

P-0534 January 3, 2020

Ms. Rebecca Buswell Massachusetts Department of Environmental Protection 8 New Bond Street Worcester, MA 01606

#### Re: Release Notification and Immediate Response Action Plan Significant Release Migration Condition 6 Town Hall Drive Princeton, Massachusetts RTN 2-21072

Dear Ms. Buswell:

On behalf of the Town of Princeton, Tighe & Bond has prepared this Release Notification and Immediate Response Action (IRA) Plan in response to the detection of per-fluoroalkyl substances (collectively known as PFAS) in the drinking water well that serves the Princeton Town Hall campus at 6 Town Hall Drive in Princeton, Massachusetts ("the site").

Drinking water sample results collected on September 5, 2019 and September 27, 2019 at the request of the Massachusetts Department of Environmental Protection (MassDEP), identified total regulated PFAS concentrations of 127 and 102 parts per trillion (ppt or nanograms/liter), respectively. MassDEP's current drinking water guideline for PFAS in public water supply wells is 70 ng/L for five PFAS compounds. However, MassDEP is currently establishing a Maximum Contaminant Level (MCL) of 20 ppt for the sum of six PFAS compounds. On November 4, 2019, the Town of Princeton verbally notified MassDEP of a two-hour reporting condition in accordance with the Massachusetts Contingency Plan (MCP) at 310 CMR 40.0311. The activities described herein include the immediate response actions completed to date as well as future planned responses actions based on current conditions associated with the detection of PFAS in the Town Hall campus public water supply well (PWS).

# **Release History**

#### November 4, 2019

As stated, MassDEP was notified of the sample results from the potable well samples collected on September 5, and 27, 2019 on November 4, 2019. Subsequent to notification, MassDEP assigned release tracking number (RTN) 2-21072 to the release and the following immediate response actions were approved:

- Provide bottled water or water treatment for every location serviced by this public water supply well; Install signs on all water dispensing locations at the Town Hall campus including all buildings served by PWS 2241017-01G, warning people not to drink the tap water due to PFAS contamination;
- Sample and analyze monitoring wells, private drinking water supply wells, and public water supply wells within 500 feet for PFAS; and
- Resample the Town Hall campus public water supply (PWS) 2241017-01G on a quarterly basis for PFAS.

#### November 19, 2019

- On November 19, 2019, the Town of Princeton sent letters to all residents within a 500-foot radius of the Town Hall PWS, informing residents of the detection and request access to their homes to collect a water sample from their potable well for PFAS analysis. Letters were sent to the following addresses: 5, 7, 15, 19 and 23 Hubbardston Road;
- 6, 10, 14, 18, 19, 20, 21 and 22 Mountain Road; and
- 5 and 7 Prospect Street

A copy of the letter sent to these locations is included in Appendix B, for reference. A Site Plan (Figure 1) depicting the properties within the 500-foot radius is included in Appendix A. The town also established an information page on the town website at <a href="https://www.town.princeton.ma.us/board-health/pages/pfas-information">https://www.town.princeton.ma.us/board-health/pages/pfas-information</a>.

#### November 20, 2019

On November 20, 2019, a BWSC101 was added to the MassDEP file, modifying the release notification threshold to a 72-hour Substantial Release Migration condition in accordance with the Massachusetts Contingency Plan (MCP) at 310 CMR 40.0313(4)(d).

# IRA Activities Completed through December 31, 2019

#### Residential Well Sampling

As indicated previously, the objective of the initial IRA activities is to collect samples from homes within a 500-foot radius around Town Hall campus PWS. Based on this initial screening, 15 potable wells were identified.

Between December 4 and December 16, 2019, samples were collected from eleven of the 15 locations. Samples were collected in general accordance with Environmental Protection Agency (EPA) Document #: EPA/600/R-18/352 for sample Method 537.1 from; 5, 7, 15, and 19 Hubbardston Road, 6, 10, 14, 18, 19 and 21 Mountain Road, and 7 Prospect Street. The samples were submitted to Con Test Analytical in East Longmeadow, Massachusetts for PFAS analysis by EPA Method 537.1.

Samples have not been collected from 23 Hubbardston Road, 20, 22 Mountain Road and 5 Prospect Street. Several attempts were made by telephone for the owners of these properties and door flyers were left at each location.

- Tighe & Bond has visited 20 Mountain Road on two occasions and left flyers. The owner has not contacted us to date. There is no listed telephone number for the owner.
- 22 Mountain Road is currently listed for sale. The realty company was contacted; however, to date a response has not been received. It is not known if the property is vacant or occupied.
- 5 Prospect Street is listed for sale and vacant. The owner was contacted and is not able to grant access until early January 2020. A tentative sample date of January 10, 2020 is scheduled.
- 23 Hubbardston Road is the location of a local market known as Mountainside Market and a pizza shop. To date, attempts to reach the owner by mail and through on-site employees have not been acknowledged. There is no listed telephone number for the

owner of the property. It should be noted that Mountainside Market moved to a new location at 213 Mountain Road on or about December 28, 2019.

Tighe & Bond will continue working with the Town to gain access and sample these locations. We will also be sending certified letters to those property owners, requesting access as soon as possible.

#### **Residential Well Sampling Results**

On December 13, 2019, laboratory results were received for the samples collected at 5, 7, 15, 19 Hubbardston Road, and 6, 19, and 21 Mountain Road. Total PFAS concentrations for the five regulated compounds were 39.2, 9.7, 132.6, 9.7, 30.1, 421.0, and 102.4 ng/L, respectively.

Based on these results and discussions with MassDEP, residents were verbally notified of the results within 24-hours of receipt of the data and the Town of Princeton mobilized to immediately provide bottled water to all sample locations with detections.

The laboratory data are summarized in Table 1, in Appendix C. The individual laboratory reports are also included in Appendix C.

#### Pending Residential Well Sampling Results

As of the writing of this IRA Plan, sample results for 10 Mountain Road and 7 Prospect Street are still pending from the laboratory. These results will be included in the first IRA Status Report.

## **Proposed IRA Activities**

Based on the initial sample results received to date and discussions with MassDEP, the sampling radius was extended by 500-feet from any location with a confirmed PFAS detection. The locations included in the new radius include the following properties:

- 7, 11, 12, 13, 16, 17, 18, 24 Boylston Avenue;
- 11, 13, 14, 15 Gregory Hill Road;
- 2, 29, 30, 33 Mountain Road;
- 1 Hubbardston Road; and
- 1, 10 Worcester Road

The properties included in the new sample radii are shown on the Site Plan (Figure 2) included in Appendix A for reference. Sampling of these properties will take place in early January 2020. It is noted that the radii may be expanded based on the pending analytical results discussed above.

#### 19 Mountain Road Treatment System

On December 17, 2019 a granular activated carbon (GAC) filter system consisting of two 2cubic foot GAC vessels was installed at 19 Mountain Road. This system was installed as a temporary measure to reduce PFAS concentrations. However, based on the level of total PFAS detected (421 ppt), it is anticipated that the two 2-cubic foot (cf) carbon units will not be adequate. Therefore, the system is being upsized to a system consisting of a 1-micron sediment filter, two 6-cf GAC vessels in series and a flow meter, which will be installed as soon as possible. Once the larger system is installed, IRA activities will include monitoring of the treatment system on a monthly basis, with samples collected from the influent, midfluent and the effluent to monitor for contaminant breakthrough of the primary (or secondary) GAC vessel. The influent data, coupled with the flow meter readings, will allow us to estimate carbon saturation times and after sufficient data are collected, to safely reduce the sampling frequency, if appropriate. If PFAS are detected in the mid-point sample at a concentration approaching or exceeding 20 ppt, the primary carbon unit will be considered spent. The secondary GAC unit will be moved to the primary position and the primary canister will be removed for carbon replacement. A unit with fresh GAC will be installed as the new secondary unit and the spent carbon will be sent for regeneration.

## Proposed Treatment Systems

Based on discussions with MassDEP, point-of-entry treatment (POET) systems will be required for all locations with total regulated PFAS concentration sums exceeding 20 ppt. Therefore, GAC filter systems will be installed at 6 and 21 Mountain Road, and 5 and 15 Hubbardston Road. These systems will be the same as discussed above, but will be the 2-cf carbon vessels, since the PFAS concentrations are considerably lower at these other locations.

The purchase and installation of these systems requires Advisory Committee approval, which is expected at the next Town Meeting on January 8, 2020. Once approved, the systems will be installed at these locations as soon as possible. System monitoring will be conducted as previously discussed above.

White Water is the licensed operator for the Town Hall well. The PFAS treatment system for this well is currently being designed. All of the sinks in the four municipal buildings on the Town Hall campus have been labeled as "not for potable use" and bottled water is available in all of the buildings served by the well. The status of this treatment system will be updated in subsequent status reports. White Water will sample the well quarterly for PFAS and will sample the system once it is installed.

#### Groundwater Monitoring Well Sampling

Six existing groundwater monitoring wells (MW-6, MA-10A, MW-10D, MW-12, MW-14 and MW-18R) were installed at the Town Hall campus at 6 Town Hall Drive during the 1990s's and early 2000's, associated with a release of petroleum under a separate RTN (2-11327). In accordance with the requirements of the NOR, these six monitoring wells will be sampled for PFAS. Sampling is tentatively scheduled for January 2, 2020, the results of which will be included in the next IRA Status Report.

#### **Remediation Waste**

No remediation waste has been generated to date under RTN 2-21072.

#### Permits

No permits are required for the IRA activities completed to date or the proposed IRA activities planned under RTN 2-21072.

#### Notification of Environmental Sampling Results

In accordance with the MCP at 310 CMR 40.1403(10) a Notice of Environmental Sampling is required any time environmental samples are taken at a property in the course of investigating a release for which a notification to the Department has been made on behalf of someone other than the owner of the property within 30 days of the date the sample results are issued by the laboratory. Table D-1 in Appendix D provides a summary of the dates that laboratory reports were received, and the dates when public notifications are due. The first round of notification letters is due on January 12, 2020. Copies of the public notification letters will be included in the next IRA Status report.



Verbal notifications were made within 24 hours to those residents with detections (along with the notifications to MassDEP, and the Princeton Board of Health).

# **Conceptual Site Model**

The source of the PFAS detections is not currently known. There is a Fire Station within the Town Hall campus; however, Fire Department personnel are not aware of aqueous film-forming foam (AFFF) ever being used or released on the property. The former Princeton Inn, located at 30 Mountain Road, was the scene of a major structural fire in May 2017. The response reportedly involved fire equipment and personnel from approximately 20 surrounding communities. One or more of these response vehicles is reported to have applied AFFF to the fire site, which is directly uphill of 19 Mountain Road and the Town Hall campus. This AFFF application may be the source of, or may be contributing to, the detected groundwater contamination. The results of the groundwater monitoring well sampling for the Town Hall campus may provide helpful information in this regard.

# Conclusions

As discussed above, there is a substantial sampling effort underway to identify the extent of PFAS contamination in private wells associated with the detection of PFAS in the Town Hall campus PWS. To date, nine homes have been sampled and 20 additional homes are proposed for sampling based on currently available data.

In addition, a carbon treatment system has been installed at 19 Mountain Road and is in the process of being upscaled. Four additional treatment systems are proposed for those locations with PFAS concentrations exceeding 20 ppt and will be installed as soon as funding is approved. The treatment system for the Town Hall campus well is currently being designed. We will notify MassDEP when a date has been determined for these installations.

Proposed IRA activities include quarterly sampling of approximately 34 potable wells (see Table D-2 in Appendix D), beginning in April 2020. This list of wells may be expanded, based on the results of the current sampling effort.

An update on these activities will be reported to MassDEP in the first IRA Status Report. If you have any questions or require additional information, please contact me at 413.572.3227.

Very truly yours,

TIGHE & BOND, INC.

Jeffrey L. Arps, LSP Director, Remediation & Field Services

cc: Sherry Patch, Town of Princeton

# Appendices

- Appendix A Figure 1, Initial 500-foot Radius Map Figure 2, Second Round 500-Foot Radius Map
- Appendix B Copy of Letter sent to residents within 500-feet of Town Hall Well
- Appendix C Table 1, Summary of PFAS Analytical Data Laboratory Reports
- Appendix D Public Notification Spreadsheet

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# **Tighe&Bond**

**APPENDIX A** 



Town Hall Campus 500' Radius Figure 1



# **Tighe&Bond**

**APPENDIX B** 

November X, 2019

## Re: **Private Well Sampling**

Dear:

At the request of the Massachusetts Department of Environmental Protection (MassDEP), the Town recently sampled the drinking water well that serves the Princeton Town Hall complex to determine baseline water quality. As part of the sampling, we tested for a group of compounds called per- and polyfluoroalkyl substances, or PFAS. MassDEP's current drinking water guideline for PFAS in public water supply wells is 70 parts per trillion (nanograms/liter) for five PFAS compounds combined. The sum of the results for these five compounds was over the 70 parts per trillion guideline (127 ppt on September 5<sup>th</sup> and 102 ppt on September 27<sup>th</sup>).

Because of these detections in the public water supply well, MassDEP is requiring the Town to develop an Immediate Response Action Plan that will include sampling of private wells with 500 feet of the Town Hall for PFAS. We are writing today to request your permission to access your home's water system to collect a sample for PFAS analysis. Please see the enclosed form, which also requests additional information about your well and water system; please provide whatever information you can.

The laboratory requires approximately 3 weeks to process the samples. You will be notified of your results by telephone or email (your preference). If you have a positive PFAS detection, we may take a second, confirmatory sample. If any PFAS compounds are detected in your well, the Town will provide you with bottled water for drinking and preparing foods that absorb water. If the levels are above 20 ppt for the combined PFAS compounds, the Town will install an appropriate water treatment system in your home. I am attaching two MassDEP Fact Sheets that provide important information about PFAS; additional information is available on MassDEP's website (https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas).

The Town has engaged Tighe & Bond to provide Licensed Site Professional (LSP) and sampling services in response to this detection. If you have other questions, you may contact me at 464.2102, or you may contact Jeffrey Arps, LSP of Tighe & Bond at 413.572.3227 or by email at <u>jlarps@tighebond.com</u>. You may also contact Rebecca Buswell at MassDEP at 508.767.2772 or <u>Rebecca.buswell@state.ma.us</u>.

Please return the access form to my attention at Town Hall. Thank you for your cooperation as we work through this issue.

Very truly yours,

Sherry Patch Princeton Town Administrator

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# **Tighe&Bond**

**APPENDIX C** 

## TABLE 1 PFAS Drinking Water Summary Princeton, Massachusetts RTN 2-21072

	Massachusetts						SAMPLE LOCATION					
Parameter	Contingency Plan	Town Well	(WELL-01G)	5 Hubbardston Rd	7 Hubbardston Rd	15 Hubbardston Rd	19 Hubbardston Rd	6 Mountain Rd	6 Mountain Rd FB	19 Mountain Rd	21 Mountain Rd	
Well Depth (feet)	GW-1 Standard			UNKNOWN	400'	285'	340'	UNKNOWN		UNKNOWN	490'	Trip Blank - 12052019
Sampling Date		9/5/2019	9/27/2019	12/5/2019	12/5/2019 0:00	12/5/2019	12/5/2019	12/5/2019	FILLD BLAINK	12/4/2019	12/5/2019	
EPA 537.1 (ng/L)												
Perfluorobutanesulfonic acid (PFBS)		26.9	17	8.4	2.3	27	2.9	8.4	ND (2.0)	32	8.2	ND (2.0)
Perfluorohexanoic acid (PFHxA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	5.1	2.4	ND (2.0)
Perfluorohexanesulfonic acid (PFHxS)		94.4	78.1	29	3.5	110	9.7	23	ND (2.0)	220	53	ND (2.0)
Perfluoroheptanoic acid (PFHpA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	2.5	ND (2.0)	ND (2.0)
Perfluorooctanoic acid (PFOA)		3.92	3.18	2.9	2.9	4.6	ND (2.0)	2.4	ND (2.0)	11	5.4	ND (2.0)
Perfluorooctanesulfonic acid (PFOS)		26.4	18.9	7.3	3.3	18	ND (2.0)	4.7	ND (2.0)	190	44	ND (2.0)
Perfluorononanoic acid (PFNA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Perfluorodecanoic acid (PFDA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
N-EtFOSAA		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Perfluoroundecanoic acid (PFUnA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
N-MeFOSAA		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Perfluorododecanoic acid (PFDoA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Perfluorotridecanoic acid (PFTrDA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Perfluorotetradecanoic acid (PFTA)		ND(1.82)	ND (1.87)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Total (All Compounds)		151.6	117.2	47.6	12	159.6	12.6	38.5	ND (2.0)	460.6	113.0	ND (2.0)
Regulated Total	20	124.7	100.2	39.2	9.7	132.6	9.7	30.1	ND (2.0)	421.0	102.4	ND (2.0)

NOTES:

Gray colored cells indicate those compounds included in regulated PFAS Total ND = Not detected above the lab reporting limits shown in parentheses.

Bolded values exceed the Method 1 Standard



## ANALYTICAL REPORT

Lab Number:	L1940333
Client:	White Water Inc. 253B Worcester Road Charlton, MA 01507
ATTN: Phone: Project Name: Project Number:	Andrew Donnelly (888) 377-7678 PRINCETON TOWN CAMPUS Not Specified
Report Date:	09/25/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

320 Forbes Boulevard, Mansfield, MA 02048-1806 508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Serial\_No:09251911:42

Project Name:PRINCETON TOWN CAMPUSProject Number:Not Specified

 Lab Number:
 L1940333

 Report Date:
 09/25/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940333-01	WELL-01G	DW	PRINCETON	09/05/19 09:30	09/05/19
L1940333-02	FIELD BLANK	DW	PRINCETON	09/05/19 09:30	09/05/19



# Project Name:PRINCETON TOWN CAMPUSProject Number:Not Specified

 Lab Number:
 L1940333

 Report Date:
 09/25/19

#### **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:PRINCETON TOWN CAMPUSProject Number:Not Specified

 Lab Number:
 L1940333

 Report Date:
 09/25/19

#### **Case Narrative (continued)**

#### Sample Receipt

L1940333-02: A sample identified as "FIELD BLANK" was received but not listed on the Chain of Custody. At the client's request, this sample was analyzed.

#### Perfluorinated Alkyl Acids

The WG1286049-2/-3 LCS/LCSD recoveries, associated with L1940333-01 and -02, are above the acceptance criteria for perfluorononanoic acid (pfna) (132%/133%), perfluorotridecanoic acid (pftrda) (LCSD 132%), and perfluorotetradecanoic acid (pfta) (172%/169%); however, the associated sample is non-detect to the RL for these target analytes. The results of the original 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.

600 Sendow Kelly Stenstrom

Authorized Signature:

Title: Technical Director/Representative

Date: 09/25/19



# ORGANICS



# SEMIVOLATILES



			Serial_No:09251911:42		
Project Name:	PRINCETON TOWN CA	MPUS	Lab Number:	L1940333	
Project Number:	Not Specified		Report Date:	09/25/19	
		SAMPLE RESULTS			
Lab ID:	L1940333-01		Date Collected:	09/05/19 09:30	
Client ID:	WELL-01G		Date Received:	09/05/19	
Sample Location:	PRINCETON		Field Prep:	Not Specified	
Sample Depth:					
Matrix:	Dw		Extraction Method	l: EPA 537	
Analytical Method:	122,537		Extraction Date:	09/19/19 09:27	
Analytical Date:	09/21/19 01:25				
Analyst:	RS				

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Perfluorinated Alkyl Acids by EPA 537 -	Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	26.9		ng/l	1.82		1	
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.82		1	
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.82		1	
Perfluorohexanesulfonic Acid (PFHxS)	94.4		ng/l	1.82		1	
Perfluorooctanoic Acid (PFOA)	3.92		ng/l	1.82		1	
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.82		1	
Perfluorooctanesulfonic Acid (PFOS)	26.4		ng/l	1.82		1	
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82		1	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82		1	
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82		1	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82		1	
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82		1	
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82		1	
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82		1	
PFOA/PFOS, Total	30.3		ng/l	1.82		1	
PFAS, Total (5)	125		ng/l	1.82		1	

Surrogate	% Recovery	Acceptance Qualifier Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	90	70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	79	70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74	70-130	



			Serial_No:09251911:42		
Project Name:	PRINCETON TOWN CAN	/IPUS	Lab Number:	L1940333	
Project Number:	Not Specified		Report Date:	09/25/19	
		SAMPLE RESULTS			
Lab ID:	L1940333-02		Date Collected:	09/05/19 09:30	
Client ID:	FIELD BLANK		Date Received:	09/05/19	
Sample Location:	PRINCETON		Field Prep:	Not Specified	
Sample Depth:					
Matrix:	Dw		Extraction Method	: EPA 537	
Analytical Method:	122,537		Extraction Date:	09/19/19 09:27	
Analytical Date:	09/21/19 03:58				
Analyst:	RS				

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Perfluorinated Alkyl Acids by EPA 537 - N	lansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.02		1	
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.02		1	
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.02		1	
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.02		1	
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.02		1	
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.02		1	
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.02		1	
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.02		1	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.02		1	
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.02		1	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.02		1	
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.02		1	
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.02		1	
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.02		1	
PFOA/PFOS, Total	ND		ng/l	2.02		1	
PFAS, Total (5)	ND		ng/l	2.02		1	

Surrogate	% Recovery	Qualifier	Acceptance Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	92		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	85		70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		70-130	



Lab Number:

**Report Date:** 

Project Name: PRINCETON TOWN CAMPUS	
-------------------------------------	--

Project Number: Not Specified

## Method Blank Analysis Batch Quality Control

Analytical Method:122,537Analytical Date:09/21/19 00:00Analyst:RS

Extraction Method: EPA 537 Extraction Date: 09/19/19 09:27

L1940333

09/25/19

Parameter	Result	Qualifier	Units	RL	I	MDL
Perfluorinated Alkyl Acids by EPA 53	7 - Manst	ield Lab for	sample(s):	01-02	Batch:	WG1286049-1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00		
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00		
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00		
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00		
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00		
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00		
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00		
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00		
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00		
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00		
N-Ethyl Perfluorooctanesulfonamidoacetic A (NEtFOSAA)	cid ND		ng/l	2.00		
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00		
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00		
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00		
PFOA/PFOS, Total	ND		ng/l	2.00		
PFAS, Total (5)	ND		ng/l	2.00		

		A	Acceptance	
Surrogate	%Recovery	Qualifier	Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	94		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	90		70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		70-130	



## Lab Control Sample Analysis

Batch Quality Control

Lab Number: L1940333 Report Date: 09/25/19

Project Number: Not Specified

PRINCETON TOWN CAMPUS

**Project Name:** 

LCSD LCS RPD %Recovery %Recovery RPD %Recovery Limits Limits Parameter Qual Qual Qual Perfluorinated Alkyl Acids by EPA 537 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1286049-2 WG1286049-3 Perfluorobutanesulfonic Acid (PFBS) 112 110 70-130 16 30 125 124 Perfluorohexanoic Acid (PFHxA) 70-130 11 30 Perfluoroheptanoic Acid (PFHpA) 124 123 70-130 15 30 Perfluorohexanesulfonic Acid (PFHxS) 122 114 70-130 12 30 Perfluorooctanoic Acid (PFOA) 128 70-130 30 126 13 Q Perfluorononanoic Acid (PFNA) Q 132 133 70-130 17 30 Perfluorooctanesulfonic Acid (PFOS) 118 113 70-130 9 30 Perfluorodecanoic Acid (PFDA) 121 120 70-130 15 30 N-Methyl 115 118 70-130 21 30 Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) Perfluoroundecanoic Acid (PFUnA) 125 127 70-130 20 30 N-Ethyl Perfluorooctanesulfonamidoacetic 109 114 70-130 30 1 Acid (NEtFOSAA) Perfluorododecanoic Acid (PFDoA) 70-130 30 121 128 23 Perfluorotridecanoic Acid (PFTrDA) Q 70-130 130 132 18 30 Perfluorotetradecanoic Acid (PFTA) 172 Q 169 Q 70-130 19 30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	91		94		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	87		90		70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	77		85		70-130	



# Lab Duplicate Analysis Batch Quality Control

Project Name: PRINCETON TOWN CAMPUS

Lab Number: Report Date:

L1940333 09/25/19

Project Number: Not Specified

arameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
erfluorinated Alkyl Acids by EPA 537 - Mansfie /ELL-01G	eld Lab Associated sample(s):	01-02 QC Batch ID:	WG1286049-5	QC Sam	ple: L1940	333-01 Client ID:
Perfluorobutanesulfonic Acid (PFBS)	26.9	28.2	ng/l	5		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	94.4	97.8	ng/l	4		30
Perfluorooctanoic Acid (PFOA)	3.92	4.10	ng/l	4		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	26.4	27.6	ng/l	4		30
Perfluorodecanoic Acid (PFDA)	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
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
PFOA/PFOS, Total	30.3	31.7	ng/l	0		30
PFAS, Total (5)	125	130	ng/l	0		30

Surrogate	%Recovery Qualifie	r %Recovery Qualifie	Acceptance er Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	90	94	70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	79	83	70-130



Project Name: Project Number:	Project Name:       PRINCETON TOWN CAMPUS         Project Number:       Not Specified			-ab Du Bato	Iplicate Ar ch Quality Con	nalysis <sup>htrol</sup>		Lab Numb Report Dat	L1940333 09/25/19	
Parameter			Native Sample	Duplic	ate Sample	Units	RPD	Qual	RPD Limits	6
Perfluorinated Alkyl Acid WELL-01G	s by EPA 537 -	- Mansfield Lab	Associated sample(s):	01-02	QC Batch ID:	WG1286049-5	QC Sar	nple: L19403	333-01 (	Client ID:
Surrogate				%Recov	very Qualifier	%Recovery (	Qualifier	Acceptance Criteria	÷	

- -

	 -	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) 74	72	70-130



# Project Name:PRINCETON TOWN CAMPUSProject Number:Not Specified

#### Sample Receipt and Container Information

Were project specific reporting limits specified?

#### **Cooler Information**

Cooler	Custody Seal
A	Absent

# fied? YES

Container Info	ormation		Initial	Final	Temp			Frozen	
Container ID	Container Type	Cooler	pН	pН	deg C	Pres	Seal	Date/Time	Analysis(*)
L1940333-01A	2 Plastic Trizma/1 Plastic/1 H20+Trizma	А	NA		3.2	Y	Absent		A2-537(14)
L1940333-01B	2 Plastic Trizma/1 Plastic/1 H20+Trizma	А	NA		3.2	Y	Absent		A2-537(14)
L1940333-02A	2 Plastic Trizma/1 Plastic/1 H20+Trizma	А	NA		3.2	Y	Absent		A2-537(14),A2-L-EXT-537(14)

# \*Values in parentheses indicate holding time in days



Serial\_No:09251911:42

## Project Name: PRINCETON TOWN CAMPUS

Project Number: Not Specified

## Lab Number: L1940333

#### **Report Date:** 09/25/19

#### 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
EDL	from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) - 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
EMPC	<ul> <li>of PAHs using Solid-Phase Microextraction (SPME).</li> <li>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 astimute of the concentration.</li> </ul>
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.
	<ul> <li>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.</li> <li>N. Nitracodiphonylaming/Diphonylaming</li> </ul>
	- Not Ionitable
ND	- Not remain a utilized for the analysis of Atterbarg Limits in soil
DI	Poperting Limit. The value at which an instrument can accurately measure an analyte at a specific concentration. The PL
KL	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.
_	

#### Footnotes

Report Format: Data Usability Report



Serial\_No:09251911:42

## Project Name: PRINCETON TOWN CAMPUS

#### Project Number: Not Specified

Lab Number: L1940333 Report Date: 09/25/19

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. 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 Waterpreserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'. 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.

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. 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 concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the 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 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.
- 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. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- **ND** Not detected at the reporting limit (RL) for the sample.
- 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.



 Project Name:
 PRINCETON TOWN CAMPUS

 Project Number:
 Not Specified

 Lab Number:
 L1940333

 Report Date:
 09/25/19

#### REFERENCES

122 Determination of Selected Perfluorintated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

#### 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

**EPA 8260C:** <u>NPW</u>: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; <u>SCM</u>: lodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** <u>NPW:</u> Dimethylnaphthalene,1,4-Diphenylhydrazine; <u>SCM</u>: Dimethylnaphthalene,1,4-Diphenylhydrazine. **SM4500**: <u>NPW</u>: Amenable Cyanide; <u>SCM</u>: Total Phosphorus, TKN, NO2, NO3.

**Mansfield Facility** 

SM 2540D: TSS

EPA 8082A: <u>NPW:</u> 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, SM4500CI-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.

#### 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.

#### 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.

Serial\_No:09251911:42

ALPHA	CHAIN OF	CUSTO	DY	PAGEC	¥	Date	Rec'd i	n Lab:	9/1	5/19	2	-	ALPH	A Job #: L1940333
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193	MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288	Project Inform Project Name:	ation	on Town 1	Campus	Rep D F	ort Infe	ormat	ion - D	ata Deli IL	verable	s	Billing Same	as Client info PO #:
Client Information	on	Project Location:	Princel	100		Bagu	DEx	Pogu	Add'l	Deliveral	oles et Limi	te	-	CONTRACTOR NAMES AND DESCRIPTION
Client: White	Water	Project #:				State	Ead Pr	noram	nemer	cs/Repo	rteria	15		
Address: 2535	Worcester Rd	Project Manager:	chris	Passos	~	Citite /		ogram			in an an	-	1	
char)	ton Ma	ALPHA Quote #:				125			1	1 3	ALC: NO	-	1	Same Marth States
Phone: 50%-	864-2107	Turn-Around	Time						1	8.7		2.5		
Fax:		Standard												
Email: CPatt	erson @ RHWhite, con	Date Due:	anoonin	Time:	(Net2)	0	1	1		11	1	/ /		
These samples had	ve been previously analyzed by Alpha	Date Due.		time.		Y'SI	1.1	/	1		11	/	11	SAMPLE HANDLING
$(m_{0})$	0		1			AN AN	N/	//		Ħ	//	[]		Not needed     Lab to do     Preservation     Lab to do     T
ALPHA Lab ID (Lab Use Only)	Sample ID	Ca	ollection Time	Sample ( Matrix	Sampler's Initials	$V_i/$	1		[ ]	11		11		(Pease specify below) Sample Specific Comments
240 ?73 -01	Well - 016	9/5/10	930			J								
				Contair Pres	ner Type servative									Please print clearly, legibly and com- pletely. Samples can not be logged in and turnaround time clock will not
FORM NO: 01-01 (rev. 14-OCT-07)		Relinquished By: Date/Time 9515 9515 9540		Received By: Received By: APL PL PL PL PL PL PL PL PL PL				9/5	Date/TI	All samples submitted are si Alpha's Terms and Condition See reverse side.				



## ANALYTICAL REPORT

Lab Number:	L1944829
Client:	White Water Inc. 253B Worcester Road Charlton, MA 01507
ATTN: Phone: Project Name:	Andrew Donnelly (888) 377-7678 PRINCETON TOWN CAMPUS
Project Number: Report Date:	Not Specified 10/21/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019 508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Serial\_No:10211910:56

Project Name:PRINCETON TOWN CAMPUSProject Number:Not Specified

 Lab Number:
 L1944829

 Report Date:
 10/21/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1944829-01	01G-FINISHED	DW	PRINCETON	09/27/19 10:10	09/27/19
L1944829-02	FIELD BLANK	DW	PRINCETON	09/27/19 10:00	09/27/19



# Project Name:PRINCETON TOWN CAMPUSProject Number:Not Specified

 Lab Number:
 L1944829

 Report Date:
 10/21/19

#### **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:** PRINCETON TOWN CAMPUS Project Number: Not Specified

Lab Number: L1944829 **Report Date:** 10/21/19

**Case Narrative (continued)** 

Sample Receipt

L1944829-02: A sample identified as "FIELD BLANK" was received but not listed on the Chain of Custody. At the client's request, this sample was analyzed.

The samples were received at the laboratory above the required temperature range. The samples were delivered directly from the sampling site but were not on ice.

#### Perfluorinated Alkyl Acids

WG1294979-2 and WG1294979-3: The LCS recoveries, associated with L1944829-01 and -02, are within the 50-150% acceptance criteria for low level 537.

WG1294979-4 The Matrix Spike level is at the Reporting Limit (RL). Any detections below the RL in the native sample are not included in the %Recovery calculation.

The WG1294979-4 MS recoveries, performed on L1944829-01, are outside the acceptance criteria for perfluorobutanesulfonic acid (pfbs) (0%), perfluorohexanoic acid (pfhxa) (145%), perfluoroheptanoic acid (pfhpa) (136%), perfluorohexanesulfonic acid (pfhxs) (0%), perfluorooctanesulfonic acid (pfos) (0%) and nethyl perfluorooctanesulfonamidoacetic acid (netfosaa) (66%).

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:

Juren E Diled Susan O' Neil

Title: Technical Director/Representative

Date: 10/21/19



# ORGANICS


# SEMIVOLATILES



			Serial_No:10211910:56		
Project Name:	PRINCETON TOWN CAMP	JS	Lab Number:	L1944829	
Project Number:	Not Specified		Report Date:	10/21/19	
	:	SAMPLE RESULTS			
Lab ID:	L1944829-01		Date Collected:	09/27/19 10:10	
Client ID:	01G-FINISHED		Date Received:	09/27/19	
Sample Location:	PRINCETON		Field Prep:	Not Specified	
Sample Depth:					
Matrix:	Dw		Extraction Method:	: EPA 537	
Analytical Method:	122,537		Extraction Date:	10/11/19 07:21	
Analytical Date:	10/14/19 19:56				
Analyst:	RS				

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537 -	Mansfield Lab					
Perfluorobutanesulfonic Acid (PFBS)	17.0		ng/l	1.87		1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.87		1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.87		1
Perfluorohexanesulfonic Acid (PFHxS)	78.1		ng/l	1.87		1
Perfluorooctanoic Acid (PFOA)	3.18		ng/l	1.87		1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.87		1
Perfluorooctanesulfonic Acid (PFOS)	18.9		ng/l	1.87		1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.87		1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.87		1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.87		1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.87		1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.87		1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.87		1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.87		1
PFOA/PFOS, Total	22.1		ng/l	1.87		1
PFAS, Total (5)	100		ng/l	1.87		1

Surrogate	% Recovery	Qualifier	Acceptance Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	99		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	86		70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	84		70-130	



			Serial_No:10211910:56		
Project Name:	PRINCETON TOWN CAM	PUS	Lab Number:	L1944829	
Project Number:	Not Specified		Report Date:	10/21/19	
		SAMPLE RESULTS			
Lab ID:	L1944829-02		Date Collected:	09/27/19 10:00	
Client ID:	FIELD BLANK		Date Received:	09/27/19	
Sample Location:	PRINCETON		Field Prep:	Not Specified	
Sample Depth:					
Matrix:	Dw		Extraction Method:	: EPA 537	
Analytical Method:	122,537		Extraction Date:	10/11/19 07:21	
Analytical Date:	10/17/19 13:13				
Analyst:	RS				

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	
Perfluorinated Alkyl Acids by EPA 537 - N	Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.86		1	
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.86		1	
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.86		1	
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.86		1	
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.86		1	
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.86		1	
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.86		1	
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.86		1	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.86		1	
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.86		1	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.86		1	
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.86		1	
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.86		1	
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.86		1	
PFOA/PFOS, Total	ND		ng/l	1.86		1	
PFAS, Total (5)	ND		ng/l	1.86		1	

Surrogate	% Recovery	Accept Qualifier Crite	ance eria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	85	70-	130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	86	70-	130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	78	70-	130



L1944829

10/21/19

10/11/19 07:21

Lab Number:

Report Date:

Project Name:	PRINCETON TOWN CAMPUS	
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Project Number: Not Specified

# Method Blank Analysis Batch Quality Control

Analytical Method:	122,537	Extraction Method:	EPA 537
Analytical Date:	10/14/19 19:05	Extraction Date:	10/11/19
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 53	7 - Mansf	ield Lab for	sample(s):	01-02	Batch: WG1294979-1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	D ND		ng/l	2.00	
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	
N-Ethyl Perfluorooctanesulfonamidoacetic / (NEtFOSAA)	Acid ND		ng/l	2.00	
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	
PFOA/PFOS, Total	ND		ng/l	2.00	
PFAS, Total (5)	ND		ng/l	2.00	

			Acceptance	
Surrogate	%Recovery	Qualifier	Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	97		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	83		70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		70-130	



# Lab Control Sample Analysis Batch Quality Control

Lab Number: L1944829 Report Date: 10/21/19

Project Number: Not Specified

PRINCETON TOWN CAMPUS

**Project Name:** 

	LCS		LCSD		%Recovery			RPD	
Parameter	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits	
Perfluorinated Alkyl Acids by EPA 537 - N	lansfield Lab Assoc	iated sample(s	s): 01-02 Bate	ch: WG129	4979-2 WG12949	979-3			
Perfluorobutanesulfonic Acid (PFBS)	84		77		70-130	9		30	
Perfluorohexanoic Acid (PFHxA)	101		100		70-130	1		30	
Perfluoroheptanoic Acid (PFHpA)	96		93		70-130	3		30	
Perfluorohexanesulfonic Acid (PFHxS)	80		77		70-130	4		30	
Perfluorooctanoic Acid (PFOA)	102		96		70-130	6		30	
Perfluorononanoic Acid (PFNA)	93		94		70-130	1		30	
Perfluorooctanesulfonic Acid (PFOS)	65		86		70-130	28		30	
Perfluorodecanoic Acid (PFDA)	89		78		70-130	13		30	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	55		66		70-130	18		30	
Perfluoroundecanoic Acid (PFUnA)	82		81		70-130	1		30	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	73		61		70-130	18		30	
Perfluorododecanoic Acid (PFDoA)	99		85		70-130	15		30	
Perfluorotridecanoic Acid (PFTrDA)	83		87		70-130	5		30	
Perfluorotetradecanoic Acid (PFTA)	84		77		70-130	9		30	

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	100		101		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	81		83		70-130	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	76		82		70-130	



# Matrix Spike Analysis

Project Name:	PRINCETON TOWN CAMPUS	Batch Quality Control	Lab Number:	L1944829
Project Number:	Not Specified		Report Date:	10/21/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	RPD Qual Limits	
Perfluorinated Alkyl Acids by E FINISHED	EPA 537 - Ma	ansfield Lab	Associated sa	mple(s): 01-02	QC Ba	tch ID: WG	1294979-4	QC San	nple: L19448	329-01	Client ID: 01G-	
Perfluorobutanesulfonic Acid (PFBS)	17.0	1.82	16.7	0	Q	-	-		70-130	-	30	
Perfluorohexanoic Acid (PFHxA)	ND	1.82	2.65	145	Q	-	-		70-130	-	30	
Perfluoroheptanoic Acid (PFHpA)	ND	1.82	2.48	136	Q	-	-		70-130	-	30	
Perfluorohexanesulfonic Acid (PFHxS)	) 78.1	1.82	74.4	0	Q	-	-		70-130	-	30	
Perfluorooctanoic Acid (PFOA)	3.18	1.82	4.90	94		-	-		70-130	-	30	
Perfluorononanoic Acid (PFNA)	ND	1.82	1.93	106		-	-		70-130	-	30	
Perfluorooctanesulfonic Acid (PFOS)	18.9	1.82	17.9	0	Q	-	-		70-130	-	30	
Perfluorodecanoic Acid (PFDA)	ND	1.82	ND	89		-	-		70-130	-	30	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.82	ND	76		-	-		70-130	-	30	
Perfluoroundecanoic Acid (PFUnA)	ND	1.82	ND	82		-	-		70-130	-	30	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.82	ND	66	Q	-	-		70-130	-	30	
Perfluorododecanoic Acid (PFDoA)	ND	1.82	ND	92		-	-		70-130	-	30	
Perfluorotridecanoic Acid (PFTrDA)	ND	1.82	ND	91		-	-		70-130	-	30	
Perfluorotetradecanoic Acid (PFTA)	ND	1.82	ND	82		-	-		70-130	-	30	

	MS	MSD	Acceptance	
Surrogate	% Recovery Qualified	r % Recovery Qualifier	Criteria	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	72		70-130	
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	78		70-130	
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	94		70-130	



# Project Name:PRINCETON TOWN CAMPUSProject Number:Not Specified

### Sample Receipt and Container Information

Were project specific reporting limits specified?

### **Cooler Information**

Cooler	Custody Seal			
A	Absent			


YES

Containar Info	rmation								
Container IIIo Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1944829-01A	2 Plastic Trizma/1 Plastic/1 H20+Trizma	А	NA		17.4	Y	Absent		A2-537(14)
L1944829-01B	2 Plastic Trizma/1 Plastic/1 H20+Trizma	А	NA		17.4	Y	Absent		A2-537(14)
L1944829-02A	2 Plastic Trizma/1 Plastic/1 H20+Trizma	А	NA		17.4	Y	Absent		A2-537(14),A2-L-EXT-537(14)
L1944829-02B	2 Plastic Trizma/1 Plastic/1 H20+Trizma	NA	NA			Y	Absent		A2-537(14)



# Serial\_No:10211910:56

# Project Name: PRINCETON TOWN CAMPUS

## Project Number: Not Specified

# **Report Date:** 10/21/19

### 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.
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.
Footnotes	

Report Format: Data Usability Report



Serial\_No:10211910:56

### Project Name: PRINCETON TOWN CAMPUS

### Project Number: Not Specified

Lab Number: L1944829 Report Date: 10/21/19

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- 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. 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 Waterpreserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'. 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.

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. 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 concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the 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 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.
- 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. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- **ND** Not detected at the reporting limit (RL) for the sample.
- 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.



 Project Name:
 PRINCETON TOWN CAMPUS

 Project Number:
 Not Specified

 Lab Number:
 L1944829

 Report Date:
 10/21/19

### REFERENCES

122 Determination of Selected Perfluorintated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

### 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

**EPA 8260C:** <u>NPW</u>: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; <u>SCM</u>: lodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** <u>NPW:</u> Dimethylnaphthalene,1,4-Diphenylhydrazine; <u>SCM</u>: Dimethylnaphthalene,1,4-Diphenylhydrazine. **SM4500**: <u>NPW</u>: Amenable Cyanide; <u>SCM</u>: Total Phosphorus, TKN, NO2, NO3.

**Mansfield Facility** 

SM 2540D: TSS

EPA 8082A: <u>NPW:</u> 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, SM4500CI-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.

#### 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.

#### 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.

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December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0340

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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Sample Preparation Information	6
QC Data	7
Semivolatile Organic Compounds by - LC/MS-MS	7
B248078	7
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	39 Spruce	Street * East Longme	adow, MA 01028 * FAX 413/525-6405 * TEL	. 413/525-2332	
Tighe & Bond, Inc Worcester 120 Front St. Worcester, MA 01608-2303 ATTN: Michael Scherer			PURCHASE ORDER NUMBER:	:	REPORT DATE: 12/13/2019
			PROJECT NUMBER: P-053	4	
		AN	ALYTICAL SUMMARY		
			WORK O	RDER NUMBER:	19L0340
The results of analyses performed on t	the following samp	les submitted to the CON	WORK O	RDER NUMBER:	19L0340
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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



### Table of Contents

Analyst

BLM

12/12/19 1:30

12/12/19 1:30

12/12/19 1:30

12/12/19 1:30

12/12/19 1:30

12/12/19 1:30

12/12/19 1:30

12/12/19 1:30

Work Order: 19L0340

EPA 537.1

EPA 537.1

EPA 537.1

EPA 537.1

12/11/19

12/11/19

12/11/19

12/11/19

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 5 Hubbardston Rd

Sampled: 12/5/2019 09:30

Sample Description:

ND

ND

ND

ND

2.0

2.0

2.0

2.0

115

100

104

120

% Recovery

Samp

Hexafluoropropylene oxide dimer acid

4,8-dioxa-3H-perfluorononanoic acid

Surrogates

11Cl-PF3OUdS (F53B Major)

9Cl-PF3ONS (F53B Minor)

(HFPO-DA)

(ADONA)

13C-PFHxA

M3HFPO-DA

d5-NEtFOSAA

13C-PFDA

Sample Matrix: Drinking Water									
			Semivolatile (	Organic Co	mpounds by - l	LC/MS-MS			
			MCL/SMCL					Date	Date/Time
Analyte	Results	RL	MA ORSG	Units	Dilution	Flag/Qual	Method	Prepared	Analyzed
Perfluorobutanesulfonic acid (PFBS)	8.4	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorohexanesulfonic acid (PFHxS)	29	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorooctanoic acid (PFOA)	2.9	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorooctanesulfonic acid (PFOS)	7.3	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:30

ng/L

ng/L

ng/L

ng/L

**Recovery Limits** 

70-130

70-130

70-130

70-130

1

1

1

1

Flag/Qual



### Sample Extraction Data

### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0340-01 [5 Hubbardston Rd]	B248078	250	1.00	12/11/19

### QUALITY CONTROL

### Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
remuorotridecanoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PF1A)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CLPE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0		102	70-130			
9Cl-PF3ONS (F53B Minor)	20.5	2.0	ng/L	10.0		112	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



### CERTIFICATIONS

### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9CI-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

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Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Con- Test values your partnership on each project and will try to assist with missing information, but will not be held accountable.	ents:		City		Brownfie	P		MBTA					L	
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Login Somala B		(Defend)			Doc# 2	77 Rev 5 20	7	
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However the semple	<u> </u>	-	Dale	12/19/19		_ rime	20:40	
received?	s In Cooler	<u> </u>	_No Cooler		On Ice		No Ice	
10001100;	Direct from San	npling		_	Ambient		Melted Ice	
Were samples within		By Gun #	5		Actual Ten	1p - 3.6	-	
Temperature? 2-6°C	Т	Bv Blank #		•	Actual Ten	n -		
Was Custody §	Seal Intact?	NIA	We	ere Samples	Tamperer	l with?		-
Was COC Reli	inquished?	<u> </u>	- Doe	s Chain An	ee With Sa	moles?	<u></u>	-
Are there broken	/leaking/loose car	s on any sam	ples?	P		inpico :	/	-
Is COC in ink/ Legible	? 1	<b>y</b>	Were sar	noles receiv	/ed within h	oldina time?	T	
Did COC include all	Client	- T	Analysis	 ጉ	Samol	er Name		-
pertinent Information?	Project	T	ID's	 T	Collection	Dates/Times		-
Are Sample labels fille	d out and legible?		-	I	00100000	Datoornines	<i>I</i>	-
Are there Lab to Filters	?	F		Who was	notified?			
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s there enough Volum	e?	-		Who was	notineu :			
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Proper Media/Containe	rs Used?	- <u></u>		le enlitting e		wirod?	r	
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)o all samples have the	e proper pH?	NI	Acid	on 000; _		Base		
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leoh-	250 ml Amb	+	250 mL	Plastic	~	80Z Am	D/Clear	
isulfate-	Flashpoint			ridsuU	<u> </u>	40Z AM	D/Clear	
· -	Other Glass	<u> </u>	Other F	Plastic		20Z AM	u/Clear	······
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iais e e	Containara	4 1	Unused N					
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CL-	500 ml Amb			Diastic		16 OZ	AMD.	
eoh-	250 ml Amb		250 mL	Plastic		00Z Am	b/Clear	
isulfate-	Col./Bacteria		Flachr	nasiic		40Z AM	b/Clear	
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		L		1000		EUC	UIE	
hiosulfate-	SOC Kit		Plastic	Bag		Frozen.		



December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0332

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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B248078	8
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Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303 ATTN: Michael Scherer

REPORT DATE: 12/13/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: P-0534

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19L0332

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Princeton, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
6 Mountain Rd	19L0332-01	Drinking Water		EPA 537.1	
6 Mountain Rd FB	19L0332-02	Field Blank		EPA 537.1	



CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



### Table of Contents

Work Order: 19L0332

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 6 Mountain Rd Sample ID: 19L0332-01

Sampled: 12/5/2019 10:05

Sample Description:

Sample Matrix: Drinking Water										
		Se	emivolatile Org	ganic Comp	oounds by - I	LC/MS-MS				
		N	ACL/SMCL					Date	Date/Time	
Analyte	Results	RL I	MA ORSG	Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	8.4	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorohexanesulfonic acid (PFHxS)	23	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorooctanoic acid (PFOA)	2.4	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorooctanesulfonic acid (PFOS)	4.7	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:00	BLM
Surrogates		% Recov	very Recov	very Limits		Flag/Qual				
13C-PFHxA		102	7	70-130					12/11/19 23:00	
M3HFPO-DA		91.3	7	70-130					12/11/19 23:00	
13C-PFDA		99.4	7	70-130					12/11/19 23:00	
d5-NEtFOSAA		119	2	70-130					12/11/19 23:00	



Work Order: 19L0332

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 6 Mountain Rd FB

Sample Description:

Sample ID: 19L0332-02

Sampled: 12/5/2019 10:05

Sample Matrix: Field Blank										
		5	Semivolatile C	Organic Com	pounds by - I	LC/MS-MS				
			MCL/SMCL					Date	Date/Time	
Analyte	Results	RL	MA ORSG	Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 23:21	BLM
Surrogates		% Reco	overy Rec	covery Limits	8	Flag/Qual				
13C-PFHxA		103		70-130					12/11/19 23:21	
M3HFPO-DA		94.3		70-130					12/11/19 23:21	
13C-PFDA		97.9		70-130					12/11/19 23:21	
d5-NEtFOSAA		108		70-130					12/11/19 23:21	



### Sample Extraction Data

### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0332-01 [6 Mountain Rd]	B248078	250	1.00	12/11/19
19L0332-02 [6 Mountain Rd FB]	B248078	250	1.00	12/11/19

### QUALITY CONTROL

### Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
Perfluerotatedeconoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PFTA)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CL-PE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0 18 °		102	70-130			
9CLPE3ONS (E53B Minor)	20.5	2.0	ng/L	18.8		109	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



### CERTIFICATIONS

### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9Cl-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

IIIII), con-test		7221	http://www	. contestlabs. com		39 Spruce 5	D	oc # 381 Rev 2_06262	019		` _
THE ANALYTUAL LABORATORY	Phone: 413-525-2332 { 거C			CHAIN OF C	USTODY RECORD	East Longr	leadow, MA 01028				Page of
	FaX: 413-323-6405 Emoil: info@contect-h		Requested Turn	around Time	Dis Dis	solved Metals Sa	mples	ANAL	<b>YSIS REQUESTED</b>		
Company Names	Tishe & Rond	V-Uay		10-Day LI	0 0	Field Filtered				2	Preservation Code
Address: 12	0 Front Street, Worcester, MA 0	1608	e vay (stu)	bue vate:	0	Lab to Filter					Counter Use Only
Phone:	508-754-2201	1-Dav		3-Dav	С	Field Filtered	Cald				Total Number Of:
Project Name:	Princeton Residential Weil Sampl	ing 2-Dav	ם מ	4-Dav	) C	Lield Filter					
Project Location:	Princeton, MA			Dat	a Delivery	Fait to Filler					VIALS
Project Number:	P-0534	Format		PDF	5	X.	1 2				GLASS
Project Manager:	M. Scherer	Other:			l	Ś	)				PLASHC
Con-Test Quote Name/Number:		CLP LI	te Data Pkg Require	4	D			1. 			BAU I L'RIA
Invoice Recipient:	Tighe & Bond	Email 1	ö				····,	.752			ENCORE
Sampled By:	M. Scherer	Fax To	#:					¥0-			
Con-Test CIN	ent Sample ID / Description	Beginning Endi	ng COMP/GRAB	Matrix Conv	Code VIAI C	ACC DI ACTIN 244	TEALA FAICABL	14/50			Glassware in the fridge?
		Jate/ lime Date/	line	Code							V/V
0	Nawrand Pd	2/5/19 1000	17 P	-   wa	1	N					Glassware in freezer? Y / N
264	WWTHIN Ed F8	215/18 100	5	(		~					Prenackaned Conter? V/M
											Lontest is not responsible for lissing samples from properbod
											coolers
											Matrix Codes: GW = Ground Water
											WW = Waste Water
											DW = Drinking Water A = Air
											S = Soil
											st = Studge SOL = Solid
UT VT U											0 = Other (please
Retinquiphed by: (significant	Date/Time: CI	lient Comments:	×			-	-				
1 W WW	C 1215/19 1700										
And the for the	12/5/19 1700										<sup>2</sup> Preservation Codes: I = Ired
Relinquished by: (signature)	Date/Time: 2020	Detection Lim	t Requirements		Salacta						H = HCL
F.K. WER	12.10.2019	MA		0	Bhade	Acquir anna Mark	MA MCP R	auired			M = Methanol N = Nitric Acid
Area for (senature)	Date/Time; //. co					ACP C	ertification Form F	equired possible sar	e the following codes to it nole concentration within	ndicate the Conc	S = Sulfuric Acid
	1/2/10			٥			CT RCP R	quired	Code column above:		X = Soriium Bisultate
	5 12/12/23	CI				RCP C	ertification Form F	equired H - High; M	- Medium; L - Low; C - C	lean; U -	T = Sodium
Received by: (signature)	Date/Time:						5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		GRADOWN		0 = Other (please
110 - 2.6	12/10/1-1 20:30	Other		PWSID #			WH STRIE DA YO	justed			define)
Kelinquistred by: (signature)	Date/Time: Pr	oject Entity							Other		
Datational Is Infances.		Governi	nent	Municipality	۵	MWRA		NRTA 🔲	Chromatog	Lam	
received by: (signature)	Date/Time:	Federal	D I	2f J	D	School	۵		D AIHA-LAP,I	FC	Non Soxhlet
Lab Comments:		rsty.		browntield		MBTA	D				
						Disclaime	r: Con-Test Lat	s is not responsible	e for any omitted inform	mation on th	he Chain of Custody. The
						Chain of C analyses th Test value	ustody is a lega e laboratory wi s your partners	document that m It perform. Any mi bip on each projec	ust be complete and ac issing information is no t and will try to assist y	curate and t the labora	is used to determine what tory's responsibility. Con-
								ре ,	held accountable.	5	

l Have Not Con Numbers With Lat Over Samp	firmed Sample C Staff Before Rel bles	ontainer inquishing ——	¢4₩-		CC ANAL	TICAL I	- CES	
Login Sample R State	eceipt Checklist	- (Rejection	Criteria Lis	sting - Usir the Client	ng Acceptar	nce Policy) /	Any False	leieleieleieleieleieleieleieleie
Client T+R		ugint to the u		the onent	- otate mu	e of i alse		
Received By			Date	12/10/14		Time	20130	
How were the sample	<u>Aq</u>			1-/(-//			20.70	
received?	s In Cooler	T	No Cooler		On Ice	<u> </u>	No Ice	
received :	Direct from Sam	pling		-	Ambient		Melted Ice	
Were samples within		By Gun #	_5	_	Actual Tem	ip - 3.6		
Temperature? 2-6°C	Т	Bv Blank #		-	Actual Tem			
Was Custody	Seal Intact?	NIH	W	- ere Samole	s Tampered	with?	ALIN	_
Was COC Rel	inquished?	<u> </u>	- Doe	s Chain Ao	ree With Sa	mples?		
Are there broken	/leaking/loose cap	s on any sam	ples?	F			<u> </u>	
Is COC in ink/ Legible	? T '	<b>,</b>	Were sa	mples recei	ved within h	olding time?	T	
Did COC include all	Client	- T	Analysis	T	Sampl	er Name	<u> </u>	****
pertinent Information?	Project	T	ID's	T	Collection	Dates/Times	s T	-
Are Sample labels fille	ed out and legible?	T'			•			<b>_</b>
Are there Lab to Filters	\$?	F	•	Who wa	s notified?			
Are there Rushes?			•	Who wa	s notified?			-
Are there Short Holds?	>	F	•	Who wa	s notified?			
Is there enough Volum	e?	Ť	•				······································	<del></del>
Is there Headspace wh	ere applicable?	NA	•	MS/MSD?	F			
Proper Media/Containe	ers Used?	T		Is splitting	samples rec	uired?	F	
Were trip blanks receiv	ved?	F		On COC?	F		*****	***
Do all samples have th	e proper pH?	NIA	Acid			Base		
Vials #	Containe	# 1			44			-
Unp-	1 Liter Amb.	1	1 Liter	Plastic	<del>IT</del>	16 07	z Amb	<del></del>
HCL-	500 mL Amb.		500 mL	Plastic		807 An	nh/Clear	<u> </u>
Meoh-	250 mL Amb.		250 mL	Plastic	3	4oz An	nb/Clear	
Bisulfate-	Flashpoint	1	Col./Ba	acteria		2oz An	nb/Clear	
DI-	Other Glass		Other	Plastic		En	core	
Thiosulfate-	SOC Kit		Plasti	c Bag		Frozen:		
Sulfuric-	Perchlorate		Zipl	ock		1. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19 1. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 199 1. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 199	1.10	
			Unused	ledia			2000 A	
Vials #	Containers:	- <b>#</b> 1	Canadora		#			4
Unp-	1 Liter Amb.	and the second second	1 Liter	Plastic		16 oz	Amb	
HCL-	500 mL Amb.		500 mL	Plastic		8oz Arr	nb/Clear	
Meoh-	250 mL Amb.		250 mL	Plastic		4oz Am	nb/Clear	
Bisulfate-	Col./Bacteria		Flash	point		2oz Am	nb/Clear	
DI-	Other Plastic		Other	Glass		End	core	
Thiosulfate-	SOC Kit		Plastic	: Bag		Frozen:		
Sulfuric-	Perchlorate		Ziplo	ock				
Comments:								



December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0341

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager
# Table of Contents

Sample Summary	3
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19L0341-01	5
Sample Preparation Information	6
QC Data	7
Semivolatile Organic Compounds by - LC/MS-MS	7
B248078	7
Flag/Qualifier Summary	8
Certifications	9
Chain of Custody/Sample Receipt	10



	39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332									
Tighe & Bond, Inc Worcester 120 Front St. Worcester, MA 01608-2303 ATTN: Michael Scherer			PURCHASE ORDER NUMBER:		REPORT DATE: 12/13/2019					
			PROJECT NUMBER: P-0534	4						
ANALYTICAL SUMMARY										
			WORK OF	RDER NUMBER:	19L0341					
The results of analyses performed on the	he following samp	les submitted to the CON	WORK OF	RDER NUMBER:	19L0341					
The results of analyses performed on the PROJECT LOCATION: Princeto	he following samp n, MA	les submitted to the CON	WORK OF	RDER NUMBER:	19L0341					
The results of analyses performed on the PROJECT LOCATION: Princeto	he following samp n, MA LAB ID:	les submitted to the CON MATRIX	WORK OF I-TEST Analytical Laboratory are found in this rep SAMPLE DESCRIPTION	RDER NUMBER: port. TEST	19L0341 SUB LAB					



CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



## Table of Contents

Work Order: 19L0341

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 7 Hubbardston Rd

Sample ID: 19L0341-01

Sampled: 12/5/2019 09:50

Sample Description:

Sample Matrix: Drinking Water									
		Se	emivolatile Organic Co	npounds by -	LC/MS-MS				
		N	ICL/SMCL				Date	Date/Time	
Analyte	Results	RL I	MA ORSG Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	2.3	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorohexanesulfonic acid (PFHxS)	3.5	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorooctanoic acid (PFOA)	2.9	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorooctanesulfonic acid (PFOS)	3.3	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
N-EtFOSAA	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
N-MeFOSAA	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 1:52	BLM
Surrogates		% Recov	ery Recovery Lim	its	Flag/Qual				
13C-PFHxA		107	70-130					12/12/19 1:52	
M3HFPO-DA		92.6	70-130					12/12/19 1:52	
13C-PFDA		98.6	70-130					12/12/19 1:52	
d5-NEtFOSAA		111	70-130					12/12/19 1:52	



#### Sample Extraction Data

#### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0341-01 [7 Hubbardston Rd]	B248078	250	1.00	12/11/19

#### QUALITY CONTROL

#### Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
remuorotridecanoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PF1A)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CLPE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0		102	70-130			
9Cl-PF3ONS (F53B Minor)	20.5	2.0	ng/L	10.0		112	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



#### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



#### CERTIFICATIONS

#### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9CI-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

All con-test*	19/ 67 4	http://ww	w.contestlabs.com		39 Shriice Street	Doc # 381 F	łev 2_06262019		 F
	Phone: 413-525-2332   100 57		CHAIN OF CUSTOD	Y RECORD	East Longmeadow,	MA 01028			Page / of /
	Fax: 413-525-6405	Requested Tur	naround Time	Dissolve	d Metals Samples		ANALYSIS REC	QUESTED	
Comman National	LINEN: HIJOW CONTESTIADS, COM	7-Day	10-Day	Е 0	eld Filtered				<sup>2</sup> Preservation Code
		PFAS 10-Day (std)	Due Date:	0	ab to Filter				Consistent according
Addi 555.	120 Front Street, Worcester, MA 01608	Rush-Approv	al Required	Orthoph	iosphate Samples				Total Number Of
Prone:	508-754-2201	1-Day D	3-Day	е́ О	eld Filtered				
Project Name:	Princeton Residential Well Sampling	2-Day 🗆	4-Day	п 0	ab to Filter				
Project Location:	Princeton, MA		Data Delive	ery (re					VIALS
Project Number:	P-0534	Format:	PDF	6	EXCE	5			ULASS
Project Manager:	M. Scherer	Other:				]			PLASHIC
Con-Test Quote Name/Number:		CLP Like Data Pkg Require	:pi			ſ			BACTERIA
Invoice Recipient:	Tighe & Bond	Email To:				.752			ENCORE
Sampled By:	M. Scherer	Fax To #;				₩0.			
Con-Test Work Order#	Client Sample ID / Description Beginni Date/T1	16 Ending COMP/GRAT	<sup>1</sup> Matrix Conc Code Code	VIALS GLASS	PLASTIC BACTERIA E	SOS/PF			Glassware in the fridge?
	HURRAN LEWIN 1 10101	20000				14			
	The man war	a / <u>, , , , , , , , , , , , , , , , , , </u>	2.60		2	2			Glassware in freezer? Y / N
									Prepackaged Cooler? Y / N
									*Contest is not responsible for
									missing samples from prepacked
									coolers
									<sup>1</sup> Matrix Codes:
									GW = Ground Water
									WW = Waste Water DW = Drinking Water
				-					A = Air
									5L = 5(1(dae
									SOL = Solid
Y S V		<u>.</u>							0 = Other (please
Relinquisten by (seneture)	Date/Time: Client C	omments:							
Received by: (signature)	Date/Time:								
the I divis	12/4/4, 1700								<sup>4</sup> Preservation Codes: I = Iced
Retinquished by: (signature)	Date/Time: // C 0 000	sction Limit Requirements		Special Req	direments				H = HCL M = Methanol
Received the fitenature)	Date/Times & 14 of		D		W	A MCP Required	Please use the folic	wing codes to indicate	N = Nitric Acid
					MCP Certificati	on Form Required	possible sample conce	entration within the Conc	5 = Sulturic Acid B = Sodium Ricultate
Rethinguished by: (signature)	Date/Jint: / mer				0	T RCP Required	Code col	umn above:	X = Sodium Hydroxide
	12/12/12				RCP Certificati	on Form Required	H - High; M - Medium	; L - Low; C - Clean; U -	T = Sodium
Received by: (signature)	Date/Tiple:				an cre		5	NIRWIS	0 = Other (please
1,0	12/10/102:30 01:30		PWSID #						define)
Relinquished by: (signature)	Date/Time: Project	intity					Other		
		Government	Municipality	× D	WRA 🗆	WRTA			PCB ONLY
veceived by: (signature)	Date/Time:	Federal 🛛	21 J	s,	chool 🛛				20XHiet
l ah Comments		City D	Brownfield	w	BTA D				
				5, 2	Discratmer: Con- Chain of Custody i Inalyses the labor	aest Labs is not r s a legal docume atory will perforr	esponsible for any of that must be co n. Any missing info	omitted information on mplete and accurate an ormation is not the labo	the Chain of Custody. The d is used to determine what ratory's responsibility. Con-
					t son values your p	kartnersnip on ea	ich project and will be held acc	l try to assist with missi ountable.	ng information, but will not

Page 10 of 11

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any Faise Statement will be brought to the attention of the Client - State True or False         Client	l Have Not Cor Numbers With La Over Sam									
Statement will be brought to the attention of the Client - State True or False         ClientT#B         Received By	Login Sample F	Receipt Checklist	- (Rejection	L Criteria Lis	ting - Usir	ng Acceptar	nce Policy) /	Anv False	1-1-1-1-1-1-1-1-	
Client $T + B$ Received By         No cooler       Time 20:7.0         How were the samples       In Cooler       Time 20:7.0         No cooler       On Ice       T       No Ice         Motion Exception         Were samples within       By Blank #       Actual Temp-3, 6         Were samples within       By Blank #       Actual Temp-3, 6         Were Samples Tampered with? $M/A$ Were Samples Tampered with? $M/A$ Were Samples received within holding time?       T         Cleant P       And the samples         Are there broken/leaking/loose caps on any samples?       E       Collection Dates/Times         Did COC include all       One COC?       T         Did COC include all register?       Who was notified?         Are there broken??       F       Who was notified?         Are there broken??       F       Who was notified? <th colspant<="" td=""><td>Stat</td><td>ement will be brou</td><td>ught to the a</td><td>ttention of</td><td>the Client</td><td>t - State Tru</td><td>e or False</td><td></td><td></td></th>	<td>Stat</td> <td>ement will be brou</td> <td>ught to the a</td> <td>ttention of</td> <td>the Client</td> <td>t - State Tru</td> <td>e or False</td> <td></td> <td></td>	Stat	ement will be brou	ught to the a	ttention of	the Client	t - State Tru	e or False		
Received By       Date       12/10/16/	Client $T+B$									
How were the samples received?       In Cooler       T       No Cooler       On Ice       T       No Ice         Were samples within Temperature? 2-6°C       T       By Gun #       5       Actual Temp - 3.6       Melted Ice	Received By	лЮ		Date	12/10/19	1	Time	20:70	······	
One of the second seco	How were the sample	es In Cooler	+	- No Cooler	·····	Onlog	- 7-	No. loo		
Were samples within       By Gun #       5       Actual Temp - 3. 6         Temperature? 2-6°C       T       By Blank #       Actual Temp - 3. 6         Wase Custody Seal Intact? $\mathcal{M}/H$ Were Samples Tampered with? $\mathcal{M}/A$ Wase Cock Relinquished?       T       Does Chain Agree With Samples? $\mathcal{M}/A$ Are there broken/leaking/loose caps on any samples?       F $\mathcal{M}/A$ $\mathcal{M}/A$ Did COC in link/ Legible?       T       Analysis       T       Collection Dates/Times       T         pertinent Information?       Project       T       ID's       Collection Dates/Times       T         Are there Rushes?       F       Who was notified?       T       Collection Dates/Times       T         Are there Short Holds?       F       Who was notified?       T       Somple Name       T       T         Is there enough Volume?       F       MS/MSD?       F       On COC?       F       On COC?       F       On COC?       F       Do COC?       F	received?	Direct from Sam	plina			- Ambient				
Were samples within       D) Out #	tir to be a	Diroct nonit Outin	By Gup #				- 2 /			
Was Custody Seal Intact?       A/L#       Were Samples Tampered with?         Was COC Relinquished ?       ////       Does Chain Agree With Samples?         Are there broken/leaking/loose caps on any samples?       ///         Dis COC in ink/L Legible?       ///         Did COC include all       Client         Are Sample Iabels filled out and legible?       //         Are there Lab to Filters?       ///         Are there Rushes?       ///         Are there Rushes?       ///         Are there Rushes?       ///         Sthere enough Volume?       ///         Is there enough Volume?       ///         Is there enough Volume?       ///         Is there Headspace where applicable?       ////         Meer trip blanks received?       ///         Do all samples have the proper pH?       ////         McLat       100 mL Arnib.         Stort       100 mL Arnib.         Moh-       250 mL Arnb.         101 Liter Amb.       11 Liter Plastic         102 Midfate       16 oz Amb.         Moh-       250 mL Arnb.         102 Midfate       100 mL Plastic         103 Midfate       100 mL Plastic         104 Moh-       250 mL Plastic	Were samples within	ן • <del>יי</del>	Dy Ouri #	<u></u>		Actual Ten	1 <u>p - 7, 6</u>	<u></u>		
Was Costoly seal intact?       X/A       Were samples 1 ampered with?       X/A         Was Costoly seal intact?       T       Does Chain Agree With Samples?       T         Are there broken/leaking/loose caps on any samples?       F       Does Chain Agree With Samples?       T         Is COC in ink/ Legible?       T       Were samples received with holding time?       T       T         Did COC include all       Client       Analysis       T       Collection Dates/Times       T         pertinent Information?       Project       T       ID's       T       Collection Dates/Times       T         Are there Rushes?       F       Who was notified?       F       Who was notified?       F         Are there Rushes?       F       Who was notified?       F       Who was notified?       F         Proper Media/Containers Used?       F       On COC?       F       F       Do all samples have the proper pH?       M/A       Kid       Base       F         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #       F       F         Unp-       1 Liter Amb.       250 mL Plastic       2 doz Amb/Clear       F       F       Cortainers       #       F         Unp-       1 Liter Amb.       <	Mos Custodu	/ <u> </u>	_ By Blank #		<u> </u>	Actual Tem	י <u>p -</u>	······		
Are there broken/leaking/loose caps on any samples?	Was COC Re	Sear mact?	N/H	. We	re Sample	s l'amperec	I with?	N/4		
Is COC in ink/ Legible? T Did COC include all Chent Analysis T pertinent Information? Project Analysis T Are Sample Iabels filled out and legible? T Are there Labs to Filters? Are there Rushes? F Are there Rushes? F Kare there Rushes? F State renough Volume? F Is there enough Volume? F Is there enough Volume? F Is there Headspace where applicable? M/A Were trip blanks received? F Do all samples have the proper pH? M/A HCL- 500 mL Anb. 500 mL Plastic 2 doz Amb/Clear Disulfate- SoC Kit Plastic 4 doz Amb. Suffuric- Perchlorate X Vials # Containers: # 125 Unused Media Vials # Containers X Unused Media Vials # Containe	Are there broker	niquisneu : Neaking/loose can		Does	s Unain Ag	ree with Sa	imples?	<u> </u>		
Did COC include all       Client       Analysis       T       Samples here level within holding time?       I         Are sample labels filled out and legible?       F       Nalysis       T       Collection Dates/Times       T         Are there Lab to Filters?       F       Who was notified?       F       Who was notified?         Are there Rushes?       F       Who was notified?       F       Samples required?         Is there enough Volume?       F       M/A       MS/MSD?       F         Proper Media/Containers Used?       M/A       MS/MSD?       F         Do all samples have the proper pH?       M/A       Acid       Base         Vials       #       Containers       #       16 oz Amb.         HCL-       500 mL Arnb.       500 mL Plastic       8 oz Amb/Clear       #         Bisulfate-       Flashpoint       Col/Bacteria       20 z Amb/Clear       E         DI-       Other Plastic       E       Containers       #       #       #         Unp-       1       Liter Amb.       1       Col/Bacteria       20 z Amb/Clear       E         Bisulfate-       Flashpoint       Col/Bacteria       20 z Amb/Clear       E       #       #         Unp-	Is COC in ink/ Legible	neaking/iouse cap	s on any sam	More con		- ium of weither in the		*		
pertinent Information?     Project     ID's     T     Collection Dates/Times       Are Sample labels filled out and legible?     ID's     T     Collection Dates/Times       Are there Lab to Filters?     Who was notified?       Are there Rushes?     F     Who was notified?       Are there Rushes?     F     Who was notified?       Are there Bort Holds?     F     Who was notified?       Is there enough Volume?     F     MS/MSD?       Is there Headspace where applicable?     M/A     MS/MSD?       Proper Media/Containers     #     MS/MSD?       Do all samples have the proper pH?     M/A     Acid       Mais     #     Containers     #       Unp-     1 Liter Amb.     1 Liter Plastic     16 oz Amb.       Meoh-     250 mL Amb.     250 mL Plastic     2 doz Amb/Clear       Bisulfate-     Flashpoint     Col/Bacteria     202 Amb/Clear       DI-     Other Glass     Other Plastic     Encore       Sulfuric-     -     Plastic Bag     Frozen:       Sulfuric-     -     Plastic     8 doz Amb/Clear       Dipp     1 Liter Amb.     500 mL Plastic     Encore       Thiosulfate-     SOC Kit     Plastic Bag     Frozen:       Sulfuric-     -     Perchlorate	Did COC include all	Client	- 7	Analysis	npies recei	weu wiinin n Somal	loiding time?			
Are Sample labels filled out and legible?       Image: Contention Dates infines	pertinent Information	? Project		ID's		Collection	er Name			
Are there Lab to Filters?       F       Who was notified?         Are there Rushes?       F       Who was notified?         Are there Short Holds?       F       Who was notified?         Is there enough Volume?       F       Who was notified?         Is there Headspace where applicable?       M/A       MS/MSD?         Proper Media/Containers Used?       N/A       Acid          Do all samples have the proper pH?       N/A       Acid          Viais       #       Containers:       #       #       #         Unp-       1       Liter Amb.       1       Liter Plastic       16 oz Amb.       #         HCL-       500 mL Amb.       250 mL Plastic       2       4oz Amb/Clear       #         Bisulfate-       F lashpoint       Col/Bacteria       2oz Amb/Clear       #         Di-       Other Glass       Other Plastic       Encore       #         Sulfuric-       Perchlorate       Ziplock       #       #       #         Viais       #       Containers       #       #       #       #       #         Di-       Other Glass       Other Plastic       Encore       Thiosulfate-       SOC Kit       Plastic<	Are Sample labels fill	ed out and leaible?		103		- Conection	Dates/Times	s		
Are there Rushes?   Sthere enough Volume?   Is there Headspace where applicable?   M/A   MS/MSD?   Froper Media/Containers Used?   Were trip blanks received?   Do all samples have the proper pH?   M/A   Acid   Base     Viais   #   Containers   #   Unp-   1 Liter Amb.   1 Liter Plastic   1 Liter Amb.   HCL-   500 mL Anib.   250 mL Plastic   250 mL Plastic   250 mL Plastic   250 mL Plastic   20 Arb/Clear   Bisulfate-   Flashpoint   Col/Bacteria   200 CKit   Plastic Bag   Suffurics   #   Containers:   #   Containers:      Wine was notified?	Are there I ab to Filter	e?			W/ho wo	o potificat0				
Are there Short Holds?   Is there enough Volume?   Is there enough Volume?   Is there Headspace where applicable?   M/A   MS/MSD?   Proper Media/Containers Used?   Were trip blanks received?   Do all samples have the proper pH?   M/A   Acid   Base     Vials   #   Containers:   #   Unp-   1   Liter Amb.   250 mL Plastic   Di-   Other Glass   Other Plastic   Sulfuric-   Perchlorate   250 mL Amb.   21plock     Vials     #   Containers:     #        #        #   Unp-   1   Liter Plastic   20 mL Amb.            Wials   #   Containers:            Wials   #   Containers:   #    Unp-   1   Liter Plastic   20 mL Amb.   21 plock            Winds #    Containers: <td>Are there Rushes?</td> <td>5.</td> <td><u>_</u></td> <td></td> <td>Who wa</td> <td>s nouned?</td> <td></td> <td></td> <td></td>	Are there Rushes?	5.	<u>_</u>		Who wa	s nouned?				
Action of the description of the descri	Are there Short Holds'	2	E		Who wa	s notified?				
bit bit of one where applicable?       M/A       MS/MSD?         Proper Media/Containers Used?        Is splitting samples required?         Were trip blanks received?        On COC?         Do all samples have the proper pH?       M/A       Acid          Vials       #       Containers;       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         HCL-       500 mL Arnb.       500 mL Plastic       802 Amb/Clear       #         Meoh-       250 mL Amb.       250 mL Plastic       2 doz Amb/Clear       #         DI-       Other Glass       Other Plastic       Encore       Thiosulfate-         Sulfuric-       Perchlorate       Ziplock       #       #         Vials       #       Containers:       #       #       #         Unp-       -1 Liter Amb.       1 Liter Plastic       Encore       #         Di-       Other Glass       Other Plastic       802 Amb/Clear       #         Unp-       -1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         Unp-       -1 Liter Amb.       1 Liter Plastic       802 Amb/Clear       #	Is there enough Volum	1e?	<u> </u>		who was	s notined?		- 76.11		
Proper Media/Containers Used? Were trip blanks received? Do all samples have the proper pH? Vials # Containers. Unp- 1 Liter Amb. HCL- 500 mL Amb. 250 mL Plastic Bisulfate- Di- Other Glass Other Plastic Sulfuric- Perchlorate Vials # Containers: # Acid Medh- Di- Other Glass Other Plastic Sulfuric- Di- Containers: # Containers: # Container	Is there Headspace w	here annlicable?		1		<b>1</b>				
Were trip blanks received?       F       On COC?       F         Do all samples have the proper pH?       M/K       Acid       Base         Unp-       1 Liter Amb.       1 Liter Plastic       80 c Amb/Clear         HCL-       500 mL Anrb.       500 mL Plastic       80 c Amb/Clear         Bisulfate-       Flashpoint       Col/Bacteria       202 Amb/Clear         Di-       Other Glass       Other Plastic       Encore         Sulfuric-       Perchlorate       Ziplock       #         Vials       #       Containers:       #         Meoh-       250 mL Amb.       250 mL Plastic       2 doz Amb/Clear         Bisulfate-       Flashpoint       Col/Bacteria       2 oz Amb/Clear         Di-       Other Glass       Other Plastic       Encore         Sulfuric-       Perchlorate       Ziplock       #         Unp-       1 Liter Plastic       16 oz Amb.       #         Unp-       1 Liter Amb.       1 Liter Plastic       Encore         Vials       #       Containers       #       #         Unp-       1 Liter Plastic       16 oz Amb.       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb. <t< td=""><td>Proper Media/Contain</td><td>ers Lised?</td><td><u></u></td><td>1</td><td>le enlitting</td><td></td><td></td><td><b>~</b></td><td></td></t<>	Proper Media/Contain	ers Lised?	<u></u>	1	le enlitting			<b>~</b>		
Do all samples have the proper pH?       N/K       Acid       Base         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         Unp-       1 Liter Amb.       1 Liter Plastic       8oz Amb/Clear       #         Mech-       250 mL Amb.       250 mL Plastic       8oz Amb/Clear       #         Bisulfate-       Flashpoint       Col./Bacteria       2oz Amb/Clear       Encore         Di-       Other Glass       Other Plastic       Encore       #         Vials       #       Containers:       #       #       #         Mech-       250 mL Amb.       250 mL Plastic       Encore       Encore         Di-       Other Glass       Other Plastic Bag       Frozen:       #         Sulfuric-       -       Perchlorate       Ziplock       #         Vials       #       Containers:       #       #       #         Vials       #       Containers:       #       #       #       #         Unp-       -       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         Unp-       -       1 Liter Amb.       1 Liter Plastic       4oz Amb/Clear       #         Weoh-       250 mL	Were trin blanks receiv	ved?		1	$O_{n} \cap O \cap 2$	samples rec	ureu :			
Viais       #       Containers:       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       H         McL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       2 doz Amb/Clear         Bisulfate-       Flashpoint       Col/Bacteria       2 doz Amb/Clear         DI-       Other Glass       Other Plastic       Encore         Sulfuric-       Perchlorate       Ziplock       Frozen:         Unused Media         Viais       #       Containers:       #         Unp-       1 Liter Plastic       16 oz Amb.       #         Unused Media       Viais       #       #       #         Viais       #       Containers:       #       #       #         Unp-       1-Liter Amb.       1 Liter Plastic       16 oz Amb.       #         Unp-       1-Liter Amb.       500 mL Plastic       8oz Amb/Clear       #         Unp-       1-Liter Amb.       1 Liter Plastic       4oz Amb/Clear       #         Jon-       Other Blastic       Other Plastic       4oz Amb/Clear       Bisulfate-       Col/Bacteria       Flashpo	Do all samples have the	e proper pH?	1/14	Acid			Base			
Viais       #       Containers       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       H         HCL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear       H         Meoh-       250 mL Amb.       260 mL Plastic       2	р	- proper prin	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~				Dase			
Onp-       1 Liter Plastic       16 oz Amb.         HCL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       2 doz Amb/Clear         Bisulfate-       Flashpoint       Col/Bacteria       2 oz Amb/Clear         DI-       Other Glass       Other Plastic       Encore         Sulfuric-       Perchlorate       Ziplock       Frozen:         Vials       #       Containers       #       #         Unp-       1 Liter Plastic       16 oz Amb.       #         Unp-       Perchlorate       Ziplock       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.         Unp-       4 Liter Amb.       1 Liter Plastic       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.         HCL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear         Bisulfate-       Col./Bacteria       Flashpoint       2oz Amb/Clear         Ol-       Other Plastic       Other Glass       Encore         Thiosulfate-       SOC Kit       Plastic Bag       Encore		Containers:	R			#		#		
Note-       300 mL Anb.       300 mL Plastic       802 Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       2       402 Amb/Clear         Bisulfate-       Flashpoint       Col./Bacteria       202 Amb/Clear         DI-       Other Glass       Other Plastic       Encore         Sulfuric-       Perchlorate       Ziplock       Frozen:         Unused Media         #       Unused Media         #       Unused Media         #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.         HCL-       500 mL Amb.       250 mL Plastic       8oz Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear         Meoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear         Di-       Other Plastic       Other Glass       Encore         Disulfate-       Col./Bacteria       Flashpoint       2oz Amb/Clear         Di-       Other Plastic       Other Glass       Encore         Thiosulfate-       SOC Kit       Plastic Bag       Frozen:		I Liter Amb.		1 Liter F	lastic		<u>16 oz</u>	z Amb.		
Moon       250 mL Amb.       250 mL Plastic       2       402 Amb/Clear         Bisulfate-       Flashpoint       Col/Bacteria       202 Amb/Clear         DI-       Other Glass       Other Plastic       Encore         Thiosulfate-       SOC Kit       Plastic Bag       Frozen:         Sulfuric-       Perchlorate       Ziplock       #       #         Unused Media       #       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         HCL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear       #         Meoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear       #         Bisulfate-       Col/Bacteria       Flashpoint       2oz Amb/Clear       Encore         Di-       Other Plastic       Other Glass       Encore       Encore         Di-       Other Plastic       Other Glass       Encore       Encore         Thiosulfate-       SOC Kit       Plastic Bag       Frozen:       Encore         Sulfuric-       Perchlorate       Ziplock       Encore       Encore	Menh-	250 mL Amb.		250 mL	Plastic	-	8oz An	nb/Clear		
Interface       Other Glass       Other Plastic       Encore         Di-       Other Glass       Other Plastic       Encore         Thiosulfate-       SOC Kit       Plastic Bag       Frozen:         Sulfuric-       Perchlorate       Ziplock       Frozen:         Unused Media       #       #       #         Vials       #       Containers:       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         Unp-       11 Liter Amb.       500 mL Plastic       8oz Amb/Clear       #         Weoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear       Bisulfate-         Other Plastic       Other Glass       Encore       Encore       Encore         Di-       Other Plastic       Other Glass       Encore       Encore         Sisulfate-       SOC Kit       Plastic Bag       Frozen:       Encore       Encore         Di-       Other Plastic       Other Glass       Encore       Encore       Encore         Sulfuric-       Perchlorate       Ziplock       Frozen:       Encore       Encore	Bisulfate-	Elashpoint		ZOU ML	Plastic	2	4oz An	nb/Clear		
Iniosulfate-     SOC Kit     Plastic Bag     Frozen:       Sulfuric-     Perchlorate     Ziplock     Frozen:       Vials     #     Containers:     #       Unp-     1 Liter Amb.     1 Liter Plastic     16 oz Amb.       HCL-     500 mL Amb.     500 mL Plastic     8oz Amb/Clear       Meoh-     250 mL Amb.     250 mL Plastic     4oz Amb/Clear       Bisulfate-     Col./Bacteria     Flashpoint     2oz Amb/Clear       Ol-     Other Plastic     Other Glass     Encore       Thiosulfate-     SOC Kit     Plastic Bag     Frozen:	DI-	Other Glass		Other P		÷	202 An	nb/Clear		
Sulfuric-       Perchlorate       Tidstic Dag       Tidstic Dag         Vials       #       Containers:       #       #       #         Vials       #       Containers:       #       #       #       #         Vials       #       Containers:       #       #       #       #         Vials       #       Containers:       #       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #       #         HCL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear       #         Meoh-       250 mL Amb.       250 mL Plastic       4oz Amb/Clear       #         Disulfate-       Col./Bacteria       Flashpoint       2oz Amb/Clear       #         Di-       Other Plastic       Other Glass       Encore       Encore         Sulfuric-       Perchlorate       Ziplock       Frozen:       Encore         Sulfuric-       Perchlorate       Ziplock       Frozen:	Thiosulfate-	SOC Kit		Plastic	Bag		Engrop	core		
Vials     #     Containers:     #     #     #       Unp-     1-Liter Amb.     1 Liter Plastic     16 oz Amb.       HCL-     500 mL Amb.     500 mL Plastic     8oz Amb/Clear       Meoh-     250 mL Amb.     250 mL Plastic     4oz Amb/Clear       Bisulfate-     Col./Bacteria     Flashpoint     2oz Amb/Clear       Ol-     Other Plastic     Other Glass     Encore       Thiosulfate-     SOC Kit     Plastic Bag     Frozen:       Sulfuric-     Perchlorate     Ziplock     Frozen:	Sulfuric-	Perchlorate		Zinlo	ck			an a		
Vials#Containers:###Unp-1 Liter Amb.1 Liter Plastic16 oz Amb.#HCL-500 mL Amb.500 mL Plastic8oz Amb/ClearMeoh-250 mL Amb.250 mL Plastic4oz Amb/ClearBisulfate-Col./BacteriaFlashpoint2oz Amb/ClearOI-Other PlasticOther GlassEncoreIniosulfate-SOC KitPlastic BagFrozen:Sulfuric-PerchlorateZiplockFrozen:	and the second							i sa A		
Unp-1 Liter Plastic16 oz Amb.HCL-500 mL Amb.500 mL Plastic8oz Amb/ClearMeoh-250 mL Amb.250 mL Plastic4oz Amb/ClearBisulfate-Col./BacteriaFlashpoint2oz Amb/ClearDI-Other PlasticOther GlassEncoreThiosulfate-SOC KitPlastic BagFrozen:Sulfuric-PerchlorateZiplockFrozen:	Vials #	Containares	4	Undsean						
HCL-     500 mL Amb.     500 mL Plastic     8oz Amb/Clear       Meoh-     250 mL Amb.     250 mL Plastic     4oz Amb/Clear       Bisulfate-     Col./Bacteria     Flashpoint     2oz Amb/Clear       DI-     Other Plastic     Other Glass     Encore       Sulfuric-     Perchlorate     Ziplock     Frozen:	Unn-	1 diter Amb		1 Litor D	lastia	- #	10.	#		
Meoh-     250 mL Amb.     250 mL Plastic     802 Amb/Clear       Bisulfate-     Col./Bacteria     Flashpoint     2oz Amb/Clear       DI-     Other Plastic     Other Glass     Encore       Thiosulfate-     SOC Kit     Plastic Bag     Frozen:       Sulfuric-     Perchlorate     Ziplock     Frozen:	HCL-	500 ml Amb		500 ml 1	Diastic		16 OZ	Amp.		
Bisulfate-     Col./Bacteria     Flashpoint     2oz Amb/Clear       DI-     Other Plastic     Other Glass     Encore       Thiosulfate-     SOC Kit     Plastic Bag     Frozen:       Sulfuric-     Perchlorate     Ziplock     Frozen:	Meoh-	250 ml Amb		250 mL f	Diastic		00Z AM	b/Clear		
DI-     Other Plastic     Other Glass     Encore       Thiosulfate-     SOC Kit     Plastic Bag     Frozen:       Sulfuric-     Perchlorate     Ziplock	Bisulfate-	Col./Bacteria		Flashn	nint		402 AII 207 Am	b/Clear		
Thiosulfate-         SOC Kit         Plastic Bag         Frozen:           Sulfuric-         Perchlorate         Ziplock         Frozen:	DI-	Other Plastic		Other G	Blass		202 All			
Sulfuric- Perchlorate Ziplock Comments:	Thiosulfate-	SOC Kit		Plastic	Bao		Frozen:			
Comments:	Sulfuric-	Perchlorate		Zipio	ck					
	Comments:									



December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0334

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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Sample Summary	3
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Sample Preparation Information	6
QC Data	7
Semivolatile Organic Compounds by - LC/MS-MS	7
B248078	7
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	39 Spruce	Street * East Longmea	adow, MA 01028 * FAX 413/525-6405 * TI	EL. 413/525-2332			
Tighe & Bond, Inc Worcester	er				DEDODE DUE: 10/10/0010		
120 Front St.					REPORT DATE: 12/13/2019		
Worcester, MA 01608-2303			PURCHASE ORDER NUMBI	ER:			
ATTN: Michael Scherer							
			PROJECT NUMBER: P-0	534			
ANALYTICAL SUMMARY							
			WORK	ORDER NUMBER:	19L0334		
The results of analyses perform	ned on the following samp	les submitted to the CON	WORK	ORDER NUMBER:	19L0334		
The results of analyses perform PROJECT LOCATION: I	ned on the following samp Princeton, MA	les submitted to the CON	WORK	ORDER NUMBER:	19L0334		
The results of analyses perform PROJECT LOCATION: I	ned on the following samp Princeton, MA	les submitted to the CON	WORK	ORDER NUMBER:	19L0334		
The results of analyses perform PROJECT LOCATION: I FIELD SAMPLE #	ned on the following samp Princeton, MA LAB ID:	les submitted to the CON MATRIX	WORK - TEST Analytical Laboratory are found in this SAMPLE DESCRIPTION	ORDER NUMBER: report. TEST	19L0334 SUB LAB		



CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



### Table of Contents

Work Order: 19L0334

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 15 Hubbardston Rd

Sample Description:

Sample ID: 19L0334-01

Sampled: 12/5/2019 16:10

Sample Matrix: Drinking Water										
		Se	emivolatile Organi	ic Compo	ounds by - l	LC/MS-MS				
		M	ICL/SMCL					Date	Date/Time	
Analyte	Results	RL M	MA ORSG Un	its	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	27	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorohexanesulfonic acid (PFHxS)	110	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng.	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorooctanoic acid (PFOA)	4.6	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorooctanesulfonic acid (PFOS)	18	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
N-EtFOSAA	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
N-MeFOSAA	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng.	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng	/L	1		EPA 537.1	12/11/19	12/12/19 0:04	BLM
Surrogates		% Recov	ery Recovery	y Limits		Flag/Qual				
13C-PFHxA		110	70-1	130					12/12/19 0:04	
M3HFPO-DA		96.2	70-1	130					12/12/19 0:04	
13C-PFDA		102	70-1	130					12/12/19 0:04	
d5-NEtFOSAA		115	70-1	130					12/12/19 0:04	



#### Sample Extraction Data

#### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0334-01 [15 Hubbardston Rd]	B248078	250	1.00	12/11/19

#### QUALITY CONTROL

#### Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
remuorotridecanoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PF1A)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CLPE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0		102	70-130			
9Cl-PF3ONS (F53B Minor)	20.5	2.0	ng/L	10.0		112	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



#### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



#### CERTIFICATIONS

#### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9CI-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

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Project Manager:	M. Scherer	Other:			I	2	)				PLASTIC
Con-Test Quote Name/Number:		CLP Like Da	ta Pkg Required:		l			 L'			BACIERIA
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Sampled By:	M. Scherer	Fax To #:						¥04			
Con-Test Work Order#	nt Sample ID / Description	Inning Ending a/Time Date/Time	COMP/GRAB	<sup>1</sup> Matrix Conc Co Code	de VIALS GLAS	S PLASTIC BAC	TERIA ENCORE	4/SO4			Glassware in the fridge? $\gamma/N$
Marcal Street Star	OBAR SEA 20 12	15/17 1610	S	Qu)		N					Glassware in freezer? Y / N
		-									Prenarkared Coolory V.N.
											missing samples from prepacked
		-		-							coolers
											GW = Ground Water
											WW = Waste Water DW = Drinking Water
											A = Air S = Soil
											SL = Sludge
											Solt = Solid 0 = Other (please
Relined to Achiel and											define)
11/40 XX	- 12/5/14 1700	kt Comments:									
Réceived by: Isignature) T2 ( divE	Date/Time: (2/5/19, 1700										<sup>2</sup> Preservation Codes: I = Iced
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CK. Martin	12/11/10			C		WCF (10	ertification Form	Required possib	ole sample con	centration within the Conc	8 = Sodium Bisulfate
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						Test value	s your partner	ship on each pi	roject and w be held ac	ill try to assist with mis countable.	sing information, but will not

## Table of Contents

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Are Sample labels fille	d out and legible?	$\overline{T}$			•		······	
Are there Lab to Filters	?	F		Who wa	s notified?			
Are there Rushes?				Who was	s notified?			
Are there Short Holds?				Who was	s notified?			
Is there enough Volume	e?	<u> </u>			Totalogi			
Is there Headspace wh	ere applicable?	NA		MS/MSD2	IC			
Proper Media/Containe	rs Used?	- <u>T</u>		Is splitting	samples rec	wirod?	F	
Were trip blanks receiv	ed?	F		On COC?	F			
Do all samples have the	e proper pH?	NIH	Acid		1	Base		
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	1 Litor Amb	#	4.1.0		#	1.5		#
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Comments:								

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December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0339

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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Sample Summary	3
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Sample Preparation Information	6
QC Data	7
Semivolatile Organic Compounds by - LC/MS-MS	7
B248078	7
Flag/Qualifier Summary	8
Certifications	9
Chain of Custody/Sample Receipt	10



	39 Spruce	Street * East Longme	adow, MA 01028 * FAX 413/525-6405 * TEL	39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332									
Tighe & Bond, Inc Worcester 120 Front St. Worcester, MA 01608-2303 ATTN: Michael Scherer			PURCHASE ORDER NUMBER	:	REPORT DATE: 12/13/2019								
			PROJECT NUMBER: P-053	4									
	ANALYTICAL SUMMARY												
			WORK O	RDER NUMBER:	19L0339								
The results of analyses performed on t	he following samp	les submitted to the CON	WORK O	RDER NUMBER:	19L0339								
The results of analyses performed on t PROJECT LOCATION: Princeto	he following samp n, MA	les submitted to the CON	WORK O	RDER NUMBER: port.	19L0339								
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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



## Table of Contents

Work Order: 19L0339

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 19 Hubbardston Rd

Sample Description:

Sample ID: 19L0339-01

Sampled:	12/5/2019	08:10
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Sample Matrix: Drinking Water										
		S	Semivolatile Or	ganic Comp	ounds by - l	LC/MS-MS				
			MCL/SMCL					Date	Date/Time	
Analyte	Results	RL	MA ORSG	Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	2.9	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorohexanesulfonic acid (PFHxS)	9.7	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 1:09	BLM
Surrogates		% Reco	overy Reco	very Limits		Flag/Qual				
13C-PFHxA		116		70-130					12/12/19 1:09	
M3HFPO-DA		106		70-130					12/12/19 1:09	
13C-PFDA		108		70-130					12/12/19 1:09	
d5-NEtFOSAA		120		70-130					12/12/19 1:09	



#### Sample Extraction Data

#### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0339-01 [19 Hubbardston Rd]	B248078	250	1.00	12/11/19

#### QUALITY CONTROL

#### Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
remuorotridecanoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PF1A)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CLPE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0		102	70-130			
9Cl-PF3ONS (F53B Minor)	20.5	2.0	ng/L	10.0		112	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



#### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



#### CERTIFICATIONS

#### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9CI-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

		http://www.	contestlabs.com			Doc # 381 Rev 2_06262019		
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Eme	ail: info@contestlabs.com	7-Day J	10-Day 🗆 🤇	D Field	l Filtered			2 Proceruation Fodo
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Address: 120 Fr	ont Street, Worcester, MA 01608	Rush-Approval	Required	Orthophos	phate Samples			Total Number Office
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Project Location:	Princeton, MA		Data Deliver	v				VIALS
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Con-Test Quote Name/Number:		CLP Like Data Pkg Required:				L .		BAC I ERIA
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Con-Test Client 3 Work Order#	ample ID / Description Date/Tim	Ending COMP/GRAB	Matrix Code Conc Code	TALS GLASS PL	NETIC BACTERIA ENCORE	14/SOJ4		Glassware in the fridge? Y / N
10 HO	Baredston Rd 12/5/10	C310 C-	Duo					Glassware in freezer? Y / N
								Dremarkand Coders V.M.
								unitsing samples from prepacked
								coolers
								GW = Ground Water
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Relinquighted by Bightwen	Date/Time: Client Co  2/5/ 19 17:00	nments:				-		
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	12/10/				MCP Certification Forn	Required possible sample	concentration within the Conc	5 = Sulturic Acid B = Sodium Bisulfate
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				י <u>ה פ</u> וי	ain of Custody is a leg	al document that must lo is document that must lo ill perform. Any missin	r any omneted information on be complete and accurate an ig information is not the labo	the Chain of Custody. The d is used to determine what ratory's responsibility. Con-
					sst values your partne	ship on each project an be het	ld will try to assist with missi d accountable.	ng information, but will not

l Have Not Confi Numbers With Lab Over Sample	rmed Sample Conta Staff Before Relinqu es	iner Jishing			CC ANAL			ORY B
Login Sample Re	ceipt Checklist - (Re	ejection	Criteria Lis	ting - Usir	ig Acceptai	nce Policy) A	ny False	
Staten	nent will be brought	to the a	ttention of	the Client	- State Tru	e or False	-	
Client <u><math>T+B</math></u>								
Received By	M		Date	12/10/19		Time	20:30	
How were the samples	In Cooler	+	No Cooler		Onlog		No los	
received?	Direct from Samplin	<u>~ I</u>			. Ambient			
	n cor nom oumping	9	<i></i>		Amplent	~ /	_ Melted Ice	
Were samples within	_ B	y Gun #	_5		Actual Terr	1 <u>p - 3.6</u>		
I emperature? 2-6°C	<u> </u>	/ Blank #			Actual Tem	ір -		
Was Custody Se	eal Intact?	1/4	We	ere Sample	s Tampered	with?	NIL	
Was COC Relin	quished ?	<u> </u>	Doe	s Chain Ag	ree With Sa	mples?	T	
Are there broken/le	eaking/loose caps on	any sam	ples?	<u>P</u>				
Is COC in ink/ Legible?	<u> </u>		Were san	nples recei	ved within h	olding time?	T	
Did COC include all	Client	<u> </u>	Analysis	<u> </u>	Sampl	er Name	Ť	
pertinent information?	Project	_T	ID's	<u> </u>	Collection	Dates/Times	<u></u>	
Are Sample labels filled	out and legible?	<u> </u>						
Are there Lab to Filters?	••••••	<u>r</u>		Who was	notified?			
Are there Rusnes?		<u> -</u>		Who was	notified?			
Are there Short Holds?		F		Who was	notified?			
is there enough Volume's		<u> </u>						
Is there Headspace when	re applicable?	V/A		MS/MSD?				
Proper Media/Containers	Used?	<u> </u>		ls splitting s	samples req	uired?	F	
were trip blanks received	d?	<u> </u>		On COC?	F			
Do all samples have the	proper pH?	NIK	Acid _			Base -		
Viais # (	Sontainers:	#			#			#
	1 Liter Amb.		<u>1 Liter F</u>	Plastic		16 oz .	Amb.	
Meeh	DUU ML AMD.		<u>500 mL</u>	Plastic		8oz Aml	b/Clear	
Risulfate-	250 ML AMD.		250 mL	Plastic	2	4oz Aml	o/Clear	
Disdifate-	Other Glass		Col./Ba	cteria		2oz Amt	o/Clear	
Thiosulfate-	SOC Kit		Uther P	Der	. <u> </u>	Enco	ore	
Sulfuric-	Perchlorate		Plastic	Bag		Frozen:		
	- Continue de la	97 W (1		<u>CK</u>				
Miela I i k			Unusedh	edia				
		<b>H</b>			#			
HCI-	500 ml Amb		1 Liter P	lastic	add the second	16 oz /	Amb.	
Meoh-	250 mL Amb			-lastic		8oz Amb	/Clear	
Bisulfate-	Col /Bacteria		ZOU ML H			4oz Amb	/Clear	
DI-	Other Plastic		Other C			2oz Amb	/Clear	
Thiosulfate-	SOC Kit		Disetio	Rag		Enco	re	
Sulfuric-	Perchlorate		- iasuc Zinlo			-iozen:		
Comments:		(	<u>د</u> اµ١0	un				



December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0338

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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	39 Spruce	Street * East Longme	adow, MA 01028 * FAX 413/525-6405 * TEL.	413/525-2332	
Tighe & Bond, Inc Worcester 120 Front St. Worcester, MA 01608-2303 ATTN: Michael Scherer			PURCHASE ORDER NUMBER:	:	REPORT DATE: 12/13/2019
			PROJECT NUMBER: P-0534	4	
		AN	ALYTICAL SUMMARY		
			WORK O	RDER NUMBER:	19L0338
The results of analyses performed on t	he following samp	les submitted to the CON	WORK OI	RDER NUMBER:	19L0338
The results of analyses performed on t PROJECT LOCATION: Princeto	he following samp n, MA	les submitted to the CON	WORK OI	RDER NUMBER: port.	19L0338
The results of analyses performed on t PROJECT LOCATION: Princeto FIELD SAMPLE #	he following samp n, MA LAB ID:	les submitted to the CON MATRIX	WORK OI N-TEST Analytical Laboratory are found in this rep SAMPLE DESCRIPTION	RDER NUMBER: port. TEST	19L0338 SUB LAB



CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative


# Table of Contents

Work Order: 19L0338

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 19 Mountain Rd

Sample ID: 19L0338-01 Sample Matrix: Drinking Water Sampled: 12/4/2019 15:10

Sample Description:

		S	Semivolatile Or	rganic Comp	oounds by - l	LC/MS-MS				
		1	MCL/SMCL					Date	Date/Time	
Analyte	Results	RL	MA ORSG	Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	32	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorohexanoic acid (PFHxA)	5.1	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorohexanesulfonic acid (PFHxS)	220	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluoroheptanoic acid (PFHpA)	2.5	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorooctanoic acid (PFOA)	11	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorooctanesulfonic acid (PFOS)	190	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/12/19 0:47	BLM
Surrogates		% Reco	very Reco	overy Limits	5	Flag/Qual				
13C-PFHxA		115		70-130					12/12/19 0:47	
M3HFPO-DA		103		70-130					12/12/19 0:47	
13C-PFDA		107		70-130					12/12/19 0:47	
d5-NEtFOSAA		126		70-130					12/12/19 0:47	



# Sample Extraction Data

#### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0338-01 [19 Mountain Rd]	B248078	250	1.00	12/11/19

## QUALITY CONTROL

## Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
remuorotridecanoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PF1A)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CLPE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0		102	70-130			
9Cl-PF3ONS (F53B Minor)	20.5	2.0	ng/L	10.0		112	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



#### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



# CERTIFICATIONS

#### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9CI-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

willin con-test	101 (332		w.contestlabs.com	39 Sonuce Street	Doc # 381 Rev 2_06262019		
AMALETICAL LABORATORY	Phone: 413-525-2332 (9 – V /	0	CHAIN OF CUSTODY REC	ORD East Longmeadow, MA 01	328		Page of
	Fax: 413-525-6405	In paisanbay	naround Time	Dissolved Metals Samples	ANALYSIS	REQUESTED	
Company Name,	синан, инуче сонсезсарь. сон Тівһе Е Bond	/-Day PEAS 10-Dav (std)	10-Day L O	Field Filtered			<sup>2</sup> Preservation Code
Address:	120 Front Street, Worcester, MA 01608	Bush-Approx	al Reduited	Griboohnschate Samilar			Counter Usa Only
Phone:	508-754-2201	1-Day	3-Dav 🗆 🛛	Field Filtered			lotal Number Of:
Project Name:	Princeton Residential Well Sampling	2-Day	4-Day 0	Lab to Filter			
Project Location:	Princeton, MA		Data Delivery				VIALS
Project Number:	P-0534	Format:	PDF G	EXCEL			DLADD
Project Manager:	M. Scherer	Other:					BACTEDIA
Con-Test Quote Name/Number:		CLP Like Data Pkg Require	P:		1.		ENLIERIA
Invoice Recipient:	Tighe & Bond	Email To:			285		ENCORE
Sampled By:	M. Scherer	Fax To#;			₩		
Con-Test Work Order#	Client Sample ID / Description Beginni Date/Th	is Ending COMP/GRAB	· <sup>1</sup> Matrix Conc Code VIALS	GLASS PLASTIC BACTERIA ENCORE	Id/SO3	·····	Glassware in the fridge? Y / N
	19 MOUNTHIN Rd 12/4/	9 1510 G-	P	2			Glassware in freezer? Y / N
							Prenackaned Conter? V / M
							* Toplandou Could : 1 / 1V
							missing samples from prepacked
							coolers
							<sup>1</sup> Matrix Codes:
							GW = Ground Water
							DW = Drinking Water
							A = Air S = Soil
							SL = Sludge SOL = Solid
							0 = Other (please
Relinquistred by: [sighature)	Date/Time: Client C	nments:					
Received by: (signature)	Date (Time:						<sup>2</sup> Preservation Codes:
Retinquished by: (signature)	Date/Time: 1.4.2 Date	action Limit Regultements		asabili Paqini samoni 2			H = HCL
Freeder	12.10.2019 M	70 885		MA MCF	Required blocco un the		M = Methanol N = Nitric Acid
Received by: (signature)	Date/Time://.t+			MCP Certification For	m Required possible sample of	rouowing codes to indicate oncentration within the Conc	S = Sulfuric Acid R = Sodium Birulfoto
	- harden -			CT RCF	Required	: column above:	X = Sodium Hydroxide
	12/2/20			RCP Certification For	m Required H - High; M - Med	ium; L - Low; C - Clean; U - Internet	T = Sodium Thincuifate
Received by: (signature)	Date/Tine:			MA State DW	Benuired		0 = Other (please
912	12/19/19.20230 000		PWSID #				define)
Refinquished by: (signature)	Date/Time: Project	intity			5	her	PCB ONLY
Received by: (signature)	Date/Time:	Federal	Municipatity	MWRA	WRTA 🗆	Chromatogram	D Soxhlet
		Clty Clty	Brownfield	MBTA []		D AIHA-LAP,LLC	Non Soxhlet
Lab Comments:							
				Disclatimer: Con-Test I Chain of Custody is a le analyses the laboratory Test values your partn	abs is not responsible for a gal document that must be will perform. Any missing ership on each project and he held	any omitted information on c complete and accurate an information is not the labor will try to assist with missir accountable	the Chain of Custody. The f is used to determine what atory's responsibility. Con- ig information, but will not
				-			

Page 10 of 11

l Have Not Confirm Numbers With Lab Sta Over Samples	ned Sample Co aff Before Reli	ntainer nquishing			CC ANALY Doc# 27	TICAL L	ABORAT	ORY
Login Sample Rece	ipt Checklist -	(Rejection (	Criteria Lis	tina - Usir	no Acceptar	ice Policy) A	nv False	<u></u>
Stateme	nt will be brou	oht to the a	ttention of	the Client	- State Tru	e or False	i y r aloo	
Client $T + R$		~						
Received By	2		Date	12/10/10	1	Time	20120	
	<u> </u>		Duit	1-7(-7(		- Tane		
How were the samples	In Cooler	<u> </u>	No Cooler		_ On Ice	<u> </u>	No Ice	
D D	irect from Samp	oling		<u>-</u>	Ambient		Melted Ice	
Were samples within		By Gun #	5		Actual Tem	p-3.6		
Temperature? 2-6°C	Τ	By Blank #		-	Actual Tem	n -	<u> </u>	
Was Custody Sea	I Intact?	NIH	We	ere Samole	s Tampered	with?	A///I	
Was COC Relingu	T	Doe	s Chain Ac	ree With Sa	mples?	 T		
Are there broken/lea	king/loose caps	on any sam	ples?	P	,			
Is COC in ink/ Legible?	T	•	Were sa	nples rece	- ived within h	olding time?	T	
Did COC include all	Client	<u> </u>	Analysis	<u> </u>	Sampl	er Name	T	
pertinent Information?	Project		ID's		Collection	Dates/Times	<u></u>	
Are Sample labels filled o	ut and legible?	<u> </u>						
Are there Lab to Filters?		<u> </u>		Who wa	s notified?			
Are there Rushes?	_ <u>_</u> Ę		Who wa	s notified?	<u></u>			
Are there Short Holds?		<u> </u>		Who wa	s notified?			
Is there enough Volume?								
Is there Headspace where	applicable?			MS/MSD?			-	
Proper Media/Containers U	Jsed?			Is splitting	samples req	uired?	<del></del>	
Do all complete hours the pr	anor nH2		Acid	Un COC?		Deer		
Do all samples have the pr	oper pri ?	NIK	Acia		•	Base -		
Viais # Co	ontainers:	#			#			#
Unp-	1 Liter Amb.		1 Liter	Plastic		<u>16 oz</u>	Amb.	
HCL-	500 mL Amb.		500 mL	Plastic		<u> </u>	b/Clear	
Bisulfate	250 ML AMD.		250 mL	Plastic	2	402 Am	b/Clear	
Disultate-	Other Glass		Other	Plastic		ZUZ AIN	D/Clear	
Thiosulfate	SOC Kit		Plasti	c Bag		Frozen:		
Sulfuric-	Perchlorate		Zipl	ock			<del>.</del>	e ago a f
			Januard	India				
Vials E # Cr	wtelgers:	-	Ondsed	neora	4			4 1
Uno-	1 Liter Amb.		1 Liter	Plastic		16.07	Amb	
HCL-	500 mL Amb.	Andrea I	500 mL	Plastic	<u></u>	8oz Am	b/Clear	
Meoh-	250 mL Amb.		250 mL	Plastic		4oz Aml	b/Clear	<u></u>
Bisulfate-	Col./Bacteria		Flash	point		2oz Ami	o/Clear	
DI-	Other Plastic	I	Other	Glass		Enco	ore	
Thiosulfate-	SOC Kit		Plastic	c Bag		Frozen:		
Sulfuric-	Perchlorate		Ziple	ock				
Comments:								



December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0331

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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B248078	7
Flag/Qualifier Summary	8
Certifications	9
Chain of Custody/Sample Receipt	10



st Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332											
REPORT DATE: 12/13/2019 PURCHASE ORDER NUMBER:											
PROJECT NUMBER: P-0534											
ANALYTICAL SUMMARY											
WORK ORDER NUMBER: 19L0331											
to the CON-TEST Analytical Laboratory are found in this report.											
to the CON-TEST Analytical Laboratory are found in this report.											
to the CON-TEST Analytical Laboratory are found in this report.											
	t Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332 REPORT DATE: 12/13/2019 PURCHASE ORDER NUMBER: PROJECT NUMBER: P-0534 ANALYTICAL SUMMARY										



CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



# Table of Contents

Work Order: 19L0331

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: 21 Mountain Rd Sample ID: 19L0331-01

Sample Matrix: Drinking Water

Sampled: 12/5/2019 12:00

Sample Description:

		S	Semivolatile Org	ganic Comp	oounds by - I	LC/MS-MS				
		1	MCL/SMCL					Date	Date/Time	
Analyte	Results	RL	MA ORSG	Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	8.2	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorohexanoic acid (PFHxA)	2.4	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorohexanesulfonic acid (PFHxS)	53	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorooctanoic acid (PFOA)	5.4	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorooctanesulfonic acid (PFOS)	44	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
N-EtFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
N-MeFOSAA	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0		ng/L	1		EPA 537.1	12/11/19	12/11/19 21:55	BLM
Surrogates		% Reco	very Recov	very Limits		Flag/Qual				
13C-PFHxA		110	2	70-130					12/11/19 21:55	
M3HFPO-DA		98.2	7	70-130					12/11/19 21:55	
13C-PFDA		102	7	70-130					12/11/19 21:55	
d5-NEtFOSAA		111	7	70-130					12/11/19 21:55	



# Sample Extraction Data

#### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0331-01 [21 Mountain Rd]	B248078	250	1.00	12/11/19

## QUALITY CONTROL

## Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
IICI-FF50Ud5 (F53B MiajoF)	ND	2.0	ng/L							
4 & diava 3H perfluorononanaia agid	ND	2.0	ng/L							
(ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Pertluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFUSAA	22.9	2.0	ng/L	20.0		114	70-130			
Pertluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
remuorotridecanoic acid (PF IrDA)	22.0	2.0	ng/L	20.0		110	70-130			
remuorotetradecanoic acid (PF1A)	20.9	2.0	ng/L	20.0		105	70-130			
(HFPO-DA) 11CLPE3OLIdS (E53B Major)	20.5	2.0	ng/L	20.0		102	70-130			
9Cl-PF3ONS (F53B Minor)	20.5	2.0	ng/L	10.0		112	70-130			
4 8-diova-3H-perfluoroponanoic acid	20.8	2.0	ng/L	18.0		112	70-130			
(ADONA)	21.8	2.0	ng/L	20.0		109	/0-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



#### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



# CERTIFICATIONS

#### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9CI-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

Page / of /	<sup>2</sup> Preservation Code	Courter Use Only	<u>Total Number Of:</u>				PLASHC	BACIEKIA	ENCORE		Glassware in the fridge? $Y/N$	Glassware in freezer? Y / N	Prenackaned Cooler? V / N	*Contest is not responsible for metmissing samples from prepacked	coolers	GW = Ground Water	WW = Waste Water DW = Drinking Water	A = Air S = Soil	SL = Sludge SOL = Solid	0 = Other (please		<sup>2</sup> Preservation Codes: 1 = Ired	H = HCL	M = Methanot N = Nitric Acid	s = Sulturic Acid Ic B = Sodium Bisulfate	X = Sodium Hydroxide T = Sodium	Thiosulfate 0 = Other (nlease	define)	PCB ONLY	□ Soxhlet	Non Soxhlet	on the Chain of Custody. The and is used to determine what boratory's responsibility. Con- ssing information, but will not
· 2_06262019 ANALYSIS REQUESTED																								Please use the following codes to indicate	ssible sample concentration within the Cor	<ul> <li>Lode column above:</li> <li>High; M - Medium; L - Low; C - Clean; U</li> </ul>	Unknown		Other	Chromatogram	D AIHA-LAP,LLC	ponsible for any omitted information t that must be complete and accurate Any missing information is not the la h project and will try to assist with mi be held accountable.
Doc # 381 Re 39 Spruce Street East Longmeadow, MA 01028 ad Metals Samples	ield Filtered	ab to Filter	ield Filtered	ab to Filter		EXCEL [3]	]	ţ,	.752	FOA	PLASTIC BACTERIA ENCORE	7											luitemants	AA MCP Required	MCP Certification Form Required po	RCP Certification Form Required		MA State DW Required		WWRA 🔲 WRTA 🛛	School  WBTA	Disclaimer: Con-Test Labs is not re Chain of Custody is a legal documen analyses the Laboratory will perform Test values your partnership on eac
CHAIN OF CUSTODY RECORD I Pound Time Dissolve		Due Date: U L	3-Day [] O FI	4-Day 0 1	Data Delivery	PDF (2)					<sup>1</sup> Matrix Cone Code VIALS GLASS	-											Special Rev	0				LWSW1	<b></b>	Municipatity	21 J Brownfield	
033) Requested turns	7-Day 3	508 FTAS 10-049 (5t0) LJ	1-Day	ig 2-Day 🛛		Format:	Other:	CLP Like Data Pkg Required	Email To:	Fax To #:	eginning Ending Cove/GRAB	15/13 1200 C-									ent Comments:		Detection Limit Requirements	MA N		<b>GI</b>		Other	oject Entity	Government	Federal City C	
Phone: 413-525-2332 96405	Email: info@contestlabs.com Ticho 6 Poud	120 Front Street, Worcester, MA 016	508-754-2201	Princeton Residential Well Samplin	Princeton, MA	P-0534	M. Scherer		Tighe & Bond	M. Scherer	Client Sample ID / Description	1) MOUNTHIN Rd 12									- Date/Time: Cli	Date/Time: 12.1614/6-1700	Date/Time: Not	12.10.2.1	2 bate lime: (17.00 -	O Date/Three/	Date/10/17	12/10/101 201-201	Date/Time: Pro	Date/Time:	Dates alline;	
CON-test	Contraction We made	Address:	Phone:	Project Name	Project Location:	Project Number:	Project Manager:	Con-Test Quote Name/Number:	Invoice Recipient:	Sampled By:	Con-Test Work Order#	2								C Mr V	Relinguestica by thenatures	Réceived by: (signature)	Relinquished by: (signature)	F. 266	A suggestion of the second of	Bernauerted by: (signature)	Repeired by: (signature)	12 26	Relinquished by: (signature)	Received bv: {signature}		Lab Comments:

Table of Contents

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False         Client	I Have Not Cont Numbers With Lab Over Samp	firmed Sample Container Staff Before Relinquishir les		Doc# 2	TICAL LABO	ESt <sup>®</sup> RATORY
Statement will be brought to the attention of the Client - State True or False         Client 1/1B         Received By         Mo       Date       12/10/19       Time       Zo:30         How were the samples       In Cooler       T       No Cooler       On Ice       T       No ice         How were the samples       In Cooler       T       No Cooler       On Ice       T       No ice         Ware samples within       By Gun #       5       Actual Temp - 3. 6         Temperature? 2-6°C       T       By Blank #       Actual Temp - 3. 6         Was Custody Seal Intact? $\cancel{M/4}$ Were Samples Tampered with? $\cancel{M/4}$ Was Coc Relinquished ?       T       Does Chain Agree With Samples?       T         Vas Custody Seal Intact? $\cancel{M/4}$ Were samples received with Samples?       T         Did COC include all       Client       P       Analysis       T       Collection Dates/Times       T         Did COC include all       Client       P       Analysis       T       Collection Dates/Times       T         Are there Bushes?       F       Who was notified?       Mo was notified?       T       S/MSD?       F         Are there Rushes? <td>Login Sample R</td> <td>eceipt Checklist - (Rejecti</td> <td>on Criteria Listin</td> <td>q - Using Acceptar</td> <td>nce Policy) Any Fals</td> <td>e de la construction de la constru La construction de la construction d</td>	Login Sample R	eceipt Checklist - (Rejecti	on Criteria Listin	q - Using Acceptar	nce Policy) Any Fals	e de la construction de la constru La construction de la construction d
Client $T + \beta$ Received By       In Cooler       Date $12/10/16$ Time $20.30$ How were the samples received?       In Cooler       T       No Cooler       On Ice       T       No Ice         Were samples within       By Gun #       5       Actual Temp - 3, 6       Melted Ice         Were samples within       By Gun #       5       Actual Temp - 3, 6         Temperature? 2-6°C       T       By Blank #       Actual Temp -         Was Custody Seal Intact? $N/H$ Were Samples Tampered with? $M/H$ Was COC Relinquished ?       T       Does Chain Agree With Samples?       T         Are there broken/leaking/loose caps on any samples?       F       Sampler Name?       T         Did COC include all       Client       Malaysis       T       Sampler Name?       T         Did COC include all       Client       Malaysis       T       Collection Dates/Times       T         Are there Rushes?       F       Who was notified?       F       No was notified?       F         Is there Headspace where applicable?       N/A       Ms/MSD?       F       Sample required?       F         Is there Headspace where applicable?       N/A       Ms/MS	State	ment will be brought to th	e attention of the	e Client - State Tru	e or False	-
Received By       Date       12/10/19       Time       20.30         How were the samples       In Cooler       T       No Cooler       On Ice       T       No Ice         Were samples within       By Gun #       5       Actual Temp - 3.6       Melted Ice         Were samples within       By Gun #       5       Actual Temp - 3.6       Melted Ice         Was Custody Seal Intact?       M/H       Were Samples Tampered with?       M/H         Was Custody Seal Intact?       M/H       Were Samples Tampered with?       M/H         Was Custody Seal Intact?       M/H       Were Samples Tampered with?       M/H         Was Coc Relinquished ?       M       Does Chain Agree With Samples?       M         Are there broken/leaking/loose caps on any samples?       Image: Colored within holding time?       T         Did COC include all       Client       Panalysis       Sampler Name       T         Did COC include all       Client       Project       Malysis       Sampler Name       T         Are there Rushes?       F       Who was notified?       M       M       Sampler Name       T         Is there enough Volume?       F       Who was notified?       M       M       Sampl	Client $T + R$	_				
How were the samples received?       In Cooler       T       No Cooler       On Ice       T       No Ice         Were samples within       By Gun #       5       Actual Temp - 3, 6       Melted Ice       Melted Ice         Were samples within       By Gun #       5       Actual Temp - 3, 6       Melted Ice       Melted Ice         Was Custody Seal Intact?       M/H       Were Samples Tampered with?       M/H       Metry <t< td=""><td>Received By</td><td>1 D</td><td>Date 2</td><td>/10/19</td><td>Time 2013</td><td>Ø</td></t<>	Received By	1 D	Date 2	/10/19	Time 2013	Ø
received?       Direct from Sampling       Ambient       Mented         Were samples within       By Gun #       5       Actual Temp - 3, 6         Temperature? 2-6° C       T       By Blank #       Actual Temp -         Was Custody Seal Intact?       N/A       Were Samples Tampered with?       N/A         Was COC Relinquished ?       T       Does Chain Agree With Samples?       1         Are there broken/leaking/loose caps on any samples?       F       Sampler Name       T         Did COC include all       Client       Analysis       T       Sampler Name       T         pertinent Information?       Project       T       ID's       Collection Dates/Times       T         Are there Rushes?       F       Who was notified?       T       Sampler Name       T         Are there Rushes?       F       Who was notified?       T       Sampler Name       T         Is there enough Volume?       F       Who was notified?       T       Sampler Name       T         Is there Headspace where applicable?       M/A       MS/MSD?       F       Mo was notified?         Is there Headspace where applicable?       M/A       MS/MSD?       F       Do on COC?       F         Do all samples have the proper pH?	How were the sample:	In Cooler T	No Cooler	On Ice	- <u> </u>	
Were samples within       By Gun #       5       Actual Temp - 3. 6         Temperature? 2-6°C       T       By Blank #       Actual Temp -         Was Custody Seal Intact?       N/A       Were Samples Tampered with?       N/A         Was COC Relinquished ?	received?	Direct from Sampling		Ambient	Nelte	d Ice
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Was Custody Seal Intact?       N/A       Were Samples Tampered with?       N/A         Was COC Relinquished ?       T       Does Chain Agree With Samples?       T         Are there broken/leaking/loose caps on any samples?       F       Were samples received within holding time?       T         Is COC in ink/ Legible?       T       Were samples received within holding time?       T         Did COC include all       Client       Analysis       T       Collection Dates/Times       T         Pertinent Information?       Project       T       ID's       T       Collection Dates/Times       T         Are sample labels filled out and legible?       T       Who was notified?       T       Are there Rushes?       Who was notified?         Are there Rushes?       F       Who was notified?       T       T         Is there enough Volume?       T       MS/MSD?       F       T         Is there Headspace where applicable?       N/A       MS/MSD?       F       T         Vere trip blanks received?       F       N/A       Base       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         Unp-       1 Liter Amb.       500 mL Plastic       8oz Amb/Clear       #	Temperature? 2-6°C	T By Blan	k #	Actual Ten	<u>, p</u> , <u>p</u>	
Was COC Relinquished?       T       Does Chain Agree With Samples?       T         Are there broken/leaking/loose caps on any samples?       F       F         Is COC in ink/ Legible?       T       Were samples received within holding time?       T         Did COC include all       Client       Nalysis       Sampler Name       T         pertinent Information?       Project       T       Collection Dates/Times       T         Are sample labels filled out and legible?       T       Collection Dates/Times       T         Are there Lab to Filters?       F       Who was notified?       T         Are there Rushes?       F       Who was notified?       T         Is there enough Volume?       F       Who was notified?       T         Is there Headspace where applicable?       N/A       MS/MSD?       F         Proper Media/Containers Used?       F       On COC?       F         Do all samples have the proper pH?       N/A       Acid       Base       T         Vials       #       Containers:       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       HCL-	Was Custody S	Seal Intact?	Were	Samples Tamperer	with?	
Are there broken/leaking/loose caps on any samples?	Was COC Reli	nguished?	Does C	hain Agree With Sa	$\frac{\sqrt{4}}{1}$	
Is COC in ink/ Legible?       T       Were samples received within holding time?       T         Did COC include all       Client       Analysis       T       Sampler Name       T         pertinent Information?       Project       T       Collection Dates/Times       T         Are Sample labels filled out and legible?       T       Collection Dates/Times       T         Are there Lab to Filters?       Who was notified?       T       T         Are there Rushes?       F       Who was notified?       T         Are there Short Holds?       F       Who was notified?       T         Is there enough Volume?       F       MS/MSD?       F       F         Is there Headspace where applicable?       N/A       MS/MSD?       F       F         Vere trip blanks received?       F       On COC?       F       F       F         Do all samples have the proper pH?       N/K       Acid       Base       #       #         Vials       #       Containers       #       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       H       #	Are there broken/	leaking/loose caps on any s	amples?	P		
Did COC include all       Client       Analysis       T       Sampler Name       T         pertinent Information?       Project       T       ID's       Collection Dates/Times       T         Are Sample labels filled out and legible?       T       Vho was notified?       T       Collection Dates/Times       T         Are there Lab to Filters?       F       Who was notified?       Who was notified?       T       T         Are there Rushes?       F       Who was notified?       Who was notified?       T       T         Are there Short Holds?       F       Who was notified?       T       T       T         Is there enough Volume?       F       MS/MSD?       F       T       T       T         Is there Headspace where applicable?       N/A       MS/MSD?       F       On COC?       F       T       T         Proper Media/Containers Used?       F       On COC?       F       On COC?       F       T       T       T       T       T         Vials       #       Containers:       #       #       #       #       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       500 mL Am/b.       500 mL Plastic       8oz Amb/Clear<	Is COC in ink/ Legible?	r	Were sample	es received within h	nolding time?	
pertinent Information?       Project       T       Collection Dates/Times       T         Are Sample labels filled out and legible?       T       Collection Dates/Times       T         Are there Lab to Filters?       F       Who was notified?       F         Are there Rushes?       F       Who was notified?       F         Are there Short Holds?       F       Who was notified?       F         Is there enough Volume?       F       MS/MSD?       F         Is there Headspace where applicable?       N/A       MS/MSD?       F         Proper Media/Containers Used?       Is splitting samples required?       F         Were trip blanks received?       F       On COC?       F         Do all samples have the proper pH?       N/A       Acid       Base         Viais       #       Containers:       #       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.       #         HCL-       500 mL Amb.       500 mL Plastic       8oz Amb/Clear       8oz Amb/Clear	Did COC include all	Client T	Analysis 7	Samn	er Name T	
Are Sample labels filled out and legible?	pertinent Information?	Project T	ID's	T Collection	Dates/Times	
Are there Lab to Filters?       F       Who was notified?         Are there Rushes?       F       Who was notified?         Are there Short Holds?       F       Who was notified?         Is there enough Volume?       F       Who was notified?         Is there Headspace where applicable?       N/A       MS/MSD?         Proper Media/Containers Used?       F       On COC?         Were trip blanks received?       F       On COC?         Do all samples have the proper pH?       N/A       Acid         Viais       #       Containers:       #         Viais       #       Containers:       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.         HCL-       500 mL Anrib.       500 mL Plastic       8oz Amb/Clear	Are Sample labels fille	d out and legible? $T$		<u></u>		
Are there Rushes?       F       Who was notified?         Are there Short Holds?       F       Who was notified?         Is there enough Volume?       F       Who was notified?         Is there Headspace where applicable?       N/A       MS/MSD?         Proper Media/Containers Used?       F       On COC?         Were trip blanks received?       F       On COC?         Do all samples have the proper pH?       N/A       Acid         Viais       #       Containers:       #         Viais       #       Containers:       #         Unp-       1 Liter Amb.       1 Liter Plastic       16 oz Amb.         HCL-       500 mL Arrib.       500 mL Plastic       8oz Amb/Clear	Are there Lab to Filters	?		Who was notified?		
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Is there Headspace where applicable? Proper Media/Containers Used? Were trip blanks received? Do all samples have the proper pH? Viais # Containers: # MS/MSD? Do all samples have the proper pH? Viais # Containers: # # # # Unp- 1 Liter Amb. 1 Liter Plastic 16 oz Amb. HCL- 500 mL Amíb. 500 mL Plastic 8oz Amb/Clear	Is there enough Volum		V	vito was nouneu !		
Proper Media/Containers Used?	Is there Headspace wh	ere applicable?				
Viais     #     #     #       Unp-     1 Liter Amb.     1 Liter Plastic     16 oz Amb.       HCL-     500 mL Amb.     500 mL Plastic     8 oz Amb/Clear	Proner Media/Containe	re lie d? $\overline{\mathcal{N}}$	INO			
Viais     #     Containers:     #     #     #       Unp-     1 Liter Amb.     1 Liter Plastic     16 oz Amb.     #       HCL-     500 mL Amb.     500 mL Plastic     8oz Amb/Clear	Were trin blanks receiv	ed?	IS S			
Viais     #     Containers:     #     #     #       Unp-     1 Liter Amb.     1 Liter Plastic     16 oz Amb.       HCL-     500 mL Amb.     500 mL Plastic     8oz Amb/Clear	Do all samples have the	$\sim 1$	Acid	COC!	- Pess	
Viais         #         #         #         #         #           Unp-         1 Liter Amb.         1 Liter Plastic         16 oz Amb.         #           HCL-         500 mL Amb.         500 mL Plastic         8oz Amb/Clear         #			<u>(</u>		Dase	
Unp-     1 Liter Amb.     1 Liter Plastic     16 oz Amb.       HCL-     500 mL Amb.     500 mL Plastic     8oz Amb/Clear	Viais #	Containers: #		#		#
HCL- 500 mL Amb. 500 mL Plastic 8oz Amb/Clear	Unp-	1 Liter Amb.	1 Liter Plas	stic	16 oz Amb.	
	HUL-	500 mL Amb.	500 mL Pla	Istic	8oz Amb/Clear	
Disulfata 250 mL Amb. 250 mL Plastic 2 4oz Amb/Clear	Nieon-	250 mL Amb.	250 mL Pla	istic 2	4oz Amb/Clear	
Disultate- Flashpoint Col./Bacteria 2oz Amb/Clear			Col./Bacte	ria	2oz Amb/Clear	
Thissulfate COC Kit Encore			Other Plas		Encore	
Sulfuric- SOC Kit Plastic Bag Frozen:	Sulfuric-	Perchlorate	Plastic Ba	ig	Frozen:	
Vials # Containers: # # 1 # 1 #	Vials #	Containers: #	Unused Med			<u> </u>
Unp-	Unp-	1-Liter Amb.	1 Liter Plas	stic	16 oz Amb	#
HCL- 500 mL Amb. 500 ml Plastic 8oz Amb/Clear	-ICL-	500 mL Amb.	500 ml Pla	stic	807 Amb/Clear	
Meoh- 250 mL Amb. 250 mL Plastic 4oz Amb/Clear	Meoh-	250 mL Amb.	250 mL Pla	stic	407 Amb/Clear	<u> </u>
Bisulfate- Col./Bacteria Flashpoint 202 Amb/Clear	Bisulfate-	Col./Bacteria	Flashpoir	nt	207 Amh/Clear	
DI- Other Plastic Other Glass Encore	<u>)-</u>	Other Plastic	Other Glas	ss	Fncore	
Thiosulfate- SOC Kit Plastic Bag Frozen	Thiosulfate-	SOC Kit	Plastic Ba	a	Frozen:	l
Sulfuric- Perchlorate Ziplock	Sulfuric-	Perchlorate	Ziplock	×		
Comments:	Comments:					



December 13, 2019

Michael Scherer Tighe & Bond, Inc. - Worcester 120 Front St. Worcester, MA 01608-2303

Project Location: Princeton, MA Client Job Number: Project Number: P-0534 Laboratory Work Order Number: 19L0335

Enclosed are results of analyses for samples received by the laboratory on December 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeopica Hoffman

Jessica L. Hoffman Project Manager

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	39 Spruce	Street * East Longme	adow, MA 01028 * FAX 413/525-6405 * TEL	. 413/525-2332	
Tighe & Bond, Inc Worcester 120 Front St. Worcester, MA 01608-2303 ATTN: Michael Scherer			PURCHASE ORDER NUMBER:	:	REPORT DATE: 12/13/2019
			PROJECT NUMBER: P-053	4	
		AN	ALYTICAL SUMMARY		
			WORK O	RDER NUMBER:	19L0335
The results of analyses performed on t	he following samp	les submitted to the COI	WORK O	RDER NUMBER: port.	19L0335
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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537.1

**Qualifications:** 

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. Analyte & Samples(s) Qualified:

N-EtFOSAA S043701-CCV1, S043701-CCV2

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Ana Watthington

Lisa A. Worthington Technical Representative



# Table of Contents

Work Order: 19L0335

Project Location: Princeton, MA Date Received: 12/10/2019 Field Sample #: Trip Blank 12/5/19 Sample ID: 19L0335-01

Sample Matrix: Drinking Water

Sampled: 12/5/2019 00:00

Sample Description:

		Se	mivolatile Organic Com	pounds by - I	LC/MS-MS				
		м	ICL/SMCL				Date	Date/Time	
Analyte	Results	RL M	MA ORSG Units	Dilution	Flag/Qual	Method	Prepared	Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
N-EtFOSAA	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
N-MeFOSAA	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L	1		EPA 537.1	12/11/19	12/12/19 0:26	BLM
Surrogates		% Recov	ery Recovery Limit	s	Flag/Qual				
13C-PFHxA		100	70-130					12/12/19 0:26	
M3HFPO-DA		89.3	70-130					12/12/19 0:26	
13C-PFDA		93.0	70-130					12/12/19 0:26	
d5-NEtFOSAA		110	70-130					12/12/19 0:26	



# Sample Extraction Data

#### Prep Method: EPA 537-EPA 537.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19L0335-01 [Trip Blank 12/5/19]	B248078	250	1.00	12/11/19

## QUALITY CONTROL

## Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B248078 - EPA 537										
Blank (B248078-BLK1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
N-EtFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
N-MeFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	45.5		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.4		ng/L	40.0		106	70-130			
Surrogate: 13C-PFDA	40.6		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	185		ng/L	160		116	70-130			
LCS (B248078-BS1)				Prepared & A	Analyzed: 12/	11/19				
Perfluorobutanesulfonic acid (PFBS)	21.0	2.0	ng/L	20.0		105	70-130			
Perfluorohexanoic acid (PFHxA)	23.7	2.0	ng/L	20.0		119	70-130			
Perfluorohexanesulfonic acid (PFHxS)	20.7	2.0	ng/L	18.2		114	70-130			
Perfluoroheptanoic acid (PFHpA)	22.1	2.0	ng/L	20.0		111	70-130			
Perfluorooctanoic acid (PFOA)	23.1	2.0	ng/L	20.0		115	70-130			
Perfluorooctanesulfonic acid (PFOS)	22.0	2.0	ng/L	18.5		119	70-130			
Perfluorononanoic acid (PFNA)	22.6	2.0	ng/L	20.0		113	70-130			
Perfluorodecanoic acid (PFDA)	23.2	2.0	ng/L	20.0		116	70-130			
N-EtFOSAA	25.2	2.0	ng/L	20.0		126	70-130			
Perfluoroundecanoic acid (PFUnA)	24.4	2.0	ng/L	20.0		122	70-130			
N-MeFOSAA	22.9	2.0	ng/L	20.0		114	70-130			
Perfluorododecanoic acid (PFDoA)	22.1	2.0	ng/L	20.0		110	70-130			
Perfluorotridecanoic acid (PFTrDA)	22.0	2.0	ng/L	20.0		110	70-130			
Perfluorotetradecanoic acid (PFTA)	20.9	2.0	ng/L	20.0		105	70-130			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	20.5	2.0	ng/L	20.0		102	70-130			
IIUI-PF5UUdS (F53B Miajor)	20.5	2.0	ng/L	18.8		109	70-130			
9CI-PESONS (ESSB MINOP)	20.8	2.0	ng/L	18.6		112	70-130			
4,8-dioxa-5H-perfluorononanoic acid (ADONA)	21.8	2.0	ng/L	20.0		109	70-130			
Surrogate: 13C-PFHxA	45.7		ng/L	40.0		114	70-130			
Surrogate: M3HFPO-DA	42.0		ng/L	40.0		105	70-130			
Surrogate: 13C-PFDA	45.4		ng/L	40.0		114	70-130			
Surrogate: d5-NEtFOSAA	193		ng/L	160		120	70-130			



#### FLAG/QUALIFIER SUMMARY

- \* QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- # Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level
- ND Not Detected
- RL Reporting Limit is at the level of quantitation (LOQ)
- DL Detection Limit is the lower limit of detection determined by the MDL study
- MCL Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.



# CERTIFICATIONS

#### Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanoic acid (PFHxA)	NH-P,VT-DW,NJ,CT,ME
Perfluorohexanesulfonic acid (PFHxS)	NH-P,VT-DW,NJ,CT,ME
Perfluoroheptanoic acid (PFHpA)	NH-P,VT-DW,NJ,CT,ME
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,NY,NH,ME
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,NY,NH,ME
Perfluorononanoic acid (PFNA)	NH-P,VT-DW,NJ,CT,ME
Perfluorodecanoic acid (PFDA)	NH-P,VT-DW,NJ,CT,ME
N-EtFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluoroundecanoic acid (PFUnA)	NH-P,VT-DW,NJ,CT,ME
N-MeFOSAA	NH-P,VT-DW,NJ,CT,ME
Perfluorododecanoic acid (PFDoA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotridecanoic acid (PFTrDA)	NH-P,VT-DW,NJ,CT,ME
Perfluorotetradecanoic acid (PFTA)	NH-P,VT-DW,NJ,CT,ME
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,VT-DW,NJ,CT,ME
11Cl-PF3OUdS (F53B Major)	NH-P,VT-DW,NJ,CT,ME
9Cl-PF3ONS (F53B Minor)	NH-P,VT-DW,NJ,CT,ME
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,VT-DW,NJ,CT,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

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	Finail' înfnê rontertlahe com	L paisanbay	urnaround Time	Dissia	ved Metals Samples	AN	ALYSIS REQUESTED	
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Phone:	508-754-2201	1-Day T	T Ventra	olitica C	griosprate samples Field Eltrored			Total Number Of
Project Name:	Princeton Residential Well Sampling	2-Day	4-Dav	0	Lab to Filter			
Project Location:	Princeton, MA		Data	leliveriti				VIALS
Project Number:	P-0534	Format:	PDF	5	evrei D			GLASS
Project Manager:	M. Scherer	Other:	5	)	EAGEL			PLASTIC
Con-Test Quote Name/Number:		CLP Like Data Pkg Requ	ired:					BACTERIA
Invoice Recipient:	Tighe & Bond	Email To:		l		.7£8		ENCORE
Sampled By:	M. Scherer	Fax To #:				i ∀0.		
Con-Test Work Order#	Client Sample ID / Description Deg	Inning Ending COMP/GI	AB <sup>1</sup> Matrix Conc Co Code	de VIALS GLASS	PLASTIC BACTERIA ENCORE	44/50=		Glassware in the fridg
TEL	· B/ANK 12/5/19		1		-~	id -		
						, ,		Ulassware in freezer? Y
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								coolers
								<sup>1</sup> Matrix Codoc.
								GW = Ground Water
								DW = Drinking Water
								A = Air
								SL = Sludge
								0 = Other (please
Retinguished by: (stenature) / /	[Date/Time: Clien	t Comments:						define)
11111 SKr	12/5/19 has							
Received by: (signature)	Date/Time: 1245/1/6 / 7000							<sup>2</sup> Preservation Codes:
Relinquished by: (signature)	Date/Time: //#.	betection Limit Requirements		Special Re	quirements			H HCL
The Contract	12 12 2019	A	0		MA MCP	Required n		M = Methanol N = Nitric Acid
The Manual	Date/June: 1/24				MCP Certification For	Required possible	use une rottowing codes to and sample concentration within t	cate S = Sulfuric Acid e Conc B = Codium Bioul6-45
Retifiquished by (Houghure)	Date/ Time: D. 12				CT RCP	Required	Code column above:	X = Sodium Hydroxide
	12/10/19					n Kequired n mign,	. m meatum; L Low; C Clei Unknown	n; U -   T = Sodium Thiosulfate
Received by: (signature)	Date/Tinfe:		0		MA State DW	Required		0 = Other (please
Relinquished by: (signature)	Date/Time:		PWSID #				Contailed and the second	define)
	B011	ct critity Government	Municipatitu	C		[	Other	PCB ONLY
Received by: (signature)	Date/Time:	Federal	21 J	ם נ	School		Chromatogra	Soxhlet
Lab Comments:		City	Brownfield		MBTA 🛛		שווא-דאויגנו	C Non Soxhiet
-					Disclaimer; Con-Test L	abs is not responsi	hle for any omitted informa-	
					Chain of Custody is a legandrow is a set of a se	al document that	must be complete and accu	uon on the chain of custody. The rate and is used to determine when the second is used to determine when the second s
					Test values your partne	rship on each proj	ect and will try to assist wil be held accountable	ne taboratory's responsibility. C h missing information, but wilt n

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l Have Not Co Numbers With L Over Sar	onfirmed Sample Co ab Staff Before Reli nples	ntainer nquishing 			CO ANALY		ABORAT	ORY CORY
Login Sample	Receipt Checklist -	(Rejection (	J Criteria List	ting - Usin	g Acceptan	ce Policy) A	ny False	
Sta	atement will be brou	ght to the a	ttention of	the Client	- State True	or False	2	
Client T+	R	0						
Received By	<u>,                                    </u>		Date	12/10/19		Time	20:30	
It was the entropy	44				<u></u>	-	NJ- Loo	
How were the same	hes In Cooler	T	No Cooler		. On Ice		No ice	
received?	Direct from Sam	pling			Ambient		Melted Ice	
Wore complex with	hin	By Gun #	5		Actual Tem	<u>p-3.6</u>		_
Temperature? 2-6	°C T	By Blank #			Actual Tem	D -		
Was Custor	v Seal Intact?	NH	We	ere Sample	s Tampered	with?	NIL	~
Was COC F	Relinguished ?		- Doe	s Chain Ag	ree With Sa	mples?	Ť	-
Are there brok	en/leaking/loose cap	s on any sam	- ples?	P		•	<u>E</u>	-
Is COC in ink/ Legit	ole? T	,	Were sar	nples recei	ved within h	olding time?	T	_
Did COC include	all Client	- T	Analysis	T	Sampl	er Name	Ť	-
pertinent Information	on? Project	T	ID's		Collection	Dates/Time	s <u> </u>	-
Are Sample labels	filled out and legible?	T						
Are there Lab to Filt	ers?	F	_	Who wa	s notified?			-
Are there Rushes?		[=	_	Who wa	s notified?			-
Are there Short Hold	ds?	<u> </u>	_	Who wa	s notified?			-
Is there enough Vol	ume?	<u> </u>	-					
Is there Headspace	where applicable?	NA	÷	MS/MSD?			-	
Proper Media/Conta	ainers Used?	<u> </u>	-	Is splitting	samples rec	juired?	<u> </u>	-
Were trip blanks red	ceived?		-	On COC?	<u> </u>	<b>.</b>		
Do all samples have	e the proper pH?	NIH	Acid		-	Base	·····	•
Vials #	Containers:	#			#			#
Unp-	1 Liter Amb.		1 Liter	Plastic		16 c	z Amb.	
HCL-	500 mL Aníb.		500 mL	Plastic		8oz A	mb/Clear	
Meoh-	250 mL Amb.		250 mL	. Plastic	ļ[	4oz A	mb/Clear	
Bisulfate-	Flashpoint		Col./B	acteria		2oz A	mb/Clear	
DI-	Other Glass		Other	Plastic		E	ncore	I
Thiosulfate-	SOC Kit		Plasti	свад		i rozen:		
Sulturic-	Perchiorate			IOCK	1	1		
			Unused	Media				
Vials #	Containers:	#			#			#
Unp-	1 Liter Amb.		1 Liter	Plastic	<u> </u>	160	z Amb.	
HCL-	500 mL Amb.		1 500 mL	Plastic Diastic		80Z A	mb/Clear	
Neon-	250 mL Amb.			- mastic		402 A	mb/Clear	
	Other Plantia		Other	Glass				
Di-			Placti	Class ic Reg		Frozen <sup>.</sup>		L
Sulfuric-	Perchlorate		7in	lock		1		
Comments:		1	<u>641197</u>	. <del></del>	<u></u>	;		

# **Tighe&Bond**

**APPENDIX D** 

#### TABLE D-1

Public Notification Schedule

# Princeton, Massachusetts

RTN 2-21072

Sample Location	Date Sampled	Date Data Received	Final Letter Due Date
5 Hubbardston	12/5/2019	12/13/2019	1/12/2020
7 Hubbardston	12/5/2019	12/13/2019	1/12/2020
15 Hubbardston	12/5/2019	12/13/2019	1/12/2020
19 Hubbardston	12/5/2019	12/13/2019	1/12/2020
10 Mountain Rd	12/9/2019		
19 Mountain	12/4/2019	12/13/2019	1/12/2020
21 Mountan	12/5/2019	12/13/2019	1/12/2020
6 Mountain	12/5/2019	12/13/2019	1/12/2020
14 Mountain	12/16/2019		
18 Mountan	12/16/2019		
7 Prospect St	12/9/2019		

TABLE D-2 Current Sampling Addresses Princeton, Massachusetts RTN 2-21072

Round 1 Homes	Round 2 Homes	
5 Hubbardston Road	7 Boylston Ave	
7 Hubbardston Road	12 Boylston Ave	
15 Hubbardston Road	13 Boylston Ave	
19 Hubbardston Road	16 Boylston Ave	
23 Hubbardston Road	17 Boylston Ave	
6 Mountain Road	18 Boylston Ave	
10 Mountain Road	24 Boylston Ave	
14 Mountain Road	11 Gregory Hill Road	
18 Mountain Road	13 Gregory Hill Road	
19 Mountain Road	14 Gregory Hill Road	
20 Mountain Road	15 Gregory Hill Road	
21 Mountain Road	2 Mountain Road	
22 Mountain Road	29 Mountain Road	
5 Prospect Street	30 Mountain Road	
7 Prospect Street	33 Mountain Road	
	1 Hubbardston Road	
	11 Prospect Street	
	1 Worcester Road	
	10 Worcester Road	
15	19	Tot