlines. See the anticipated project schedule at the end of this memo.

Since only two wells at Memorial Beach are showing signs of PFAS could there be a problem with the sample pipe, fittings or some other influence that may have been overlooked? It seems somewhat odd that the other wells have very low levels at Station 1&2. In addition, could there be an influence due to salt. We believe the two wells that are elevated are the ones with high levels of salt.

It is possible for there to be issue; the Town may want to confirm there is no PFAS containing material at the samples taps at Memorial Beach wells, e.g., no PFAS containing Teflon tape or pipe dope.

As you noted, there appears to be a correlation between the proximity to I-395 and the concentration of PFAS6. The furthest wells PS1-1 and PS2-6 have the lowest PFAS6 results. A similar correlation is seen with chloride concentrations. As mentioned previously, there is a possibility that the 2 wells that have the highest PFAS at the Memorial Beach site are acting as PFAS interceptor wells and PFAS is being drawn into these wells and not others at the site. We don't have information indicating a correlation between sodium levels and PFAS levels.

Page 2, next to last paragraph-"town would not have any redundancy…) So right now we can live with that because well 3 does not require the iron and manganese treatment and can feed the system directly. Is that correct?

Correct, under Alternative C (centralized treatment at Memorial), the Town would have only one Point of Entry to the distribution system which would be a vulnerability.

Page 3, alternative B-Is current infrastructure at flood risk now, and would the new construction at well 3 resolve that for all new infrastructure?

It appears most of the Bigelow Road Site critical infrastructure is built at 3-ft above the 100-year flood elevation of 453 feet as defined by the FEMA Zone AE, which meets the current expectation of critical infrastructure.

Page 6, next to last paragraph, 3rd line from end-"will require additional chlorination"- Is that an additional cost and is it included in the analysis cost figures?

Additional operational costs for the cost of chlorine were not included in the siting analysis, which identifies conceptual capital costs, but we anticipate this to be minimal.

Page 7, in description chart-The WTP buildings are significantly different sizes but the HVAC / plumbing costs are the same. Is that correct.

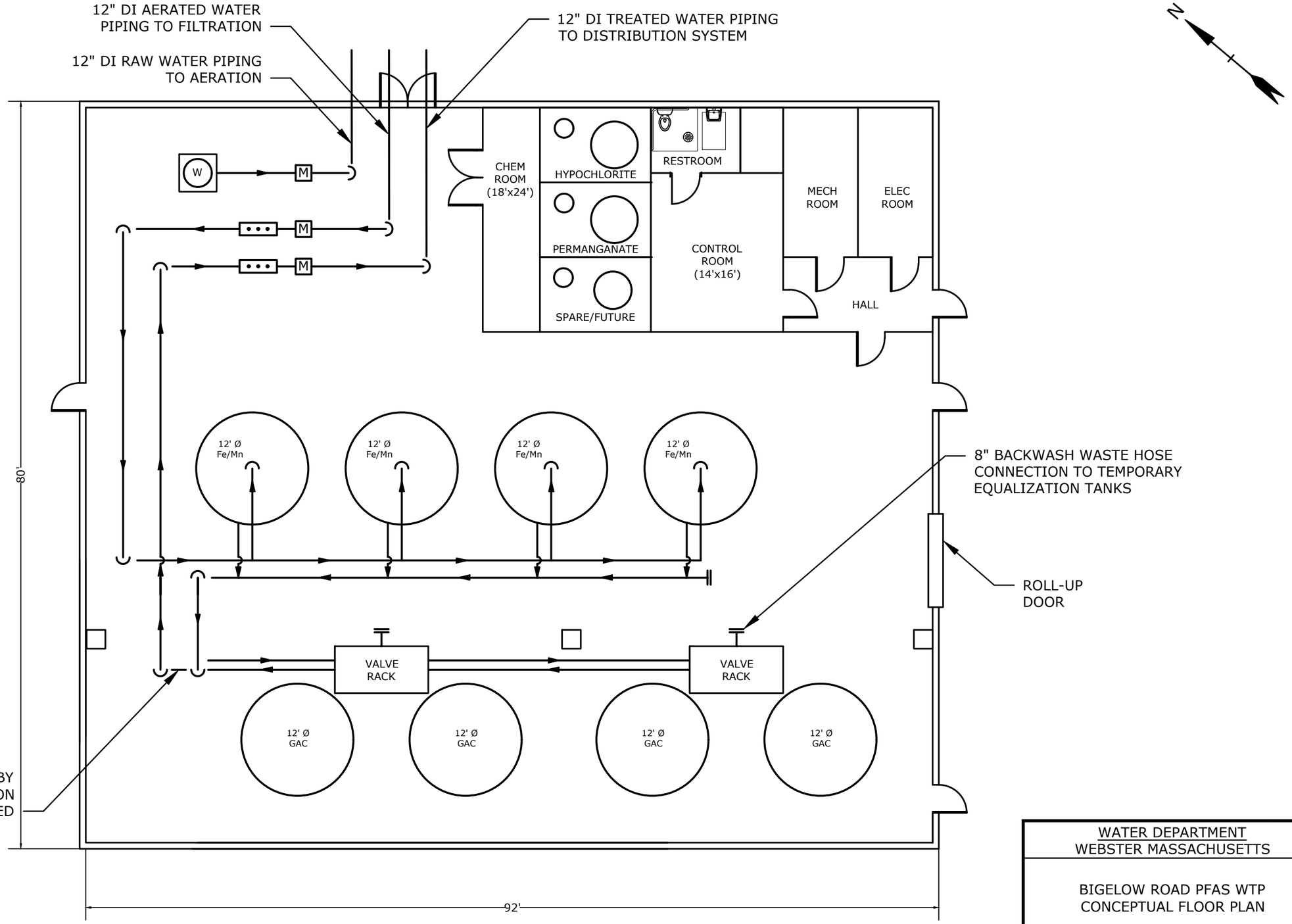
The HVAC/plumbing costs would be more for a Bigelow WTP than for a new Memorial Beach WTP. Instead of $250,000 for each, it's more likely $500,000 for Bigelow and $250,000 for Memorial. We anticipate that the contingencies presented are large enough that it won't impact the overall estimate of $30 million, however this cost can be further refined once additional design is completed. It is possible that the number proposed in the Siting Analysis increases after further design, but we anticipate that the centralized system will still result in a higher cost than two smaller systems. As the design progresses, the project contingency values are lowered to commensurate with the level of design that has occurred. The costs presented in the siting analysis are meant to assist the Town in selecting an alternative as the costs presented are order of magnitude and the selected alternative will receive further design effort and refinement.

Project Schedule

To assist in the project discussion, we have provided the following anticipated project schedule for review and discussion. Note that Design Phase costs are not SRF fundable so that loan will need to be coordinated by Town staff outside of the SRF program. The SRF loan for the construction phase would likely not need to begin a pay back until Fiscal Year 2027.

Task	Schedule
PFAS Piloting and Pilot Report	June – July 2022
Conceptual Design	June - August 2022
DWSRF PEF Application for 2023 IUP	August 2022
Design Funding at Fall Town Meeting	October 2022
Iron/Manganese Piloting/Pilot Report for Bigelow Site	November 2022 – April 2023
75% Design	November 2022 - May 2023
Permitting	March - December 2023
Anticipated 2023 DWSRF Draft IUP Funding List	February 2023
Construction Funding at Spring Town Meeting	April 2023
90% Design	June - October 2023
SRF Loan Application Submitted	October 2023
Anticipated SRF Loan Application Approved	December 2023
100% Design / Bid Documents	November 2023 – March 2024
Bidding and Award Phase	March – June 2024
Construction Contractor's Notice to Proceed	July 2024
Construction Substantial Completion	March 2026
Construction Final Completion	May 2026

CONCEPTUAL
NOT FOR CONSTRUCTION



0 8' 16' 24'
SCALE: 3/32"=1'-0"

WATER DEPARTMENT
WEBSTER MASSACHUSETTS

BIGELOW ROAD PFAS WTP
CONCEPTUAL FLOOR PLAN

DATE: MAY 2022
SCALE: AS SHOWN
FIGURE: 1

Tighe&Bond

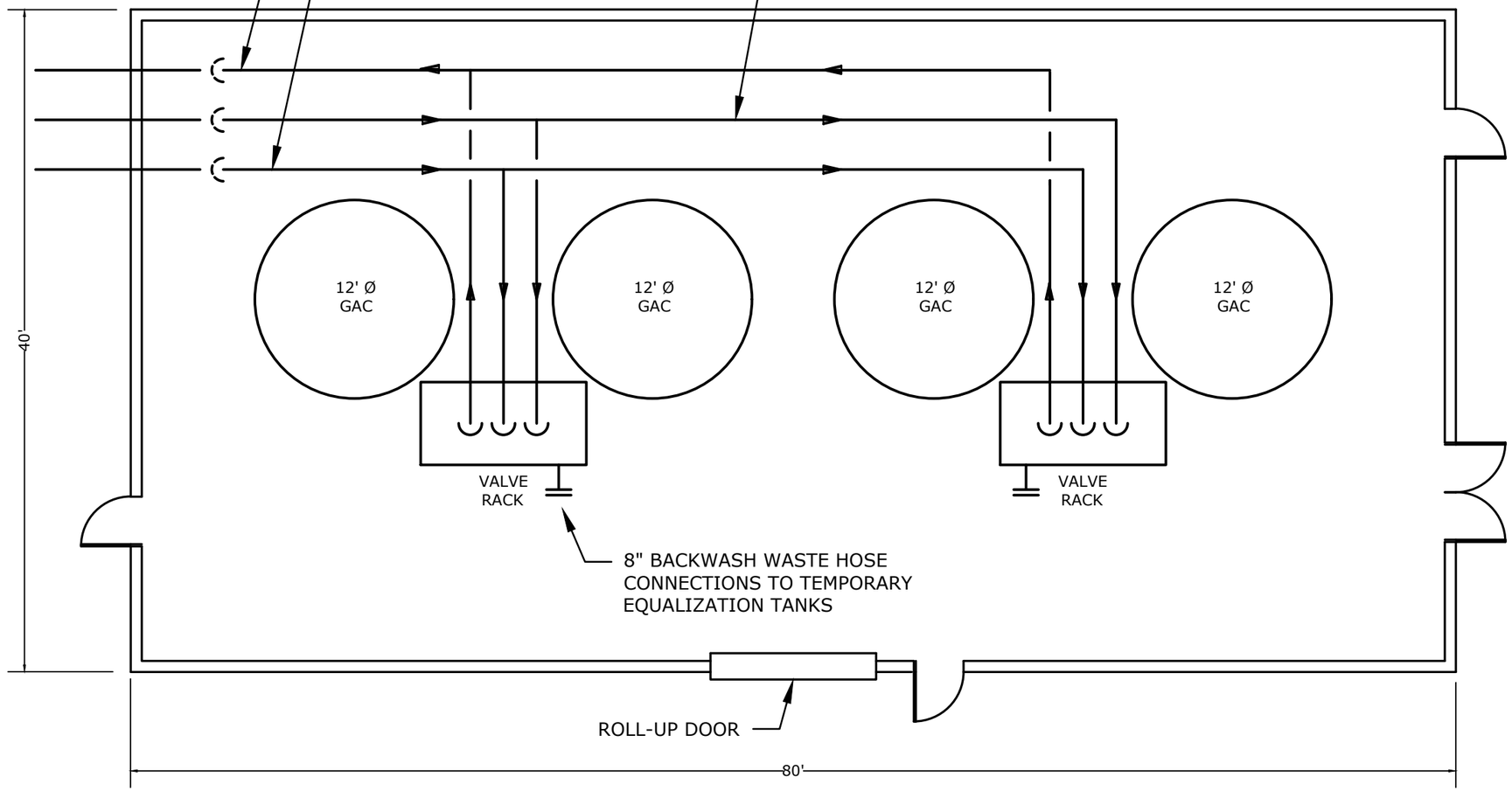
CONCEPTUAL
NOT FOR CONSTRUCTION

N

12" DI TREATED WATER PIPING TO
DISINFECTION AND 4-LOG CLEARWELL

12" DI FILTERED WATER PIPING
FROM EXISTING IRON FILTRATION

8" DI BACKWASH SUPPLY
PIPING FROM EXISTING PUMPS



0 4' 8' 16'
SCALE: 1/8"=1'-0"

WATER DEPARTMENT
WEBSTER MASSACHUSETTS

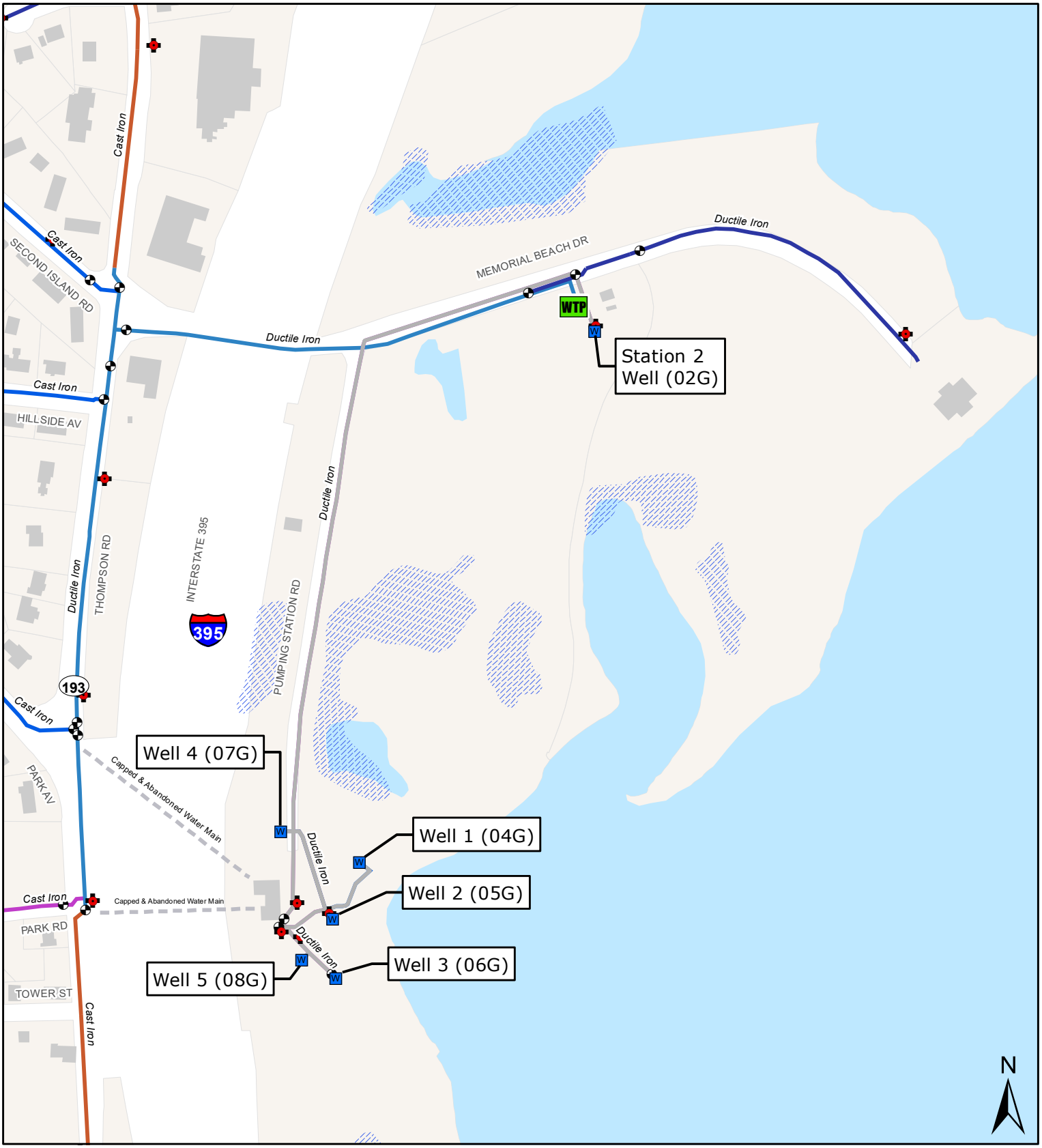
MEMORIAL BEACH PFAS WTP
CONCEPTUAL FLOOR PLAN

DATE:	MAY 2022
SCALE:	AS SHOWN
FIGURE:	2

Tighe&Bond

Attachment B

Memorial Beach Wells Site Plan



Legend

Water Main
- 4"
- 6"
- 8"
- 10"
- 12"
- 16"
- 20"
- Raw Water
- Storage Tank
- WTP Treatment Plant
- Well
- Hydrants
- Valve
- Buildings
- MassDEP Inland Wetlands
- Waterbody
- Approximate Parcel Boundary

0 75 150 300
Feet

FIGURE 1
MEMORIAL BEACH WELLS

Town of Webster, Massachusetts

May 2022

Tighe&Bond

Attachment C

Notice of Noncompliance Dated October 6, 2021

Massachusetts Department of Environmental Protection
Bureau of Water Resources – Drinking Water Program
PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) MAXIMUM CONTAMINANT LEVEL (MCL) NOTICE OF NONCOMPLIANCE (NON)
With Violation Response/Compliance Schedule Approval (CSA) Form
M.G.L. c. 21A, § 16, 310 CMR 5.00

Attention: Public Water Supplier

A *General Information*

TOWN OF WEBSTER
ATTN: GREG BALUKONIS, Interim Town Administrator
350 MAIN ST, 1ST FLOOR
WEBSTER, MA 01570
Email: gbalukonis@webster-ma.gov

CITY/TOWN: WEBSTER
PWS ID #: 2316000
CLASS: COM
ENF DOC#: NONCSA-CE-21-5D00012252

B *Location Where Noncompliance Occurred*

38 Hill St Webster, MA 01570
Sample Location – Bigelow Well (03G)

C *Description of Violations under M.G.L. c. 111, §§159-160 and 310 CMR 22.00*

The Department of Environmental Protection (MassDEP) Drinking Water Program has determined that you are in violation of the Per- and Polyfluoroalkyl Substances (PFAS) Rule for the following checked contaminant(s) and monitoring period(s):

Table 1- PFAS 6

	Contaminant	Monitoring Period(s)	PFAS6 Quarterly Average (ng/L) Well 1	PFAS6 MCL (ng/L)
☒	Per- and Polyfluoroalkyl Substances - PFAS6 (sum of the concentrations of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA)	**July – Sep 2021**	**22**	**20**

Below is a description of the regulation(s) you have violated.

PFAS6 - MAXIMUM CONTAMINANT LEVEL

☒	Your public water system violated the maximum contaminant level (MCL) specified in 310 CMR 22.07G(3)(d) for PFAS6 and monitoring period(s) listed in Table 1 above.

D *Action to Be Taken, and the Deadline for Taking Such Action*

Within 30 days of the date of this NON, submit to MassDEP for its review and approval a written proposal setting forth how and when you propose to come into compliance with the requirements cited in Section C of this NON, by **completing and submitting the attached PFAS Response/Compliance Schedule Approval Form ("compliance plan") and conducting all required public notice.** To return to compliance, **you must implement the compliance plan**, including the schedule for completing the activities proposed, as approved by MassDEP. If you determine that you need additional time to complete and submit the compliance plan, you may request an extension **before** the submission deadline by contacting Robert Bostwick at 508-849-4036 or by email at Robert.Bostwick@mass.gov.

E *Important Information*

If you, the Supplier of Water, fail to take any action MassDEP now wants you to take by the prescribed deadline, or if you otherwise fail to remain in compliance in the future with the applicable requirements, you could be subject to legal action, including, but not limited to, criminal prosecution, court-imposed civil penalties, or civil administrative penalties assessed by MassDEP. A civil administrative penalty may be assessed for every day from now on that you are in

noncompliance with the requirements specified above. MassDEP reserves its right to exercise the full extent of its legal authority to obtain compliance with all applicable requirements.

Date: October 6, 2021

Robert A. Bostwick
Section Chief, Drinking Water Program
Central Regional Office
MassDEP Bureau of Water Resources

Enclosures:
NONCSA Response Form

cc: Boston DWP
BOH – Camille Griffin cgriffin@webster-ma.gov
Water & Sewer Superintendent – Tom Cutler tculter@webster-ma.gov

File Name: Webster-2316000-WQ-ENF(NONCSA-CE-21-5D00012252-2021-10-06

Massachusetts Department of Environmental Protection
Bureau of Water Resources – Drinking Water Program
PFAS VIOLATION RESPONSE
AND COMPLIANCE SCHEDULE APPROVAL (CSA) FORM
M.G.L. c. 21A, §16, 310 CMR 5.00

Failure to complete and return this form, and failure to take the actions required to return to compliance, could result in serious legal consequences.

INSTRUCTIONS: Within 30 days of the date of this NON, please complete and submit this form and supporting documentation to MassDEP at the address specified at the bottom of this form to obtain MassDEP approval of your system's proposed plan for returning to compliance with the requirements cited in your Notice of Noncompliance (NON).

A *General Information*

TOWN OF WEBSTER
ATTN: GREG BALUKONIS, Interim Town Administrator
350 MAIN ST, 1ST FLOOR
WEBSTER, MA 01570
Email: gbalukonis@webster-ma.gov

CITY/TOWN: WEBSTER
PWS ID #: 2316000
CLASS: COM
ENF DOC#: NONCSA-CE-21-5D00012252

B *Corrective Actions required under M.G.L. c. 111, §§ 159-160 and 310 CMR 22.00*

PWS: Please check *all* boxes below that apply.

PFAS6 - MAXIMUM CONTAMINANT LEVEL
My system violated the maximum contaminant level (MCL) for PFAS6 in the monitoring period(s) identified in the NON. I have completed the sections below to address the MCL violation(s) cited in the NON.

☐	**Within 30 days of the date of this NON**, my system will submit to MassDEP a **short-term corrective action plan** to reduce the PFAS6 level to below the MCL. Short term actions may include: discontinuing use of a source, blending the source with elevated PFAS6 with other source(s), optimization of existing treatment processes, and/or obtaining water from an interconnection with another PWS. My system will implement the short-term corrective action plan as soon as feasible and submit a long-term corrective action plan (see below).
☐	**Within 30 days of the date of this NON, if short-term actions cannot reduce PFAS6 levels below the MCL**, then my system will: • Submit a short-term corrective action plan that includes an interim proposal to provide an alternative source of water for sensitive subgroups served by my system (pregnant or nursing women, infants, and people diagnosed by their health care provider to have a compromised immune system) for drinking and cooking. Such alternative measures may include, but not be limited to, providing bottled water, vending machines, or water bill rebates for customers who purchase bottled water; AND • Implement the short-term corrective action plan as soon as feasible; AND • Submit an explanation as to why there are no feasible short-term measures to reduce PFAS6 levels below the MCL; AND • Submit a long-term corrective action plan (see below).
☐	**Within 60 days of the date of this NON**, my system will submit to MassDEP a **long-term corrective action plan** to reduce the PFAS6 level to reliably and consistently below the MCL. Long-term actions may include: the construction of an interconnection with another PWS, construction of a new treatment facility, the addition of PFAS6 treatment to an existing water treatment facility, and/or the installation of a new well. The long-term corrective action plan will be stamped by a Massachusetts Registered Professional Engineer with expertise in Drinking Water. The plan shall include an alternatives analysis including a feasibility evaluation, effectiveness determination, cost estimate, and implementation schedule. My system will implement the recommended actions set forth in the plan as approved by MassDEP in accordance with a schedule approved by MassDEP.

☐	My system provided **public notice** of each violation that requires Tier 2 public notice in accordance with 310 CMR 22.16(3) and (5) and submitted to the local Board of Health and MassDEP a certification that it has fully complied with the public notice regulations in accordance with 310 CMR 22.15(3)(b). **A copy of the public notice and certification are attached.** My system will **repeat** the public notice and certification every three months as long as the violation(s) persist(s) unless MassDEP determines in writing that appropriate circumstances warrant a different repeat frequency.
☐	My system will include in its next **Consumer Confidence Report** (CCR) the following information: an explanation on each MCL violation required by 310 CMR 22.16A(4)(k).

C *Request for Compliance Plan Approval*

- My Proposed Compliance Plan must be submitted with this Violation Response Compliance Schedule Form by the date specified in Section D of the NON.
- My Proposed Compliance Plan must include a schedule for coming into compliance with each violation cited in the NON for which the system is required to complete in Section B above.
- At a minimum, my Proposed Compliance Plan must address all applicable elements listed in Section B above.
- My Proposed Compliance Plan must be implemented as approved.

D *Water Commissioner, Owner, Owner Representative or Other Responsible Party*

I certify that I am duly authorized to complete and submit this form on behalf of the public water system identified above and that the information contained herein is true, accurate and complete to the best of my knowledge and belief. I understand that MassDEP may assess civil administrative penalties in accordance with M.G.L. c. 21A, §16, and 310 CMR 5.00 on any Supplier of Water that fails to comply with the provisions and schedule set forth in a MassDEP-approved Compliance Plan.

Signature: _____ Date: _____

Print Name: _____ Title: _____

Phone #: _____

Email Address: _____

Please return this form and all attachments to:

MassDEP/DWP
8 New Bond Street
Worcester, MA 01606

Attn: Paula Caron
Paula.Caron@mass.gov

Attachment D

Well 6 Failure Documentation

TOWN OF WEBSTER WATER DEPARTMENT

For Release: 08/10/2022
Media Contact: Webster Water Department, 508-949-3861

News Release – Update

Webster Water Department has removed Station 3-Bigelow well from service on August 10, 2022. Additional PFAS samples were collected on August 05, 2022. Results for the August 05, 2022 samples will take several weeks to receive. As stated in our press release on August 04, 2022 results at Station 3-Bigelow well indicate the level is 26.1 parts per trillion which is above the 20 parts per trillion maximum contaminant level (MCL) set by MassDEP. Compliance for the MCL is calculated and determined by the "quarterly" average for July, August and September.

Station 3-Bigelow well has been in operation since May 15, 2022 while we repaired a mechanical issue at Station 2-well 6, our second largest producing well. The repairs are complete after a long delay for parts and we have completed the process of sanitizing the well for a full return to service, which was completed August 10, 2022. Station 3-Bigelow well will remain in stand-by mode for emergencies only.

The Water Sewer Commission will be holding a Public Hearing on Wednesday, August 10, 2022 at 7:00PM at the Town Hall in the Selectman's Meeting Room, 350 Main Street, Webster, MA, to discuss treatment options for Per-and Polyfluoroalkyl Substances "PFAS6" . MassDEP will provide a presentation about PFAS6 and the new MCL requirements and Tighe & Bond will present treatment options including estimated costs.

This is not an emergency and we are committed to providing consumers with safe and reliable water. As a consumer, you have the right to know what is going on and we appreciate your support and patience while we plan a permanent solution. Webster Water is currently meeting all Drinking Water Standards but will most likely exceed the quarter 3 average MCL for PFAS. Please consult with a medical professional if you are concerned about potential health effects of PFAS. More information about PFAS can be found at: **https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas** or visit our website at: **www.webster-ma.gov**

Danielle Teixeira

From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Wednesday, August 10, 2022 11:08 AM
To: Caron, Paula (DEP)
Cc: Richard LaFond; earl.gabor (earl.gabor@gmail.com); Bostwick, Robert (DEP); Sam Yacino; Joeseph Patterson; Thomas Andrade; Marc Becker; Dan Duteau; Stone, Marielle (DEP); Danielle Teixeira; Jeffrey A. Faulkner
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results
Attachments: PFAS Press Release-Webster Water Department 08.10.2022.docx

[Caution - External Sender]

Hi Paula,

Based on our discussion yesterday well 6 can go back into service today and we will closely monitor the raw water total coliform count. Bigelow will be removed from service today and left in standby mode for emergencies. We will recollect for total coliform at well 6 later today as a precautionary measure. I have updated the news release and will plan to send that out after lunch today.

Please let me know if you have any questions or concerns.

Regards,
Tom

-----Original Message-----
From: Tom Cutler
Sent: Tuesday, August 9, 2022 12:47 PM
To: Caron, Paula (DEP) <paula.caron@state.ma.us>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Hi Paula,

Verbal over the phone Lab results just came back for Well 6 with 1 colony. Can we talk by phone when you get a chance?

Tom

-----Original Message-----
From: Tom Cutler
Sent: Tuesday, August 9, 2022 12:00 PM
To: Caron, Paula (DEP) <paula.caron@state.ma.us>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>;

Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Good morning,

Sorry for the delay in updates been kind of busy here with projects not PFAS related... The results from Friday came in late Monday morning with 70 colonies. I was not able to get any Lab to pick up or analyze over the weekend. We acid washed the well over the weekend and resampled Monday afternoon and are currently waiting for results. We also flushed again this morning and chlorinated again with plans to sample again tomorrow just in case yesterday's sample still has colonies. We are also replacing a raw sample tap and line to rule anything out. Bigelow remains in service.

Please give me call if you have questions or concerns.

Tom

-----Original Message-----
From: Caron, Paula (DEP) <paula.caron@state.ma.us>
Sent: Tuesday, August 9, 2022 11:46 AM
To: Tom Cutler <tcutler@webster-ma.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Hi Tom,
When you have a moment, please provide status update for Bigelow and Well 6.
Thanks

Paula Caron
Water Quality Program Coordinator
MassDEP Drinking Water Program
Central Regional Office | 8 New Bond St. | Worcester MA 01606 Office Cell Phone | 857.303.8004

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Friday, August 5, 2022 9:09 AM
To: Bostwick, Robert (DEP) <robert.bostwick@mass.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@mass.gov>; Caron, Paula (DEP) <paula.caron@mass.gov>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

A few online comments but nothing major. No phone calls at all.

Tom

-----Original Message-----
From: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Sent: Friday, August 5, 2022 8:49 AM
To: Tom Cutler <tcutler@webster-ma.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Caron, Paula (DEP) <paula.caron@state.ma.us>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Tom,

Thanks for the update. Please let me know if there is any response to the News Update.

Thanks,
Bob

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Friday, August 5, 2022 8:32 AM
To: Bostwick, Robert (DEP) <robert.bostwick@mass.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@mass.gov>; Caron, Paula (DEP) <paula.caron@mass.gov>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Hi Bob,

Quick update. The attached news release went out yesterday. Well 6 came back with 30 colonies yesterday afternoon and it remains isolated from the system. Maher Services will be onsite again today for one final push with cleaning and sanitizing. We did chlorinate again yesterday afternoon, flush and sample this morning before their visit. It will be flushed again Saturday and sampled again. There is one spot on the well casing (prior repair) that is inconclusive on the video inspection. If this well does not clean up after our efforts today and tomorrow we will be seriously considering a smaller liner for the well casing which will reduce the size of the pipe and require replacement of the vertical turbine with a new submersible style pump. Maher tells me they have a good lead on the submersible in stock. I will keep you posted.

Please let me know if you have any questions.

Tom
-----Original Message-----
From: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Sent: Thursday, August 4, 2022 9:31 AM
To: Tom Cutler <tcutler@webster-ma.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Caron, Paula (DEP) <paula.caron@state.ma.us>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Okay, sounds good.

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Thursday, August 4, 2022 9:23 AM
To: Bostwick, Robert (DEP) <robert.bostwick@mass.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@mass.gov>; Caron, Paula (DEP) <paula.caron@mass.gov>; Danielle Teixeira <DTeixeira@tighebond.com>; Jeffrey A. Faulkner <JAFaulkner@tigheBond.com>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hi Bob,

Understood. Just trying to avoid a news release today and again tomorrow with and update. People get confused so easily. Maybe best approach is one late in the day today. I will figure that out. The original plan was to leave Bigelow on and an rehabilitate two wells at a time at Memorial Beach. We are now going to do one at a time which will extent the project out but it's the best we can do.

Regards,
Tom

-----Original Message-----
From: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Sent: Thursday, August 4, 2022 9:16 AM
To: Tom Cutler <tcutler@webster-ma.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Caron, Paula (DEP) <paula.caron@state.ma.us>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Tom,

Understand the strategy, however, posting Friday notices tend to be problematic as customers call with questions and no one is available until Monday to respond, creating more frustration. If you posted the news release update today, you could include that you are waiting for results from well #6 and if it can be returned to service, Bigelow will be removed from service and an update will be posted tomorrow.

Also, is the plan to continue to utilize Bigelow while the remaining wells at Memorial Beach are serviced???

Thanks,
Bob

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Thursday, August 4, 2022 7:52 AM
To: Bostwick, Robert (DEP) <robert.bostwick@mass.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@mass.gov>; Caron, Paula (DEP) <paula.caron@mass.gov>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Thanks Bob,

This will likely go out on Friday morning since I will have the bacteria results available for well 6 this afternoon. If the sample is clean Bigelow could be removed from duty on Friday and the new release could be adjusted to reflect this. As discussed, we will collect another PFAS sample on Friday before it is removed from service.

Does this approach sound reasonable?

Regards,
Tom

-----Original Message-----
From: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Sent: Wednesday, August 3, 2022 3:45 PM
To: Tom Cutler <tcutler@webster-ma.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>; Caron, Paula (DEP) <paula.caron@state.ma.us>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Tom,

Attached is the News Release with our comments/edits. I was just informed that the results for Bigelow have passed QC and are acceptable.

Thanks,

Bob Bostwick
CERO Drinking Water Section Chief
(774) 239-6003

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Tuesday, August 2, 2022 12:08 PM
To: Bostwick, Robert (DEP) <robert.bostwick@mass.gov>; Caron, Paula (DEP) <paula.caron@mass.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Hi Bob,

We just completed the video inspection at well 6 station 2. There is some corrosion of the well casing at 20' but no ground water is penetrating through. We are chlorinating the well as we speak and will collect a bacteria sample again tomorrow after it has sat for 24hrs with bleach. The hope is we get clean samples on Thursday and return it to service. The Town may need to start planning for a new well casing in the near future. It might make sense to just add it in the PFAS treatment plan for memorial beach.

A have a draft version of our new release for review and comment by DEP as requested. Let me know your thoughts when you get a chance.

Regards,
Tom

-----Original Message-----
From: Tom Cutler
Sent: Tuesday, August 2, 2022 7:36 AM
To: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>; Caron, Paula (DEP) <paula.caron@state.ma.us>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>; Marc Becker <assessor@webster-ma.gov>; Dan Duteau <dduteau@charter.net>
Subject: RE: Well 6 Failure-Bigelow Well PFAS Results

Hi Bob,

The results are in and I have attached the Lab report for your use. As discussed on Friday, I will start drafting a news release for review and approval. FYI, we had Maher Services onsite yesterday to inspect and camera the well casing at Well 6 Station 2. Would you believe they tore down the Station but were unable to inspect the casing due to an issue with the camera system. They then put the Station back together at the end of the day and were planning to move on. Needless to say, I was not happy with the service and they will be returning this morning to tear it all down again and complete a proper well case inspection since there is no reason to date on why we can't get a clean bacteria sample and return it to duty. My hope is we can return it to service by the end of the week and remove Bigelow from service but keep in back up mode for emergencies.

Please let me know if you have any questions or if you would like to discuss by phone.

Regards,
Tom

-----Original Message-----
From: Tom Cutler
Sent: Friday, July 29, 2022 1:30 PM
To: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>; Caron, Paula (DEP) <paula.caron@state.ma.us>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Hi Bob,

I guess I spoke to soon. See attached email from the Lab for our July 21st sample. 26.05ppt. This is for QTR3. Please advise.

Regards,
Tom

-----Original Message-----
From: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Sent: Friday, July 29, 2022 1:09 PM
To: Tom Cutler <tcutler@webster-ma.gov>; Caron, Paula (DEP) <paula.caron@state.ma.us>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Tom,

Thanks for the update, please keep us posted.

Bob Bostwick
CERO Drinking Water Section Chief
(774) 239-6003

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Friday, July 29, 2022 1:03 PM
To: Caron, Paula (DEP) <paula.caron@mass.gov>; Bostwick, Robert (DEP) <robert.bostwick@mass.gov>
Cc: Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Thomas Andrade <ta122828@gmail.com>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Hi Paul & Bob,

Quick update on Well 6. It took a lot longer than expected to repair the mechanical issues with Well 6 and now we can't seem to get a clean bacteria sample before returning it to service so it remains offline. Maher is scheduled to return on Monday to remove the pump and motor again for inspection and chlorination. Bigelow is still in operation about 3hrs a day and the QTR 2 average came in at about 15ppt. Our most recent sample was collected on 7/21 and we have not received results yet.

Please let me know if you have any questions or concerns.

Have a great weekend!
Tom

-----Original Message-----
From: Tom Cutler
Sent: Friday, May 20, 2022 2:46 PM
To: 'Caron, Paula (DEP)' <paula.caron@state.ma.us>
Cc: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>; Richard LaFond <rlafond@webster-ma.gov>; earl.gabor (earl.gabor@gmail.com) <earl.gabor@gmail.com>; Sam Yacino <syacino@webster-ma.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Hi Paula,

Thanks for the phone call. As discussed we collected samples on Monday the 16th at 12:05pm. Results will not be available for about 4weeks. The well went online to distribution around 5:30pm on Sunday the 15th. April sample results finally came and the well was at 11.00ppt. See attached. As requested we will collect another sample before we take the well out of service which we hope will be before the holiday weekend. I will update you again next week on well#6 repair and cleaning which should be done mid-week. The pump needed bearings, new stuffing box, and well cleaning. We are just waiting on the motor inspection results.

Have a great weekend!
Tom

-----Original Message-----
From: Caron, Paula (DEP) <paula.caron@state.ma.us>
Sent: Friday, May 20, 2022 1:32 PM
To: Tom Cutler <tcutler@webster-ma.gov>
Cc: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Hi Tom,

Could you provide an update regarding Bigelow and Well 6 status? When will lab have results available from Bigelow?

Thanks for your assistance.

Paula Caron
Water Quality Program Coordinator
MassDEP Drinking Water Program
Central Regional Office | 8 New Bond St. | Worcester MA 01606 Office Cell Phone | 857.303.8004

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Sunday, May 15, 2022 2:39 PM
To: Bostwick, Robert (DEP) <robert.bostwick@mass.gov>; Earl Gabor <earl.gabor@gmail.com>; Tom Andrade <ta122828@charter.net>; Tom 2 <ta122828@gmail.com>; Daniel Duteau <dduteau@charter.net>; Marc Becker <assessor@webster-ma.gov>; Richard LaFond <rlafond@webster-ma.gov>
Cc: Caron, Paula (DEP) <paula.caron@mass.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Sam Yacino <syacino@webster-ma.gov>; Michelle Roy <mroy@webster-ma.gov>; Kristin Doyle <kdoyle@webster-ma.gov>; Pigsley, MaryJude (DEP) <maryjude.pigsley@mass.gov>; Stone, Marielle (DEP) <marielle.stone@mass.gov>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

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Thanks. Enjoy the rest of day!

Tom

-----Original Message-----
From: Bostwick, Robert (DEP) <robert.bostwick@state.ma.us>
Sent: Sunday, May 15, 2022 2:35 PM
To: Tom Cutler <tcutler@webster-ma.gov>; Earl Gabor <earl.gabor@gmail.com>; Tom Andrade <ta122828@charter.net>; Tom 2 <ta122828@gmail.com>; Daniel Duteau <dduteau@charter.net>; Marc Becker <assessor@webster-ma.gov>; Richard LaFond <rlafond@webster-ma.gov>
Cc: Caron, Paula (DEP) <paula.caron@state.ma.us>; Joeseph Patterson <jpatterson@webster-ma.gov>; Sam Yacino <syacino@webster-ma.gov>; Michelle Roy <mroy@webster-ma.gov>; Kristin Doyle <kdoyle@webster-ma.gov>; Pigsley, MaryJude (DEP) <maryjude.pigsley@state.ma.us>; Stone, Marielle (DEP) <marielle.stone@state.ma.us>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Tom,

Good catch with "News". The News Release looks fine and as we just discussed, Webster will be collecting the PFAS samples for Bigelow tomorrow, May 16th and this release will be updated with that information.

Thanks,
Bob Bostwick
CERO Drinking Water Section Chief
(774) 239-6003

-----Original Message-----
From: Tom Cutler <tcutler@webster-ma.gov>
Sent: Sunday, May 15, 2022 2:22 PM
To: Earl Gabor <earl.gabor@gmail.com>; Tom Andrade <ta122828@charter.net>; Tom 2 <ta122828@gmail.com>; Daniel Duteau <dduteau@charter.net>; Marc Becker <assessor@webster-ma.gov>; Richard LaFond <rlafond@webster-ma.gov>
Cc: Caron, Paula (DEP) <paula.caron@mass.gov>; Bostwick, Robert (DEP) <robert.bostwick@mass.gov>; Joeseph Patterson <jpatterson@webster-ma.gov>; Sam Yacino <syacino@webster-ma.gov>; Michelle Roy <mroy@webster-ma.gov>; Kristin Doyle <kdoyle@webster-ma.gov>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Typo fixed on subject News Release...

-----Original Message-----
From: Tom Cutler
Sent: Sunday, May 15, 2022 2:06 PM
To: Earl Gabor <earl.gabor@gmail.com>; Tom Andrade <ta122828@charter.net>; Tom 2 <ta122828@gmail.com>; Daniel Duteau <dduteau@charter.net>; Marc Becker <assessor@webster-ma.gov>; Richard LaFond <rlafond@webster-ma.gov>
Cc: Paula Caron <paula.caron@state.ma.us>; Robert Bostwick <robert.bostwick@state.ma.us>; Joeseph Patterson <jpatterson@webster-ma.gov>; Sam Yacino <syacino@webster-ma.gov>; Michelle Roy <mroy@webster-ma.gov>; Kristin Doyle <kdoyle@webster-ma.gov>
Subject: RE: Well 6 Failure-Bigelow Well Reactivated

Hi Bob,

As requested, I have drafted a the public news release for your review and approval. See attached and let me know if you have any questions or concerns.

Tom

-----Original Message-----
From: Tom Cutler
Sent: Sunday, May 15, 2022 12:53 PM
To: Earl Gabor <earl.gabor@gmail.com>; Tom Andrade <ta122828@charter.net>; Tom 2 <ta122828@gmail.com>; Daniel Duteau <dduteau@charter.net>; Marc Becker <assessor@webster-ma.gov>; Richard LaFond <rlafond@webster-ma.gov>
Cc: Paula Caron <paula.caron@state.ma.us>; Robert Bostwick <robert.bostwick@state.ma.us>; Joeseph Patterson <jpatterson@webster-ma.gov>; Sam Yacino <syacino@webster-ma.gov>; Michelle Roy <mroy@webster-ma.gov>; Kristin Doyle <kdoyle@webster-ma.gov>
Subject: Well 6 Failure-Bigelow Well Reactivated

Good morning,

Well #6 at Memorial Beach has a mechanical issue that can not be fixed quickly. This is the largest well at Memorial Beach and we are not able to keep up with system demand with out it. We have notified MassDEP and are working on bringing Bigelow online. This is not an emergency. I just want you to be aware. A full round of PFAS sampling is scheduled for Thursday this week and we will pull a separate sample at Bigelow on Tuesday per MassDEP. We are awaiting further direction from MassDEP and I will update you again once more info is available. Please call me at 508-688-4964 should you have any questions or concerns.

Regards,
Tom

Sent from my iPhone

Attachment E

Proposed Projects Site Plan

ATTACHMENT E
PROPOSED PROJECTS SITE PLAN

Proposed Project:
Construct a PFAS
and Manganese WTP

Proposed Project:
Construct a PFAS
WTP

CHARLTON
OXFORD
DUDLEY
DOUGLAS
THOMPSON, CONNECTICUT

Grassy Pond
Pierpont Meadow Pond
Hayden Pond
New Pond
Tobins Pond
Wallis Pond
Peter Pond
Larner Pond
Sunnyside Pond
French River
Nigmuck Pond
Whitin Reservoir
Merino Pond
Low Pond
Niper Road Pond
Holy Trinity Cemetery Pond
Packard Pond
Club Pond
Webster Lake
Chamberlain Pond

NANCY DRIVE
VICTORIA DRIVE
TANNER ROAD
CUDWORTH ROAD
GOYA DRIVE
OAKWOOD DRIVE
CAMILE ROAD
SUTTON ROAD
KINGSBURY ROAD
BIGELOW ROAD
OLD WORCESTER ROAD
WORCESTER ROAD
MINEBROOK ROAD
HARTLEY STREET
MILL STREET
SLATER STREET
RAGGOT AVENUE
VILLAGE WAY
UPLAND AVENUE
EAST MAIN STREET
NORTH MAIN STREET
ALDRICH STREET
PARK AVENUE
PROSPECT STREET
SOUTH MAIN STREET
PARK ROAD
TOWER STREET
PEVEAR AVENUE
MAIN STREET
NEGUS STREET
PARK STREET
HARRIS STREET
LAKE STREET
HIGH STREET
HILL STREET
FIRST STREET
MYRTLE AVENUE
POLAND STREET
THIRD STREET
CROSBY STREET
KLEBART AVENUE
LAKE PARKWAY
CUSHING ROAD
SCHOOL STREET
BATTEN STREET
STEPHEN DRIVE
HOLLY LANE
ASH STREET
BROOKSIDE AVENUE
PERRYVILLE ROAD
BIRCH ISLAND ROAD
KILLDEER ISLAND ROAD
SOUTH SHORE ROAD
INTERSTATE 395
THOMPSON ROAD
UNION POINT ROAD
LAURELWOOD DRIVE
WAWELA PARK ROAD
BLUEBERRY HILL
BLUEBERRY WAY
UPPER GORE ROAD
LOWER GORE ROAD
SCENIC AVENUE
HALL ROAD
BATES POINT ROAD
SUNNY AVENUE
KONKEL AVENUE
REGINA AVENUE
FREEMAN AVENUE
DAVIES AVENUE
COLONIAL ROAD
ELAINE STREET
BAY VIEW ROAD
POINT BREEZE ROAD
LOVELAND ROAD
MCGOVERN LANE
BATES CROSSING
D DOUGLAS ROAD

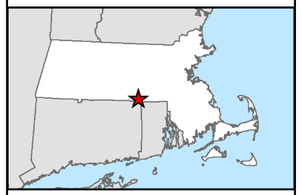
Pump Station No. 3
PS #3 - Well #3
Sutton Road Booster Pump Station
Rawson Road WST
Corrosion Control Facility
Memorial Beach Treatment Plant
PS #1 - Well #4
PS #2 - Well #2
Park Road Standpipe
Pump Station No. 2
PS #1 - Well #1
PS #1 - Well #2
Pump Station No. 1
PS #1 - Well #5
PS #1 - Well #3

12
395
16
193

LEGEND

- PS — Pump Station
- BS — Booster Pump Station
- WTP — Water Treatment Plant
- Water Tank
- Well
- Water Main
- Stream
- Waterbody
- Municipal Boundary

LOCUS MAP



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NOTES

1. MassGIS Color Orthophotography (2021)

2022 PEF Application
Webster, Massachusetts

July 2022

Tighe&Bond

G:\GIS\MA\WebsterMA\avproj\W5002-WebsterPEF2022\MXD\WebsterMA_11x17_WaterSystemOverviewC.mxd [Exported By: MHarris, 7/28/2022, 2:19:10 PM]

W-5002

Attachment F

Bench Scale Testing Results (ECT2 Report dated July 2022)

Montrose Environmental Group

Tighe&Bond

Final Bench Testing Report
Webster, MA

Submission Date: 07/26/2022

SUBMITTED TO:
Danielle Teixeira, PE
Project Manager
Tighe & Bond
120 Front Street, Suite 7
Worcester, MA 01608
(508) 471 9636
dteixeira@tighebond.com

SUBMITTED BY:
Margaret Thompson
Research & Development Engineer
ECT_2
208 Technology Park Ln, Suite 110
Fuquay-Varina, NC 27526
(336) 209 6856
mathompson@ect2.com

125 Industrial Way
Portland, ME 04103
Phone: 614.987.2610

1. Introduction

Rapid small-scale column tests (RSSCT) were conducted by ECT_2 to develop site-specific usage rates for granular activated carbon (GAC) to treat eight PFAS compounds: PFHxA, PFHpA, PFOA, PFNA, PFDA, PFBS, PFHxS, PFOS. Test water was collected from the Pump Station No. 3 (PS 3) located at Bigelow Road, and Pump Stations No. 1 and No. 2 (PS 1 & 2) at the Memorial Beach Water Treatment Plant (WTP) located at 6 Memorial Beach Drive. The results gained from this testing will provide information on media performance for the full-scale system in Webster, MA.

2. Methods

2.1. Water

Three barrels of test water were collected from PS 1, 2, and 3 and shipped via freight from Massachusetts to North Carolina. The first barrel contained finished water from PS 1 & 2, the second barrel contained untreated water from PS 3, and the third barrel contained a 50/50 mixture of finished water from PS 1 & 2 and raw water from PS 3. Upon arrival, the 55-gallon HDPE barrels of sample water were moved into a climate-controlled space and allowed to equilibrate to room temperature (~22°C). All test water was prefiltered using a 5 µm (nominal size) polypropylene sediment filter prior to column testing to protect the high-performance liquid chromatography (HPLC) pumps from solids buildup. This was done in place of influent line filters that were removed from the pumps to avoid introducing a source of PFAS contamination from the sintered metal material. Photo 1 shows discoloration on each of the sediment filters indicating the raw (PS 3) and mixed water (PS 1, 2, & 3) contained more potential fouling agents than the treated water (PS 1 & 2). Each water was sampled prior to column testing and analyzed for PFAS and background chemistry such as alkalinity, total organic carbon (TOC), dissolved organic carbon (DOC), and ions (see Table 2.1). The water was then spiked to twice the maximum historical PFAS concentration measured at PS 3. See Table 2.2 for influent PFAS spiked concentrations.

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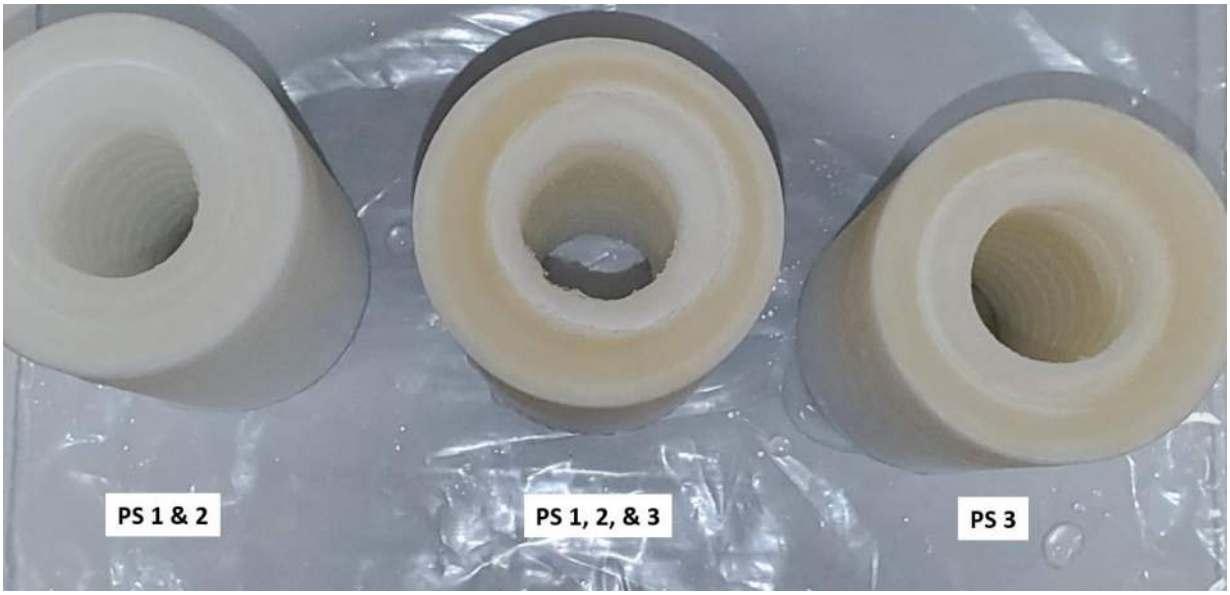

Photo 1. Polypropylene sediment filters used to remove solids from test water. The two filters used on raw water, center and right, collected the most solids/fouling agents.

Table 2.1. Background water quality concentrations

Water Quality Parameter	*PS 1 & 2 (Finished)*	*PS 1, 2, & 3 (Blended)*	*PS 3 (Raw)*
pH	7.14	7.16	7.17
Temperature (°C)	22.2	22.3	22.3
Alkalinity (mg/L as $CaCO_3$)	34.9	51.4	67.2
TOC	<1.0	1.1	1.0
DOC	<1.0	1.1	1.0
Nitrate (mg/L as N)	0.26	0.88	1.74
Sulfate (mg/L)	6.1	7.6	10.9
Chloride (mg/L)	84.9	51.1	14.0
Arsenic (mg/L)	<0.02	<0.02	<0.02
Magnesium (mg/L)	2.82	3.01	3.21
Manganese (mg/L)	<0.01	<0.01	<0.01
Iron (mg/L)	<0.01	<0.01	<0.01

Table 2.2. PFAS concentrations of spiked influent

Compound	*ng/L*		
	Target	*PS 1 & 2*	*PS 3*
Perfluorohexanoic acid (PFHxA)	7.6	6.96	6.83
Perfluoroheptanoic acid (PFHpA)	6.8	2.42	4.75
Perfluorocotanoic acid (PFOA)	15.0	11.2	13.0
Perfluorobutanesulfonate (PFBS)	4.0	3.93	4.86
Perfluorohexanesulfonate (PFHxS)	3.6	2.98	3.28
Perfluorooctanesulfonate (PFOS)	12.4	8.29	9.41
Perfluorononanoic acid (PFNA)	1.6	0.75	0.94
Perfluorodecanoic acid (PFDA)	ND	ND	ND

2.2. Sorbents

Calgon FILTRASORB® 400 (F400) was selected for the RSSCTs based on cost and background chemistry. The GAC was mechanically ground and wet sieved using deionized water. Ground media was collected between #120 and #270 standard stainless-steel sieves with a natural logarithmic mean diameter (d_p) of 0.084mm.

2.3. Column Tests

RSSCTs were designed to simulate typical full-scale vessel design (see Table 2.3). Column scale-down was calculated following the equations below (Crittenden, Berrigan, & Hand, 1986; Crittenden, Berrigan, Hand, & Lykins, 1987):

$$\frac{EBCT_{RSSCT}}{EBCT_{full\ scale}} = \left[\frac{d_{p,RSSCT}}{d_{p,full\ scale}}\right]^{2-X} = SF^{X-2} = \frac{t_{RSSCT}}{t_{full\ scale}} \qquad (1)$$

The ratio of the RSSCT empty bed contact time (EBCT) to the full-scale EBCT followed the relationship shown in equation 1. The particle sizes (d_p) of small and large columns were used to determine the EBCT ratio. The diffusivity factor (X) is equal to 0 and 1 for constant diffusivity (CD) and proportional diffusivity (PD) RSSCT designs respectively. This study used the CD-RSSCT design as it has been shown to

successfully simulate full-scale systems using GAC with less kinetic scale-up adjustment compared to the PD-RSSCT design (Schaefer, Nguyen, Culina, Guelfo, & Kumar, 2020). The scaling factor (SF) was used to determine the hydraulic loading rate (v_f) of the small column (equation 2). The final design parameter to be calculated was the bed depth (L) which is a function of the hydraulic loading rate and empty bed contact time (equation 3).

$$\frac{v_{f,RSSCT}}{v_{f,full\ scale}} = \frac{d_{p,full\ scale}}{d_{p,RSSCT}} = SF \qquad (2)$$

$$L_{RSSCT} = v_{f,RSSCT}\ x\ EBCT_{RSSCT} \qquad (3)$$

The RSSCT column diameter was selected based on available laboratory tubing sizes that accommodate the relationship in equation 3. Bed depth and flow rate must be within practical operational range for lab work. Due to the limitations caused by small diameter columns and finely ground sorbent media, the minimum Reynolds number approach was applied in this study following the equations below:

$$v_{f,RSSCT} = v_{f,pilot}\ SF\ \frac{Re_{RSSCT,min}}{Re_{pilot}} \qquad (4)$$

$$Re_{RSSCT,min} = \frac{500}{Sc} \qquad (5)$$

The RSSCT design parameters used in this study can be found in Table 2.4.

RSSCTs were constructed of 1/4" translucent polypropylene tubing connected via stainless steel valves and unions. Each column was operated in downflow to minimize air intrusion into the sorbent bed packed atop glass wool. Samples were taken every 5,000 to 10,000 bed volumes (twice a day) and analyzed every 15,000 to 20,000 bed volumes (BV). Each column treated 150,000 BV of water.

Table 2.3. Typical Full-Scale Vessel Design

Parameter	*GAC*
Sorbent Size (mm)	0.92
Vessel diameter (ft)	12
Bed depth (ft)	8
Bed volume (ft^3)	905
EBCT (min)	10
Flow rate (gpm)	675
Hydraulic loading (gpm/ft^2)	6.0

Table 2.4. RSSCT Column Design

Parameter	*GAC*
Sorbent Size (mm)	0.084
Vessel diameter (cm)	0.41
Bed depth (cm)	2.5
Bed volume (cm^3)	0.32
EBCT (min)	0.083
Flow rate (cm^3/min)	3.89
Hydraulic loading ($cm^3/min/cm^2$)	30

3. Results

Figure 3.1 shows the total regulated PFAS (PFAS6: PFHpA, PFOA, PFNA, PFDA, PFHxS, PFOS) breakthrough for the PS 1 & 2 and PS 3 RSSCTs. Both GAC columns demonstrated breakthrough after 32,000 BV. The spiked influent of PS 1 & 2 was 18% lower than PS 3. The difference in influent PFAS concentration was most likely due to a slightly low initial reading for PS 3, which impacted the PFAS spiking calculation. Analytical uncertainty for this type of analysis is expected to be within +/- 30%. Both columns reached a maximum regulated PFAS concentration at 135,000 BV. The PS 3 column reached 22.4 ppt which is 112% of the 20 ppt treatment objective and the PS 1 & 2 column reached 15.0 ppt which is 75% of the treatment objective. While this difference in maximum breakthrough may be due to slight variations in background chemistry or fouling agents present in the source water, it is more likely the result of the 18% variation in influent PFAS. Complete PFAS data (including qualifiers and limits of detection) are reported in the appendix in Tables A.1 and A.2.

Figures 3.2 and 3.3 show PS 1 & 2 and PS 3 breakthrough curves for the 8 PFAS compounds tested. The compounds with the highest breakthrough for both GAC columns were PFHxA (C6), PFHpA (C7), and PFBS (C4). PFOA and PFOS (C8) had the highest influent concentrations (C_{PFOA} = 11.2 & 13.0 ppt, C_{PFOS} = 8.29 & 9.41 ppt in PS 1 & 2, and PS 3, respectively) but broke through later than the shorter

chain compounds despite being present at lower initial concentrations. This suggests that chain length has a greater impact on breakthrough time than influent concentration. During full-scale operation, shorter chain compounds with mid to high influent concentrations will drive changeout frequency.

Pressure and flow rate data are reported in Figures A.1 and A.2. Pressure can be seen increasing rapidly during the blended water (PS 1, 2, & 3) column test with a maximum pressure of 105 psi. Once the column reached 100 psi, the fittings connecting the inlet tubing began to leak inside the HPLC pump. The column was paused and repacked after treating 32,000 BV. The pressure reading dropped to 15 psi after repacking but reached 105 psi by the following morning. A new column was built and packed with fresh media but the pressure climbed again to 90 psi within the first 20,000 BV. To test that the blended water contained fouling agents causing the pressure increase, deionized water was passed through the column for 8 hours. During the deionized water test, the pressure reading remained between 85-90 psi. The blended water was passed through the column a final time and the pressure began to climb again. Due to time constraints, the blended water column was not started a third time.

Samples were taken at the beginning and middle of the GAC RSSCTs and analyzed for arsenic. All arsenic samples came back below detection limits (see Table A.3). Background chemistry samples were taken from both column effluents at the end of each test and can be found in Table A.4.

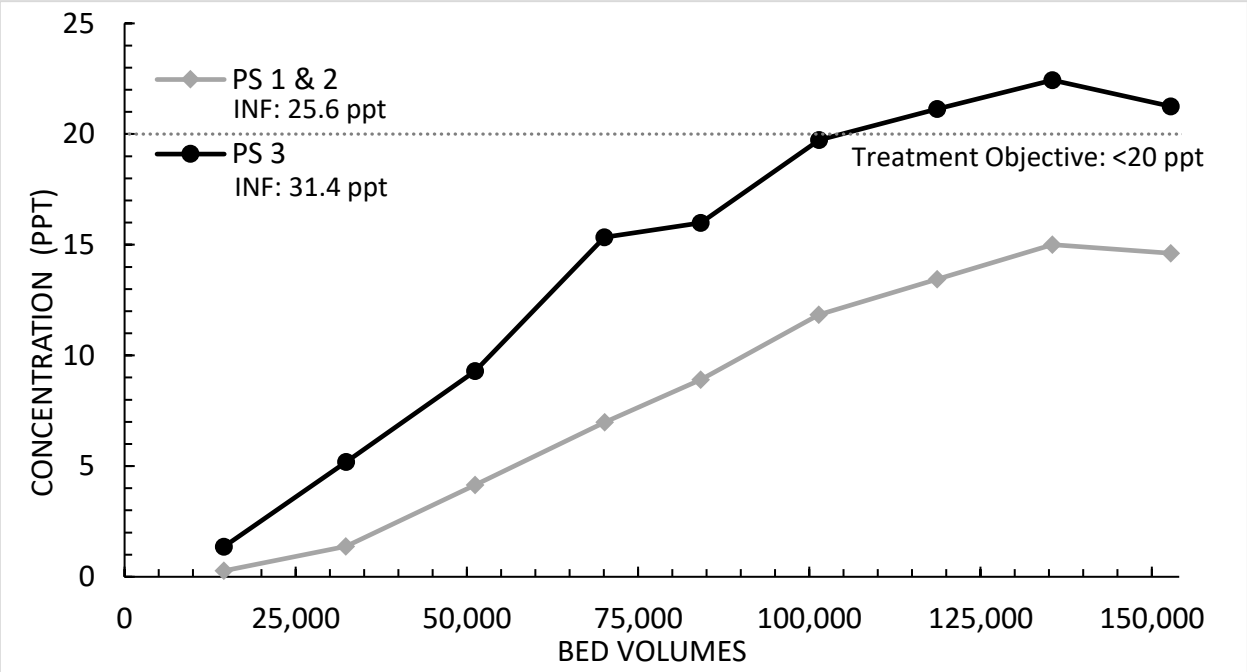

Figure 3.1. Total regulated PFAS breakthrough (PFAS6: PFHpA, PFOA, PFNA, PFDA, PFHxS, PFOS). J qualified data were included in this total PFAS summation but non-detect data were not.

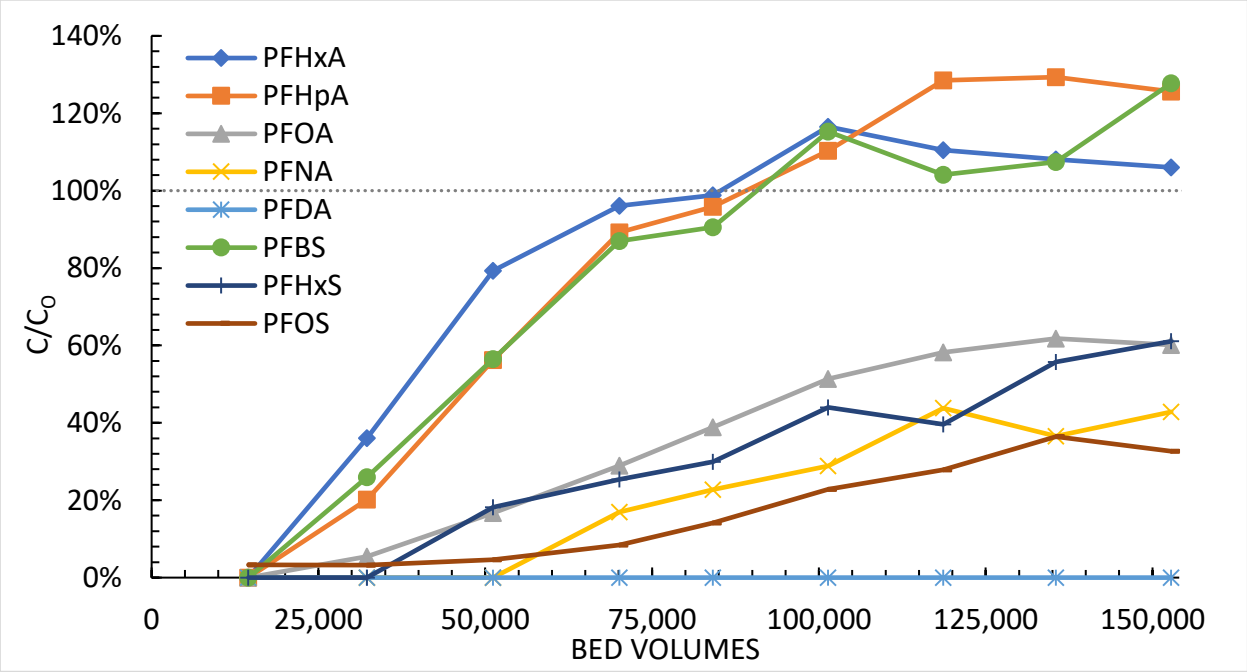

Figure 3.2. Calgon FILTRASORB® 400 (F400) activated carbon RSSCT treating finished water **PS 1 & 2**. J qualified data were included in this plot but non-detect data were not.

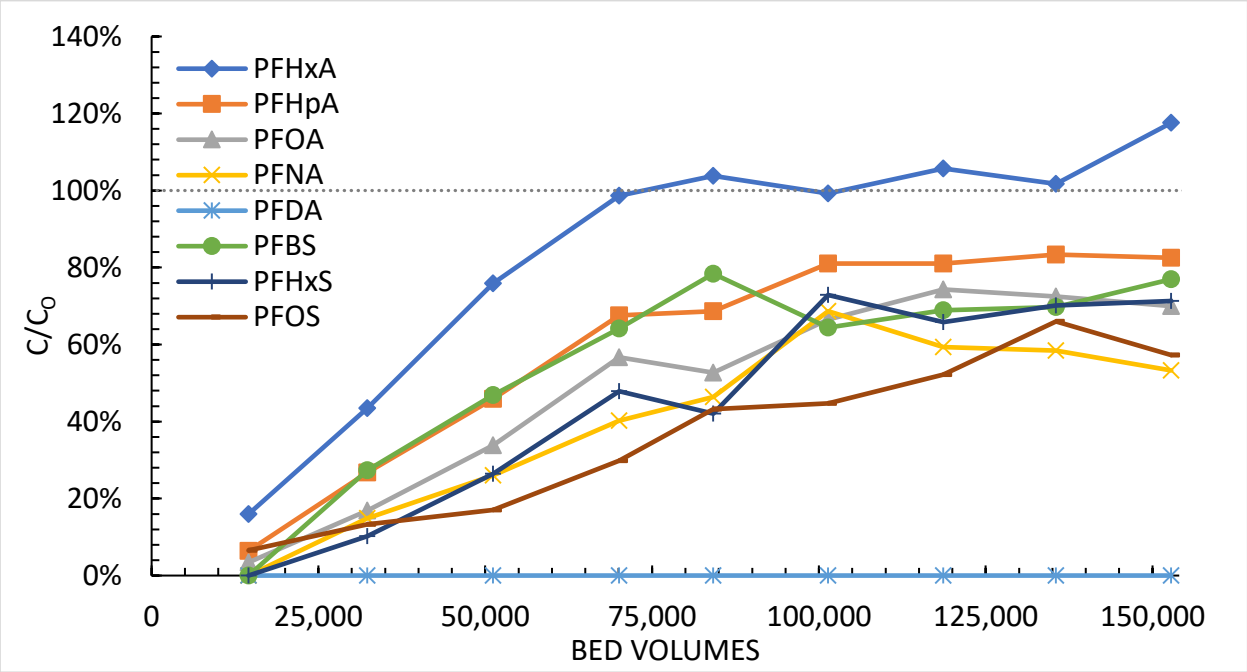

Figure 3.3. Calgon FILTRASORB® 400 (F400) activated carbon RSSCT treating raw water **PS 3**. J qualified data were included in this plot but non-detect data were not.

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4. Appendix

Table A.1. Analytical PFAS data from PS 1 & 2 RSSCT

Date	*Time*	*Bed Volumes*	*(ng/L)*							
			PFHxA	*PFHpA*	*PFOA*	*PFNA*	*PFDA*	*PFBS*	*PFHxS*	*PFOS*
6/8/2022	**12:33**	**INF**	**6.96**	**2.42**	**11.2**	**0.749**	**<LOD (0.08)**	**3.93**	**2.98**	**8.29**
6/9/2022	8:14	14,513	<LOD (0.21)	<LOD (0.13)	<LOD (0.19)	<LOD (0.08)	<LOD (0.08)	<LOD (0.38)	<LOD (0.20)	0.27 J
6/10/2022	8:57	32,307	2.51	0.49 J	0.61 J	<LOD (0.08)	<LOD (0.09)	1.02	<LOD (0.20)	0.27 J
6/11/2022	11:14	51,185	5.52	1.36	1.87	<LOD (0.09)	<LOD (0.09)	2.22	0.54 J	0.38 J
6/12/2022	13:33	70,111	6.69	2.16	3.24	0.13 J	<LOD (0.10)	3.42	0.76 J	0.70 J
6/13/2022	9:06	84,141	6.88	2.32	4.35	0.17 J	<LOD (0.09)	3.56	0.891	1.17
6/14/2022	9:07	101,402	8.11	2.67	5.75	0.22 J	<LOD (0.09)	4.53	1.31	1.89
6/15/2022	9:06	118,647	7.69	3.11	6.52	0.33 J	<LOD (0.09)	4.09	1.18	2.31
6/16/2022	9:03	135,512	7.52	3.13	6.92	0.27 J	<LOD (0.09)	4.22	1.66	3.02
6/17/2022	9:08	152,796	7.38	3.04	6.73	0.32 J	<LOD (0.10)	5.02	1.82	2.71

J	The analyte has a concentration below the minimum calibration level (LOQ value) but greater than the LOD. These values should be considered as having measurement uncertainty higher than values within the calibration range.
<LOD ( )	Analyte was not found at a concentration high enough to be reported as detected. It is reported as less than the LOD, and the LOD is given in the parentheses.

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Table A.2. Analytical PFAS data from PS 3 RSSCT

Date	*Time*	*Bed Volumes*	*(ng/L)*							
			PFHxA	*PFHpA*	*PFOA*	*PFNA*	*PFDA*	*PFBS*	*PFHxS*	*PFOS*
6/8/2022	**12:33**	**INF**	**6.83**	**4.75**	**13**	**0.935**	**<LOD (0.09)**	**4.86**	**3.28**	**9.41**
6/9/2022	8:15	14,524	1.09 J	0.30 J	0.44 J	<LOD (0.09)	<LOD (0.10)	<LOD (0.41)	<LOD (0.22)	0.62 J
6/10/2022	8:59	32,354	2.97	1.27 J	2.19	0.14 J	<LOD (0.09)	1.33 J	0.34 J	1.25 J
6/11/2022	11:15	51,189	5.18	2.18	4.4	0.24 J	<LOD (0.10)	2.28	0.87 J	1.60 J
6/12/2022	13:34	70,090	6.74	3.21	7.37	0.38 J	<LOD (0.09)	3.12	1.57	2.81
6/13/2022	9:07	84,151	7.09	3.26	6.85	0.43 J	<LOD (0.09)	3.81	1.38 J	4.07
6/14/2022	9:08	101,407	6.78	3.85	8.64	0.64 J	<LOD (0.09)	3.13	2.39	4.21
6/15/2022	9:07	118,653	7.22	3.85	9.66	0.56 J	<LOD (0.09)	3.35	2.16	4.91
6/16/2022	9:04	135,515	6.95	3.96	9.42	0.55 J	<LOD (0.09)	3.39	2.3	6.21
6/17/2022	9:08	152,796	8.03	3.92	9.1	0.50 J	<LOD (0.09)	3.74	2.34	5.39

J	The analyte has a concentration below the minimum calibration level (LOQ value) but greater than the LOD. These values should be considered as having measurement uncertainty higher than values within the calibration range.
<LOD ( )	Analyte was not found at a concentration high enough to be reported as detected. It is reported as less than the LOD, and the LOD is given in the parentheses.

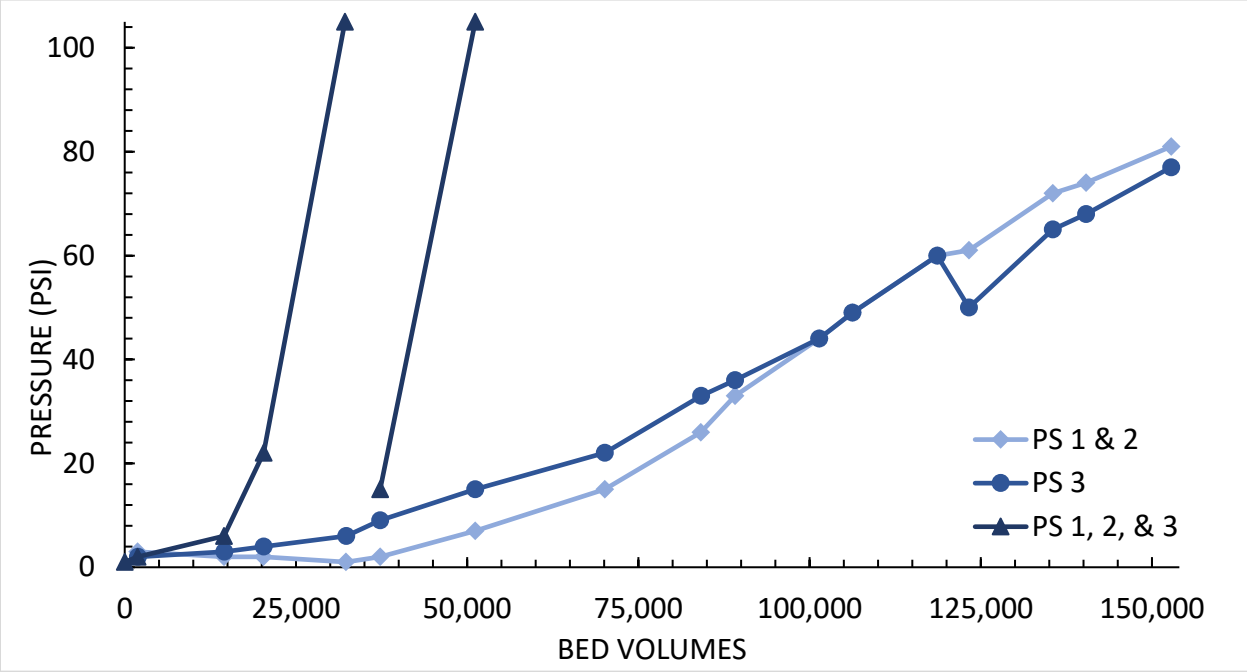

Figure A.1. Pressure (psi) recorded during RSSCTs. The blended water column (PS 1, 2, & 3) was paused and repacked after the pressure reached 105 psi, which explains the drop in pressure between samples taken at 32,000 BV and 37,000 BV.

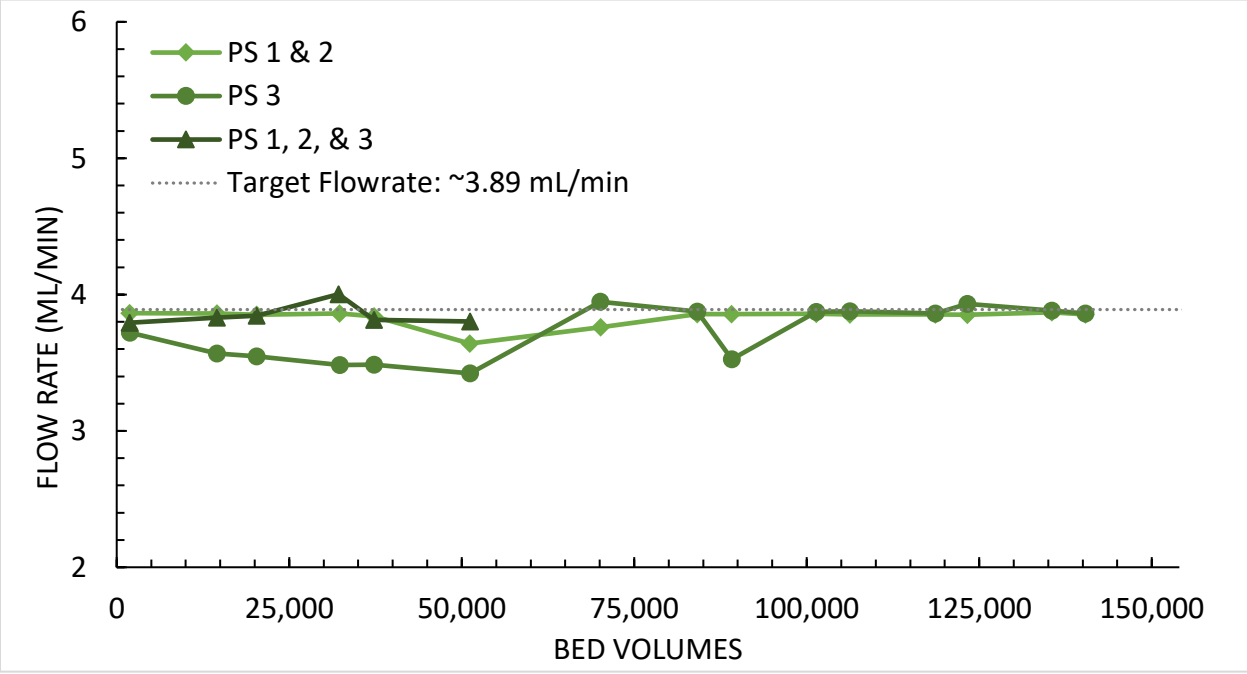

Figure A.2. Flow rate (mL/min) measured during sample collection.

Table A.3. Arsenic concentrations in column influent and effluent

Column	*Date*	*Time*	*BV*	*As (mg/L)*
PS 1 & 2	6/13/22	9:30	INF	<0.02
	6/09/22	11:22	16,450	<0.02
	6/11/22	11:15	50,820	<0.02
	6/13/22	12:00	85,860	<0.02
PS 3	6/13/22	9:30	INF	<0.02
	6/09/22	11:26	16,400	<0.02
	6/11/22	11:15	50,820	<0.02
	6/13/22	12:00	85,860	<0.02

Table A.4. Background water quality concentrations of column influent and effluent

Water Quality Parameter	*Influent*		*Effluent*	
	PS 1 & 2	*PS 3*	*PS 1 & 2*	*PS 3*
pH	7.14	7.17	7.06	7.22
Temperature (°C)	22.2	22.3	22.2	22.1
Alkalinity (mg/L as $CaCO_3$)	34.9	67.2	29.5	57.6
TOC	<1.0	1.0	<1.0	1.1
DOC	<1.0	1.0	<1.0	1.0
Nitrate (mg/L as N)	0.26	1.74	0.27	1.75
Sulfate (mg/L)	6.1	10.9	7.2	10.3
Chloride (mg/L)	84.9	14.0	84.8	14.3
Arsenic (mg/L)	<0.02	<0.02	<0.02	<0.02
Magnesium (mg/L)	2.82	3.21	2.89	3.32
Manganese (mg/L)	<0.01	<0.01	<0.01	<0.01
Iron (mg/L)	<0.01	<0.01	<0.01	<0.01

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5. References

Crittenden, J. C., Berrigan, J. K., & Hand, D. W. (1986). Design of Rapid Small-Scale Adsorption Tests for a Constant Diffusivity. *Journal (Water Pollution Control Federation), 58*, 312-319.

Crittenden, J. C., Berrigan, J. K., Hand, D. W., & Lykins, B. (1987). Design of Rapid Fixed-Bed Adsorption Tests for Nonconstant Diffusivities. *Journal of Environmental Engineering, 113*, 243-259.

Schaefer, C. E., Nguyen, D., Culina, V. M., Guelfo, J., & Kumar, N. (2020). Application of Rapid Small-Scale Column Tests for Treatment of Perfluoroalkyl Acids Using Anion-Exchange Resins and Granular Activated Carbon in Groundwater with Elevated Organic Carbon. *Industrial & Engineering Chemistry Research, 59*, 16832-16837.

Attachment G

Water Quality Lab Data from Monthly Town Samples

First Round

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
03 G	STATION 3: BIGELOW RD. (FINISHED)	☐ (M)ultiple ☒ (S)ingle	☐ (R)aw ☒ (F)inished	06-APR-21 08:05	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	08-APR-21 10:27	09-APR-21 18:43	1	Primary Lab:	539951001
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	6.08			0.601	1.82
335-67-1	Perfluorooctanoic Acid (PFOA)	6.23			0.601	1.82
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.37	J		0.546	1.66
375-95-1	Perfluorononanoic Acid (PFNA)	ND		-	0.601	1.82
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.89			0.601	1.82
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.601	1.82
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	15.2	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.7			0.528	1.62
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.601	1.82
307-24-4	Perfluorohexanoic acid (PFHxA)	3.35			0.601	1.82
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.601	1.82
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.601	1.82
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		-	0.601	1.82
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.2	3.64
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.2	3.64
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.91	3.64
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.2	3.64
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.601	1.82
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.601	1.82

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	95	
$^{13}C_2$-PFDA	94	
d_5-NEtFOSAA	105	
$^{13}C_3$-HFPO-DA	98	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-03G	STATION 3: WELL #3 Bigelow Rd	☐ (M)ultiple ☒ (S)ingle	☐ (R)aw ☒ (F)inished	06-APR-21 08:00	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Dete Extracted	Date Analyzed	Dilution Fector	Lab Sample IDs#	
EPA 537.1	08-APR-21 10:27	09-APR-21 19:34	1	Primary Lab:	539951003
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1783-23-1	Perfluorooctane Sulfonic Acid (PFOS)	5.8			0.583	1.77
335-67-1	Perfluorooctanoic Acid (PFOA)	5.92			0.583	1.77
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.5	J		0.53	1.61
375-95-1	Perfluorononanoic Acid (PFNA)	ND		-	0.583	1.77
375-85-9	Perfluorohepetanoic Acid (PFHpA)	2.91			0.583	1.77
335-76-2	Perfluorodecanoic ecid (PFDA)	ND			0.583	1.77
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	14.6	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.68			0.512	1.57
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.583	1.77
307-24-4	Perfluorohexanoic acid (PFHxA)	3.28			0.583	1.77
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.583	1.77
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.583	1.77
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		-	0.583	1.77
2991-50-8	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.17	3.53
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.17	3.53
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.883	3.53
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.17	3.53
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.583	1.77
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.583	1.77

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	94	
$^{13}C_2$-PFDA	78	
d_5-NEtFOSAA	92	
$^{13}C_3$-HFPO-DA	94	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-04G	RAW WATER: STATION #1, WELL #1	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:05	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	08-APR-21 10:27	09-APR-21 19:51	1	Primary Lab:	539951005
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	2.15			0.561	1.7
335-67-1	Perfluorooctanoic Acid (PFOA)	2.23			0.561	1.7
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.02	J		0.51	1.55
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.561	1.7
375-85-9	Perfluorohepatanoic Acid (PFHpA)	0.585	J		0.561	1.7
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.561	1.7
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	4.38	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.34	J		0.493	1.51
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.561	1.7
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.561	1.7
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.561	1.7
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.561	1.7
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.561	1.7
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.12	3.4
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.12	3.4
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.85	3.4
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.12	3.4
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.561	1.7
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.561	1.7

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

Per- and Polyfluoroalkyl Substances (PFAS) Report

PFAS

PWS ID#:	2316000	Lab Sample ID#:	Primary Lab:	GEL Laboratories LLC
			Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	92	
$^{13}C_2$-PFDA	73	
d_5-NEtFOSAA	72	
$^{13}C_3$-HFPO-DA	87	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-05G	RAW WATER: STATION #1, WELL #2	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:10	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	08-APR-21 10:27	09-APR-21 20:08	1	Primary Lab:	539951007
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	3.74		-	0.569	1.73
335-67-1	Perfluorooctanoic Acid (PFOA)	5.07			0.569	1.73
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.41	J		0.518	1.57
375-95-1	Perfluorononanoic Acid (PFNA)	0.584	J		0.569	1.73
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.25			0.569	1.73
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.569	1.73
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	11.1	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.79		-	0.5	1.54
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.569	1.73
307-24-4	Perfluorohexanoic acid (PFHxA)	2.57			0.569	1.73
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.569	1.73
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.569	1.73
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.569	1.73
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.14	3.45
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.14	3.45
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.863	3.45
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.14	3.45
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.569	1.73
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.569	1.73

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	105	
$^{13}C_2$-PFDA	94	
d_5-NEtFOSAA	98	
$^{13}C_3$-HFPO-DA	109	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-06G	RAW WATER: STATION #1, WELL #3	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:15	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	08-APR-21 10:27	09-APR-21 20:25	1	Primary Lab:	539951009
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	4.64			0.569	1.73
335-67-1	Perfluorooctanoic Acid (PFOA)	3.76			0.569	1.73
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.47	J		0.518	1.57
375-95-1	Perfluorononanoic Acid (PFNA)	ND		-	0.569	1.73
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.01			0.569	1.73
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.569	1.73
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	10.4	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	2.77			0.5	1.54
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.569	1.73
307-24-4	Perfluorohexanoic acid (PFHxA)	1.93			0.569	1.73
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.569	1.73
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.569	1.73
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.569	1.73
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		-	1.14	3.45
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.14	3.45
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.863	3.45
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.14	3.45
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.569	1.73
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.569	1.73

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

Per- and Polyfluoroalkyl Substances (PFAS) Report

PFAS

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	97	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	85	
$^{13}C_3$-HFPO-DA	87	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-07G	RAW WATER: STATION #1, WELL #4	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:20	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	12-APR-21 11:55	13-APR-21 18:02	1	Primary Lab:	539951011
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	3.9			0.58	1.76
335-67-1	Perfluorooctanoic Acid (PFOA)	4.13			0.58	1.76
355-46-4	Perfluorohexene Sulfonic Acid (PFHxS)	0.758	J		0.528	1.6
375-95-1	Perfluorononanoic Acid (PFNA)	1.37	J	-	0.58	1.76
375-85-9	Perfluorohepatanoic Acid (PFHpA)	1.48	J		0.58	1.76
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.58	1.76
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	8.03	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.98			0.51	1.57
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.58	1.76
307-24-4	Perfluorohexanoic acid (PFHxA)	3.3			0.58	1.76
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.58	1.76
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.58	1.76
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		-	0.58	1.76
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.16	3.52
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.16	3.52
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.879	3.52
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.16	3.52
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.58	1.76
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.58	1.76

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	94	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	74	
$^{13}C_3$-HFPO-DA	92	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)			
☐ Accepted _____ ☐ Disapproved	Review Comments		☐ WQTS Data Entered

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 City / Town: WEBSTER

PWS Name: Webster Water Dept PWS Class: COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-08G	RAW WATER: STATION #1, WELL #4	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:25	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 Primary Lab Name: GEL Laboratories LLC Subcontracted? (Y/N) N

Analysis Lab Cert. #: Analysis Lab Name:

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	12-APR-21 11:55	13-APR-21 18:19	1	Primary Lab:	539951013
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Reault[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	5.99			0.578	1.75
335-67-1	Perfluorooctanoic Acid (PFOA)	5.66			0.578	1.75
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.47	J		0.525	1.59
375-95-1	Perfluorononanoic Acid (PFNA)	0.902	J	-	0.578	1.75
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.56			0.578	1.75
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.578	1.75
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	14.2	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	3.68			0.508	1.56
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.578	1.75
307-24-4	Perfluorohexanoic acid (PFHxA)	2.09			0.578	1.75
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.578	1.75
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.578	1.75
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.578	1.75
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		-	1.16	3.5
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.16	3.5
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.876	3.5
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.16	3.5
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.578	1.75
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.578	1.75

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	87	
$^{13}C_2$-PFDA	93	
d_5-NEtFOSAA	94	
$^{13}C_3$-HFPO-DA	90	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)			
☐ Accepted _____ ☐ Disapproved	Review Comments		☐ WQTS Data Entered

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-01G	RAW WATER: STATION #1, WELL #4	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:45	G. Woods

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	12-APR-21 11:55	13-APR-21 18:36	1	Primary Lab:	539951015
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	1.76	J		0.61	1.85
335-67-1	Perfluorooctanoic Acid (PFOA)	1.86			0.61	1.85
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.555	1.68
375-95-1	Perfluorononanoic Acid (PFNA)	0.625	J	-	0.61	1.85
375-85-9	Perfluorohepatanoic Acid (PFHpA)	0.702	J		0.61	1.85
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.61	1.85
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	1.86	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	0.609	J		0.536	1.65
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.61	1.85
307-24-4	Perfluorohexanoic acid (PFHxA)	0.65	J		0.61	1.85
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.61	1.85
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.61	1.85
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		-	0.61	1.85
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.22	3.7
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.22	3.7
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.925	3.7
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.22	3.7
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.61	1.85
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.61	1.85

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#:	2316000

Lab Sample ID#:	Primary Lab:	GEL Laboratories LLC
	Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	103	
$^{13}C_2$-PFDA	95	
d_5-NEtFOSAA	89	
$^{13}C_3$-HFPO-DA	94	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldford

Date: 4/21/201

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MassDEP REVIEW STATUS (Initial & Date) ☐ Accepted _____ ☐ Disapproved	Review Comments		☐ WQTS Data Entered

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: Webster Water Dept **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MaasDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
MULT2	RAW WATER: STATION #1, WELL #4	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	06-APR-21 10:50	G. Woods

Routine or Special Sampla	Original, Resubmitted or Confirmation Raport	If Resubmitted Report, list balow: (1) Raason for Raaubmiasion	(2) Collection Date of Original Sample
☐ RS ☒ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multipla sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Mathod	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	12-APR-21 11:55	13-APR-21 19:10	1	Primary Lab:	539951017
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	2.63			0.603	1.83
335-67-1	Perfluorooctanoic Acid (PFOA)	2.98			0.603	1.83
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	0.757	J	-	0.548	1.66
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.603	1.83
375-85-9	Perfluorohepatanoic Acid (PFHpA)	1.22	J		0.603	1.83
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.603	1.83
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	5.61	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutana sulfonic acid (PFBS)	1.31	J		0.53	1.63
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.603	1.83
307-24-4	Perfluorohaxanoic acid (PFHxA)	1.4	J		0.603	1.83
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.603	1.83
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.603	1.83
2058-94-8	Perfluoroundacanoic acid (PFUnA)	ND			0.603	1.83
2991-50-6	N-athyl parfluorooctanasulfonamidoacetic acid (NEtFOSAA)	ND			1.21	3.65
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.21	3.65
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.914	3.65
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.21	3.65
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.603	1.83
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.603	1.83

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 - 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	89	
$^{13}C_2$-PFDA	89	
d_5-NEtFOSAA	96	
$^{13}C_3$-HFPO-DA	86	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☑ **Laboratory analytical report with QC attached (check one item below).**

☑ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 4/21/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Page 6 of 10 SDG 539951

Page: ____ of 2
Project # MUEP00120
GEL Quote #:
COC Number (1):
PO Number:

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number:

GEL Project Manager: Brielle Luthman

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

539951

Client Name: Webster Water Dept
Phone # 508 949 3861
Project/Site Name:
Fax # 508 949 3865
Address: PO Box 793 Webster MA 01570
Collected By: G. Woods
Send Results To: mroy@webster-ma.gov

Sample ID * For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	PFAs 537.1	<-- Preservative Type (6)	Comments
03 G	04-06-21	805	N	N	DW	N	N	6	↘		STATION 3: BIGELOW RD. (FINISHED)
03 G FRB		805	N	N	DW	N	N	2	↘		
RW-03G		800	N	N	DW	N	N	2	↘		STATION 3: WELL #3 Bigelow Rd
RW-03G FRB		800	N	N	DW	N	N	2	↘		
RW-04G		1005	N	N	DW	N	N	2	↘		RAW WATER: STATION #1, WELL #1
RW-04G FRB		1005	N	N	DW	N	N	2	↘		
RW-05G		1010	N	N	DW	N	N	2	↘		RAW WATER: STATION #1, WELL #2
RW-05G FRB		1010	N	N	DW	N	N	2	↘		
RW-06G		1015	N	N	DW	N	N	2	↘		RAW WATER: STATION #1, WELL #3
RW-06G FRB	↓	1015	N	N	DW	N	N	2	↘		

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	4/6/21	11:30	[signature]	4.7.21	9:35
2						
3						

TAT Requested: Normal: ✓ Rush: ____ Specify: ____ (Subject to Surcharge)

Fax Results: [ ] Yes [ ] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: 4 °C

> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered

4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate. If no preservative is added = leave field blank

7.) KNOWN OR POSSIBLE HAZARDS

RCRA Metals
As = Arsenic
Ba = Barium
Cd = Cadmium
Cr = Chromium
Pb = Lead
Hg= Mercury
Se= Selenium
Ag= Silver
MR= Misc. RCRA metals

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)

Page: 2 of 2
Project # MDEP 00120
GEL Quote #:
COC Number (1):
PO Number:

GEL Laboratories LLC
gel.com
Chemistry | Radiochemistry | Radiobioassay | Specialty Analytics

Chain of Custody and Analytical Request

GEL Work Order Number:

GEL Project Manager: Brielle Luthman

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Webster Water Dept. Phone # 508 949 3861

Project/Site Name: Fax # 508 949 3865

Address: PO Box 795 Webster MA 01570

Collected By: G. Woods Send Results To: mroy@webster-ma.gov

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive (If yes, please supply isotopic info.)	Should this sample be considered: (7) Known or possible Hazards	Total number of containers	PFAs 537.1	<-- Preservative Type (6)	Comments
RW-07G	04-06-21	1020	N	N	DW	N	N	2	✓		RAW WATER: STATION #1, WELL #4
RW-07G FRB		1020	N	N	DW	N	N	2	✓		
RW-08G		1025	N	N	DW	N	N	2	✓		RAW WATER: STATION #1, WELL #4
RW-08G FRB		1025	N	N	DW	N	N	2	✓		
RW-01G		1045	N	N	DW	N	N	2	✓		RAW WATER: STATION #1, WELL #4
RW-01G FRB		1045	N	N	DW	N	N	2	✓		
MULT2		1050	N	N	DW	N	N	2	✓		RAW WATER: STATION #1, WELL #4
MULT2 FRB		1050	N	N	DW	N	N	2	✓		

Note: extra sample is required for sample specific QC

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	Gary Woods	4/6/21	11:30	[illegible]	4/7/21	935
2						
3						

TAT Requested: Normal: ✓ Rush: ____ Specify: ____ (Subject to Surcharge)

Fax Results: [ ] Yes [ ] No

Select Deliverable: [ ] C of A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4

Additional Remarks:

For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: 4 °C

> *For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)*

Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.

4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. *8260B - 3. 6010B/7470A - 1*).

6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

7.) KNOWN OR POSSIBLE HAZARDS

RCRA Metals
As = Arsenic Hg= Mercury
Ba = Barium Se= Selenium
Cd = Cadmium Ag= Silver
Cr = Chromium MR= Misc. RCRA metals
Pb = Lead

Characteristic Hazards
FL = Flammable/Ignitable
CO = Corrosive
RE = Reactive

TSCA Regulated
PCB = Polychlorinated biphenyls

Listed Waste
LW= Listed Waste
(F,K,P and U-listed wastes.)
Waste code(s):

Other
OT= Other / Unknown
(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)
Description:

Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)

Confirmatory Round

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 City / Town: WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT PWS Class: COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
03G	STATION 3: BIGELOW RD. (FINISHED)	☐ (M)ultiple ☒ (S)ingle	☐ (R)aw ☒ (F)inished	03-MAY-21 13:05	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 Primary Lab Name: GEL Laboratories LLC Subcontracted? (Y/N) N

Analysis Lab Cert. #: Analysis Lab Name:

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	06-MAY-21 17:38	1	Primary Lab:	543018001
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	5.92		-	0.621	1.88
335-67-1	Perfluorooctanoic Acid (PFOA)	6.82			0.621	1.88
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.68	J		0.565	1.71
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.621	1.88
375-85-9	Perfluoroheptanoic Acid (PFHpA)	2.85			0.621	1.88
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.621	1.88
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	15.6	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.75		-	0.546	1.67
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.621	1.88
307-24-4	Perfluorohexanoic acid (PFHxA)	3.13			0.621	1.88
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.621	1.88
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.621	1.88
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.621	1.88
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.24	3.76
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.24	3.76
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.941	3.76
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.24	3.76
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.621	1.88
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.621	1.88

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#:	2316000	Lab Sample ID#:	Primary Lab:	GEL Laboratories LLC
			Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	102	
$^{13}C_2$-PFDA	99	
d_5-NEtFOSAA	98	
$^{13}C_3$-HFPO-DA	107	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Bobiford

Date: 5/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date) ☐ Accepted _____ ☐ Disapproved	Review Comments		☐ WQTS Data Entered

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-03G	BIGELOW WELL (RAW WATER)	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 13:20	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Leb Method	Date Extracted	Dete Analyzed	Dilution Factor	Lab Sample IDa#	
EPA 537.1	06-MAY-21 09:01	06-MAY-21 18:12	1	Primary Lab:	543018003
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	5.35		-	0.589	1.78
335-67-1	Perfluorooctanoic Acid (PFOA)	7.42			0.589	1.78
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.43	J		0.535	1.62
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.589	1.78
375-85-9	Perfluorohepetanoic Acid (PFHpA)	2.28			0.589	1.78
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.589	1.78
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	15.1	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.8		-	0.518	1.59
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.589	1.78
307-24-4	Perfluorohexanoic acid (PFHxA)	2.8			0.589	1.78
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.589	1.78
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.589	1.78
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.589	1.78
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.18	3.57
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.18	3.57
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.892	3.57
756426-58-1	9-chlorohexadecafluoro-3-oxenone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.18	3.57
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.589	1.78
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.589	1.78

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	92	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	84	
$^{13}C_3$-HFPO-DA	95	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldifrd

Date: 5/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-04G	RAW WATER: STATION #1, WELL #1	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 11:41	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Reeubmitted Report, liet below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reegent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Leb Method	Dete Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 09:05	1	Primary Lab:	543018005
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	1.91			0.613	1.86
335-67-1	Perfluorooctanoic Acid (PFOA)	2.33			0.613	1.86
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	0.77	J		0.557	1.69
375-95-1	Perfluorononanoic Acid (PFNA)	ND		-	0.613	1.86
375-85-9	Perfluorohepetanoic Acid (PFHpA)	ND			0.613	1.86
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.613	1.86
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =		4.24	-	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.09	J		0.539	1.65
307-55-1	Perfluorododecenoic acid (PFDoA)	ND			0.613	1.86
307-24-4	Perfluorohexanoic acid (PFHxA)	0.643	J		0.613	1.86
376-06-7	Perfluorotetradecanoic ecid (PFTA)	ND			0.613	1.86
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.613	1.86
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		-	0.613	1.86
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.23	3.72
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.23	3.72
763051-92-9	11-chloroeicosefluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.929	3.72
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.23	3.72
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.613	1.86
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.613	1.86

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

Per- and Polyfluoroalkyl Substances (PFAS) Report

PFAS

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	101	
$^{13}C_2$-PFDA	102	
d_5-NEtFOSAA	91	
$^{13}C_3$-HFPO-DA	112	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldford

Date: 5/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-05G	RAW WATER: STATION #1, WELL #2	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 11:38	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 09:22	1	Primary Lab:	543018007
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	3.61		-	0.584	1.77
335-67-1	Perfluorooctanoic Acid (PFOA)	4.57			0.584	1.77
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.39	J		0.531	1.61
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.584	1.77
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.12			0.584	1.77
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.584	1.77
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	10.3	-	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.78		-	0.513	1.58
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.584	1.77
307-24-4	Perfluorohexanoic acid (PFHxA)	2.14			0.584	1.77
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.584	1.77
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.584	1.77
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.584	1.77
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.17	3.54
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.17	3.54
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.885	3.54
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.17	3.54
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.584	1.77
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.584	1.77

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	87	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	87	
$^{13}C_3$-HFPO-DA	97	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldifird

Date: 5/13/20201

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 deys after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in eddition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-06G	RAW WATER: STATION #1, WELL #3	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 11:32	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Data Extracted	Dete Analyzed	Oilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 09:39	1	Primary Lab:	543018009
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Reeult[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	3.99		-	0.587	1.78
335-67-1	Perfluorooctanoic Acid (PFOA)	3.65			0.587	1.78
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.19	J		0.534	1.62
375-95-1	Perfluorononanoic Acid (PFNA)	0.648	J		0.587	1.78
375-85-9	Perfluoroheptanoic Acid (PFHpA)	1.9			0.587	1.78
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.587	1.78
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	9.54	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	2.21		-	0.516	1.58
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.587	1.78
307-24-4	Perfluorohexanoic acid (PFHxA)	1.54	J		0.587	1.78
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.587	1.78
72629-94-8	Perfluorotridacanoic acid (PFTrDA)	ND			0.587	1.78
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.587	1.78
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.17	3.56
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.17	3.56
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.89	3.56
756426-58-1	9-chlorohexadacafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.17	3.56
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.587	1.78
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.587	1.78

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	101	
$^{13}C_2$-PFDA	95	
d_5-NEtFOSAA	94	
$^{13}C_3$-HFPO-DA	100	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Bobbitt

Date: 5/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-07G	RAW WATER: STATION #1, WELL #4	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 11:46	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Leb Method	Date Extracted	Dete Anelyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 09:56	1	Primary Lab:	543018011
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	3.47		-	0.577	1.75
335-67-1	Perfluorooctanoic Acid (PFOA)	3.89			0.577	1.75
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	0.827	J		0.525	1.59
375-95-1	Perfluorononanoic Acid (PFNA)	1.37	J		0.577	1.75
375-85-9	Perfluorohepetenoic Acid (PFHpA)	1.27	J		0.577	1.75
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.577	1.75
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	7.36	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	2.29		-	0.507	1.56
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.577	1.75
307-24-4	Perfluorohexanoic acid (PFHxA)	3.58			0.577	1.75
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.577	1.75
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.577	1.75
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.577	1.75
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.15	3.5
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.15	3.5
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.875	3.5
756426-58-1	9-chlorohexedecefluoro-3-oxenone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.15	3.5
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.577	1.75
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.577	1.75

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	102	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	74	
$^{13}C_3$-HFPO-DA	105	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result quelifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 5/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-08G	RAW WATER: STATION #1, WELL #5	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 11:26	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 10:30	1	Primary Lab:	543018013
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	6.1			0.581	1.76
335-67-1	Perfluorooctanoic Acid (PFOA)	5.94			0.581	1.76
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.41	J		0.528	1.6
375-95-1	Perfluorononanoic Acid (PFNA)	0.834	J	-	0.581	1.76
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.66			0.581	1.76
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.581	1.76
PFAS6	(sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	14.7	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	3.88			0.51	1.57
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.581	1.76
307-24-4	Perfluorohexanoic acid (PFHxA)	2.2			0.581	1.76
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.581	1.76
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.581	1.76
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		-	0.581	1.76
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.16	3.52
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.16	3.52
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.88	3.52
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.16	3.52
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.581	1.76
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.581	1.76

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	104	
$^{13}C_2$-PFDA	96	
d_5-NEtFOSAA	94	
$^{13}C_3$-HFPO-DA	105	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldford

Date: 5/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW-01G	STATION #2: MEMORIAL BEACH (RAW)	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	03-MAY-21 12:05	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 10:47	1	Primary Lab:	543018015
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	2.00			0.601	1.82
335-67-1	Perfluorooctanoic Acid (PFOA)	1.32	J		0.601	1.82
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.546	1.66
375-95-1	Perfluorononanoic Acid (PFNA)	ND		-	0.601	1.82
375-85-9	Perfluorohepatanoic Acid (PFHpA)	0.621	J		0.601	1.82
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.601	1.82
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	2.00	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	0.685	J		0.528	1.62
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.601	1.82
307-24-4	Perfluorohexanoic acid (PFHxA)	0.65	J		0.601	1.82
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.601	1.82
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.601	1.82
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.601	1.82
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		-	1.2	3.64
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.2	3.64
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.911	3.64
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.2	3.64
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.601	1.82
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.601	1.82

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	102	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	81	
$^{13}C_3$-HFPO-DA	97	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	Value is estimated
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 5/13/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☒ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
MULT2	MEMORIAL BEACH WTP	☐ (M)ultiple ☒ (S)ingle	☐ (R)aw ☒ (F)inished	03-MAY-21 11:57	

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☐ RS ☒ SS	☐ Original ☐ Resubmitted ☒ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-SC012 **Primary Lab Name:** GEL Laboratories LLC **Subcontracted? (Y/N)** N

Analysis Lab Cert. #: **Analysis Lab Name:**

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
EPA 537.1	06-MAY-21 09:01	07-MAY-21 11:04	1	Primary Lab:	543018017
				Subcontracted Lab:	

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	ND		-	0.575	1.74
335-67-1	Perfluorooctanoic Acid (PFOA)	ND			0.575	1.74
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.523	1.59
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.575	1.74
375-85-9	Perfluorohepatanoic Acid (PFHpA)	ND			0.575	1.74
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.575	1.74
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	0.00	--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	ND		-	0.505	1.55
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.575	1.74
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.575	1.74
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.575	1.74
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.575	1.74
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.575	1.74
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			1.15	3.48
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			1.15	3.48
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.871	3.48
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			1.15	3.48
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.575	1.74
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.575	1.74

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	GEL Laboratories LLC
Subcontracted Lab:	

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	106	
$^{13}C_2$-PFDA	99	
d_5-NEtFOSAA	104	
$^{13}C_3$-HFPO-DA	106	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Meredith Boldiford

Date: 5/13/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
MULT 2	MEMORIAL BEACH WTP	☒ (M)ultiple ☐ (S)ingle	☐ (R)aw ☒ (F)inished	07/30/21	SAS

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/09/21	08/09/21	1	Primary Lab:	L2141278-01
				Subcontracted Lab:	L2141278-01

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	2.74			0.619	1.85
335-67-1	Perfluorooctanoic Acid (PFOA)	3.56			0.619	1.85
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	0.778	J		0.619	1.85
375-95-1	Perfluorononanoic Acid (PFNA)	0.853	J		0.619	1.85
375-85-9	Perfluorohepatanoic Acid (PFHpA)	1.30	J		0.619	1.85
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.619	1.85
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	**6.30**	--	**20**	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.37	J		0.619	1.85
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.619	1.85
307-24-4	Perfluorohexanoic acid (PFHxA)	2.00			0.619	1.85
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.619	1.85
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.619	1.85
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.619	1.85
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.619	1.85
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.619	1.85
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.619	1.85
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.619	1.85
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.619	1.85
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.619	1.85

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2141278-01
Subcontracted Lab:	L2141278-01

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	91	
$^{13}C_2$-PFDA	116	
d_5-NEtFOSAA	108	
$^{13}C_3$-HFPO-DA	86	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☐ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☒ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph L Watkins

Date: 8/16/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
MULT 2	MEMORIAL BEACH WTP FB	☒ (M)ultiple ☐ (S)ingle	☐ (R)aw ☒ (F)inished	07/30/21	SAS

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/09/21	08/09/21	1	Primary Lab:	L2141278-02
				Subcontracted Lab:	L2141278-02

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	ND			0.605	1.81
335-67-1	Perfluorooctanoic Acid (PFOA)	ND			0.605	1.81
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.605	1.81
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.605	1.81
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND			0.605	1.81
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.605	1.81
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=		--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	ND			0.605	1.81
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.605	1.81
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.605	1.81
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.605	1.81
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.605	1.81
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.605	1.81
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.605	1.81
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.605	1.81
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.605	1.81
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.605	1.81
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.605	1.81
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.605	1.81

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2141278-02
Subcontracted Lab:	L2141278-02

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	86	
$^{13}C_2$-PFDA	108	
d_5-NEtFOSAA	91	
$^{13}C_3$-HFPO-DA	85	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph L. Wrubens

Date: 8/16/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
03G	BIGALOW RD	☐ (M)ultiple ☒ (S)ingle	☐ (R)aw ☒ (F)inished	07/30/21	SAS

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/09/21	08/09/21	1	Primary Lab:	L2141278-03
				Subcontracted Lab:	L2141278-03

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	6.08			0.615	1.84
335-67-1	Perfluorooctanoic Acid (PFOA)	8.73			0.615	1.84
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.99			0.615	1.84
375-95-1	Perfluorononanoic Acid (PFNA)	0.736	J		0.615	1.84
375-85-9	Perfluorohepatanoic Acid (PFHpA)	3.57			0.615	1.84
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.615	1.84
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	**20.4**	--	**20**	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	2.21			0.615	1.84
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.615	1.84
307-24-4	Perfluorohexanoic acid (PFHxA)	3.64			0.615	1.84
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.615	1.84
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.615	1.84
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.615	1.84
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.615	1.84
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.615	1.84
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.615	1.84
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.615	1.84
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.615	1.84
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.615	1.84

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2141278-03
Subcontracted Lab:	L2141278-03

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	90	
$^{13}C_2$-PFDA	105	
d_5-NEtFOSAA	104	
$^{13}C_3$-HFPO-DA	83	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the **sample's** extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☐ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☒ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	**The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.**
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph L. Wrubens

Date: 8/16/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
03G	BIGALOW RD FB	☐ (M)ultiple ☒ (S)ingle	☐ (R)aw ☒ (F)inished	07/30/21	SAS

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below:	
		(1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/09/21	08/09/21	1	Primary Lab:	L2141278-04
				Subcontracted Lab:	L2141278-04

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	ND			0.628	1.88
335-67-1	Perfluorooctanoic Acid (PFOA)	ND			0.628	1.88
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.628	1.88
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.628	1.88
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND			0.628	1.88
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.628	1.88
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=		--	20	-	-
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	ND			0.628	1.88
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.628	1.88
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.628	1.88
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.628	1.88
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.628	1.88
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.628	1.88
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.628	1.88
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.628	1.88
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.628	1.88
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.628	1.88
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.628	1.88
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.628	1.88

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2141278-04
Subcontracted Lab:	L2141278-04

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	96	
$^{13}C_2$-PFDA	117	
d_5-NEtFOSAA	99	
$^{13}C_3$-HFPO-DA	91	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph L Wrobel

Date: 8/16/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA
WESTBORO, MA TEL. 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL. 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 8/2/21

ALPHA Job #: L2141278

Client Information

Client: Town of Webster
Address: 38 Hill St
Webster, MA 01570
Phone: (508) 949-3800 x 4016
Fax: (508) 949-3868
Email: TCutler@Webster.ma.gov

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☑ Same as Client Info PO #: Verb.

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: PFAS - 537.1	Sample Specific Comments	TOTAL # BOTTLES
41278-01	Multi-Memorial Beach WTP	7/30/21	1:05	DW	SAS	✓	Finished water	2
-03	036 Bigalow Rd	7/30/21	1:20	DW	SAS	✓	Finished water	2

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ACT - AAR 8/2/21 1621

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
Sean Smith	7/30/21 1:45P	Thomas Cutler	7/30/21 1:45pm
Thomas Cutler	8/2/21 11:45am	Sean Smith	8/2/21 12:35
Sean Smith	8/2/21 12:35	AAR	8/2/21 1235
AAR	8/2/21 1530		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO. 01-01 (rev. 14-OCT-07)

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
MULT2	MEMORIAL BEACH WTP (FINISHED BLEND)	☒ (M)ultiple ☐ (S)ingle	☐ (R)aw ☒ (F)inished	08/25/21	J.P.

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/27/21	08/27/21	1	Primary Lab:	L2145587-01
				Subcontracted Lab:	L2145587-01

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	3.48			0.594	2.00
335-67-1	Perfluorooctanoic Acid (PFOA)	4.69			0.594	2.00
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.03	J		0.594	2.00
375-95-1	Perfluorononanoic Acid (PFNA)	0.96	J		0.594	2.00
375-85-9	Perfluorohepatanoic Acid (PFHpA)	2.2			0.594	2.00
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.594	2.00
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	**10.4**	--	**20**		
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	1.78	J		0.594	2.00
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.594	2.00
307-24-4	Perfluorohexanoic acid (PFHxA)	3.45			0.594	2.00
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.594	2.00
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.594	2.00
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.594	2.00
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.594	2.00
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.594	2.00
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.594	2.00
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.594	2.00
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.594	2.00
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.594	2.00

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2145587-01
Subcontracted Lab:	L2145587-01

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	108	
$^{13}C_2$-PFDA	95	
d_5-NEtFOSAA	111	
$^{13}C_3$-HFPO-DA	97	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph Wirtanen

Date: 09/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
MULT2	MEMORIAL BEACH WTP (FINISHED BLEND) FB	☒ (M)ultiple ☐ (S)ingle	☐ (R)aw ☒ (F)inished	08/25/21	J.P.

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/27/21	08/27/21	1	Primary Lab:	L2145587-02
				Subcontracted Lab:	L2145587-02

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	ND			0.604	2.00
335-67-1	Perfluorooctanoic Acid (PFOA)	ND			0.604	2.00
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.604	2.00
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.604	2.00
375-85-9	Perfluorohepatanoic Acid (PFHpA)	ND			0.604	2.00
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.604	2.00
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	**ND**	--	**20**		
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	ND			0.604	2.00
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.604	2.00
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.604	2.00
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.604	2.00
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.604	2.00
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.604	2.00
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.604	2.00
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.604	2.00
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.604	2.00
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.604	2.00
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.604	2.00
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.604	2.00

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#: Primary Lab: L2145587-02; Subcontracted Lab: L2145587-02

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	110	
$^{13}C_2$-PFDA	94	
d_5-NEtFOSAA	97	
$^{13}C_3$-HFPO-DA	108	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	**The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.**
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph Wackett

Date: 09/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW 08G	STA.#1 WELL #5	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	08/25/21	J.P.

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/27/21	08/27/21	1	Primary Lab:	L2145587-03
				Subcontracted Lab:	L2145587-03

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	6.11			0.6	2.00
335-67-1	Perfluorooctanoic Acid (PFOA)	7			0.6	2.00
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	1.8	J		0.6	2.00
375-95-1	Perfluorononanoic Acid (PFNA)	0.934	J		0.6	2.00
375-85-9	Perfluorohepatanoic Acid (PFHpA)	3.88			0.6	2.00
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.6	2.00
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	17	--	20		
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	4.45			0.6	2.00
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.6	2.00
307-24-4	Perfluorohexanoic acid (PFHxA)	2.91			0.6	2.00
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.6	2.00
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.6	2.00
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.6	2.00
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.6	2.00
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.6	2.00
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.6	2.00
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.6	2.00
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.6	2.00
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.6	2.00

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2145587-03
Subcontracted Lab:	L2145587-03

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	110	
$^{13}C_2$-PFDA	96	
d_5-NEtFOSAA	97	
$^{13}C_3$-HFPO-DA	100	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	**The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.**
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph Whitmore

Date: 09/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
RW 08G	STA.#1 WELL #5 FB	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	08/25/21	J.P.

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/27/21	08/27/21	1	Primary Lab:	L2145587-04
				Subcontracted Lab:	L2145587-04

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	ND			0.584	2.00
335-67-1	Perfluorooctanoic Acid (PFOA)	ND			0.584	2.00
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.584	2.00
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.584	2.00
375-85-9	Perfluorohepatanoic Acid (PFHpA)	ND			0.584	2.00
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.584	2.00
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	**ND**	--	20		
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	ND			0.584	2.00
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.584	2.00
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.584	2.00
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.584	2.00
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.584	2.00
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.584	2.00
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.584	2.00
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.584	2.00
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.584	2.00
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.584	2.00
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.584	2.00
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.584	2.00

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.
[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2145587-04
Subcontracted Lab:	L2145587-04

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	109	
$^{13}C_2$-PFDA	95	
d_5-NEtFOSAA	100	
$^{13}C_3$-HFPO-DA	103	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph Wachtman

Date: 09/13/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
PT 03G	STA.#3 FINISH	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	08/25/21	J.P.

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmission	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/27/21	08/27/21	1	Primary Lab:	L2145587-05
				Subcontracted Lab:	L2145587-05

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	7.2			0.608	2.00
335-67-1	Perfluorooctanoic Acid (PFOA)	9.97			0.608	2.00
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	2.51			0.608	2.00
375-95-1	Perfluorononanoic Acid (PFNA)	0.837	J		0.608	2.00
375-85-9	Perfluorohepatanoic Acid (PFHpA)	4.55			0.608	2.00
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.608	2.00
PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column)	=	24.2	--	20		
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	2.4			0.608	2.00
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.608	2.00
307-24-4	Perfluorohexanoic acid (PFHxA)	5.49			0.608	2.00
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.608	2.00
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.608	2.00
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.608	2.00
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.608	2.00
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.608	2.00
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.608	2.00
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.608	2.00
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.608	2.00
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.608	2.00

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2145587-05
Subcontracted Lab:	L2145587-05

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	97	
$^{13}C_2$-PFDA	87	
d_5-NEtFOSAA	101	
$^{13}C_3$-HFPO-DA	90	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge.

Primary Lab Director Signature: Joseph Wickham

Date: 09/13/2021

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MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

Massachusetts Department of Environmental Protection - Drinking Water Program **PFAS**

Per- and Polyfluoroalkyl Substances (PFAS) Report

I. PWS INFORMATION: Please refer to your MassDEP Water Quality Sampling Schedule (WQSS) to help complete this form

PWS ID #: 2316000 **City / Town:** WEBSTER

PWS Name: WEBSTER WATER DEPARTMENT **PWS Class:** COM ☐ NTNC ☐ TNC ☐

MassDEP Location (LOC) ID#	MassDEP Location Name	Sample Information		Date Collected	Collected By
PT 03G	STA.#3 FINISH FB	☐ (M)ultiple ☒ (S)ingle	☒ (R)aw ☐ (F)inished	08/25/21	J.P.

Routine or Special Sample	Original, Resubmitted or Confirmation Report	If Resubmitted Report, list below: (1) Reason for Resubmisaion	(2) Collection Date of Original Sample
☒ RS ☐ SS	☒ Original ☐ Resubmitted ☐ Confirmation	☐ Resample ☐ Reanalysis ☐ Report Correction	

SAMPLE COMMENTS - Such as, if a Manifold/Multiple sample, list the source(s) that were on-line during sample collection or if this is a field reagent blank

II. ANALYTICAL LABORATORY INFORMATION:

Primary Lab Cert. #: M-MA086 **Primary Lab Name:** Alpha Analytical Labs **Subcontracted? (Y/N)** Y

Analysis Lab Cert. #: M-MA030 **Analysis Lab Name:** Alpha Analytical Labs

If Analysis Lab is not certified by MassDEP or U.S. EPA, list certification authority:

Lab Method	Date Extracted	Date Analyzed	Dilution Factor	Lab Sample IDs#	
537.1	08/27/21	08/27/21	1	Primary Lab:	L2145587-06
				Subcontracted Lab:	L2145587-06

CAS#	REGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL* ng/L	MDL ng/L	MRL ng/L
1763-23-1	Perfluorooctane Sulfonic Acid (PFOS)	ND			0.606	2.00
335-67-1	Perfluorooctanoic Acid (PFOA)	ND			0.606	2.00
355-46-4	Perfluorohexane Sulfonic Acid (PFHxS)	ND			0.606	2.00
375-95-1	Perfluorononanoic Acid (PFNA)	ND			0.606	2.00
375-85-9	Perfluorohepatanoic Acid (PFHpA)	ND			0.606	2.00
335-76-2	Perfluorodecanoic acid (PFDA)	ND			0.606	2.00
	PFAS6 (sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA; only include Results at or above the MRL; do not include estimated Results as described by a Result Qualifier in the next column) =	ND	--	20		
	UNREGULATED PFAS CONTAMINANTS					
375-73-5	Perfluorobutane sulfonic acid (PFBS)	ND			0.606	2.00
307-55-1	Perfluorododecanoic acid (PFDoA)	ND			0.606	2.00
307-24-4	Perfluorohexanoic acid (PFHxA)	ND			0.606	2.00
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND			0.606	2.00
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND			0.606	2.00
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND			0.606	2.00
2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND			0.606	2.00
2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND			0.606	2.00
763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND			0.606	2.00
756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND			0.606	2.00
919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND			0.606	2.00
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND			0.606	2.00

[1] A field reagent blank (FRB) must be analyzed and reported on a separate PFAS form if any PFAS are detected above the MRL.

[2] All qualifiers must be described under Lab Analysis Comments on page 2.

Massachusetts Department of Environmental Protection - Drinking Water Program

PFAS

Per- and Polyfluoroalkyl Substances (PFAS) Report

PWS ID#: 2316000

Lab Sample ID#:

Primary Lab:	L2145587-06
Subcontracted Lab:	L2145587-06

CAS#	UNREGULATED PFAS CONTAMINANTS	Result[1] ng/L	Result[2] Qualifier	MCL * ng/L	MDL ng/L	MRL ng/L
				-		

Surrogate Name	% Recovery (70 – 130%)	Alternate Surrogate (must document reason for change)
$^{13}C_2$-PFHxA	98	
$^{13}C_2$-PFDA	92	
d_5-NEtFOSAA	103	
$^{13}C_3$-HFPO-DA	96	

Note: $^{13}C_3$-HFPO-DA is not required for EPA Method 537 v1.1

In addition to the SUR above you must attach the results of the ongoing QC results as specified by the method for the sample's extraction batch.

☒ **Laboratory analytical report with QC attached (check one item below).**

☒ All associated QC criteria reported within control limits including Lab Reagent/Method Blank (LRB), Field Reagent Blank (FRB), Surrogate Standards (SUR), Laboratory Fortified Blank (LFB), Matrix Spike/Duplicate (LFSM/LFSMD or FD) and RPD.

☐ All associated sample and/or QC batch criteria not met. See Lab Analysis Comments below and narrative in attached report.

Lab Analysis Comments: (include sample/method parameters outside of or affecting QC controls/limits and result qualifiers)

Result Qualifier	Qualifier Description
J	The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit.
Other Analysis Comments:	

* MCL or proposed MCL

I certify under penalties of law that I am the person authonzed to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge

Primary Lab Director Signature: Joseph L. Washburn

Date: 09/13/2021

If not submitting these results electronically, mail TWO copies of this report to your MassDEP Regional Office no later than 10 days after the end of the month in which you received this report or no later than 10 days after the end of the reporting period, whichever is sooner. Note that during the Massachusetts COVID-19 state of emergency, in addition to submitting by mail reports may be emailed to program.director-dwp@mass.gov.

MassDEP REVIEW STATUS (Initial & Date)	Review Comments		☐ WQTS Data Entered
☐ Accepted _____ ☐ Disapproved			

MASSDEP DRINKING WATER CHAIN OF CUSTODY

Page of

Date Rec'd in Lab: 8/25/21

ALPHA Job # L2145587

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: WEBSTER WATER Dept.

Address: 52 Hill St

WEBSTER MA 01570

Phone:

Fax:

Email:

Project Information

Project Name:

PWS Name:

Project Location:

Project PWS ID#

Project Manager:

ALPHA Quote #:

Turn-Around Time

Standard [X] Due Date:

Rush (only if pre approved) [ ] Time:

These samples have been previously analyzed by Alpha [X]

Report Information — Data Deliverables

[ ] FAX [ ] EMAIL

[ ] ADEx [ ] Add'l Deliverables

Billing Information

[ ] Same as Client Info

PO #

Please Indicate PWS Class Below

[ ] COM

[ ] NTNC

[ ] TNC

SUBJECT TO MCL REPORTING

Other Project Specific Requirements/ Comments/Detection Limits

SAMPLER: JOE PATTERSON

ANALYSIS

Sample Filtration

[ ] Done

[ ] Lab to do

Preservation

[ ] Lab to do

(Please Check Below)

ALPHA Lab ID (Lab Use Only)	DEP Location Code	DEP Location Name	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	CL Res.	PH	Temp	Source(1) Multiple	Source(1) Single	Type Raw	Type Finished	Sample(2) Routine	Sample(2) Special	Total Bottles
45587-01	MULTI 2	STA. #2 Filter Plant	8-26-21	11:50		JP	1.06	7.79	15.2							
-02	MULTI FB	STA #2 Filter Plant	8-26-21	11:50		JP	1.06	7.79	15.2							
-03	RW08G	STA #1 Well #5	8-25-21	11:30		JP	RW	6.18	12.7							
-04	RW08G FB	STA #1 WELL #5	8-26-21	11:30		JP	RW	6.18	12.7							
-05	PT03G	STA #3 Finish	8-25-21	8:30		JP	0.56	7.35	13.9							
-06	PT03G FB	STA #3 Finish	8-25-21	8:30		JP	0.56	7.35	13.9							

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Preservative Code:
A = None
B = HCl
C = HNO3
D = H2SO4
E = NaOH
F = MeOH
G = NaHSO4
H = Na2S2O3
I = Ascorbic Acid
J = NH4Cl
K = Zn Acetate
O = Other

(1) List connected sources if Multiple

(2) Explain if sample type is Special

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
JP	8-25-21 12:35		
	8-25 1540	MCM	08/25/21 15:40
MCM	8/25/21 1641		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

ANALYTICAL REPORT

Lab Number:	L2239053
Client:	Town of Webster 38 Hill Street Webster, MA 01570
ATTN:	Tom Cutler
Phone:	(508) 949-3861
Project Name:	TOWN OF WEBSTER QUARTERLY
Project Number:	2316000
Report Date:	08/01/22

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: TOWN OF WEBSTER QUARTERLY
Project Number: 2316000

Lab Number: L2239053
Report Date: 08/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2239053-01	MULT 2 MEMORIAL BEACH WATER TREATMANT PLANT	DW	WEBSTER (PT-04G)(PT-03G)	07/21/22 09:45	07/21/22
L2239053-02	PT-03G #3 DUMP STATION BIGELOW RD.	DW	WEBSTER (PT-04G)(PT-03G)	07/21/22 10:25	07/21/22
L2239053-03	MULT 2 FIELD BLANK	DW	WEBSTER (PT-04G)(PT-03G)	07/21/22 09:45	07/21/22
L2239053-04	PT-03G FIELD BLANK	DW	WEBSTER (PT-04G)(PT-03G)	07/21/22 10:25	07/21/22

Project Name:	TOWN OF WEBSTER QUARTERLY	**Lab Number:**	L2239053
Project Number:	2316000	**Report Date:**	08/01/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	TOWN OF WEBSTER QUARTERLY	**Lab Number:**	L2239053
Project Number:	2316000	**Report Date:**	08/01/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by EPA 537.1

L2239053-02: The sample has a detection that exceeds the Maximum Contaminant Level (MCL).

WG1668326-3: The sample was re-analyzed due to QC failures in the original analysis. The results of the re-analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 08/01/22

ORGANICS

SEMIVOLATILES

Project Name: TOWN OF WEBSTER QUARTERLY **Lab Number:** L2239053

Project Number: 2316000 **Report Date:** 08/01/22

SAMPLE RESULTS

Lab ID: L2239053-01
Client ID: MULT 2 MEMORIAL BEACH WATER TREATMANT PLANT
Sample Location: WEBSTER (PT-04G)(PT-03G)
Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 07/28/22 11:01
Analyst: AC

Date Collected: 07/21/22 09:45
Date Received: 07/21/22
Field Prep: Not Specified

Extraction Method: EPA 537.1
Extraction Date: 07/28/22 04:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2.03		ng/l	2.00	0.628	1
Perfluorohexanoic Acid (PFHxA)	1.96	J	ng/l	2.00	0.628	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.628	1
Perfluoroheptanoic Acid (PFHpA)	0.941	J	ng/l	2.00	0.628	1
Perfluorohexanesulfonic Acid (PFHxS)	0.790	J	ng/l	2.00	0.628	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.628	1
Perfluorooctanoic Acid (PFOA)	3.72		ng/l	2.00	0.628	1
Perfluorononanoic Acid (PFNA)	0.865	J	ng/l	2.00	0.628	1
Perfluorooctanesulfonic Acid (PFOS)	2.67		ng/l	2.00	0.628	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.628	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.628	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.628	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.628	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.628	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.628	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.628	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.628	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.628	1
PFAS, Total (6)	6.39		ng/l	2.00	0.628	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	99		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	92		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	95		70-130

Project Name: TOWN OF WEBSTER QUARTERLY **Lab Number:** L2239053

Project Number: 2316000 **Report Date:** 08/01/22

SAMPLE RESULTS

Lab ID: L2239053-02
Client ID: PT-03G #3 DUMP STATION BIGELOW RD.
Sample Location: WEBSTER (PT-04G)(PT-03G)

Date Collected: 07/21/22 10:25
Date Received: 07/21/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 07/28/22 11:19
Analyst: AC

Extraction Method: EPA 537.1
Extraction Date: 07/28/22 04:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2.74		ng/l	2.00	0.619	1
Perfluorohexanoic Acid (PFHxA)	11.4		ng/l	2.00	0.619	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.619	1
Perfluoroheptanoic Acid (PFHpA)	4.08		ng/l	2.00	0.619	1
Perfluorohexanesulfonic Acid (PFHxS)	2.00		ng/l	2.00	0.619	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.619	1
Perfluorooctanoic Acid (PFOA)	12.4		ng/l	2.00	0.619	1
Perfluorononanoic Acid (PFNA)	1.19	J	ng/l	2.00	0.619	1
Perfluorooctanesulfonic Acid (PFOS)	7.57		ng/l	2.00	0.619	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.619	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.619	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.619	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.619	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.619	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.619	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.619	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.619	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.619	1
PFAS, Total (6)	26.1		ng/l	2.00	0.619	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	91		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	89		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	95		70-130

Project Name: TOWN OF WEBSTER QUARTERLY **Lab Number:** L2239053

Project Number: 2316000 **Report Date:** 08/01/22

SAMPLE RESULTS

Lab ID: L2239053-03
Client ID: MULT 2 FIELD BLANK
Sample Location: WEBSTER (PT-04G)(PT-03G)

Date Collected: 07/21/22 09:45
Date Received: 07/21/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 07/28/22 11:36
Analyst: AC

Extraction Method: EPA 537.1
Extraction Date: 07/28/22 04:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.602	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.602	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.602	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.602	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.602	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.602	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.602	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.602	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.602	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.602	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.602	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.602	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.602	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.602	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.602	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.602	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.602	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.602	1
PFAS, Total (6)	ND		ng/l	2.00	0.602	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	106		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	102		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	101		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	89		70-130

Project Name: TOWN OF WEBSTER QUARTERLY **Lab Number:** L2239053

Project Number: 2316000 **Report Date:** 08/01/22

SAMPLE RESULTS

Lab ID: L2239053-04
Client ID: PT-03G FIELD BLANK
Sample Location: WEBSTER (PT-04G)(PT-03G)

Date Collected: 07/21/22 10:25
Date Received: 07/21/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 07/28/22 11:45
Analyst: AC

Extraction Method: EPA 537.1
Extraction Date: 07/28/22 04:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.639	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.639	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.639	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.639	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.639	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.639	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.639	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.639	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.639	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.639	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.639	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.639	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.639	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.639	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.639	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.639	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.639	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.639	1
PFAS, Total (6)	ND		ng/l	2.00	0.639	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	101		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	96		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	95		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	94		70-130

Project Name: TOWN OF WEBSTER QUARTERLY **Lab Number:** L2239053

Project Number: 2316000 **Report Date:** 08/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 07/28/22 10:44
Analyst: AC

Extraction Method: EPA 537.1
Extraction Date: 07/28/22 04:56

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-04 Batch: WG1668326-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.668
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.668
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.668
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.668
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.668
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.668
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.668
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.668
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.668
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.668
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.668
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.668
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.668
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.668
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.668
PFAS, Total (6)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	95		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	92		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	88		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOWN OF WEBSTER QUARTERLY

Project Number: 2316000

Lab Number: L2239053

Report Date: 08/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-04 Batch: WG1668326-2								
Perfluorobutanesulfonic Acid (PFBS)	93		-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	96		-		70-130	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	96		-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	96		-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	87		-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	92		-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	98		-		70-130	-		30
Perfluorononanoic Acid (PFNA)	104		-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	86		-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	103		-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	77		-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	93		-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	105		-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	91		-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	100		-		70-130	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	88		-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	106		-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	92		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOWN OF WEBSTER QUARTERLY

Project Number: 2316000

Lab Number: L2239053

Report Date: 08/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-04 Batch: WG1668326-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	101				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	98				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	88				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	93				70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: TOWN OF WEBSTER QUARTERLY

Project Number: 2316000

Lab Number: L2239053

Report Date: 08/01/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1668326-3 QC Sample: L2239053-01 Client ID: MULT 2 MEMORIAL BEACH WATER TREATMANT PLANT												
Perfluorobutanesulfonic Acid (PFBS)	2.03	133	120	89		-	-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	1.96J	149	150	99		-	-		70-130	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	149	145	97		-	-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	0.941J	149	118	79		-	-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	0.790J	137	104	76		-	-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	141	120	85		-	-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	3.72	149	150	98		-	-		70-130	-		30
Perfluorononanoic Acid (PFNA)	0.865J	149	164	110		-	-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	2.67	139	125	88		-	-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	ND	149	163	109		-	-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	139	97.9	70		-	-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	149	143	96		-	-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	149	168	112		-	-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	149	135	90		-	-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	ND	149	159	106		-	-		70-130	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	141	122	86		-	-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	149	165	110		-	-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	149	144	96		-	-		70-130	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: TOWN OF WEBSTER QUARTERLY

Project Number: 2316000

Lab Number: L2239053

Report Date: 08/01/22

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1668326-3 QC Sample: L2239053-01 Client ID: MULT 2 MEMORIAL BEACH WATER TREATMANT PLANT												

Surrogate	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	109				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	96				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	98				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	99				70-130

Lab Duplicate Analysis
Batch Quality Control

Project Name: TOWN OF WEBSTER QUARTERLY
Project Number: 2316000

Lab Number: L2239053
Report Date: 08/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1668326-4 QC Sample: L2239053-02 Client ID: PT-03G #3 DUMP STATION BIGELOW RD.						
Perfluorobutanesulfonic Acid (PFBS)	2.74	2.63	ng/l	4		30
Perfluorohexanoic Acid (PFHxA)	11.4	11.1	ng/l	3		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	4.08	3.96	ng/l	3		30
Perfluorohexanesulfonic Acid (PFHxS)	2.00	2.00	ng/l	0		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	12.4	12.2	ng/l	2		30
Perfluorononanoic Acid (PFNA)	1.19J	1.11J	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	7.57	7.11	ng/l	6		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: TOWN OF WEBSTER QUARTERLY
Project Number: 2316000

Lab Number: L2239053
Report Date: 08/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1668326-4 QC Sample: L2239053-02 Client ID: PT-03G #3 DUMP STATION BIGELOW RD.

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	91		89		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91		90		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	89		87		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	95		87		70-130

Project Name: TOWN OF WEBSTER QUARTERLY
Project Number: 2316000

Lab Number: L2239053
Report Date: 08/01/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239053-01A	Plastic 250ml Trizma preserved	A	NA		4.2	Y	Absent		A2-MA-537.1(14)
L2239053-01B	Plastic 250ml Trizma preserved	A	NA		4.2	Y	Absent		A2-MA-537.1(14)
L2239053-02A	Plastic 250ml Trizma preserved	A	NA		4.2	Y	Absent		A2-MA-537.1(14)
L2239053-02B	Plastic 250ml Trizma preserved	A	NA		4.2	Y	Absent		A2-MA-537.1(14)
L2239053-03A	Plastic 250ml Trizma preserved	A	NA		4.2	Y	Absent		A2-MA-537.1(14)
L2239053-04A	Plastic 250ml Trizma preserved	A	NA		4.2	Y	Absent		A2-MA-537.1(14)

*Values in parentheses indicate holding time in days

Project Name: TOWN OF WEBSTER QUARTERLY
Project Number: 2316000
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PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name:	TOWN OF WEBSTER QUARTERLY	**Lab Number:**	L2239053
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GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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Project Number:	2316000	**Report Date:**	08/01/22

REFERENCES

133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

MASSDEP DRINKING WATER CHAIN OF CUSTODY

Page 1 of 1

Date Rec'd in Lab: 7/21/22

ALPHA Job # L2239053

ALPHA
Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 508-822-3288

Client Information

Client: WEBSTER WATER DEPT.
Address: 38 Hill St. WEBSTER MA 01570
Phone: (508) 949-3861
Fax: (508) 949-3865
Email: TCUTLER@WEBSTER-MA.GOV

These samples have been previously analyzed by Alpha ☐

Project Information

Project Name: Town of WEBSTER Quarterly
PWS Name: WEBSTER WATER DEPT.
Project Location: WEBSTER. (PT-04G) (PT-03G)
Project PWS ID# 2316000
Project Manager: THOMAS CUTLER
ALPHA Quote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ Time:

Report Information — FAX ☐ ADEx ☐ EMAIL ☐ Add'l Deliverables ☐

Data Deliverables

Billing Information — Same as Client Info ☐ PO #

Please Indicate PWS Class Below

☒ COM
☐ NTNC
☐ TNC

SUBJECT TO MCL REPORTING

Other Project Specific Requirements/ Comments/Detection Limits

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Check Below)

ALPHA Lab ID (Lab Use Only)	DEP Location Code	DEP Location Name	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Source(1) Multiple	Source(1) Single	Type Raw	Type Finished	Sample(2) Routine	Sample(2) Special	Total Bottles
39053-01	PT-04G	MEMORIAL BEACH WATER TREATMENT PLANT	7.21.22	9:45		SAS	X			X	X		
-02	PT-03G	#3 PUMP STATION BIGELOW RD.	7.21.22	10:25		SAS		X		X	X		
-03	PT-04G	Field Blank	7-21-22	9:45		SAS							
-04	PT-03G	Field Blank.	7.21.22	10:25		SAS.							

Container Type
Preservative

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Preservative Code: A = None, B = HCl, C = HNO3, D = H2SO4, E = NaOH, F = MeOH, G = NaHSO4, H = Na2S2O3, I = Ascorbic Acid, J = NH4Cl, K = Zn Acetate, O = Other

(1) List connected sources if Multiple
PT-04G = RW-04G, RW-05G, RW-06G, RW-07G, RW-08G
(2) Explain if sample type is Special

Relinquished By:	Date/Time	Received By:	Date/Time
SEAN A. SMITH	7.21.22 /		
	7/21/22 1535		7/21/22 1350
	7/21/22 2020		7/21/22 15:35
	7.21.22 2127		7/21/22 2010
			7/21/22 21:27

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-24 HC (rev 18-Sept-2013)

Alpha Analytical, Inc.
Facility: **Company-wide**
Department: **Reporting**
Title: **MADEP State Form Required Information**

ID No.:**18068**
Revision 1
Published Date: 6/5/2015 2:30:28 PM

The following information must be supplied in order to process the State Form:

PWS ID: 2316000

City/Town: WEBSTER

PWS Name: WEBSTER WATER DEPT.

PWS Class: COM ☒ NTNC ☐ TNC ☐

DEP Location ID	*DEP Location Name*	*Sample Information*			*Date Collected*	*Collected By*
		Multiple or Single*	Raw or Finished	Routine or Special**		
PT-04G	Memorial Beach Water Treatment Plant	Multiple	FINISHED	ROUTINE	7.21.22	SAS
PT-03G	#3 Pump Station, Bigelow Rd.	SINGLE	FINISHED	ROUTINE	7.21.22	SAS

* **If Sample source is *MULTIPLE*, please list the connected sources:**

PT-04G = (RW-04G, RW-05G, RW-06G, RW-07G, RW-08G)

** **If DEP sample type is *SPECIAL*, please explain below:**