



Laboratory Testing Guidelines for Per- and Polyfluoroalkyl Substances (PFAS) for Public Drinking Water Supplies

Requirements and guidelines for testing for Per- and Polyfluoroalkyl Substances (PFAS) in drinking water are provided in this document.

A list of laboratories that provide PFAS testing services is included at the end of this document. Please ensure the laboratory you use can meet the requirements provided below prior to contracting with it.

- 1) **Laboratories and Analytical Methods:** Analytical methods that use EPA Method 537 Rev 1.1, EPA Method 537.1 or EPA Method 533 must be used. More information about the differences in the list of analytes included in each method is included at the end of this document. NHDES only accepts laboratory data associated with compliance monitoring requirements for public water systems from laboratories that meet the following criteria: 1) The laboratory has obtained accreditation for the applicable PFAS analytical methods from the New Hampshire Environmental Laboratory Accreditation Program; and 2) The laboratory is a NHDES data provider and reports the data electronically to the Drinking Water and Groundwater Bureau. The data provider contact is Mitchell Dezak (Mitchell.Dezak@des.nh.gov or [\(603\) 271-3139](tel:6032713139)).
- 2) **Analytes:** New Hampshire has enacted a law and regulations that establish Maximum Contaminant Levels (MCLs) for the four compounds listed on the table on page 2. Effective September 30, 2019, community water systems and non-transient public water systems are required to sample their water sources and test for these compounds in accordance with the sampling schedule issued by NHDES. The first quarter of sampling for all water systems began October 1, 2019, through December 31, 2019. For the first year, each water system was going to be required to collect a water sample for each compliance monitoring point for all sources of water. However, litigation in December 2019 temporarily suspended the requirement for water systems to collect PFAS samples. **In September 2020, the litigation ended, and water systems continued PFAS sampling beginning in the fourth quarter of 2020 (October 1, 2020, through December 31, 2020).** NHDES has developed a PFAS sampling schedule specific to each water system based on the status of the PFAS compliance sampling it completed since October 1, 2019.

PFAS MCLs in New Hampshire		
Perfluorooctanesulfonic acid (PFOS) Chemical Abstract Service (CAS) #1763-23-1 SDWIS #280 MCL = 15 parts-per-trillion(ppt) or nanograms/liter	Perfluorooctanoic acid (PFOA) CAS #335-67-1 SDWIS #2806 MCL = 12 ppt	Perfluorononanoic acid (PFNA) CAS # 375-95-1 SDWIS #2804 MCL = 11 ppt
Perfluorohexanesulfonic acid (PFHxS) CAS # 355-46-4 SDWIS #2803 MCL = 18 ppt		
The acid form of the compounds above, as reflected by the CAS # must be reported		

The following additional PFAS have been regularly detected in groundwater samples in New Hampshire’s drinking water and are also recommended (not required) target analytes to include in the PFAS analysis that is reported to NHDES.

Perfluorobutanoic acid (PFBA) CAS # 375-22-4	Perfluoropentanoic acid (PFPeA) CAS # 2706-90-3	Perfluorohexanoic acid(PFHxA) CAS # 307-24-4
Perfluoroheptanoic acid (PFHpA) CAS # 375-85-9	Perfluorobutanesulfonic acid (PFBS) CAS # 375-73-5	

Laboratories often can measure and report additional PFAS analytes not listed above using the same analytical methods used to measure the compounds above. NHDES recommends that samples be submitted for a broad analysis of PFAS compounds to fully assess the potential for contamination impacting a water source. In some communities, customers of water systems have requested that water systems complete the broadest analysis that is possible to fully inform the public about the quality of the drinking water. More information about the differences in the list of analytes included in each EPA validated drinking water method is included on the last page of this document.

- 3) **Reporting Limits:** Analytical methods with reporting limits of 2 nanograms per liter (ng/L) or lower, as achievable by the analytical method used, must be utilized for the compliance monitoring associated with PFOS, PFOA, PFNA and PFHxS. ²
- 4) **Sample Collection Procedures:** PFAS is analyzed down to ng/L or part-per-trillion (ppt) levels as opposed to part-per-billion (ppb) or (µg/L), or part-per-million (ppm) or (mg/L) levels that are typically used for drinking water analyses. Additionally, there may be numerous sources of PFAS at any given location due to their wide-spread domestic, commercial and institutional uses. This means that there is a greater potential for introducing PFAS contamination into a drinking water sample during the sample collection process. However, sampling agents and certified drinking

water operators are qualified to sample public water systems for PFAS compounds if they incorporate the sampling practices described below.

The sample collection procedure is as follows:

- a) Obtain bottles from the accredited laboratory for EPA Method 537 Rev 1.1, 537.1 and EPA Method 533. Laboratory bottles should be stored in Ziploc bags and transported in coolers. It is recommended that two bottles be collected for each sample in case of sample damage during transport or if the lab needs to reanalyze the sample. (Note: Most labs provide two bottles per sample) The bottles should not come into contact with carpet or upholstery in vehicles or in the office.
- b) If collected for a public water system compliance sample, visit [NHDES' OneStop webpage](#) to print an analysis request form.
- c) The plumbing associated with each sampling tap should be examined to ensure Teflon or PTFE tubing is not in use. If feasible, avoid the use of Teflon/fluorine-based sealants in the plumbing system. However, it may be impossible to avoid plumbing that contains sealants with these compounds. These products have generally not been identified as causing elevated levels of PFAS in water samples collected from a sampling tap.
- d) Remove aerator (if present) on the cold water tap. Turn on the sampling tap or cold water tap and run water for 4 to 5 minutes or until water temperature has stabilized, whichever is longer. Then reduce flow so that stream of water is no greater than 1/8 inch in diameter.
- e) Wash hands and use a new pair of nitrile gloves with each sample. PFAS samples should be collected first.
- f) Remove container cap. Do not put cap face down or in pocket. Do not allow inside of cap, inside of bottle or bottle threads to be touched by any object. Do not rinse the bottle as preservatives may be present. Fill bottle to shoulder and secure the container cap.
- g) Write the PWS ID, sampling location, and date and time of sample collection on the sample container.
- h) Screw cap on and place samples in a closed cooler. Samples must be chilled during shipment and must not exceed 10°C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 10°C when the samples are received at the laboratory. Samples stored after 48 hours of collection must be held at or below 6°C. Samples should not be frozen.
- i) Make arrangements for delivery of the sample bottles to the laboratory in a timely manner to ensure the applicable sample holding times will not be exceeded. An analysis request form must be completed and maintained when the samples are collected until they are delivered to the laboratory.

Please note, NHDES does not require field blanks to be collected³ with each water sample. Some laboratories provide a sample bottle to collect a field blank for each water source that is sampled. Collecting a field blank sample and submitting it to the laboratory may double the analytical cost and is not a NHDES requirement.

The table on the next page identifies some categories of items that could introduce PFAS contamination into the sample during the collection process and appropriate alternatives that can be used to avoid inadvertent sampling contamination.

Categories of Items that Could Introduce PFAS Contamination Into the Sample

Category	Prohibited Items/Actions that could introduce PFAS Sample Contamination	Allowable Items
Pumps and Tubing	Teflon® and other fluoropolymer containing materials.	High-density polyethylene (HDPE), low density polyethylene (LDPE) or silicone tubing.
Sample Container	Containers should not come into contact with carpeting or upholstery inside buildings.	Containers should be stored in a Ziploc bag and transported in coolers.
Stacked Glassware	Foil should not be used as a layer between stacked sample bottles.	Plain paper.
Field Documentation	Waterproof/treated paper or field books, plastic clipboards, markers, Post-It® and other adhesive paper products.	Plain Paper, metal clipboard, ball-point pens, and Fine or Ultra-Fine Point Sharpie® markers.
Clothing	Clothing or boots made of or with Gore- Tex™ Carhartt, or other synthetic water resistant and/or stain resistant materials, Tyvek® material.	Synthetic or cotton material, previously laundered clothing (preferably previously washed greater than six times) without the use of fabric softeners.
Personal Care Products	<p>The handling or application of cosmetics, moisturizers, hand cream, sunscreens, and insect repellents in the sampling area.</p> <p>Note: The presence of PFAS in some of these types products has been documented. However, cross contamination of water samples due to the use of these products has not been documented. This sample collection procedure described in this document should prevent these materials from coming into contact with the water sample. However, limiting the use of these products the day of sampling is still recommended.</p>	<p>Sunscreens</p> <ul style="list-style-type: none"> • Banana Boat for Men Triple Defense Continuous Spray Sunscreen SPF 30 • Banana Boat Sport Performance Coolzone Broad Spectrum SPF 30 • Banana Boat Sport Performance Sunscreen Lotion Broad Spectrum SPF 30 • Banana Boat Sport Performance Sunscreen Stick SPF 50 • Coppertone Sunscreen Lotion Ultra Guard Broad Spectrum SPF 50 • Coppertone Sport High-Performance AccuSpray Sunscreen SPF 30 • Coppertone Sunscreen Stick Kids SPF 55 • L'Oréal Silky Sheer Face Lotion 50+ • Meijer Clear Zinc Sunscreen Lotion Broad Spectrum SPF 15, 30 and 50 • Meijer Wet Skin Kids Sunscreen Continuous Spray Broad Spectrum SPF 70 • Neutrogena Beach Defense Water + Sun Barrier Lotion SPF 70 • Neutrogena Beach Defense Water + Sun Barrier Spray Broad Spectrum SPF 30 • Neutrogena Pure & Free Baby Sunscreen Broad Spectrum SPF 60+ <p>Insect Repellents - OFF Deep Woods & Sawyer Permethrin</p>
Food/ Beverage	Pre-packaged food, fast food packaging.	
<p>Common products that may contain PFAS: 1) Paints; 2) Sealants, including products used on grout, countertops and floor treatments; 3) House cleaners and stain removers; 4) Floor wax removers; 5) Stain-resistant textiles (or chemicals used to treat textiles in homes and businesses) including, but not limited to, carpets, shoes and clothing; 6) Furniture with stain-resistant fabric; 7) Water proof textiles; 8) Food cooking ware and utensils; 9) Ski and boat waxes; 10) Dental floss, cosmetics, sunscreen and other personal care products; 11) Construction materials, including caulk sealants and plumbing sealants; 12) Pesticides; 13) Treated paper; 14) Chemical coatings for metal roofing; 15) Solar panels; 16) Purchased garden soils; 17) Automotive supplies, including waxes, cleaners, windshield wipers and additives to fluids used in automobiles; 18) Camping and other outdoor gear; 19) Spray- and grease-based lubricants; and 20) Inks.</p>		

Note: Other commercially available products may be PFAS-free. This document identifies products that have been tested by other government entities.

Laboratories that Provide PFAS Testing Services that Are Accredited by NHDES

ABSOLUTE RESOURCE ASSOCIATES
124 HERITAGE AVE, UNIT 16
PORTSMOUTH, NH
(603) 436-2001
ABSOLUTERESOURCEASSOCIATES.COM

CHEMSERVE
317 ELM STREET MILFORD, NH
(603) 673-5440
WWW.CHEMSERVLAB.COM

ENDYNE INC.
56 ETNA ROAD
LEBANON, NH
(603) 678-4891
WWW.ENDYNELABS.COM

GEL LABORATORIES LLC
2040 SAVAGE ROAD
CHARLESTON, SC
(843) 556-8171
WWW.GEL.COM

NELSON ANALYTICAL
490 E. INDUSTRIAL PARK DR.
MANCHESTER, NH
(603) 622-0200
NELSONANALYTICAL.COM

SEACOAST ANALYTICAL
LABORATORY 72 PINKHAM ROAD
LEE, NH
(603) 868-1457
SEACOASTANALYTICAL.COM

TEST AMERICA DENVER
4955 YARROW STREET
ARVADA, CO
(303) 736-0110
WWW.TESTAMERICAINC.COM

ALPHA ANALYTICAL (MANSFIELD)
320 FORBES BLVD
MANSFIELD, MA (508)
822-9300
WWW.ALPHALAB.COM

CON-TEST ANALYTICAL LABORATORY
39 SPRUCE STREET
EAST LONGMEADOW, MA
(413) 525-2332
WWW.CONTESTLABS.COM

EUROFINS EATON ANALYTICAL, LLC (IN)
110 SOUTH HILL ST
SOUTH BEND, IN
(574) 233-4777
WWW.EUROFINSUS.COM

GRANITE STATE ANALYTICAL
22 MANCHESTER ROAD
DERRY, NH
(603) 432-3044
GRANITESTATEANALYTICAL.COM

PACE ANALYTICAL SERVICES INC -
FLORIDA
8 EAST TOWER CIRCLE
ORMOND BEACH, FL
(386) 672-5668
WWW.PACELABS.COM

SGS NA INC - ORLANDO
4405 VINELAND ROAD, STE. C-15
ORLANDO, FL
(407) 425-6700
WWW.SGS.COM

TEST AMERICA SACRAMENTO
880 RIVERSIDE PARKWAY
WEST SACRAMENTO, CA
(916) 373-5600
WWW.TESTAMERICAINC.COM

AMERICAN WATER CENTRAL
LABORATORY
1115 SOUTH ILLINOIS STREET
BELLEVILLE, IL
(618) 235-3600
AMWATER.COM

EASTERN ANALYTICAL, INC.
25 CHENELL DRIVE
CONCORD, NH
(603) 228-0525 / (800) 287-0525
WWW.EASTERNANALYTICAL.COM

EUROFINS LANCASTER LABORATORIES
ENVIRONMENTAL LLC
2425 NEW HOLLAND PIKE
LANCASTER, PA
(717) 656-2300
WWW.LANCASTERLABSENV.COM

MAXXAM ANALYTICS
INTERNATIONAL CORPORATION
6740 CAMPOBELLO ROAD
ONTARIO CAN L5N 2L8,
(905) 817-5703
WWW.MAXXAM.CA

PACE ANALYTICAL SERVICES LLC -
MINNEAPOLIS MN
1700 ELM STREET SE SUITE 200
MINNEAPOLIS, MN
(612) 607-6412
WWW.PACELABS.COM

SGS NORTH AMERICA INC
5500 BUSINESS DRIVE
WILMINGTON, NC
(910) 350-1903
WWW.SGS.COM

VISTA ANALYTICAL LABORATORY
1104 WINDFIELD WAY
EL DORADO HILLS, CA
(916) 673-1520
WWW.VISTA-ANALYTICAL.COM

Comparing EPA Method 537, USEPA Method 537.1 and EPA Method 533

Analyte	Abbreviation	CASRN	Method 533	Method 537	Method 537.1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9	X		X
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1	X		X
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4	X		X
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6	X		X
Perfluorobutanesulfonic acid	PFBS	375-73-5	X	X	X
Perfluorodecanoic acid	PFDA	335-76-2	X	X	X
Perfluorododecanoic acid	PFDoA	307-55-1	X	X	X
Perfluoroheptanoic acid	PFHpA	375-85-9	X	X	X
Perfluorohexanoic acid	PFHxA	307-24-4	X	X	X
Perfluorohexanesulfonic acid	PFHxS	355-46-4	X	X	X
Perfluorononanoic acid	PFNA	375-95-1	X	X	X
Perfluorooctanoic acid	PFOA	335-67-1	X	X	X
Perfluorooctanesulfonic acid	PFOS	1763-23-1	X	X	X
Perfluoroundecanoic acid	PFUnA	2058-94-8	X	X	X
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2FTS	757124-72-4	X		
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2FTS	27619-97-2	X		
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2FTS	39108-34-4	X		
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6	X		
Perfluorobutanoic acid	PFBA	375-22-4	X		
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7	X		
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	X		
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5	X		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1	X		
Perfluoropentanoic acid	PFPeA	2706-90-3	X		
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	X		
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6		X	X
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9		X	X
Perfluorotetradecanoic acid	PFTA	376-06-7		X	X
Perfluorotridecanoic acid	PFTTrDA	72629-94-8		X	X